



**UNIVERSITAS INDONESIA**

**ANALISIS HUKUM TERHADAP LANGKAH INVENTIF *TOUCH  
GESTURE MODEL* DALAM PROGRAM KOMPUTER PADA PRODUK  
*SMARTPHONE* DAN *TABLET COMPUTER* TERHADAP STUDI KASUS:  
PUTUSAN PENGADILAN DEEN HAAG 396957/KG ZA 11-730 ANTARA  
APPLE MELAWAN SAMSUNG**

**SKRIPSI**

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**FAKULTAS HUKUM UNIVERSITAS INDONESIA  
DEPOK  
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**SKRIPSI**

**Diajukan sebagai salah satu syarat untuk memperoleh gelar Sarjana Hukum**

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JULI 2012**

## HALAMAN PERNYATAAN ORISINALITAS

**Skripsi ini adalah hasil karya saya sendiri,  
dan semua sumber baik yang dikutip maupun dirujuk  
telah saya nyatakan dengan benar.**

**Nama : Riko Fajar Romadhon**

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**Tanda Tangan : .....**

**Tanggal : 13 Juli 2012**

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**“Analisis Hukum Terhadap Langkah Inventif *Touch Gesture Model* Dalam Program Komputer Pada Produk *Smartphone* dan *Tablet Computer* Terhadap Studi Kasus: Putusan Pengadilan Deen Haag 396957/KG ZA 11-730 Antara Apple Melawan Samsung”**


Telah berhasil dipertahankan di hadapan Dewan Penguji dan diterima sebagai bagian persyaratan yang diperlukan untuk memperoleh gelar Sarjana Hukum pada Program Studi Ilmu Hukum, Fakultas Hukum, Universitas Indonesia

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Tanggal : 13 Juli 2012

## KATA PENGANTAR

Rasa bersyukur pada Tuhan Yang Maha Esa menggambarkan sebuah kebahagiaan mendalam bagi Penulis setelah menyelesaikan skripsi ini. Penulisan skripsi ini tidak hanya sebuah pembuktian sebagai mahasiswa Fakultas Hukum Universitas Indonesia, tetapi sebagai sebuah ungkapan rasa cinta Penulis terhadap bidang yang ditekuni. Tidak banyak hal yang dapat menggambarkan rasa syukur Penulis atas terselesaikannya skripsi ini selain ucapan terima kasih atas berkah yang begitu banyak sehingga setiap torehan kata yang tertulis dapat memaknai ide-ide Penulis.

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Depok, Juni 2012

Riko Fajar Romadhon



**HALAMAN PERNYATAAN PERSETUJUAN PUBLIKASI**  
**TUGAS AKHIR UNTUK KEPENTINGAN AKADEMIS**

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Sebagai sivitas akademik Universitas Indonesia, saya yang bertanda tangan di bawah ini:

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Pada tanggal : 13 Juli 2012

Yang menyatakan

  
(Riko Fajar Romadhon)



## ABSTRAK

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Program Studi: Ilmu Hukum  
Judul : **“Analisis Hukum Terhadap Langkah Inventif *Touch Gesture Model* Dalam Program Komputer Pada Produk *Smartphone* dan *Tablet Computer* Terhadap Studi Kasus: Putusan Pengadilan Deen Haag 396957/KG ZA 11-730 Antara Apple Melawan Samsung”**

Skripsi ini bertujuan untuk menjelaskan dan menganalisis tentang syarat patentabilitas suatu invensi berdasarkan sengketa antara Apple melawan Samsung dan implikasinya terhadap perkembangan paten di Indonesia. Penulis mempergunakan metode penelitian yuridis normatif dengan studi kepustakaan yang menggabungkan *doctrine of anticipation*, *doctrine of equivalents*, dan *doctrine of best mode* dalam melakukan analisis terhadap Putusan Pengadilan Deen Haag 396957/KG ZA11-730. Hasil penulisan skripsi ini dalam Putusan Pengadilan Deen Haag 396957/KG ZA11-730 menunjukkan hakim tidak secara teliti dalam memberikan perlindungan paten terhadap suatu invensi. Selain itu, dapat dilihat bagaimana implikasi terhadap Indonesia atas adanya sengketa ini adalah Indonesia berpotensi untuk mengalami sengketa serupa karena Indonesia merupakan pasar dari kedua produsen tersebut dan negara hukum.

Kata kunci:  
Patentabilitas, *Doctrine of Equivalents*, Perlindungan Paten, Pasar, Negara Hukum.

## ABSTRACT

Name : Riko Fajar Romadhon  
Study Program : Law  
Title : **“ Legal Analysis of The Touch Gesture Model Inventive Steps On Computer Program On The Smartphone And Tablet Computer : Case of Apple v. Samsung in The Hague Court (Verdict Number 396957/KG ZA 11-730)”**

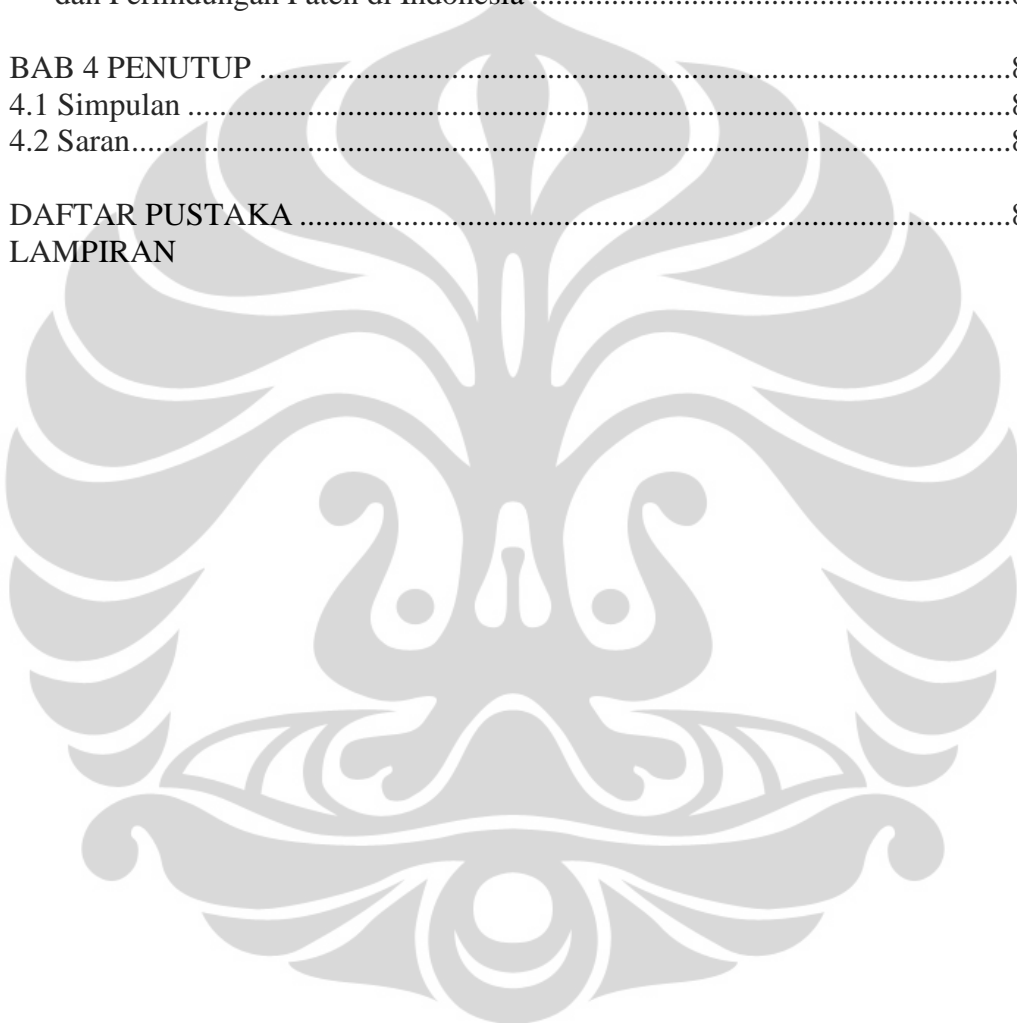
The purpose of this thesis is to explain and analyse the patentable subject matter evidence from Apple versus Samsung and its implications toward the development of software patent law in Indonesia. The writer uses the juridical-normative research method alongside bibliographic study which mixes doctrine of anticipation, doctrine of equivalents, and doctrine of best mode to analyse the case based on Verdict of The Hague Number 396957/KG ZA 11-730. From Verdict of The Hague Number 396957/KG ZA 11-730, it can be concluded that the Judge failed to analyse the claimed invention properly regarding giving patent protection to the claimed invention. Besides, this thesis will bring into focus the implications from the case about the probability of such case happen in Indonesia because of Indonesia is considered as their market shares.

Key words: Patentable Subject Matter, Doctrine of Equivalents, Patent Protection, Market Share, State of Law

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# BAB 1

## PENDAHULUAN

### 1.1 Latar Belakang

Globalisasi dan kemajuan teknologi mengubah bentuk dari perekonomian dunia. Perkembangan yang pesat ini secara tidak langsung menuntut pemain di bidang industri, khususnya industri *smartphone* dan *tablet computer*, untuk lebih inovatif, begitu pula dengan Apple dan Samsung, agar dapat bersaing dalam perdagangan internasional. Berinovasi bukanlah hal yang mudah sebaliknya dengan *plagiarism*, oleh karenanya inovasi penting untuk dilindungi. Tanpa adanya perlindungan terhadap inovasi maka akan terjadi sengketa sebagaimana yang terjadi antara Apple dengan Samsung. Apple secara terang terangan menyebut Samsung telah “*slavishly*” meniru produk Apple. Pernyataan keras dari Apple tersebut memiliki arti bahwa Samsung telah melanggar Hak Kekayaan Intelektual (HKI)<sup>1</sup> yang dimiliki Apple, termasuk didalamnya pelanggaran paten. Sebagaimana pernyataan Apple, Samsung dianggap telah melanggar HKI milik Apple termasuk didalamnya adalah Paten. Konsep mengenai paten itu sendiri telah ada sejak abad XIV dan XV.

Paten merupakan bagian dari HKI, yang dalam kerangka ini termasuk dalam kategori hak kekayaan perindustrian.<sup>2</sup> Paten merupakan suatu hak eksklusif sebab

<sup>1</sup> Hak Kekayaan Intelektual berasal dari kata *Intellectual Property Rights* (dalam kepustakaan anglo saxon) atau *Intellectuele Eigendomsrecht* (dalam bahasa Belanda). Penggunaan istilah “Hak Kekayaan Intelektual” (HKI) itu sendiri, khususnya di Indonesia, menimbulkan beragam perdebatan. Dahulu secara resmi sebutan *Intellectual Property Rights* diterjemahkan di Indonesia dengan hak milik intelektual sesuai dengan kepustakaan Belanda yaitu *Intellectuele Eigendomsrecht*. Penggunaan istilah hak milik intelektual ini terdapat dalam GBHN 1993 maupun GBHN 1998, namun Undang-Undang Nomor 25 Tahun 2004 menerjemahkan *Intellectual Property Rights* dengan Hak Kekayaan Intelektual. Terdapat pelbagai macam penggolongan HKI salah satunya adalah penggolongan menurut TRIPs. TRIPs menggolongkan HKI menjadi delapan bagian yang masing-masing terdiri dari *Copyrights* dan *Related Rights*; *Trademarks*; *Geographical Indications*; *Industrial Designs*; *Patent*; *Layout-design of Integrated Circuits*; *Protection of Undisclosed Information*; *Control of Anti-Competitive Practices in Contractual Licenses*. Lihat Budi Agus Riswandi, *Hak Kekayaan Intelektual dan Budaya Hukum*, (Jakarta: PT RajaGrafindo Persada, 2005), hlm. 35-36.

<sup>2</sup> OK Saidin menggolongkan paten kedalam Hak Kekayaan Perindustrian berdasarkan ketentuan WIPO. Lebih lanjut lihat OK Saidin, *Aspek Hukum Hak Kekayaan Intelektual*, (Jakarta: Rajawali Pers, 2010) hlm. 13-14.

hanya inventor yang menghasilkan invensi saja yang dapat diberikan hak. Perlu diketahui disini bahwa inventor dapat melaksanakan sendiri invensinya atau memberi persetujuan kepada pihak lain untuk melaksanakan invensinya, misalnya melalui lisensi.<sup>3</sup> Perlindungan terhadap paten sangatlah penting mengingat tanpa adanya perlindungan hukum terhadap paten, siapapun bebas mengkopi atau bahkan menikmati hak-hak yang seharusnya hanya dimiliki oleh inventor.<sup>4</sup>

Apple dan Samsung merupakan produsen ternama yang memproduksi *Smartphone* dan *Tablet computer*. Baik *Smartphone* maupun *Tablet computer* buatan kedua produsen ini menggunakan teknologi *multi touch*.<sup>5</sup> Apple sendiri terkenal dengan produk andalannya yaitu iPhone (iPhone 4 dan iPhone 4s) dan iPad (iPad 1 dan iPad 2). Apple pertama kali mengenalkan generasi pertama iPhonena pada tahun 2007<sup>6</sup> sedangkan untuk iPad pertama kali dikenalkan pada tahun 2010.<sup>7</sup> Tidak hanya Apple, Samsung juga mengeluarkan produk yang tidak

<sup>3</sup> Menurut Undang-Undang Nomor 14 Tahun 2001, lisensi adalah izin yang diberikan oleh pemegang paten kepada pihak lain berdasarkan perjanjian pemberian hak untuk menikmati manfaat ekonomi dari suatu paten yang diberi perlindungan dalam jangka waktu dan syarat tertentu.

<sup>4</sup> Peter D. Rosenberg, *Patent Law Fundamentals*, (New York: Clark Boardman Company, Ltd.), hlm. 8.

<sup>5</sup> *Multi Touch* merupakan sistem sentuh yang mampu mendeteksi dan menyelesaikan lebih dari 3 poin sentuh secara bersamaan. Semua sentuhan tersebut terdeteksi sepenuhnya dan menghasilkan peningkatan kinerja sentuhan (*Single Touch* atau *Two Touch*). *Multi Touch* ini dianggap oleh banyak kalangan dapat menjadi *User Interface* yang bakal meningkatkan kecepatan, efisiensi dan intuitif teknologi. Lihat "What Is Multitouch," c.n, [http://solutions.3m.com/wps/portal/3M/en\\_US/TouchTopics/Home/Terminology/WhatIsMultitouch/](http://solutions.3m.com/wps/portal/3M/en_US/TouchTopics/Home/Terminology/WhatIsMultitouch/) diakses pada tanggal 22 Februari 2012, pukul 17.57.

<sup>6</sup> Apple mengeluarkan iPhone generasi pertama dengan berkaca pada produk mereka, iPod Touch, namun ditambahkan dengan beberapa fitur baru seperti digital kamera dan fungsi telepon serta *User Interface* yang lebih handal. Lihat "Apple Unveils iPhone," c.n, <http://www.macworld.com/article/54769/2007/01/iphone.html> diakses pada tanggal 22 Februari 2012, pukul 18.00.

<sup>7</sup> iPad generasi pertama yang dikeluarkan oleh Apple terjual habis sebanyak 3 juta produk dalam waktu 80 hari. iPad merupakan *tablet computer* yang memiliki kemampuan agar *user* dapat berinteraksi dengan aplikasi didalamnya serta menjelajah dunia internet dengan lebih intim, intuitif dan tentunya *fun*. Lihat "Apple Sells Three Millions iPads in 80 Days," c.n, <http://www.apple.com/pr/library/2010/06/22Apple-Sells-Three-Million-iPads-in-80-Days.html> diakses pada 25 Februari 2012, pukul 14.18.

kalah canggih yaitu Samsung Galaxy S (Samsung Galaxy S I dan Samsung Galaxy S II)<sup>8</sup> dan Samsung Galaxy Tabnya<sup>9</sup> pada tahun 2010.

Apple dan Samsung merupakan rival dalam hal penjualan *Smartphone* maupun *Tablet computer*<sup>10</sup> namun sebenarnya keduanya memiliki hubungan kerjasama yang saling membutuhkan.<sup>11</sup> Faktanya, Samsung merupakan penyedia semiconductor utama untuk Apple dan *Operating System* (OS) dari produk Apple ini diproduksi menggunakan *semiconductor* yang disediakan oleh Samsung.<sup>12</sup> Selain rivalitas dalam hal penjualan *Smartphone* maupun *Tablet computer*, mereka merupakan rival dalam pemegang lisensi paten. Terjadi sengketa dalam bidang hak kekayaan intelektual antara Apple dengan Samsung dan ini terjadi di 9 negara diseluruh dunia seperti Amerika Serikat (Distrik California), Belanda, Jepang, Jerman, Korea Selatan, Inggris, Australia, Perancis dan Itali.<sup>13</sup> Sengketa

<sup>8</sup> Samsung Galaxy S I merupakan Android *smartphone* kelas atas yang dikeluarkan oleh Samsung. Samsung Galaxy S I ini juga memiliki fitur *multi touch* layaknya iPhone maupun handset sejenis lainnya. Lihat "Samsung Galaxy S to Arrive in Singapore First" c.n., <http://www.techknots.com/mobiles/samsung-galaxy-s-to-arrive-in-singapore-first/> diakses pada 25 Februari 2012, pukul 14.20.

<sup>9</sup> Galaxy Tab merupakan *Tablet computer* pertama keluaran Samsung. Galaxy tab memiliki ukuran lebih kecil serta lebih ringan daripada iPad. Galaxy Tab ini merupakan rival utama dari iPad. Lihat "Galaxy Tab Unveiled as Samsung's First *Tablet computer*," c.n., <http://www.bbc.co.uk/news/technology-11163687> diakses pada 25 Februari 2012, pukul 14.30.

<sup>10</sup> "The Latest Challenger to Apple Is Samsung?," c.n., <http://www.dailyfinance.com/2011/01/12/samsung-apple-rival-ipad-galaxy-tab/> diakses pada 5 Maret 2012.

<sup>11</sup> Apple tidak membuat *handset* mereka sendiri. Komponen yang terdapat dalam produk handset Apple berasal dari pelbagai *supplier* dan Samsung adalah salah satunya. Samsung disini menyediakan 26% komponen paling penting (*flash memory*, DRAM, dan prosesor) dari *handset* buatan Apple. Apabila sengketa paten menyebabkan rusaknya hubungan antara Apple dengan Samsung maka Apple akan kesulitan dalam melakukan produksi handsetnya sedangkan Samsung akan menderita kerugian financial yang besar. Lihat "Apple and Samsung's symbiotic relationship: Slicing an Apple," c.n., <http://www.economist.com/node/21525685> diakses pada 6 Maret 2012.

<sup>12</sup> Apple merupakan konsumen *semiconductor* terbesar di dunia. Konsumsi *semiconductor* yang dipesan oleh Apple pada tahun 2011 diperkirakan mencapai nilai \$20 juta *semiconductor*. Lihat "Apple-Samsung friendship turns sour," c.n., <http://www.eetimes.com/electronics-news/4215653/Apple-Samsung-friendship-turns-sour> diakses pada 6 Maret 2012.

<sup>13</sup> "The Apple v Samsung Patent War," c.n., <http://www.tangible-ip.com/2011/the-apple-v-samsung-paten-war.htm> diakses pada 5 Maret 2012.



dalam bidang HKI ini meliputi *patent, design patent, trademark, trade dress*, serta *packaging*.<sup>14</sup> Sengketa antara Apple dengan Samsung ini bahkan menarik perhatian dari *European Union's Competition Commission*.<sup>15</sup> Sengketa antara keduanya diawali saat Samsung meluncurkan produk Galaxy-nya (Galaxy S maupun Galaxy Tab). Apple menyebutkan bahwa Samsung (Galaxy S dan Galaxy Tab) secara jelas mengkopinya design produk Apple (iPhone dan iPad).<sup>16</sup> Kemudian pada april 2011 Apple menyerang Samsung karena mengkopinya desain iPhone dan iPad.<sup>17</sup> Lebih lanjut lagi pada bulan yang sama Samsung menyerang balik dan menyatakan bahwa Apple telah melanggar 10 paten Samsung (seperti 3G dan teknologi *wireless*). Hingga maret 2012 sengketa antara kedua produsen ini masih berlangsung.

Pengadilan Negeri Deen Haag (*Rechtbank's Gravehage*) Belanda sebagai salah satu negara tempat sengketa HKI antara Apple dengan Samsung tidak hanya menangani mengenai permasalahan *trade dress* ataupun *copyright* melainkan juga menangani mengenai permasalahan paten. Permasalahan paten yang digugat oleh Apple yaitu terkait dengan pelanggaran *European Functional Patents* seperti *mobile photo management, interpreting touch events, dan swipe to unlock* paten. Apple dalam gugatannya meminta Pengadilan Negeri Deen Haag agar Samsung tidak boleh menjual, memperdagangkan, mendistribusikan, mengimpor, serta memanufaktur beberapa produk mereka yang berbasis Android baik di Belanda

<sup>14</sup>“Apple sues Samsung: a complete lawsuit analysis,” c.n, <http://www.theverge.com/2011/04/19/apple-sues-samsung-analysis/> diakses pada 6 Maret 2012.

<sup>15</sup>“Apple and Samsung Battle Draws Concern From EU Competition,” c.n, <http://www.engadget.com/2011/11/22/apple-and-samsungs-patent-battle-draws-concern-from-eu-competit/> diakses pada 5 Maret 2012.

<sup>16</sup>“Phonedog Live Recap 4.22.11 – Apple vs Samsung Lawsuit, iOS 5 Multi-Tasking,” c.n, <http://www.phonedog.com/videos/phonedog-live-recap-4-22-11-apple-vs-samsung-lawsuit-ios-5-multi-tasking-t-mobile-g2x/> diakses pada 5 Maret 2012.

<sup>17</sup> Samsung mengeluarkan handset (Galaxy S dan Galaxy Tab) dengan bentuk kotak, tipis dan hanya memiliki satu tombol. Akibat hal tersebut pihak Apple menyatakan bahwa *Samsung had “slavishly” copied the distinctive designs of the iPhone and iPad, thereby violating Apple intellectual property rights*. Lihat “Apple to Samsung dont Make Thin or Rectangular Tablets or Smartphones,” c.n, [http://www.pcworld.com/article/245493/apple\\_to\\_samsung\\_dont\\_make\\_thin\\_or\\_rectangular\\_tablets\\_or\\_smartphones.html](http://www.pcworld.com/article/245493/apple_to_samsung_dont_make_thin_or_rectangular_tablets_or_smartphones.html) diakses pada 6 Maret 2012.

maupun Uni Eropa. Apple kemudian secara spesifik menyebutkan bahwa produk-produk yang dilarang yaitu Galaxy Ace, Galaxy S, Galaxy S II, Galaxy Tab 7, dan Galaxy Tab 10.1. Samsung juga dipaksa Apple untuk menarik seluruh produk yang berhasil mereka jual dalam waktu 14 hari apabila terbukti terdapat pelanggaran *European Functional Patents*.<sup>18</sup>

Berkaca dari sengketa paten antara Apple dengan Samsung, khususnya di Pengadilan Negeri Belanda, dapat ditarik suatu kesimpulan bahwa suatu invensi hanya dapat diberikan paten jika merupakan *patentable subject matter*.<sup>19</sup> Ketiga fitur sebagaimana yang terdapat dalam *European Functional Patents* tersebut merupakan suatu Program Komputer. Program Komputer merupakan sebuah kode instruksi yang ditulis dalam suatu bahasa yang mana bahasa tersebut dapat dibaca oleh komputer.<sup>20</sup> Jepang, Eropa, dan Amerika telah mengelompokkan program komputer ke dalam *patentable subject matter* oleh karenanya program komputer ini dilindungi oleh rezim paten di negara-negara tersebut. Program komputer tetap haruslah tidak sama dengan *prior art*<sup>21</sup> dan sesuai dengan *patentable subject matter* maupun syarat patentabilitas suatu invensi. Kemudian apakah *mobile photo management, interpreting touch events, dan swipe to unlock* sebagaimana gugatan Apple terhadap Samsung sesuai dengan *patentable subject matter* dan mengandung langkah inventif sehingga berhak untuk dipatenkan adalah suatu pertanyaan yang perlu kajian lebih lanjut.

Sengketa paten antara Apple dengan Samsung sangat menarik untuk dikaji meskipun kasus tersebut tidak terjadi di Indonesia melainkan di negara Belanda.

<sup>18</sup>“Apple Hoping Dutch Court Will Give Samsung Major EU-Wide Smackdown,” c.n, <http://arstechnica.com/apple/news/2011/08/apple-hoping-dutch-court-will-give-samsung-major-eu-wide-smackdown.ars> diakses pada 7 Maret 2012.

<sup>19</sup> *Patentable Subject Matter* sederhananya merupakan pokok-pokok yang dapat diberikan paten dan ini haruslah sesuai dengan persyaratan di tiap-tiap negara yang mana *patentable subject matter* dalam tiap negara tentunya berbeda-beda.

<sup>20</sup> Karen Lynne Durrel, “*Intellectual Property Protection for Computer Software: How Much and What Form is Effective*”, *International Journal of Law and Technology*, Vol. 8, No. 3

<sup>21</sup> *Prior art* secara sederhana diartikan sebagai suatu invensi serupa yang sudah pernah ada sebelumnya. Seorang inventor tidak dapat mematenkan invensinya apabila invensinya tersebut sudah ada sebelumnya.

Indonesia sebagai salah satu negara dengan penduduk terbanyak yaitu berkisar 259 juta penduduk<sup>22</sup> memiliki nilai ekonomis yang tinggi bagi kedua produsen tersebut. Faktanya saat ini sudah banyak warga Indonesia yang menggunakan *smartphone* maupun *tablet computer* buatan Apple dan Samsung. Apabila salah satu dari, baik Apple maupun Samsung, melakukan gugatan terkait dengan paten di Indonesia maka hal tersebut akan berdampak penjualan kedua produsen tersebut dan berimplikasi langsung terhadap pendapatan keduanya.

Indonesia sebagai negara yang memberikan perlindungan terhadap paten haruslah siap untuk menghadapi tuntutan kedua produsen tersebut oleh karena itu kajian ini dapat dijadikan referensi kedepannya. Lebih lanjut, kajian ini tentunya memiliki signifikansi terhadap perkembangan paten di Indonesia. Pemahaman yang mendalam terhadap sengketa paten antara Apple dengan Samsung di Belanda dapat secara komprehensif meningkatkan perlindungan paten di Indonesia mengingat minimnya instrument pendukung Undang-Undang Nomor 14 Tahun 2001 tentang Paten dan Peraturan Perundang-undangan lain yang mampu meningkatkan perlindungan paten. Pemahaman yang mendalam mengenai syarat patentabilitas invensi dapat mengembangkan ilmu paten yang ada di Indonesia sehingga kedepannya lebih menjamin perlindungan invensi-invensi inventor. Maka dari itu, penulis akan mengkaji dan menelaah lebih mendalam mengenai syarat patentabilitas suatu invensi dengan studi kasus terhadap putusan 396957/KG ZA 11-730 mengenai sengketa paten antara Apple dengan Samsung dalam penelitian skripsi ini, yang berjudul **“Analisis Hukum Terhadap Langkah Inventif *Touch Gesture Model* Dalam Program Komputer Pada Produk *Smartphone* dan *Tablet computer* Studi Kasus: Putusan Pengadilan Den Haag 396957/KG ZA 11-730 Antara Apple v. Samsung.”**

<sup>22</sup> Pendataan penduduk oleh Kementerian Dalam Negeri Indonesia terhitung 31 Desember 2010 mencapai 259.940.857 penduduk yang terdiri dari 132.240.055 laki-laki dan 127.700.802 perempuan sebagaimana disampaikan oleh Menteri Dalam Negeri Gamawan Fauzi. Lihat “Jumlah Penduduk Indonesia,” c.n., <http://nasional.kompas.com/read/2011/09/19/10594911/Jumlah.Penduduk.Indonesia.259.Juta> diakses pada 9 April 2012.

## **1.2 Pokok Permasalahan**

Berdasarkan penjabaran dalam latar belakang yang telah dipaparkan tersebut, terdapat beberapa rumusan permasalahan yang menjadi pembahasan dalam skripsi ini adalah, sebagai berikut:

1. Bagaimana syarat patentabilitas suatu invensi agar invensi tersebut mendapatkan paten ditinjau dari putusan Pengadilan Negeri Deen Haag nomor 396957/KG ZA 11-730 dan konsep konsep paten yang ada?
2. Bagaimana implikasi adanya sengketa paten antara Apple melawan Samsung di Belanda terhadap perkembangan dan perlindungan paten di Indonesia?

## **1.3 Tujuan Penulisan**

Tujuan penulisan skripsi ini terbagi menjadi dua yakni tujuan umum dan tujuan khusus. Tujuan umum penulisan skripsi ini adalah mengetahui secara komprehensif konsep-konsep Hak Kekayaan Intelektual khususnya paten. Adapun secara lebih khusus dijabarkan sebagai berikut:

1. Mengetahui syarat patentabilitas suatu invensi berdasarkan doktrin-doktrin yang ada dalam kasus Apple melawan Samsung di Belanda berdasarkan putusan Pengadilan Deen Haag.
2. Mengetahui Implikasi dari sengketa paten antara Apple melawan Samsung terhadap perkembangan dan perlindungan paten di Indonesia.

## **1.4 Kerangka Konseptual**

Beberapa istilah yang digunakan dalam penulisan skripsi ini diartikan sebagai berikut:

### **1.4.1 Hak Kekayaan Intelektual**

Hak Kekayaan Intelektual adalah hak kebendaan, hak atas sesuatu benda yang bersumber dari hasil kerja otak, hasil kerja rasio manusia yang menalar.<sup>23</sup>

### **1.4.2 Paten**

<sup>23</sup> OK Saidin, *Aspek Hukum Hak Kekayaan Intelektual*, hlm. 9.

Paten adalah hak eksklusif yang diberikan oleh Negara kepada Inventor atas hasil Invensinya di bidang teknologi, yang untuk selama waktu tertentu melaksanakan sendiri Invensinya tersebut atau memberikan persetujuanya kepada pihak lain untuk melaksanakannya.<sup>24</sup>

#### 1.4.3 Inventor

Inventor adalah seorang yang secara sendiri atau beberapa orang yang secara bersama-sama melaksanakan ide yang dituangkan ke dalam kegiatan yang menghasilkan invensi.<sup>25</sup>

#### 1.4.4 Invensi

Invensi adalah ide Inventor yang dituangkan ke dalam suatu kegiatan pemecahan masalah yang spesifik di bidang teknologi dapat berupa produk atau proses, atau penyempurnaan dan pengembangan produk atau proses.<sup>26</sup>

#### 1.4.5 Subyek Paten

Subjek Paten adalah inventor atau yang menerima lebih lanjut hak inventor yang bersangkutan.<sup>27</sup>

#### 1.4.6 Obyek Paten

Objek Paten adalah Invensi yang dapat diberi Paten.<sup>28</sup>

#### 1.4.7 Pemegang Paten

Pemegang Paten adalah Inventor sebagai pemilik Paten atau pihak yang menerima hak tersebut dari pemilik Paten atau pihak lain yang menerima lebih lanjut hak tersebut, yang terdaftar dalam Daftar Umum Paten.<sup>29</sup>

<sup>24</sup> Indonesia (a), Undang-Undang Nomor 14 Tahun 2001 tentang Paten, LN Tahun 2001 Nomor 109, TLN Nomor 4130, Pasal 1 butir 1.

<sup>25</sup> *Ibid.*, Pasal 1 butir 3.

<sup>26</sup> *Ibid.*, Pasal 1 butir 2.

<sup>27</sup> *Ibid.*, Pasal 10 ayat (1).

<sup>28</sup> *Ibid.*, Pasal 2.

<sup>29</sup> *Ibid.*, Pasal 1 butir 6.

## 1.5 Metode Penulisan

Metode penelitian yang dilakukan dalam penulisan skripsi ini adalah penelitian kepustakaan yang bersifat yuridis normatif.<sup>30</sup> Jenis data yang digunakan dalam penulisan skripsi ini yaitu data sekunder yang terdiri dari bahan hukum primer, bahan hukum sekunder, dan bahan hukum tersier.

1. Bahan Hukum primer berupa peraturan perundang-undangan yang berhubungan dengan Hak Kekayaan Intelektual, Paten dan peraturan lainnya yang terkait.
2. Bahan Hukum sekunder berupa literatur yang berkaitan dengan paten. Literature yang digunakan antara lain, buku, jurnal ilmiah baik nasional dan internasional serta makalah, hasil penelitian, skripsi dan thesis.
3. Bahan Hukum tersier berupa bahan-bahan yang bersifat menunjang sumber hukum primer dan sumber hukum sekunder, seperti kamus hukum, ensiklopedia, dan *website* resmi dari internet.

Dalam melakukan pembahasan mengenai konsep-konsep dan permasalahan di bidang paten, penulis menggunakan sumber-sumber data yang berasal dari buku-buku ilmu hukum yang memuat teori-teori dan pandangan, pendapat para ahli/dalam dokumentasi resmi dari pemerintah yang memuat peraturan perundang-undangan, jurnal hukum, dan lain-lain yang berhubungan dengan masalah HKI maupun paten.

## 1.6 Sistematika Penulisan

### BAB 1 Pendahuluan

Bab ini berisikan mengenai latar belakang masalah yang menjadi dasar penulis mengambil topik ini sebagai subjek penelitian, pokok permasalahan, tujuan penelitian, definisi operasional, metode penelitian dan sistematika penulisan.

<sup>30</sup> Yuridis normatif disini memiliki arti bahwa penelitian yang dilakukan mengacu pada peraturan perundang-undangan dan keputusan pengadilan serta norma-norma atau juga kebiasaan yang berlaku di masyarakat. Lihat Sri Mamudji, et.al., *Metode Penelitian dan Penulisan Hukum*, (Depok: Badan Penerbit Fakultas Hukum Universitas Indonesia, 2005) hlm. 30.

## BAB 2 Landasan Teori

Bab ini akan dimulai dengan pembahasan mengenai pengertian program komputer yang kemudian dilanjutkan pembahasan mengenai aspek aspek yang ada dalam program komputer. Pembahasan selanjutnya adalah mengenai lingkup *patentable subject matter* yang telah meluas meliputi program komputer dan berimplikasi terhadap timbulnya rezim baru yaitu *software patent*. Lebih lanjut lagi akan dijelaskan mengenai implementasi *software patent* di beberapa negara seperti Amerika, Jepang dan Eropa serta perbedaan dari masing masing negara. Konsep *patentable subject matter* dijelaskan secara mendalam dalam bab ini serta mengenai syarat patentabilitas suatu invensi seperti *novelty*, *non-obviousness* dan *utility*.

## BAB 3 Analisis dan Kajian

Bab ini menjelaskan mengenai analisis terhadap penerapan konsep paten dalam sengketa paten antara Apple melawan Samsung. Analisis disini menitikberatkan pada pertimbangan-pertimbangan hakim dalam menolak ataupun menerima gugatan paten dari pihak Apple dilihat dari syarat patentabilitas suatu invensi. Bab juga menjelaskan mengenai dampak ekonomis maupun yuridis yang akan timbul akibat adanya sengketa paten antara Apple dengan Samsung di dunia khususnya studi kasus di Pengadilan Belanda.

## BAB 4 Penutup

Bab ini nantinya merupakan bagian kesimpulan dari peneliti atas perumusan masalah yang telah dianalisis. Kesimpulan tersebut didasarkan pada temuan-temuan data yang secara kualitatif dikaitkan dengan teori, doktrin dan data tambahan yang ditemukan oleh peneliti. Kemudian, dipaparkan lebih lanjut mengenai saran atas kesimpulan-kesimpulan tersebut sehingga dapat digunakan sebagai materi pengayaan terhadap perkembangan paten di Indonesia.

## BAB 2

### PERKEMBANGAN TEKNOLOGI SISTEM INFORMASI DAN PERLINDUNGAN HUKUM DI DALAMNYA

#### 2.1 Tinjauan Umum Mengenai Komputer

Sebelum melakukan analisis hukum dalam program komputer maka perlu dilakukan peninjauan terlebih dahulu terkait komputer itu sendiri. Pemahaman yang mendalam mengenai program komputer perlu dilandasi dengan pengetahuan yang memadai mengenai komputer. Komputer dewasa ini sudah menjadi barang umum yang banyak digunakan oleh masyarakat, namun kebanyakan dari mereka tidak memahami betul bagaimana memaksimalkan penggunaan komputer tersebut. Gordon B Davis menyebutkan komputer dalam bukunya yaitu sebagai berikut:<sup>31</sup>

*“The computer is derived from the latin computare, meaning ‘to reckon’ or ‘to compute’ and can be applied as properly to an abacus or an adding machine as to the modern computer.”*

Selain itu Donald H. Sanders juga menjelaskan:<sup>32</sup>

*“The computer is a fast and accurate electronic symbol (or data) manipulating system that’s designed and organized to automatically accept and store input data, process them, and produce output result under the direction of detailed step-by-step stored program of instructions.”*

Kemudian Edmon Makarim menjelaskan:<sup>33</sup>

“Komputer berasal dari bahasa latin *computare* yang berarti menghitung (*to compute*). Sesuai asal katanya tersebut komputer memiliki arti subyek

<sup>31</sup> Gordon B Davis, *Introduction to Computers 3<sup>rd</sup> Edition*, (McGraw-Hill Book Company:1977), hlm. 4.

<sup>32</sup> Donald H Sanders, *Computers Today 2<sup>nd</sup> Edition*, (McGraw-Hill Book Company:1985), hlm. 8.

<sup>33</sup> Edmon Makarim, *Pengantar Hukum Telematika: Suatu Kompilasi Kajian*, (Badan Penerbit FHUI:2005), hlm. 57.



yang melakukan komputasi (*someone who computes*) ataupun perangkat pengolah komputasi itu sendiri (*a computing machine*).”

Berdasarkan penjelasan mengenai komputer di atas, dapat disimpulkan bahwa secara umum komputer dapat disebut sebagai mesin hitung. Tetapi pengertian komputer saat ini bukanlah semata-mata sebagai alat hitung saja, melainkan adalah suatu alat hitung dengan konstruksi elektronika yang mempunyai *storage* internal (tempat penyimpanan) dan bekerja dengan bantuan *Operating System* menurut program yang diberikan kepadanya. Jadi jika diperhatikan, terlihat bahwa ada empat poin penting yang harus ada pada suatu komputer, yaitu:<sup>34</sup>

1. Alat dengan konstruksi elektronika
2. *Storage* internal
3. Sistem operasi
4. Program.

Fakta menunjukkan bahwa dahulu banyak orang menganggap komputer digunakan sebatas pada pengkalkulasian matematika semata (kalkulator), namun sesuai dengan perkembangan zaman terjadi pembedaan antara istilah komputer dengan kalkulator. Komputer ditujukan untuk tujuan yang lebih luas (*multipurposes*) dibandingkan dengan kalkulator yang ditujukan semata untuk pengkalkulasian matematika (*singlepurpose*). Komputasi yang awalnya dilakukan dengan manual kini berkembang menjadi dilakukan secara elektronik. Keberadaan komputer sebagai alat elektronik memiliki pengertian bahwa komputer merupakan suatu perangkat ataupun sistem elektronik yang mengolah atau memproses data atau informasi sebagaimana yang diperintahkan. Hal ini berarti bahwa terdapat dua hal yang menjadi esensi dari keberadaan komputer tersebut, yaitu:<sup>35</sup>

1. Komputer dibuat untuk menjalankan fungsi-fungsi tertentu (*Input, Proses, Output, Storage* dan *Communication*) dan

<sup>34</sup> Suryadi, *Pengenalan Komputer*, (Penerbit Gunadarma: 1996), hlm. 3.

<sup>35</sup> Edmon Makarim, *Pengantar Hukum Telematika: Suatu Kompilasi Kajian*, (Badan Penerbit FHUI:2005), hlm. 62.

2. Komputer terdiri dari komponen-komponen yang membentuknya sebagai suatu sistem yang terdiri atas *hardware*<sup>36</sup>, *software*, *procedures*, *brainware* serta data dan/atau informasi itu sendiri yang tersaji dalam suatu *interface*.

## 2.2 Perkembangan Teknologi Komputer

Tingkat kepemilikan komputer di masyarakat saat ini sudah luar biasa tinggi. Pemilik komputer juga sangat beragam dan mencakup seluruh lapisan masyarakat. Namun pada kenyataannya komputer yang ada saat ini telah banyak berubah dari komputer pada zaman dahulu. Perkembangan komputer tersebut meliputi aspek-aspek dari setiap komponen ataupun fungsinya, yaitu *Input*, *Process*, *Output*, *Storage* dan *Communication*.<sup>37</sup>

### 2.2.1 Perkembangan Teknologi Input

*Input device* adalah suatu bagian/komponen dari sistem komputer yang berfungsi sebagai tempat memasukkan data maupun instruksi-instruksi ke dalam komputer.<sup>38</sup> Data yang dimasukkan tentunya masih dalam kode-kode, sedangkan komputer baru bisa mengenal data tersebut apabila telah dikonversi menjadi kode-kode binar. Sekarang ini, konsep mengenai Input mencakup semua fakta yang direpresentasikan sebagai *text*, data (numerik dan simbol), *image* (gambar), suara, bahkan sentuhan dan gerakan. Hal sebagaimana disebutkan tersebut merupakan input bagi suatu perangkat sensor elektronik. Perangkat keras (*hardware*) yang digunakan juga mengalami perkembangan yaitu yang semula menggunakan media kertas dan magnetik kini beralih ke media optik, *telemetry* dan elektronika

<sup>36</sup> Suatu sistem komputer terdiri dari *Hardware* dan *Software*. *Hardware* sendiri pada dasarnya merupakan “*actual equipment*”. *Hardware* berdasarkan fungsinya terdiri dari perangkat masukan (*input devices*), perangkat keluaran (*output devices*), perangkat pemrosesan (*Central Processing Unit/CPU*), perangkat penyimpanan (*storage devices*) serta perangkat komunikasinya (*communication devices*). Contoh *hardware*: keyboard, printer, dan lain sebagainya.

<sup>37</sup> Edmon Makarim, *Pengantar Hukum Telematika: Suatu Kompilasi Kajian*, (Badan Penerbit FHUI:2005), hlm. 68.

<sup>38</sup> Input Device yang dimaksud antara lain: (i) *Magnetik Ink character Recognition*; (ii) *Optical Character Recognition*; (iii) *Digitizer*; (iv) *Remote instruments*; (v) Dan lainnya.

lainnya. Secara sederhana, teknologi input berkembang dari manual (*human data entry devices*) menjadi otomatis (*source data automation*).<sup>39</sup>

### 2.2.2 Perkembangan Teknologi Pemrosesan

Suatu sistem informasi membutuhkan *processor* sebagai pengolah satu atau beberapa buah komputer yang dirangkaikan dalam suatu sistem jaringan kerja komputer (*computer networking*). Menurut Donald H. Sanders, berdasarkan data yang diproses, komputer dapat diklasifikasikan menjadi dua:<sup>40</sup>

1. Data yang diperoleh dari hasil pengkalkulasian (*a result of counting*). Hasil data yang diperoleh dari pengkalkulasian disebut *discrete* data.
2. Data yang diperoleh dari alat ukur (*measuring instrument*). Hasil data yang diperoleh disini disebut *continous* data.

Awalnya komputer dibedakan berdasarkan jenis gelombang yang digunakan, yakni Analog komputer dan Digital komputer, namun seiring dengan perkembangan teknologi maka berkembanglah *Hybrid* komputer yang merupakan penggabungan dari kedua sistem tersebut.<sup>41</sup> Disisi lain teknik pemrosesan juga semakin berkembang yang semula bersifat terpusat (*central processing*), berkelompok (*batch processing*), pembagian waktu (*time sharing processing*), tepat waktu (*real time processing*) menjadi pemrosesan yang terdistribusi (*distributed processing*) serta terpadu (*embedded processing*) yang mencakup pemrosesan paralel, *online realtime processing*, dan *online input delaying processing* serta *vector processing*.

Pada intinya, perkembangan teknologi komputer berbanding lurus dengan perkembangan teknologi perangkat prosesornya atau kemajuan dari perangkat

<sup>39</sup> *Source data automation* merupakan bentuk lanjut dari teknis input dengan cara yang langsung mengakses pada sumbernya secara otomatis sehingga data yang didapatkan sesuai dengan aslinya.

<sup>40</sup> Donald H Sanders, *Computers Today 2<sup>nd</sup> Edition*, (McGraw-Hill Book Company:1985), hlm. 99.

<sup>41</sup> *Digital computer is a counting device that operates on discrete data. In contrast, analog computer do not compute with numbers. They deal with variables that are measured along a continous scale and are recorded to some predetermined degree of accuracy.* Lebih lanjut lihat Donald H Sanders, *Computers Today 2<sup>nd</sup> Edition*, (McGraw-Hill Book Company:1985), hlm. 99.

*Central Processing Unit* (CPU).<sup>42</sup> Seiring dengan perkembangan prosesor yang semakin cepat dan semakin besar kapasitasnya, perkembangan teknik pemrogramannya juga semakin diupayakan semudah dan seinteraktif mungkin. Keberadaan program komputer ini sebenarnya merupakan komponen yang paling esensial ketimbang perangkat kerasnya (*hardware*). Perlu diketahui bahwa menurut perlekatannya program yang dilekatkan pada perangkat keras prosesor disebut sebagai *Firmware*, sedangkan program yang tersimpan terpisah dari prosesor disebut sebagai *software*. Secara garis besar program-program komputer dapat dibedakan menjadi dua jenis program, yakni program sistem dan program aplikasi.<sup>43</sup>

### 2.2.3 Perkembangan Teknologi *Output*

*Output device* merupakan salah satu komponen dari sistem komputer yang berfungsi sebagai tempat pengeluaran hasil-hasil pengolahan yang telah dilakukan oleh komputer.<sup>44</sup> Lain halnya dengan *input device*, *output device* disini mengonversi kode binar menjadi bahasa yang kita kenal.

*Output* diperlukan untuk menampilkan data atau informasi yang telah diolah. Perkembangan teknologi *output* sekarang ini, seiring dengan kebutuhan, mengarah kepada kualitas cetakan yang menarik dan visualisasinya disertai dengan kecepatan yang tinggi, tingkat kebisingan yang rendah dan dengan pengeluaran biaya ataupun harga perangkat yang murah sehingga berkembanglah produk-produk yang berkecepatan jet dan bersistem laser.

<sup>42</sup> *Central Processing Unit* (CPU) terdiri dari *main Processor* (*Arithmetic Logic Unit* dan *Control Unit*), dan *Main Memory* (*Read Access Memory*/RAM dan *Read Only Memory*/ROM), yang bekerja sama dengan *Channel Processor* dan *Data Bus* dalam memanipulasi input sesuai dengan instruksi/program yang diberikan kepada perangkat tersebut.

<sup>43</sup> Program Sistem (*system program*) adalah program yang ditujukan untuk mengendalikan dan mengalokasikan elemen-elemen perangkat keras agar dapat menerima dan mengerjakan instruksi program lain. Program Sistem terdiri dari *Communication Control Program*, *Operating System*, *Utility* dan *Data Base Management System* (DBMS). Sementara itu, program aplikasi adalah program yang dikembangkan untuk melakukan fungsi-fungsi aplikasi tertentu, dimana dalam praktiknya ada yang dibuat untuk umum (*mass distribution packages*) ataupun yang dibuat secara khusus (*bespoke software*).

<sup>44</sup> Adapun contoh dari output device adalah: (i)*Printer*; (ii)*Plotter*; (iii) Dan lain sebagainya.

#### 2.2.4 Perkembangan Teknologi Penyimpanan

Teknologi penyimpanan berkembang seiring dengan perkembangan kebutuhan dalam menentukan media penyimpanan data dan informasi yang lebih efektif dan efisien.<sup>45</sup> Terdapat dua tolak ukur dalam menentukan media penyimpanan data, yaitu:

1. Kebutuhan untuk penyimpanan data dan informasi serta program yang bersifat temporal yaitu terutama untuk menampung perintah/program yang besar dan harus bisa diakses dengan cepat (*primary storage/internal storage*).
2. Kebutuhan untuk penyimpanan data dan informasi ataupun sejumlah program yang akan digunakan dalam waktu yang lama (*secondary storage*), sehingga dalam hal ini diperlukan media yang mampu menyimpan data dan informasi dengan kapasitas yang lebih besar, kemampuan akses yang cepat, dan bersifat *nonvolatile* serta terlepas dari internal memori.

### 2.3 Prinsip-Prinsip Dasar Program Komputer

*Software* memiliki pengertian yang berbeda dengan program komputer, dimana satu *software* dapat terdiri dari beberapa program komputer, sedangkan program komputer itu sendiri berisi seperangkat perintah kepada perangkat keras untuk melakukan suatu pekerjaan tertentu. Secara garis besar ada lima generasi dalam evolusi bahasa pemrograman komputer, yang esensinya berubah dari bahasa tingkat rendah menjadi bahasa tingkat tinggi.<sup>46</sup> Berikut tabel perkembangan bahasa pemrograman:

<sup>45</sup> Penyimpanan semula digunakan dengan magnetic tape dan magnetic disk, namun kini berkembang kepada media penyimpanan lain, yaitu media-media optical seperti CD-ROM, WORM dan *Eraseable Optical Disk*.

<sup>46</sup> Perkembangan bahasa pemrograman yang berkembang sekarang ini mampu mengintegrasikan semua jenis data serta menghasilkan tampilan lebih grafis dan *user friendly*. *Visual Programming Language* (Visual Basics dan Visual C++), *Hypertext Markup Language* (HML), *Virtual Reality Modelling Language*, dan *Object Oriented Programming Language* (OOPL) merupakan beberapa contoh dari bahasa pemrograman yang berkembang saat ini.

<i>1st Machine Language</i>	<i>2nd Assembly Language</i>	<i>3rd Procedural Language</i>	<i>4th Non-Procedural Language</i>	<i>5th Intelligent Language</i>
<i>0-1 Long difficult programming</i>	<i>Assemble repetitive instruction, shorter code</i>	<i>Include commands, shorter code</i>	<i>Application generators, commands specify results</i>	<i>Natural language processing</i>

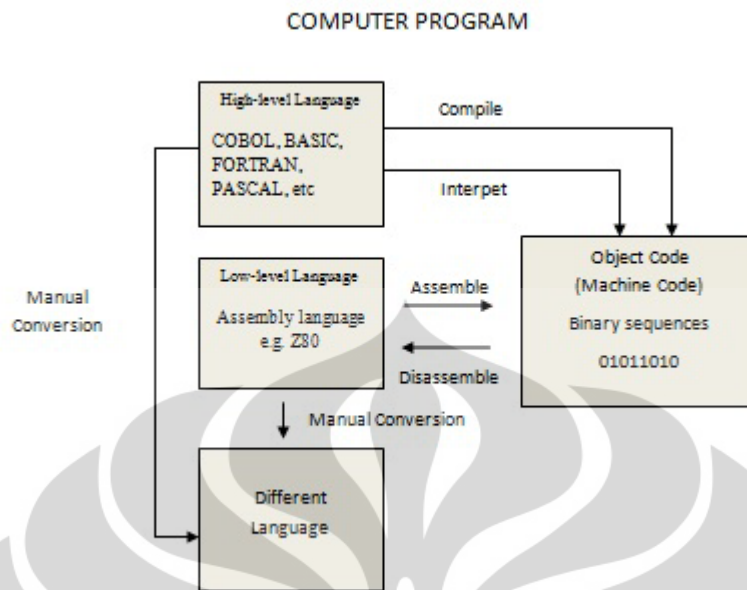
### 2.3.1 Definisi dan Fungsi Program Komputer

Program komputer didefinisikan sebagai program yang diciptakan secara khusus sehingga memungkinkan komputer melakukan fungsi tertentu.<sup>47</sup> Program komputer tidaklah sama dengan program yang ditemukan di dalam radio ataupun televisi.<sup>48</sup> Komputer tidak dapat berpikir, komputer hanya dapat mengerjakan sesuatu yang diinstruksikan kepadanya.

Perangkat keras komputer mempunyai beberapa kegunaan yang sudah dibentuk dan dipasang di dalamnya untuk menanggapi instruksi-instruksi tersebut. Namun, apabila kita hendak menulis *software* yang langsung berhubungan dengan *hardware* sangatlah sulit mengingat seorang *programmer* harus dapat mengerti dan mengetahui betul karakteristik dari *hardware* tersebut. Untuk menjembatani hal tersebut dibuatlah suatu perangkat lunak yang disebut dengan *Operating System* yang fungsinya sebagai penengah antara *hardware* dan *software* sehingga *programmer* tidak perlu mengerti secara mendalam karakteristik *hardware* tersebut melainkan cukup dengan mengikuti sintaksis bahasa yang dikenal oleh utilitas *Operating System* tersebut. Berikut tabel konversi program:

<sup>47</sup> Pasal 1 huruf g Undang-Undang Nomor 12 Tahun 1997. Penjelasan dalam pasal ini menyebutkan bahwa pengertian komputer dalam rangka program komputer atau komputer program tersebut adalah peralatan elektronik yang memiliki kemampuan mengolah data atau informasi.

<sup>48</sup> Program yang dimaksudkan disini adalah instruksi-instruksi yang berupa kode kode numerik (0 dan 1), yang berada di dalam memori komputer untuk memberitahukan komputer pekerjaan apa yang harus diselesaikan.



### 2.3.2 Klasifikasi Program Komputer

Secara teknis program komputer dibedakan atas program komputer sistem operasi dan program aplikasi. Lebih jelasnya dapat dilihat dalam tabel berikut:<sup>49</sup>

<i>Applications Programs</i>	
<i>Communication</i>	<i>Database Management</i>
<i>Control Programme</i>	<i>System</i>
<i>Utilities</i>	
<i>Operating System</i>	
<i>Hardware</i>	

#### (i) Program Sistem Operasi

Sistem Operasi atau dikenal dengan istilah OS (*Operating System*) terdiri dari program yang biasanya disediakan oleh pihak ketiga dan dapat memaksimalkan fungsi komputer secara keseluruhan.<sup>50</sup> OS juga didefinisikan

<sup>49</sup> David M. Kroenke, Management Information Systems 2nd Edition, (McGraw-Hill), hlm. 111

sebagai *a collection of programs that manages and delivers system resources*.<sup>51</sup> Senada dengan hal tersebut, Donald H Sanders dalam bukunya mendefinisikan OS sebagai:<sup>52</sup>

*“An integrated set of specialized programs that are used to manage the resources and overall operations of a computer.”*

Berdasarkan definisi tersebut dapat disimpulkan bahwa sistem operasi merupakan program yang ditulis untuk mengendalikan dan mengoordinasikan kegiatan sistem komputer. Sebuah perangkat komputer beroperasi di bawah kendali OS yang mana merupakan bagian penting dari suatu sistem.<sup>53</sup> Sistem operasi berfungsi selayaknya manajer dalam suatu perusahaan yang bertanggung jawab mengendalikan dan mengoordinasikan semua operasi kegiatan perusahaan secara efisien dan efektif.<sup>54</sup> Sistem operasi menjaga dan mengatur agar pengguna komputer dapat menggunakan komputer dengan efektif dan efisien. Hal ini disebabkan karena CPU beroperasi jauh lebih cepat daripada alat input dan output yang relatif lambat, terutama dalam hal sistem internal *networking*, atau pun beberapa komputer yang menggunakan pelbagai perangkat yang sama. Sistem operasi itu sendiri terdiri dari program kontrol (*system control program*) dan OS *service*.<sup>55</sup> Sistem operasi merupakan penghubung antara pengguna komputer (*user*) dengan perangkat kerasnya (*hardware*). Pengguna komputer berkomunikasi dengan sistem operasi kemudian mereka memperoleh hasil luaran (*output results*). Berkat adanya Sistem operasi, pengguna komputer tidak lagi

<sup>50</sup> Robert A Stern, *An Introduction to Computers and Information Processing*, (Ellen P. O'Neil:1980), hlm 281.

<sup>51</sup> *Ibid.*

<sup>52</sup> *Ibid*, hlm. 334.

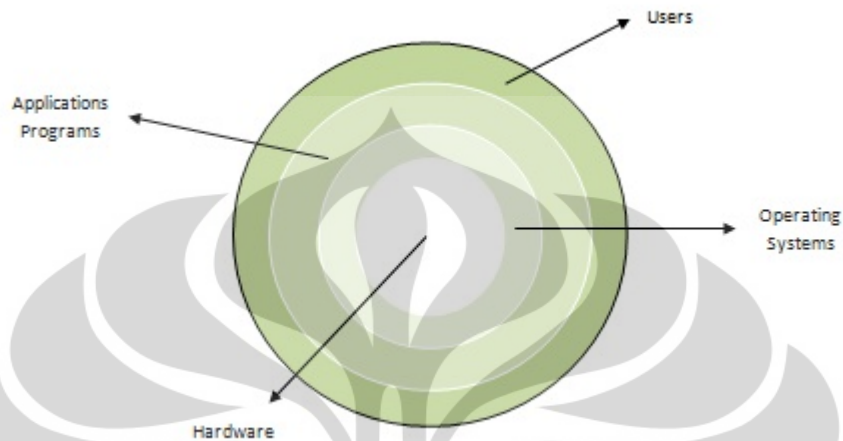
<sup>53</sup> *Ibid*, hlm. 414.

<sup>54</sup> Edmon Makarim, *Pengantar Hukum Telematika: Suatu Kompilasi Kajian*, (Badan Penerbit FHUI:2005), hlm. 83.

<sup>55</sup> Sistem kontrol program memiliki fungsi sebagai alat kontrol hardware, software dan data dari suatu sistem komputer sedangkan OS melakukan supervisi terhadap keseluruhan operasi dari suatu komputer. Lebih lanjut baca Efraim Turban, *Introduction to Information Technology*, (John Wiley&Sons), hlm. 100.



perlu untuk memahami mengenai spesifikasi dari suatu *hardware*.<sup>56</sup> Berikut diagram yang mengindikasikan bahwa OS merupakan jembatan antara *User* dengan *Hardware*:<sup>57</sup>



(ii) Program Aplikasi

Program aplikasi terdiri dari instruksi-instruksi yang langsung tertuju pada komputer untuk melakukan fungsi-fungsi tertentu.<sup>58</sup>

Kemudian jika dilihat dari sisi pembuatannya, perangkat lunak dapat dikategorikan dalam dua bagian, yakni:

(i) *Pre-written* Program

*Pre-Written* Program merupakan program paket yang telah ditulis sebelumnya yang terdiri dari paket aplikasi umum dan paket sistem *software*. *Pre-written* Program kemudian dibagi lagi menjadi perangkat *Application Packages* dan *System Software Packages*.<sup>59</sup>

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<sup>56</sup> Donald H. Sanders, *Computers Today*, (McGraw-Hill Book Company: 1985), hlm. 335.

<sup>57</sup> Kenneth C. Laudon dan Jane P. Laudon, *Management Information System: Organization and Technology in the Networked Enterprise 6th edition*, (Prentice Hall International Inc), hlm. 195

<sup>58</sup>Efraim Turban, *Introduction to Information Technology*, (John Wiley&Sons), hlm. 104.

<sup>59</sup> Edmon Makarim, *Pengantar Hukum Telematika: Suatu Kompilasi Kajian*, (Badan Penerbit FHUI:2005), hlm. 83

*Application Packages* jika dilihat dari fungsinya merupakan *Single Function Application*. *Single Function Application* merupakan paket yang hanya mempunyai satu fungsi aplikasi. Fungsi aplikasi kemudian dikategorikan lagi menjadi dua yaitu *special-purposes* dan *general-purposes*. *Special-purposes* yaitu aplikasi yang memiliki satu tujuan khusus seperti *games*, aplikasi pendidikan, dan lain sebagainya. Sebagai contoh adalah aplikasi *Human Resource Management software* (HRM) yang biasanya digunakan untuk memecahkan masalah dalam organisasi serta untuk menangani informasi-informasi pegawai secara efisien dalam hal pembagian tugas sesuai dengan kemampuan masing-masing. *General-purposes* yaitu aplikasi yang dibuat berdasarkan kebutuhan umum. Contoh dari aplikasi ini antara lain seperti *spreadsheet*, *database management*, dan lain sebagainya.

*System Software Packages* terdiri dari sistem operasi yang juga menyediakan program utilitas dan program translasi. *System Software Packages* ini ditujukan untuk mendukung aplikasi-aplikasi dari *pre-written packages* dan *custom-made packages*. Berikut beberapa contoh *Operating System*:<sup>60</sup>

<i>Operating System</i>	<i>Features</i>
MS-DOS	<i>Operating Systems (OS) for the IBM PC. This OS, with its text-based interface, has now been almost totally replaced by GUI products such as Windows 95, Windows 98, and Windows 2000.</i>
Windows 95 and Windows 98	<i>The first of a series of products in the Windows OS that provides a streamlined GUI. This OS is a 32-bit that features multitasking, multithreading, networking, and internet scheduling programs.</i>

<sup>60</sup> Efraim Turban, *Introduction to Information technology*, (John Wiley and Sons), hlm. 102.

	<i>Windows 98 is a major upgrade for its previous series Windows 98.</i>
Linux	<i>Is a powerful version of the UNIX OS that is completely free of charge. Linux released the source code to public (Open Source).</i>
Macintosh OS	<i>Operating system for Apple Macintosh microcomputers is a 32-bit operating system that features multitasking and powerful graphics capabilities.</i>
Java OS	<i>Java OS executes programs written in the Java language without the need for a traditional operating system. It designed for internet and intranet applications and embedded devices.</i>

Umumnya *system software packages* berfungsi sebagai pendukung dari sistem komputer yang antara lain terdiri dari Sistem Operasi, *Control Program*, dan Program Utilitas.

Sistem operasi merupakan perangkat lunak yang sudah ditulis oleh pabrik. Sistem operasi itu sendiri berfungsi sebagai penengah antara perangkat keras dengan perangkat lunak yang sudah ditulis oleh pemakai komputer.<sup>61</sup> Selanjutnya

<sup>61</sup> Perlu diingat Sistem operasi ditulis untuk mengendalikan dan mengoordinasikan kegiatan sistem komputer serta dirancang untuk menyederhanakan proses operasi dari suatu program aplikasi yang dibuat pemakai program komputer. Sistem operasi ini akan menjadikan penghubung antara pemakai dengan mesin sehingga dapat mengurangi waktu dan mempermudah pembuatan program aplikasi.

Control program pada umumnya sebagian disimpan di *main memory* atau ROM (*Read Only Memory*).<sup>62</sup> Sementara itu, sebagian dari *control program* yang lain disimpan di *disk* yang disebut dengan *resident program* atau *resident routine*. *Control program* yang tersimpan di *disk* disebut dengan *Disk Operating System* (DOS), sedangkan bila letaknya di *tape* disebut sebagai *Tape Operating System* (TOS). Sementara itu, *main memory* itu sendiri merupakan salah satu komponen dari alat pemroses komputer di samping *Central Processing Unit* (CPU) yang merupakan tempat pemrosesan instruksi-instruksi program. Karena CPU hanya mampu menyimpan data dan instruksi di register yang ukurannya kecil, CPU tidak dapat menyimpan semua informasi yang dibutuhkan untuk keseluruhan proses dari program. Untuk mengatasi hal tersebut, di dalam alat pemrosesan dilengkapi dengan simpanan yang lebih besar kapasitasnya yang disebut *main memory*. *Control program* secara umum mempunyai fungsi sebagai pengatur dan pengoordinasi di dalam manajemen memory (*management memory*), manajemen alat pengolah data (*processor management*), manajemen alat-alat I/O (*device management*) dan manajemen informasi di *disk* (*information management*).

Pembahasan selanjutnya mengenai Program Utilitas. Program utilitas merupakan sejumlah fasilitas yang disediakan dalam program operasi untuk menyederhanakan proses operasi dari suatu program aplikasi. Beberapa program utilitas antara lain *language software*, *linkage editor*, *text editor*, *debugger*, dan *command*. *Language software* berfungsi sebagai penerjemah antara program yang ditulis dengan bahasa awam sehari-hari menjadi bahasa mesin (*machine language*) yang dapat dimengerti oleh komputer. Bahasa mesin yang dimengerti oleh komputer itu berbentuk bilangan binari.<sup>63</sup> Pada mulanya komputer harus dipancing oleh bahasa mesin, tetapi dalam perkembangannya dimungkinkan untuk memberi instruksi-instruksi kepada komputer dalam program yang lebih

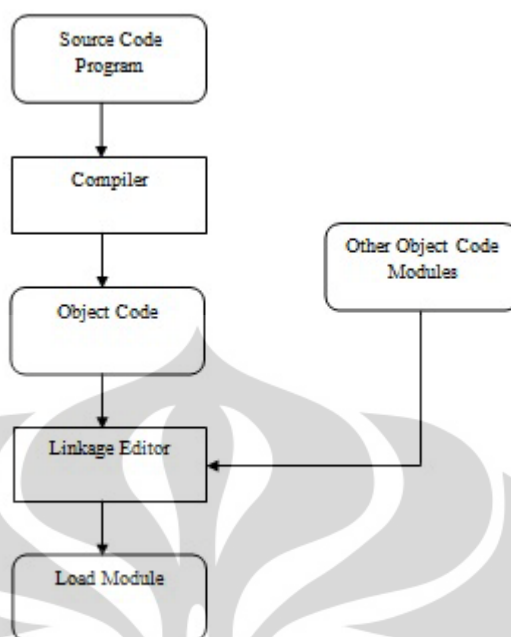
<sup>62</sup> ROM merupakan salah satu bagian dari main memori yang memuat instruksi-instruksi yang hanya dapat dibaca saja, tetapi tidak dapat diisi

<sup>63</sup> Bilangan binari hanya menggunakan dua macam nilai, yaitu 0 dan 1, untuk mewakili suatu besaran nilai. Sistem bilangan binari dilandasi oleh konsep di mana logika dalam komputer diwakili oleh bentuk elemen dua keadaan (*two-state elements*), yaitu keadaan *off* (tidak ada arus) dan keadaan *on* (ada arus).

dekat dengan bahasa kita sehari-hari. Program seperti ini dinamakan *High Level language*.<sup>64</sup> Maka, apabila komputer diberikan instruksi dalam salah satu bahasa program, perintah-perintah itu akan diterjemahkan ke dalam bilangan binari oleh *language software*.<sup>65</sup> *Linkage editor* merupakan program yang digunakan untuk mengonversikan object program yang sudah diterjemahkan ke dalam bahasa mesin, yaitu bentuk program yang telah siap untuk dijalankan (*executable program*). *Text editor* merupakan suatu teks atau program aplikasi yang akan direkamkan ke dalam suatu file di media penyimpanan. *Debugger* merupakan program untuk melacak dan membetulkan kesalahan program yang sudah berbentuk bahasa mesin. *Command* merupakan program yang digunakan untuk menangani media input dan/atau penyimpanan data. *Command* dapat berbentuk *internal command*, yaitu beberapa command yang disimpan bersama-sama menjadi satu dalam file di disk dan *external command* yang ada di luar file. Contohnya adalah perintah *copy* dan *diskcopy* dalam DOS. Berikut diagram kompilasi program komputer:

<sup>64</sup> Steven C Lawlor dalam bukunya menyebutkan bahwa “*High-level language make the computer even easier to communicate with. They simplify programming by making instruction more Englishlike and by making one instruction in the high-level language substitute for several machine-language instruction.*” Lebih lanjut baca Steven C Lawlor, *Computer Information Systems 2<sup>nd</sup> Edition*, (Harcourt Brace Jovanovich:1992), hlm. 342.

<sup>65</sup> Apabila *language software* ini tidak ada, penulis program harus menulis programnya dengan bahasa mesin yang berbentuk bilangan binari (0 dan 1). Kemudian, apabila penulis program tidak mengetahui arti tertentu dari masing-masing bagian dari bilangan binari tersebut secara persis, maka sulitlah bagi penulis program untuk mengerti dengan benar maksud dari instruksi tersebut dan akan dapat menyebabkan kesalahan dalam sistem komputer.



(ii) *Custom-made* Program

Program ini umumnya dibuat atas pesanan *customer*. *Custom-made program* merupakan program aplikasi yang bersifat sangat khusus dan terkait erat dengan karakteristik pemrosesan dari organisasi dan manajemen itu sendiri. Sebagai contoh adalah program *billing system* yang digunakan penyelenggara telekomunikasi untuk penagihan penggunaan jaringannya oleh penggunannya. Satu hal yang perlu dicatat adalah antara apa yang dipesan dengan apa yang diserahkan harus sesuai dengan apa yang diharapkan oleh customer. Dalam konteks ini, *fitness for particular purpose* menjadi kata kuncinya.

2.3.3 Prosedur Pembuatan Program Komputer

Seperti telah dibahas sebelumnya, instruksi-instruksi yang diberikan kepada sistem komputer harus diterjemahkan terlebih dahulu ke dalam bahasa mesin oleh perangkat lunak komputer yang dikenal dengan *language software* agar bahasa pemrograman yang ditulis oleh pembuat dapat dimengerti oleh komputer.

(i) Kategori *Software Language*

Pembuatan program komputer, apabila diagram *flow chart* telah dibuat dan sudah ditransfer ke dalam komputer, barulah kita dapat membuat instruksi-instruksi dengan menggunakan bahasa pemrograman tertentu yang kemudian akan diterjemahkan ke dalam bahasa mesin oleh *software language*. Secara garis besar

*software language* dapat dikategorikan sebagai *Assembler*, *Compiler*, dan *Interpreter*.

*Assembler* merupakan program yang digunakan untuk menerjemahkan program aplikasi yang ditulis dengan bahasa perakitan (*assembly language*) atau bahasa pemrograman simbolik (*symbolic programming language*) menjadi bahasa mesin.<sup>66</sup> Dengan bahasa simbolik, masing-masing *op-code* dalam bahasa mesin tidak ditulis dalam bilangan binari, tetapi dengan suatu kode simpanan singkatan tertentu yang disebut dengan mnemonic.<sup>67</sup> Instruksi program yang ditulis dengan mnemonic inilah yang akan diterjemahkan ke dalam bentuk bilangan binari (bahasa mesin) dengan menggunakan assembler. Program yang ditulis dengan bahasa simbolik ini disebut dengan *source code* (program sumber) dan hasil terjemahan ke dalam bahasa mesin disebut dengan *object program* (program objek).<sup>68</sup>

*Compiler* pada dasarnya merupakan sejenis dengan *advanced assembly programs*.<sup>69</sup> *Compiler* ini telah dikembangkan menjadi sesuatu yang lebih dekat dengan pemakai komputer bila dibandingkan dengan menggunakan bahasa simbolik. *Source program* ini ditulis dengan menggunakan bahasa tingkat tinggi (*high-level language*) kemudian akan diterjemahkan menjadi program bahasa mesin (*object code*) dengan *compiler*. Bahasa tingkat tinggi yang sifatnya compiler misalnya FORTRAN, bahasa C, dan COBOL PASCAL.

*Interpreter* merupakan program untuk menerjemahkan program yang ditulis dengan bahasa tingkat tinggi ke dalam bahasa mesin. Bahasa tingkat tinggi yang sifatnya *interpreter* adalah BASIC.<sup>70</sup>

<sup>66</sup> *Assembly language* berfungsi untuk meringankan beban programmer. *Assembly language* pertama kali dikembangkan pada awal tahun 1950.

<sup>67</sup> Donald H Sanders, *Computers Today*, (McGraw-Hill Book Company:1985), hlm. 518.

<sup>68</sup> *Ibid*, hlm. 519.

<sup>69</sup> Donald H. Sanders menjelaskan Compiler sebagai “*Naturally, a source program written in a high-level language must be also translated into a machine-usable code. A translating program that can perform this operation is called a compiler.*”

## (ii)Prosedur Pembuatan Program Komputer

Pembuatan program komputer memiliki langkah-langkah yang harus ditempuh dimana langkah-langkah tersebut merupakan langkah-langkah yang berdiri sendiri.<sup>71</sup> Langkah-langkah ini bertujuan untuk memastikan bahwa suatu program komputer dapat berjalan dengan semestinya.

## 2.4 Perlindungan Hukum Bagi Program Komputer

Sebagaimana telah dijelaskan sebelumnya bahwa esensi dari suatu program komputer sebenarnya adalah keberadaan “perintah” ataupun “instruksi” yang berfokus kepada proses agar suatu perangkat keras berfungsi sebagaimana yang ditentukan. Jadi sepatutnya yang menjadi kata kunci dari hal ini, adalah kejelasan dari instruksi itu sendiri sehingga jika suatu program tidak lengkap dan/atau tidak jelas instruksinya, ia bukan merupakan suatu program. Menurut WIPO menjelaskan mengenai program komputer bahwa:

*“For the purpose of the law: computer program means a set of instruction capable, when incorporated in a machine-readable medium, of causing a machine having information-processing capabilities to indicate, perform or achieve a particular function, task or result.”*

Kemudian menurut Pasal 1 angka 8 Undang-Undang Nomor 19 Tahun 2002 tentang Hak Cipta, program komputer didefinisikan sebagai:

“Sekumpulan instruksi yang diwujudkan dalam bentuk bahasa, kode, skema ataupun bentuk lain yang apabila digabungkan dengan media yang dapat dibaca dengan komputer akan mampu membuat komputer bekerja untuk melakukan fungsi-fungsi khusus atau untuk mencapai hasil yang khusus, termasuk persiapan dalam merancang instruksi-instruksi tersebut.”

<sup>70</sup> BASIC sejatinya merupakan bahasa pemrograman yang paling cocok untuk programmer pemula karena bahasanya relatif lebih simple daripada *high-level language yang lain*.

<sup>71</sup> Pembuatan software memiliki langkah langkah yang harus ditempuh antara lain: mendefinisikan program; memilih algoritma dan data struktur; memilih bahasa program; memilih spesifikasi program logika dan struktur; coding; debugging dan pengetesan; mendefinisikan ulang langkah-langkah yang sudah ditempuh; dokumentasi; dan pemeliharaan. Lihat Edmon Makarim, *Pengantar Hukum Telematika: Suatu Kompilasi Kajian*, (Badan Penerbit FHUI:2005), hlm. 91-98



Program komputer perlu untuk dilindungi oleh hukum khususnya rezim Hak kekayaan Intelektual. Perlindungan ini dimaksudkan untuk melindungi inovasi dalam program komputer tersebut. Terdapat dua elemen penting dalam sebuah program komputer, yaitu:<sup>72</sup>

1. *The Underlying Process* dan Sistem dari Operasi Algoritma
2. Serangkaian instruksi yang menjelaskan proses secara detail.

Elemen yang pertama dapat dipersamakan dengan proses atau sistem sehingga akan dapat dilindungi oleh paten. Sementara itu, elemen yang kedua merupakan ekspresi dari serangkaian instruksi yang dituangkan dari bentuk tertulis jelas dapat dilindungi oleh hak cipta.<sup>73</sup>

#### 2.4.1 Sekilas Hak Kekayaan Intelektual

Hak Kekayaan Intelektual berasal dari kata *Intellectual Property Rights* (dalam kepastasaan anglo saxon) dan *Intellectuele Eigendomsrecht* (dalam bahasa Belanda). Sebagaimana telah disebutkan sebelumnya bahwa penggunaan istilah “Hak Kekayaan Intelektual” (HKI) itu sendiri, khususnya di Indonesia, menimbulkan beragam perdebatan. Terkait dengan perdebatan ini, Rachmadi Usman berpendapat bahwa:<sup>74</sup>

“Istilah milik lebih tepat digunakan karena hak milik memiliki ruang lingkup yang lebih khusus dibandingkan dengan istilah kekayaan. Menurut sistem hukum perdata kita, hukum harta kekayaan itu meliputi hukum kebendaan dan hukum perikatan. *Intellectual Property Rights* itu sendiri merupakan kebendaan immateril yang juga menjadi objek hak milik sebagaimana diatur dalam hukum kebendaan. Dalam konsep harta kekayaan setiap barang selalu ada pemiliknya yang disebut pemilik barang dan setiap pemilik barang mempunyai hak atas barang miliknya yang

<sup>72</sup> Edmon Makarim, *Pengantar Hukum Telematika: Suatu Kompilasi Kajian*, (Badan Penerbit FHUI:2005), hlm. 291.

<sup>73</sup> Program komputer penting dilindungi baik oleh Hak Cipta maupun paten karena pada dasarnya hak cipta sebatas melindungi *the expression of ideas* sedangkan paten itu sendiri lebih memberikan perlindungan pada ide itu sendiri. Lebih jelas baca Graham J H Smith, *Internet Law and Regulation 3<sup>rd</sup> edition*, (Sweet&Maxwell), hlm. 57.

<sup>74</sup> Rachmadi Usman, *Hukum Hak atas Kekayaan Intelektual: Perlindungan dan Dimensi Hukumnya di Indonesia*, (Jakarta:PT Alumni, 2003), hlm. 1.

lazim disebut hak milik. *Intellectual Property Rights* lebih tepat dikualifikasikan sebagai hak milik karena hak milik itu sendiri merupakan hak yang paling utama jika dibandingkan dengan hak-hak kebendaan yang lainnya.”

Disisi lain Mrs. Noor Mout-Bouwman mengatakan bahwa:<sup>75</sup>

“Kata “hak milik atau *property*” yang digunakan dalam istilah kebendaan sangat menyesatkan. Padahal hak kekayaan intelektual itu sama sekali tidak menampilkan benda nyata.”

Jika ditelusuri lebih lanjut, hak atas kekayaan intelektual sebenarnya merupakan bagian dari benda, yaitu benda tidak berwujud (benda immateriil). Alasannya adalah tidak semua hak kekayaan intelektual merupakan “hak milik” dalam arti yang sesungguhnya. Bisa merupakan hak untuk memperbanyak saja, atau untuk menggunakan dalam produk tertentu dan bahkan dapat pula berupa hak sewa, atau hak-hak lain yang timbul dari perikatan seperti lisensi, hak siaran, dan lain sebagainya. Perdebatan mengenai istilah ini telah berlangsung selama bertahun-tahun. Beberapa pihak setuju menggunakan istilah hak milik intelektual namun ada juga yang bertahan dengan istilah hak kekayaan intelektual walaupun pada akhirnya Bambang Kesowo ketua Tim yang membidangi masalah hukum HKI, memveto agar menggunakan istilah Hak Kekayaan Intelektual.<sup>76</sup>

Hak Kekayaan Intelektual (HKI) didefinisikan sebagai hak kebendaan, hak atas sesuatu benda yang bersumber dari hasil kerja otak, hasil kerja rasio, hasil dari pekerjaan manusia yang menalar yang mana hasil kerjanya itu berupa benda immateriil dan tidak berwujud.<sup>77</sup> Pendapat lain mengatakan Secara substantif,

<sup>75</sup> Bouwman-Noor Mout, “Perlindungan Hak Cipta Intelektual: Suatu Rintangan atau Dukungan Terhadap Perkembangan Industri”, Makalah Pada Seminar Hak Milik Intelektual. Kerjasama FH USU dengan Naute Van Haersolte Amsterdam, Medan, Fakultas Hukum USU, Tanggal 20 Januari 1989.

<sup>76</sup> Penulis sendiri lebih memilih untuk menggunakan istilah hak kekayaan intelektual dibandingkan dengan hak milik intelektual.

<sup>77</sup> OK Saidin menjelaskan bahwa yang dimaksudkan dengan otak bukanlah otak yang kita lihat seperti tumpukan daging yang enak digulai, yang beratnya 2% dari total berat tubuh, tetapi otak yang berperan sebagai pusat pengaturan segala kegiatan fisik dan psikologis, yang terbagi menjadi dua belahan; kiri dan kanan. Selanjutnya kata “menalar” menurut penelitian pakar antropologi fisik di Jepang, seekor monyet juga berpikir, tetapi pikirannya tidak menalar. Monyet tersebut tidak dapat menghubungkan satu peristiwa dengan

pengertian HKI dapat dideskripsikan sebagai hak atas kekayaan yang timbul atau lahir karena kemampuan intelektual manusia. HKI dikategorikan sebagai hak atas kekayaan mengingat HKI pada akhirnya menghasilkan karya-karya intelektual berupa; pengetahuan, seni, sastra, teknologi, di mana dalam mewujudkannya membutuhkan pengorbanan tenaga, waktu, biaya dan pikiran. Adanya pengorbanan tersebut menjadikan karya intelektual tersebut menjadi memiliki nilai. Apabila ditambah dengan manfaat ekonomi yang dinikmati, maka nilai ekonomi yang melekat menumbuhkan konsepsi kekayaan (property) terhadap karya-karya intelektual tadi.<sup>78</sup> Selain itu, menurut David Bainbridge, HKI dikatakan “*That area of law which concerns legal rights associated with creative effort or commercial reputation and goodwill.*”<sup>79</sup> WIPO<sup>80</sup> sendiri mengelompokan Hak Kekayaan Intelektual sebagai berikut:<sup>81</sup>

1. Hak Kekayaan Perindustrian, yang termasuk didalamnya seperti Paten, Trademark, Desain Industri, dan Indikasi Geografis.
2. Hak Cipta

Sistem HKI mendasarkan pada prinsip sebagai berikut:<sup>82</sup>

1. Prinsip Keadilan

Pencipta sebuah karya, atau orang lain yang bekerja membuahkan hasil dari kemampuan intelektualnya, wajar memperoleh imbalan. Imbalan tersebut dapat berupa materi maupun bukan materi seperti adanya rasa aman karena dilindungi, diakui atas hasil karyanya. Hukum memberikan

peristiwa lainnya. Lihat OK. Saidin, *Aspek Hukum Hak Kekayaan Intelektual*, (Jakarta:Rajawali Pers, 2010), hlm. 9.

<sup>78</sup> Bambang Kesowo, *GATT, TRIPS dan Hak Atas Kekayaan Intelektual*, (Jakarta: Mahkamah Agung, 1998), hlm. 160-161.

<sup>79</sup> David Bainbridge, *Intellectual Property*, (England:Financial Times Pitman Publishing, 1999), hlm. 3.

<sup>80</sup> WIPO atau World Intellectual Property Organization merupakan organisasi dari United Nation (Perserikatan Bangsa Bangsa) yang fokus pada permasalahan Hak Kekayaan Intelektual. WIPO dibentuk pada tahun 1967 yang pembentukannya berdasarkan Paris Convention serta Berne Convention.

<sup>81</sup> [www.wipo.int/about-ip/en](http://www.wipo.int/about-ip/en)

<sup>82</sup> Jumhana, *Hak Kekayaan Intelektual Teori dan Praktek*, Bandung: Citra Aditya Bakti, 1999, hlm. 25-26.

perlindungan tersebut demi kepentingan pencipta berupa suatu kekuasaan untuk bertindak dalam rangka kepentingannya tersebut, yang disebut hak. Setiap hak menurut hukum itu mempunyai titel, yaitu suatu peristiwa tertentu yang menjadi alasan melekatnya hak itu pada pemiliknya. Menyangkut hak milik intelektual, maka peristiwa yang menjadi alasan melekatnya itu adalah penciptaan yang mendasarkan atas kemampuan intelektualnya. Perlindungan ini pun tidak terbatas di dalam negeri penemu itu sendiri, melainkan juga meliputi perlindungan di luar batas negaranya.

## 2. Prinsip Ekonomi

Hak milik intelektual ini merupakan hak yang berasal dari hasil kegiatan kreatif suatu kemampuan daya pikir manusia yang diekspresikan kepada khalayak umum dalam pelbagai bentuknya, yang memimiliki manfaat serta berguna dalam menunjang kehidupan manusia, maksudnya adalah bahwa kepemilikan itu wajar karena sifat ekonomis manusia yang menjadikan hal itu suatu keharusan untuk menunjang kehidupannya di dalam masyarakat. Dengan demikian HKI merupakan suatu bentuk kekayaan bagi pemiliknya.

## 3. Prinsip Kebudayaan

Kita mengkonsepsikan bahwa karya manusia itu pada hakikatnya bertujuan untuk memungkinkannya hidup, selanjutnya dari karya itu pula akan timbul suatu gerakan hidup yang harus menghasilkan lebih banyak karya lagi. Dengan konsepsi demikian, maka pertumbuhan dan perkembangan ilmu pengetahuan, seni, dan sastra sangat besar artinya bagi peningkatan taraf kehidupan peradaban dan martabat manusia. Selain itu juga akan memberikan kemaslahatan bagi masyarakat, bangsa, dan negara. Pengakuan atas kreasi, karya, karsa dan cipta manusia yang dibakukan dalam sistem HKI adalah suatu usaha yang tidak dapat dilepaskan sebagai perwujudan suasana yang diharapkan mampu membangkitkan semangat dan minat untuk mendorong melahirkan ciptaan baru.

## 4. Prinsip Sosial

Hukum tidak mengatur kepentingan manusia sebagai perseorangan yang berdiri sendiri, terlepas dari manusia yang lain akan tetapi hukum mengatur kepentingan manusia sebagai warga masyarakat. Jadi manusia dalam hubungannya dengan manusia lain, yang sama-sama terikat dalam suatu ikatan kemasyarakatan. Dengan demikian hak apa pun yang diakui oleh hukum, dan diberikan kepada perseorangan atau persekutuan atau kesatuan itu saja, akan tetapi pemberian hak kepada perseorangan persekutuan/kesatuan itu diberikan dan diakui oleh hukum, oleh karena dengan diberikannya hak tersebut kepada perseorangan, persekutuan atau kesatuan hukum itu, kepentingan seluruh masyarakat akan terpenuhi.

#### 2.4.2 Hak Kekayaan Intelektual dan Persaingan Usaha

Hak Kekayaan Intelektual memiliki keterkaitan erat dengan persaingan usaha. Ketika seorang inventor mendapatkan perlindungan paten maka secara hukum inventor tersebut memiliki hak eksklusif untuk melarang orang lain melakukan invensinya (*prohibit others practicing the claimed invention*). Sekilas, hal ini bertentangan dengan apa yang terdapat dalam hukum persaingan usaha.<sup>83</sup> Perlu diingat bahwa terdapat dua poin penting terkait alasan mengapa karya seseorang perlu mendapat perlindungan HKI, yaitu:<sup>84</sup>

1. *The honour and recognition of being credited with the initial discovery or development, or*
2. *The incentive to disclose one's knowledge to society as a whole.*

Secara khusus, paten sebagai bagian dari HKI menyebutkan bahwa:<sup>85</sup>

<sup>83</sup> *The relationship between the Intellectual Property and antitrust law is often portrayed as discordant in means, yet euphonious in purpose.* Terkait hal ini dapat dilihat dalam Alan Devlin, "The Stochastic Relationship Between Patents and Antitrust," *Journal of Competition Law and Economics*: 2008. Lihat juga hasil penelitian Dora Marinova, Michael McAller, dan Daniel Slotje, "Antitrust Environment and Innovation," *Jointly Published by Akademai Kiado and Springer*:2005.

<sup>84</sup> Andreas Grosche, "Software Patents – Boon or Bane for Europe?", *International Journal of Information and Technology* Vol.14 No.3

<sup>85</sup> Chris D. Stark, "Patently Absurd: The Ethical Implications of Software Patents", *TechTrends* Vol. 46, Number 6

*“The original intent of patent was to provide incentive for inventors to share their works with the public in exchange for a brief period of exclusive financial compensation.”*

Berdasarkan kedua hal tersebut maka hak ekonomis dari seorang inventor ataupun kreator sangat penting untuk diakui. Dalam kaitannya dengan paten, inventor secara eksklusif memiliki hak untuk menikmati hasil invensinya atau melakukan pemberian lisensi pada orang lain ataupun pihak ketiga untuk dapat menikmati invensinya. Hak Eksklusif ini tidak dapat disamakan dengan upaya inventor untuk memonopoli invensinya.<sup>86</sup>

#### 2.4.3 Hak Cipta

Konsep mengenai hak cipta sudah berkembang pesat saat ini. Awalnya perlindungan hak cipta sebatas pada karya tulis namun sekarang fotografi, film, bahkan program komputer dapat dikategorikan sebagai subyek yang dilindungi oleh hak cipta. Peterson J mengatakan bahwa *“what is worth copying is prima facie worth protecting.”*<sup>87</sup> WIPO mendefinisikan hak cipta sebagai *“The rights given to creator for their literally and artistic works.”* Selanjutnya berdasarkan pasal 1 ayat (1) Undang-Undang Nomor 19 Tahun 2002:

“Hak cipta adalah hak eksklusif bagi pencipta atau penerima hak untuk mengumumkan atau memperbanyak ciptaannya atau memberikan izin untuk itu dengan tidak mengurangi pembatasan-pembatasan menurut peraturan perundang-undangan yang berlaku.”

Melihat kedua definisi tersebut, terdapat dua unsur penting yang dapat diambil dalam pengertian hak cipta, yaitu sebagai berikut:

##### 1. Hak ekonomis

Hak ekonomis disini artinya adalah hak yang dimiliki oleh seorang pencipta untuk mendapatkan keuntungan atas ciptaannya.

<sup>86</sup> Terkait dengan praktek monopoli ini, Indonesia memiliki regulasi yang mengatur yaitu Undang-Undang nomor 5 Tahun 1999 tentang Larangan Praktek Monopoli dan Persaingan Usaha Tidak Sehat. Pasal 50 Undang-Undang ini menyebutkan bahwa Hak Kekayaan Intelektual seperti Paten dikecualikan oleh Undang-Undang ini. Artinya bahwa hak inventor bukanlah merupakan praktek monopoli.

<sup>87</sup> David Bainbridge, *Introduction to Computer Law 2<sup>nd</sup> Edition*, (Pitman Publishing:1993), hlm. 12.

## 2. Hak moral

Konsep hak moral disini adalah hak khusus yang sifatnya kekal yang dimiliki si pencipta atas hasil ciptaannya, dan hak itu tidak dapat dipisahkan dari penciptanya. Negara-negara Eropa telah mengenal konsep ini sejak lama. Hak moral ini memberikan hak kepada pencipta untuk:<sup>88</sup>

- a. Diakui sebagai pencipta suatu ciptaannya,
- b. Mengajukan keberatan apabila terdapat perlakuan yang merendahkan ciptaannya,

Hak moral merupakan hak pencipta ataupun ahli warisnya.

Perlindungan terhadap karya cipta ini pada konsepnya diberikan terhadap hasil karya di bidang ilmu pengetahuan, seni, dan sastra salah satunya mencakup program komputer. Senada dengan konsep HKI, hasil karya ciptaan ini tentulah harus memenuhi orisinalitas, khusus dan merupakan hasil kreatifitas. Hak cipta memberikan perlindungan terhadap ekspresi dari sebuah ide dan bukan melindungi idenya itu sendiri. Artinya, hak cipta tidak memberikan perlindungan apabila ide tersebut masih dalam bentuk gagasan.

Perlindungan terhadap program komputer sebaiknya diberikan dalam bentuk perlindungan tahap demi tahap dan jenis-jenis dari perangkat lunak. Lucas berpendapat bahwa perangkat lunak bisa dilihat dari dua sudut pandang. Jika seorang beranggapan bahwa instruksi dalam program itu merupakan manifestasi dari diri mereka (pembuat program komputer), ia dapat menganggap program komputer tersebut sebagai karya literatur yang berada dalam cakupan Hak Cipta. Sementara itu, jika hanya melihat dari tampilan aplikasinya, bisa dianggap langkah inventif dalam program komputer itu. Hal ini menjadi penting untuk menguji program dan masalah yang dipecahkan oleh program itu. Borking menyebutkan ada tiga tahap esensial dalam hal perlindungan terhadap program komputer, yaitu:<sup>89</sup>

1. Perlindungan terhadap algoritma pemrograman
2. Perlindungan paten atau hak cipta terhadap program komputer

<sup>88</sup> *Ibid*, hlm. 15.

<sup>89</sup> Edmon Makarim, *Pengantar Hukum Telematika: Suatu Kompilasi Kajian*, (Badan Penerbit FHUI:2005), hlm. 289.

### 3. Perlindungan terhadap *object code* program

Sehubungan dengan itu, WIPO juga telah mengidentifikasi bahwa bahan-bahan yang termasuk dalam program komputer adalah:

1. Materi-materi pendukung (*flowchart*, deskripsi tertulis program)
2. Dokumentasi tentang bagaimana menggunakan program (*users guide*)
3. Untaian perintah (*listing program*)
4. Tampilan *look and field* dari program tersebut

Berdasarkan hal tersebut dapat disimpulkan bahwa terdapat dua ruang lingkup perlindungan hak cipta terhadap *computer-related invention* atau *software invention*, yaitu: (i) *Protection for literal elements of program code*; dan (ii) *Protection for non-literal elements of program code*. Lingkup pertama ditujukan terhadap upaya *infringement* langsung dimana objeknya berupa *source code* dan *object code* dari program komputer. Lingkup kedua, ditujukan untuk melindungi *infringement* tidak langsung dimana melindungi ekspresi dari sitem atau metode dalam program komputer, namun bukan fungsinya.<sup>90</sup>

#### 2.4.4 Paten

Paten merupakan bentuk perlindungan Hak Kekayaan intelektual yang paling diharapkan karena paten memberikan hak kepada inventor untuk melakukan monopoli terhadap invensinya.<sup>91</sup> Artinya disini inventor dapat mengeksploitasi invensinya selama beberapa tahun. Terdapat dua tipe invensi yang dapat dipatenkan yaitu *a product invention* dan *a process invention*.<sup>92</sup>

Paten itu sendiri berasal dari bahasa latin *patere* yang artinya terbuka. Bahasa sehari-hari mendefinisikan paten sebagai keterbukaan terhadap

<sup>90</sup> Objek yang dimaksudkan disini dapat berupa *program's underlying structure, sequence, or organization*. Terkait dengan perlindungan terhadap *literal elements* dapat merujuk pada kasus *Data Cash System v. JS & A Group*. Sedangkan untuk *non-literal elements* merujuk pada kasus *Apple v. Franklin*. Lebih lanjut baca Robert P. Merges, *Intellectual Property in the New Technological Age 3<sup>rd</sup> Edition*, (Aspen Publisher:2003), hlm. 231

<sup>91</sup> Simon Stokes dan Rob Carolina, *Encyclopedia of E-Commerce Law* edisi September 2003, hlm. 8-43

<sup>92</sup> David Bainbridge, *Introduction to Computer Law 2<sup>nd</sup> Edition*, (Pitman Publishing: 1993), hlm. 57.



pengawasan publik.<sup>93</sup> *World Intellectual Property Organisation (WIPO)* mendefinisikan paten sebagai:

*“A patent is an exclusive right granted for an invention, which is a product or a process that provides, in general, a new way of doing something, or offers a new technical solution to a problem.”*

Selain itu sejarah pernah mencatat dalam *Octroiwet 1910* bahwa paten adalah:

“Paten adalah hak khusus yang diberi kepada seseorang atas permohonannya kepada orang itu yang menciptakan sebuah produk baru, cara kerja baru atau perbaikan baru dari produk atau dari cara kerja..”<sup>94</sup>

Sementara itu, pengertian paten menurut Kamus Umum Bahasa Indonesia karangan W.J.S Poerwadarminta menyebutkan bahwa:

“Kata paten berasal dari bahasa Eropa (*octroi*) yang mempunyai arti suatu surat perniagaan atau izin dari pemerintah yang menyatakan bahwa orang atau perusahaan boleh membuat barang pendapatannya sendiri (orang lain tidak boleh membuatnya).”<sup>95</sup>

Berdasarkan beberapa definisi di atas maka dapat ditarik kesimpulan bahwa paten merupakan hak monopoli yang diberikan oleh negara kepada inventor atau seseorang yang mendapat hak tersebut dari inventor untuk jangka waktu tertentu sebagai imbalan atas penyingkapan dari invensi tersebut sehingga pihak lain dapat memperoleh manfaat dari invensi tersebut. Paten juga dapat diberikan atas segala sesuatu yang mempunyai dampak praktis dan sebelumnya tidak dikenal dalam teknologi yang berkaitan (*offer a technical solution*). Tidak semua invensi tentunya bisa dilindungi dengan paten. Ada persyaratan yang harus dipenuhi yaitu sebagai berikut:

1. *Novelty*

<sup>93</sup> Peter Rosenberg, *Patent Law Fundamentals 3<sup>rd</sup> Edition*, (Clark Boardman Company:1977), hlm. 5.

<sup>94</sup> Art.1.Octroiwet 1910, Nederland, S.1910-313

<sup>95</sup> W.J.S Poerwadarminta, *Kamus Umum Bahasa Indonesia*, (Balai Pustaka:1976), hlm. 1012.

*Novelty* memiliki arti kebaruan. *Novelty* merupakan sine qua non dari setiap invensi.<sup>96</sup> *Novelty* disini memiliki arti yang ambigu dan mencakup aspek aspek subyektif maupun obyektif. Pertanyaan mendasar dari *Novelty* disini adalah invensi tersebut “baru” dilihat dari sudut pandang apa? Secara subyektif maka jawaban dari pertanyaan tersebut adalah suatu invensi dapat dikatakan “baru” apabila ahli-ahli dalam bidang invensi terkait tidak bisa mengantisipasi invensi tersebut. Disisi lain suatu invensi secara obyektif dikatakan “baru” ketika invensi tersebut tidak bisa diantisipasi oleh *prior art*. *Prior art* disini diartikan sebagai suatu invensi yang sudah ada sebelumnya bukan yang sebelumnya tidak diketahui (*previously unknown*).<sup>97</sup>

Tidak ada sistem yang memberikan perlindungan paten terhadap sistem invensi yang sudah diketahui. Sejalan dengan itu, peraturan paten yang sekarang berlaku mensyaratkan bahwa invensi yang dipatenkan haruslah baru dalam pengertian tidak hanya membentuk seni, di mana invensi tersebut pada sat itu tidak ditemukan dalam bentuk-bentuk (baik produk, proses, informasi tentang keduanya, atau yang lainnya) yang telah tersedia kepada masyarakat baik tertulis atau deskripsi lisan, dipergunakan, atau dengan cara lain.

## 2. *Inventive Steps*

Kadang-kadang suatu invensi disebut baru dalam artian invensi ini tidak pernah diumumkan sebelumnya. Kemudian muncul pertanyaan mendasar terkait dengan hal ini yaitu seberapa banyak atau perbedaan apa yang terdapat dalam suatu invensi sehingga invensi tersebut berbeda

<sup>96</sup> Peter Rosenberg, *Patent Law Fundamentals 3<sup>rd</sup> Edition*, (Clark Boardman Coompany: 1977), hlm. 89.

<sup>97</sup> Terkait dengan pembahasan mengenai *novelty* perlu diketahui bahwa suatu obyek agar dapat mendapatkan perlindungan paten haruslah baru (not merely previously unknown). Hanya “invention” yang bisa dipatenkan, “discoveries” tidak bisa dipatenkan. Perbedaan teknis antara “invention” dengan “discoveries” itu sendiri adalah suatu “invention” merupakan hasil karya manusia sedangkan untuk “discoveries” sudah ada sebelumnya namun belum diketahui sebelumnya. Sebagai contoh “discoveries” adalah Hukum Newton yang menggambarkan hubungan antara gaya yang bekerja pada suatu benda dan gerak yang disebabkan. Namun hubungan antara gaya dengan benda ini sudah ada sebelum Newton menemukan hal tersebut oleh karenanya “discoveries” tidak bisa dipatenkan. Lebih lanjut baca *Ibid*, hlm. 13.

dengan *prior art*? Perlu diketahui bahwa perbedaan haruslah ada dalam suatu invensi dan perbedaan itu haruslah mengandung langkah-langkah yang inventif walaupun perbedaan tersebut kecil. Learned Hand menyebutkan mengenai *doctrine of small structure* yaitu:

*“very slight structural changes maybe enough to support a patent, when they presuppose a use not discoverable without inventive imagination. We are to judge such devices, not by the mere innovation in their former material, but by the purpose which dictated them and discovered their function.”*

Berdasarkan hal ini walaupun perbedaan antara invensi yang sebelumnya dikenal dengan invensi yang diajukan mungkin kecil sekali namun kantor paten haruslah menganggap hal tersebut sebagai langkah inventif. Pemeriksaan untuk membuktikan apakah suatu invensi tersebut merupakan langkah inventif merupakan hal yang sulit dalam praktik karena pemeriksaan dibuat atas dasar apa yang dikenal umum dalam bidang kreasi tertentu, serta apakah anggapan dan sudah dikenali oleh para ahli dalam bidang tersebut.

### 3. *Utility*

Utilitas disini artinya bahwa setiap invensi haruslah dapat diterapkan dalam segala jenis industri. WIPO sendiri menyebutkan bahwa suatu invensi haruslah memberikan solusi teknis (*offer a technical solution*). Justice Story menuliskan pendapatnya mengenai utility sebagai:

*“by useful invention is meant such a one as may be applied to some beneficial use in society, in contradistinction to an invention, which is injurious to the morals, the health, or the good order of society. It is not necessary to establish, that the invention is of such general utility, as to supercede all other inventions now in practice to accomplish the same purpose. It is sufficient, that it has no obnoxious or mischievous tendency, that it may be applied to practical uses, and that so far as it is applied, it is salutary. If its practical utility be very limited, it will follow that it will be of little*

*profit to the inventor; and if it be trifling, it will be sink into utter neglect. The law, however, does not look to the degree of utility; it simply requires, that it shall be capable of use, and that the use is such as sound morals and policy do not discountenance or prohibit.”<sup>98</sup>*

Berdasarkan pemaparan di atas dapat ditarik kesimpulan bahwa *utility* disini memiliki arti bahwa suatu invensi tersebut memiliki fungsi teknis dan bermanfaat.

Syarat patentabilitas suatu invensi sebagaimana telah secara sederhana disebutkan di atas, didukung oleh adanya doktrin-doktrin yaitu:

1. *Doctrine of Equivalents*

Doktrin ini menyebutkan bahwa:

*“A product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is equivalence between the elements of the accused product or process and the claimed elements of the patented invention.”<sup>99</sup>*

Berdasarkan doktrin ini dapat disimpulkan bahwa suatu invensi atau proses yang secara harafiah tidak melanggar klaim patent (*literal infringement*) dapat dinyatakan melanggar apabila memiliki kesamaan elemen atau proses dari suatu invensi.

2. *Doctrine of Anticipation*

Doktrin ini menyatakan bahwa:

*“if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person*

<sup>98</sup> Peter Rosenberg, *Patent Law Fundamentals 3<sup>rd</sup> Edition*, (Clark Boardman Coompany: 1977), hlm. 110.

<sup>99</sup> Robert P. Merges, *Intellectual Property in the New Technological Age 3<sup>rd</sup> Edition*, (Aspen Publisher:2003), hlm. 231. Lihat juga Anna Zavagnin, “The Patent Scope in The US and in The UK Doctrine of Equivalents versus Catnic/Improver Test,” *Erasmus Law and Economic Review*: 2004.

*having ordinary skill in the art to which said subject matter pertains.”*<sup>100</sup>

Jika merujuk pada penjelasan tersebut maka terdapat dua poin utama dari doktrin ini, yaitu: (i) suatu invensi haruslah tidak dapat diantisipasi oleh ahli-ahli di bidang tersebut (*claimed invention*); (ii) invensi tersebut tidak dapat diantisipasi sebelumnya oleh *prior art*.

### 3. *Doctrine of Best Mode*

Doktrin ini pada dasarnya merupakan kewajiban dari seorang inventor. Amerika merupakan salah satu negara yang menganut doktrin ini dan disebutkan sebagaimana berikut:<sup>101</sup>

*“A statutory bargained-for-exchange by which a patentee obtains the right to exclude others from practicing the claimed invention for a certain time period, and the public receives knowledge of the preferred embodiments for practicing the claimed invention.”*

Artinya disini, inventor wajib membuka dokumen invensinya terhadap publik setelah invensi yang ia klaim mendapatkan perlindungan paten.<sup>102</sup>

### 4. *Doctrine of Technical Action*

Doktrin ini terkait dengan syarat utilitas dari suatu invensi yang artinya suatu invensi apabila ingin mendapatkan perlindungan paten, maka invensi tersebut haruslah memiliki kegunaan teknis.<sup>103</sup>

<sup>100</sup> *Ibid*, hlm. 176.

<sup>101</sup> *Ibid*, hlm. 213.

<sup>102</sup> Indonesia juga menganut doktrin ini. Hal ini dapat dilihat dalam Pasal 24 Undang-Undang Nomor 14 Tahun 2001 tentang Paten yang menyebutkan bahwa seorang inventor wajib untuk mencantumkan deskripsi tentang invensi secara lengkap; memuat tata cara melakukan invensi tersebut; menampilkan deskripsi-deskripsi gambar yang berkaitan untuk memperjelas invensi; memberikan abstraksi invensi. Ketentuan lebih detail terkait hal ini juga diatur dalam Peraturan Pemerintah.

<sup>103</sup> *Doctrine of Technical Action* sudah diadopsi sejak tahun 1933. Tujuan utama dari adanya doktrin ini adalah untuk memastikan suatu invensi tetap menjunjung tinggi konsep utilitas (*Lehre vom Technischen Handeln*). Lihat John J. Borking, *Third Party Protection of Software and Firmware*, (Elsevier Science Publishing Company:1985), hlm. 160.

## 2.5 Perdebatan Terkait Perlindungan Program Komputer di Beberapa Negara

Konsekuensi logis dari dimasukkannya program komputer sebagai *patentable subject matter* adalah meningkatnya pendaftaran paten terkait program komputer pada beberapa tahun belakangan. Dalam perkembangannya tersebut, paten terkait program komputer (*software patent* atau *software-related inventions*) menimbulkan beragam perdebatan baik dari praktisi HKI maupun industri software itu sendiri. Perdebatan ini terkait dengan permasalahan dasar dari konsep paten itu sendiri yaitu terkait dengan patentabilitas suatu program komputer. Berikut akan dijelaskan lebih lanjut mengenai perdebatan terkait dengan perkembangan paten terhadap program komputer di beberapa Negara.

### 2.5.1 Eropa

Perdebatan terkait program komputer yang dikelompokkan sebagai *patentable subject matter* telah ada sejak tahun 1986.<sup>104</sup> Perdebatan ini dimulai sejak kasus *Koch & Sterzel, Vicom*, dan *IBM*. Kasus Koch & Sterzel terkait dengan mesin komputer yang dikendalikan dengan X-ray (*computer-controlled X-ray machine*).<sup>105</sup> Dewan Pertimbangan *European Patent Office* (EPO) dalam kasus ini berpendapat bahwa:<sup>106</sup>

*“An invention must be assessed as a whole. If it makes use of both technical and non-technical means, the use of non-technical means does not detract from the technical character of the overall teaching.”*

Kemudian Dewan Pertimbangan dalam kasus ini juga berpendapat bahwa:<sup>107</sup>

<sup>104</sup> Awalnya Eropa tidak memberikan perlindungan paten terhadap software karena software merupakan algoritma matematis semata yang tidak memiliki technical-function. Lebih lanjut lihat Knut Blind and Jakob Elder, “Idiosyncrasies of the Software Development Process and Their Relation to Software Patents: Theoretical Considerations and Empirical Evidence”, *Netnomics* 5, Kluwer Academic Publisher 2003

<sup>105</sup> Invensi yang diklaim dalam kasus ini terkait “*a data processing unit to control x-ray apparatus to achieve optimum exposure while protecting against overloading of the x-ray tubes*”. Ringkasan fakta terkait kasus Koch & Sterzel dapat diakses lebih lengkap di <http://www.epo.org/law-practice/case-law-appeals/recent/t860026ep1.html>.

<sup>106</sup> Jinseok Park, “Has Patentable Subject Matter Been Expanded? –A Comparative Study on Software Patent Practice in The EPO, USPTO, JPO”, *International Journal of Law and Information Technology* Vol.13 Oxford University Press 2005

<sup>107</sup> *Ibid*

*“The computer program used in general-purposes computer is considered to be a program as such and hence excluded from patentability by Article 52 (2) (c) European Patent Convention (EPC). But if the program controls the operation of a conventional general-purpose computer so as technically to alter its functioning, the unit consisting of program and computer combined may be a patentable invention.”*

Berdasarkan kedua pernyataan dari Dewan pertimbangan EPO tersebut dapat ditarik kesimpulan bahwa pertama suatu invensi harus dilihat secara keseluruhan. EPC tidak melarang paten dalam suatu invensi apabila invensi tersebut merupakan gabungan dari *technical* maupun *non-technical features*. Kedua dalam hal memutuskan apakah suatu invensi dapat dikategorikan sebagai *patentable subject matter* menurut *Article 52-57 EPC*, invensi tersebut harus memiliki langkah inventif dan mengandung fungsi teknis.

Kasus kedua adalah *Vicom* sebagai *digital image processing*.<sup>108</sup> Invensi yang diklaim dalam kasus ini adalah cara meningkatkan kualitas gambar digital dengan menggunakan program komputer. Dewan Pertimbangan EPO memberikan kesimpulan dalam kasus ini bahwa:<sup>109</sup>

*“Even if the idea underlying an invention resides in a mathematical method, the invention may be patentable so long as the claim is directed to a technical process and does not seek protection for the mathematical method as such.”*

Kemudian kasus ketiga adalah IBM terkait dengan *text processing*. Invensi yang diklaim dalam kasus ini adalah metode untuk mendeteksi dan mengoreksi *contextual homophone* dalam teks dokumen secara otomatis. Dewan Pertimbangan EPO dalam kasus ini berpendapat bahwa:<sup>110</sup>

<sup>108</sup> Ringkasan fakta terkait kasus ini selengkapnya dapat dilihat di <http://www.epo.org/law-practice/case-law-appeals/recent/t840208ep1.html>.

<sup>109</sup> Jinseok Park, “Has Patentable Subject Matter Been Expanded? –A Comparative Study on Software Patent Practice in The EPO, USPTO, JPO”, *International Journal of Law and Information Technology* Vol.13 Oxford University Press 2005

<sup>110</sup> *Ibid.*

*“The processing of abstract data, for a non-technical purpose, by means of computer programs running on conventional hardware is not patentable.”*

Berikut ringkasan terkait tiga kasus tersebut:

<i>Case</i>	<i>Claimed Invention</i>	<i>Main Holding</i>	<i>Patentable</i>
Koch & Sterzel	<i>A data processing unit to control x-ray apparatus to achieve optimum exposure while protecting against overloading of the x-ray tubes</i>	<ul style="list-style-type: none"> <li>• <i>An invention must be assessed as a whole. The use of non-technical means does not detract from the technical character of the overall teaching.</i></li> <li>• <i>If the computer program controls the operation of a conventional general-purpose computer so as technically to alter its functioning, the unit consisting of program and computer combined may be a patentable invention.</i></li> </ul>	Yes
Vicom	<i>A method of digitally processing images in the form of two-dimensional data array having elements in row and columns</i>	<ul style="list-style-type: none"> <li>• <i>Even if the idea underlying an invention resides in a mathematical method, the invention may be patentable so long</i></li> </ul>	Yes



		<i>as the claim is directed to a technical process and does not seek protection for the mathematical method as such.</i>	
IBM	<i>A method for automatically detecting and correcting contextual homophone errors in a text document</i>	<ul style="list-style-type: none"> <li><i>The processing of abstract data, for a non-technical purpose, by means of computer programs running on conventional hardware is not patentable</i></li> </ul>	No

Jika dilihat dengan seksama terhadap perbedaan yang cukup substansial antara kasus *Vicom* dengan IBM yaitu dimana dalam kasus *Vicom* walaupun *mathematical method* dikecualikan dalam *Article 52 (2) (c) EPC* namun dalam kasus tersebut masih dapat dilindungi oleh paten karena memiliki fungsi teknis. Berbeda halnya dengan IBM dimana *linguistic esthetic* dalam invensi tersebut tidak dapat dilindungi karena tidak memiliki fungsi teknis.

Syarat suatu invensi agar dapat dikategorikan sebagai *patentable subject matter* oleh *European Patent Office (EPO)* adalah harus memenuhi ketiga syarat yaitu tergolong sebagai *industrial applicability*, baru (*novelty*), dan mengandung langkah inventif.<sup>111</sup> Memiliki fungsi industrial dalam EPC dijelaskan bahwa suatu invensi dapat digolongkan sebagai *industrial applicability* apabila memiliki fungsi teknis yang dapat digunakan dalam suatu industri termasuk didalamnya industri

<sup>111</sup> *Article 52 (1) European Patent Convention state that European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.*

*agriculture*.<sup>112</sup> Selebihnya unsur baru dalam EPC apabila invensi tersebut tidak termasuk sebagai *prior art*.<sup>113</sup> Unsur terakhir adalah langkah inventif yang dijelaskan apabila invensi tersebut tidak dapat diprediksi oleh ahli-ahli di bidangnya atau diprediksi oleh *prior art*.<sup>114</sup> Selain itu EPO memiliki pedoman untuk suatu invensi dapat dikategorikan sebagai *patentable subject matter* yang terdapat dalam *Examination Guidelines of the EPO*.<sup>115</sup> EPO menekankan dalam pedoman tersebut bahwa suatu invensi haruslah memiliki *technical character* sebagaimana disebutkan dalam *rule 27 (1)*<sup>116</sup> dan *29 (1)*<sup>117</sup>.

### 2.5.2 Amerika Serikat

Perkembangan isu hukum terkait program komputer (*computer-related inventions*) di Amerika berawal dari trilogi kasus *Benson*, *Flook*, dan *Diehr*.<sup>118</sup> *Gottschalk v. Benson* dalam kasusnya mengklaim invensi terhadap metode untuk mengonversi angka *Binary-Coded Decimal* (BCD) menjadi angka biner. Klaim

<sup>112</sup> *Article 57 European Patent Convention state that an invention shall be considered as susceptible of industrial application if it can be made or used in any kind of industry, including agriculture.*

<sup>113</sup> *Article 54 (1) European Patent Convention state that an invention shall be considered to be new if it does not form part of the state of the art.*

<sup>114</sup> *Article 56 European Convention state that an invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art.*

<sup>115</sup> *Examination Guidelines of the EPO* secara sederhana merupakan tes dasar terkait dengan persyaratan apakah suatu invensi sesuai dengan ketentuan yang termaktub dalam *Article 52 EPC*

<sup>116</sup> *Rule 27: Content of the description*

(1) *The description shall*

(a) *Specify the technical field to which the invention relates ...*

(c) *Disclose the invention, as claimed, in such terms that the technical problem (even if not expressly stated as such) and its solution can be understood, and state any advantageous effects of the invention with reference to the background art ...*

<sup>117</sup> *Rule 29: Form and content of claims*

(1) *The claims shall define the matter for which protection is sought in terms of technical features of the invention ...*

<sup>118</sup> Awalnya USPTO tidak pernah memberikan perlindungan paten terhadap komputer program (Computer-Related Inventions) karena komputer program merupakan algoritma matematis biasa dan hal ini tidak dilindungi oleh 35 USC section 101. Lebih lanjut baca Josh Lerner dan Feng Zhu, "What is the impact of software patent shift? Evidence from *Lotus v. Borland*", *International Journal of Industrial Organization* 2007.

*Benson* atas invensinya ini ditolak oleh *Supreme Court* dan menyatakan bahwa algoritma matematis tidak dapat dipatenkan dan agar suatu invensi dapat dikategorikan sebagai *statutory subject matter* maka harus terdapat ‘*physical embodiment*’ dalam suatu invensi tersebut. Kasus kedua adalah *Flook* dimana mengklaim atas metode pengonversian hidrokarbon. Klaim atas invensi ini ditolak oleh *Supreme Court* dengan menyatakan bahwa invensi atas klaim *Flook* hanya memenuhi syarat kebaruan dari *statutory subject matter* dan unsur kebaruan tersebut sebatas algoritma matematis. Kasus *Flook* ini memunculkan adanya mekanisme baru yang dikenal dengan *Freeman-Walter-Abele-Test* atau yang dikenal dengan istilah *Two Freeman Step*. Terdapat dua poin penting dari *Two Freeman Step*, yaitu:<sup>119</sup>

- a. *Determine whether the claim recites an algorithm within the meaning of Benson.*
- b. *Determine whether the algorithm is “applied in any manner to physical elements or process steps.*

Kasus terakhir adalah *Diehr* dimana klaim atas invensi dilakukan terhadap *physical process* yang dilakukan oleh program komputer. Walaupun invensi ini mengandung *mathematical formula*, *Supreme Court* tetap menganggap invensi dapat dipatenkan. Terkait ringkasan ketiga kasus ini dapat dilihat dalam tabel berikut.<sup>120</sup>

<i>Case</i>	<i>Claimed Invention</i>	<i>Main Holding</i>	Patentable
Benson	<i>A method of programming a general purpose computer to convert BCD numerical</i>	<ul style="list-style-type: none"> <li>• <i>A mathematical algorithm itself is not patentable</i></li> <li>• <i>To be statutory,</i></li> </ul>	No

<sup>119</sup> Adithya Banavar, “Patenting of Computer Related Inventions: A Look at *Bilsky* and its Applicability in the Indian Scenario”, *Journal of International Commercial Law and Technology* Vol.5

<sup>120</sup> Jinseok Park, “Has Patentable Subject Matter Been Expanded? –A Comparative Study on Software Patent Practice in The EPO, USPTO, JPO”, *International Journal of Law and Information Technology* Vol.13 Oxford University Press 2005

	<i>information into binary numbers</i>	<i>there must be a physical embodiment or a transformation and reduction of an article to a different state or thing</i>	
Flook	<i>A computerised method of continuously updating alarm limits in a process for the catalytic conversion of hydrocarbons</i>	<ul style="list-style-type: none"> <li>• <i>An algorithm cannot support a patent unless there is some other inventive concept in its application</i></li> </ul>	No
Diehr	<i>A method of operating a rubber-molding press by using Arrhenius equation to control the cure time of synthetic rubber</i>	<ul style="list-style-type: none"> <li>• <i>A claim drawn to subject matter otherwise statutory does not become non-statutory simply because it uses a mathematical formula, computer program or digital computer</i></li> <li>• <i>An application of a law of nature or mathematical formula to a known structure may well be deserving of patent protection</i></li> <li>• <i>The claimed invention should be</i></li> </ul>	Yes

		<i>considered as a whole in determining patentability</i>	
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Pengaturan terkait penggolongan suatu invensi agar dapat dikategorikan sebagai *statutory subject matter* di Amerika Serikat haruslah sesuai dengan 35 *United States Codification* (USC) *section* 101, oleh karenanya ketiga kasus tersebut diatas haruslah mematuhi ketentuan ini. 35 *United States Codification* (USC) *section* 101 menyebutkan bahwa segala sesuatu yang baru dan memiliki langkah inventif dapat diberikan perlindungan paten.<sup>121</sup> Berbeda halnya dengan *European Patent Office*, tidak terdapat ketentuan terkait *technical effect* atau *technical contribution* dalam ketentuan peraturan perundang-undangan yang berlaku sebagaimana tertuang dalam 35 USC *section* 101. Selain ketentuan 35 USC *section* 101, suatu invensi juga harus memenuhi *Manual of Patent Examining Procedure* (MPEP) dari USPTO. Ketentuan ini menyebutkan dua poin agar suatu invensi mendapatkan perlindungan paten yaitu:<sup>122</sup>

1. *Result in a physical transformation outside the computer for which a practical application in technological arts is either disclosed in the spesification or would have been known to a skilled artisan.*
2. *Limited to a practical application within technological arts.*

Selanjutnya menurut MPEP terdapat dua proses yang dapat dikategorikan sebagai *statutory subject matter* dalam kaitannya dengan *computer related invention* yaitu *Post-Computer Process Activity* dan *Pre-Computer Process Activity* atau dikenal sebagai *Safe Harbours*.<sup>123</sup> Dikarenakan komputer program

<sup>121</sup> 35 USC Section 101 menyatakan bahwa “*whoever invents or discover any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.*”

<sup>122</sup> Jinseok Park, “Has Patentable Subject Matter Been Expanded? –A Comparative Study on Software Patent Practice in The EPO, USPTO, JPO”, *International Journal of Law and Information Technology* Vol.13 Oxford University Press 2005

<sup>123</sup> MPEP menjelaskan mengenai *Post-Computer Process Activity* sebagai *an activity that performs independent physical acts outside the computers after the internal computer program steps have been completed.* Sedangkan *Pre-Computer process Activity*

merupakan kumpulan suatu instruksi maka komputer program tersebut haruslah terdapat dalam suatu medium. Berikut USPTO dalam MPEP menyebutkan bahwa:<sup>124</sup>

*“A computer program is merely a set of instructions capable of being executed by a computer, the computer program itself is not a process. Thus, a claim for computer program without the computer-readable medium is regarded as non-statutory functional descriptive material.”*

### 2.5.3 Indonesia

Indonesia merupakan negara yang memberikan perlindungan terhadap hasil cipta rasa dan karya seseorang. Hal ini ditunjukkan dengan adanya pelbagai perangkat Undang-Undang terkait dengan Hak Kekayaan Intelektual Indonesia, yaitu:

1. Hak Cipta diatur dalam UU No.19 Tahun 2002
2. Paten diatur dalam UU No. 14 Tahun 2001
3. Merek diatur dalam UU No. 15 Tahun 2001
4. Perlindungan Varietas baru Tanaman diatur dalam UU No.29 Tahun 2000
5. Desain Industri diatur dalam UU No.31 Tahun 2000
6. Rahasia Dagang diatur dalam UU No. 30 Tahun 2000
7. Desain tata letak sirkuit Terpadu diatur dalam UU No. 32 Tahun 2000

Adanya pelbagai peraturan perundang-undangan dalam ruang lingkup HKI sebagaimana dimaksud di atas merupakan amanah yang diagendakan oleh GATT/WTO pada tahun 1994. Indonesia juga telah meratifikasi beberapa konvensi atau traktat internasional antara lain Konvensi Paris, *Patent Cooperation Treaty* (PCT), *Trade Mark Law Treaty*, Konvensi Berne, serta *WIPO Copyrights Treaty*.<sup>125</sup>

dijelaskan sebagai *an activity that performs independent physical acts outside the computers before the internal computer program steps have been completed.*

<sup>124</sup> Manual patent Examining Procedure (MPEP), Chapter 2100 Patentability, Section 2106.01 Computer-Related Non Statutory Subject Matter. Untuk lebih jelasnya lihat [http://www.uspto.gov/web/offices/pac/mpep/mpep\\_e8r6\\_2100.pdf](http://www.uspto.gov/web/offices/pac/mpep/mpep_e8r6_2100.pdf).

Indonesia dapat dikatakan telah memiliki instrumen perlindungan HKI yang lengkap. Namun terkait dengan *computer-related invention* atau program komputer, masih belum dapat diberikan perlindungan paten. Terkait dengan perlindungan terhadap program komputer sebatas dilindungi oleh Undang-Undang Hak Cipta.<sup>126</sup>

Perlu diketahui bahwa *computer-related invention* atau program komputer merupakan karya ciptaan manusia yang memiliki dua aspek penting yaitu *literal expression* dan *non-literal expression*. Alasannya sederhana yaitu karena program komputer merupakan suatu program yang secara khusus diciptakan sehingga memungkinkan komputer melakukan fungsi tertentu. Penekanannya terdapat pada “program yang secara khusus diciptakan” dan “fungsi tertentu”. Penjelasan pertama terkait dengan “program yang secara khusus diciptakan”, sebagaimana telah diketahui bahwa suatu program komputer dibuat dengan menggunakan instruksi-instruksi berupa kode-kode numerik (0 dan 1). Kode-kode numerik inilah yang disebut dengan *source code*. Tanpa adanya *source code* maka komputer tidak akan dapat melakukan fungsi tertentu. *Source code* yang diletakkan pada memori komputer ini merupakan *literal expression* dari suatu program komputer dan oleh karenanya harus dilindungi oleh Undang-Undang Hak Cipta. Penjelasan selanjutnya terkait dengan “fungsi tertentu”, sebagaimana diketahui bahwa program komputer dibuat untuk melakukan fungsi yang dituju. Sebagai contoh program *billing system* yang digunakan penyelenggara telekomunikasi untuk penagihan penggunaan jaringan oleh konsumennya. Fungsi yang dituju pada contoh tersebut adalah untuk penagihan kepada konsumen dan hal ini merupakan *non-literal expression*. Fungsi yang dituju ini merupakan solusi terkait permasalahan teknis yang ada, dan untuk melindunginya maka rezim perlindungan paten sudah seharusnya diberikan pada suatu program komputer.

<sup>125</sup> Konvensi Paris diratifikasi melalui Keppres no. 15 Tahun 1997, PCT diratifikasi melalui Keppres No. 16 Tahun 1997, Trade Mark Law Treaty diratifikasi melalui Keppres no. 17 Tahun 1997, Konvensi Berne diratifikasi melalui Keppres No. 18 Tahun 1997, serta *WIPO Copyrights Treaty* diratifikasi melalui Keppres No. 19 Tahun 1997.

<sup>126</sup> Pasal 12 ayat (1) huruf a Undang-Undang Hak Cipta menyebutkan bahwa ciptaan yang dilindungi adalah ciptaan dalam bidang ilmu pengetahuan, seni dan sastra yang mencakup buku, program komputer, pamflet.....

Faktanya saat ini, Indonesia hanya memberikan perlindungan hak cipta terhadap program komputer. Padahal sebagaimana telah dijelaskan secara sederhana di atas, program komputer memiliki dua aspek penting yaitu *literal expression* yang dilindungi oleh Hak Cipta dan *non-literal expression* yang seharusnya mendapatkan perlindungan Paten.





## BAB 3

### Analisis Syarat Patentabilitas Suatu Invensi dan Implikasinya Terhadap Perlindungan Paten di Indonesia

#### 3.1 Kronologis Kasus Apple Melawan Samsung

Sengketa antara Apple dan Samsung di Belanda dimulai sejak Juni 2012 dan diputus pada 24 Agustus 2011.<sup>127</sup> Pada proses persidangan yang berjalan, terdapat tiga klaim paten yang diajukan oleh Apple. Paten pertama adalah *European Patent Portable Electronic Device For Photo Management* (EP 868), kedua adalah *European Patent for Touch Event Model* (EP 948) dan *European Patent for Unlocking a by Performing Gestures on an Unlock Image* (EP 022).<sup>128</sup> Apple menyatakan bahwa *device* buatan Samsung, baik *Tablet computer* maupun *Smartphone*, telah melanggar ketiga patent tersebut.<sup>129</sup>

Pada pokoknya, Apple meminta hakim untuk memutuskan bahwa kedua produk keluaran Samsung telah melanggar ketiga *European Patent* Apple sehingga Apple meminta kepada Hakim agar Samsung berhenti memproduksi, memasok, mengimpor, menawarkan maupun menjual kedua produk tersebut. Apple, dalam tuntutan tambahannya, menuntut agar pihak Samsung menarik kembali *smartphone* maupun *tablet computer* yang telah mereka jual dan memberikan notifikasi<sup>130</sup> kepada konsumen mereka sebagai berikut:

“Dear [name of buyer]

<sup>127</sup> Samsung sebagai pihak tergugat yang dimaksudkan disini adalah:

- a. Samsung Electronic Co. Limited
- b. Samsung Electronic Benelux B.V
- c. Samsung Electronic Europe Logistic B. V
- d. Samsung Electronic Overseas B. V

<sup>128</sup> Perkara antara Apple dengan Samsung ini tidak sebatas pada tiga paten saja, melainkan meliputi juga design patent seperti *EC design patent for pocket computer*; *EC design patent for apparatus for recording and playback of sound or image*; *EC design patent for electronic devices*; dan *EC design patent for graphical user interface*.

<sup>129</sup> *Smartphone* yang dianggap melanggar patent Apple adalah Galaxy S GT-19000; Galaxy Ace GT-S5830; dan Galaxy S II GT-19100. Sedangkan untuk *tablet computer* adalah Galaxy Tab GT-P1000; Galaxy Tab 10.1v GT-P7100; dan Galaxy Tab 10.1 GT-P7510.

<sup>130</sup> Notifikasi ini berlaku juga untuk *smartphones* produksi Samsung tentunya dengan redaksional yang berbeda. Untuk lebih lengkapnya dapat dilihat pada lampiran.

*Some time ago we supplied you with tablet computer from the Galaxy range. In particular, this involves tablet computer of the type Galaxy Tab (GT-P1000) and Galaxy Tab 10.1v (GT-P7100) [fill in with other infringing tablet computers].*

*By judgement of [date of judgement], the judge interlocutory proceedings of the Court of the Hague has ruled that manufacturing, warehousing, offering, selling and/or delivering of these products INFRINGES the patent rights, design patents and/or copyright of Apple Inc., in any case that we have acted unlawfully towards Apple Inc. We ask you to return to us the Galaxy Tablets we supplied to you, if you still have any of them in stock, within 14 days of the date signing of this letter. Of course, we shall reimburse you for the price paid as well as the shipping costs. For the record we would like to mention the fact that by storing, offering and/or selling of the mentioned Galaxy tablet computers you are infringing the intellectual property rights of Apple Inc.”*

Selain itu, Samsung juga harus memberikan notifikasi dalam website mereka ([www.samsung.nl](http://www.samsung.nl)) sebagai berikut:

*“Recently we offered the sale of tablet computers from the Galaxy range in the Netherland. In particular, this involves the tablet computer of the type Galaxy Tab (GT-P1000) and Galaxy Tab 10.1v (GT-P7100).*

*By judgement of [date judgement], the judge in interlocutory proceedings of the Court The Hague has ruled that the sale of these tablet computers infringes the patent rights, design patents and/or copyright of Apple Inc., in any cases that we have acted unlawfully towards Apple Inc., an forbid us from dealing any further in these Galaxy tablet computers on the Dutch market.”*

Berikut tabel *European Patent* yang dilanggar oleh Samsung:

	Tab	Tab 10.1v	Tab 10.1
EP 868	X	X	X
EP 948		X	X

EP 022	X	X	X
--------	---	---	---

	S	S II	Ace
EP 868	X	X	X
EP 948		X	
EP 022	X	X	X

### 3.2 Patent Claim Apple

Pokok pembahasan utama disini terkait dengan tiga patent yang diklaim dimiliki oleh Apple yaitu Patent terkait *Portable Electronic Devices For Photo Management, Touch Gesture Event, dan Unlocking by Performing Gestures on an Unlock Image*. Pada dasarnya perlindungan patent hanya dapat diberikan terhadap suatu invensi sesuai dengan syarat patentabilitas suatu invensi. Secara sederhana apabila suatu invensi telah mendapatkan perlindungan patent maka invensi tersebut diasumsikan telah lolos dalam tahap pengujian sehingga layak diberikan perlindungan paten.

#### 3.2.1 Portable Electronic Device For Photo Management (EP 868)

*European Patent* EP 2059868 (EP 868) terkait dengan *user interface* untuk menggerakkan objek digital berupa foto atau elektronik dokumen lainnya dengan cara melakukan *scrolling* pada *touchscreen display*.<sup>131</sup> EP 868 memungkinkan *user* untuk melakukan *scrolling* pada objek digital berupa foto

<sup>131</sup> Dokumen Paten EP 868 secara detil menyebutkan bahwa:

“A portable electronic device with a touch screen display for photo management is disclosed. One aspect of the invention involves a computer-implemented method in which the portable electronic device displays an array of thumbnail image corresponding to a set of photographic images. The devices replaces the displayed an array of thumbnail images with user-selected photographic image upon detecting a user contact with corresponding thumbnail image in the array. The user-selected photographic image is displayed at a larger scale than the corresponding thumbnail image. The portable device displays a different photographic image in replacement of the user-selected photographic image in accordance with a scrolling gesture. The scrolling gesture comprises a substantially horizontal movement of user contact with the touch screen display.”

yang terdapat pada foto galeri ataupun dokumen elektronik dengan gaya yang elegan dan menarik.

Invensi yang diklaim pada EP 868 adalah perlindungan terhadap metode untuk membuat digital object kedua berupa foto atau dokumen elektrik muncul seketika setelah dilakukan *scrolling* pada objek digital pertama (walaupun dalam keadaan *zoomed*) serta efek *bounce back* yang terjadi seketika apabila terdapat distraksi dalam melakukan *scrolling* pada objek digital pertama baik berupa foto ataupun digital dokumen. Berikut penjelasan sederhana terkait EP 868:<sup>132</sup>

1. Gambar di bawah menunjukkan terdapat dua figur dalam satu dokumen elektronik berupa foto yang terlihat dalam layar.<sup>133</sup>

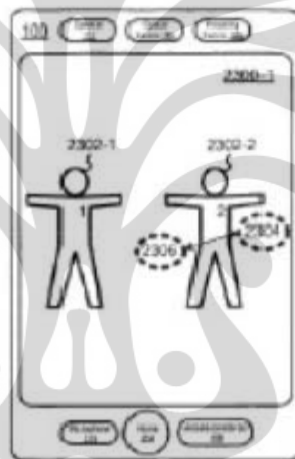


Figure 23A

2. Gambar di bawah menunjukkan bahwa telah dilakukan *zoom* pada dokumen elektronik berupa foto pertama. Hal ini berarti hanya tampak satu figur dalam layar tersebut dan terdapat sisi dari foto pertama tersebut yang tidak tampak (akibat dilakukannya *zoom*).<sup>134</sup>

<sup>132</sup> Penjelasan sederhana terkait fungsi dari EP 868 ini diambil setelah penulis membaca dokumen paten dari EP 868. Selengkapnya terkait dengan dokumen paten EP 868 dapat dilihat pada lampiran.

<sup>133</sup> Paragraf [0140] sampai [0144] pada dokumen paten EP 868 menjelaskan: "The patent describe by means of figures 23 A through 23 H an implementation form of the claimed functionality. This assumes a situation in which a photo shown on a touchscreen shows two male figures."

<sup>134</sup> Penjelasan selengkapnya menyebutkan:

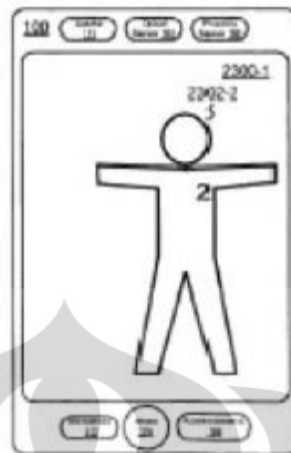


Figure 23B

3. Gambar di bawah menunjukkan dilakukannya sentuhan horizontal pada layar terhadap dokumen elektronik berupa foto pertama yang telah di-*zoom*, gambar tersebut memperlihatkan bahwa foto pertama hasil *zoom* bergerak sedikit demi sedikit sehingga memunculkan foto kedua.<sup>135</sup>

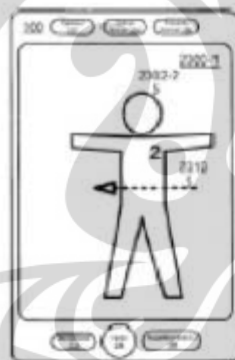


Figure 23C

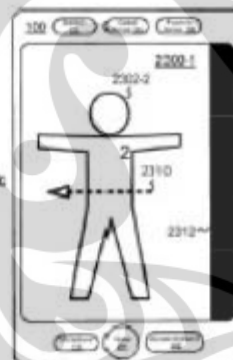


Figure 23D

4. Gambar di bawah memperlihatkan apabila layar tidak lagi menerima *input* berupa sentuhan, maka seketika foto pertama yang telah di-*zoom*

“EP 868 involves the situation on which the photo that is looked at, extends outside the edges of the screen; this means, that one or more of the edges of the photo are not visible. For instance, this may be the case when the user has *zoomed* in on a portion of the photo, as can be seen on figure, where the user has *zoomed* in on the male figure on the right of the photo.”

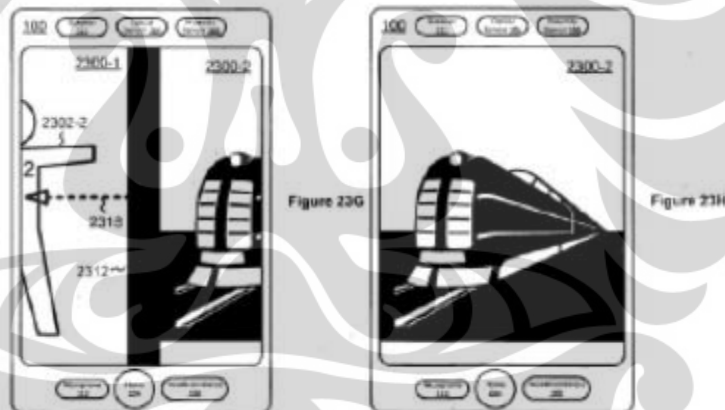
<sup>135</sup> Penjelasan selengkapnya menyebutkan:

“As a result of the zoom action, the right side edge of the zoomed in photo is no longer visible on the screen of the device. When a first movement, such as a horizontal swiping movement from right to left is made over the zoomed in photo, the photo is moved a little bit to the left so that one after the other, the right-hand side edge original hidden by the zoom action as well as area beyond edge become visible.”

akan kembali ke posisi semula (lihat poin 2) dan menimbulkan efek *bounce back*.<sup>136</sup>



5. Gambar di bawah menunjukkan apabila *input* sentuhan horizontal berhasil dilakukan terhadap dokumen elektronik berupa foto pertama (yang telah di-*zoom*) maka akan memunculkan foto kedua dalam ukuran penuh (tidak menerima efek *zoom* sebagaimana foto pertama).<sup>137</sup>



EP 868, sebagaimana dijelaskan di atas, menurut klaim dari pihak Samsung dikatakan tidak valid karena sama dengan *prior art* yaitu WO

<sup>136</sup> Penjelasan selengkapnya menyebutkan:

“At the time when the first (swiping) movement is interrupted (for instance because the finger is removed from the touchscreen), the zoomed in photo slides back by itself again in the opposite direction so that made area visible earlier is no longer visible.”

<sup>137</sup> Penjelasan selengkapnya menyebutkan:

“By performing the second movement, again and successively, the hidden side edge of the photo and the area past the edge are shown, and also a new photo after which the first (zoomed in) photo in the direction of the second (swiping) movement disappears from the screen and the second photo appears on the screen.”

03/081458 (WO 458). Berbeda halnya dengan Hakim yang menyatakan bahwa EP 868 adalah valid karena efek *bounce back* tidak ditemukan dalam prior art (WO 458). Hakim dalam putusannya menjelaskan bahwa:<sup>138</sup>

*“To this respect, in the state of the art (WO 458), it was unknown to make first one swipe (first movement) and then to let the digital object bounce back, and only then to show the next photo as soon as second swipe (second movement) is performed. Judging at this time, this is not evident either for WO 458. That document reveals however swiping through columns. In this context applies that when a “horizontal motion threshold is exceeded, the next column is shown but when the threshold is not exceeded, the column will bounce back and “snap into alignment with the logical column”. The mandatory bounce back can not be found in WO 458 nor is there any indication to that effect. Consequently EP 868 considered being valid for the time being.”*

Berikut penjelasan sederhana dari WO 458:<sup>139</sup>

1. WO 458 merupakan metode untuk melihat maupun menavigasikan elektronik dokumen dengan menggunakan sentuhan<sup>140</sup> terhadap layar pada *device* yang memiliki layar kecil seperti PDA, telepon, atau lainnya.
2. WO 458 menjelaskan beberapa metode untuk menavigasikan elektronik dokumen yang besarnya melebihi layar pada *device*. Salah satu caranya adalah fitur “*snap*” yang bekerja apabila pengguna tidak lagi melakukan sentuhan pada layar maka sudut pada layar *device* akan secara otomatis “*snap*” pada struktur dokumen elektronik yang ukurannya jauh lebih besar. Hal ini bertujuan untuk memastikan layar

<sup>138</sup> Putusan dapat dilihat selengkapnya pada Lampiran

<sup>139</sup> Penjelasan sederhana terkait fungsi dari WO 458 ini diambil setelah penulis membaca dokumen paten dari WO 458. Selengkapnya terkait dengan dokumen paten WO 458 dapat dilihat pada lampiran.

<sup>140</sup> Dokumen paten WO 458 meenyebutkan contoh touch screen display sebagai “*the display may include a touch screen and tracking motion of the input tool may include tracking motion of the input tool on the touch screen*”. Lihat pada dokumen paten WO 458 hlm. 3 baris 10 dan 11 pada lampiran.

pada *device* dapat menampilkan dokumen elektronik yang ukurannya jauh lebih besar secara benar.

3. Gambar di bawah mengilustrasikan bagaimana WO 458 melakukan *panning* dan *scrolling* pada suatu elektronik dokumen. Dapat dilihat bahwa terdapat *webpage* yang ukurannya jauh lebih besar daripada layar suatu PDA. Hanya sedikit bagian dari *web* tersebut yang dapat ditampilkan pada layar PDA. Panah pada gambar di bawah menunjukkan cara melakukan *scrolling* dan *panning* untuk melihat area yang berbeda pada *webpage* secara keseluruhan.<sup>141</sup>

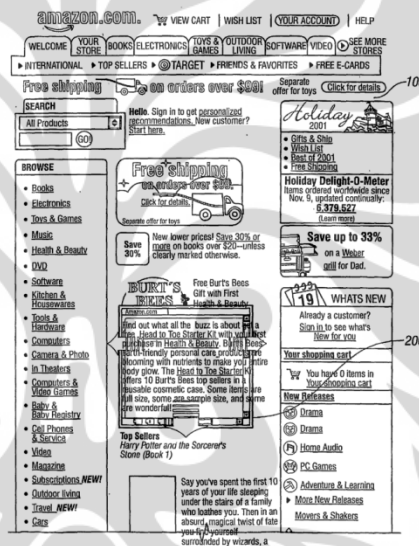


FIG. 2

4. Gambar di bawah menunjukkan bagaimana WO 458 melakukan *horizontal panning* terhadap suatu *webpage*.<sup>142</sup>

<sup>141</sup> Penjelasan selengkapnya menyebutkan:

“Figure 2 illustrates a display window 200 superimposed onto the page 100. The display window 200 is representative of the display of, for example PDA. Since the page and column are each larger than the display window 200, the user must scroll back and forth to read each line of text. PDA browsers may use various reformatting method to enhance the readability to the page. Reformatting may include scaling down images, text size, and other page components.”

<sup>142</sup> Penjelasan selengkapnya menyebutkan:

“as the user navigates to various positions on the page 900, animation effects 925 are provided to give the user a better sense of direction and position. The animation effects add a sense of motion to the content being displayed. For example, in one implementation, when the user actuates a navigation button 930 to move to a new location on the page 900, the user sees the page 900 slowly scrolling across the display window, as represented by the



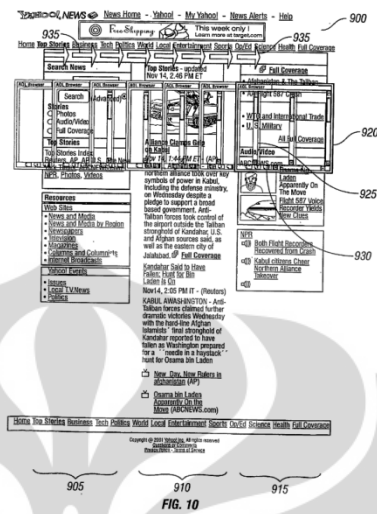


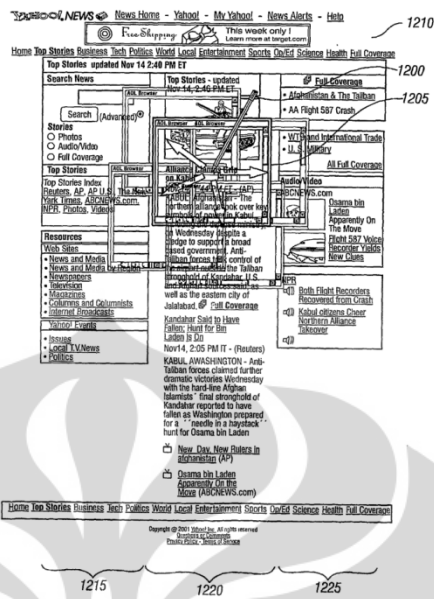
FIG. 10

5. Gambar di bawah menunjukkan bagaimana WO 458 melakukan *panning* baik secara vertikal, horizontal, maupun diagonal dengan menggunakan *stylus*.<sup>143</sup>

*series of arrows 935 in Figure 10, until the new location is centered on the display window 920. Animation also may be provided in response to a stylus or finger used on a display window with a touchscreen. The touchscreen may include a resistive sensor, a capacitive sensor, an acoustic wave sensor, or an infrared sensor.”*

<sup>143</sup> Penjelasan selengkapnya menyebutkan:

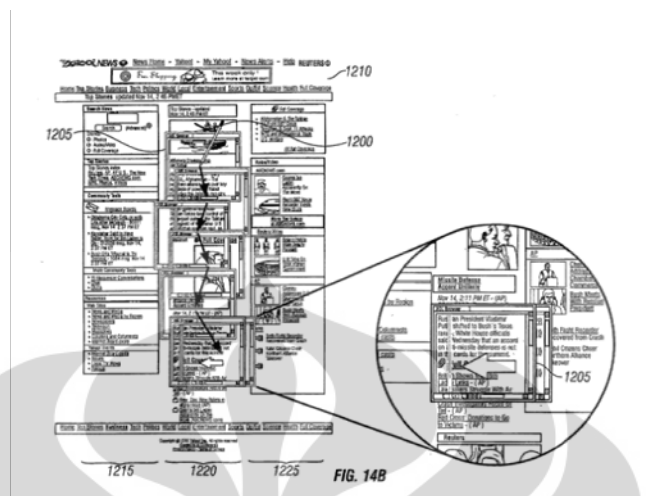
*“on a stylus-based PDA, the user can use a stylus 1200 to scroll a display window 1205 vertically down on a page 1210 in order to read a column 1215, 1220 or 1225 of text of the page 1205.”*



6. Gambar di bawah menunjukkan bagaimana WO 458 melakukan pembagian kolom (disebut dengan istilah *logical column*) terhadap dokumen elektronik yang ukurannya lebih besar. *Logical column* 1215, 1220 dan 1225 merupakan sub-dokumen terhadap *webpage*.<sup>144</sup>

<sup>144</sup> Penjelasan selengkapnya menyebutkan bahwa:

*“in another implementation, the vertical alignment control is enabled when the user lifts the pen 1200 from the display 1205. This causes the logical column 1220 to snap into alignment with the display window 1205 as the user stop scrolling. The user can adjust the snap sensitivity by, for example, setting the alignment control to snap to the nearest logical column based on a user-defined snap threshold. If the user’s scrolling does not exceed the threshold, which indicates an intention to continue to view the text column 1220, the display 1205 centers the logical column 1210 as the pen 1200 is lifted from the screen. The snap-on-column feature can also be animated to provide an appearance of movement as the display scrolls to the correct column-viewing position.”*



Pada penjelasan di atas dapat kita lihat bahwa antara EP 868 dan WO 458 sama-sama mengklaim terhadap metode untuk melihat dokumen elektronik yang ukurannya jauh lebih besar daripada layar pada suatu *device*. Kemudian merujuk pada penjelasan sederhana di atas, dalam melakukan pengoperasiannya untuk melihat dokumen elektronik yang ukurannya jauh lebih besar terdapat beberapa perbedaan antara EP 868 dengan WO 458 yaitu:

1. EP 868 didalamnya terdapat fitur *bounce back*. Hal ini tentunya diklaim lebih canggih dari fitur *snap* yang terdapat dalam WO 458. Fitur *bounce back* juga diklaim sebagai solusi untuk mempermudah *user* dalam berinteraksi secara fleksibel dengan *devicenya*.
2. EP 868 memungkinkan *user* untuk melakukan fungsi *zoom in* dan *zoom out* pada *device* hal ini berbeda dengan WO 458 yang tidak mengenal fungsi tersebut di dalamnya. Pengoperasian WO 458 sebatas menggunakan *touch screen* dan *tracking motion tool*.
3. EP 868 tidak mengenal *logical column* sebagaimana WO 458.

Hakim dalam perkara ini menyebutkan bahwa EP 868 valid. Validitas suatu invensi ditentukan oleh tiga faktor yaitu kebaruan, *nonobviousness*, dan utilitas. Ketiga faktor ini memiliki keterkaitan antara satu dengan lainnya. Faktor kebaruan terkait dengan apakah invensi tersebut telah ada sebelumnya dan apakah terdapat hal baru (lompatan teknologi) yang terkandung dalam invensi tersebut.

Terkait dengan hal baru (lompatan teknologi) ini haruslah sesuatu yang tidak dapat diprediksi sebelumnya (*nonobviousness*). Hal baru (lompatan teknologi) tersebut tentunya merupakan solusi atas permasalahan teknis (memiliki kegunaan teknis/utilitas). Adapun EP 868 jika dilihat dari ketiga faktor ini adalah sebagai berikut:

#### 1. Kebaruan atau *Novelty*

Sebagaimana telah disebutkan sebelumnya, secara sederhana faktor kebaruan terkait dengan apakah suatu invensi tersebut sudah ada sebelumnya atau terdapat lompatan teknologi baru dalam invensi tersebut. EP 868 bukanlah merupakan sesuatu yang baru, terdapat invensi setipe dengan EP 868 yaitu WO 458. Namun perlu diketahui disini bahwa EP 868 menawarkan hal baru yang sebelumnya, sebagaimana diklaim Apple, tidak terdapat dalam WO 458. Hal baru yang ditawarkan oleh Apple dalam klaimnya adalah fitur *bounce back* dan fungsi *zoom* dimana *user* dapat secara bebas melihat dokumen elektronik yang ukurannya jauh lebih besar daripada layar *device* bersangkutan.

Kedua hal baru sebagaimana klaim Apple ini tentunya perlu ditinjau dari dua sisi yaitu subjektif dan dan kedua objektif. Terkait dengan kebaruan yang sifatnya subjektif, muncul pertanyaan apakah fitur *bounce back* dan *zoom* dapat diantisipasi oleh ahli-ahli dalam bidang teknologi pada waktu itu. Selanjutnya terkait dengan sifat objektifnya muncul pertanyaan apakah fitur *bounce back* dan *zoom* telah diantisipasi oleh *prior art*, dalam hal ini WO 458.

#### 2. *Inventive Steps*

Faktor selanjutnya adalah mengenai *inventive steps*. Poin penekanan utama dalam *inventive steps* ini adalah seberapa banyak suatu invensi memiliki perbedaan dengan *prior art*. Perbedaan kecil walaupun mengandung langkah inventif dapat diberikan perlindungan paten sebagaimana pendapat Learned Hand.<sup>145</sup> Jika mengacu pada kasus Apple

<sup>145</sup> Learned hand menjelaskan mengenai *doctrine of small structure* dengan menyatakan bahwa “*very slight structural changes maybe enough to support a patent, when they presuppose a use not discoverable without inventive imagination. We are to judge such*

melawan Samsung, perbedaan antara EP 868 dengan WO 458 adalah fitur *bounce back*. Jika mengacu pada pendapat Learned hand menurut doktrin *small structure*, EP 868 dapat diberikan perlindungan paten. Namun perlu diingat bahwa perbedaan kecil tersebut haruslah tidak dapat diantisipasi sebelumnya oleh prior art. Terkait dengan hal ini dapat dilihat dalam penjelasan *doctrine of anticipation* dan *doctrine of equivalents*.

Secara sederhana *doctrine of anticipation* menyebutkan bahwa suatu invensi yang akan dipatenkan (*should be patented*) haruslah memiliki lompatan teknologi yang mana lompatan tersebut tidak dapat diprediksi oleh *prior art*. Jika mengacu pada kasus Apple melawan Samsung maka EP 868 haruslah memiliki lompatan teknologi yang tidak bisa diprediksi oleh *prior art* (WO 458). Untuk mengetahui terprediksi atau tidaknya suatu invensi oleh *prior art* tentulah harus melihat kedua dokumen paten yang bersangkutan, dalam hal ini dokumen paten EP 868 dan dokumen paten WO 458. Dokumen paten WO 458, menurut pandangan hakim, tidak menjelaskan sama sekali atau indikasi adanya fitur *bounce back* jika *input* layar sentuh tidak menerima sentuhan (terdapat distraksi pada saat sentuhan pertama). Jika terjadi distraksi terhadap sentuhan pertama pada WO 458, maka dokumen elektronik akan otomatis menyesuaikan dengan *logical column*. Namun perlu diingat bahwa fitur *bounce back* sebagaimana klaim Apple hanya sebatas animasi atau pemanis suatu *User Interface*. Baik WO 458 maupun EP 868 sama-sama menjelaskan apabila sentuhan pertama terkena distraksi yang menyebabkan *device* tidak lagi menerima *input* berupa sentuhan. Perbedaan keduanya adalah dalam WO 458 menggunakan efek *snap* sedangkan EP 868 menggunakan efek *bounce back*. Atas basis *doctrine* inilah EP 868 dapat dikatakan tidak memiliki unsur langkah inventif.

Doktrin kedua yang digunakan untuk menganalisis unsur langkah inventif dari EP 868 adalah *Doctrine of Equivalent*. *Doctrine of equivalents* menyebutkan bahwa:

*devices, not by the mere innovation in their former material, but by the purpose which dictated them and discovered their function."*

*“A product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is equivalence between the elements of the accused product or process and the claimed elements of patented invention.”*

Merujuk pada definisi tersebut dapat disimpulkan bahwa suatu produk atau proses yang secara harafiah tidak melanggar paten (karena memiliki kegunaan yang berbeda) justru dapat dinyatakan melanggar paten jika ada kesamaan elemen dari produk atau proses dari paten penemuan sebelumnya. Berdasarkan doktrin ini perlu dilihat apakah WO 458 sebagai *prior art* memiliki kesamaan terhadap EP 868. Jika kita lihat secara seksama dalam *patent claim* kedua invensi ini, keduanya sama sama terkait dengan metode untuk mengoperasikan elektronik dokumen yang ukurannya jauh lebih besar dibandingkan dengan ukuran layar suatu *device*. Baik WO 458 maupun EP 868 dapat menavigasikan dokumen elektronik dengan menggunakan sentuhan vertikal maupun horizontal. Oleh karena itu berdasarkan pada *doctrine of equivalents* antara WO 458 dengan EP 868 memiliki kesamaan pada pokoknya terkait dengan dua hal tersebut.

### 3. *Utility*

Penekanan utama dari *utility* disini adalah suatu invensi harus memiliki fungsi teknis. Poin penting dari fungsi teknis disini adalah invensi tersebut *offers a technical solution*. Fungsi teknis dari suatu invensi tentunya dapat dilihat dalam dokumen paten terkait (EP 868 maupun WO 458). EP 868 dalam dokumen patennya sebatas menyebutkan fungsi teknis dari invensi ini yaitu:

*“The disclosed embodiment relates generally to portable electronic devices, and more particularly, to portable devices for photo management, such as digital photographing, photo editing and emailing photos.”*

Fungsi teknis sebagaimana yang diklaim Apple dalam dokumen patennya sama sekali tidak menunjukkan adanya suatu permasalahan yang

terpecahkan (*technical solutions*) atas adanya invensi EP 868. EP 868 sebatas menyebutkan mengenai fungsi dari patennya itu sendiri. Lain halnya dengan dokumen paten WO 458 yang secara jelas menyebutkan bahwa:

*“The following description relates generally to a viewing and navigation aid for displaying information on an electronic device having limited display capability.”*

Dapat dilihat bahwa di atas terdapat kata *“an electronic device having limited display capability”*. Hal tersebut menyebutkan mengindikasikan bahwa WO 458 merupakan solusi teknis atas permasalahan suatu *device* yang memiliki keterbatasan ukuran layar. Kemudian terdapat *doctrine of best mode* yang menyatakan bahwa:

*“A best mode is a statutory bargained for exchange by which a patentee obtains the right to exclude others from practicing the claimed invention for a certain time period, and the public receives knowledge of the preferred embodiments for practicing the claimed invention.”*

Artinya disini Apple sebagai pihak pemohon paten apabila invensinya diberikan perlindungan paten maka Apple memiliki kewajiban untuk menunjukkan bagaimana invensi mereka dalam dokumen paten. Kembali lagi pada kasus Apple melawan Samsung, artinya disini Apple sebagai *patentee* dalam dokumen paten EP 868 memiliki kewajiban untuk menunjukkan kepada publik bahwa invensinya merupakan *technical solution* terhadap permasalahan yang ada. Namun sayangnya hal ini tidak dilakukan oleh pihak Apple.

Berdasarkan penjelasan sederhana di atas, maka saya merasa keberatan terkait dengan pernyataan hakim yang menyatakan bahwa EP 868 *valid*. EP 868 tidak dapat dikatakan *valid* karena invensi tersebut tidak memiliki nilai kebaruan, dapat diantisipasi oleh *prior art*, dan gagal untuk menunjukkan solusi teknis terkait permasalahan yang dihadapi.

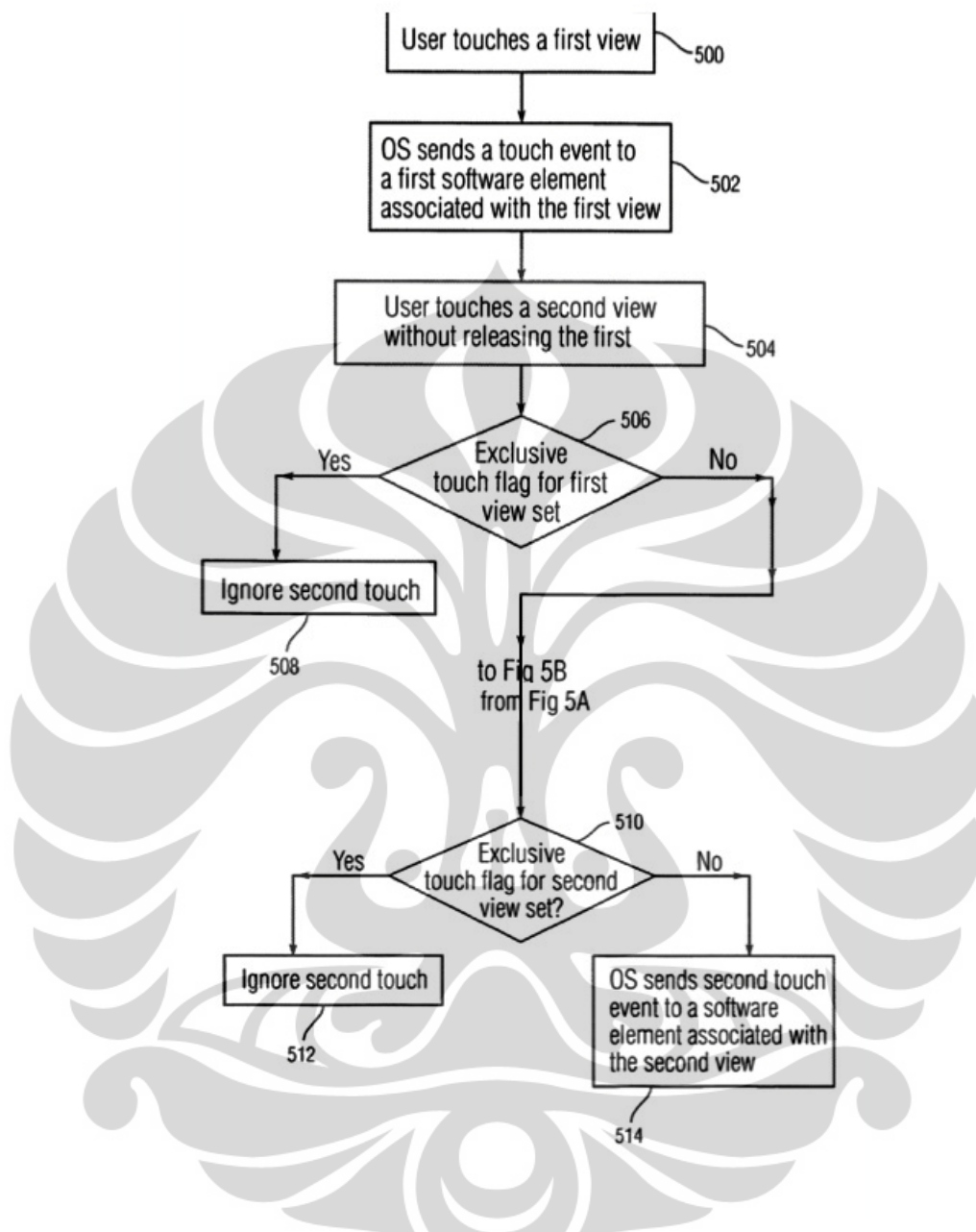
### 3.2.2 *Touch Event Model (EP 948)*

*European Patent* EP 2098948 (EP 948) merupakan paten yang dimiliki Apple terkait dengan *user interface* untuk mengoperasikan *device* buaatannya dengan menggunakan *input* berupa sentuhan. Lompatan inovasi yang dilakukan oleh Apple disini adalah *user* tidak hanya dapat mengoperasikan *device* buatan Apple dengan satu sentuhan, melainkan dapat mengoperasikannya dengan menggunakan lima sentuhan sekaligus (*multi-touch event*).<sup>146</sup> Samsung dalam persidangan menyatakan bahwa pengoperasian *device* buaatannya tidak mengikuti apa yang dimaksudkan dalam EP 948.

EP 948 dalam invensi Apple mengenal adanya *Exclusive Touch*. *Exclusive touch* secara sederhana disini artinya *device* akan berbeda fungsinya apabila dioperasikan dengan menggunakan satu sentuhan atau dengan beberapa sentuhan sekaligus.

<sup>146</sup> EP 948 relates to a device with touchscreen which can receive and process several touches simultaneously: a multi-touch touchscreen.



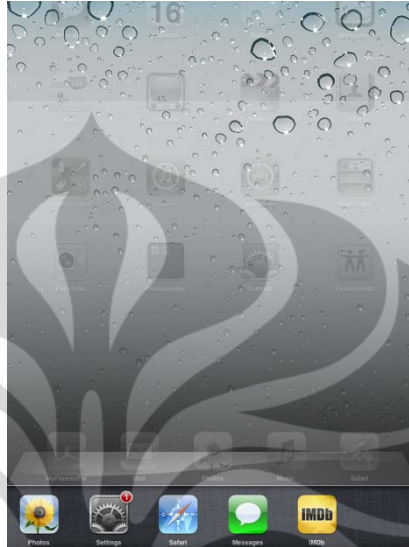


Berdasarkan gambar<sup>147</sup> di atas dapat dilihat bahwa *User* akan melakukan sentuhan pertama pada area sentuhan *hardware*. *Input* berupa sentuhan ini kemudian akan dibaca oleh *Operating System*. Apabila kemudian *user* melakukan sentuhan kedua tanpa melepas sentuhan pertama maka pertama kali *software* akan membaca apakah terdapat *exclusive touch event* di dalamnya. Apabila jawabannya adalah

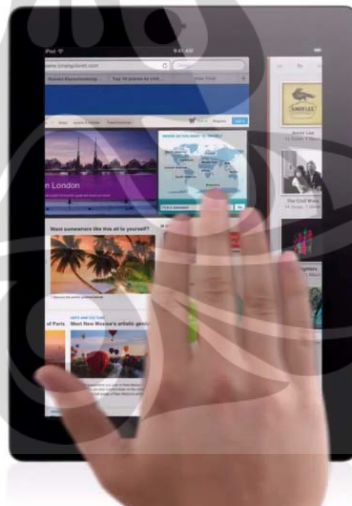
<sup>147</sup> Penjelasan detail terkait gambar ini dapat dilihat dalam dokumen Paten EP 948 paragraf [0046] sampai [0054] pada lampiran.

“YA” maka output yang dikeluarkan akan berbeda layaknya apabila dioperasikan dengan menggunakan satu sentuhan. Berikut adalah gambar fitur dari EP 948:

1. Empat sentuhan secara vertikal ke atas maka akan memunculkan *multitasking bar*.



2. Empat sentuhan secara horizontal maka akan melakukan transisi antar aplikasi yang sedang dibuka.



3. *Pinch* (menggunakan lima sentuhan jari) saat sedang membuka aplikasi maka akan secara otomatis kembali ke menu utama



Pada proses persidangan Samsung menyatakan bahwa *device* buatan mereka baik *smartphone* maupun *tablet computer* memang dapat mendeteksi *input* berupa sentuhan hingga sepuluh jari. Namun *device* buatan Samsung tidak mengenal adanya perbedaan *multitouch gestures* antara satu sentuhan dengan lebih dari satu sentuhan layaknya Apple. Hakim dalam putusannya juga menyebutkan bahwa:

*“Judging at this time, the samsung products under attack do not fall under the extent of protection of EP 948. The invoked claims in fact prescribe that with “each view” an “exclusive touch flag” is associated. At this state of affairs does not require further discussion.”*

### **3.2.3 Unlocking by Performing Gestures on an Unlock Image (EP 022)**

*European Patent* EP 1964022 (EP 022) terkait dengan fitur untuk membuka *device* yang terkunci dengan cara menggerakkan digital objek terhadap instruksi yang sudah tertera pada layar *device*. Apple mengklaim bahwa metode untuk membuka *device* dengan *gesture* merupakan hal yang baru dan berbeda. Adapun alur dan penjelasan sederhana terhadap klaim paten ini sebagai berikut:<sup>148</sup>

<sup>148</sup> Penjelasan sederhana terkait fungsi dari EP 022 ini diambil setelah penulis membaca dokumen paten dari EP 022. Selengkapnya terkait dengan dokumen paten EP 022 dapat dilihat pada lampiran.

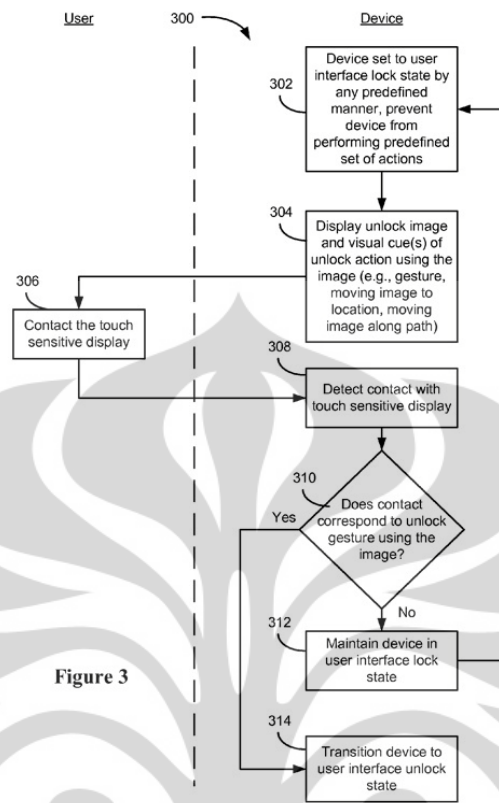
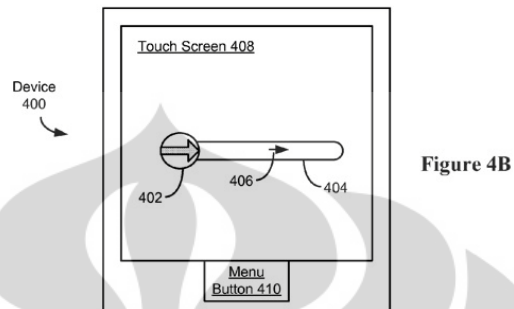


Figure 3

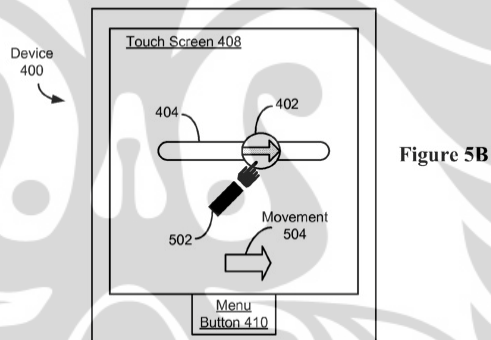
1. Gambar di bawah menunjukkan *device* dalam keadaan terkunci akibat suatu hal tertentu.



2. Gambar di bawah menunjukkan bahwa pada *device* yang terkunci terdapat *unlock image* dan petunjuk *virtual* untuk membuka *device* tersebut.<sup>149</sup>



3. Gambar di bawah menunjukkan dilakukannya *input* berupa sentuhan horizontal pada *unlock image* mengikuti petunjuk *virtual* yang terdapat pada *device*.<sup>150</sup>



4. Gambar di bawah menunjukkan apabila sentuhan horizontal tersebut sesuai dengan petunjuk *virtual* maka akan membuka *device* tersebut.<sup>151</sup>

<sup>149</sup> Penjelasan selengkapnya menyebutkan:

“A device 400 include a touch screen 408 and a menu button 410. The display is locked and the touch screen 408 is displaying an unlock image 402 and visual clues. The visual clues shown include a channel 404 indicating the path of the gesture/movement along wich unlock image 402 is to be dragged. The arrow 406 and the arrow on the unlock image 402 may be animated.”

<sup>150</sup> Penjelasan selengkapnya menyebutkan:

“the user is in the process of performing the gesture by moving her finger, which is in continous contact with the touch screen 408, in the direction of movement 504.”

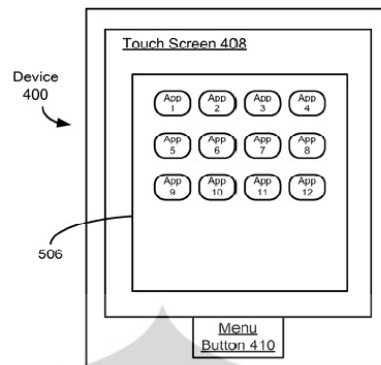


Figure 5D

Sebagaimana telah dijelaskan secara sederhana bahwa EP 022 merupakan invensi terhadap metode untuk membuka *device* yang terkunci dengan menggunakan *input* berupa sentuhan. Samsung menyatakan bahwa teknologi *swipe to unlock* milik Apple sama dengan yang dimiliki oleh Neonode Inc. Adapun teknologi daripada Neonode Inc. adalah sebagai berikut:<sup>152</sup>

1. Gambar di bawah menunjukkan handphone buatan Neonode Inc yang pengoperasiannya menggunakan sentuhan. Pengoperasian Handphone ini memang dikhususkan untuk menggunakan satu buah jari.

<sup>151</sup> Penjelasan selengkapnya menyebutkan:

*“the device 400 displays a menu 506. The menu 506 includes interactive user-interface objects corresponding to various application or operations. A user may interact with the user-interface object to activate an application or perform an operation.”*

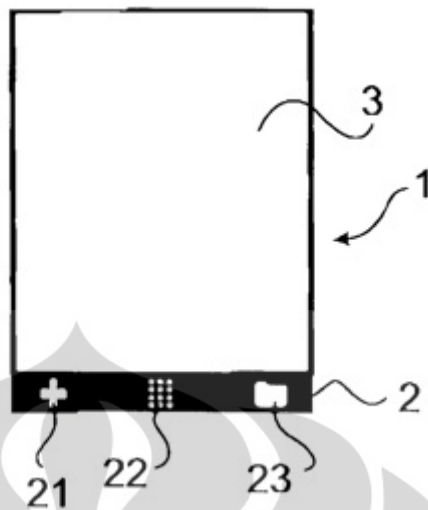
<sup>152</sup> Penjelasan sederhana terkait fungsi dari paten milik Neonode Inc diambil setelah penulis membaca dokumen paten dari US 8095879. Selengkapnya terkait dengan dokumen paten US 8095879 dapat dilihat pada lampiran.



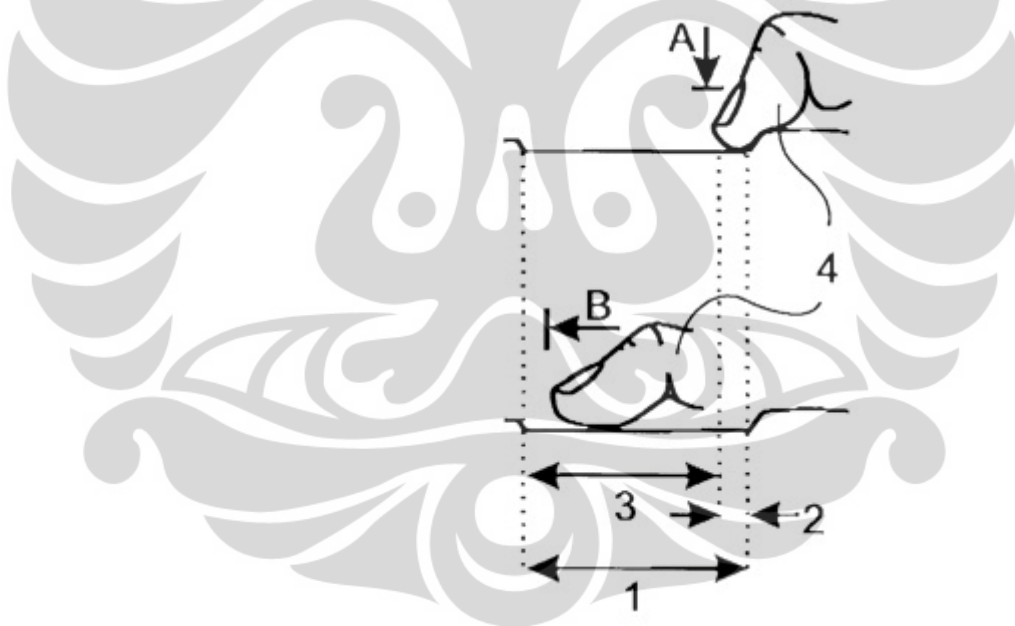
2. *Device* ini dibagi menjadi tiga bagian utama yaitu pertama adalah *device* itu sendiri sebagai suatu *hardware*, kedua adalah area menu dan yang ketiga adalah area sentuhan. Area menu itu sendiri sebagaimana gambar di bawah dibagi lagi menjadi tiga yaitu 21 sebagai *general application*, 22 sebagai *keyboard* dan 23 sebagai *task manager*.<sup>153</sup>

<sup>153</sup> Penjelasan selengkapnya menyebutkan:

“*Figure 1 illustrates a user interface for a mobile handheld computer unit. The user interface according to the present invention is specifically adapted to computer units comprising a touch sensitive area 1, which is divided into a menu area 2 and a display area 3.*”



3. Metode pengoperasian dari *device* ini dilakukan dengan melakukan sentuhan dari titik A ke arah titik B (sentuhan vertikal) pada area sentuhan.<sup>154</sup>



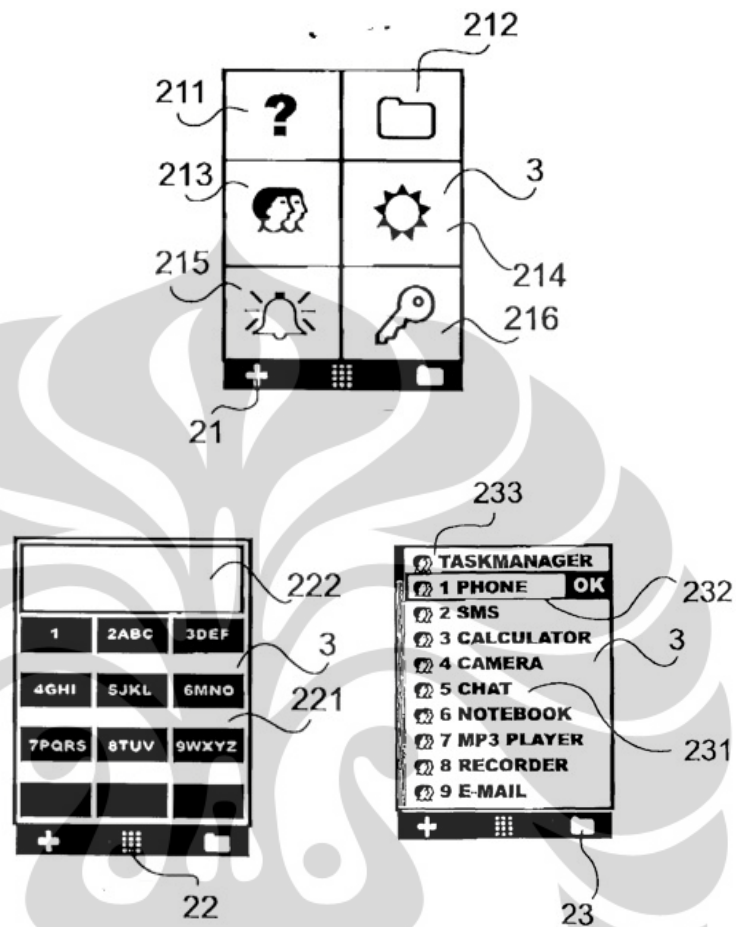
4. Sentuhan vertikal yang dilakukan pada area sentuhan memiliki efek yang berbeda jika dilakukan pada bagian 21, 22, ataupun 23. Sentuhan

<sup>154</sup> Penjelasan selengkapnya menyebutkan:

*“Figure 2 shows that any one of these three functions 21,22,23 can be activated when the touch sensitive area 1 detects a movement of an object 4 with its starting point A within the representation of a function on the menu area 2 and with a direction B from the menu area 2 to the display area 3.”*



vertikal pada bagian 21 akan membuka *general application*, 22 akan membuka *keyboard*, dan 23 akan membuka *task manager*.<sup>155</sup>



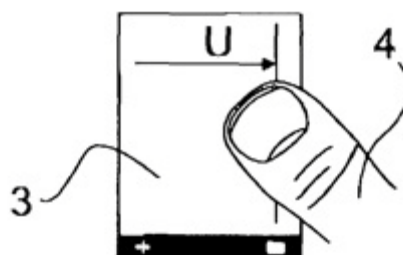
5. Gambar di bawah menunjukkan *device* dalam keadaan terkunci (*locked*) dan apabila dilakukan *input* berupa sentuhan horizontal pada area sentuh maka secara otomatis akan membuka *device* tersebut.<sup>156</sup>

<sup>155</sup> Penjelasan ini terdiri dari kumpulan gambar *Figure 3*, *Figure 5*, dan *Figure 6*. Berikut penjelasannya:

“*Figure 3* shows that if the first function 21 is activated, then the display area 3 is adapted to display icons 211, 212, 213, 214, 215, 216 representing services or functions depending on the current active application. *Figure 5* shows that if the second function 22 is activated, then the display area 3 is adapted to display a keyboard 221 and a text field 222. *Figure 6* shows that if the third function 23 is activated, then the display area 3 is adapted to display a list 231 with a library of available applications and files on the computer unit.”

<sup>156</sup> Penjelasan selengkapnya menyebutkan:

“*Figure 11* shows that moving U the object 4 from the left of the display area 3 to the right of the display area 3 moves active application, function, service or setting on one step forwards.”



6. Gambar di bawah menunjukkan apabila dilakukan sentuhan horizontal (ke arah V) pada area sentuhan maka akan secara otomatis mengunci *device* tersebut (menutup aplikasi yang sedang berjalan).<sup>157</sup>



Berdasarkan penjelasan sederhana di atas, terdapat perbedaan mendasar diantara keduanya yaitu dalam EP 022 instruksi untuk membuka suatu *device* dijelaskan dengan jelas/*slide to unlock* (menggerakkan digital objek sesuai dengan instruksi yang tertera pada layar). Apple dalam menegaskan dua perbedaan penting terkait dengan EP 022 yaitu pertama invensi *slide to unlock* lebih *user friendly* (EP 022 *providing a more user friendly procedure*) dan kedua *user* harus menggerakkan digital objek pada *predefined path* yang artinya *user* memiliki interaksi dengan *hardware device* Apple (*User has interaction with the devices*).

Sebagaimana telah diketahui bahwa suatu invensi perlu memenuhi unsur kebaruan, memiliki langkah inventif dan memiliki kegunaan untuk dapat diberi perlindungan paten. Terkait dengan EP 022 maka untuk menyatakan valid

<sup>157</sup> Penjelasan selengkapnya menyebutkan:

“Figure 12 shows that, in a similar manner, the active application, function, service, or setting is closed or backed one step by moving V the object 4 from the right of the display area 3 to the left of the display area3.”

tidaknya paten ini maka perlu dibedah dengan menggunakan ketiga unsur ini, yaitu:

1. Kebaruan atau *Novelty*

Kebaruan pada dasarnya memiliki arti invensi yang terdapat dalam EP 022 sebelumnya tidak pernah ada (*previously unknown*) atau tidak ada sistem yang memberikan perlindungan paten terhadap invensi tersebut. Perlu diketahui bahwa sebelum seseorang mendaftarkan invensinya untuk mendapatkan perlindungan paten, maka orang tersebut harus mengecek terlebih dahulu apakah invensinya tersebut sudah ada yang serupa sebelumnya. Jika dalam kasus di atas maka seharusnya Apple melakukan pengecekan di *European Patent Office*. Kemudian barulah EPO akan melakukan eksaminasi terkait apakah invensi tersebut dapat diberikan perlindungan paten. Eksaminasi ini berbeda beda tiap negara dan masing-masing negara memiliki *examination guidelines*-nya sendiri.

Samsung dalam sengketa ini menyatakan bahwa EP 022 invalid karena telah ada invensi sebelumnya yang memiliki fitur serupa dengan *slide to unlock* yang diklaim oleh pihak Apple. Invensi tersebut dimiliki oleh Neonode Nim.Inc yang telah didaftarkan terlebih dahulu pada tahun 2003. Neonode Nim merupakan *handphone* yang dibuat secara khusus untuk dioperasikan dengan satu jari serta menggunakan sensor sentuhan. Neonode Nim dalam dokumen patennya telah menyebutkan mengenai fungsi *slide to unlock* yang setipe dengan EP 022. Berdasarkan alasan inilah pihak Samsung menyatakan bahwa EP 022 tidak valid.

2. *Inventive steps*

Unsur kedua yang perlu dipenuhi adalah bahwa suatu invensi haruslah mengandung langkah yang inventif. Artinya disini invensi tersebut haruslah memiliki lompatan invensi yang besar yang tidak dapat diantisipasi sebelumnya (*nonobviousness*). Kata prediksi disini memiliki unsur subjektifitas yang sangat tinggi. Oleh karenanya terdapat dua parameter untuk menentukan apakah suatu invensi ini dapat diprediksi atau tidak yaitu yang pertama apakah invensi ini dapat diantisipasi oleh

ahli-ahli di bidangnya dan yang kedua adalah apakah invensi ini tidak dapat diantisipasi oleh *prior art*.

Terkait dengan antisipasi terdapat doktrin yang dapat digunakan, yaitu *doctrine of anticipation*. Secara sederhana, *doctrine of anticipation* disini menyebutkan bahwa suatu invensi yang akan dipatenkan (*should be patented*) haruslah memiliki lompatan teknologi yang mana lompatan tersebut tidak dapat diprediksi oleh *prior art*. Jika mengacu pada kasus Apple melawan Samsung maka EP 022 haruslah memiliki lompatan teknologi yang tidak bisa diprediksi oleh *prior art* (Neonode Nim). Untuk mengetahui terprediksi atau tidaknya suatu invensi oleh *prior art* tentulah harus melihat kedua dokumen paten yang bersangkutan, dalam hal ini dokumen paten EP 022 dan dokumen paten Neonode Nim. Fitur *slide to unlock* yang terdapat dalam EP 022, untuk mengetahui apakah EP 022 terprediksi, haruslah disebutkan dalam dokumen paten Neonode Nim. Mengacu pada dokumen paten Neonode Nim (US 8095879 B2) yang dipublikasikan pada Juni 2004, fitur *slide to unlock* sudah dijelaskan di dalamnya. Dokumen paten tersebut secara sederhana menjelaskan bahwa untuk melakukan aktivasi *device* dari Neonode Nim maka *user* perlu melakukan sentuhan horizontal pada *predefined path*. Hal ini jelaslah setipe dengan fitur *slide to unlock* yang terdapat dalam EP 022. Dikatakan setipe karena dalam EP 022 *user* haruslah menggerakkan *digital object* terhadap *predefined path*. Berdasarkan basis inilah EP 022 dikatakan invalid.

### 3. *Utility*

Poin penting dari *utility* disini adalah invensi tersebut haruslah memberikan solusi teknis (*offer a technical solution*). Terkait dari solusi teknis yang dipecahkan disini biasanya sudah terdapat dalam dokumen paten yang bersangkutan. EP 022 dalam dokumen patenya tidak menyebutkan secara jelas terkait dengan *technical problems* yang dapat diatasi oleh invensi mereka, berbeda halnya dengan Neonode Nim yang menyebutkan bahwa:<sup>158</sup>

*“It is a problem to provide a user-friendly interface that is adapted to handle a large amount of information and different kinds of traditional computer-related applications on a small handheld computer unit. It is a problem to provide a user interface that is simple to use, even for inexperienced users of computers or handheld devices. It is a problem to provide a small handheld computer unit with an easily accessible text input function. It is also problem to provide a simple way to make the most commonly used functions for navigation and management available in the environment of a small handheld computer unit.”*

Berdasarkan ketiga parameter di atas, maka EP 022 dapat dikatakan invalid. Hakim dalam putusannya beranggapan sama dengan menyatakan *“the EP 022 cannot presently be deemed to be inventive, the claim relating to it must be unseccessful on that account, and no ruling is needed as to whether there is a case of infringement.”*.

### **3.3 Implikasi Sengketa Apple Melawan Samsung Terhadap Perkembangan dan Perlindungan Paten di Indonesia**

Putusan pada sengketa antara Apple dan Samsung di Belanda cukup mengagetkan. Hakim dalam putusannya menyatakan bahwa:

1. *Forbids the defendants from violating the Dutch part of EP 868 after the passage of 7 weeks and one day after the serving of the judgement in any manner, directly or indirect;y by manufacturing, storing, offering, importing, marketing, selling and/or otherwise dealing with smartphones Halaxy S, S II, and Ace.*
2. *Orders the defendants to pay an immediately payable penalty of EUR 100,000 to the plaintiffs for each day or part of a day or, to be chosen by plaintiffs, of EUR 100,000 per violating products, whereby it can*

<sup>158</sup> EP 022 dalam *Technical Field* hanya menyebutkan bahwa *“the disclosed embodiments relate generally to user interface that employ touch-sensitive displays, and more particularly, to the unlocking of user interface on portable electronic devices.”*

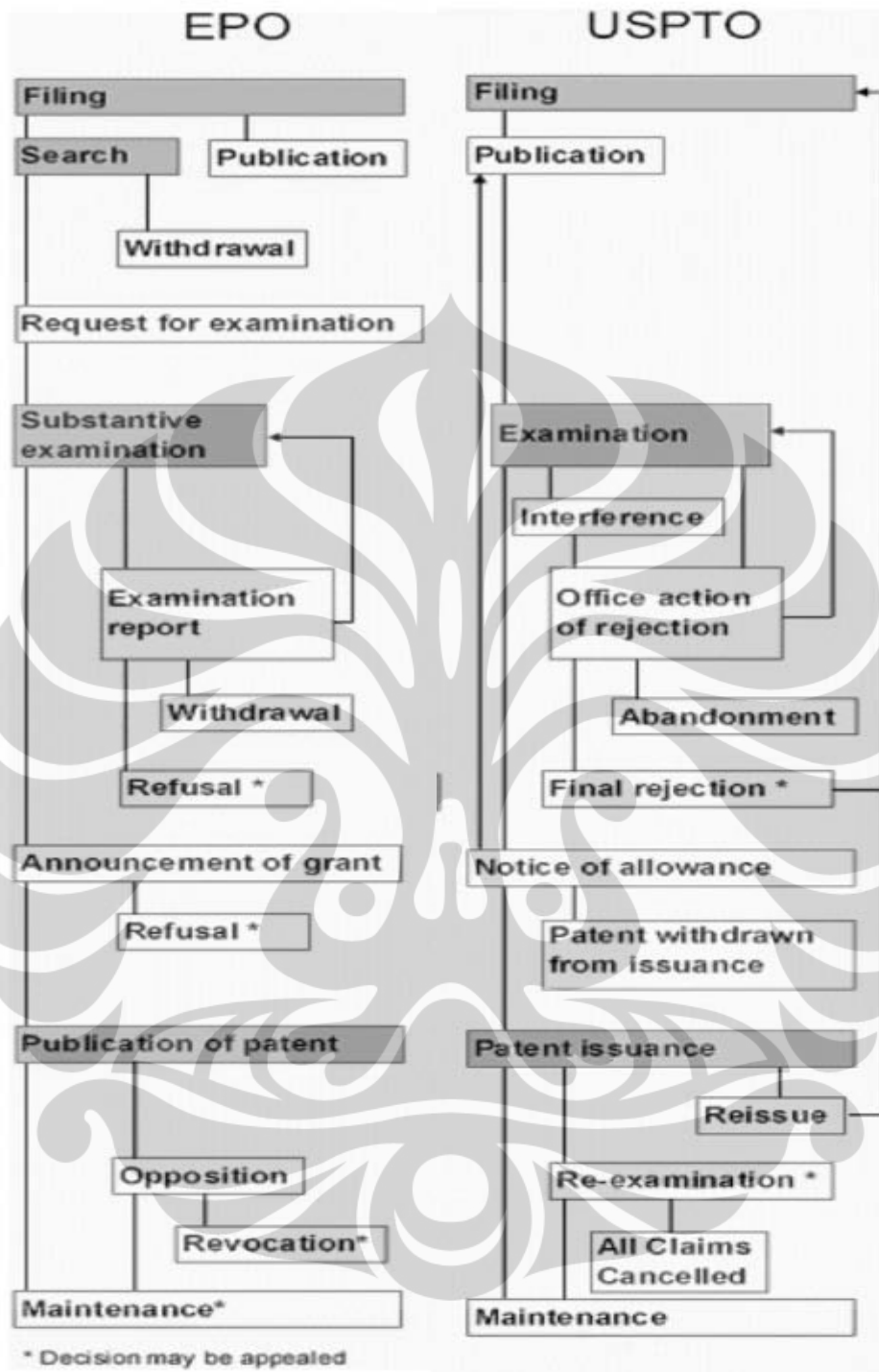
*be granted to the defendants that the prohibitions such as taken up under 5.1 and 2.2 are not to be complied with either entirely or not throughly.*

Statement tersebut menunjukkan bahwa Samsung, khususnya untuk *Smartphones*, melanggar paten Apple (EP 868 saja). Padahal kita tahu bahwa berdasarkan doktrin-doktrin yang ada ketiga klaim paten Apple tidak memenuhi unsur kebaruan, *inventive steps*, maupun *utility*. Samsung sebagaimana keputusan hakim, dianggap telah melanggar EP 868 milik Apple sehingga *Smartphones* keluaran Samsung tidak boleh lagi beredar di pasaran Belanda. Hal ini tentunya menimbulkan kerugian ekonomis yang sangat mendalam kepada pihak Samsung.

Perlu diketahui bahwa Indonesia memiliki jumlah penduduk yang sangat tinggi. Hal ini berarti bahwa Indonesia merupakan *potential market* bagi kedua produsen tersebut. Sudah cukup banyak masyarakat Indonesia yang menggunakan *device* baik dari Apple maupun Samsung. Artinya disini, bahwa jika diasumsikan sengketa antara Apple melawan Samsung terjadi di Indonesia maka pihak yang kalah akan kehilangan *potential market* di Indonesia.

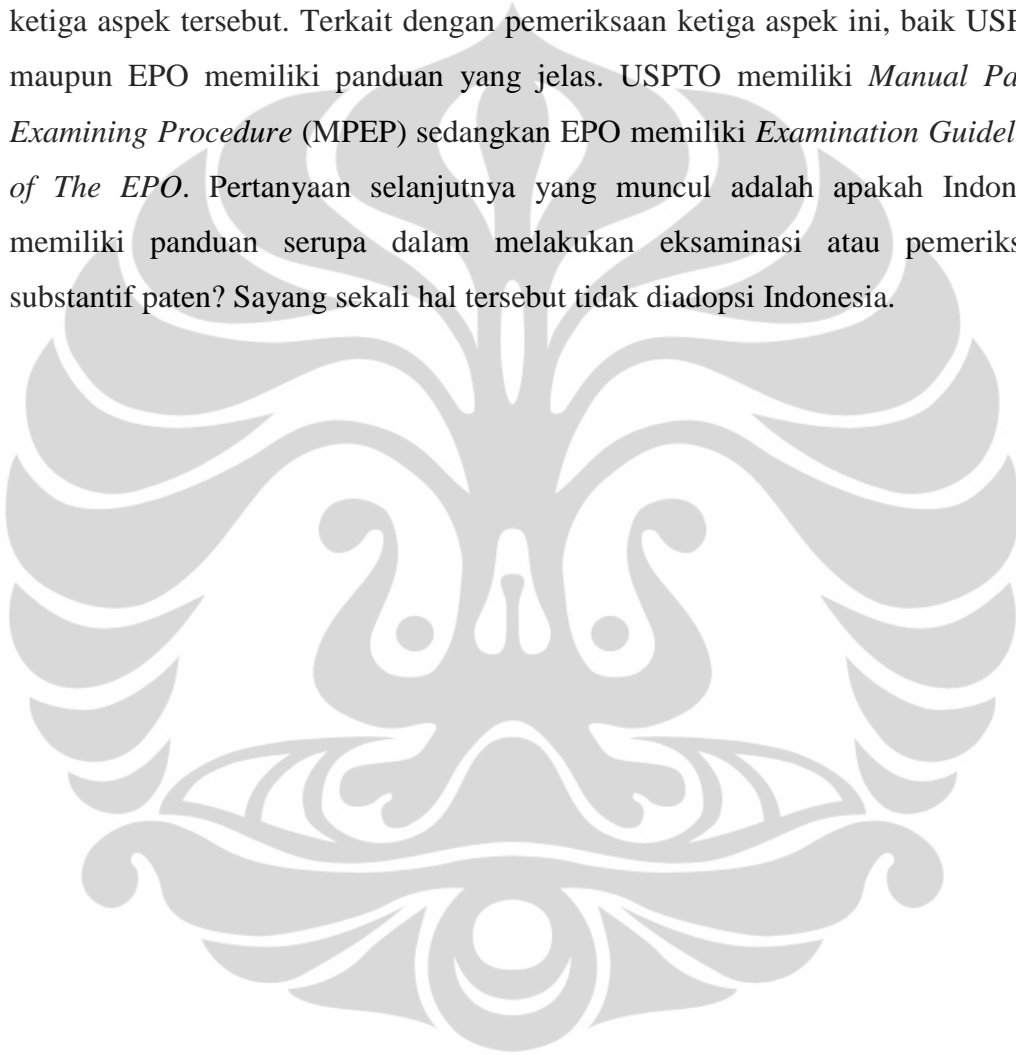
Indonesia perlu banyak belajar dari *European Patent Office* maupun *US Paten and Trademark Office*. Kedua lembaga ini secara detil telah menjelaskan mengenai tata cara pemberian paten. Berikut gambar pemeriksaan paten di kedua lembaga tersebut:<sup>159</sup>

<sup>159</sup> Gambar mekanisme *Examination Procedures* dari EPO maupun USPTO dapat diunduh di [http://www.european-patent-office.org/tws/tsr\\_2002/graphs/index.html](http://www.european-patent-office.org/tws/tsr_2002/graphs/index.html)



Dapat dilihat dari gambar di atas bahwa pemeriksaan paten meliputi dua aspek yaitu pemeriksaan administratif dan pemeriksaan substantif. Kedua hal ini sangatlah penting namun penulis disini akan lebih menyoroti pada pemeriksaan substantif. Indonesia dalam Undang-Undang Paten nya telah menyebutkan bahwa setiap pemohon paten ketika ingin mendaftarkan invensinya maka haruslah

mengajukan permohonan kepada Direktorat Jendral Hak Kekayaan Intelektual (DJHKI). Ketika permohonan ini sudah diterima oleh DJHKI maka prosedur selanjutnya adalah pemeriksaan substantif. Pemeriksaan substantif pada pokoknya melakukan pemeriksaan terkait dengan syarat patentabilitas suatu invensi yang meliputi aspek kebaruan, langkah inventif dan kegunaan teknis. Baik USPTO maupun EPO dalam pemeriksaan substantif juga melakukan pemeriksaan pada ketiga aspek tersebut. Terkait dengan pemeriksaan ketiga aspek ini, baik USPTO maupun EPO memiliki panduan yang jelas. USPTO memiliki *Manual Patent Examining Procedure* (MPEP) sedangkan EPO memiliki *Examination Guidelines of The EPO*. Pertanyaan selanjutnya yang muncul adalah apakah Indonesia memiliki panduan serupa dalam melakukan eksaminasi atau pemeriksaan substantif paten? Sayang sekali hal tersebut tidak diadopsi Indonesia.





## BAB 4 PENUTUP

### 4.1 Simpulan

Berdasarkan analisis di atas, maka simpulan dari skripsi ini adalah sebagai berikut:

1. Syarat patentabilitas agar suatu invensi mendapatkan perlindungan paten ada tiga yaitu memiliki nilai kebaruan, memiliki langkah inventif, dan memiliki fungsi teknis (utilitas). Penekanan utama dari nilai kebaruan adalah invensi tersebut sebelumnya tidak pernah ada sehingga dapat dikatakan baru atau memiliki langkah inventif dari invensi yang ada sebelumnya. Terdapat dua aspek dari “langkah inventif” yaitu yang pertama invensi tersebut tidak dapat diantisipasi oleh ahli-ahli di bidangnya dan yang kedua invensi tersebut tidak dapat diantisipasi oleh prior art.

Poin kedua adalah suatu invensi haruslah memiliki langkah inventif. Artinya disini suatu invensi agar memperoleh perlindungan paten maka invensi tersebut haruslah menawarkan sesuatu hal yang baru (langkah inventif). Terkait dengan langkah inventif ini banyak doktrin-doktrin yang menjelaskan seperti *doctrine of anticipation*, *doctrine of equivalents*, dan *doctrine of small structure*.

Poin ketiga adalah suatu invensi haruslah memiliki kegunaan teknis. Artinya disini bahwa suatu invensi haruslah merupakan solusi atas permasalahan yang terjadi (*offer a technical solution*). Ketiga syarat di atas merupakan syarat baku agar suatu invensi diberikan perlindungan paten. Sengketa Apple melawan Samsung mempermasalahkan mengenai tiga klaim paten Apple yaitu:

- a. EP 868 tentang *Device for Photo Management*;
- b. EP 948 tentang *Touch Event Model*; dan
- c. EP 022 tentang *Unloncking by Performing Gestures on an Unlock Image*.

Berdasarkan hasil analisis dengan menggunakan *doctrine of anticipation*, *doctrine of equivalents*, dan *doctrin of small structure* baik EP 868, EP 948 maupun EP 022 tidak memiliki unsur kebaruan, langkah inventif, dan fungsi teknis. Tidak terpenuhinya ketiga unsur ini maka sudah sewajarnya hakim memutuskan bahwa baik EP 868, EP 948, maupun EP 022 invalid dan karenanya perlindungan paten akan ketiga hal tersebut harus dicabut.

2. Efek dari adanya sengketa antara Apple melawan Samsung yang utama adalah terjadinya hal serupa di Indonesia. Sebagaimana diketahui, Indonesia memiliki kurang lebih dua ratus juta penduduk yang mana hal ini merupakan potensial market bagi kedua produsen ini. Jika Indonesia tidak siap akan kemungkinan terjadinya sengketa antara Apple dengan Samsung, maka nantinya akan menghasilkan putusan yang berat sebelah atau bahkan Indonesia mengeluarkan perlindungan paten bagi invensi invensi yang tidak memenuhi syarat patentabilitas suatu invensi.

#### 4.2 Saran

Adapun saran yang penulis ajukan dalam skripsi ini adalah sebagai berikut:

1. Lembaga yang berwenang melakukan pemeriksaan substantif dokumen paten seperti EPO, USPTO dan khususnya DJHKI diwajibkan memiliki pemahaman mendalam terkait aspek teknis untuk memeriksa unsur kebaruan, langkah inventif maupun fungsi teknis suatu dokumen paten.
2. DJHKI sebagai lembaga yang berwenang melakukan pemeriksaan substantif diharapkan memiliki panduan untuk melakukan eksaminasi dokumen paten sebagaimana *Manual Patent Examining Procedure* dan *Examination Guideline of the EPO* yang dimiliki oleh USPTO dan EPO.
3. Pendaftaran Paten masih membutuhkan waktu yang lama padahal saat ini tingkat inovasi masyarakat sudah cukup pesat sehingga dibutuhkan pengaktifan prosedur pendaftaran paten dengan cara membuka *pendaftaran online*.

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# **EXHIBIT A**

Judgement

COURT OF THE HAGUE

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Civil Law Section

**Judgement in summary proceeding of 24 August 2011 (expedited)**

in the case with case number/roll number: 396957 / KG ZA 11-730 of

the corporation under foreign law

**APPLE INC.**

established in Cupertino, California, United States of America,

plaintiff,

counsel: mr. P.J.M. von Schmidt auf Altenstadt, The Hague,

versus

1. the company under foreign law  
**SAMSUNG ELECTRONICS CO. LIMITED**  
established in Suwon City, Kyungki-Do, South Korea,
2. the private limited liability company  
**SAMSUNG ELECTRONICS BENELUX B.V.**,  
established in Delft,
3. the private limited liability company  
**SAMSUNG ELECTRONICS EUROPE LOGISTICS B.V.**,  
established in Rijswijk,
4. the private limited liability company  
**SAMSUNG ELECTRONICS OVERSEAS B.V.**,  
established in Amsterdam,

defendants,

counsel: mr. B. J. Berghuis van Woortman, Amsterdam,

and in the case with case number/roll number: 396959 / KG ZA 11-731 of

the corporation under foreign law

**APPLE INC.**

established in Cupertino, California, United States of America,

plaintiff,

counsel: mr. P.J.M. von Schmidt auf Altenstadt, The Hague,

versus

1. the company under foreign law  
**SAMSUNG ELECTRONICS CO. LIMITED**  
established in Suwon City, Kyungki-Do, South Korea,
2. the private limited liability company

- SAMSUNG ELECTRONICS BENELUX B.V.**,  
established in Delft,
3. the private limited liability company  
**SAMSUNG ELECTRONICS EUROPE LOGISTICS B.V.**,  
established in Rijswijk,
4. the private limited liability company  
**SAMSUNG ELECTRONICS OVERSEAS B.V.**,  
established in Amsterdam,
- defendants,  
counsel: mr. B. J. Berghuis van Woortman, Amsterdam.

The cases are handled combined. Hereinafter the parties shall also be called Apple (plaintiff) and Samsung (defendants collectively). For Apple, the cases are handled by mr. R.M. Kleemans, mr. ir. T.M. Blomme and mr. A.A.A.C.M. van Oorschot, all of them attorneys in Amsterdam. For Samsung, the cases are handled by mr. Berghuis van Woortman, aforementioned, and mr. A. F. Kupecz, mr. Ch. Gielen and mr. R.C. van Oerle, also all of them attorneys in Amsterdam.

## **1. The proceeding**

1.1. The course of the proceeding appears from:

- the citations of 27 June 2011;
- exhibits 1 to 24 (KG ZA 11-730) and exhibits 1 to 30 (KG ZA 11-730) of Apple;
- in both cases: response pleadings, also containing counterclaims, of 20 July 2011 of Samsung, with exhibits 1 to 21 (KG ZA 11-730) and exhibits 1 to 34 (KG ZA 11-731);
- the letter of 21 July 2011 of Apple, in which Apple objects to the counterclaims, and the response to this in letter of 22 July 2011 of Samsung;
- the email of 22 July 2011, in which the judge in interlocutory proceedings announces his decision that the counterclaims in both cases will not be handled because – in brief – they were in conflict with a proper proceeding;
- the explanation in exhibits of Samsung, sent by email of 25 July 2011;
- the letter of 3 August 2011 of Samsung, with supplemental exhibits 22 to 47 (KG ZA 11-730) and supplemental exhibits 35 to 59 (KG ZA 11-731);
- the letter from Apple, received on 28 July 2011, with supplemental exhibits 31 to 44 (in both cases), wherein Apple withdraws its claims with respect to EC design patent 1260624-15;
- the bookmark (with respect to the soft IP) of Samsung, sent by email of 2 August 2011;
- the bookmark (with respect to the prior art for the patents) of Samsung, sent by email of 4 August 2011;
- the letter of 5 August 2011 of Apple, with supplemental exhibit 45;
- the letter of 8 August 2011 of Samsung, with supplemental exhibits 60 to 66;
- the letter of 8 August 2011 of Apple, with supplemental exhibits 46 to 50;
- the letter of 9 August 2011 of Samsung, with supplemental exhibit 67;
- the letter of 9 August 2011 of Apple, with supplemental exhibit 51;
- the oral proceedings held on 10 and 11 August 2011, during which counsels submitted written summaries of the arguments.

1.2. The documents submitted in the email of August 10 and in court are rejected as tardy. Moreover, both parties repeatedly submitted applications for interlocutory relief in court. After consultation, both parties indicated their desire to consider these further. That consideration resulted in no need to rule on those applications, as communicated in the email of mr. Kleemans of 12 August 2011.

1.3. Judgement is scheduled to be handed down not later than 15 September 2011, but shall be pronounced today in an expedited manner.

## 2. The facts

2.1. Apple is a worldwide producer and developer of computers, consumer electronics, operating systems and software. Its products include the iPhone, a so-called smartphone, and the iPad, a tablet computer. Both products have been placed on the market in different versions by Apple.

2.2. Apple is the holder of European patent EP 2 059 868 (hereinafter: EP 868) for a “*Portable electronic device for photo management*”, granted on 29 September 2010 for an application of 31 August 2007, claiming priority of seven American patents: US 824.769 P (6 September 2006, US 883.785 P (6 January 2007), US 879.253 P (7 January 2007), US 879 469 P (8 January 2007), US 937.993 P and US 947.118 P (both 29 June 2007) and US 848.210 (30 August 2007). Netherlands is one of the designated countries. At the time of summoning, no opposition has been filed against the granting of EP 868.

2.3. The claims of EP 868 in the original English read:

1. A computer-implemented method, comprising:  
at a device (100) with a touch screen display (112):  
detecting (2402) a first movement (2310) of a physical object on or near the touch screen display (112);  
while detecting the first movement (2310), translating (2404) a first digital object (2300-1) displayed on the touch screen display (112) in a first direction, wherein the first digital object (2300-1) is associated with a set of digital objects; **characterized in that:**  
  
in response to display of a previously hidden edge (2312) of the first digital object (2300-1) and continued detection of the first movement (2310),  
displaying (2406) an area (2314) beyond the edge (2312) of the first digital object (2300-1);  
after the first movement (2310) is no longer detected, translating (2408) the first digital object (2300-1) in a second direction (2316) until the area (2314) beyond the edge (2312) of the first digital object (2300-1) is no longer displayed;  
detecting (2410) a second movement (2318) of the physical object on or near the touch screen display (112); and  
in response to detecting the second movement (2318) while the previously hidden edge (2312) of the first digital object (2300-1) is displayed, translating (2412) the first digital object (2300-1) in the first direction and displaying a second digital object (2300-2) in the set of digital objects.

2. The computer-implemented method of claim 1, wherein, prior to the translating while detecting the first movement, at least one edge of the first digital object extends beyond the touch screen display in the first direction.
3. The computer-implemented method of claim 1 or 2, wherein the first movement is a horizontal swipe gesture.
4. The computer-implemented method of any one of claims 1 to 3, wherein the set of digital objects is a set of digital images, a set of web pages, or a set of electronic documents.
5. The computer-implemented method of any one of claims 1 to 4, wherein the device is a portable electronic device.
6. The computer-implemented method of any one of claims 1 to 5, wherein the physical object is a finger or a stylus.
7. A computer program with software code adapted to perform the method of any one of claims 1 to 6.
8. An electronic device (100), comprising:  
a touch screen display (112);  
one or more processors (120);  
memory (102); and  
a program, wherein the program is stored in the memory and configured to be executed by the one or more processors, the program including:  
  
instructions for detecting (2402) a first movement (2310) of a physical object on or near the touch screen display (112);  
instructions for, while detecting the first movement (2310), translating (2404) a first digital object (2300-1) displayed on the touch screen display (112) in a first direction, wherein the first digital object (2300-1) is associated with a set of digital objects;  
**characterized in that:**  
instructions for, in response to display of a previously hidden edge (2312) of the first digital object (2300-1) and continued detection of the first movement (2310), displaying (2406) an area (2314) beyond the edge (2312) of the first digital object;  
instructions for, after the first movement (2310) is no longer detected, translating (2408) the first digital object (2300-1) in a second direction (2316) until the area (2314) beyond the edge of the first digital object (2300-1) is no longer displayed;  
instructions for detecting (2410) a second movement (2318) of the physical object on or near the touch screen display (112); and instructions for, in response to detecting the second movement (2318) while the previously hidden edge (2312) of the first digital object (2300-1) is displayed, translating (2412) the first digital object (2300-1) in the first direction and displaying a second digital object (2300-2) in the set of digital objects.
9. The electronic device of claim 8, wherein, prior to the translating while detecting the first movement, at least one edge of the first digital object extends beyond the touch screen display in the first direction.
10. The electronic device of claim 8 or 9, wherein the first movement is a horizontal swipe gesture.
11. The electronic device of any one of claims 8 to 10, wherein the set of digital objects is a set of digital images, a set of web pages, or a set of electronic documents.
12. The electronic device of any one of claims 8 to 11, wherein the device is a portable electronic device.
13. The electronic device of any one of claims 8 to 12, wherein the physical object is a finger or a stylus.

2.4. In the unchallenged Dutch translation, the claims of EP 868 read:

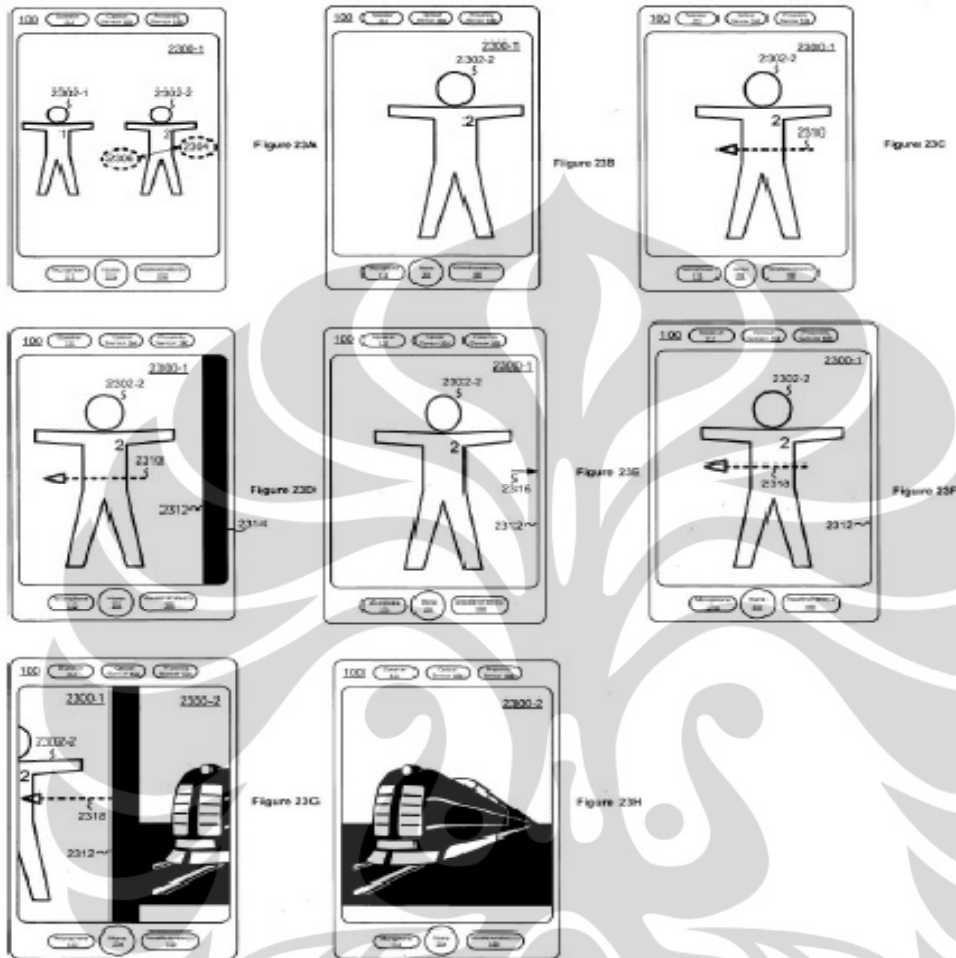
1. A computer-implemented method, comprising:  
at a device (100) with a display (112) with touch screen:  
detecting (2402) of a first movement (2310) of a physical object on or near the touch screen display (112);  
while detecting the first movement (2310), the translating (2404) of a first digital object (2300-1) displayed on the touch screen display (112) in a first direction, wherein the first digital object (2300-1) is associated with a set of digital objects;  
**characterized in that**  
in response to display of a previously hidden angle<sup>1</sup> (2312) of the first digital object (2300-1) and continued detection of the first movement (2310), an area (2314) is displayed beyond the edge (2312) of the first digital object (2300-1);  
after the first movement (2310) is no longer detected, the translating (2408) of the first digital object (2300-1) in a second direction (2316) until the area (2314) beyond the edge (2312) of the first digital object (2300-1) is no longer displayed;  
detecting (2410) of a second movement (2318) of the physical object on or near the touch screen display (112); and  
in response to the detecting of the second movement (2318) while the previously hidden edge (2312) of the first digital object (2300-1) is displayed, the translating (2412) of the first digital object (2300-1) in the first direction and the displaying of a second digital object (2300-2) in the set of digital objects.
2. Computer-implemented method according to claim 1, wherein, prior to the translating while detecting the first movement, at least one edge of the digital object extends beyond the touch screen display in the first direction.
3. Computer-implemented method according to claim 1 or 2, wherein the first movement is a horizontal swipe gesture.
4. Computer-implemented method according to any one of claims 1-3, wherein the set of digital objects is a set of digital images, a set of web pages or a set of electronic documents.
5. Computer-implemented method according to any one of claims 1-4, wherein the device is a portable electronic device.
6. Computer-implemented method according to any one of claims 1-5, wherein the physical object is a finger or a stylus.
7. Computer program with software code adapted to perform the method according to any one of claims 1-6.

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<sup>1</sup> This is a translation error. "A previously hidden edge" is mistranslated by "a previously hidden angle [hoek]" instead of "edge [rand]".

8. Electronic device (100), comprising:
  - a touch screen display (112);
  - one or more processors (120);
  - a memory (102); and
  - a program, wherein the program is stored in the memory and configured to be executed by the one or more processors, wherein the program includes:
    - instructions for the detecting (2402) of a first movement (2310) of a physical object on or near the touch screen display (112);
    - instructions for the translating (2404), during the detecting of the first movement (2310), of a first digital object (2300-1) displayed on the touch screen display (112) in a first direction, while the first digital object (2300-1) is associated with a set of digital objects; **characterized by**
    - instructions for displaying (2406), in response to the displaying of a previously hidden edge (2312) of the first digital object (2300-1) and continued detection of the first movement (2310), of an area beyond the edge (2312) of the first digital object;
    - instructions for translating (2408), after the first movement (2310) is no longer detected, of the first digital object (2300-1) in a second direction (2316) until the area (2314) beyond the edge (2312) of the first digital object (2300-1) is no longer displayed;
    - instructions for the detecting (2410) of a second movement (2318) of the physical object on or near the touch screen display (112); and
    - instructions for the translating (2412), in response to the detecting of the second movement (2318) while the previously hidden edge (2312) of the first digital object (2300-1) is displayed, of the first digital object (2300-1) in the first direction and the displaying of a second digital object (2300-2) in the set of digital objects.
9. Electronic device according to claim 8, wherein, prior to the translating while detecting the first movement, at least one edge of the first digital object extends beyond the touch screen display (112) in the first direction.
10. Electronic device according to claim 8 or 9, wherein the first movement is a horizontal swipe gesture.
11. Electronic device according to claim to any one of claims 8-10, wherein the set of digital objects is a set of digital images, a set of web pages or a set of electronic documents.
12. Electronic device according to any one of claims 8-11, wherein the device is a portable electronic device.
13. Electronic device according to any one of claims 8-12, wherein the physical object is a finger or a stylus.

2.5. The following figures, among others, belong to EP 868:



2.6. In addition, Apple is the holder of European patent EP 2 098 948 (hereinafter: EP 948) for a “*Touch event model*”, granted on 9 February 2011 for an application of 4 March 2009, claiming priority of the American patent application US 42381 dated 4 March 2008. Netherlands is one of the designated countries. At the time of summoning, no opposition has been filed against the granting of EP 948.

2.7. The claims of EP 868 in the original English text read:



1. A method for handling touch events at a multi-touch device (200, 210) comprising:
  - displaying one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);
  - executing one or more software elements, each software element being associated with a particular view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);
  - associating a multi-touch flag or an exclusive touch flag with each view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312), said multi-touch flag indicating whether a particular view is allowed to receive multiple simultaneous touches and said exclusive touch flag indicating whether a particular view allows other views to receive touch events while the particular view is receiving a touch event;
  - receiving one or more touches at the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312); and
  - selectively sending one or more touch events, each touch event describing a received touch, to one or more of the software elements associated with the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) at which a touch was received based on the values of the multi-touch and exclusive touch flags.
2. The method of claim 1, further comprising:
  - if a multi-touch flag is associated with a particular view, allowing other touch events contemporaneous with a touch event received at the particular view to be sent to software elements associated with the other views.
3. The method of claim 1, wherein if a multi-touch flag is associated with a particular view, the multi-touch flag indicates whether the software element associated with that particular view is allowed to process multiple contemporaneous touches located in that view.
4. The method of claim 1, wherein the exclusive touch flag prevents touch events from being sent to software elements associated with views other than a view with an asserted exclusive touch flag while a touch is being received at the view with the asserted exclusive touch flag.
5. The method of claim 1, wherein the multi-touch device (200, 210) is a mobile telephone.
6. The method of claim 1, wherein the multi-touch device (200, 210) is a digital media player.
7. The method of claim 1, comprising:
  - associating a multi-touch flag with a first view;
  - receiving a first touch at the first view, the first view being one of the one or more views;
  - sending a touch event describing the first touch to a first software element,
  - the first software element being one of the one or more software elements and associated with the first view; determining whether the multi-touch flag associated with the first view indicates that the first view is a multi-touch view; and
  - if the first view is not a multi-touch view, blocking all touch events describing any other touches located in the first view until the first touch is no longer received.

8. The method of claim 7, further comprising:
  - associating an exclusive touch flag with each of the one or more views;
  - determining whether the exclusive touch flag associated with the first view indicates that the first view is an exclusive touch view; and
  - if the first view is an exclusive touch view, blocking all touch events describing any other touches located in any view other than the first view until the first touch is no longer received.
9. The method of claim 8, wherein the first view is not an exclusive touch view, the method further comprising:
  - receiving a second touch at the multi touch panel, the second touch located at a second view and associated with a second software element;
  - determining whether the exclusive touch flag associated with the second view indicates that the second view is an exclusive touch view; and
  - if the second view is an exclusive touch view, preventing a touch event associated with the second touch from being sent to the second software element until the first touch is no longer received.
10. The method of claim 9, further comprising:
  - if the second view is not an exclusive touch view, sending a touch event describing the second touch to the second software element.
11. A computer readable medium comprising a plurality of instructions configured for execution at a multi-touch device (200, 210), the instructions being configured to cause the multi-touch device (200, 210) to:
  - display one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);
  - execute one or more software elements, each software element being associated with a particular view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);
  - associate a multi-touch flag or an exclusive touch flag with each view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312), said multi-touch flag indicating whether a particular view is allowed to receive multiple simultaneous touches and said exclusive touch flag indicating whether a particular view allows other views to receive touch events while the particular view is receiving a touch event;
  - receive one or more touches at the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312); and
  - selectively send one or more touch events, each touch event describing a received touch, to one or more of the software elements associated with the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) at which a touch was received based on the values of the multi-touch and exclusive touch flags.
12. The computer readable medium of claim 11, wherein the instructions are further configured to cause the multi-touch device (200, 210) to:

if a multi-touch flag is associated with a particular view, allowing other touch events contemporaneous with a touch event received at the particular view to be sent to software elements associated with the other views.

13. The computer readable medium of claim 11, wherein if a multi-touch flag is associated with a particular view, the multi-touch flag indicates whether the software element associated with that particular view is allowed to process multiple contemporaneous touches located in that view.
14. The computer readable medium of claim 11, wherein the exclusive touch flag prevents touch events from being sent to software elements associated with views other than a view with an asserted exclusive touch flag while a touch is being received at the view with the asserted exclusive touch flag.
15. The computer readable medium of claim 11, wherein the multi-touch device (200, 210) is a mobile telephone.
16. The computer readable medium of claim 11, wherein the multi-touch device (200, 210) is a digital media player.
17. The computer readable medium of claim 11, wherein the instructions are further configured to cause the multi-touch device (200, 210) to:
  - associate a multi-touch flag with a first view;
  - receive a first touch at the first view, the first view being one of the one or more views;
  - send a touch event describing the first touch to a first software element, the first software element being one of the one or more software elements and associated with the first view;
  - determine whether the multi-touch flag associated with the first view indicates that the first view is a multi-touch view; and
  - if the first view is not a multi-touch view, block all touch events describing any other touches located in the first view until the first touch is no longer received.
18. The computer readable medium of claim 17, wherein the instructions are further configured to cause the multi-touch device (200, 210) to:
  - associate an exclusive touch flag with each of the one or more views;
  - determine whether the exclusive touch flag associated with the first view indicates that the first view is an exclusive touch view; and
  - if the first view is an exclusive touch view, blocking all touch events describing any other touches located in any view other than the first view until the first touch is no longer received.
19. The computer readable medium of claim 18, wherein the first view is not an exclusive touch view and the instructions are further configured to cause the multi-touch device (200, 210) to:
  - receive a second touch at the multi touch panel, the second touch located at a second view and associated with a second software element;

determine whether the exclusive touch flag associated with the second view indicates that the second view is an exclusive touch view; and  
if the second view is an exclusive touch view, prevent a touch event associated with the second touch from being sent to the second software element until the first touch is no longer received.

20. The computer readable medium of claim 19, wherein the instructions are further configured to cause the multi-touch device (200, 210) to:

if the second view is not an exclusive touch view, send a touch event describing the second touch to the second software element.

21. A multi-touch enabled device (200, 210) including a computer readable medium comprising a plurality of instructions configured for execution at the device (200, 210), the instructions being configured to cause the device (200, 210) to:

display one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
execute one or more software elements, each software element being associated with a particular view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
associate a multi-touch flag or an exclusive touch flag with each view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312), said multi-touch flag indicating whether a particular view is allowed to receive multiple simultaneous touches and said exclusive touch flag indicating whether a particular view allows other views to receive touch events while the particular view is receiving a touch event;  
receive one or more touches at the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312); and  
selectively send one or more touch events, each touch event describing a received touch, to one or more of the software elements associated with the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) at which a touch was received based on the values of the multi-touch and exclusive touch flags.

22. The multi-touch enabled device (200, 210) of claim 21, wherein the multi-touch enabled device (200, 210) is a mobile telephone.

23. The multi-touch enabled device (200, 210) of claim 21, wherein the multi-touch enabled device (200, 210) is a digital media player.

2.8. In the unchallenged Dutch translation, the claims of EP 948 read:

1. Method for handling of touch events at a multi-touch device (200, 210), comprising:  
the displaying of one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
the executing of one or more software elements, each software element being associated with a specific view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
the associating of a multi-touch flag or an exclusive touch flag with each view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312), wherein said multi-touch flag indicates whether a specific view can receive multiple simultaneous touches and said exclusive touch flag indicates whether a specific view makes it possible for other views to receive touch events while the specific view is receiving a touch event;  
the receiving of one or more touches at the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);

- the selective sending of one or more touch events, each touch event describing a received touch, to one or more of the software elements associated with the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) where a touch was received based on the values of the multi-touch and exclusive touch flags.
2. Method according to claim 1, further comprising:  
if a multi-touch flag is associated with a specific view, the contemporaneous allowing of other touch events with a touch event received at a specific view that must be sent to the software elements associated with other views.
  3. Method according to claim 1, wherein if a multi-touch flag is associated with a specific view, the multi-touch flag indicates whether the software element associated with the specific view can process multiple contemporaneous touches that are located in that view.
  4. Method according to claim 1, wherein the exclusive touch flag prevents touch events from being sent to the software elements associated with views other than a view with a confirmed exclusive touch flag while a touch is received at the view with the confirmed exclusive touch flag.
  5. Method according to claim 1, wherein the multi-touch device (200, 210) is a mobile telephone.
  6. Method according to claim 1, wherein the multi-touch device (200, 210) is a digital media player.
  7. Method according to claim 1, comprising:  
the associating of a multi-touch flag with a first view;  
the receiving of a first touch at the first view, the first view being one of the one or more views;  
the sending of a touch event that describes the first touch to a first software element, the first software element being one of the one or more software elements and being associated with the first view;  
the determining whether the multi-touch flag associated with the first view indicates that the first view is a multi-touch view; and  
if the first view is not a multi-touch view, the blocking of all touch events that describe other touches located in the first view until the first touch is no longer received.
  8. Method according to claim 7, further comprising:  
the associating of an exclusive touch flag with each of the one or more views;  
the determining whether the exclusive touch flag associated with the first view indicates that the first view is an exclusive touch view; and

- if the first view is an exclusive touch view, the blocking of all touch events that describe other touches located in each view other than the first view until the first touch is no longer received.
9. Method according to claim 8, wherein the first view is not an exclusive touch view, the method further comprising:  
the receiving of a second touch at the multi-touch panel, the second touch being located at the second view and being associated with a second software element;  
the determining whether the exclusive touch flag associated with the second view indicates that the second view is an exclusive touch view; and  
if the second view is an exclusive touch view, the preventing of a touch event associated with the second touch being sent to the second software element until the first touch is no longer received.
  10. Method according to claim 9, further comprising:  
if the second view is not an exclusive touch view, the sending of a touch event that describes a second touch to the second software element.
  11. Computer readable medium comprising a number of instructions configured for execution on a multi-touch device (200, 210), the instructions being configured to cause the multi-touch device (200, 210) to:  
display one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
execute one or more software elements, each software element being associated with a specific view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
associate a multi-touch flag or an exclusive touch flag with each view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312), wherein said multi-touch flag indicates whether a specific view can receive multiple simultaneous touches and said exclusive touch flag indicates whether a specific view makes it possible for other views to receive touch events while the specific view is receiving a touch event;  
receive one or more touches at the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312); and  
selectively send one or more touch events, each touch event describing a received touch, to one or more of the software elements associated with the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) where a touch was received based on the values of the multi-touch and exclusive touch flags.
  12. Computer readable medium according to claim 11, wherein the instructions moreover are configured to cause the multi-touch device (200, 210) to:  
if a multi-touch flag is associated with a specific view, make it possible for other touch events contemporaneous with a touch event received at a specific view to be sent to software elements associated with the other views.
  13. Computer readable medium according to claim 11, wherein if a multi-touch flag

- is associated with a specific view, the multi-touch flag indicates whether the software element associated with the specific view can process multiple contemporaneous touches that are located in that view.
14. Computer readable medium according to claim 11, wherein the exclusive touch flag prevents touch events from being sent to the software elements associated with views other than a view with a confirmed exclusive touch flag while a touch is received at the view with the confirmed exclusive touch flag.
  15. Computer readable medium according to claim 11, wherein the multi-touch device (200, 210) is a mobile telephone.
  16. Computer readable medium according to claim 11, wherein the multi-touch device (200, 210) is a digital media player.
  17. Computer readable medium according to claim 11, wherein the instructions are further configured to cause the multi-touch device (200, 210) to:
    - associate a multi-touch flag with a first view;
    - receive a first touch at the first view, the first view being one of the one or more views;
    - send a touch event that describes the first touch to a first software element, the first software element being one of the one or more software elements and being associated with the first view;
    - determine whether the multi-touch flag associated with the first view indicates that the first view is a multi-touch view; and
    - if the first view is not a multi-touch view, block all touch events that describe other touches located in the first view until the first touch is no longer received.
  18. Computer readable medium according to claim 17, wherein the instructions are further configured to cause the multi-touch device (200, 210) to:
    - associate an exclusive touch flag with each of the one or more views;
    - determine whether the exclusive touch flag associated with the first view indicates that the first view is an exclusive touch view; and
    - if the first view is an exclusive touch view, block all touch events that describe other touches located in each view other than the first view until the first touch is no longer received.
  19. Computer readable medium according to claim 18, wherein the first view is not an exclusive touch view and the instructions are further configured to cause the multi-touch device (200, 210) to:
    - receive a second touch at the multi-touch panel, the second touch being located at the second view and being associated with a second software element;
    - determine whether the exclusive touch flag associated with the second view indicates that the second view is an exclusive touch view; and

- if the second view is an exclusive touch view, prevent a touch event associated with the second touch being sent to the second software element until the first touch is no longer received.
20. Computer readable medium according to claim 19, wherein the instructions are further configured to cause the multi-touch device (200, 210) to:  
if the second view is not an exclusive touch view, send a touch event that describes a second touch to the second software element.
  21. Multi-touch activated device (200, 210) comprising a computer readable medium including a number of instructions configured for execution on the device (200, 210), the instructions being configured to cause the device (200, 210) to:  
display one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
execute one or more software elements, each software element being associated with a specific view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
associate a multi-touch flag or an exclusive touch flag with each view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312), wherein said multi-touch flag indicates whether a specific view can receive multiple simultaneous touches and said exclusive touch flag indicates whether a specific view makes it possible for other views to receive touch events while the specific view is receiving a touch event;  
receive one or more touches at the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312); and  
selectively send one or more touch events, each touch event describing a received touch, to one or more of the software elements associated with the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) where a touch was received based on the values of the multi-touch and exclusive touch flags.
  22. Multi-touch activated device (200, 210) according to claim 21, wherein the multi-touch activated device (200, 210) is a mobile telephone.
  23. Multi-touch activated device (200, 210) according to claim 21, wherein the multi-touch activated device (200, 210) is a digital media player.
  - 2.9. The following picture, among others, belongs to EP 948.



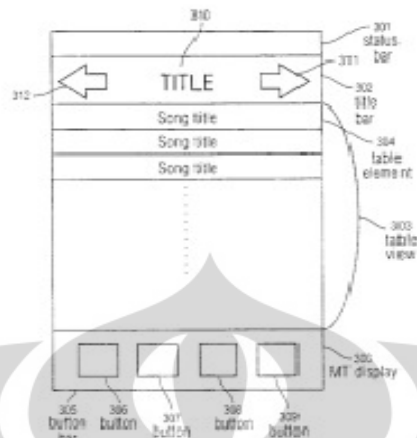


Fig. 3

2.10. Apple is furthermore the holder of European patent EP 1 964 022 (hereinafter: EP 022) for “*Unlocking a by performing gestures on an unlock image*”, granted on 10 March 2010 for an application of 30 November 2006, claiming priority of the American patent US 322549 with priority date of 23 December 2005. Netherlands is one of the designated countries. No opposition has been filed against the granting of EP 022.

2.11. The claims of EP 022 in the original English text read:

1. A computer-implemented method of controlling a portable electronic device (400, 1000) comprising a touch-sensitive display (408, 1014), comprising:
  - detecting (308, 908) contact with the touch-sensitive display (408, 1014) while the device is in a user-interface lock state;
  - transitioning (314, 914) the device (400, 1000) to a user-interface unlock state if the detected contact corresponds to a predefined gesture; and
  - maintaining (312, 912) the device (400, 1000) in the user-interface lock state if the detected contact does not correspond to the predefined gesture;**characterized by**
  - moving an unlock image (402, 1002, 1008) along a predefined displayed path on the touch-sensitive display (408, 1014) in accordance with the contact, wherein the unlock image (402, 1002, 1008) is a graphical, interactive user-interface object with which a user interacts in order to unlock the device (400, 1000).
2. The computer-implemented method of claim 1, further comprising displaying (304) the unlock image (402) and one or more visual cues on the touch-sensitive display (408) while the portable electronic device (400) is in a user-interface lock state, wherein the one or more visual cues indicate a movement of the unlock image (402) along the touch-sensitive display (408) that will unlock the device (400).

3. The computer-implemented method of claim 1, further comprising displaying (304) the unlock image (402) on the touch-sensitive display (408) while the device (400) is in a user-interface lock state; and wherein the predefined gesture corresponds to moving the unlock image (402) along the predefined displayed path on the touch-sensitive display (408) to a predefined location on the touch-sensitive display (408).
4. The computer-implemented method of claim 1, further comprising displaying (304) the unlock image (402) on the touch-sensitive display (408) while the device (400) is in a user-interface lock state; and wherein the predefined gesture corresponds to moving the unlock image (402) across the touch-sensitive display (408) according to the predefined displayed path on the touch-sensitive display (408).
5. The computer-implemented method of claim 1, further comprising:  
  
displaying (904) a first unlock image (1002) and a second unlock image (1008) on the touch-sensitive display (1014) while the device (1000) is in a user-interface lock state; and  
  
wherein transitioning the device (1000) to a user-interface unlock state comprises:  
  
transitioning (914) the device (1000) to a first active state corresponding to the first unlock image (1002) if the detected contact corresponds to a predefined gesture with respect to the first unlock image (1002); and  
transitioning (914) the device (1000) to a second active state distinct from the first active state if the detected contact corresponds to a predefined gesture with respect to the second unlock image (1008).
6. A portable electronic device (100, 400, 1000), comprising:  
  
a touch-sensitive display (126, 408, 1014);  
one or more processors (106);  
memory (102); and  
one or more programs (132 to 146), wherein the one or more programs (132 to 146) are stored in the memory (102) and configured to be executed by the one or more processors (106), the programs (132 to 146) including instructions for:  
  
detecting (308, 908) contact with the touch-sensitive display (126, 408, 1014) while the device (100, 400, 1000) is in a user-interface lock state;  
transitioning (314, 914) the device (100, 400, 1000) to a user-interface unlock state if the detected contact corresponds to a predefined gesture;  
and  
maintaining (312, 912) the device (100, 400, 1000) in the user-interface lock state if the detected contact does not correspond to the predefined gesture;  
  
**characterized in that**  
the programs (132 to 146) further include instructions for moving an unlock image (402, 1002, 1008) along a predefined displayed path on the touch-sensitive display (126, 408, 1014) in accordance with the contact.

wherein the unlock image (402, 1002, 1008) is a graphical, interactive user-interface object with which a user interacts in order to unlock the device (100, 400, 1000).

7. The portable electronic device of claim 6, wherein the device (100, 400, 1000) is a portable multifunction device.
8. The portable electronic device of claim 6, further comprising instructions for preventing (302, 310, 312) the device (100, 400) from performing a predefined set of actions in response to detecting any contact with the touch-sensitive display (126, 408) that does not correspond to the predefined gesture while the device (100, 400) is in the user-interface lock state.
9. The portable electronic device of claim 6, wherein the predefined displayed path is a channel (404).
10. The portable electronic device of claim 6, wherein the detected contact is a movement of a point of contact across the touch-sensitive display (126, 408) while maintaining continuous contact with the touch-sensitive display (126, 408).
11. The portable electronic device of claim 10, wherein the movement of the point of contact across the touch-sensitive display (126, 408) while maintaining continuous contact with the touch-sensitive display (126, 408) is a horizontal movement.
12. The portable electronic device of claim 6, wherein the one or more programs (132 to 146) further comprise instructions for displaying (304) the unlock image (402) and one or more visual cues on the touch-sensitive display (126, 408) while the portable electronic device (100, 400) is in a user-interface lock state, wherein the one or more visual cues indicate a movement of the unlock image (402) along the touch-sensitive display (126, 408) that will unlock the device (100, 400).
13. The portable electronic device of claim 12, wherein the one or more visual cues include an arrow.
14. The portable electronic device of claim 12, wherein the one or more visual cues include text.
15. The portable electronic device of claim 6, wherein the one or more programs (132 to 146) further comprise instructions for displaying (304) the unlock image (402) on the touch-sensitive display (126, 408) while the device (100, 400) is in a user-interface lock state and wherein the predefined gesture corresponds to moving the unlock image (402) along the predefined displayed path on the touch-sensitive display (126, 408) to a predefined location on the touch-sensitive display (126, 408).
16. The portable electronic device of claim 6, wherein the one or more programs (132 to 146) further comprise instructions for displaying (304) the unlock image on the touch-sensitive display while the device is in a user-interface lock state; and wherein the predefined gesture corresponds to moving the unlock image (402) across the touch-sensitive display (126, 408) according to a predefined displayed path on the touch-sensitive display (126, 408).
17. The portable electronic device of claim 6, wherein the one or more programs further comprise instructions for displaying (904) a first unlock image (1002) and a second unlock image

(1008) on the touch-sensitive display (1014) while the device (1000) is in a user-interface lock state; and  
wherein the instructions for transitioning the device to a user-interface unlock state comprise:  
instructions for transitioning the device (1000) to a first active state corresponding to the first unlock image (1002) if the detected contact corresponds to a predefined gesture with respect to the first unlock image (1002), and  
instructions for transitioning the device (1000) to a second active state distinct from the first active state if the detected contact corresponds to a predefined gesture with respect to the second unlock image (1008).

18. A computer program product with instructions configured for execution by one or more processors (106), which when executed by a portable electronic device (100, 400, 1000) with a touch-sensitive display (126, 408, 1014), cause the device (100, 400, 1000) to perform the method of any of claims 1 to 5.

2.12. In the unchallenged Dutch translation, the claims of EP 022 read:

1. Computer-implemented method of controlling a portable electronic device (400, 1000), comprising a touch-sensitive display (408, 1014), which consists in:  
detecting (308, 908) of contact with the touch-sensitive display (408, 1014) while the device is in a user-interface lock state;  
transitioning (314, 914) the device (400, 1000) to a user-interface unlock state if the detected contact corresponds to a predefined gesture; and  
maintaining (312, 912) the device (400, 1000) in the user-interface lock state if the detected contact does not correspond to the predefined gesture;

**characterized by**

moving an unlock image (402, 1002, 1008) along a predefined displayed path on the touch-sensitive display (408, 1014) in accordance with the contact, wherein the unlock image (402, 1002, 1008) is a graphical, interactive user-interface object with which a user interacts to unlock the device (400, 1000).

2. Computer-implemented method according to claim 1, moreover comprising displaying (304) the unlock image (402) and one or more visual instructions on the touch-sensitive display (408) while the portable electronic device (400) is in a user-interface lock state, wherein the one or more visual instructions indicate a movement of the unlock image (402) along the touch-sensitive display (408) that will unlock the device (400).
3. Computer-implemented method according to claim 1, moreover comprising displaying (304) the unlock image (402) on the touch-sensitive display (408) while the device (400) is in a user-interface lock state; and wherein the predefined gesture corresponds to moving of the unlock image (402) along the predefined displayed path on the touch-sensitive display (408) to a predefined location on the touch-sensitive display (408).
4. Computer-implemented method according to claim 1, moreover comprising

- displaying (304) the unlock image (402) on the touch-sensitive display (408) while the device (400) is in a user-interface lock state; and wherein the predefined gesture corresponds to moving of the unlock image (402) over the touch-sensitive display (408) in accordance with the predefined displayed path on the touch-sensitive display (408).
5. Computer-implemented method according to claim 1, moreover comprising: displaying (904) of a first unlock image (1002) and a second unlock image (1008) on the touch-sensitive display (1014) while the device (1000) is in a user-interface lock state; and wherein the transitioning of the device (1000) to a user-interface unlock state comprises: transitioning (914) of the device (1000) to a first active state corresponding to the first unlock image (1002) if the detected contact corresponds to a predefined gesture with regard to the first unlock image (1002); and transitioning (914) of the device (1000) to a second active state different from the first active state if the detected contact corresponds to a predefined gesture with regard to the second unlock image (1008).
6. Portable electronic device (100, 400, 1000), comprising: a touch-sensitive display (126, 408, 1014); one or more processors (106); memory (102); and one or more programs (132-146), wherein the one or more programs (132-146) are stored in the memory (102) and are configured to be executed by the one or more processors (106), where the programs (132-146) include instructions for: detecting (308, 908) of contact with the touch-sensitive display (126, 408, 1014) while the device (100, 400, 1000) is in a user-interface lock state; transitioning (314, 914) the device (100, 400, 1000) to a user-interface unlock state if the detected contact corresponds to a predefined gesture; and maintaining (312, 912) the device (100, 400, 1000) in the user-interface lock state if the detected contact does not correspond to the predefined gesture;
- characterized** in that
- the programs (132-146) moreover contain instructions for moving an unlock image (402, 1002, 1008) along a predefined displayed path on the touch-sensitive display (126, 408, 1014) in accordance with the contact, wherein the unlock image (402, 1002, 1008) is a graphical, interactive user-interface object with which a user interacts to unlock the device (100, 400, 1000).
7. Portable electronic device according to claim 6, wherein the device (100, 400, 1000) is a portable multifunction device.
8. Portable electronic device according to claim 6, furthermore comprising

- instructions to prevent (302, 310, 312) the device (100, 400) from performing a predefined series of actions in response to the detecting of any contact with the touch-sensitive display (126, 408) that does not correspond to the predefined gesture while the device (100, 400) is in the user-interface lock state.
9. Portable electronic device according to claim 6, wherein the predefined displayed path is a channel (404).
  10. Portable electronic device according to claim 6, wherein the detected contact is a movement of a contact point over the touch-sensitive display (126, 408), while continuous contact is maintained with the touch-sensitive display (126, 408).
  11. Portable electronic device according to claim 10, wherein the movement of the contact point over the touch-sensitive display (126, 408), while continuous contact is maintained with the touch-sensitive display (126, 408), is a horizontal movement.
  12. Portable electronic device according to claim 6, wherein the one or more programs (132-146) moreover contain instructions for displaying (304) the unlock image (402) and one or more visual instructions on the touch-sensitive display (126, 408) while the portable electronic device (100, 400) is in a user-interface lock state, wherein the one or more visual instructions indicate a movement of the unlock image (402) along the touch-sensitive display (126, 408) that will unlock the device (100, 400).
  13. Portable electronic device according to claim 12, wherein the one or more visual instructions contain an arrow.
  14. Portable electronic device according to claim 12, wherein the one or more visual instructions contain text.
  15. Portable electronic device according to claim 6,  
wherein the one or more programs (132-146) moreover contain instructions for displaying (304) the unlock image (402) on the touch-sensitive display (126, 408) while the device (100, 400) is in a user-interface lock state; and  
wherein the predefined gesture corresponds to moving of the unlock image (402) along the predefined displayed path on the touch-sensitive display (126, 408) to a predefined location on the touch-sensitive display (126, 408).
  16. Portable electronic device according to claim 6,  
wherein the one or more programs (132-146) moreover contain instructions for displaying (304) the unlock image on the touch-sensitive display while the device is in a user-interface lock state; and

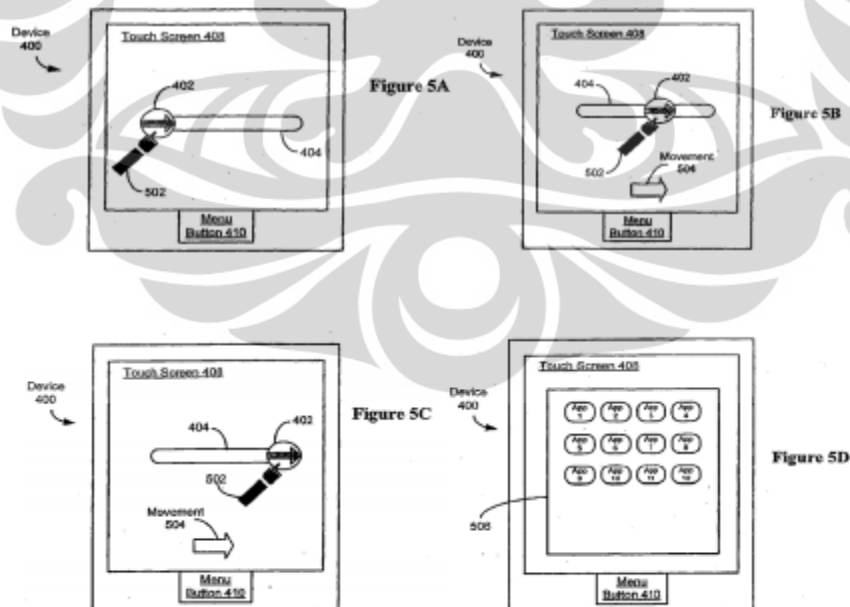
wherein the predefined gesture corresponds to moving of the unlock image (402) over the touch-sensitive display (126, 408) in accordance with a predefined displayed path on the touch-sensitive display (126, 408).

17. Portable electronic device according to claim 6, wherein the one or more programs moreover contain instructions for displaying (904) of a first unlock image (1002) and a second unlock image (1008) on the touch-sensitive display (1014) while the device (1000) is in a user-interface lock state; and

wherein the instructions for transitioning of the device to a user-interface unlock state comprise:  
instructions for transitioning of the device (1000) to a first active state corresponding to the first unlock image (1002) if the detected contact corresponds to a predefined gesture with regard to the first unlock image (1002); and  
instructions for transitioning of the device (1000) to a second active state different from the first active state if the detected contact corresponds to a predefined gesture with regard to the second unlock image (1008).

18. Computer program product with instructions that are configured to be executed by one or more processors (106) that, when executed by a portable electronic device (100, 400, 1000) with a touch-sensitive display (126, 408, 1014, cause the device (100, 400, 1000) to execute the method according to one of claims 1-5.

2.13. The following figures among others below to EP 022.



2.14. Finally, Apple is the holder of the following design patents:

- EC design 181607-0001, filed on 24 May 2004 with priority of 17 March 2004 and registered on 10 August 2004 for “pocket computers”;
- EC design patent 748280-0006, filed on 28 June 2007 with priority of 5 January 2007 and registered on 28 August 2007 for “apparatus for recording and playback of sound or image”;
- EC design patent 8889201-0018, filed on 29 Feb 2008 with priority of 31 Aug 2007 and registered on 13 May 2008 for “electronic devices”;
- EC design patent 748694-0003, filed on 28 Jun 2007 with priority of 23 Jun 2007 and registered on 5 December 2007 for “graphical user interfaces”;
- EC design patent 1236590-0011, filed on 24 Sep 2010 with priority of 19 April 2010 and registered on 4 February 2011 for “electronic devices”;
- EC design patent 1260624-0015, filed on 16 Feb 2011 with priority of 16 Aug 2010 and registered on 8 April 2011 “electronic devices”. [Apple no longer asserts this design]

The images in the design filings are assumed to be represented in the evaluation.

2.15. Defendant 1, Samsung Electronics Co. Limited, is part of the worldwide Samsung Group and produces and markets products in the field of (consumer) electronics, including smartphones and tablet computers.

2.16. Samsung carries, among others, the following smartphones:

- Galaxy S GT-19000;
- Galaxy Ace GT-S5830;
- Galaxy S II GT-19100;

and the following tablet computers:

- Galaxy Tab GT-P1000;
- Galaxy Tab 10.1v GT-P7100;
- Galaxy Tab 10.1 GT-P7510.

2.17. Defendant 2, Samsung Electronic Benelux B.V., has defendant 1 as its sole shareholder and according to the commercial register it is a general trading company and wholesaler in computer and electronics equipment. It is the holder of the website [www.samsung.nl](http://www.samsung.nl) addressed to the Netherlands. Via this website, Samsung offers in Netherlands the smartphones and tablet computers involved in this proceeding.

2.18. Defendant 3, Samsung Electronics Logistics Europe B.V. also has defendant 1 as its sole shareholder and deals with warehousing, distribution and logistics of Samsung’s electronic products (among others) within Europe. In this, it makes use of warehouses in Tilburg and Breda.



2.19. Defendant 4, Samsung Electronics Overseas B.V. has as its mission statement according to the commercial register (among other things): dealing in, manufacturing, buying, selling, importing, exporting, and distributing of electronic apparatus.

### **3. The dispute**

3.1. Apple asks, after reducing its claim<sup>2</sup>, asks the court to issue a judgement, provisionally enforceable, with regard to the tablet computers of Samsung (KG 11-730):

#### Primary injunction claim:

(A) To enjoin defendants, effective immediately upon notification of the judgement, from infringing the Dutch parts of EP 2.059.868, EP 2.098.948 and EP 1.964.022 in any way, directly or indirectly, by manufacturing, warehousing, offering, importing, placing in commerce, selling and/or otherwise dealing in tablet computers;

(B) To enjoin defendants 2-4, effective immediately upon notification of the judgement, from infringing the foreign parts of EP 2.059.868, EP 2.098.948 and EP 1.964.022 in any way, directly or indirectly, by manufacturing, warehousing, offering, importing, placing in commerce, selling and/or otherwise dealing in tablet computers;

(C) To enjoin defendant 1, effective immediately upon notification of the judgement, from infringing the EC design patent No. 181607-0001 in any way by manufacturing, warehousing, offering, importing, exporting, placing in commerce, selling and/or otherwise dealing in tablet computers in Netherlands;

(D) To enjoin defendants 2-4, effective immediately upon notification of the judgement, from infringing the EC design patent No. 181607-0001 in any way by manufacturing, warehousing, offering, importing, exporting, placing in commerce, selling and/or otherwise dealing in tablet computers in the European Union;

(E) To enjoin defendants, effective immediately upon notification of the judgement, from infringing the copyright of plaintiff with respect to the iPad 1 and iPad 2 in any way in the Netherlands.

#### Subsidiary injunction claim:

(F) To enjoin defendants, effective immediately upon notification of the judgement, from manufacturing, warehousing, offering, importing, placing in commerce, selling and/or otherwise dealing in the Galaxy Tab, the Galaxy Tab 10.1v and/or the Galaxy Tab 10.1 in the Netherlands.

#### Ancillary claims:

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<sup>2</sup> The claims regarding EC design patent 1260624-0015 are withdrawn upon arrival of letter at the clerk of the court on 28 July 2011, as mentioned above.

(G) To order defendants to report to the members of the board of plaintiff, within 30 calendar days from notification of the judgement, the sales and gross profits achieved with the infringing products, certified by an independent chartered accountant, as well as report all other information important to the calculation of the profit and/or indemnification;

(H) To order defendants, within a period of 7 days from notification of the judgement, to ask all its buyers in writing, insofar as these buyers are established in the European Union, at least in the countries where the asserted patent rights are in force, at least in Netherlands, to return the infringing products within two weeks, with the offer to compensate them for the invoice price and shipping costs, making use solely of the following text (i.e., without an offer letter or other additional text):

for Dutch buyers:

*“Dear [name of buyer],*

*Some time ago we supplied you with tablet computers from the Galaxy range. In particular, this involves tablet computers of the type Galaxy Tab (GT-P1000) and Galaxy Tab 10.1v (GT-P7100) [fill in with other infringing tablet computers].*

*By judgement of [date of judgement], the judge in interlocutory proceedings of the Court of The Hague has ruled that the manufacturing, warehousing, offering, selling and/or delivering of these products INFRINGES the patent rights, design patents and/or copyright of Apple Inc., in any case that we have acted unlawfully towards Apple Inc.*

*We ask you to return to us the Galaxy tablet computers supplied to you, if you still have any of them in stock, within 14 days of the date of signing of this letter.*

*Of course, we shall reimburse you for the price paid as well as the shipping costs.*

*For the record we would like to mention the fact that by storing, offering and/or selling of the mentioned Galaxy tablet computers you are infringing the intellectual property rights of Apple Inc.”*

for foreign buyers:

*“Dear [name buyer],*

*Some time ago we supplied tablet computers from the Galaxy range to you. More in particular this concerns the Galaxy Tab (GT-P1000) and Galaxy Tab 10.1v (GT-P7100) [to be completed with other infringing tablet computers].*

*By judgment of [date judgment] the Judge in Interlocutory Proceedings of the Court The Hague, the Neihelands, ruled that the production, storing, offering, selling and/or supplying of these products COMMITS INFRINGEMENT of the patent rights, design rights and/or copyrights of Apple Inc, in any event that we have acted unlawfully towards Apple Inc.*

*We request you to return to us the Galaxy tablet computers supplied to you, insofar as you still have these in stock, wihin 14 days after the date of signing of this letter. We will of course compensate the price paid by you as well as the transport costs.*

*For the record we would like to mention the fact that by storing, offering and/or selling of the above mentioned Galaxy tablet computers, you commit infringement of the intellectual property rights of Apple Inc.”*

as well as a letter with content to be determined by the judge in interlocutory proceedings as he deems proper, while at the same time sending copies of this letter as well as a list of addressees with complete address information to the members of the board of plaintiff;

(I) Order the defendants to notify the market, within a period of 48 hours after notification of the judgement, as to the infringing of the patent rights, the design patents and/or the copyright of plaintiff, as well as the unlawful actions, by placing a message on the homepage of their Dutch website [www.samsung.nl](http://www.samsung.nl) and keeping this message on the homepage without interruption for a period of four weeks, without any further commentary in word or image, with merely the following content and in neutral and customary typography with a letter size that does not differ from the other text on the homepage:

*“Recently we offered the sale of tablet computers from the Galaxy range in the Netherlands. In particular, this involves the tablet computers of the type Galaxy Tab (GT-P1000) and Galaxy Tab 10.1v (GT-P7100).*

*By judgement of [date of judgement], the judge in interlocutory proceedings of the Court of The Hague has ruled that the sale of these tablet computers infringes the patent rights, design patents and/or copyright of Apple Inc., in any case that we have acted unlawfully towards Apple Inc., and forbids us from dealing any further in these Galaxy tablet computers on the Dutch market.”*

as well as a message with content to be determined by the judge in interlocutory proceedings as he deems proper, the message to be placed in a “pop-up window” that appears automatically whenever an Internet user visits the Dutch website of defendants and which message shall be of such size as to take up at least a quarter of the visible portion of the homepage, without having to scroll down this homepage, and the text of the message being designed so that the space of the pop-up window is fully utilized and the message is easily legible;

(J) Order the defendants to pay to plaintiff an immediately payable penalty of EUR 100,000 for each day or portion of a day or, at choice of plaintiff, per infringing product, for which it can be imputed to defendants that the prohibitions as stated under (A)-(F) and the commandments as stated under (G)-(I) have not been fulfilled or properly fulfilled;

(K) Set the period in which the claim in the main case must be brought as provided in art. 1019i Rv at six (6) months after notification of this judgement, or a period to be determined by the judge in interlocutory proceedings as he deems proper;

(L) Order defendants to pay the court costs in keeping with art. 1019h Rv.

and with regard to the smartphones of Samsung (KG 11-731):

Primary injunction claim:

(A) To enjoin defendants, effective immediately upon notification of the judgement, from infringing the Dutch parts of EP 2.059.868, EP 2.098.948 and EP 1.964.022 in any way, directly or indirectly, by manufacturing, warehousing, offering, importing, placing in commerce, selling and/or otherwise dealing in smartphones;

(B) To enjoin defendants 2-4, effective immediately upon notification of the judgement, from infringing the foreign parts of EP 2.059.868, EP 2.098.948 and EP 1.964.022 in any way, directly or indirectly, by manufacturing, warehousing, offering, importing, placing in commerce, selling and/or otherwise dealing in smartphones;

(C) To enjoin defendant 1, effective immediately upon notification of the judgement, from infringing the EC design patents No. 748280-0006, 888920-0018, 1236590-0001 and 748694-0003 in any way by manufacturing, warehousing, offering, importing, exporting, placing in commerce, selling and/or otherwise dealing in smartphones in the Netherlands;

(D) To enjoin defendants 2-4, effective immediately upon notification of the judgement, from infringing the EC design patents No. 748280-0006, 888920-0018, 1236590-0001 and 748694-0003 in any way by manufacturing, warehousing, offering, importing, exporting, placing in commerce, selling and/or otherwise dealing in smartphones in the European Union;

(E) To enjoin defendants, effective immediately upon notification of the judgement, from infringing the copyright of plaintiff with respect to the iPhone 3G and the iPhone 4 in any way in the Netherlands;

Subsidiary injunction claim:

(F) To enjoin defendants, effective immediately upon notification of the judgement, from manufacturing, warehousing, offering, importing, placing in commerce, selling and/or otherwise dealing in the Galaxy S, the Galaxy Ace and/or the Galaxy S II in the Netherlands.

Ancillary claims:

(G) To order defendants to report to the members of the board of plaintiff, within 30 calendar days from notification of the judgement, the sales and gross profits achieved with the infringing products, certified by an independent chartered accountant, as well as report all other information important to the calculation of the profit and/or indemnification;

(H) To order defendants, within a period of 7 days from notification of the judgement, to ask all its buyers in writing, insofar as these buyers are established in the European Union, at least in the countries where the asserted patent rights are in force, at least in Netherlands, to return the infringing products within two weeks, with the offer to compensate them for the invoice price and shipping costs, making use solely of the following text (i.e., without an offer letter or other additional text):

for Dutch buyers:

*“Dear [name of buyer],*

August 24, 2011

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*Some time ago we supplied you with mobile telephones from the Galaxy range. In particular, this involves smartphones of the type Galaxy S (GT-I9000, Galaxy SII (GTI-9100) and Galaxy Ace (GT-S5830) [fill in with other infringing telephones].*

*By judgement of [date of judgement], the judge in interlocutory proceedings of the Court of The Hague has ruled that the manufacturing, warehousing, offering, selling and/or delivering of these products INFRINGES the patent rights, design patents and/or copyright of Apple Inc., in any case that we have acted unlawfully towards Apple Inc.*

*We ask you to return to us the Galaxy smartphones supplied to you, if you still have any of them in stock, within 14 days of the date of signing of this letter.*

*Of course, we shall reimburse you for the price paid as well as the shipping costs.*

*For the record we would like to mention the fact that by storing, offering and/or selling of the mentioned Galaxy smartphones you are infringing the intellectual property rights of Apple Inc.”*

for foreign buyers:

*“Dear [name buyer],*

*Some time ago we supplied mobile phones from the Galaxy range to you. More in particular this concerns the Galaxy S (GT-I9000), the Galaxy S II (GT-I99100) and the Galaxy Ace (GT-S5830) [to be completed with other infringing smartphones].*

*By judgment of [date judgment] the Judge in Interlocutory Proceedings of the Court The Hague, the Netherlands, ruled that the production, storing, offering, selling and/or supplying of these products COMMITS INFRINGEMENT of the patent rights, design rights and/or copyrights of Apple Inc, in any event that we have acted unlawfully towards Apple Inc.*

*We request you to return to us the Galaxy smartphones supplied to you, insofar as you still have these in stock, within 14 days after the date of signing of this letter. We will of course compensate the price paid by you as well as the transport costs.*

*For the record we would like to mention the fact that by storing, offering and/or selling of the above mentioned Galaxy smartphones, you commit infringement of the intellectual property rights of Apple Inc.”*

as well as a letter with content to be determined by the judge in interlocutory proceedings as he deems proper, while at the same time sending copies of this letter as well as a list of addressees with complete address information to the members of the board of plaintiff;

(I) Order the defendants to notify the market, within a period of 48 hours after notification of the judgement, as to the infringing of the patent rights, the design patents and/or the copyright of plaintiff, as well as the unlawful actions, by placing a message on the homepage of their Dutch website [www.samsung.nl](http://www.samsung.nl) and keeping this message on the homepage without interruption for a period of four weeks, without any further commentary in word or image, with merely the following content and in neutral and customary typography with a letter size that does not differ from the other text on the homepage:

*“Recently we offered the sale of mobile telephones from the Galaxy range in the Netherlands. In particular, this involves the smartphones of the type Galaxy S (GT-I9000, Galaxy S II (GTI-9100) and Galaxy Ace (GT-S5830).*

*By judgement of [date of judgement], the judge in interlocutory proceedings of the Court of The Hague has ruled that the sale of these smartphones infringes the patent rights, design patents and/or copyright of Apple Inc., in any case that we have acted unlawfully*

*towards Apple Inc., and forbids us from dealing any further in these Galaxy smartphones on the Dutch market.”*

as well as a message with content to be determined by the judge in interlocutory proceedings as he deems proper, the message to be placed in a “pop-up window” that appears automatically whenever an Internet user visits the Dutch website of defendants and which message shall be of such size as to take up at least a quarter of the visible portion of the homepage, without having to scroll down this homepage, and the text of the message being designed so that the space of the pop-up window is fully utilized and the message is easily legible;

(J) Order the defendants to pay to plaintiff an immediately payable penalty of EUR 100,000 for each day or portion of a day or, at choice of plaintiff, per infringing product, for which it can be imputed to defendants that the prohibitions as stated under (A)-(F) and the commandments as stated under (G)-(I) have not been fulfilled or properly fulfilled;

(K) Set the period in which the claim in the main case must be brought as provided in art. 1019i Rv at six (6) months after notification of this judgement, or a period to be determined by the judge in interlocutory proceedings as he deems proper;

(L) Order defendants to pay the court costs in keeping with art. 1019h Rv.

3.2 In short, Apple argues that Samsun is infringing on its aforementioned intellectual property rights according to the outlines below. With respect to the Samsung Galaxy tablets:

	<b>Tab</b>	<b>Tab 10.1v</b>	<b>Tab 10.1</b>
<b>EP’868</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>EP’949</b>		<b>X</b>	<b>X</b>
<b>EP ‘022</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>CDR 181607-0001</b>		<b>X</b>	<b>X</b>

Regarding the Samsung Galaxy smartphones:

	<b>S</b>	<b>S II</b>	<b>Ace</b>
<b>EP'868</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>EP'948</b>		<b>X</b>	
<b>EP '022</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>CDR 888920-0018</b>	<b>X</b>		
<b>CDR 748280-0006</b>	<b>X</b>		
<b>CDR 1236590-0011</b>			<b>X</b>
<b>CDR 1260624-0015</b>		<b>X*</b>	
<b>CDR 748694-0003</b>	<b>X</b>		

\*withdrawn claim

In addition, Apple argues that Samsung is infringing on its copyrights with respect to the iPad1, 2 and iPhone 3, 4 and that it imitates its style slavishly.

3.3 Samsung replies in defense, in short, by stating that the cases are too complicated for a summary proceeding, that there is talk of misuse of procedural law, that there is certainly no urgent interest, that the patents and models are invalid, that it is not infringing on them, that there is no question of copyright protection in the Netherlands or of infringement on those rights or of slavish style imitation.

3.4 To the extent they are of interest, the statements of the parties are further looked into below.

#### **4. Assessment**

##### Competence

4.1. Though not disputed, officially the boundary exceeding competence of the court with respect to defendants 2-4 is looked into, considering the fact that the patents invoked are greeted with a defense of invalidity. With a judgment of December 22, 2010, in the Solva/Honeywell case (LJN BP6970), this court has asked a prejudicial question about the exclusive competence rule of article 22 item 4 of the EEX regulation of the Court of Justice of the European Union in connection with the competence for a provisional measure (there pending with case number C 616/10). As long as the Court of Justice has not decided otherwise, it must be assumed however that in summary proceedings boundary exceeding competence must be assumed, even if there is talk of a defense of invalidity (compare Court of The Hague dated July 12, 2011, LJN BR1364, Yellow Page/Yell). As such, there is a boundary exceeding competence with respect to the patent rights invoked. With respect to the invoked model rights

applies that articles 82 item 1, 83 item 1 and 90 item 3 of the Regulation (EC) No. 6/2001 of the Council of December 12, 2001 regarding Community Models (Community Model Regulation) (hereinafter GmodVo) with respect to defendants 2-4 established in the Netherlands provide competence. With respect to defendant 1 no boundary exceeding provision is requested.

### *Urgent Interest*

4.2 Apple has an urgent interest in its claims, now that it states that there is talk of continuous infringing action. The circumstance that certain Samsung products have already been on the market since 2010 detracts insufficiently from this, also considering that this does not apply for other Samsung products such as the Galaxy Tablet 10.1 which will be launched shortly<sup>5</sup>. In addition, there has been talk of negotiations between the parties and some rights, such as EP 948 and Community Model Rights 36590-0011 and 1260624-0015 have been granted in 2011 (February / April). At this state of affairs, Samsung has shown with insufficient clarity against which of its products and with respect to what rights, Apple would have acted with insufficient energy.

4.3 Restraint is in place to assume, as Samsung wants, that the interests on its part are so large that already because of them the claimed provisions must be rejected. The mirror image like interests on Apple's side are at this time also considered to be considerable. Add to this that with respect to the patents, on behalf of Samsung it has been stated during the hearing that it is relatively simple to adapt the software of its products in such a way that infringement is no longer applicable.

4.4 Consideration of the (urgent) interests of both parties had led the summary trial judge to state already during the hearing that for a possible prohibition an extension period to at least October 13, 2011 will be granted. This takes mainly into account the circumstance that consultation between the parties is taking and has been taking place regarding the granting of licenses, whereby also patent rights belonging to Samsung are involved and which Apple would use for the marketing of its iPad and iPhone. It is not necessary to put these negotiations under unnecessary heavy and one-sided pressure (the counterclaims based on two of the patents invoked by Samsung have been rejected after all) with a prohibition going into effect immediately.

### *Complexity*

4.5 Though undeniably complex, this case is not too complicated for summary proceedings. The summary proceedings judge states first of all that restraint is suitable to deny a temporary provision on the grounds that a case is too complicated. The patents which are brought forward in this proceeding, are in addition not related to a technology which is too complicated. Also the dispute related to model rights and copyrights is of a nature and a scope as they are seen more often between large companies with large-scale interests. It must also be considered that such companies are in a condition to put together a team of attorneys and patent agents to make an actual case possible within a short period of time. Comparable arguments are opposed



<sup>5</sup> When issuing this judgment, the Galaxy tab 10.1 is apparently already launched in the Netherlands.

to Samsung's statement that it has not been able to prepare its case properly, especially with respect to the patent rights invoked by Apple, or that for such reason there would be talk of abuse of (procedural) law.

### Patent Infringement

4.6 For each patent, hereinafter a short introduction will be made of the applicable technology. Such introduction is borrowed from the – undisputed – clarification given by Apple.

#### *EP 868*

##### Introduction

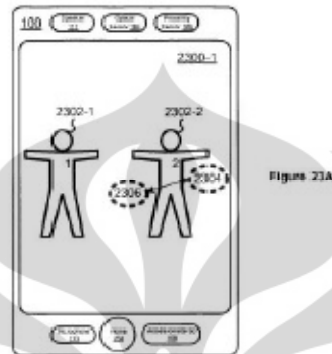
4.7 EP 868 is related to a user interface for scrolling and moving of digital objects, such as photos or electronic documents, on a device with a touchscreen display. EP 868 is among other related to an interface which can be used in such a fashion that a user can scroll within displays in a digital photo gallery and can navigate among different images.

4.8 More in particular, EP 868 claims protection for a method for making a second object (for instance a photo) visible from a first object that finds itself for instance in a zoomed in condition, while looking at two or more digital objects (Photos) one after the other, as well as for an electronic device in which this method is performed.

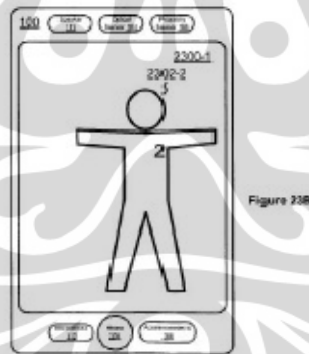
4.9 The patent explains that as image screens of portable electronic devices become smaller and smaller, this leads to restrictions with respect to the user interface and the manner in which users control the device (paragraph [0002]). For portable devices which are controlled on a touchscreen by touching with the finger (or another means, such as a stylus), (such as that of a smartphone or a tablet computer), the user interface has already improved greatly (paragraph [0008]) but also the use of such a touchscreen represents again new challenges.

4.10 EP 868 teaches the use of different movements to let the user navigate easily and intuitively within and among different photos in an album. For instance, when an individual image is looked at within the collection, the size of the image due to the reduced dimensions of the touchscreen can be greater than what can be shown on the screen, for instance, because one has zoomed in on the image. Therefore, it is handy to provide the user with an intuitive manner to navigate within the image and to indicate when the edge of the image has been reached. It is also conceivable that a user after looking at an image in the collection, would like to look at the next image. Therefore, it is useful that the user after looking at a single image, would be able also to look at the next image.

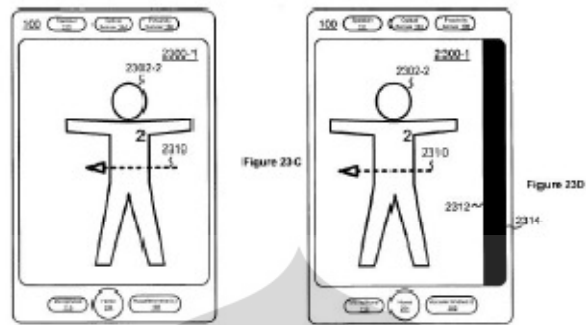
4.11 Paragraphs [0140] through [0144] of the patent describe by means of figures 23A through 23 H an implementation form of the claimed functionality. This assumes a situation in which a photo (2300-1) shown on a touchscreen shows two male figures (2302-1 and 2302-2) (figure 23A):



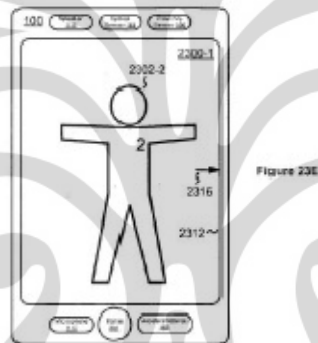
4.12 EP 868 involves the situation in which the photo that is looked at, extends outside the edges of the screen; this means, that one or more of the edges of the photo are not visible. For instance, this may be the case when the user has zoomed in on a portion of the photo, as can be seen below on figure 23B, where the user has zoomed in on the male figure on the right on the photo of figure 23A:



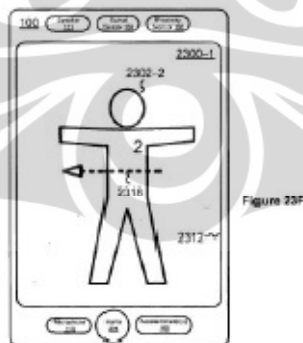
4.13 As a result of the zoom action, the right side edge of the zoomed in photo is no longer visible on the screen of the device. When a first movement, such as a horizontal swiping movement 2310 from right to left is made over the zoomed in photo (figure 23C), the photo is moved a little bit to the left so that one after the other, the right-hand side edge 2312 original hidden by the zoom action as well as area 2314 beyond edge 2312 become visible (figure 23D):



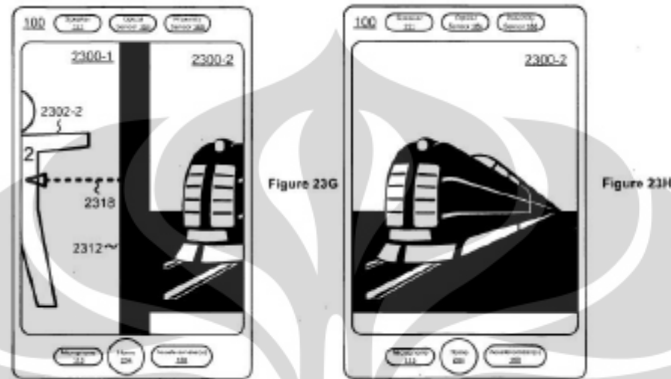
4.14 At the time when the first (swiping) movement is interrupted (for instance, because the finger is removed from the touchscreen), the zoomed in photo slides back by itself again in the opposite direction 2316 so that area 2314 made visible earlier is no longer visible (figure 23E):



4.15 With a second movement, such as in a horizontal swiping movement 2318, from right to left across the photo, the zoomed in photo is shifted again in the direction of the second movement 2318 (Figure 23F):



4.16 By performing the second movement 2318, again and successively, the hidden side edge 2312 of the photo and the area 2314 past the edge 2312 are shown, and also a new photo 2300-2 (figure 23G) after which the first (zoomed in) photo in the direction of the second (swiping) movement disappears from the screen and the second photo appears on the screen (figure 23H):



4.17 The patent explains that in practice it is also possible for the first (swiping) movement 2310 to make the first photo disappear immediately from the screen and to make appear a second photo, for instance in the situation that the first photo was visible in full on the screen and consequently, that it had not been zoomed in on (paragraph [0155]).

#### Infringement / validity

4.18 According to a provisional opinion, the mode of operation in the Galaxy S, S II and Ace falls under the protection of EP 868 but not the mode implemented in Galaxy Tab, Tab 10.1 and 10.1v.

4.19 Samsung has adopted the position that EP 868 would be invalid on the basis of WO 03/081458 published on October 2, 1993 (hereinafter WO 458). To this respect, the following is being considered. In the state of the art, it was unknown to make first one swipe (first movement) and then to let the digital object bounce back, and only then to show the next photo as soon as a second swipe (second movement) is performed. Judging at this time, this is not evident either for WO 458. That document reveals however swiping through columns (a column is according to a provisional judgment a first digital object in the sense of EP 868). In this context applies that when a “horizontal motion threshold” (page 15, line 9, WO 458) is exceeded, the next column is shown but when the threshold is not exceeded, the column will bounce back and “snap into alignment with the logical column” (page 15, line 20, WO 458). The mandatory bounce-back after the first movement of EP 868 cannot be found back in WO 458 nor is there any indication to that effect. The other state of the art mentioned by Samsung is further removed from the invention. Consequently, EP 868 is considered as being valid for the time being.

4.20 Considering what precedes, it is essential for EP 868 that there is a (mandatory) bounce back after a first movement, as described in claim 1. For the Samsung smartphones Galaxy S, S II and Ace, this takes place at the time when one zooms in on a photo. Then, a second swipe is necessary to move on to the next photo, precisely as described in paragraphs 140 through 144 as well as figures 23A-H of EP 868. This form of implementation is in line with the undisputed benefit or advantage of EP 868 stated by Apple, namely, preventing the problem of disorientation during navigation (which would be strongest when zooming in). This means that all components of claim 1 are complied with as soon as with the Galaxy S, S II or Ace one zooms in on a photo in the gallery and then, swipe movements are made with the finger. This does not alter the fact that bouncing back after a first swipe movement does not take place when there is no zooming in on the photo. This form of implementation of the Galaxy S, S II and Ace coincides with what is described in paragraph 0155 of EP 868 (see 4.17 above) so that an average expert or craftsman will understand that bouncing back after a first swipe does not have to take place all the time, namely, not when there is no zooming in. Otherwise than what Samsung has also argued, this expert or craftsman will also understand that the second movement must be sufficiently long or fast to pull the photo over the threshold value. On the one hand, this is dictated by the logic of the EP 868 method and on the other hand, this appears from the fact that the first photo of figure 23F must be pulled more than half over the next photo (figure 23G and 23H). That after the first movement, therefore movements are conceivable which are not sufficiently long or fast, does not detract from the fact that in Samsung's application at a given time a second movement is to be distinguished which is sufficient to move on to the next photo.

4.21 Judging at this time, this is different however for Galaxy Tab 10.1 and 10.1v. Also when zooming in on the photo in the gallery, it is possible at the tabs to leaf through directly to the next photo. Consequently, with the Galaxy tabs, there is no talk of a "first movement" after which there is a bounce back in the sense of EP 868. In fact, with the tabs it is therefore always possible, irrespective of whether there is zooming in, a "second movement" in the sense of EP 868 can be performed immediately as long as this second movement is long or fast enough. That is essentially different from what the average expert or craftsman will understand with the EP 868 system. That swipe movements are conceivable whereby there is bounce back, because the movement is too short or not fast enough, does not mean that there is infringement because an average expert or craftsman will not understand the difference between the first and the second movement as such. From the EP 868 system, he will understand that, in any event when there is zooming in, a first movement with bounce back must always take place, before moving on to the next photo is possible. That is not the case with the Galaxy tabs and this will be recognized by the average expert. The passage in paragraph 153 of EP 868 which Apple has pointed out, does not bring the expert to the idea that the first and second movements in the patented system should be viewed as totally separate from each other (and as such, that a first movement should not have to precede the second one), and certainly not when the expert is aware in how EP 868 differs from WO 458. In fact, the application of the Galaxy tabs is not more or different than what WO 458 is revealing, namely, leafing through or "snapping" back and "aligning" of the digital

object, according to whether a horizontal threshold value is exceeded (read: whether swiping is sufficiently long or fast).

4.22 Since the summary proceedings judge is of the opinion that a mode of operation whereby also in a zoomed in condition, it is possible to leaf through with one movement (such as with the Galaxy

Tablets) , is not part of the patent, Samsung's argument that EP 868 as read would be too ample and non-repeatable, does not require an opinion anymore.

#### *EP 948*

##### Introduction

4.23 EP 948 relates to a device with touchscreen which can receive and process several touches simultaneously: a multi-touch touchscreen.

4.24 According to the patent, the user interface of a (multi-touch) touchscreen can include various views, whereby a view represents a certain graphic element of the user interface which is used by a software element (paragraph [0023] of the patent). Such a software element can be a software application, but also a given subcomponent of a software application.

4.25 When a user touches the touchscreen, data related to such touch (including information about when and where on the screen this took place) are generated and transmitted to the software element. These data – identified by the patent as touch input data – are processed by the software and transmitted to the software element which belongs to the touched view, so that said software element can react correctly. The processed touch input data of one touch are identified by EP 948 as a touch event (paragraph [0023]).

4.26 Normally speaking, control software within a device transmits information regarding a touch event to the software element associated with the view touched by the user. When the touch takes place for instance on a bar or a key, information related to the touch event is transmitted to the software responsible for the bar or the key and for reacting when it is pressed.

4.27 Use of a multi-touch screen leads to two possibilities, either there are multiple finger touches within the same view, or a finger will touch a view (for instance a key), and a second finger touches simultaneously another view (for instance a menu or a photo).

4.28 The patent explains that in principle, a multi-touch screen makes it possible that at the same time, multiple touch events are transmitted to the different software application(s) (elements), which consequently, have to be processed simultaneously by the software. In principle, this makes it necessary to develop complex and expensive software for use in a device with a multi-touch screen (paragraph [0006]).

4.29 Though a multi-touch screen can process data from different touches simultaneously, there can be circumstances whereby for individual views there is no longer a need for processing a multi-touch input, or that this is not desirable. In this context, one might think of a single virtual knob (a view) which can be controlled with a single touch. In the event that a user (whether or not intentionally) would touch said knob with two fingers, the underlying software would be burdened unnecessarily with more than one touch event (paragraph [0038]). For instance, this is different with a digital photo which can be zoomed in or out respectively by a spreading or pinching movement of two fingers.

4.30 A user of a multi-touch screen can also touch the screen simultaneously at different locations (multiple views). For instance, with most video games it is desired to control virtual control knobs simultaneously (paragraph [0038]). However, when playing such a video game, at the same time, it may not be desirable to allow that a possible touch by the user, for instance, of the status bar, is processed, because it would unexpectedly disturb or interrupt the user's game.

4.31 EP 948 provides a solution for the abovementioned problems by allowing or not allowing for a device with a multi-touch screen that several views react on the screen to (multi-) touch events. EP 948 describes a system that can determine whether any specific view can receive multi-touch events and whether a view which receives a touch event, will allow other views to receive touch events as well.

4.32 For that purpose, the patent defines two different flags<sup>6</sup> which may or may not be used in combination. A multi-touch flag which indicates whether a certain view may or may not receive several touches simultaneously, and an exclusive touch flag which indicates, while a given view receives a touch, whether that view allows that other views may also receive touches (paragraph [0040]).

4.33 Anyway, it cannot be inferred from the patent that the invention is not limited to cases in which the multi-touch flag as well as the exclusive touch flag are applied. That appears, among other, from paragraph [0040] which states that the multi-touch flag and/or the exclusive touch flag can be used, paragraph [0050] which states that two flags can be combined and paragraph [0052] which describes that some forms of implementation have at their disposal of only one of the two flags (and the associated functionality).

4.34 Depending on the flag set-up of a given view (whether or not multi-touch and/or whether or not exclusive), the EP 948 system enables to achieve that for that view and/or other views intended touch events can be processed or generated. Denied touches (touch events) are not transmitted to the related software element. By denying selective touches (and the associated touch events) in this manner, simpler and cheaper software which does not support multi-touch may be sufficient for some applications, while for other applications, there is a provision for this (paragraph [0008]). This will also reduce to a minimum the simultaneous processing of touch events for different applications.

#### Infringement

4.35 Judging at this time, the Samsung products under attack do not fall under the extent of protection of EP 948. The invoked claims in fact prescribe that with “each view” an “exclusive touch flag” is associated. The reference which Apple has made

<sup>6</sup> In computer programming language, a “flag” refers commonly to one bit or several bits which are used to store a code (for instance 1 or 0) with a given meaning.





to paragraph 27 of EP 948 does not hold. Such paragraph, includes the following:

*“In some embodiments, touch events are processed at the lowest level of the view hierarchy. Thus, for example, if a user touches title bar view 302, the touch event need not be directly processed by the software element associated with the title bar view, but instead can be processed by a software element associated with a view included within the title bar view where the touch occurred (i.e. a software element associated with one of views 310, 311 and 312). In some embodiments, some higher level view can also handle touch events.”*

(underscoring by Apple, par. [0027], lines 12-16).

According to a provisional opinion, from this it does not appear that according to the EP 948 method also multiple views per “exclusive touch flag” would be allowed. In addition, this part of the description does not look as much to the patented solution (which is described in detail as of paragraph 38) but rather to what is possible with a multi-touch screen and how this works with software. The interpretation that Apple wants to give to this passage would furthermore be in contradiction with the already mentioned clear wording of the claim “associating an exclusive touch flag with each view” and “said exclusive touch flag indicating whether a particular view (...)” as well as for instance with paragraph 40 of EP 948 “The exclusive touch flag can indicate whether a particular view is to allow other views (...) (underscoring by presiding judge).

4.36 As was briefly stated above, according to paragraph 23 of EP 948, a “view” is a graphic user interface element that is associated with a separate software element. Examples of such view are according to EP 948 numbers 301-312, meaning, the status bar, title view, song title views and various knobs. See figure 3 of the patent shown below:

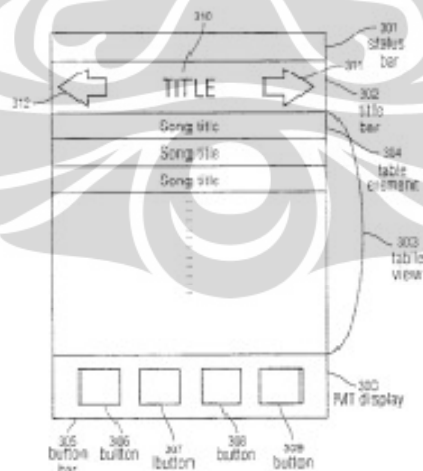
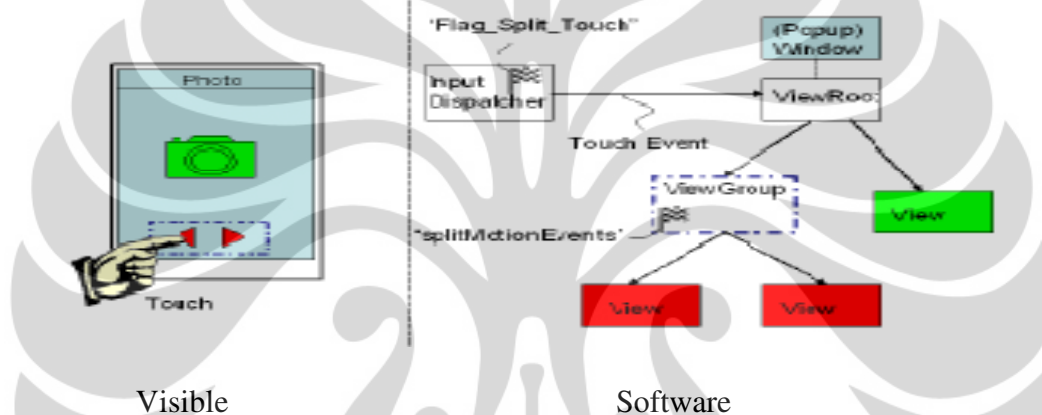


Fig. 3

4.37 In the on Samsung products running Android 2.3 or higher, however, an exclusivity flag (so-called `Flag_Split_Touch`) is coupled to a window. However, as Apple admits, the Android windows almost always include multiple views in the sense of EP 948. This means that in de Android, differently from EP 948, an exclusivity flag cannot be applied for “each” view. That for a pop up window, there may be talk of one view, and as such the exclusivity per (for each) view can be differentiated, does not change this. The other windows which are open next to the pop up do not know such differentiation per view so that also, for a possible pop up window, “each” view does not have an exclusivity flag next to it.

4.38 The following figure <sup>7</sup> used by Apple during the hearing may illustrate the Android operation.



On the left, the figure shows the screen as seen by the user and on the right, next to the dotted line the associated software, whereby the association is indicated by colors (red for the return and forward button; green for the plate of a camera). Since with the Android, there is one `ViewRoot` per window, the “`Flag_Split_Touch`” in the `Input Dispatcher` only guarantees the exclusivity for the whole window. This means that this flag determines whether, when the light blue window is touched, at the same time, also outside touches will be allowed (no views outside the window are shown in the preceding figures, but conceivably for instance there is a status bar). In the light blue window however, multiple views in the sense of EP 948 are visible: the green plate and the two red arrow keys. Therefore, the “`Flag_Split_Touch`” gives exclusivity to a window (as a whole) but not to a specific view. For that reason, the “`Flag_Split_Touch`” does not fulfill the exclusivity flag of EP 948. In other words, the “`Flag_Split_Touch`” does not guarantee, as the {activated} exclusivity flag of EP 948 would, that when one of the red arrow keys is touched for instance, also the other red key or the green plate can be touched simultaneously.

<sup>7</sup> Memorandum of pleading, attorneys Kleemans, Blomme and van Oorschot No. 78

4.39 Nor does the Android 3.0 and higher which runs on the Galaxy Tabs comply with the “splitMotionEvents” flag. This flag guarantees after all the exclusivity of Views within a ViewGroup (see paragraph 48 of the Nieh statement, exhibit 36 of Apple). In the figure above, the “splitMotionEvents” flag consequently guarantees that either one or the other of the red arrow keys has exclusive touch within the ViewGroup. Let it be clear that with the “splitMotionEvents” flag, no exclusivity is guaranteed with respect to views outside the ViewGroup, such as the green plate in the figure. In other words and simply stated, even if the “splitMotionEvents” flag is exclusive for one of both read arrow keys, then still, simultaneously, the green plate can be “pinched” or “depinched” (zoomed in or out). Also, a possible view located outside this Window (not shown on the figure) can be touched if the “Flag\_Split\_Touch” is not positioned on exclusive.

4.40 Even when both flags are looked at together, exclusivity per view as in EP 948 is out of the question. When both flags are situated on exclusive, so that one of the two red arrow keys in the figure shown above has an exclusive touch, even then – just as before – the green plate can be touched.

4.41 As such, judging at this time, the operation of the Android 2.3 or 3.0 or higher does not comply with EP 948. Apple did not argue that there would be equivalent measures, so that it has not been the subject of discussion and for that reason, this cannot be agreed. The summary trial judge points out that as a minimum, there is doubt whether the result and/or the manner in essence are the same, now that for the Android 2.3 or 3.0 there is still no exclusivity on view level but that exclusivity on a higher level (not per view but per window or viewgroup) is settled. At this state of affairs, the Samsung argument or plea that EP 948 would be invalid, does not require further discussion.

#### *EP 022*

##### Introduction

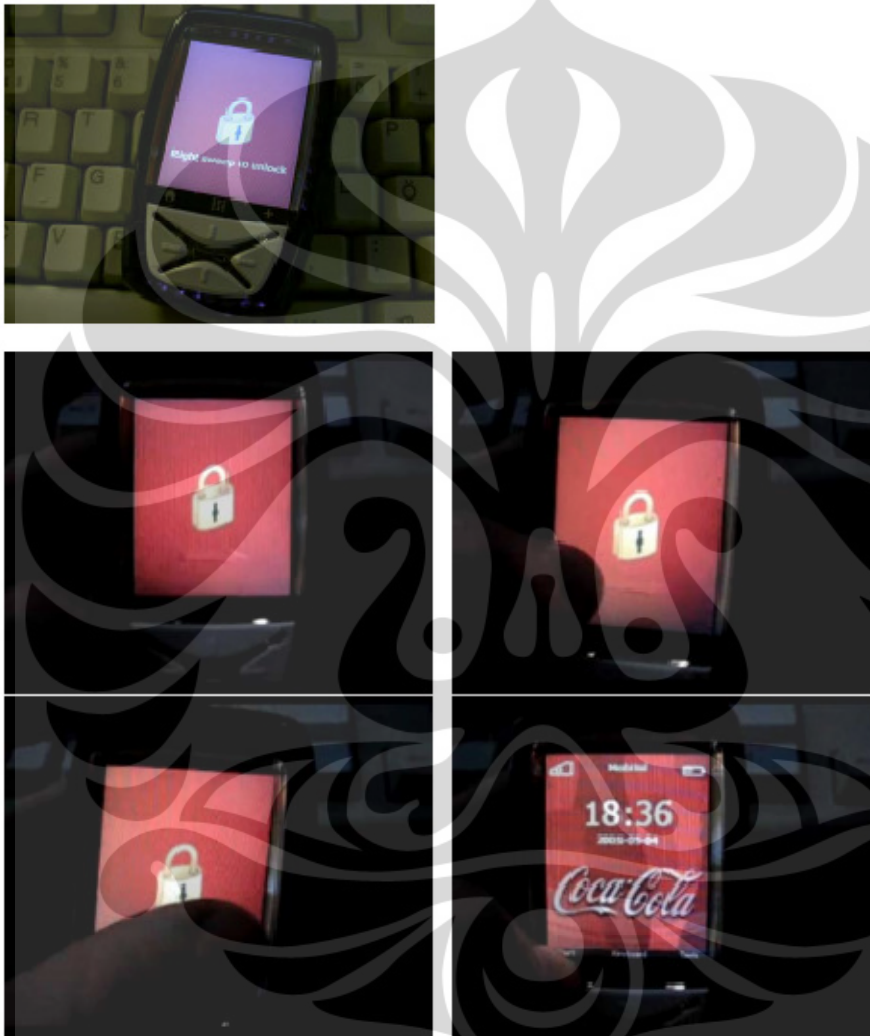
4.42 The patent relates to portable electronic devices which are provided with a touchscreen display. Touchscreen devices have often a limited number of physical keys. The functions of and applications of the device can be controlled by means of virtual keys which are shown on the touchscreen and can be used by means of the touchscreen.

4.43 In paragraph [0003] of the patent, it is pointed out that a problem with touchscreens is that functions can be activated or deactivated unintentionally. Therefore, a touchscreen in most tablet computers can be locked when the touchscreen has not been touched for a certain period of time or when a user locks the touchscreen by hand. Locking of a touchscreen makes sure that the screen does not react to further touches until the screen has been unlocked.

4.44 The invention of the patent is related to the situation where, starting from a locked touchscreen in which the user interface is not accessible, the touchscreen must be unlocked to allow user input.

### Validity / Infringement

4.45 According to the provisional judgment, there is a reasonable chance that EP 022 in a proceeding on the main issue will be considered invalid so that for that reason the measures requested with respect to EP 022 must be denied. With the parties, the closest state of the art to be considered is the Neonode Nlm whereby the manner of unlocking is to be shown as follows (after pressing a button):



4.46 This Neonode phone reveals all features from claim 1 prior to the words “characterized by” as is also admitted by Apple (these are the features a-c which it indicated). The difference with EP 022 is according to Apple – in short – in that (d) an unlocked image is moved over a predefined displayed path and (e) which unlock image is an graphic object with which the user has interaction. However, Samsung states validly that the Neonode N1m has also a predefined displayed path for unlocking in the form of the red transparent arrow<sup>8</sup>. Furthermore, it is clear from the telephone that if there is no correct swiping, the phone remains locked. As such, also with this telephone, there is a certain form of feedback (interaction). This means that actually the only difference to be pointed out is the use of an unlock image. The problem statement would then be formulated in line with paragraph 5 of EP 022 as providing a more user friendly procedure for unlocking a touch screen. Application of such an unlock image, the summary proceedings judge considers at this time to be evident. In fact it is not more than having another graphic element sliding over the arrow with the Neonode. If not totally trivial then the application of getting such a graphic element (with feedback/interaction) without inventive imagination can be taken out of the long known virtual on/off slider buttons of Plaisant et al., article “Touchscreen Toggle Design”, CHI 3-7 May 1992 (exhibit 6.8 of Samsung, shown on the left and then above all, the button at the bottom left) or even the virtual equalizer slides of the Guitar Rig (exhibit 31 Samsung, right):



<sup>8</sup> Just visible on the illustrations, a red arrow is located under the small lock.

4.47 In both prepublications, a graphical element (a virtual slider) must be slid over a specific pad. With respect to the slider of the Plaisant, a professional will understand that if it is not slid far enough, the switch is released too soon, or [if] the sliding is off the [designated] path, the switch will not switch from OFF to ON (or vice versa). Therefore, there is an interaction with the user here, just as with the EP 022. This is not diminished by the fact that Plaisant has found in its research that that slider was preferred to a lesser degree. It should be clear to a professional that the push buttons for unlocking a touchscreen are not suitable for a portable device, because there still remains a significant possibility that it might be unlocked unintentionally. It should also not be considered relevant that the touchscreen of the Plaisant is not itself unlocked by the switches, but that it was used to switch on or off an external device, since under the problem formulation as it is also used by Apple, a better way for unlocking a touchscreen is already being

researched. Moreover, the court in interlocutory proceedings has deemed it plausible that an average professional would not be deterred to consult the device by Plaisant merely because an external device is being operated. Similar considerations apply with respect to the Guitar Rig.

4.48 Since the EP 022 cannot presently be deemed to be inventive, the claims relating to it must be unsuccessful on that account, and no ruling is needed as to whether there is a case of infringement.

#### *Infringement on Design*

4.49 The court in interlocutory proceedings is presently ruling that there is no case of infringement on any of Apple's design rights, on the following grounds. In this framework, it is presumed - in contrast with the argument by Apple - that solely external characteristics, as following from the design registration, may be included for consideration. The court in interlocutory proceedings deems it inappropriate that for the purpose of the design infringement question, any concrete implementation of registered designs may be included as well, as AG Mengozzi appears to propose in the Pepsico Pogs case (legal ground nr. 83).<sup>3</sup> Another ruling, after all, would be in conflict with the design registration system (and the distinction made in the [European] Community Designs Regulation between registered and unregistered designs) and with the protection of legal certainty for third parties. Furthermore, this would also give rise to important questions which would create legal uncertainty, and which do not follow from the Regulation. Examples of such questions are: which criterion would have to be used in order to evaluate which design would be embodied in a certain product on the market, at what point in time (time of filing, of registration, or later) a product would have to be on the market if it were to be considered, and what to do if several products with slight mutual variations would be on the market that could be considered, et cetera. It is not for nothing that Article 19 sub 1 of the Community Designs Regulation grants the holder of the registered Community Design (see Article 1 sub 2 item b of the Community Designs Regulation: registration in accordance with the Regulation) an exclusive right for a period exceeding 3 years (Article 12: a maximum of 25 years). A concrete implementation obviously does have significance when invoking a non-registered community design, but that is not (and was not brought) up for discussion in this case.

#### *Galaxy Tab 10.1 and 10.1v*

4.50 Starting from the premise that Community Model 181607-0001 of Apple is valid, Samsung has presently kept a sufficient distance from it. In the present framework it is significant that as a matter of fact, only the fronts of the Galaxy Tab 10.1 and 10.1v show similarities. The characteristic elements of the front of the design as registered, in other words, the rectangular shape with the rounded corners, the minimalistic design, the passe-partout frame behind a fully transparent ("glass") front panel, were each well-known already on the priority filing date (17 March 2004). The HP Compaq TC1000, for

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<sup>3</sup> Statement of 12 May 2011 in C-281/10

instance, was already rectangular with rounded corners, and it had an almost entirely transparent surface with a (grey) passe-partout beneath that surface (see illustration below).



4.51 The fact that this device can open up and show a keyboard does not cause the exterior as shown above to have been known. The TC1000 features a second darker/black implementation of a passe-partout within the grey one, but the “minimalistic” concept of only a single passe-partout (the frame of which, incidentally, does not extend), was already found on the Knight-Ridder tablet PC of 1994 (see below).






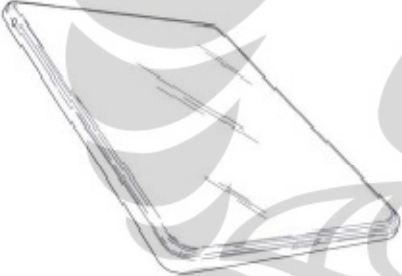


4.52 Apple has insufficiently contested that the Knight-Ridder tablet PC was known in the respective circles. The mere circumstance that this tablet PC did not end up in production does not presently imply that the design was not known in the respective circles.

4.53 The front of the Apple design therefore features a combination of known elements which in themselves do not enjoy a significant degree of protection. For these purposes, the court in interlocutory proceedings has taken into account that according to [its?] preliminary opinion, the necessary [?] appears to be technically determined. If one seeks to prevent visible accumulation of dirt along the edges of the touchscreen and yet allow for the finger to perform touch operations at the edges of the touchscreen (and thereby be able to utilize the full scope of the screen), a continuous “glass” touch panel covering the entire front seems to be a logical choice.

4.54 With respect to the attractive “minimalistic” or “tight” exterior design posited by Apple, the court in interlocutory proceedings also took into account the following: it is indisputable that at present there is a trend to give products a “minimalistic” exterior design. In many cases this will be visually attractive, as with the iPad. Taking into account this attractive exterior, there might then be an inclination to give such designs a broad protection. It should be remembered, however, that “minimalistic” design means, in fact, that the design follows as much as possible the contours dictated by the technology and the ergonomics of the device. In its preliminary opinion, this is the case with the design as well. Rounded corners result from the fact that sharp corners are not convenient to touch and might cause damage to fabric covers and clothes, in particular if this is a pocket computer, which is what this design was registered for. The same consideration as the one described above applies to an important extent to the continuous “glass” touch panel. A design right to “minimalistic design” inherently implies the problem that competitors are factually forced to make less optimal choices (read: they are forced to add unnecessary frills to their design in order to avoid infringement of a protected design), which provides a competitive advantage to the design rights holder who (happened to) beat his competitors to the registration of a design for a certain product segment, such as tablet computers. The competitive advantage is unjustifiable from a design rights point of view, because it is not so much the result of design work as from the fact that the respective design rights holder was the first to be able to register the (tight) exterior of a new product segment. This may not mean that the design is invalid, but it does mean that the protection given to it may not be broad, and must be limited to the actual design elements of the design. This is difficult, because precisely for a “minimalistic” or “tight” design, the general impression of the interior happens to be greatly determined by technological and practical or ergonomic considerations. Yet, an abstraction is necessary from the design elements that cannot be protected because they are technologically or otherwise practically or ergonomically determined.

4.55 Apart from the considerable similarities, there are some less conspicuous differences that can be seen on the front panel. One might mention the camera eye on the Galaxy tabs, the passe-partout that is somewhat thicker in the Galaxy tabs in relation to the effective screen, and in the Galaxy 10.1. the SAMSUNG trademark in the middle below. Cf. the following images (on the left the picture of the design, on the right the Galaxy Tabs, always with the 10.1v at the top and the 10.1 at the bottom).



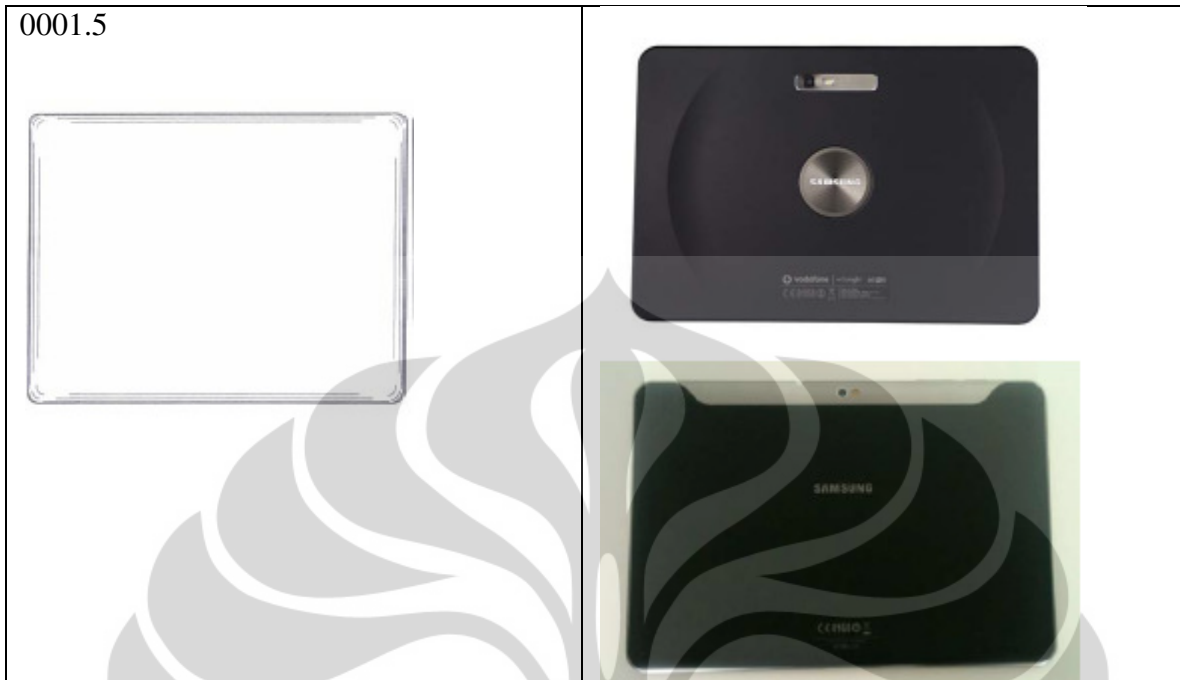
<b>CDR000181607-0001</b>	<b>Samsung Tab 10.1v (top) and 10.1 (bottom)</b>
0001.2 	 
0001.1 	 



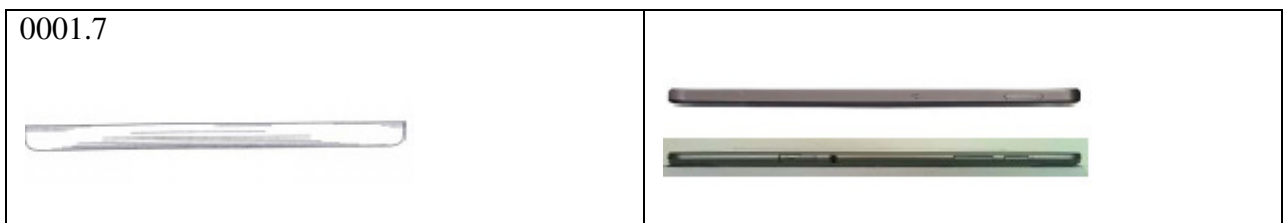
4.56 In contrast with the external similarities on the front, there are conspicuous difference on the back side.

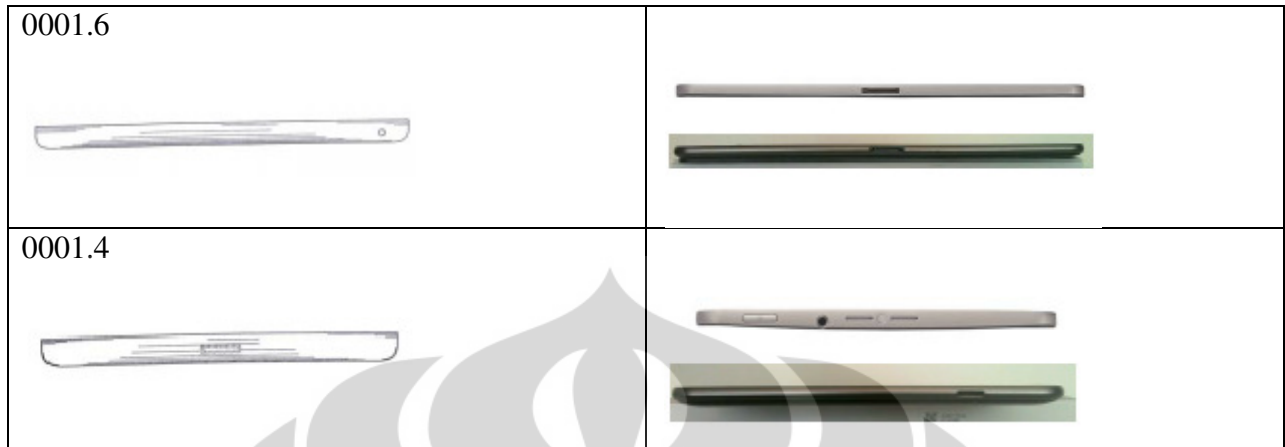
The Galaxy Tab 10.1 has a dark rear panel with a light grey rim around it, with a thickness of several millimeters. At the top, this rim bulges, and includes a conspicuous camera eye, and a second little eye next to it. Also clearly visible are the headphone connection as well as several protruding at the top. In the middle, the SAMSUNG trademark is prominently displayed.

In the Galaxy Tab 10.1v the difference are even bigger. The rear panel here is no longer flat, but has a round camber in the middle, which entirely changes the look of the rear panel. The Samsung trademark inside the round circle also gives the rear panel of this tablet an entirely different appearance than the simple, rounded but otherwise flat and unadorned rear panel of the design.



4.57 The side views of the Galaxy 10.1 and 10.1v tabs are also considerably different from the design. In both tabs there is a clearly visible distinction between the light grey rim and the dark rear panel. The form of the edge is also significantly different. The side rim of the 10.1 is convex, meaning narrower at the top, then bulging broadly, and narrower again at the bottom, similar in shape to a ‘(’. In the 10.1v, the side is essentially flat, with a scalloped lower bevel. However, the side edges of the design follow the contours of a quarter circle. Furthermore, the connections, buttons, and speakers that determine the look of the side panel are all positioned in different locations in the Galaxy tabs. To mention a few conspicuous examples: both Galaxy tabs have a conspicuous flat port (for connection to a PC) in the long side, which do not appear in the long side of the design (images 0001.6 and 0001.7). The design shows only one single short side (images 0001.4 wherefore it must be presumed that the short sides are identical). In the Galaxy tab 10.1, the grooves for the speakers are not in the middle, but eccentrically at one quarter of the short sides. To the extent that the designs have a thin look at all (referred to by expert Woodring as a ‘thin form factor’, Exhibit 39 Apple), the Galaxy tabs 10.1 and 10.1v are clearly even thinner. Moreover, Samsung has stated correctly that such products must be as flat and as thin as possible, and that the technology - and the court in interlocutory proceedings indicates that this is a generally known fact - increasingly makes this possible. See the following images:





4.58 If the technological / practical and ergonomically determined elements are abstracted and only the features that can be protected under design rights are considered, there is no other conclusion possible at present that the Galaxy Tabs 10.1 and 10.1v create a different general impression than the design, in particular when taking into account the conspicuous differences between their rear and side panels. This is even true if the front panel should be given more attention than the rear and side panels, as Apple has argued.

4.59 The aforementioned is insufficiently diminished by the alleged conclusion from a market survey conducted by Apple according to which a significant part of the public thinks that the design and the Galaxy tab 10.1 and 10.1v are too similar. First of all, the survey fails in the definition of the question. The question asked was whether the general impression of the design and the Galaxy Tab was identical. There should have been an indication, however, which elements of the “minimalistic” model are actually subject to protection, in order to arrive at a realistic result. Moreover, it presently appears improper that the surveyed persons did not have an opportunity to go back to the first image after seeing the second image. The survey is therefore more a memory test than a survey of similarities, taking into account the elements subject to protection.

#### *Galaxy S*

4.60 With respect to the exterior of Galaxy S, Apple bases itself on a pair of Community Design registrations, 748280-0006 and 888920-0018. With respect to the Galaxy S user interface, Apple also bases itself on Community Design registration 748694-0003.

#### Galaxy S versus Community Design 748280-0006

4.61 Presently there is no case of an identical general impression of Galaxy S and Community Design 748280-0006. It should be taken into account here that it was already known in the relevant circles that the Korean design registration of LG with the number of 30-0418547 (Exhibit 53H Samsung)

and with the iHolic HTV 200 (Exhibit 53J Samsung). With respect to the iHolic, Apple has insufficiently contested that it was known to insiders in the respective sector.





Community Design 748280-0006

LG design 30-0418547

iHolic HTV

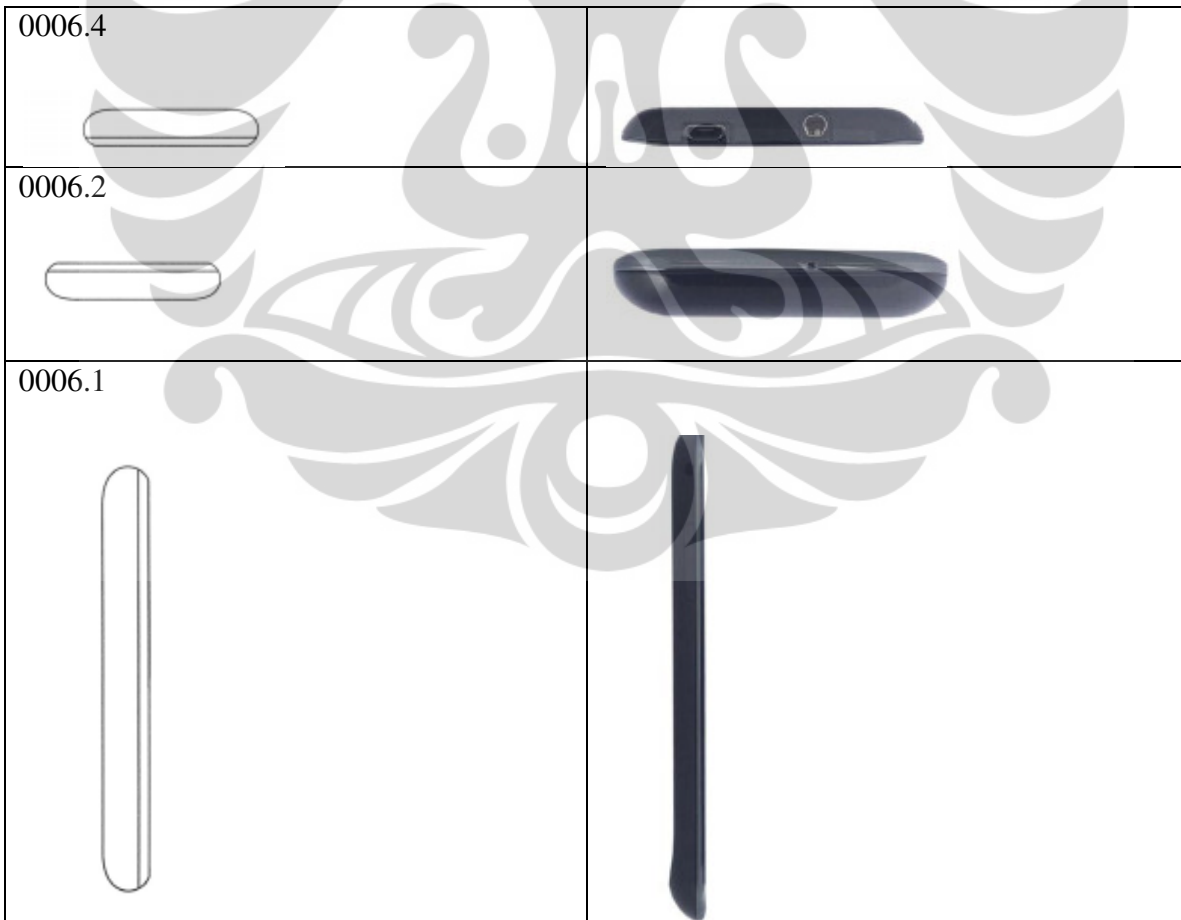
4.62 This means that as far as the front panel goes, the own character of the design is mainly caused by the conspicuous round button below the screen. It is also clearly visible that the design - other than the aforementioned designs that are already known - features a screen that covers the full width of the telephone. Characteristic on the sides are the convex roundings, more or less in the shape of a semicircle, or ‘)’. The LG design featured a rim as well, but in the Community Design 748280-0006, the rim around the front panel is more pronounced.

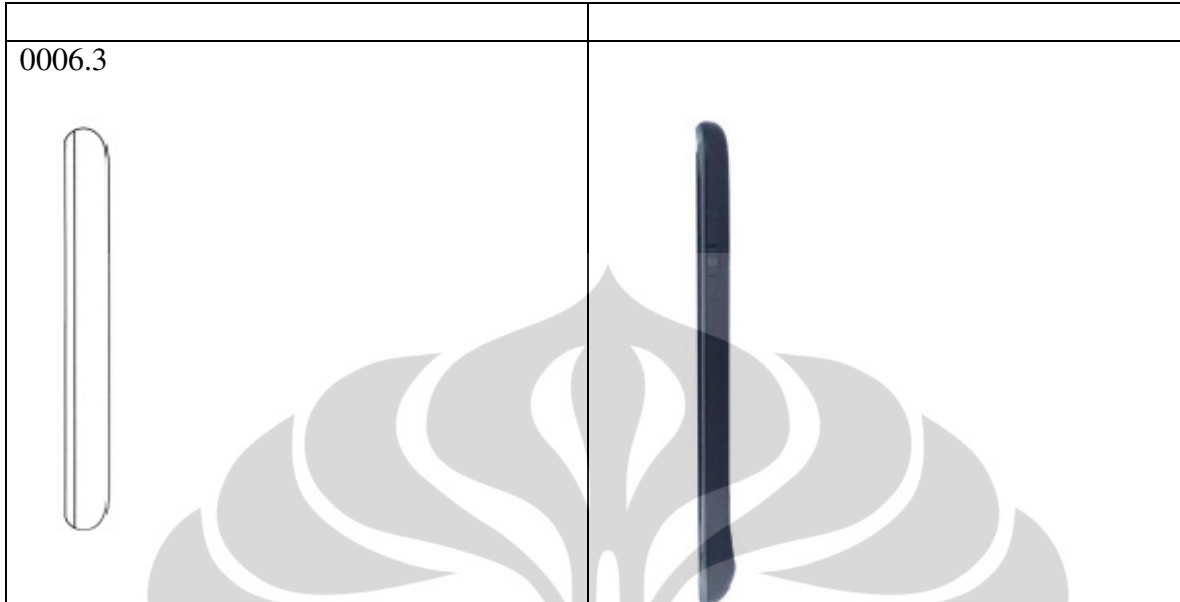
4.63 While the front of the Galaxy S also has a screen that covers the full width, other than the design it has a rectangular button. Since the round button of the design is an important and conspicuous difference with respect to earlier known designs, an informed user will consider this to be a prominent difference. Furthermore, the groove for the speaker of the Galaxy S is a bit thinner and wider, there is a camera eye next to the groove, the Samsung trademark is prominently displayed beneath the speaker, and there are [additional] buttons to the left and right of the rectangular central button.

Community Design 748280-0006	Samsung Galaxy S
<p>0006.5</p> 	



4.64 It should also be considered that the side panels of the Galaxy S, apart from having different connections and buttons, feature a somewhat sharper angle, as compared to the entirely rounded sides of the design. The rear panel of the Galaxy S has a pronounced bulge at the bottom end of the device, which is also visible from the side. Furthermore, apart from this bulge, the Galaxy S is a bit slimmer than the design.





4.65 The rear also features a conspicuous camera eye in the top left, surrounded by a chrome square. Also visible here are the SAMSUNG trademark and [the text] “with Google”, whereas the Design has an unadorned rear panel.






4.66 Looking at the totality, the conclusion must be that the design and the Galaxy S create different impressions on the informed user. As stated before, the results of the market survey do not diminish that.

#### Galaxy S versus Community Design 888920-0018

4.67 Presently there is also no case of an identical general impression of Galaxy S and Design 888920-0018. First of all, the court in interlocutory proceedings has ruled that Samsung has correctly stated that the priority invoked by Apple is incorrect.

Apple bases itself on the priority of US D 604,297 (Exhibit 19 Samsung) and US D 602,014 (Exhibit 20 Samsung), whereby it becomes immediately clear that neither of the two filings have a rectangular menu button on the base, but a round one. Schematically, this can be represented as follows, with a summary of the differences on the right:

<p>Community Design 888920-0018</p> 	<p>US D 604,297</p> 	<p>- features a round menu button;</p>
	<p>US D 602,014</p> 	<p>- features a round menu button; - front panel features a square screen that is not dotted;</p>

4.68. The parties have discussed the question about which criterion must be determined whether a model has the right to priority or not. Article 41, Section 1 GModVo states that the same model must be concerned. Article 4 of the Union Treaty of Paris does not specify any obligatory measure in this connection but it can be derived from the context of 4C at 4 that the priority application must have “the same subject matter”. It seems to the judge hearing applications for interim relief that in this framework the minimal test should be the novelty in the sense of Article 5 GModV whether the priority model is identical to the registration that the priority claims. In other words, if the model is to be considered novel vis-à-vis the priority model it has no claim on priority. Judging in advance, the noticeable, rectangular menu button of the model makes it not identical to the priority applications, so that the claim for priority cannot be applied for, starting from the actual application date of GM 888920-0018 (February 29, 2008). This does not concern a difference in a merely unimportant detail.



4.69. The previous matter means that at the time of filing the Samsung SGH-F700 that came on the market in The Netherlands on October 9, 2007 (Samsung production 64) and Samsung's common model 00718770-0007 (Samsung production 23) were already known in the circles concerned.



4.70. According to the provisional judgment the front edge of the Samsung SGH-F700 anticipates all important elements of the front edge of GM 888920-0018. The SGH-F700 also has a completely transparent “glassy” front edge with a rectangular menu button and a thick edge. The side views of the apparatus are, for the rest, fairly different from the model; the apparatus is noticeably thicker and has a different rounding of the side edges. Furthermore, there is a noticeable camera on the back side.

4.71. Assuming that GM 888920-0018 is novel and has its own character, it must be recognized that in view of the SGH-F700 not much value can be attributed to a possible coinciding of the front sides of the model and Galaxy S. For the rest, differences can be perceived on the front side upon a comparison. Thus, in the Galaxy S there is a noticeable slot for the loudspeaker and there is a camera eye next to slot, the trademark SAMSUNG is prominently located under the loudspeaker and there are buttons on both sides of the rectangular central button. The screen frame is designed striated in GM 888920-0018, which means according to the conventions - not contested by Apple - that no protection is

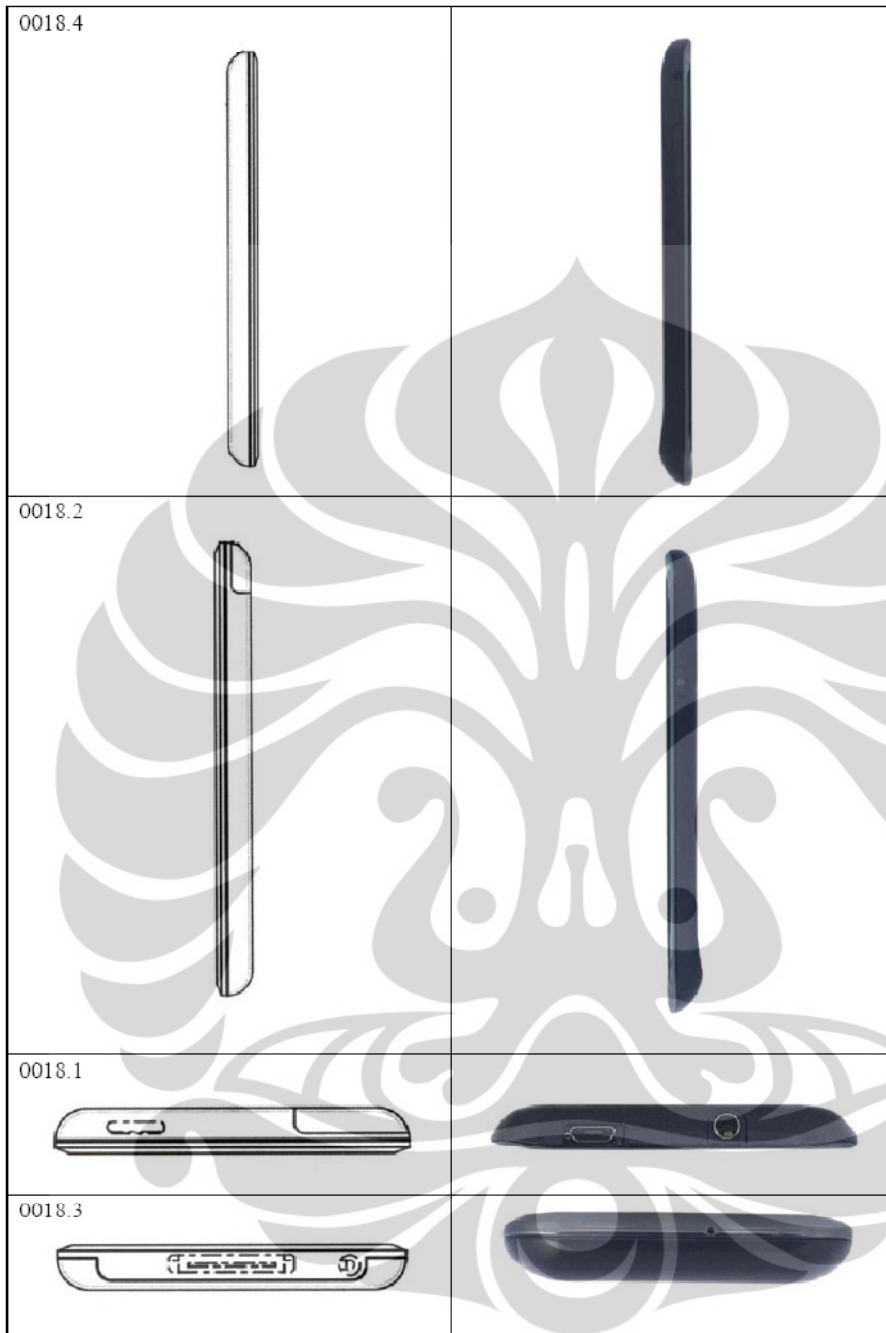
requested for this.<sup>4</sup> Therefore, a possible coinciding of the model and of the Galaxy S cannot be taken into account in view of this aspect.



4.72. Consequently, it should also be kept in mind that the back edge of the Galaxy S has a pronounced curvature under the apparatus that is also visible from the side.

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<sup>4</sup> See also 11.4 of the Examination Guidelines Community Design of the OHIM at Alicante, to be found at <http://oami.europa.eu/en/office/aspects/pdf/ExamGuidelines.pdf>



4.73. In addition, the back side has a noticeable rectangular camera eye surrounded by chrome. The model has an entirely different recess/ornament at the upper left. Also, the trademark SAMSUNG and “with Google” are visible on the back side.



4.74. In view of everything, the conclusion must be that the model and the Galaxy S produce a different impression for the informed user. As already considered previously, the results of the market survey do not change this.

#### GUI Galaxy S

4.75. Judging in advance, there is just as little talk about the same general impression of the graphical user interface (GUI) of the Galaxy S and the model 748694-0003. The judge hearing applications for interim relief assumes that the model must be evaluated as registered. Given the lack of any indication in the model registration that no protection was actually requested for the specific content of the icons as represented in the filing, they should also be taken into consideration in the judgment. Apple has, for example, not claimed a model in which the rectangular contours of the icons are included without content. Furthermore, it should be assumed that only the screens of the Galaxy S such as sold by Samsung can be evaluated for violation. A possible rearrangement of the icons by a user must not play a part because this cannot be considered as a reserved act in the sense of Article 19 GMoV.

4.76. At the time of the filing the GUI of the Nokia 7710 (production 7.56 Samsung) was already known in the circles concerned.



GM 748694-0003



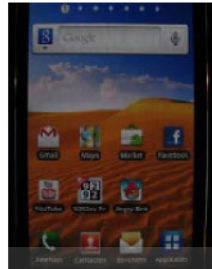
Nokia 7710

According to the provisional judgment the GUI of the Nokia 7710 anticipates a number of important elements of the GM 748694-0003. The GUI of the Nokia 7710 also has icons of many colors set in rows of 4. Furthermore, the icons of Nokia 7710 have a rectangular form with rounded-off corners. In addition, there is a short text under the icons. Also, the background is designed in one color. However, there are many differences, of which the most noticeable is, perhaps, the different content of the icons, the presence of three rows instead of 4, whereby the lowest row in the model leaves the black area open and the lowest row is in a grayish bar. For the present, there is no protection for the difference in color because Samsung has stated without contest that it is technically determined (in order to save the battery and the screen itself is black).

4.77. The considered screen imprints of the Galaxy S sold by Samsung illustrated next to the model appear as follows:



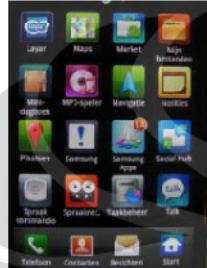
GM 74864-0003



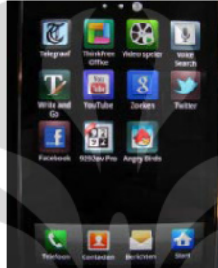
Operating screen Galaxy S



Menu-screen 1 Galaxy S



Menu-screen 2 Galaxy S



Menu-screen 3 Galaxy S

4.78. It is obvious that the welcoming screen of the Galaxy S definitely produces a different general impression for the informed user than the model on account of the color-rich desert image as background, the Google search bar above the icons and the arrangement of the icons (three rows at the bottom, no open black row, an icon is lacking at the bottom right).

4.79. The menu screens come closer to that of the model. This also concerns multicolor icons in rows of four with rounded-off corners. However, this was already presented as known from the GUI of the Nokia 7710. In fact, only the light grey bar around the lowest row is taken over from the aspects in which the model differs from the Nokia 7710. However, the content of the icons is considerably different. In addition, in the model a row is “skipped”, that is, is black, which is lacking in menu screens 1 and 2 of the Galaxy S. According to the provisional evaluation the screens also cause a considerably different general impression on the informed user. However, Samsung is also completely different with screen 3 in that – in addition to the clearly different content of the icons – yet another icon is skipped in the 3d row.

4.80. In view of the above, no comment is made whether the model is valid (for example, in combination with the GUI of model 8, about which Apple stated that it has

become obvious due to misuse) and whether a start must be made from the black-white version of the model such as Samsung had argued because the model was initially published in black/white, which was, however, later rectified to a color version as reproduced above.

#### Galaxy Ace

4.81. Judging in advance, there is no talk about the same general impression of Galaxy Ace and model 1236590-0011 from 2010. It should be noted here that all test models previously discussed here were already known in the circles concerned. Thus, the external part of the front view was entirely known. Samsung then also rightfully takes the standpoint that the protection aims in particular at a combination of known elements with the external part of the edge. The edge is provided all-around with a flat "band" located on top and furthermore with simple, round, flat buttons. The judge hearing applications for interim relief remarked that the back shell, in as far as it extends above the band, is again reproduced with striations so that obviously no rights are claimed for it.

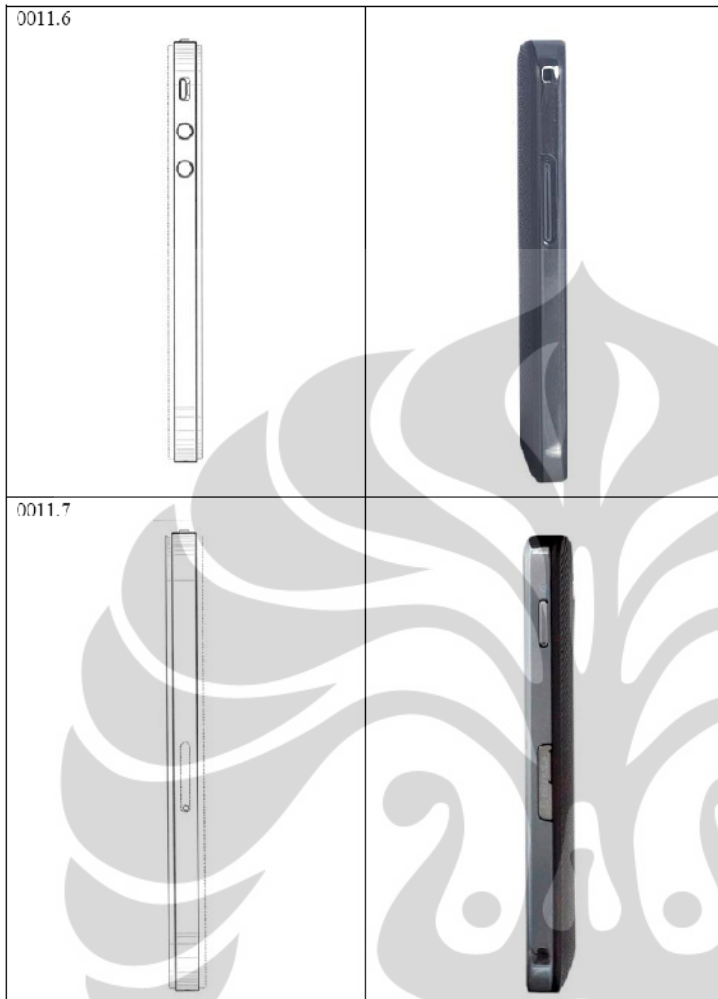
4.82. The first thing that is noticed on the front side is that the Galaxy Ace, in distinction to the model, has a rectangular button instead of a round button. The rectangular appearance of the button is accented even more by a chrome edge. Furthermore, the slot for the loudspeaker in the Galaxy Ace, which is also accented in chrome, is designed somewhat thinner and broader, lacks the small slot above it and the camera eye and the trademark SAMSUNG is located prominently under the small loudspeaker.



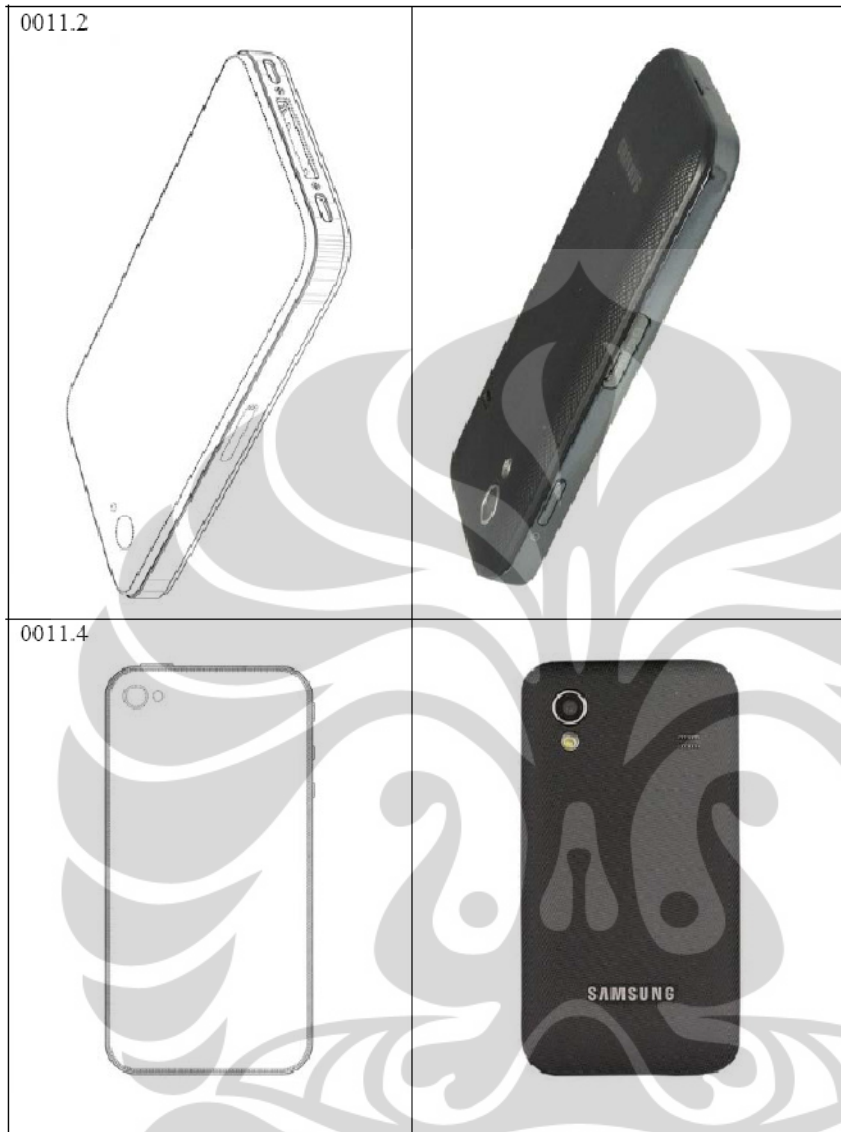
4.83. Consequently, it should also be kept in mind that the side edges of the Galaxy Ace have a significantly different appearance. The "band" does not rest here as it were on top of the edge but is sunk. On the top side of the Galaxy Ace adjacent to the band there is no part of another material than the "band", while that is the case for the back shell, that is not protected on account of the dotted lines. Also, the buttons look different here. See the following figures.







4.84. Furthermore, the back side has a second eye (probably for a flash or light) not next to but under the camera eye. Also the trademark SAMSUNG is prominently visible there and also a small grid (probably for a loudspeaker). See the figures below.



4.85. In view of the entirety, the conclusion must be that the model and the Galaxy Ace make a different impression on the informed user. As already considered above, the results of the market survey change nothing about this.

Copyright violation and slavish imitation

4.86. Samsung stated without opposition that as regards the outer part of the products of Apple the United States must be considered the country of origin and that the items have no copyright protection there, so that on the basis of the reciprocity principle determined

in it in Article 2, Section 7 of the Bern Convention there is all the less copyright protection in The Netherlands. Samsung has argued this also regarding the user interface taking into consideration an opinion of Professor Ralph Oman regarding this topic. Since Apple has not argued anything against this, it can be assumed in this short lawsuit that that it will not receive any copyright protection for one of the claimed items and the claims based on it must fail.

4.87. Apple did not return to the session for the illegal imitation of style cited in the summons, so that it can be assumed that the basis is no longer being maintained. In as far as Apple made an appeal in the session regarding slavish imitation of its products, the basis was presented late and will be left aside as being in conflict with a good order of the process.

#### Conclusion and process costs

4.88. The sum of the above is that Samsung violates EP 868 with the smart phones Galaxy S, S II and Ace but not with the tablet computers. Samsung does not violate EPA 948 whereas EP 022 is to be considered null and void at the present. There is no talk of violation by Samsung regarding the model rights or copyrights argued by Apple. At any rate, given this state of affairs there is a good chance that this will be adjudicated in the basic procedure. This means that a prohibition of violation can be granted regarding the matter of EP 868 but limited to the smart phones Galaxy and Ace. For the rest, the claims must be rejected. Apple has not argued any specific urgent concerns regarding its other claims and now that a violation is being assumed for only one patent, which Samsung can obviously take care of in technically simple manner, these claims should be rejected. On account of the adaptation which is obviously simple for it to carry out, it is not indicated that the surety claimed by Samsung has to be observed. The relevant damage to be possibly sustained by Samsung because the given prohibition was not made in a basic procedure does not seem great in that light, not to mention the creditworthiness (non-creditworthiness argued by Samsung) of Apple. For the same reason and in view of the

extension date to be granted, a prohibition to be granted executable by declaration of anticipation is justified.

4.89. Now that the parties on both sides are wrong, the process costs shall be compensated.

## **5. The decision**

The judge hearing applications for interim relief

5.1. Forbids the defendants from violating the Dutch part of EP 2.059.868 after the passage of 7 weeks and one day after the serving of the judgment in any manner, directly or indirectly by manufacturing, storing, offering, importing, marketing, selling and/or otherwise dealing with smart phones Galaxy S, S II and Ace;

5.2. Forbids the defendants under 2-4 from violating the foreign parts of EP 2.059.868 after the passage of 7 weeks and one day after the serving of the judgment to be pronounced in any manner, directly or indirectly by manufacturing, storing, offering, importing, marketing, selling and/or otherwise dealing with smart phones Galaxy S, S II and Ace;

5.3. Orders the defendants to pay an immediately payable penalty of EUR 100,000 to the plaintiffs for each day or part of a day or, to be chosen by the plaintiffs, of EUR 10,000 per violating product, whereby it can be granted to the defendants that the prohibitions such as taken up under 5.1 and 2.2 are not to be complied with either entirely or not thoroughly;

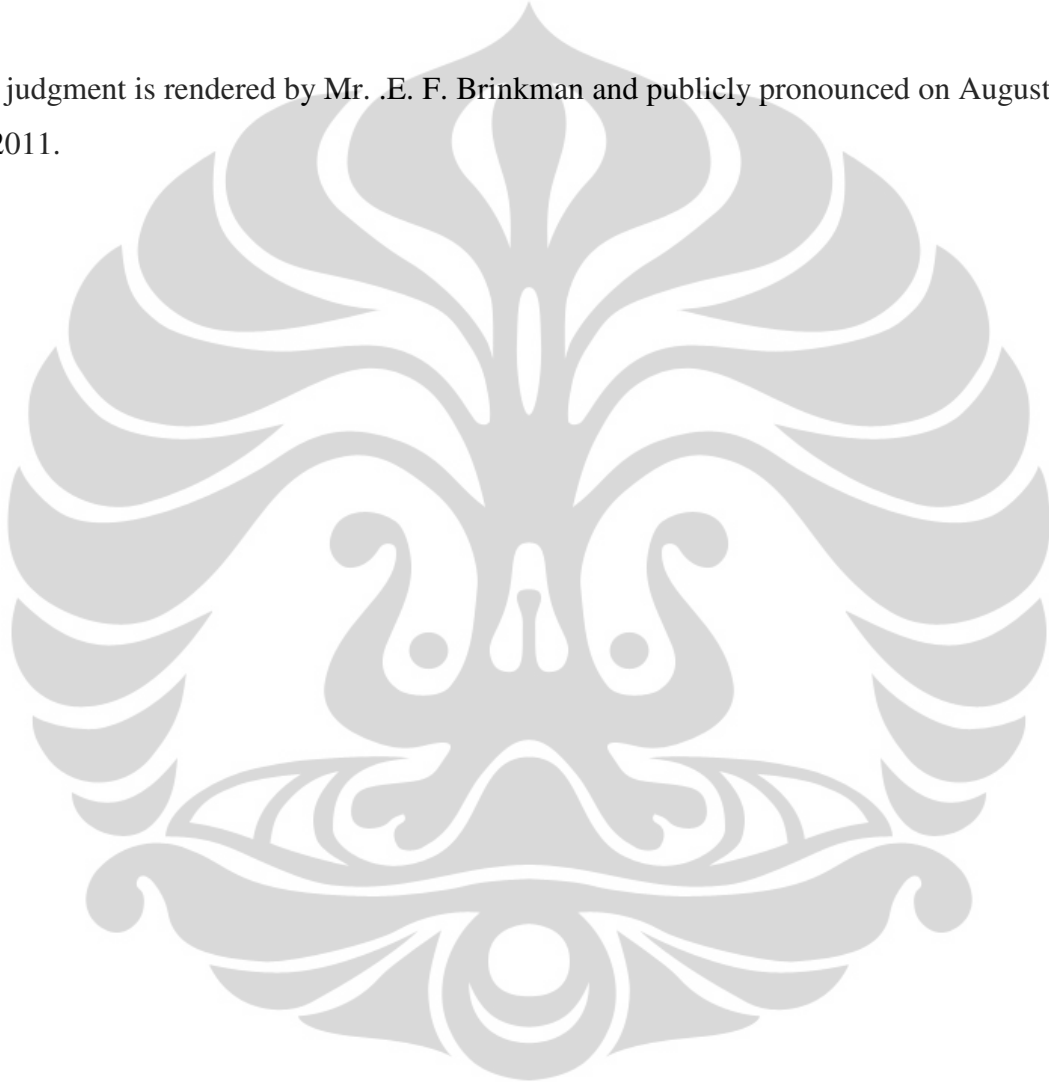
5.4. Declares this judgment to be executable by anticipation to this extent;

5.5. Compensates the const of the procedures between the parties in the sense that each party carries its own costs;

5.6. Sets the date specified in Article 1019iRv at six months, to be counted from the day of this pronouncement;

5.7. Rejects that which has been more or less claimed.

This judgment is rendered by Mr. .E. F. Brinkman and publicly pronounced on August 24, 2011.





(11) **EP 2 059 868 B1**

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**WO 2008/030779 (13.03.2008 Gazette 2008/11)**

(54) **PORTABLE ELECTRONIC DEVICE FOR PHOTO MANAGEMENT**

TRAGBARES ELEKTRONISCHES GERÄT ZUR FOTO-VERWALTUNG

DISPOSITIF ÉLECTRONIQUE PORTATIF POUR GESTION DE PHOTOGRAPHIES

(84) Designated Contracting States:  
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**06.01.2007 US 883785 P**  
**07.01.2007 US 879253 P**  
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**29.06.2007 US 947118 P**  
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**WO-A-03/023593 US-A1- 2003 122 787**  
**US-A1- 2004 205 504 US-A1- 2005 183 026**  
**US-A1- 2006 001 652**

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

**EP 2 059 868 B1**

**Description**

interfaces for photo management.

## TECHNICAL FIELD

## SUMMARY

**[0001]** The disclosed embodiments relate generally to portable electronic devices, and more particularly, to portable devices for photo management, such as digital photographing, photo editing, and emailing photos.

5 **[0008]** The above deficiencies and other problems associated with user interfaces for portable devices are reduced or eliminated by the disclosed portable multifunction device. In some embodiments, the portable electronic device has a touch-sensitive display (also known as a "touch screen" or "touch screen display") with a graphical user interface (GUI), one or more processors, memory and one or more modules, programs or sets of instructions stored in the memory for performing multiple functions. In some embodiments, the user interacts with the GUI primarily through finger contacts and gestures on the touch-sensitive display. Instructions for performing photo management may be included in a computer program product configured for execution by one or more processors.

## BACKGROUND

**[0002]** As portable electronic devices become more compact and capable of performing functions, it has become a significant challenge to design a user interface that allows users to easily interact with such a multifunction device. This challenge is more significant for handheld portable electronic devices, which have much smaller screens than desktop or laptop computers. This situation is unfortunate because a user interface is the gateway through which a user receives information and a device receives user actions or behaviors, including user attempts to access the portable electronic device's features, tools, and functions.

10 **[0009]** One example involves a computer-implemented method in which a portable electronic device with a touch screen: displays an array of thumbnail images corresponding to a set of photographic images; replaces the displayed array of thumbnail images with a user-selected photographic image upon detecting a user contact with a corresponding thumbnail image in the array, wherein the user-selected photographic image is displayed at a larger scale than the corresponding thumbnail image; and displays a different photographic image in replacement of the user-selected photographic image, wherein the different photographic image is selected in accordance with a scrolling gesture comprising a substantially horizontal movement of user contact with the touch screen display.

**[0003]** Some portable devices (e.g., mobile telephones, sometimes called mobile phones, cell phones, cellular telephones, and the like) have resorted to adding more push buttons, increasing the density of push buttons, overloading the functions of push buttons, or using complex menu systems to allow a user to access, store, and manipulate data. These approaches often result in complicated key sequences and menu hierarchies that must be memorized by the user.

15 **[0010]** Another example involves a computer-implemented method in which a portable electronic device with a touch screen: displays an array of thumbnail images corresponding to a set of photographic images; detects a scrolling gesture comprising a substantially vertical movement of user contact with the touch screen display; and responds to the scrolling gesture by scrolling the display of thumbnail images in accordance with a direction of the scrolling gesture; wherein the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display.

**[0004]** Many conventional user interfaces, such as those that include physical push buttons, are also inflexible because a physical push button may prevent a user interface from being configured and/or adapted by either an application running on the portable electronic device or by users. When coupled with the time consuming requirement to memorize multiple key sequences and menu hierarchies, and the difficulty in activating a desired push button, such inflexibility is frustrating to most users.

20 **[0011]** Another example involves a portable electronic device. The device includes a touch screen display, one or more processors, memory; and one or more programs. The one or more program are stored in the memory and configured to be executed by the one or more processors.

**[0005]** For example, cell phones with a built-in digital camera have been on the market for some time. But existing cell phones are difficult to use for even basic photo-related operations such as displaying, deleting and sending a photo because of limitations with the cell phones' user interface.

25 **[0006]** WO03/023593 discloses a device with a touch pad in combination with a screen including detecting a first movement of a physical object on or near the touch pad and while detecting the first movement translating a first digital object in a first direction the first digital object is displayed on the display and associated with a set of digital objects. US2003/0122787 discloses the displacement of a picture according to the movement of a finger or input device along a touch screen.

30 **[0007]** Accordingly, there is a need for portable multifunction devices with more transparent and intuitive user

**[0006]** WO03/023593 discloses a device with a touch pad in combination with a screen including detecting a first movement of a physical object on or near the touch pad and while detecting the first movement translating a first digital object in a first direction the first digital object is displayed on the display and associated with a set of digital objects. US2003/0122787 discloses the displacement of a picture according to the movement of a finger or input device along a touch screen.

**[0007]** Accordingly, there is a need for portable multifunction devices with more transparent and intuitive user

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55 **[0007]** Accordingly, there is a need for portable multifunction devices with more transparent and intuitive user

image; and instructions for displaying a different photographic image in replacement of the user-selected photographic image, wherein the different photographic image is selected in accordance with a scrolling gesture comprising a substantially horizontal movement of user contact with the touch screen display.

**[0012]** Another example involves a portable electronic device. The device includes a touch screen display, one or more processors, memory, and one or more programs. The one or more program are stored in the memory and configured to be executed by the one or more processors. The one or more programs include: instructions for displaying an array of thumbnail images corresponding to a set of photographic images; instructions for detecting a scrolling gesture comprising a substantially vertical movement of user contact with the touch screen display; and instructions for responding to the scrolling gesture by scrolling the display of thumbnail images in accordance with a direction of the scrolling gesture; wherein the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display.

**[0013]** Another example involves a computer-program product that includes a computer readable storage medium and a computer program mechanism embedded therein. The computer program mechanism includes instructions, which when executed by a portable electronic device with a touch screen display, cause the device to: display an array of thumbnail images corresponding to a set of photographic images; replace the displayed array of thumbnail images with a user-selected photographic image upon detecting a user contact with a corresponding thumbnail image in the array, wherein the user-selected photographic image is displayed at a larger scale than the corresponding thumbnail image; and display a different photographic image in replacement of the user-selected photographic image, wherein the different photographic image is selected in accordance with a scrolling gesture comprising a substantially horizontal movement of user contact with the touch screen display.

**[0014]** Another example involves a computer-program product that includes a computer readable storage medium and a computer program mechanism embedded therein. The computer program mechanism includes instructions, which when executed by a portable electronic device with a touch screen display, cause the device to: display an array of thumbnail images corresponding to a set of photographic images; detect a scrolling gesture comprising a substantially vertical movement of user contact with the touch screen display; and respond to the scrolling gesture by scrolling the display of thumbnail images in accordance with a direction of the scrolling gesture; wherein the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display.

**[0015]** Another example involves a portable electronic device with a touch screen display, comprising: means for displaying an array of thumbnail images correspond-

ing to a set of photographic images; means for replacing the displayed array of thumbnail images with a user-selected photographic image upon detecting a user contact with a corresponding thumbnail image in the array, wherein the user-selected photographic image is displayed at a larger scale than the corresponding thumbnail image; and means for displaying a different photographic image in replacement of the user-selected photographic image, wherein the different photographic image is selected in accordance with a scrolling gesture comprising a substantially horizontal movement of user contact with the touch screen display.

**[0016]** Another example involves a portable electronic device with a touch screen display, comprising: means for displaying an array of thumbnail images corresponding to a set of photographic images; means for detecting a scrolling gesture comprising a substantially vertical movement of user contact with the touch screen display; and means for responding to the scrolling gesture by scrolling the display of thumbnail images in accordance with a direction of the scrolling gesture; wherein the scrolling gesture is substantially independent of a horizontal position of the user contact with the touch screen display.

**[0017]** One aspect of the invention involves a computer-implemented method in which an electronic device with a touch screen: detects a first movement of a physical object on or near the touch screen display; while detecting the first movement, translates a first digital object displayed on the touch screen display in a first direction, wherein the first digital object is associated with a set of digital objects; in response to display of a previously hidden edge of the first digital object and continued detection of the first movement, displays an area beyond the edge of the first digital object; after the first movement is no longer detected, translates the first digital object in a second direction until the area beyond the edge of the first digital object is no longer displayed; detects a second movement of the physical object on or near the touch screen display; and, in response to detecting the second movement while the previously hidden edge of the first digital object is displayed, translates the first digital object in the first direction and displays a second digital object in the set of digital objects.

**[0018]** Another aspect of the invention involves an electronic device. The device includes a touch screen display, one or more processors, memory, and one or more programs. The one or more program are stored in the memory and configured to be executed by the one or more processors. The one or more programs include: instructions for detecting a first movement of a physical object on or near the touch screen display; instructions for, while detecting the first movement, translating a first digital object displayed on the touch screen display in a first direction, wherein the first digital object is associated with a set of digital objects; instructions for, in response to display of a previously hidden edge of the first digital object and continued detection of the first movement, displaying an area beyond the edge of the first digital object;



instructions for, after the first movement is no longer detected, translating the first digital object in a second direction until the area beyond the edge of the first digital object is no longer displayed; instructions for detecting a second movement of the physical object on or near the touch screen display; and instructions for, in response to detecting the second movement while the previously hidden edge of the first digital object is displayed, translating the first digital object in the first direction and displaying a second digital object in the set of digital objects.

**[0019]** Another aspect of the invention involves a computer-program product that includes a computer readable storage medium and a computer program mechanism embedded therein. The computer program mechanism includes instructions, which when executed by an electronic device with a touch screen display, cause the device to: detect a first movement of a physical object on or near the touch screen display; while detecting the first movement, translate a first digital object displayed on the touch screen display in a first direction, wherein the first digital object is associated with a set of digital objects, in response to display of a previously hidden edge of the first digital object and continued detection of the first movement, display an area beyond the edge of the first digital object; after the first movement is no longer detected, translate the first digital object in a second direction until the area beyond the edge of the first digital object is no longer displayed; detect a second movement of the physical object on or near the touch screen display; and, in response to detecting the second movement while the previously hidden edge of the first digital object is displayed, translate the first digital object in the first direction and display a second digital object in the set of digital objects.

**[0020]** Another aspect of the invention involves an electronic device with a touch screen display, comprising: means for detecting a first movement of a physical object on or near the touch screen display; means for, while detecting the first movement, translating a first digital object displayed on the touch screen display in a first direction, wherein the first digital object is associated with a set of digital objects; means for, in response to display of a previously hidden edge of the first digital object and continued detection of the first movement, displaying an area beyond the edge of the first digital object; means for, after the first movement is no longer detected, translating the first digital object in a second direction until the area beyond the edge of the first digital object is no longer displayed; means for detecting a second movement of the physical object on or near the touch screen display; and means for, in response to detecting the second movement while the previously hidden edge of the first digital object is displayed, translating the first digital object in the first direction and displaying a second digital object in the set of digital objects.

**[0021]** Thus, the invention provides a transparent and intuitive user interface for managing photos on a portable electronic device with a touch screen display

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0022]** For a better understanding of the aforementioned embodiments of the invention as well as additional embodiments thereof, reference should be made to the Description of Embodiments below, in conjunction with the following drawings in which like reference numerals refer to corresponding parts throughout the figures.

**[0023]** Figure 1 is a block diagram illustrating a portable electronic device with a touch-sensitive display in accordance with some embodiments.

**[0024]** Figure 2 illustrates a portable electronic device having a touch screen.

**[0025]** Figure 3 illustrates an exemplary user interface for unlocking a portable electronic device.

**[0026]** Figure 4 illustrates an exemplary user interface for a menu of applications on a portable electronic device.

**[0027]** Figure 5 illustrates an exemplary user interface for a camera.

**[0028]** Figure 6 illustrates an exemplary user interface for a camera roll.

**[0029]** Figures 7A through 7C illustrate an exemplary user interface for viewing and manipulating images.

**[0030]** Figure 8 illustrates an exemplary user interface for viewing photo albums.

**[0031]** Figure 9 illustrates an exemplary user interface for setting user preferences.

**[0032]** Figure 10 illustrates an exemplary user interface for viewing an album.

**[0033]** Figure 11 illustrates an exemplary user interface for viewing images in an album.

**[0034]** Figure 12 illustrates an exemplary user interface for selecting a use for an image in an album.

**[0035]** Figures 13A through 13G illustrate an exemplary user interface for incorporating an image in an email message template.

**[0036]** Figures 14A and 14B illustrate an exemplary user interface for assigning an image to a contact in the user's contact list.

**[0037]** Figure 15 illustrates an exemplary user interface for incorporating an image in the user's wallpaper.

**[0038]** Figure 16 is a flowchart illustrating a process for displaying Thumbnail images on a touch screen.

**[0039]** Figure 17 is a flowchart illustrating a process for performing operations in response to user contact with the touch screen.

**[0040]** Figure 18 is a flowchart illustrating a process for deleting an image in response to a user contact with the touch screen.

**[0041]** Figure 19 is a flowchart illustrating a process for displaying multiple photo albums on the touch screen.

**[0042]** Figure 20 is a flowchart illustrating a process for performing additional operations upon a user selection of an additional options icon.

**[0043]** Figure 21 is a flowchart illustrating an animated process for rendering an email service interface that includes a user selected image.

**[0044]** Figure 22 is a flowchart illustrating a process

for assigning an image to a user selected contact in the user's contact list.

**[0045]** Figures 23A-23H illustrate an exemplary user interface for viewing digital objects in a set of digital objects in accordance with some embodiments.

**[0046]** Figure 24 is a flowchart illustrating a process for viewing digital objects in a set of digital objects in accordance with some embodiments.

#### DESCRIPTION OF EMBODIMENTS

**[0047]** Reference will now be made in detail to embodiments, examples of which are illustrated in the accompanying drawings. In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the invention. However, it will be apparent to one skilled in the art that the invention may be practiced without these specific details. In other instances, well-known methods, procedures, components, circuits, and networks have not been described in detail so as not to unnecessarily obscure aspects of the embodiments.

**[0048]** Embodiments of a portable electronic device, user interfaces for such devices, and associated processes for using such devices are described. In some embodiments, the portable electronic device is a portable communications device such as a mobile telephone that also contains other functions, such as PDA and/or music player functions.

**[0049]** The user interface may include a physical click wheel in addition to a touch screen or a virtual click wheel displayed on the touch screen. A click wheel is a physical user-interface device that may provide navigation commands based on an angular displacement of the wheel or a point of contact with the wheel by a user of the portable electronic device. A click wheel may also be used to provide a user command corresponding to selection of one or more items, for example, when the user of the portable electronic device presses down on at least a portion of the wheel or the center of the wheel. Alternatively, breaking contact with a click wheel image on a touch screen surface may indicate a user command corresponding to selection. For simplicity, in the discussion that follows, a portable electronic device that includes a touch screen is used as an exemplary embodiment. It should be understood, however, that some of the user interfaces and associated processes may be applied to other devices, such as personal computers and laptop computers, which may include one or more other physical user-interface devices, such as a physical click wheel, a physical keyboard, a mouse and/or a joystick.

**[0050]** In addition to photo management, the device may support a variety of other applications, such as a telephone application, a video conferencing application, an e-mail application, an instant messaging application, a blogging application, a web browsing application, a digital music player application, and/or a digital video player application.

**[0051]** The various applications that may be executed on the portable electronic device may use at least one common physical user-interface device, such as the touch screen. One or more functions of the touch screen as well as corresponding information displayed on the portable electronic device may be adjusted and/or varied from one application to the next and/or within a respective application. In this way, a common physical architecture (such as the touch screen) of the portable electronic device may support the variety of applications with user interfaces that are intuitive and transparent.

**[0052]** The user interfaces may include one or more soft keyboard embodiments. The soft keyboard embodiments may include standard (QWERTY) and/or non-standard configurations of symbols on the displayed icons of the keyboard, such as those described in U.S. Patent Application No. 11/459,606, "Keyboards For Portable Electronic Devices," filed July 24, 2006, and U.S. Patent Application No. 11/459,615, "Touch Screen Keyboards For Portable Electronic Devices," filed July 24, 2006, the contents of which are hereby incorporated by reference. The keyboard embodiments may include a reduced number of icons (or soft keys) relative to the number of keys in existing physical keyboards, such as that for a typewriter. This may make it easier for users to select one or more icons in the keyboard, and thus, one or more corresponding symbols. The keyboard embodiments may be adaptive. For example, displayed icons may be modified in accordance with user actions, such as selecting one or more icons and/or one or more corresponding symbols. One or more applications on the portable electronic device may utilize common and/or different keyboard embodiments. Thus, the keyboard embodiment used may be tailored to at least some of the applications. In some embodiments, one or more keyboard embodiments may be tailored to a respective user. For example, based on a word usage history (lexicography, slang, individual usage) of the respective user. Some of the keyboard embodiments may be adjusted to reduce a probability of a user error when selecting one or more icons, and thus one or more symbols, when using the soft keyboard embodiments.

**[0053]** Attention is now directed towards embodiments of the portable electronic device. Figure 1 is a block diagram illustrating a portable electronic device 100 with a touch-sensitive display 112 in accordance with some embodiments. The touch-sensitive display 112 is sometimes called a "touch screen" for convenience. The device 100 may include a memory 102 (which may include one or more computer readable storage mediums), a memory controller 122, one or more processing units (CPU's) 120, a peripherals interface 118, RF circuitry 108, audio circuitry 110, a speaker 111, a microphone 113, an input/output (I/O) subsystem 106, other input or control devices 116, and an external port 124. The device 100 may include one or more optical sensors 164. These components may communicate over one or more communication buses or signal lines 103.

**[0054]** It should be appreciated that the portable electronic device 100 is only one example of a portable electronic device 100, and that the portable electronic device 100 may have more or fewer components than shown, may combine two or more components, or a may have a different configuration or arrangement of the components. The various components shown in Figure 1 may be implemented in hardware, software or a combination of hardware and software, including one or more signal processing and/or application specific integrated circuits.

**[0055]** Memory 102 may include high-speed random access memory and may also include non-volatile memory, such as one or more magnetic disk storage devices, flash memory devices, or other non-volatile solid-state memory devices. Access to memory 102 by other components of the portable electronic device 100, such as the CPU 120 and the peripherals interface 118, may be controlled by the memory controller 122.

**[0056]** The peripherals interface 118 couples the input and output peripherals of the portable electronic device to the CPU 120 and memory 102. The one or more processors 120 run or execute various software programs and/or sets of instructions stored in memory 102 to perform various functions for the portable electronic device 100 and to process data.

**[0057]** In some embodiments, the peripherals interface 118, the CPU 120, and the memory controller 122 may be implemented on a single chip, such as a chip 104. In some other embodiments, they may be implemented on separate chips.

**[0058]** The RF (radio frequency) circuitry 108 receives and sends RF signals, also called electromagnetic signals. The RF circuitry 108 converts electrical signals to/from electromagnetic signals and communicates with communications networks and other communications devices via the electromagnetic signals. The RF circuitry 108 may include well-known circuitry for performing these functions, including but not limited to an antenna system, an RF transceiver, one or more amplifiers, a tuner, one or more oscillators, a digital signal processor, a CODEC chipset, a subscriber identity module (SIM) card, memory, and so forth. The RF circuitry 108 may communicate with networks, such as the Internet, also referred to as the World Wide Web (WWW), an intranet and/or a wireless network, such as a cellular telephone network, a wireless local area network (LAN) and/or a metropolitan area network (MAN), and other devices by wireless communication. The wireless communication may use any of a plurality of communications standards, protocols and technologies, including but not limited to Global System for Mobile Communications (GSM), Enhanced Data GSM Environment (EDGE), high-speed downlink packet access (HSDPA), wideband code division multiple access (W-CDMA), code division multiple access (CDMA), time division multiple access (TDMA), Bluetooth, Wireless Fidelity (Wi-Fi) (e.g., IEEE 802.11a, IEEE 802.11b, IEEE 802.11g and/or IEEE 802.11n), voice over Internet Protocol (VoIP), Wi-MAX, a protocol for email, instant

messaging (IM), and/or Short Message Service (SMS)), or any other suitable communication protocol, including communication protocols not yet developed as of the filing date of this document.

**[0059]** The audio circuitry 110, the speaker 111, and the microphone 113 provide an audio interface between a user and the portable electronic device 100. The audio circuitry 110 receives audio data from the peripherals interface 118, converts the audio data to an electrical signal, and transmits the electrical signal to the speaker 111. The speaker 111 converts the electrical signal to human-audible sound waves. The audio circuitry 110 also receives electrical signals converted by the microphone 113 from sound waves. The audio circuitry 110 converts the electrical signal to audio data and transmits the audio data to the peripherals interface 118 for processing. Audio data may be retrieved from and/or transmitted to memory 102 and/or the RF circuitry 108 by the peripherals interface 118. In some embodiments, the audio circuitry 110 also includes a headset jack (not shown). The headset jack provides an interface between the audio circuitry 110 and removable audio input/output peripherals, such as output-only headphones or a headset with both output (e.g., a headphone for one or both ears) and input (e.g., a microphone).

**[0060]** The I/O subsystem 106 couples input/output peripherals on the portable electronic device 100, such as the display system 112 and other input/control devices 116, to the peripherals interface 118. The I/O subsystem 106 may include a display controller 156 and one or more input controllers 160 for other input or control devices. The one or more input controllers 160 receive/send electrical signals from/to other input or control devices 116. The other input/control devices 116 may include physical buttons (e.g., push buttons, rocker buttons, etc.), dials, slider switches, joysticks, click wheels, and so forth. In some alternate embodiments, input controller(s) 160 may be coupled to any (or none) of the following: a keyboard, infrared port, USB port, and a pointer device such as a mouse. The one or more buttons (e.g., 208, Figure 2) may include an up/down button for volume control of the speaker 111 and/or the microphone 113. The one or more buttons may include a push button (e.g., 206, Figure 2). A quick press of the push button may disengage a lock of the touch screen 112 or begin a process that uses gestures on the touch screen to unlock the portable electronic device, as described in U.S. Patent Application No. 11/322,549, "Unlocking a Device by Performing Gestures on an Unlock Image," filed December 23, 2005, which is hereby incorporated by reference. A longer press of the push button (e.g., 206) may turn power to the portable electronic device 100 on or off. The user may be able to customize a functionality of one or more of the buttons. The touch screen 112 is used to implement virtual or soft buttons and one or more soft keyboards.

**[0061]** The touch-sensitive display system 112 provides an input interface and an output interface between the portable electronic device and a user. The display

controller 156 receives and/or sends electrical signals from/to the display system 112. The display system 112 displays visual output to the user. The visual output may include graphics, text, icons, video, and any combination thereof (collectively termed "graphics"). In some embodiments, some or all of the visual output may correspond to user-interface objects, further details of which are described below.

**[0062]** A touch screen in display system 112 is a touch-sensitive surface that accepts input from the user based on haptic and/or tactile contact. The display system 112 and the display controller 156 (along with any associated modules and/or sets of instructions in memory 102) detect contact (and any movement or breaking of the contact) on the display system 112 and converts the detected contact into interaction with user-interface objects (e.g., one or more soft keys, icons, web pages or images) that are displayed on the touch screen. In an exemplary embodiment, a point of contact between a touch screen in the display system 112 and the user corresponds to a finger of the user.

**[0063]** The touch screen in the display system 112 may use LCD (liquid crystal display) technology, or LPD (light emitting polymer display) technology, although other display technologies may be used in other embodiments. The touch screen in the display system 112 and the display controller 156 may detect contact and any movement or breaking thereof using any of a plurality of touch sensing technologies now known or later developed, including but not limited to capacitive, resistive, infrared, and surface acoustic wave technologies, as well as other proximity sensor arrays or other elements for determining one or more points of contact with a touch screen in the display system 112. A touch-sensitive display in some embodiments of the display system 112 may be analogous to the multi-touch sensitive tablets described in the following U.S. Patents: 6,323,846 (Westerman et al.), 6,570,557 (Westerman et al.), and/or 6,677,932 (Westerman), and/or U.S. Patent Publication 2002/0015024A1, each of which is hereby incorporated by reference. However, a touch screen in the display system 112 displays visual output from the portable electronic device 100, whereas touch sensitive tablets do not provide visual output. The touch screen in the display system 112 may have a resolution in excess of 100 dpi. In an exemplary embodiment, the touch screen in the display system has a resolution of approximately 168 dpi. The user may make contact with the touch screen in the display system 112 using any suitable object or appendage, such as a stylus, a finger, and so forth. In some embodiments, the user interface is designed to work primarily with finger-based contacts and gestures, which are much less precise than stylus-based input due to the larger area of contact of a finger on the touch screen. In some embodiments, the portable electronic device translates the rough finger-based input into a precise pointer/cursor position or command for performing the actions desired by the user.

**[0064]** A touch-sensitive display in some embodiments of the display system 112 may be as described in the following applications: (1) U.S. Patent Application No. 11/381,313, "Multipoint Touch Surface Controller," filed on May 2, 2006; (2) U.S. Patent Application No. 10/840,862, "Multipoint Touchscreen," filed on May 6, 2004; (3) U.S. Patent Application No. 10/903,964, "Gestures For Touch Sensitive Input Devices," filed on July 30, 2004; (4) U.S. Patent Application No. 1/048,264, "Gestures For Touch Sensitive Input Devices," filed on January 31, 2005; (5) U.S. Patent Application No. 11/038,590, "Mode-Based Graphical User Interfaces For Touch Sensitive Input Devices," filed on January 18, 2005; (6) U.S. Patent Application No. 11/228,758, "Virtual Input Device Placement On A Touch Screen User Interface," filed on September 16, 2005; (7) U.S. Patent Application No. 11/228,700, "Operation Of A Computer With A Touch Screen Interface," filed on September 16, 2005; (8) U.S. Patent Application No. 11/228,737, "Activating Virtual Keys Of A TouchScreen Virtual Keyboard," filed on September 16, 2005; and (9) U.S. Patent Application No. 11/367,749, "Multi-Functional Hand-Held Device," filed on March 3, 2006. All of these applications are incorporated by reference herein.

**[0065]** In some embodiments, in addition to the touch screen, the portable electronic device 100 may include a touchpad (not shown) for activating or deactivating particular functions. In some embodiments, the touchpad is a touch-sensitive area of the portable electronic device that, unlike the touch screen, does not display visual output. The touchpad may be a touch-sensitive surface that is separate from the touch screen in the display system 112 or an extension of the touch-sensitive surface formed by the touch screen.

**[0066]** In some embodiments, the portable electronic device 100 may include a physical or virtual click wheel as an input control device 116. A user may navigate among and interact with one or more graphical objects (henceforth referred to as icons) displayed in the display system 112 by rotating the click wheel or by moving a point of contact with the click wheel (e.g., where the amount of movement of the point of contact is measured by its angular displacement with respect to a center point of the click wheel). The click wheel may also be used to select one or more of the displayed icons. For example, the user may press down on at least a portion of the click wheel or an associated button. User commands and navigation commands provided by the user via the click wheel may be processed by an input controller 160 as well as one or more of the modules and/or sets of instructions in memory 102. For a virtual click wheel, the click wheel and click wheel controller may be part of the display system 112 and the display controller 156, respectively. For a virtual click wheel, the click wheel may be either an opaque or semitransparent object that appears and disappears on the touch screen display in response to user interaction with the device. In some embodiments, a virtual click wheel is displayed on the touch screen of

a portable multifunction device and operated by user contact with the touch screen.

**[0067]** The device 100 also includes a power system 162 for powering the various components. The power system 162 may include a power management system, one or more power sources (e.g., battery, alternating current (AC)), a recharging system, a power failure detection circuit, a power converter or inverter, a power status indicator (e.g., a light-emitting diode (LED)) and any other components associated with the generation, management and distribution of power in portable electronic devices.

**[0068]** The device 100 may also include one or more optical sensors 164. Figure 1 shows an optical sensor coupled to an optical sensor controller 158 in I/O subsystem 106. The optical sensor 164 may include charge-coupled device (CCD) or complementary metal-oxide semiconductor (CMOS) phototransistors. The optical sensor 164 receives light from the environment, projected through one or more lens, and converts the light to data representing an image. In conjunction with an imaging module 143, the optical sensor 164 may capture still images or video. In some embodiments, an optical sensor is located on the back of the portable electronic device 100, opposite the touch screen display 112 on the front of the portable electronic device, so that the touch screen display may be used as a viewfinder for either still and/or video image acquisition. In some embodiments, an optical sensor is located on the front of the portable electronic device so that the user's image may be obtained for videoconferencing while the user views the other video conference participants on the touch screen display. In some embodiments, the position of the optical sensor 164 can be changed by the user (e.g., by rotating the lens and the sensor in the portable electronic device housing) so that a shingle optical sensor 164 may be used along with the touch screen display for both video conferencing and still and/or video image acquisition.

**[0069]** The device 100 may also include one or more proximity sensors 166. Figure 1 shows a proximity sensor 166 coupled to the peripherals interface 118. Alternately, the proximity sensor 166 may be coupled to an input controller 160 in the I/O subsystem 106. The proximity sensor 166 may perform as described in U.S. Patent Application Nos. 1 1/241,839, "Proximity Detector In Handheld Device," filed September 30, 2005, and 11/240,788, "Proximity Detector In Handheld Device," filed September 30, 2005, which are hereby incorporated by reference. In some embodiments, the proximity sensor turns off and disables the touch screen 112 when the multifunction device is placed near the user's ear (e.g., when the user is making a phone call). In some embodiments, the proximity sensor keeps the screen off when the portable electronic device is in the user's pocket, purse, or other dark area to prevent unnecessary battery drainage when the portable electronic device is a locked state.

**[0070]** In some embodiments, the software components stored in memory 102 may include an operating

system 126, a communication module (or set of instructions) 128, a contact/motion module (or set of instructions) 130, a graphics module (or set of instructions) 132, a text input module (or set of instructions) 134, a Global Positioning System (GPS) module (or set of instructions) 135, and applications (or set of instructions) 136.

**[0071]** The operating system 126 (e.g., Darwin, RTXC, LINUX, UNIX, OS X, WINDOWS, or an embedded operating system such as VxWorks) includes various software components and/or drivers for controlling and managing general system tasks (e.g., memory management, storage device control, power management, etc.) and facilitates communication between various hardware and software components.

**[0072]** The communication module 128 facilitates communication with other devices over one or more external ports 124 and also includes various software components for handling data received by the RF circuitry 108 and/or the external port 124. The external port 124 (e.g., Universal Serial Bus (USB), FIREWIRE, etc.) is adapted for coupling directly to other devices or indirectly over a network (e.g., the Internet, wireless LAN, etc.). In some embodiments, the external port is a multi-pin (e.g., 30-pin) connector that is the same as, or similar to and/or compatible with the 30-pin connector used on iPod (trademark of Apple Computer, Inc.) devices.

**[0073]** The contact/motion module 130 may detect contact with the touch screen in the display system 112 (in conjunction with the display controller 156) and other touch sensitive devices (e.g., a touchpad or physical click wheel). The contact/motion module 130 includes various software components for performing various operations related to detection of contact, such as determining if contact has occurred, determining if there is movement of the contact and tracking the movement across the touch screen in the display system 112, and determining if the contact has been broken (i.e., if the contact has ceased). Determining movement of the point of contact may include determining speed (magnitude), velocity (magnitude and direction), and/or an acceleration (a change in magnitude and/or direction) of the point of contact. These operations may be applied to single contacts (e.g., one finger contacts) or to multiple simultaneous contacts (e.g., "multitouch"/multiple finger contacts). In some embodiments, the contact/motion module 130 and the display controller 156 also detects contact on a touchpad. In some embodiments, the contact/motion module 130 and the controller 160 detects contact on a click wheel.

**[0074]** The graphics module 132 includes various known software components for rendering and displaying graphics on the display system 112, including components for changing the intensity of graphics that are displayed. As used herein, the term "graphics" includes any object that can be displayed to a user, including without limitation text, web pages, icons (such as user-interface objects including soft keys), digital images, videos, animations and the like.

**[0075]** The text input module 134, which may be a component of graphics module 132, provides soft keyboards for entering text in various applications (e.g., contacts 137, email 140, IM 141, blogging 142, browser 147, and any other application that needs text input).

**[0076]** The GPS module 135 determines the location of the portable electronic device and provides this information for use in various applications (e.g., to telephone 138 for use in location-based dialing, to camera 143 and/or blogger 142 as picture/video metadata, and to applications that provide location-based services such as weather widgets, local yellow page widgets, and map/navigation widgets).

**[0077]** The applications 136 may include the following modules (or sets of instructions), or a subset or superset thereof:

- a contacts module 137 (sometimes called an address book or contact list);
- a telephone module 138;
- a video conferencing module 139;
- an e-mail client module 140;
- an instant messaging (IM) module 141;
- a blogging module 142;
- a camera module 143 for still and/or video images;
- an image management module 144;
- a video player module 145;
- a music player module 146;
- a browser module 147;
- a calendar module 148;
- widget modules 149, which may include weather widget 149-1, stocks widget 149-2, calculator widget 149-3, alarm clock widget 149-4, dictionary widget 149-5, and other widgets obtained by the user, as well as user-created widgets 149-6;
- widget creator module 150 for making user-created widgets 149-6; and/or
- search module 151.

**[0078]** Examples of other applications 136 that may be stored in memory 102 include memo pad and other word processing applications, JAVA-enabled applications, encryption, digital rights management, voice recognition, and voice replication.

**[0079]** In conjunction with display system 112, display controller 156, optical sensor(s) 164, optical sensor controller 158, contact module 130, graphics module 132, and image management module 144, the camera module 143 may be used to capture still images or video (including a video stream) and store them into memory 102, browse the still images or videos, modify characteristics of a still image or video, or delete a still image or video from memory 102. Embodiments of user interfaces and associated processes using camera module 143 are described further below.

**[0080]** In conjunction with display system 112, display controller 156, contact module 130, graphics module 132, text input module 134, and camera module 143, the image management module 144 may be used to arrange, modify or otherwise manipulate, label, delete, present (e.g., in a digital slide show or album), and store still and/or video images. Embodiments of user interfaces and associated processes using image management module 144 are described further below.

**[0081]** Note that the above identified modules and applications (including the camera module 143 and the image management module 144) correspond to a set of instructions for performing one or more functions described above. These modules (i.e., sets of instructions) need not be implemented as separate software programs, procedures or modules, and thus various subsets of these modules may be combined or otherwise re-arranged in various embodiments. In some embodiments, memory 102 may store a subset of the modules and data structures identified above. Furthermore, memory 102 may store additional modules and data structures not described above.

**[0082]** In some embodiments, the portable electronic device 100 is a device where operation of a predefined set of functions on the portable electronic device is performed exclusively through a touch screen in the display system 112 and/or a touchpad. By using a touch screen and/or a touchpad as the primary input/control device for operation of the portable electronic device 100, the number of physical input/control devices (such as push buttons, dials, and the like) on the portable electronic device 100 may be reduced.

**[0083]** The predefined set of functions that may be performed exclusively through a touch screen and/or a touchpad include navigation between user interfaces. In some embodiments, the touchpad, when touched by the user, navigates the portable electronic device 100 to a main, home, or root menu from any user interface that may be displayed on the portable electronic device 100. In such embodiments, the touchpad may be referred to as a "menu button." In some other embodiments, the menu button may be a physical push button or other physical input/control device instead of a touchpad.

**[0084]** Figure 2 illustrates a portable electronic device 100 having a touch screen 112 in accordance with some embodiments. The touch screen may display one or more graphics. In this embodiment, as well as others described

below, a user may select one or more of the graphics by making contact or touching the graphics, for example, with one or more fingers 202 (not drawn to scale in the figure) or a stylus (not shown in the figure). In some embodiments, selection of one or more graphics occurs when the user breaks contact with the one or more graphics. In some embodiments, the contact may include a gesture, such as one or more taps, one or more swipes (from left to right, right to left, upward and/or downward and/or a rolling of a finger (from right to left, left to right, upward and/or downward) that has made contact with the portable electronic device 100. In some embodiments, inadvertent contact with a graphic may not select the graphic. For example, a swipe gesture with that sweeps over an application icon may not select the corresponding application when the gesture corresponding to selection is a tap. In other words, the portable electronic device 100 interprets the meaning of a gesture and acts accordingly after considering which application or module is in use at the moment.

**[0085]** The device 100 may also include one or more physical buttons, such as "home" or menu button 204. As described previously, the menu button 204 may be used to navigate to any application 136 in a set of applications that may be executed on the portable electronic device 100. Alternatively, in some embodiments, the menu button is implemented as a soft key in a GUI in touch screen 112.

**[0086]** In one embodiment, the portable electronic device 100 includes a touch screen 112, a menu button 204, a push button 206 for powering the portable electronic device on/off and locking the portable electronic device, and volume adjustment button(s) 208. The push button 206 may be used to turn the power on/off on the portable electronic device by depressing the button and holding the button in the depressed state for a predefined time interval; to lock the portable electronic device by depressing the button and releasing the button before the predefined time interval has elapsed; and/or to unlock the portable electronic device or initiate an unlock process. In an alternative embodiment, the portable electronic device 100 also may accept verbal input for activation or deactivation of some functions through the microphone 113.

**[0087]** Attention is now directed towards embodiments of user interfaces ("UI") and associated processes that may be implemented on a portable electronic device 100.

**[0088]** Figure 3 illustrates an exemplary user interface for unlocking a portable electronic device. In some examples user interface 300 includes the following elements, or a subset or superset thereof:

- Unlock image 302 that is moved with a finger gesture to unlock the portable electronic device;
- Arrow 304 that provides a visual cue to the unlock gesture;

- Channel 306 that provides additional cues to the unlock gesture;
- Time 308;
- Day 310;
- Date 312; and
- Wallpaper image 314.

**[0089]** In some examples, the portable electronic device detects contact with the touch-sensitive display (e.g., a user's finger making contact on or near the unlock image 302) while the portable electronic device is in a user-interface lock state. The device moves the unlock image 302 in accordance with the contact. The device transitions to a user-interface unlock state if the detected contact corresponds to a predefined gesture, such as moving the unlock image across channel 306. Conversely, the portable electronic device maintains the user-interface lock state if the detected contact does not correspond to the predefined gesture. As noted above, processes that use gestures on the touch screen to unlock the portable electronic device are described in U.S. Patent Application 11/322,549, "Unlocking a Device by Performing Gestures on an Unlock Image," filed December 23, 2005, which is hereby incorporated by reference.

**[0090]** Figure 4 illustrates an exemplary user interface for a menu of applications on a portable electronic device. In some examples, user interface 400 includes the following elements, or a subset or superset thereof:

- Signal strength indicator 402 for wireless communication;
- Time 404;
- Battery status indicator 406;
- Tray 408 with icons for frequently used applications, such as one or more of the following:
  - o Phone 138;
  - o E-mail client 140, which may include an indicator 410 of the number of unread e-mails;
  - o Browser 147; and
  - o Music player 146; and
- Icons for other applications, such as one or more of the following:
  - o IM 141;
  - o Image management 144;

- o Camera 143;
- o Video player 145;
- o Weather 149-1;
- o Stocks 149-2;
- o Blog 142;
- o Calendar 148;
- o Calculator 149-3;
- o Alarm clock 149-4;
- o Dictionary 149-5; and
- o User-created widget 149-6.

**[0091]** In some examples, UI 400 displays all of the available applications 136 on one screen so that there is no need to scroll through a list of applications (e.g., via a scroll bar). In some embodiments, as the number of applications increase, the icons corresponding to the applications may decrease in size so that all applications may be displayed on a single screen without scrolling. In some embodiments, having all applications on one screen and a menu button enables a user to access any desired application with at most two inputs, such as activating the menu button 204 and then activating the desired application (e.g., by a tap or other finger gesture on the icon corresponding to the application).

**[0092]** In some examples, UI 400 provides integrated access to both widget-based applications and non-widget-based applications. In some embodiments, all of the widgets, whether user-created or not, are displayed in UI 400. In other embodiments, activating the icon for user-created widget 149-6 may lead to another UI (not shown) that contains the user-created widgets or icons corresponding to the user-created widgets.

**[0093]** In some examples, a user may rearrange the icons in UI 400, e.g., using processes described in U.S. Patent Application No. 11/459,602, "Portable Electronic Device With Interface Reconfiguration Mode," filed July 24, 2006, which is hereby incorporated by reference. For example, a user may move application icons in and out of tray 408 using finger gestures on or near corresponding icons displayed on the touch screen 112.

**[0094]** Figure 5 illustrates an exemplary user interface for a camera. In some examples, user interface 500 includes the following elements, or a subset or superset thereof:

- Viewfinder 502;
- Camera roll 504 that manages images and/or videos taken with the camera;

- Shutter 506 for taking still images;
- Record button 508 for starting and stopping video recording;
- Timer 510 for taking an image or recording a video after a predefined time delay; and
- Image 512 that appears (e.g., via the animation illustrated schematically in Figure 5) to be added to camera roll 504 when it is obtained.

**[0095]** Figure 6 illustrates an exemplary user interface for a virtual camera roll. The portable electronic device displays the user interface after a user finger gesture 514 on the camera roll icon 504 in Figure 5. In some examples, the finger gesture is a momentary, substantially single-position contact with the touch screen, while in other examples other finger gestures may be used. In some examples, user interface 600 includes the following elements, or a subset or superset thereof:

- 402, 404, and 406, as described above;
- Thumbnail images 602 of images and/or videos obtained by camera 143;
- Camera icon 604 that when activated (e.g., by a finger gesture on the icon) initiates transfer to the camera UI (e.g., UI 500);

**[0096]** Figure 16 is a flowchart illustrating a process for displaying thumbnail images on a touch screen. Upon detecting the finger gesture 514 (1602), the portable electronic device identifies a set of thumbnail images in the virtual camera roll (1604) and displays the thumbnail images on the touch screen (1606). In some examples, the thumbnail images are displayed in a 2-D array (Figure 6). In some other examples, the thumbnail images are displayed in a vertical column or a horizontal row. In some examples, a thumbnail image may have a description including a name, a file size, and a timestamp indicating when the image was created. In some examples, the thumbnail images of videos have a unique appearance that is visually distinguishable from the other still images. The portable electronic device displays the camera icon 604 at the bottom of the touch screen (1608) and starts monitoring next user contact with the touch screen (1610).

**[0097]** In some examples, the user may scroll through the thumbnail images 602 using vertically upward/downward finger gestures 606 on the touch screen (1612). Upon detecting such a finger gesture (e.g., a vertical finger swipe), the portable electronic device scrolls the set of thumbnail images accordingly (1618). In some examples, the scrolling gesture is independent of a horizontal position of the user contact with the touch screen display. In some examples, the scrolling gesture is substantially



independent of a horizontal position of the user contact with the touch screen display (e.g., one or more side regions of the touch screen display may be reserved for other functions, such as functions corresponding to icons, soft keys or application navigation functions, and not available for the scroll gesture). In some examples, in response to a stationary gesture on a particular thumbnail image (1614), e.g., a finger tap 608 on the thumbnail image 602-11, the portable electronic device initiates a process of generating an enlarged display of the corresponding image (e.g., UI 700A) on the touch screen. A more detailed description of this process is provided below in connection with Figures 7 and 17. In some examples, upon detecting a user's finger gesture on the camera icon 604 (1616), the portable electronic device brings back the camera UI 500 as shown in Figure 5.

**[0098]** Figures 7A through 7C illustrate an exemplary user interface for viewing and manipulating images. Note that one skilled in the art would understand that the term "image" in the present application covers both still images and video streams.

**[0099]** In some examples, user interface 700A includes the following elements, or a subset or superset thereof:

- 402, 404, 406, and 604, as described above;
- Camera roll icon 702 that when activated (e.g., by a finger gesture on the icon) initiates transfer to the camera roll UI (e.g., UI 600);
- Image 704;
- Additional options icon 706 that when activated (e.g., by a finger gesture on the icon) initiates transfer to a UI with additional options for use of image 704 (e.g., UI 1200, Figure 12);
- Previous image icon 708 that when activated (e.g., by a finger gesture on the icon) initiates display of the previous image in the virtual camera roll (e.g., 602-10);
- Play icon 710 that when activated (e.g., by a finger gesture on the icon) initiates a slide show of the images in the virtual camera roll;
- Next image icon 712 that when activated (e.g., by a finger gesture on the icon) initiates display of the next image in the virtual camera roll (e.g., 602-12); and
- Delete symbol icon 714 that when activated (e.g., by a finger gesture on the icon) initiates display of a UI to confirm that the user wants to delete image 704 (e.g. UI 700B, Figure 7B).

**[0100]** Figure 17 is a flowchart illustrating a process for performing operations in response to user contact with

the touch screen. After detecting a user selection of a thumbnail image (1702), the portable electronic device identifies an image associated with the thumbnail image (1704). Generally, this identified image is larger than the thumbnail image. In some examples, the thumbnail image is a sub-sampled version of the larger image. As shown in Figure 7A, the large image is displayed on the touch screen in replacement of all the thumbnail images (1706). The portable electronic device displays various icons at predefined locations on the touch screen (1708) and waits for next user contact with the touch screen (1710).

**[0101]** In some examples, as shown in Figure 7A, the portable electronic device performs the same operation (s) in response to different user contacts. In some examples, a user can browse images in the virtual camera roll through three different gestures: (i) a finger gesture on the previous/next image icon 708/712 (1716), (ii) a user image navigation gesture by a finger tap 715/718 adjacent to the left/right edge of the touch screen (1714), or (iii) a leftward/rightward horizontal finger swipe gesture 720 on the touch screen (1712). Upon detecting any of these user gestures, the portable electronic device replaces the image on the touch screen with the previous/next one in the virtual camera roll (1724). In some examples, this replacement is an animated process of moving the current image out of the touch screen to the right/left side and moving the previous/next image into the touch screen from the left/right side. With multiple means to perform the same task, the portable electronic device allows a user to choose whichever the user prefers, thereby making the photo management simpler and more intuitive. In some examples, the tap gestures 715 and 718 are used to magnify (e.g., by zooming in) an image by a predetermined amount, rather than to view a previous or next image. For this case, the user is still provided with two different types of gestures for browsing images: (i) a finger gesture on the previous/next image icon 708/712 (1716) and (ii) a leftward/rightward horizontal finger swipe gesture 720 on the touch screen (1712).

**[0102]** In some examples, the portable electronic device rotates the image 704 by an angle in response to a user image rotation gesture. For example, the user image rotation gesture may include three simultaneous finger contacts 722, 724 and 726 with the image 704. When the three finger contacts move in the directions indicated by the respective arrows for at least a predefined distance, the portable electronic device rotates the image 704 from a portrait orientation to a landscape orientation or from a landscape orientation to a portrait orientation. In some examples, the rotation gesture is a two-finger multitouch gesture (e.g., simultaneous finger contacts 722 and 726). In some examples, the image rotates in response to detection of a change in the orientation of the device (e.g., using accelerometers to detect the orientation of the device). For example, the image may rotate to maintain proper viewing orientation as the touch screen 112 is physically rotated from a portrait orientation

to a landscape orientation.

**[0103]** In some examples, a user finger gesture on the additional options icon 706 (1718) triggers the portable electronic device to render additional operations on the image 704. A more detailed description of some exemplary operations associated with the icon 706 is provided below in connection with Figures 12 and 20.

**[0104]** In some examples, a user finger gesture on the delete symbol icon 714 (1717) causes the portable electronic device to provide a user interface 700B as shown in Figure 7B. Through the user interface 700B, the user can delete the current image 704 from the camera roll. The user interface 700B includes the following elements, or a subset or superset thereof:

- 402, 404, 406, 604, 702, and 704, as described above;
- Delete icon 716 that when activated (e.g., by a finger gesture on the icon) deletes the image 704; and
- Cancel icon 718 that when activated (e.g., by a finger gesture on the icon) returns the portable electronic device to the previous user interface (e.g. UI 700A)

**[0105]** Figure 18 is a flowchart illustrating a process for deleting an image in response to a user contact with the touch screen. Upon detecting a user contact with the delete symbol icon 714 (1802), the portable electronic device displays the delete icon 716, the cancel icon 718, and the camera icon 604 on top of the image 704 (1804) and then monitors next user contact with the touch screen (1806).

**[0106]** In some examples, in response to a finger gesture on the delete icon 716 (1810), the portable electronic device eliminates the icons 716, 718 from the touch screen (1816) and initiates an animated process of "shredding" the image 704 (1818). In some examples, the shredding process includes breaking the image 704 into vertical stripes and dropping the vertical stripes from the touch screen at different paces. Other shredding animations, such as placing the image in a trash icon, may be used in other examples.

**[0107]** In some examples, the portable electronic device brings back the camera roll user interface 600 as shown in Figure 6 after deleting the image 704. The user can then repeat any aforementioned processes shown in Figure 16. In some other examples, the portable electronic device displays the next image in the virtual camera roll on the touch screen. The user may repeat any aforementioned processes shown in Figure 17.

**[0108]** If the portable electronic device detects a finger gesture on the cancel icon 718 (1812), it the device brings back the user interface 700A as shown in Figure 7A. If the next user action is a finger gesture on the camera icon 604 (1814), the portable electronic device switches back to the camera mode user interface 500, which allows the user to take new photos.

**[0109]** This deletion process, which requires user finger gestures on two different user interfaces (e.g., 700A and 700B), reduces the chance of a user accidentally deleting an image or other similar item.

**[0110]** In some examples, the portable electronic device stores images within different photo albums. The images may come from different sources. They may be downloaded from locations such as the user's desktop or laptop computer and a website on the Internet, etc. For example, one album may include images downloaded from a website through the web browser 147, images attached to email messages received by the user of the portable electronic device, and photos taken by the portable electronic device using the camera module 143.

**[0111]** Figure 8 illustrates an exemplary user interface for viewing photo albums. In some examples, user interface 800 includes the following elements, or a subset or superset thereof:

- 402, 404, and 406, as described above;
- Graphics 804, e.g., thumbnail images of the first picture or a user-selected picture in the corresponding albums;
- Album names 806;
- Selection icons 808 that when activated (e.g., by a finger gesture on the icon) initiates display of the corresponding album (e.g., UI 1000, Figure 10); and
- Settings icon 810, that brings up a settings menu (e.g., Figure 9) when activated by a user gesture (e.g., a tap gesture).

**[0112]** Figure 19 is a flowchart illustrating a process for displaying multiple photo albums on the touch screen. After detecting a finger gesture 412 (Figure 4) on the icon for the image management module 144 (1902), the portable electronic device identifies a set of photo albums (1904) and displays them on the touch screen (1906). Figure 8 depicts a vertically list of photo albums 804 list, each album having a thumbnail image 804, a name 806, and a selection icon 808. In some examples, the photo albums are ordered alphabetically by their names. In some other examples, the photo albums are ordered by their creation timestamps, e.g., with the most recent one at the top of the list.

**[0113]** The portable electronic device displays a setting icon 810 at the bottom of the touch screen (1908) and monitors user contact with the touch screen (1910). As will be described below in connection with Figure 9, a user can configure the image management module 144 to operate in a user-chosen manner through the setting icon 810.

**[0114]** If there is a long photo album list, the user may scroll through the list using vertically upward/downward finger gestures 812 such as a vertical finger swipe on the

touch screen (1912, 1920). When the user selects a particular album by a finger gesture (1914), the portable electronic device opens the album by executing the process described above in connection with Figure 16. The virtual camera roll shown in Figure 6 is one of many photo albums. User operations associated with the virtual camera roll also applies to images in a user-chosen album. A more detailed description of exemplary user operations is provided below in connection with Figures 10-12. In some examples, a user may initiate display of an album by contacting any region on the touch screen corresponding to the album (e.g., a finger tap on the graphic 804, album name 806, or selection icon 808).

**[0115]** Upon detecting a finger gesture on the setting icon 810 (1916), the portable electronic device renders a Settings user interface that enables the user to configure the image management service (1918). Figure 9 illustrates an exemplary Settings user interface 900 for setting user preferences. In some examples, user interface 900 includes the following elements, or a subset or superset thereof:

- 402, 404, and 406, as described above;
- Music setting 902 for selecting the music during a slide show (e.g., Now Playing, 90s Music, Recently Added, or Off);
- Repeat setting 904 for selecting whether the slide show repeats (e.g., On or Off);
- Shuffle setting 906 for selecting whether the images in the slide show are displayed in a random or pseudo-random order (e.g., On or Off);
- Time per slide setting 908 (e.g., 2, 3, 5, 10, 20 seconds or manual);
- Transition setting 910 (e.g., random, wipe across, wipe down, or off);
- TV out setting 912 for external display (e.g., on, off, or ask user);
- TV signal setting 914 (e.g., NTSC or PAL);
- Auto Rotate setting 916 (e.g. on or off);
- Done icon 918 that when activated (e.g., by a finger gesture on the icon) returns the portable electronic device to the previous UI (e.g., UI 800); and
- Selection icons 920 that when activated (e.g., by a finger gesture on the icon) show choices for the corresponding settings.

**[0116]** In some examples, a user may touch anywhere in a row for a particular setting to initiate display of the

corresponding setting choices. For example, upon detecting a finger tap on TV Signal setting 914, the portable electronic device brings up a dropdown menu adjacent to the corresponding row. The dropdown menu lists configuration options associated with the setting. The user can select one option over another by applying a finger gesture on the selected option.

**[0117]** Figure 10 illustrates an exemplary user interface for viewing an album. In some examples, user interface 1000 includes the following elements, or a subset or superset thereof:

- 402, 404, and 406, as described above;
- Photo albums icon 1002 that when activated (e.g., by a finger gesture on the icon) initiates transfer to the photo albums UI (e.g., UI 800);
- Thumbnail images 1006 of images in the corresponding album;
- Play icon 1008 that when activated (e.g., by a finger gesture on the icon) initiates a slide show of the images in the album;

**[0118]** The user interface 1000 is similar to the user interface 600 associated with the camera roll icon 504. Both user interfaces perform similar operations upon detecting a user contact with the thumbnail images. For example, the user may scroll through the thumbnails 1006 using vertically upward/downward gestures 1010 on the touch screen. In some examples a stationary gesture on a particular thumbnail (e.g., a finger tap 1012 on thumbnail 1006-11) initiates transfer to an enlarged display of the corresponding image (e.g., UI 1100).

**[0119]** In some examples, there are differences between the two user interfaces. For example, the user interface 1000 has a play icon 1008 while the user interface 600 has a camera icon 604. A user selection of the play icon 1008 triggers the portable electronic device to begin a slide show of the images in the user-selected album. In contrast, the portable electronic device returns to the camera mode (e.g., for taking pictures) when there is a user finger gesture on the camera icon 604.

**[0120]** Upon user selection of a particular image, the portable electronic device renders a new user interface displaying the user-selected image. Figure 11 illustrates such an exemplary user interface for viewing images in an album. In some examples, user interface 1100 includes the following elements, or a subset or superset thereof:

- 402, 404, and 406, as described above;
- Album name icon 1102 that when activated (e.g., by a finger gesture on the icon) initiates transfer to the corresponding album UI (e.g., UI1000);

- Image 1106;
- Additional options icon 1108 that when activated (e.g., by a finger gesture on the icon) initiates transfer to a UI with additional options for use of image 1106 (e.g., UI 1200, Figure 12));
- Previous image icon 1110 that when activated (e.g., by a finger gesture on the icon) initiates display of the previous image in the album (e.g., 1006-10);
- Play icon 1112 that when activated (e.g., by a finger gesture on the icon) initiates a slide show of the images in the album; and
- Next image icon 1114 that when activated (e.g., by a finger gesture on the icon) initiates display of the next image in the album.

**[0121]** Clearly, the user interface 1100 is very similar to the user interface 700A. Various image browsing functions described above with respect to Figure 7A are also available at the user interface 1100. For example, the user can initiate viewing of the previous image by making a tap gesture 1118 on the left side of the image or making a swipe gesture 1116 from left to right on the image. Similarly, the user can initiate viewing of the next image by making a tap gesture 1120 on the right side of the image or making a swipe gesture 1116 from right to left on the image.

**[0122]** In some examples, image 1106 moves off screen to the left as the next image moves on screen from the right. In some examples, image 1106 moves off screen to the right as the previous image moves on screen from the left.

**[0123]** With multiple ways to perform the same task, the portable electronic device enables a user to choose whichever methodology or gesture the user prefers, thereby making the photo management simpler and more intuitive.

**[0124]** A detailed description of the portable electronic device's operations in response to user selections of the previous image icon 1110, the play icon 1112, and the next image icon 1114 have been provided above in connection with Figures 7A and 17. In response to a user contact with the additional options icon 706 (Figure 7A) or 1108 (Figure 11), the portable electronic device renders a new interface with additional options for the user to choose in connection with the image being displayed.

**[0125]** Figure 12 illustrates such an exemplary user interface for selecting a use for an image in an album. In some examples, user interface 1200 includes the following elements, or a subset or superset thereof:

- 402, 404, 406, 1602, and 1106 as described above;
- Email photo icon 1208 that when activated (e.g., by

a finger gesture on the icon) initiates a process for incorporating the image 1106 in an email (e.g., as illustrated in Figures 13A-13G);

- Assign to contact icon 1210 that when activated (e.g., by a finger gesture on the icon) initiates a process for associating the image 1106 with a contact in the user's contact list (e.g., as illustrated in Figures 14A-14B);
- Use as wallpaper icon 1212 that when activated (e.g., by a finger gesture on the icon) initiates a process for incorporating the image 1106 in the user's wallpaper (e.g., as illustrated in Figure 15); and
- Cancel icon 1214 that when activated (e.g., by a finger gesture on the icon) initiates transfer back to the previous UI (e.g., UI 1100).

**[0126]** In some examples, as shown in Figure 12, the image 1106 is displayed in the background and one or more the function icons 1208, 1210, 1212, 1214, are superimposed over the displayed image 1106.

**[0127]** Figure 20 is a flowchart illustrating a process for performing additional operations upon a user selection of an additional options icon (e.g., icon 1108 in UI 1100, Figure 11). Upon detecting a finger gesture 1122 on the additional options icon (2002), the portable electronic device displays a list of option icons on the touch screen (2004). Each option icon corresponds to a specific operation on the image being displayed. As shown in Figure 12, the list includes Email photo icon 1208, Assign to contact icon 1210, Use as wallpaper icon 1212, and Cancel icon 1214. In some other examples, the user interface 1200 may include a subset of these icons, and may also include additional image usage icons for invoking other image usage functions.

**[0128]** If the user selects the email photo icon 1208 by a finger gesture (2008), the portable electronic device renders an email service interface that allows the user to send the image 1106 to somebody through email. If the user selects the assign to contact icon 1210 (2010), the portable electronic device displays a user interface (having a list of contacts) for the user to select a contact to be associated with the image 1106. Similarly, if the user selects the use as wallpaper icon 1212 (2012), the portable electronic device displays a user interface for the user to edit the image 1106 and set it as the portable electronic device's wallpaper.

**[0129]** Figure 21 is a flowchart illustrating an animated process for rendering an email service interface that includes a user selected image. After detecting the user selection of Email photo icon 1208 (2102), the portable electronic device animates a process of introducing an email message template onto the touch screen and placing the image into a predefined region of the email message template. In some examples, the animation includes initially reducing the image's size (Figure 13A)

(2104); sliding or otherwise rendering an email message template behind the image 1106 (Figure 13B) (2106); and fitting the image into the message body field (Figure 13C) of an email composition user interface 1300C (2108).

**[0130]** In some examples, following the animation, the device monitors the touch screen for user contact (2110). When the user taps on or makes other predefined gestures 1302 (Figure 13D) on the To: field of the email recipient field to enter an email address (2112). The portable electronic device then displays the user's contact list (2122) (Figure 13E). After detecting a user finger gesture or other predefined gesture on a recipient/contact (2124) (e.g., a finger tap 1316 on Bob Adams in Figure 13E), the portable electronic device associates the recipient's email address with the email message and displays the contact's name in the To: field (2126) (e.g., "Bob Adams" in Figure 13F).

**[0131]** In some examples, in response to a user finger tap or other predefined gestures on predefined fields within the email message template (2114, 2116) (e.g., finger taps 1304, 1306 in Figure 13D, or "Other Email" in Figure 13E), the portable electronic device displays a letter keyboard 616 (2128) on the touch screen. The user may enter text into the respective fields through the letter keyboard 616 (Figure 13F). In some examples, the user may also enter an email address by tapping on character icons in the letter keyboard or other character keyboards.

**[0132]** As shown in Figure 13G, after detecting a finger gesture on the send icon 1314 (2120), the portable electronic device sends the email message to its recipient(s) (2132) and returns to the user interface 1000 or 1100. But if the user selects the cancel icon 1308 (2118), the portable electronic device may display the save draft icon 1310 and the don't save icon 1312 (2130). The device saves the draft in a draft folder associated with the e-mail client module 140 if the user chooses the save draft icon 1310 or deletes the draft if the user chooses the don't save icon 1312.

**[0133]** Assuming that the user taps or makes other predefined gestures on the assign to contact icon 1210 shown in Figure 12, Figure 22 is a flowchart illustrating a process for assigning an image to a user selected contact in the user's contact list.

**[0134]** Upon a user selection of the assign to contact icon 1210, the portable electronic device displays the user's contact list (Figure 14A). After the user selects a contact in the contact list (e.g., a finger tap 1401 on Bob Adams in Figure 14A), the portable electronic device produces a new user interface 1400B as shown in Figure 14B and monitors next user contact with the touch screen (2208). In some examples, the user interface 1400B includes the user instructions 1402 (2202), the user-selected image 1106 (2204), the cancel icon 1404 and the set photo icon 1406 (2206).

**[0135]** The portable electronic device modifies the image (2214) in response to a user finger gesture on the image 1106 (2212). For example, the user may crop,

scale, and otherwise adjust the image 1106 using different types of finger gestures. In some examples, the portable electronic device moves the image on the touch screen in response to a movement of one-finger contact gesture 1408; enlarges the image in response to a de-pinching gesture including at least two simultaneous and continuous contacts 1410 and 1412; reduces the image in response to a pinching gesture including at least two simultaneous and continuous contacts 1410 and 1412; and/or rotates the image in response to a twisting gesture including two or more simultaneous and continuous contacts 1410 and 1412.

**[0136]** In some examples, the user assigns the modified image to the user-selected contact by tapping on the set photo icon 1406 (2216). This triggers the portable electronic device to associate the modified image with the contact. If the user selects the cancel icon 1404 (2218), the portable electronic device terminates the image assignment and brings back the user interface 1100.

**[0137]** If the user taps or makes other predefined gestures on the use as wallpaper icon 1212 in Figure 12, the portable electronic device displays a user interface for incorporating an image in the user's wallpaper. Figure 15 illustrates such an exemplary user interface 1500.

**[0138]** In some examples, this wallpaper setting process is similar to the assign to contact process. For example, the user may move the image with a one-finger gesture 1508; enlarge the image with a de-pinching gesture using multiple contacts 1510 and 1512; reduce the image with a pinching gesture using multiple contacts 1510 and 1512; and/or rotate the image with a twisting gesture using multiple contacts 1510 and 1512.

**[0139]** The wallpaper setting process is completed after the user selects the set photo icon 1506. If the user selects the cancel icon 1504, the portable electronic device stops the assignment process and brings back the UI 1100 in Figure 11. In some examples, the interface 1500 also includes user instruction information 1502.

**[0140]** Figures 23A-23H illustrate an exemplary user interface for viewing digital objects in a set of digital objects in accordance with some embodiments.

**[0141]** In Figure 23A, the displayed digital object is a digital image 2300-1. In this example, the entire image 2300-1 is displayed in Figure 23A. This exemplary image includes a first person 2302-1 and a second person 2302-2. In response to detecting a de-pinching gesture 2304 and 2306 on or about the second person 2302-2, a command to zoom in on a portion of the image 2300-1 that includes the second person 2302-2 is executed. Upon execution of the command to zoom in, a reduced portion of the image 2300-1 is displayed at a higher magnification than in Figure 23A. For example, in Figure 23B the second person 2302-2 is shown at a higher magnification than in Figure 23A and the first person 2302-1 is no longer shown.

**[0142]** In Figure 23C, a swipe gesture 2310 is detected on or near the touch screen display. In response, the displayed portion of the image 2300-1, including the sec-

second person 2302-2, is translated in a direction corresponding to the direction of the swipe gesture 2310, as shown in Figures 23C-23D, where the image is translated horizontally from right to left. An edge 2312 of the (enlarged) image 2300-1 is displayed in Figure 23D. In response to continued detection of the swipe gesture 2310 (Figure 23D), an area 2314 beyond the edge 2312 is displayed (e.g., a black area or other area visually distinct from the digital object). After the swipe gesture 2310 is no longer detected, as shown in Figure 23E, the image 2300-1, including the image of the second person 2302-2, is translated in a second direction 2316 until the area 2314 is no longer displayed (e.g., horizontally from left to right).

**[0143]** In response to detection of a second swipe gesture 2318, the displayed portion of the image 2300-1 is translated in a direction corresponding to the direction of the second swipe gesture 2318, as shown in Figure 23G, and a second digital image 2300-2 is displayed. In some embodiments, as shown in Figures 23G and 23H, the second digital image 2300-2 (or, more generally, digital object) slides on to the touch screen as the first digital image 2300-1 slides off of the touch screen.

**[0144]** In this example, the display of area 2314 lets the user know that the edge of the (enlarged) digital object has been reached during the first gesture 2310. Upon detecting the second gesture 2318 in the same or substantially the same direction as the first gesture, the device transitions to the display of another image in a set of images, rather than just repeating the visual indication that the edge of the digital object has been reached.

**[0145]** Figure 24 is a flowchart illustrating a process 2400 for viewing digital objects in a set of digital objects in accordance with some embodiments.

**[0146]** In some embodiments, a device with a touch screen display (e.g., device 100, a tablet computer, or a desktop computer with a touch screen display) detects (2402) a first movement of a physical object on or near the touch screen display. In some embodiments, the device is a portable electronic device. In some embodiments, the physical object is a finger. In some embodiments, the physical object is a stylus. In some embodiments, the first movement is a horizontal swipe gesture (e.g., 2310, Figure 23C).

**[0147]** While detecting the first movement, the device translates (2404) a first digital object (e.g., a digital image 2300-1) displayed on the touch screen display in a first direction. In some embodiments, prior to the translating, at least one edge of the first digital object extends beyond the touch screen display in the first direction.

**[0148]** The first digital object is associated with a set of digital objects. In some embodiments, the set of digital objects is a set of digital images (e.g., 2300-1, 2300-2, etc., which may be part of an album or part of a set of images taken with a camera in the device). In some embodiments, the set of digital objects is a set of web pages (e.g., a set of web pages selected by a user for display in a browser). In some embodiments, the set of digital

objects is a set of electronic documents.

**[0149]** In response to display of a previously hidden edge (e.g., edge 2312, Figure 23D) of the first digital object and continued detection of the first movement (e.g., swipe gesture 2310, Figure 23D), the device displays (2406) an area beyond the edge of the first digital object (e.g., area 2314).

**[0150]** After the first movement is no longer detected, the device translates (2408) the first digital object in a second direction until the area beyond the edge of the first digital object is no longer displayed. For example, in Figure 23E the digital image 2300-1 is translated in a direction 2316 (e.g., horizontally from left to right) until the area 2314 is no longer displayed. In some embodiments, the second direction is opposite the first direction. In some embodiments, the first digital object is translated in the second direction using a damped motion. In some embodiments, the change from translating the first digital object in the first direction to translating the first digital object in the second direction until the area beyond the edge of the first digital object is no longer displayed makes the edge of the first digital object appear to be elastically attached to an edge of the touch screen display or to an edge displayed on the touch screen display.

**[0151]** The device detects (2410) a second movement (e.g., a second swipe gesture 2318 from right to left, Figure 23F) of the physical object on or near the touch screen display.

**[0152]** In response to detecting the second movement while the previously hidden edge of the first digital object is displayed (e.g., edge 2312, Figure 23F), the device translates (2412) the first digital object in the first direction and displays a second digital object (e.g., a digital image 2300-2, Figures 23G and 23H) in the set of digital objects.

**[0153]** Thus, depending on the context, similar movements (e.g., 2310 and 2318 are both right to left swipe gestures) allow a user to either (1) translate a displayed first digital object or (2) transition from displaying the first digital object to displaying a second digital object in a set of digital objects.

**[0154]** In some embodiments, the time between the first and second movements must be less than a predetermined value (e.g., 0.5 seconds). Otherwise, the device will not transition to displaying the second digital object. Rather, the device may just translate the first digital object and show the area beyond the edge of the object (to show the user again that the edge of the first digital object has been reached).

**[0155]** In some embodiments, if the entire first digital object is displayed (e.g., Figure 23A), then the first movement (e.g., a horizontal swipe gesture) will transition the device to display another digital object in the set of digital objects.

**[0156]** Process 2400 permits a touch screen user to easily navigate within a displayed digital object and between digital objects in a set of digital objects.

**[0157]** The foregoing description, for purpose of explanation, has been described with reference to specific em-

bodiments. However, the illustrative discussions above are not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its practical applications, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated.

## Claims

1. A computer-implemented method, comprising:

at a device (100) with a touch screen display (112):

detecting (2402) a first movement (2310) of a physical object on or near the touch screen display (112);

while detecting the first movement (2310), translating (2404) a first digital object (2300-1) displayed on the touch screen display (112) in a first direction, wherein the first digital object (2300-1) is associated with a set of digital objects; **characterized in that:**

in response to display of a previously hidden edge (2312) of the first digital object (2300-1) and continued detection of the first movement (2310),

displaying (2406) an area (2314) beyond the edge (2312) of the first digital object (2300-1);

after the first movement (2310) is no longer detected, translating (2408) the first digital object (2300-1) in a second direction (2316) until the area (2314) beyond the edge (2312) of the first digital object (2300-1) is no longer displayed;

detecting (2410) a second movement (2318) of the physical object on or near the touch screen display (112); and

in response to detecting the second movement (2318) while the previously hidden edge (2312) of the first digital object (2300-1) is displayed, translating (2412) the first digital object (2300-1) in the first direction and displaying a second digital object (2300-2) in the set of digital objects.

2. The computer-implemented method of claim 1, wherein, prior to the translating while detecting the

first movement, at least one edge of the first digital object extends beyond the touch screen display in the first direction.

3. The computer-implemented method of claim 1 or 2, wherein the first movement is a horizontal swipe gesture.

4. The computer-implemented method of any one of claims 1 to 3, wherein the set of digital objects is a set of digital images, a set of web pages, or a set of electronic documents.

5. The computer-implemented method of any one of claims 1 to 4, wherein the device is a portable electronic device.

6. The computer-implemented method of any one of claims 1 to 5, wherein the physical object is a finger or a stylus.

7. A computer program with software code adapted to perform the method of any one of claims 1 to 6.

8. An electronic device (100), comprising:

a touch screen display (112);  
one or more processors (120);  
memory (102); and

a program, wherein the program is stored in the memory and configured to be executed by the one or more processors, the program including:

instructions for detecting (2402) a first movement (2310) of a physical object on or near the touch screen display (112);

instructions for, while detecting the first movement (2310), translating (2404) a first digital object (2300-1) displayed on the touch screen display (112) in a first direction, wherein the first digital object (2300-1) is associated with a set of digital objects;

**characterized in that :**

instructions for, in response to display of a previously hidden edge (2312) of the first digital object (2300-1) and continued detection of the first movement (2310), displaying (2406) an area (2314) beyond the edge (2312) of the first digital object;

instructions for, after the first movement (2310) is no longer detected, translating (2408) the first digital object (2300-1) in a second direction (2316) until the area (2314) beyond the edge of the first digital object (2300-1) is no longer displayed;

instructions for detecting (2410) a second movement (2318) of the physical object on

or near the touch screen display (112); and instructions for, in response to detecting the second movement (2318) while the previously hidden edge (2312) of the first digital object (2300-1) is displayed, translating (2412) the first digital object (2300-1) in the first direction and displaying a second digital object (2300-2) in the set of digital objects.

9. The electronic device of claim 8, wherein, prior to the translating while detecting the first movement, at least one edge of the first digital object extends beyond the touch screen display in the first direction.

10. The electronic device of claim 8 or 9, wherein the first movement is a horizontal swipe gesture.

11. The electronic device of any one of claims 8 to 10, wherein the set of digital objects is a set of digital images, a set of web pages, or a set of electronic documents.

12. The electronic device of any one of claims 8 to 11, wherein the device is a portable electronic device.

13. The electronic device of any one of claims 8 to 12, wherein the physical object is a finger or a stylus.

## Patentansprüche

### 1. Computerimplementiertes Verfahren, aufweisend:

bei einem Gerät (100) mit einer Berührungsbildschirmanzeige (112):

Erkennen (2402) einer ersten Bewegung (2310) eines physikalischen Objekts auf oder in der Nähe der Berührungsbildschirmanzeige (112);

Verschieben (2404) eines ersten digitalen Objekts (2300-1), das auf der Berührungsbildschirmanzeige (112) angezeigt wird, in eine erste Richtung während des Erkennens der ersten Bewegung (2310), wobei das erste digitale Objekt (2300-1) mit einem Satz von digitalen Objekten assoziiert ist;

**gekennzeichnet durch,**

in Antwort auf Anzeigen einer vorher versteckten Kante (2312) des ersten digitalen Objekts (2300-1) und kontinuierliches Erkennen der ersten Bewegung (2310), Anzeigen (2406) eines Bereichs (2314), der über die Kante (2312) des ersten digitalen Objekts (2300-1) hinausgeht;

nachdem dass die erste Bewegung (2310) nicht mehr erkannt wird, Verschieben (2408) des ersten digitalen Objekts (2300-1) in eine zweite Richtung (2316) bis

der über die Kante (2312) des ersten digitalen Objekts (2300-1) hinausgehende Bereich (2314) nicht mehr angezeigt wird; Erkennen (2410) einer zweiten Bewegung (2318) des physikalischen Objekts auf oder in der Nähe der Berührungsbildschirmanzeige (112); und

in Antwort auf Erkennen der zweiten Bewegung (2318) während die vorher versteckte Kante (2312) des ersten digitalen Objekts (2300-1) angezeigt wird, Verschieben (2412) des ersten digitalen Objekts (2300-1) in die erste Richtung und Anzeigen eines zweiten digitalen Objekts (2300-2) in dem Satz von digitalen Objekten.

2. Computerimplementiertes Verfahren nach Anspruch 1, wobei, vor dem Verschieben während des Erkennens der ersten Bewegung, mindestens eine Kante des ersten digitalen Objekts über die Berührungsbildschirmanzeige in die erste Richtung hinausgeht.

3. Computerimplementiertes Verfahren nach Anspruch 1 oder 2, wobei die erste Bewegung eine horizontale Streichgeste ist.

4. Computerimplementiertes Verfahren nach irgendeinem der Ansprüche 1 bis 3, wobei der Satz von digitalen Objekten ein Satz von digitalen Abbildungen, ein Satz von Webseiten, oder ein Satz von elektronischen Dokumenten ist.

5. Computerimplementiertes Verfahren nach irgendeinem der Ansprüche 1 bis 4, wobei das Gerät ein tragbares elektronisches Gerät ist.

6. Computerimplementiertes Verfahren nach irgendeinem der Ansprüche 1 bis 5, wobei das physikalische Objekt ein Finger oder ein Stift ist.

7. Computerprogramm mit Softwarecode, das angepasst ist, das Verfahren nach irgendeinem der Ansprüche 1 bis 6 durchzuführen.

8. Elektronisches Gerät (100), aufweisend:

eine Berührungsbildschirmanzeige (112);

einen oder mehrere Prozessoren (120);

Speicher (102); und

ein Programm, wobei das Programm im Speicher gespeichert und konfiguriert ist, durch die einen oder mehreren Prozessoren ausgeführt zu werden, wobei das Programm aufweist:

Befehle zum Erkennen (2402) einer ersten Bewegung (2310) eines physikalischen Objekts auf oder in der Nähe der Berührungsbildschirmanzeige (112);



- bildschirmanzeige (112);  
Befehle zum Verschieben (2404) eines ersten digitalen Objekts (2300-1), das auf der Berührungsbildschirmanzeige (112) angezeigt wird, in eine erste Richtung während des Erkennens der ersten Bewegung (2310), wobei das erste digitale Objekt (2300-1) mit einem Satz von digitalen Objekten assoziiert ist;
- gekennzeichnet durch,**  
Befehle zum, in Antwort auf Anzeigen einer vorher versteckten Kante (2312) des ersten digitalen Objekts (2300-1) und kontinuierliches Erkennen der ersten Bewegung (2310), Anzeigen (2406) eines Bereichs (2314), der über die Kante (2312) des ersten digitalen Objekts hinausgeht;  
Befehle zum, nachdem dass die erste Bewegung (2310) nicht mehr erkannt wird, Verschieben (2408) des ersten digitalen Objekts (2300-1) in eine zweite Richtung (2316) bis der über die Kante des ersten digitalen Objekts (2300-1) hinausgehende Bereich (2314) nicht mehr angezeigt wird;  
Befehle zum Erkennen (2410) einer zweiten Bewegung (2318) des physikalischen Objekts auf oder in der Nähe der Berührungsbildschirmanzeige (112); und  
Befehle zum, in Antwort auf Erkennen der zweiten Bewegung (2318) während die vorher versteckte Kante (2312) des ersten digitalen Objekts (2300-1) angezeigt wird, Verschieben (2412) des ersten digitalen Objekts (2300-1) in die erste Richtung und Anzeigen eines zweiten digitalen Objekts (2300-2) in dem Satz von digitalen Objekten.
9. Elektronisches Gerät nach Anspruch 8, wobei, vor dem Verschieben während des Erkennens der ersten Bewegung, mindestens eine Kante des ersten digitalen Objekts über die Berührungsbildschirmanzeige in die erste Richtung hinausgeht.
10. Elektronisches Gerät nach Anspruch 8 oder 9, wobei die erste Bewegung eine horizontale Streichgeste ist.
11. Elektronisches Gerät nach irgendeinem der Ansprüche 8 bis 10, wobei der Satz von digitalen Objekten ein Satz von digitalen Abbildungen, ein Satz von Webseiten, oder ein Satz von elektronischen Dokumenten ist.
12. Elektronisches Gerät nach irgendeinem der Ansprüche 8 bis 11, wobei das Gerät ein tragbares elektronisches Gerät ist.
13. Elektronisches Gerät nach irgendeinem der Ansprüche 8 bis 12, wobei das physikalische Objekt ein Finger oder ein Stift ist.

### Revendications

1. Un procédé mis en oeuvre par ordinateur, comprenant:

par un dispositif (100) avec un afficheur à écran tactile (112) :

la détection (2402) d'un premier mouvement (2310) d'un objet physique sur, ou à proximité de, l'afficheur à écran tactile (112) ;

lors de la détection du premier mouvement (2310), translation (2404) d'un premier objet numérique (2300-1) affiché sur l'afficheur à écran tactile (112) suivant une première direction, le premier objet numérique (2300-1) étant associé à un ensemble d'objets numériques ;

**caractérisé par :**

en réponse à l'affichage d'un bord précédemment caché (2312) du premier objet numérique (2300-1) et à une détection poursuivie du premier mouvement (2310), affichage (2406) d'une zone (2314) au-delà du bord (2312) du premier objet numérique (2300-1) ;

après que le premier mouvement (2310) ne soit plus détecté, translation (2408) du premier objet numérique (2300-1) suivant une seconde direction (2316) jusqu'à ce que la zone (2314) située au-delà du bord (2312) du premier objet numérique (2300-1) ne soit plus affichée ;

détection (2410) d'un second mouvement (2318) de l'objet physique sur, ou à proximité de, l'afficheur à écran tactile (112) ; et

en réponse à la détection du second mouvement (2318) pendant que le bord précédemment caché (2312) du premier objet numérique (2300-1) est affiché, translation (2412) du premier objet numérique (2300-1) suivant la première direction et affichage d'un second objet numérique (2300-2) dans l'ensemble d'objets numériques.

2. Le procédé mis en oeuvre par ordinateur de la revendication 1, dans lequel, avant la translation lors de la détection du premier mouvement, au moins un

bord du premier objet numérique s'étend au-delà de l'afficheur à écran tactile dans la première direction.

3. Le procédé mis en oeuvre par ordinateur de la revendication 1 ou 2, dans lequel le premier mouvement est un geste de balayage horizontal. 5
4. Le procédé mis en oeuvre par ordinateur de l'une des revendications 1 à 3, dans lequel l'ensemble d'objets numériques est un ensemble d'images numériques, un ensemble de pages web ou un ensemble de documents électroniques. 10
5. Le procédé mis en oeuvre par ordinateur de l'une des revendications 1 à 4, dans lequel le dispositif est un dispositif électronique portable. 15
6. Le procédé mis en oeuvre par ordinateur de l'une des revendications 1 à 5, dans lequel l'objet physique est un doigt ou un stylet. 20
7. Un programme informatique avec du code logiciel apte à exécuter le procédé de l'une des revendications 1 à 6. 25
8. Un dispositif électronique (100), comprenant :
  - un afficheur à écran tactile (112) ;
  - un ou plusieurs processeurs (120) ;
  - une mémoire (102) ; et
  - un programme, le programme étant conservé dans la mémoire et configuré pour être exécuté par le un ou plusieurs processeurs, le programme comprenant :
    - des instructions pour la détection (2402) d'un premier mouvement (2310) d'un objet physique sur, ou à proximité de, l'afficheur à écran tactile (112) ;
    - des instructions pour, lors de la détection du premier mouvement (2310), la translation (2404) d'un premier objet numérique (2300-1) affiché sur l'afficheur à écran tactile (112) suivant une première direction, le premier objet numérique étant associé à un ensemble d'objets numériques ;

**caractérisé par :**

  - des instructions pour, en réponse à l'affichage d'un bord précédemment caché (2312) du premier objet numérique (2300-1) et à une détection poursuivie du premier mouvement (2310), l'affichage (2406) d'une zone (2314) au-delà du bord (2312) du premier objet numérique ;
  - des instructions pour, après que le premier mouvement (2310) ne soit plus détecté, la translation (2408) du premier objet numérique (2300-1) suivant une seconde direction (2316) jusqu'à ce
9. Le dispositif électronique de la revendication 8, dans lequel, avant la translation lors de la détection du premier mouvement, au moins un bord du premier objet numérique s'étend au-delà de l'afficheur à écran tactile dans la première direction. 30
10. Le dispositif électronique de la revendication 8 ou 9, dans lequel le premier mouvement est un geste de balayage horizontal. 35
11. Le dispositif électronique de l'une des revendications 8 à 10, dans lequel l'ensemble d'objets numériques est un ensemble d'images numériques, un ensemble de pages web ou un ensemble de documents électroniques. 40
12. Le dispositif électronique de l'une des revendications 8 à 11, dans lequel le dispositif est un dispositif électronique portable. 45
13. Le dispositif électronique de l'une des revendications 8 à 12, dans lequel l'objet physique est un doigt ou un stylet. 50

que la zone (2314) située au-delà du bord du premier objet numérique (2300-1) ne soit plus affichée ;

des instructions pour la détection (2410) d'un second mouvement (2318) de l'objet physique sur, ou à proximité de, l'afficheur à écran tactile (112) ; et

des instructions pour, en réponse à la détection du second mouvement (2318) pendant que le bord précédemment caché (2312) du premier objet numérique (2300-1) est affiché, la translation (2412) du premier objet numérique (2300-1) suivant la première direction et l'affichage d'un second objet numérique (2300-2) dans l'ensemble d'objets numériques.

9. Le dispositif électronique de la revendication 8, dans lequel, avant la translation lors de la détection du premier mouvement, au moins un bord du premier objet numérique s'étend au-delà de l'afficheur à écran tactile dans la première direction.

10. Le dispositif électronique de la revendication 8 ou 9, dans lequel le premier mouvement est un geste de balayage horizontal.

11. Le dispositif électronique de l'une des revendications 8 à 10, dans lequel l'ensemble d'objets numériques est un ensemble d'images numériques, un ensemble de pages web ou un ensemble de documents électroniques.

12. Le dispositif électronique de l'une des revendications 8 à 11, dans lequel le dispositif est un dispositif électronique portable.

13. Le dispositif électronique de l'une des revendications 8 à 12, dans lequel l'objet physique est un doigt ou un stylet.

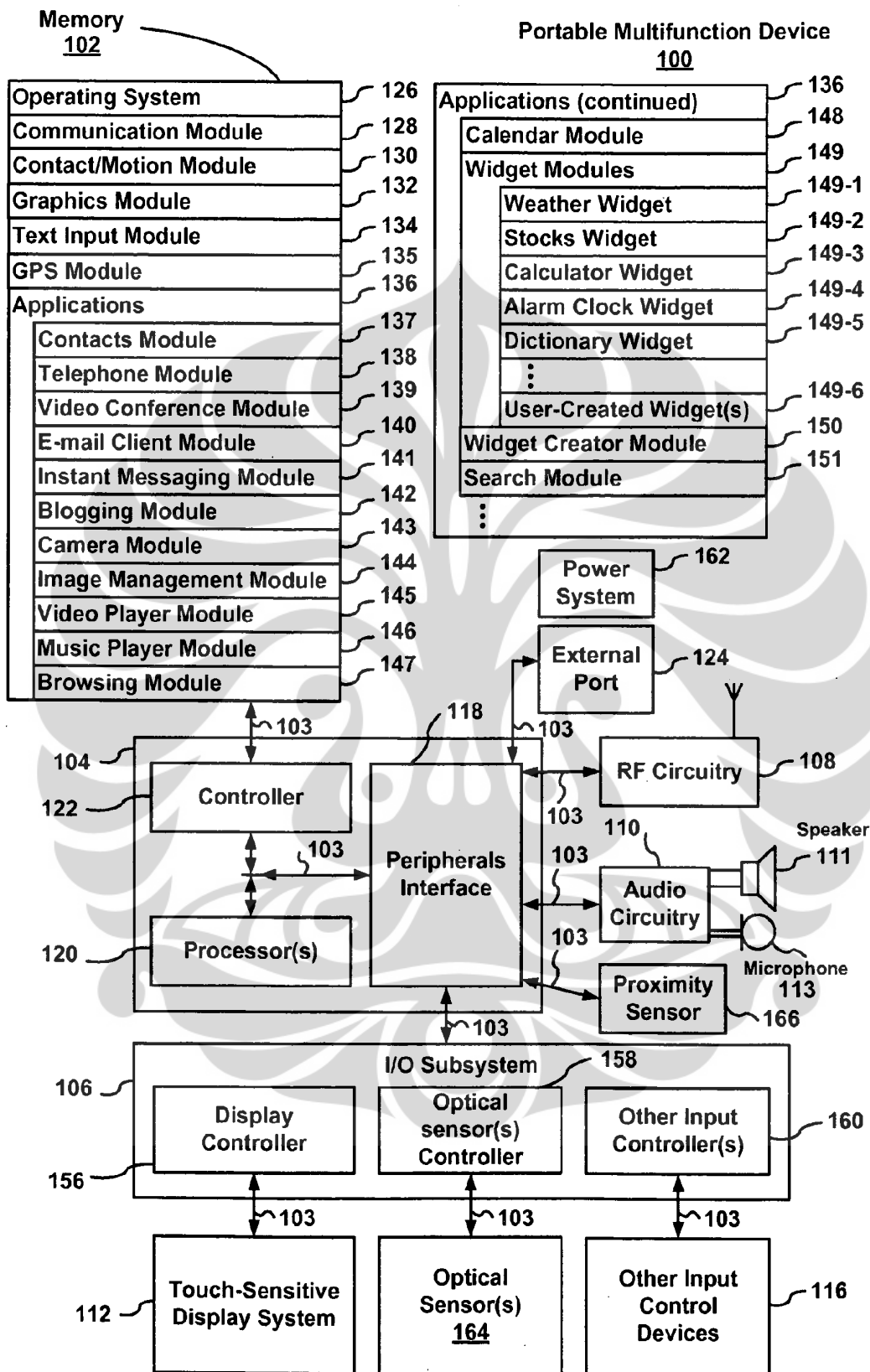


Figure 1



Figure 2

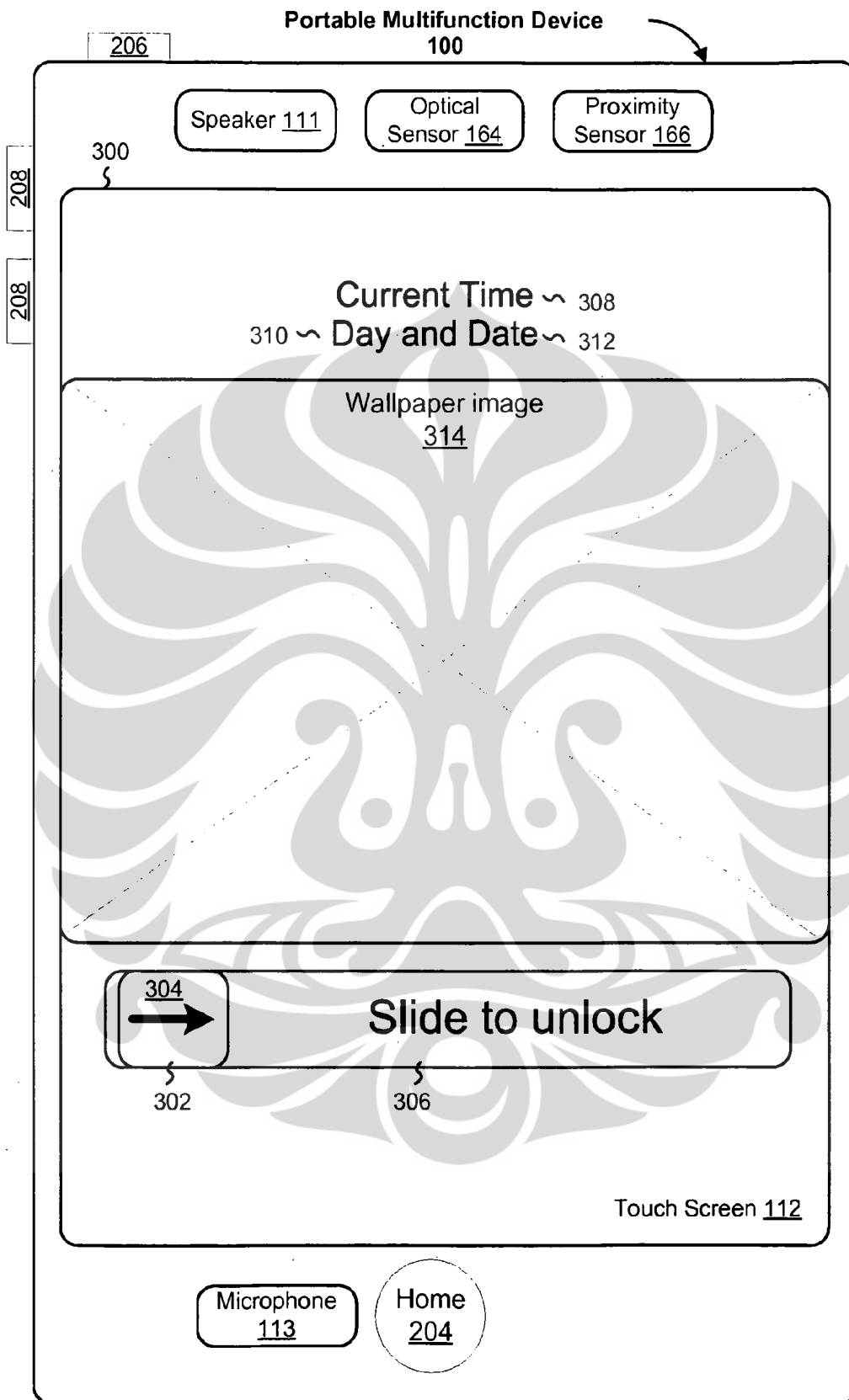


Figure 3

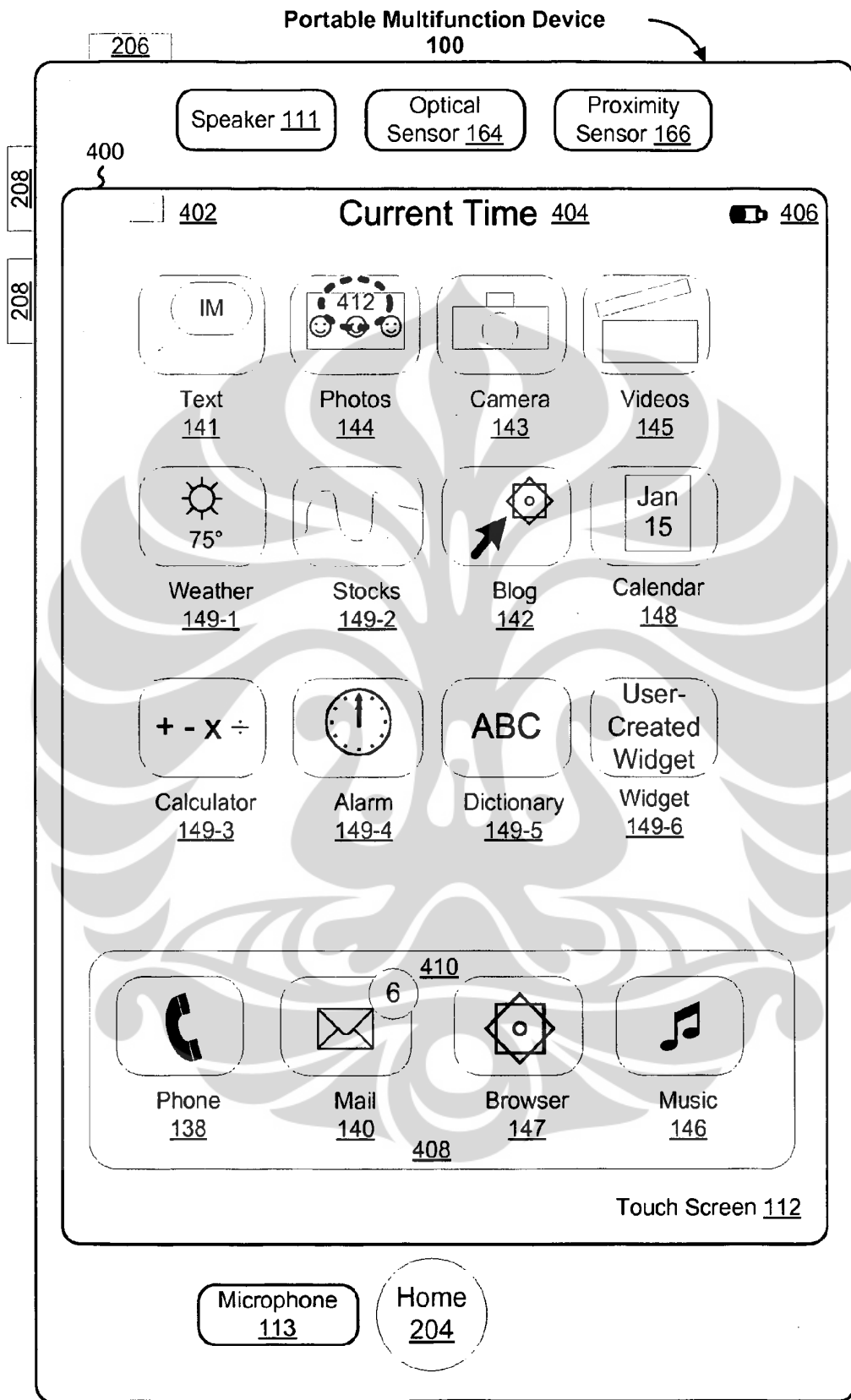


Figure 4

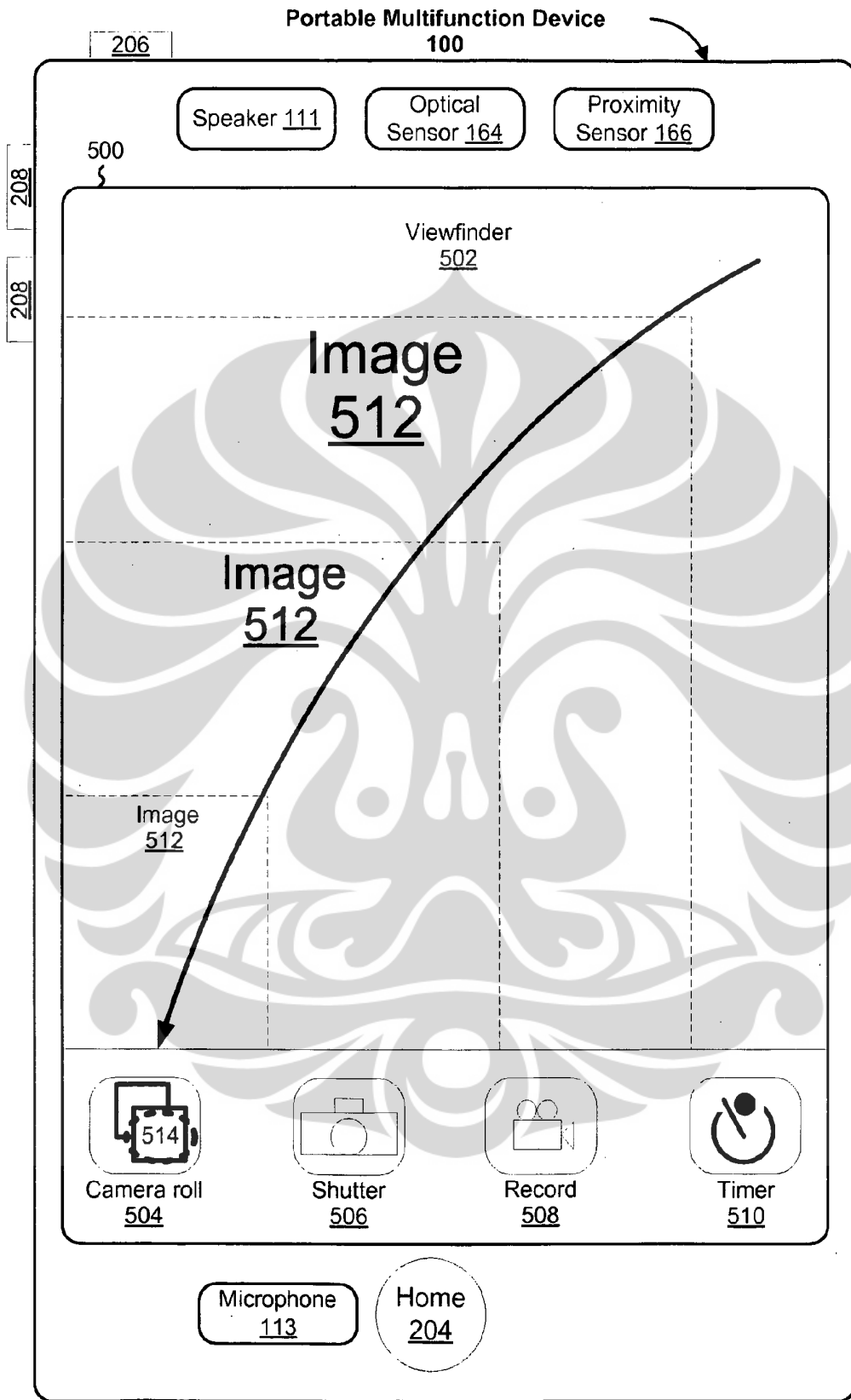


Figure 5

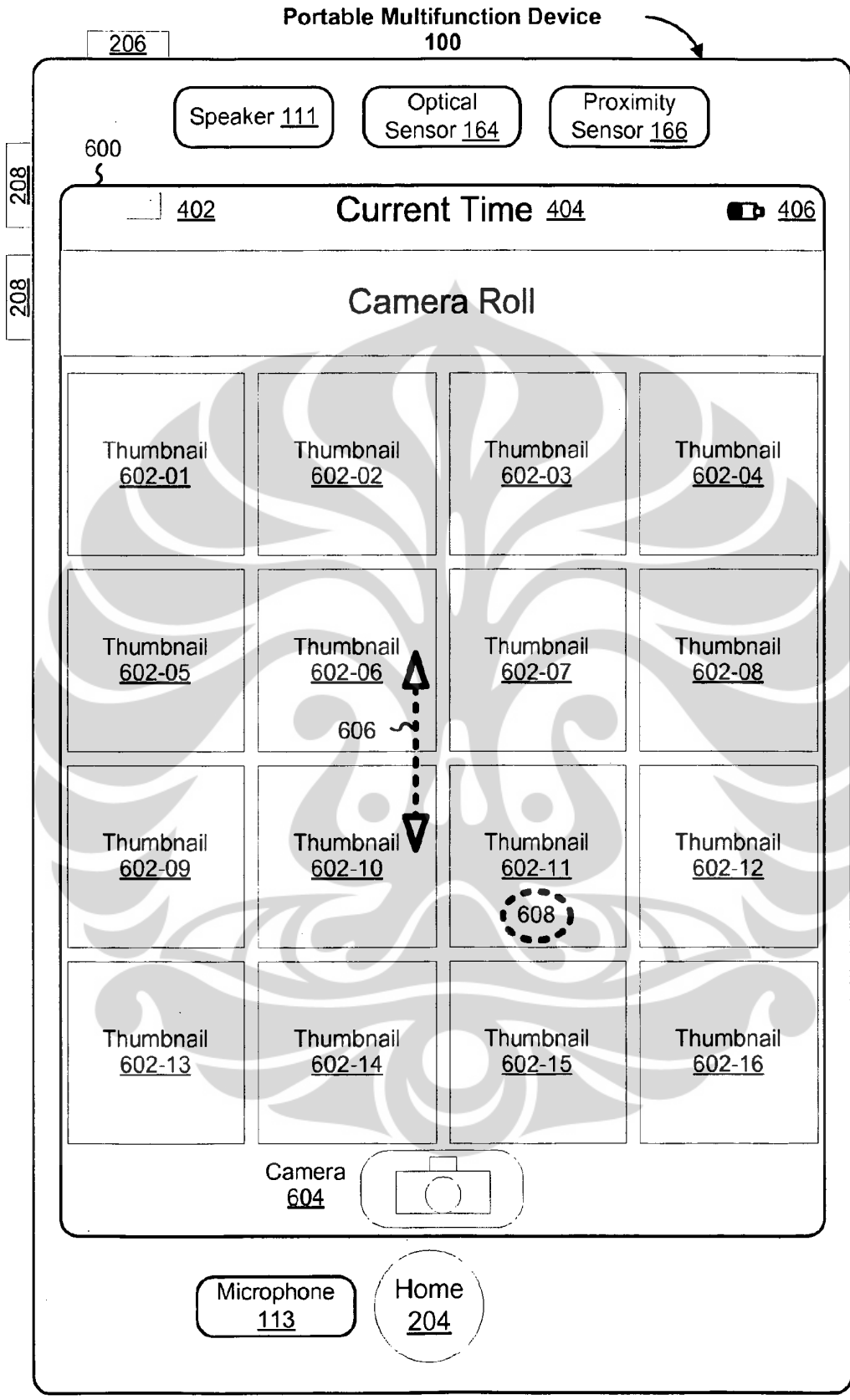


Figure 6



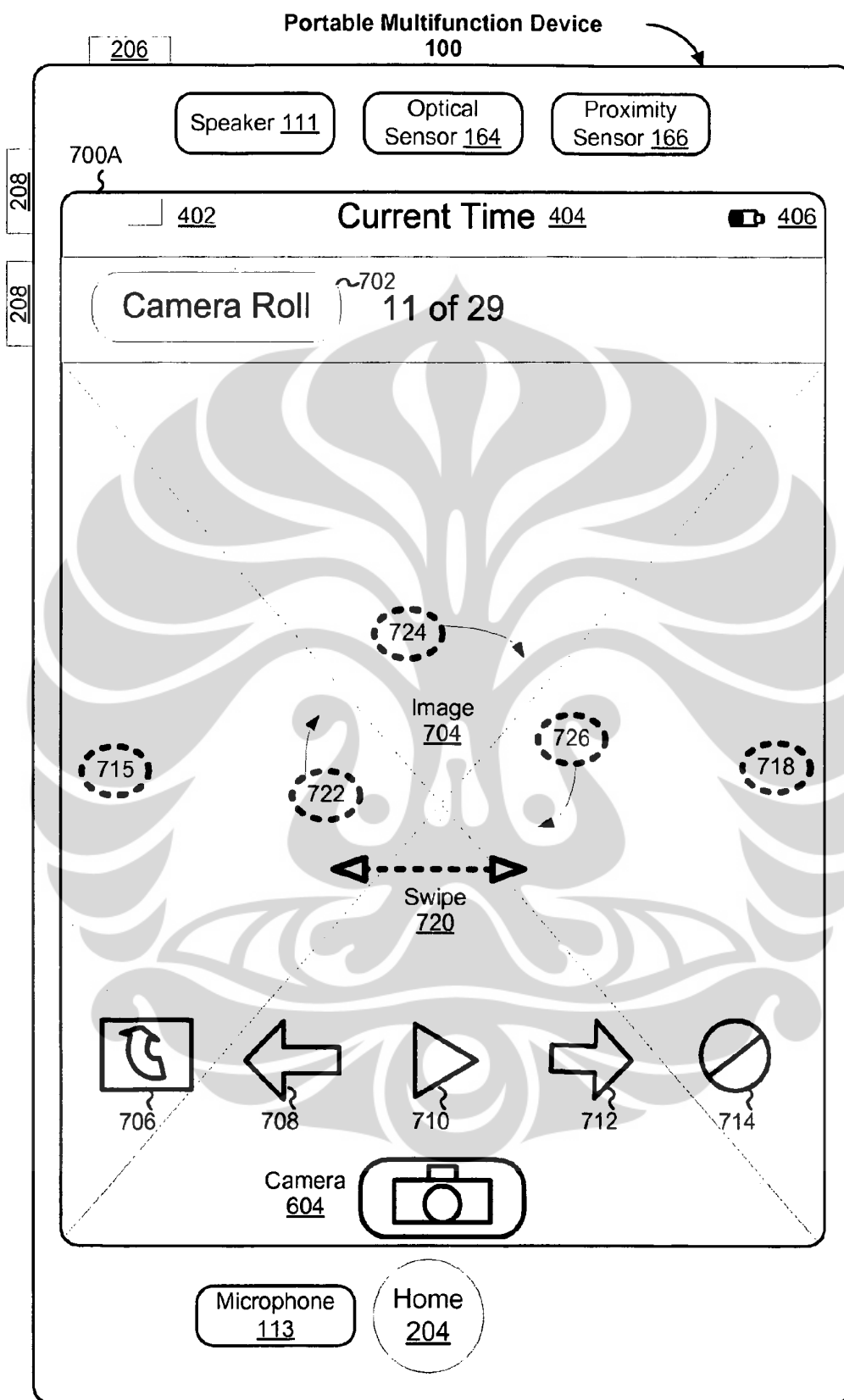


Figure 7A

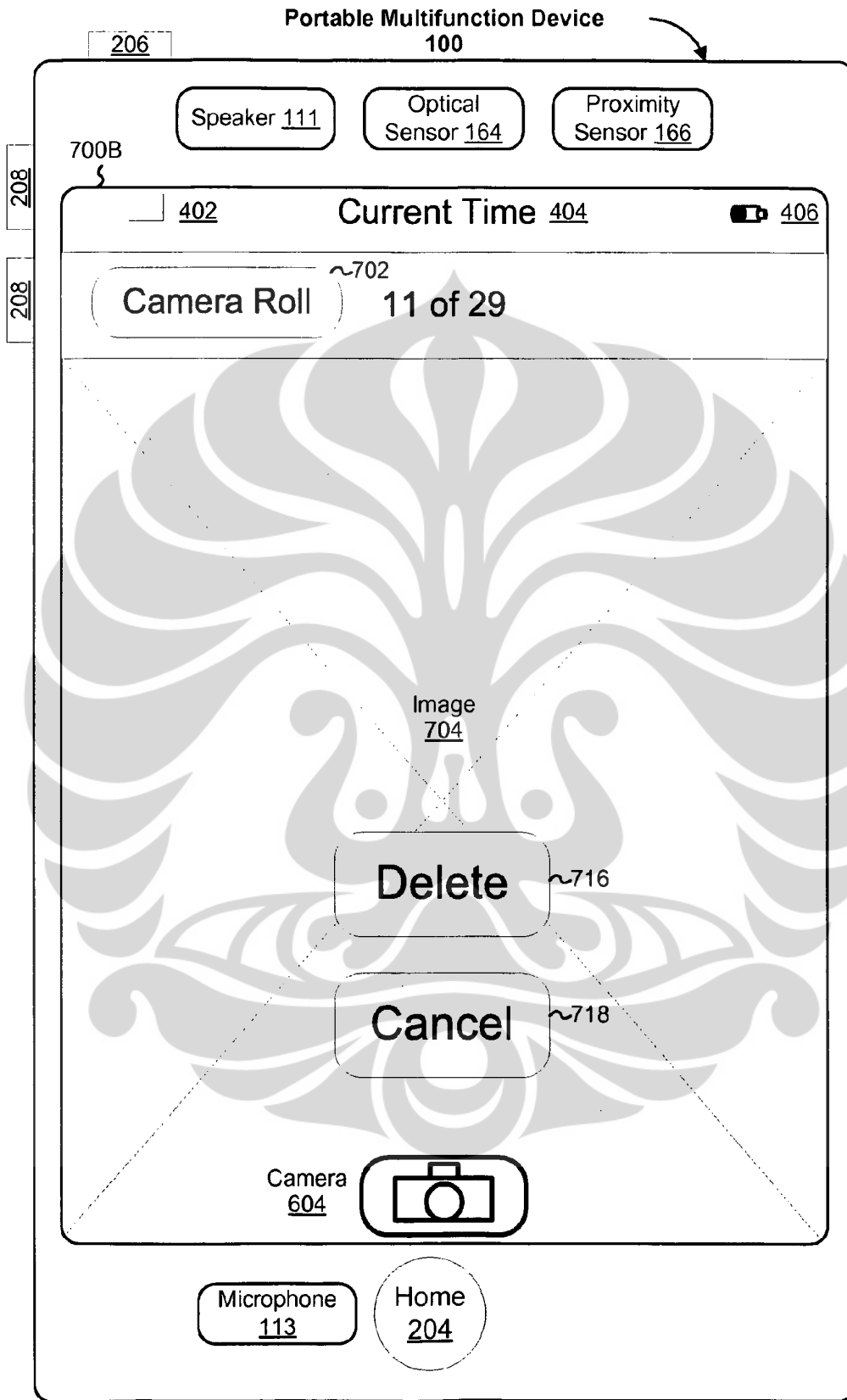


Figure 7B

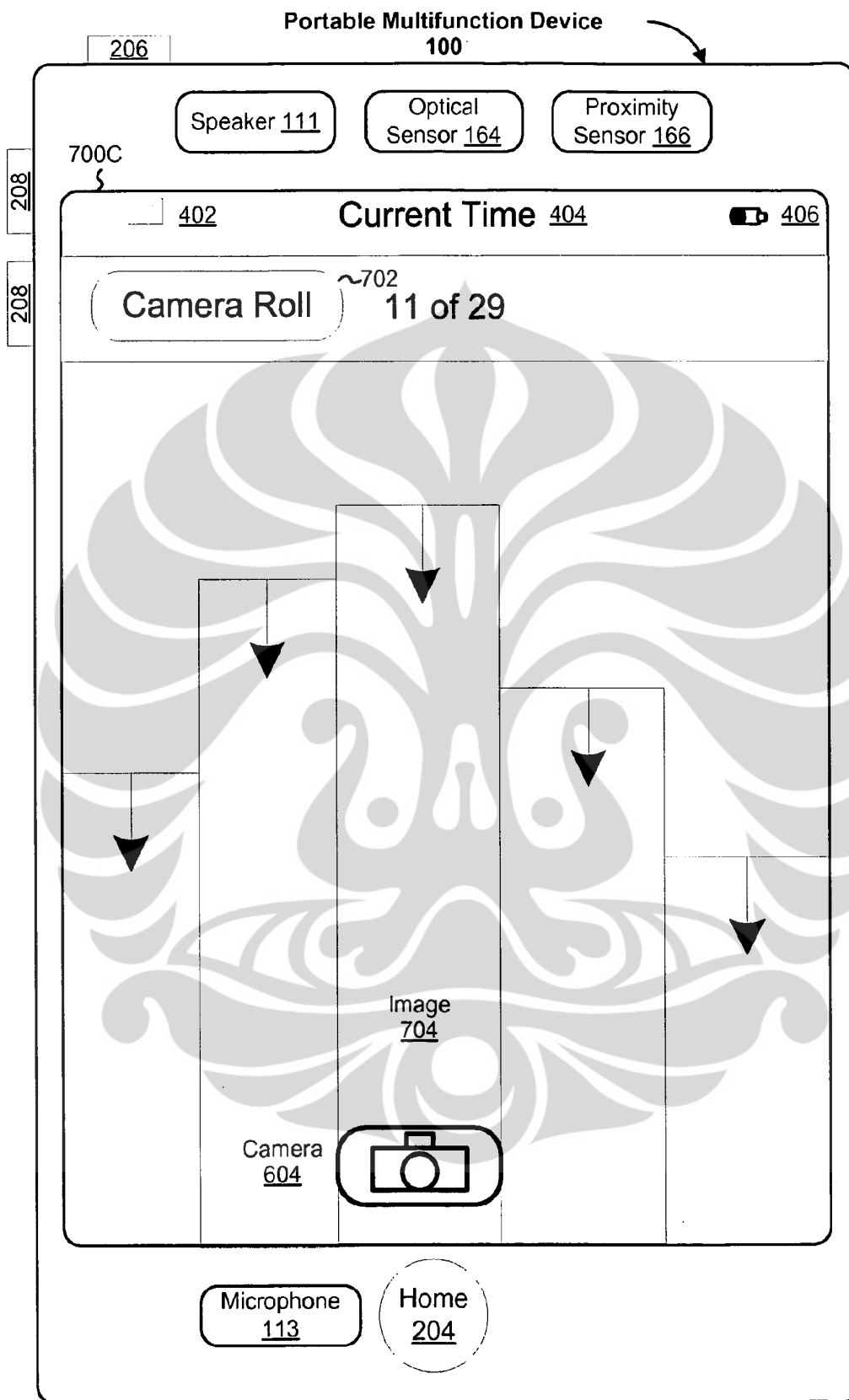


Figure 7C

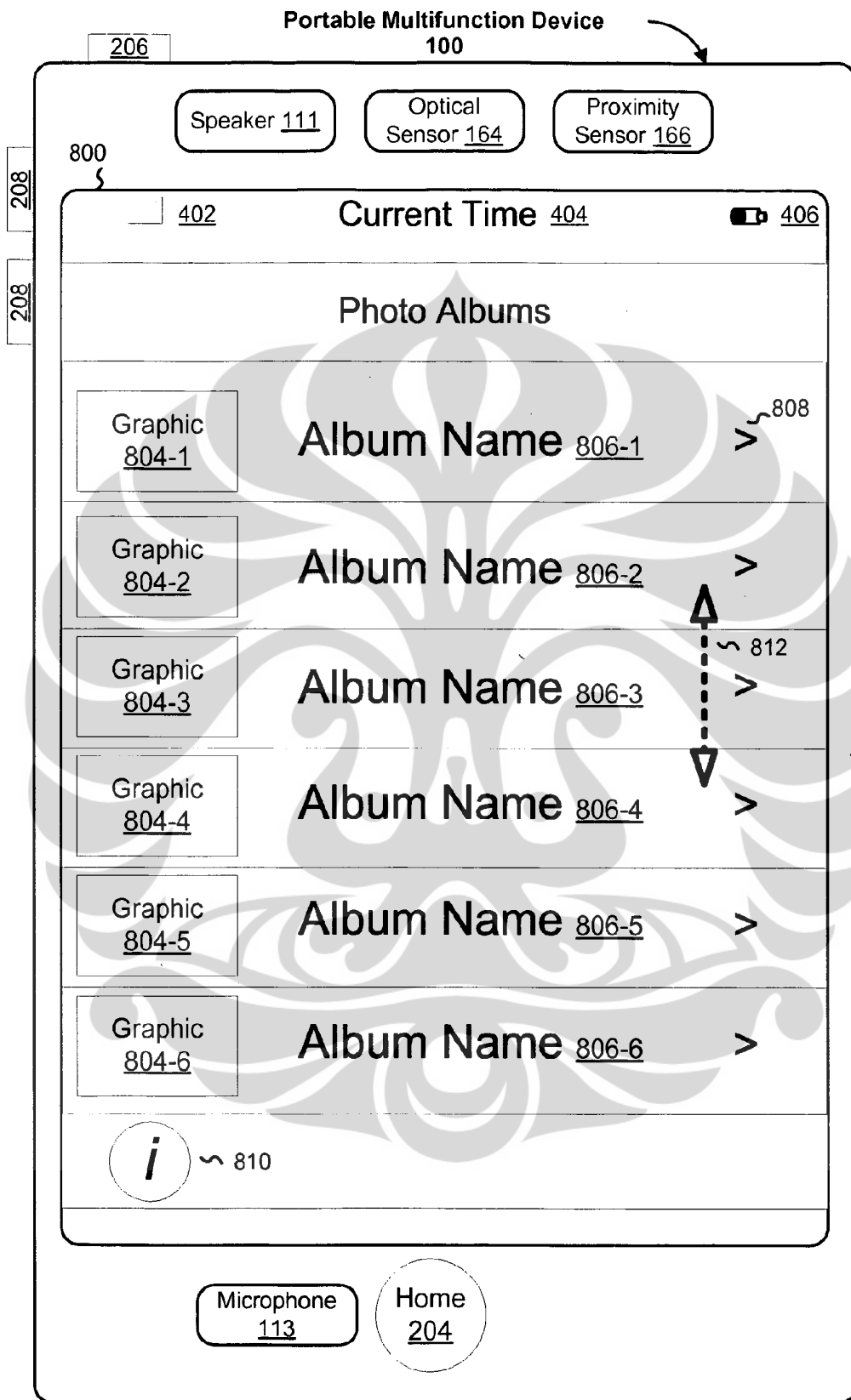


Figure 8

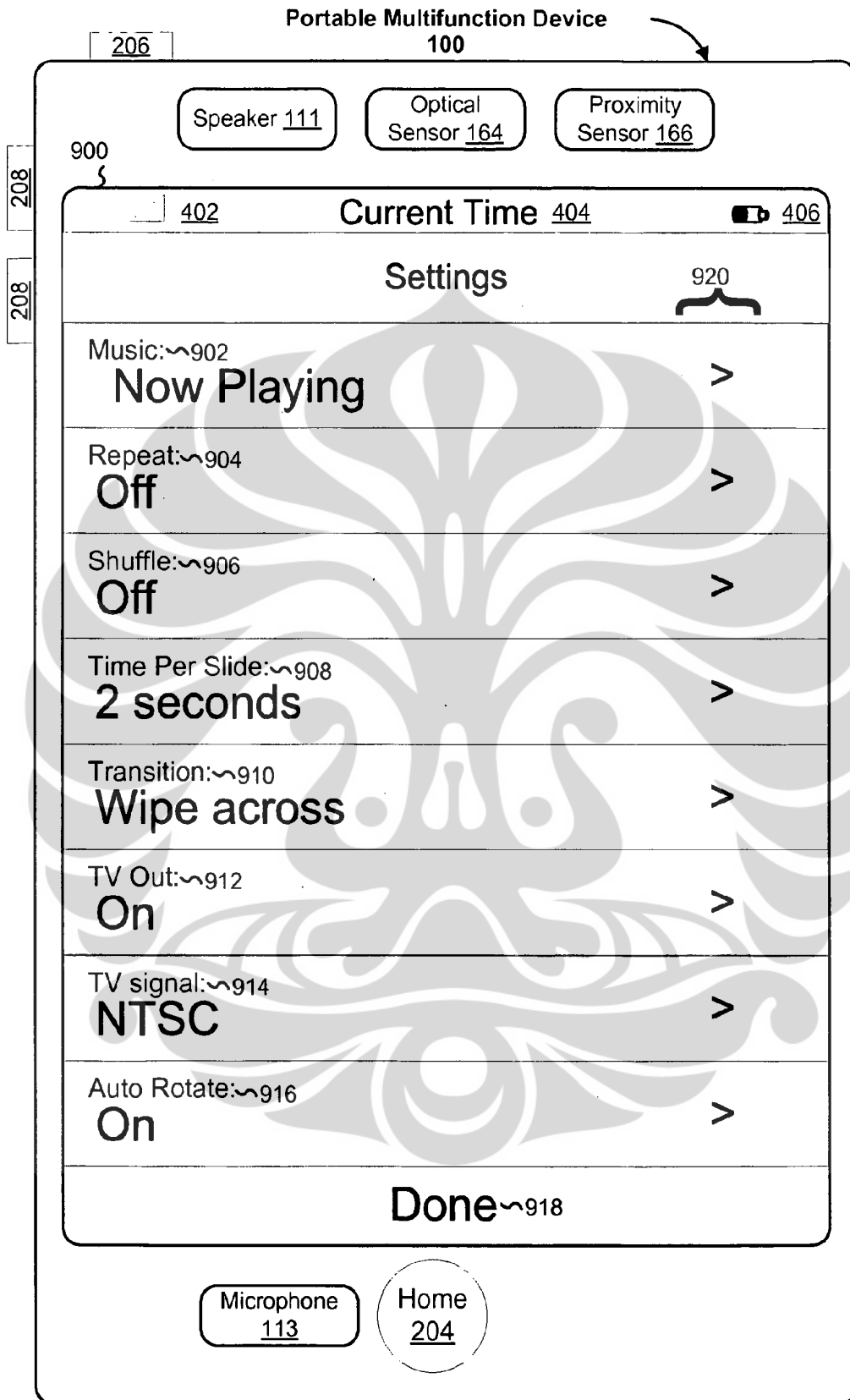


Figure 9

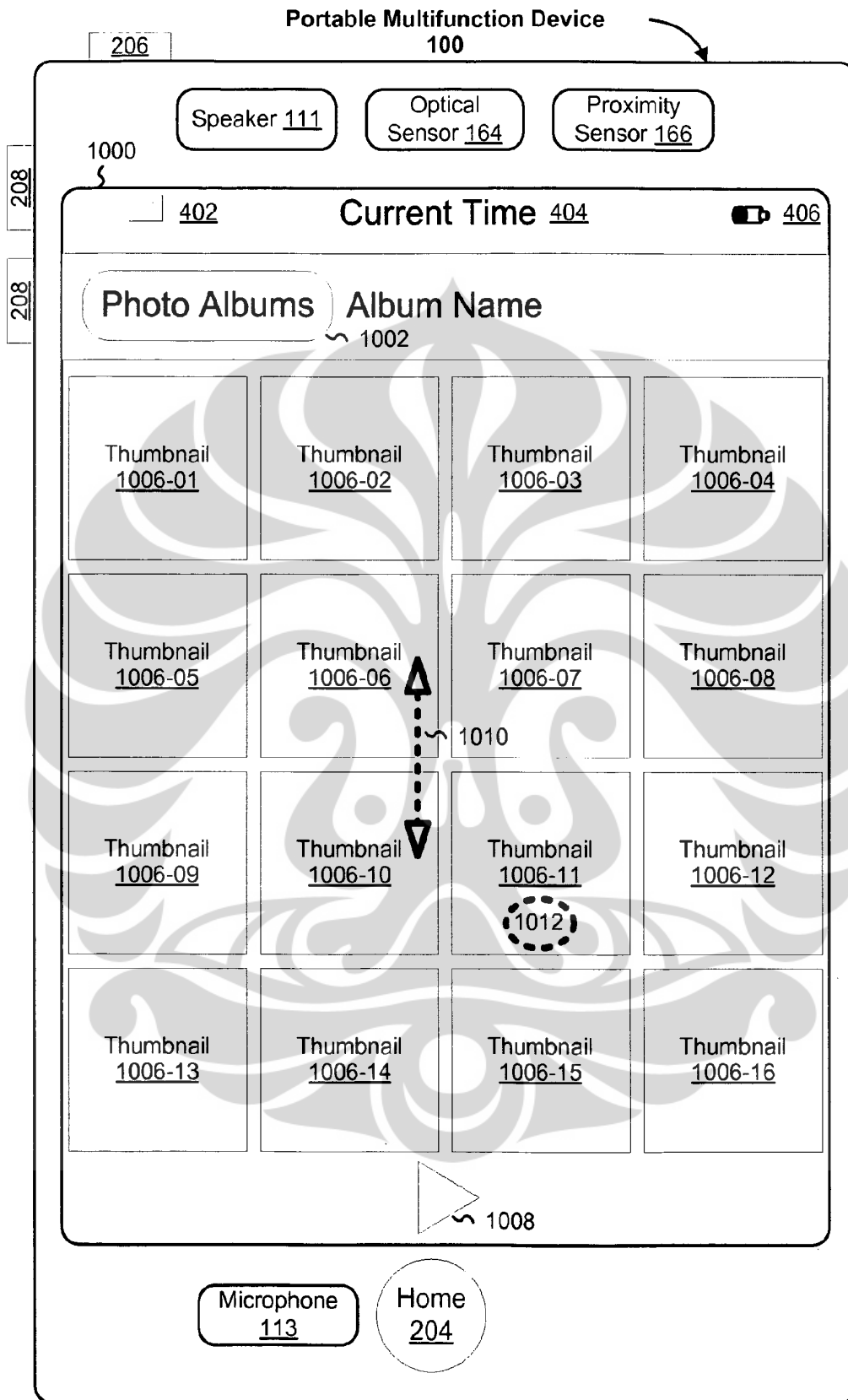


Figure 10

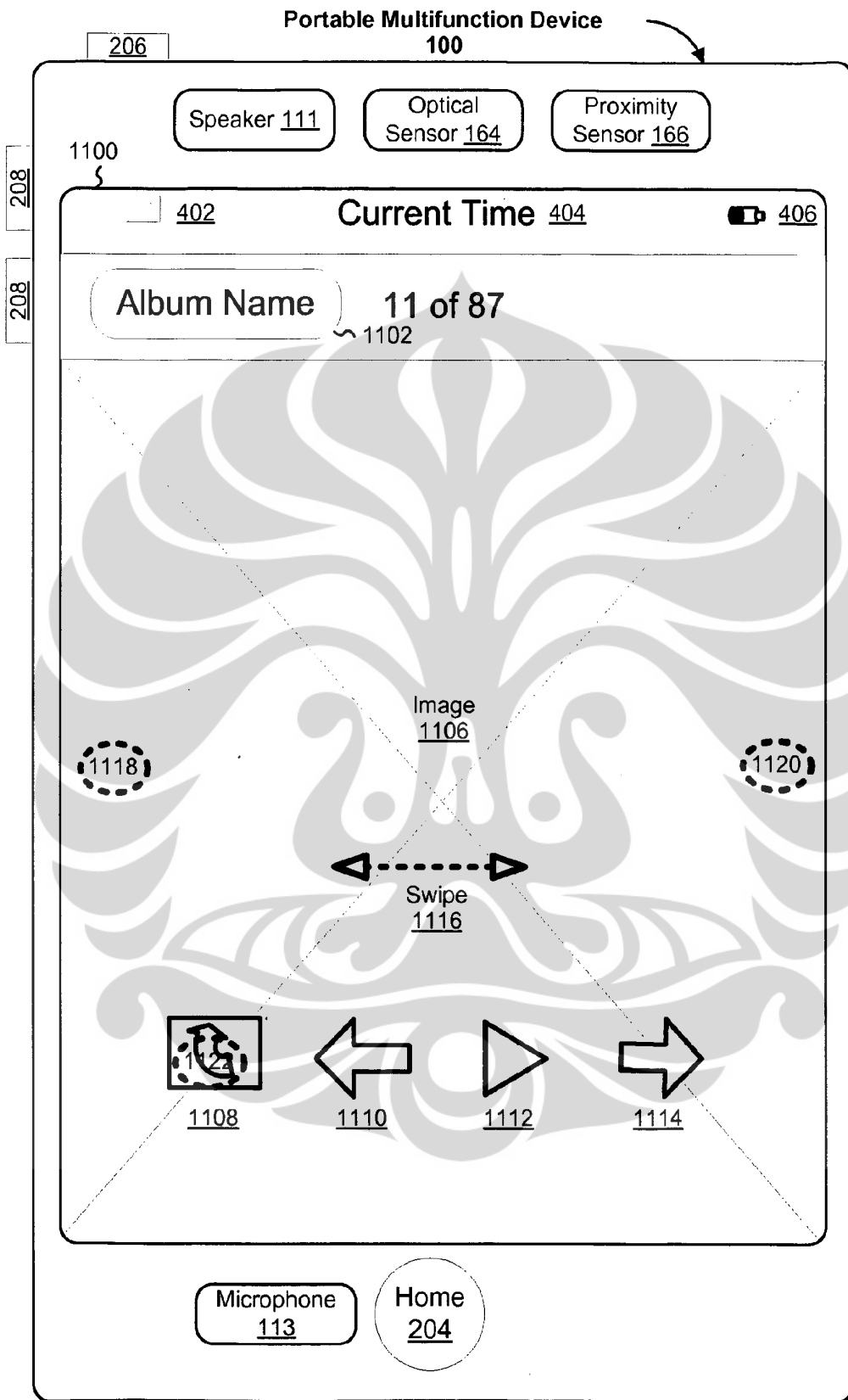


Figure 11

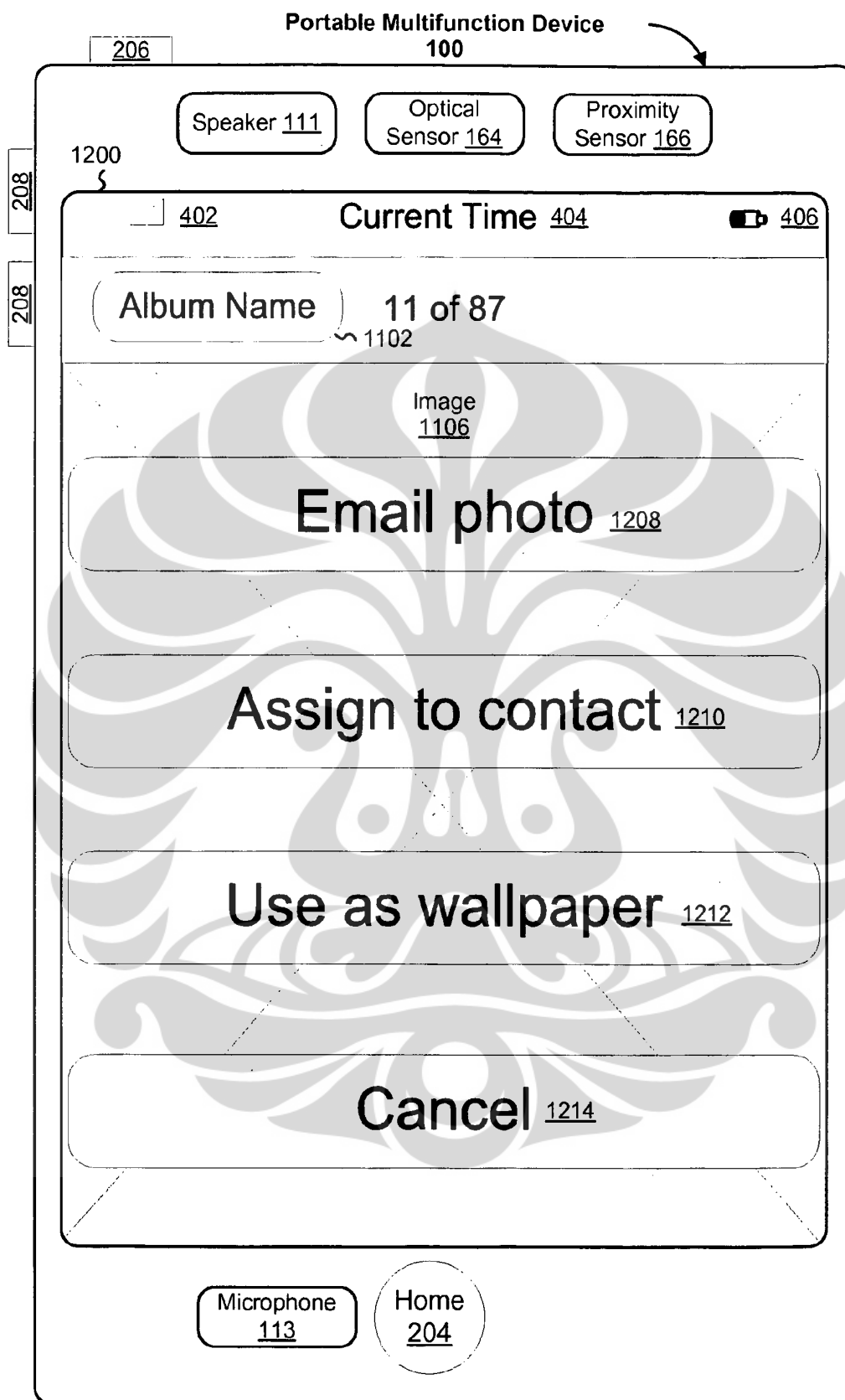


Figure 12



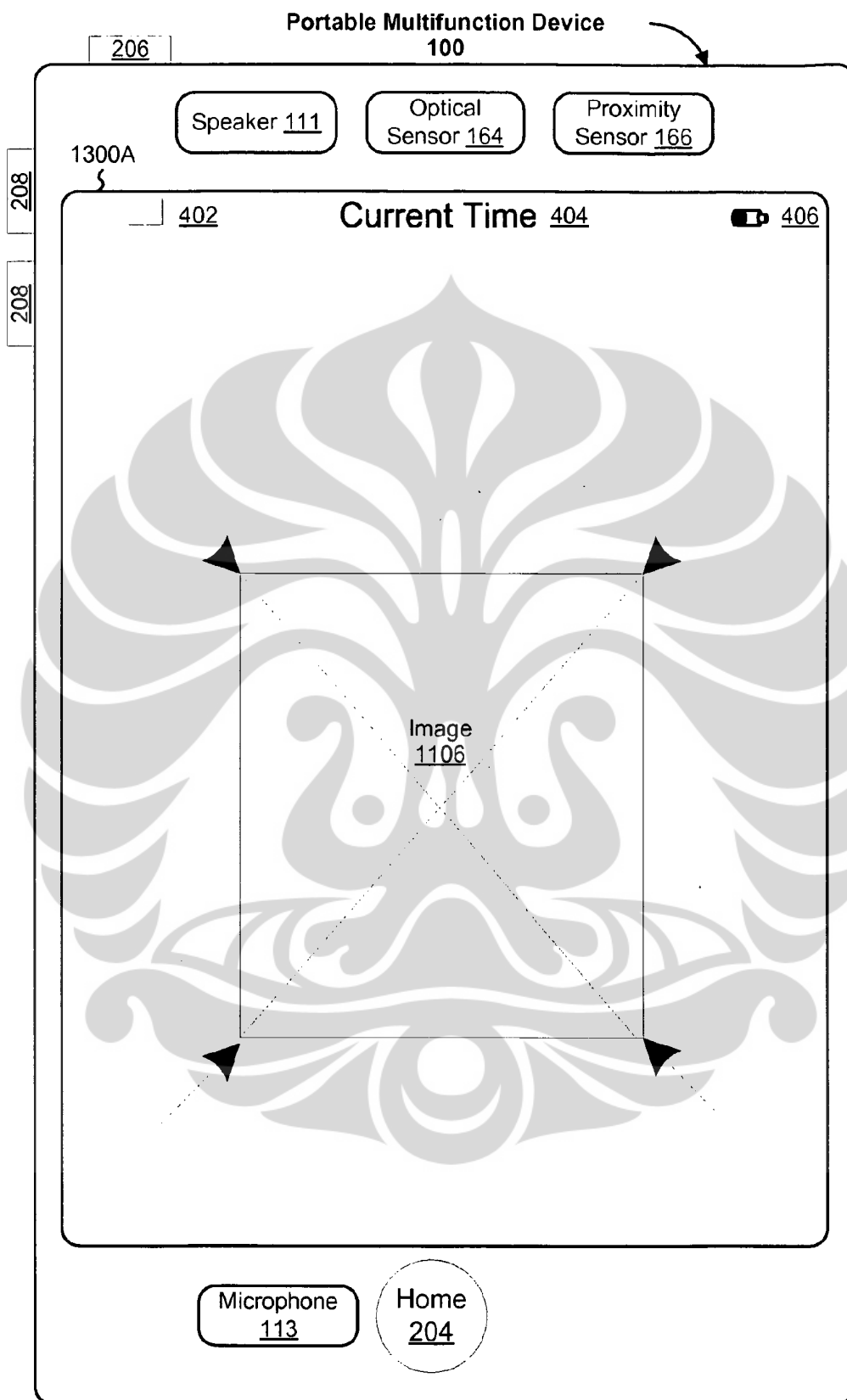


Figure 13A

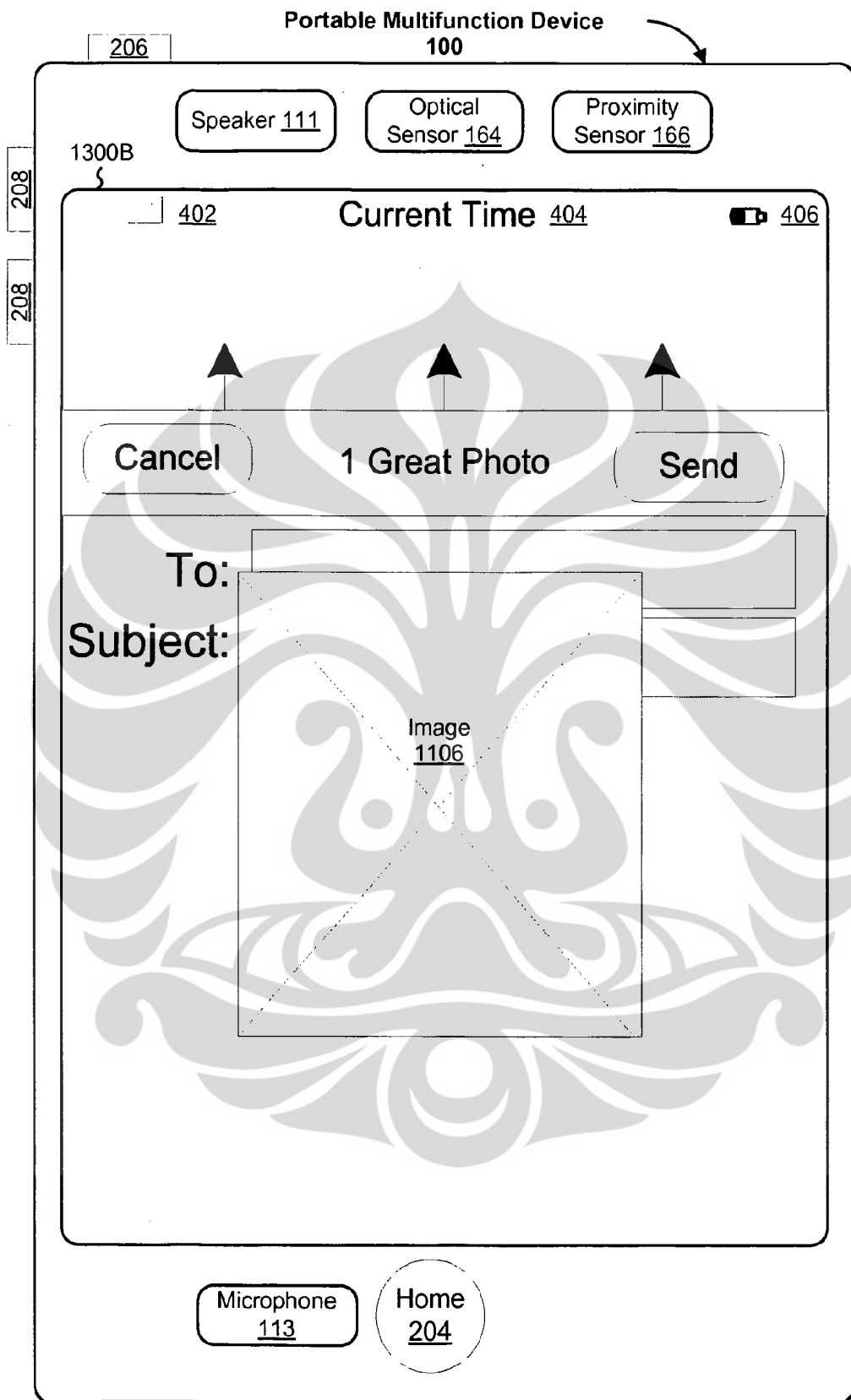


Figure 13B

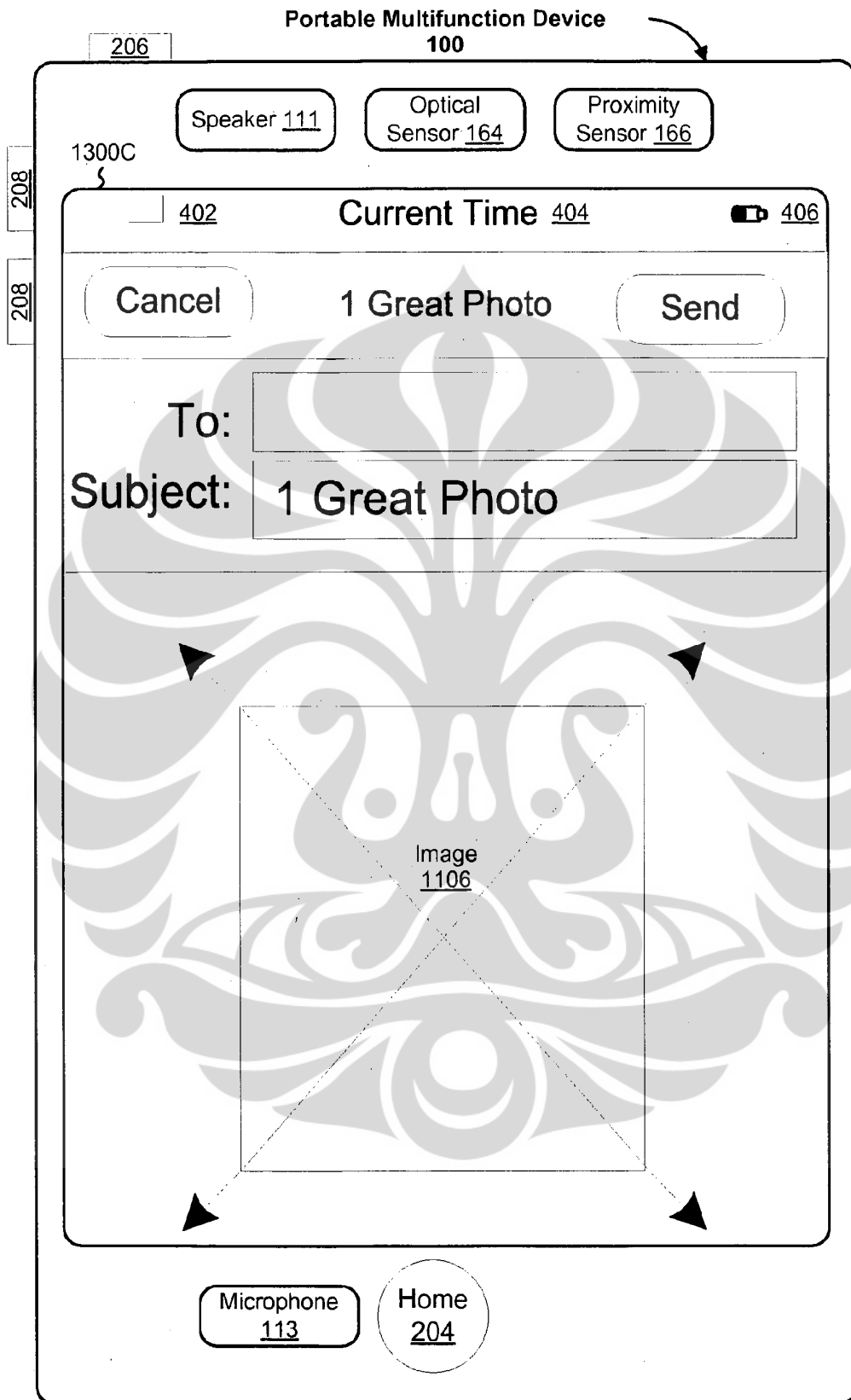


Figure 13C

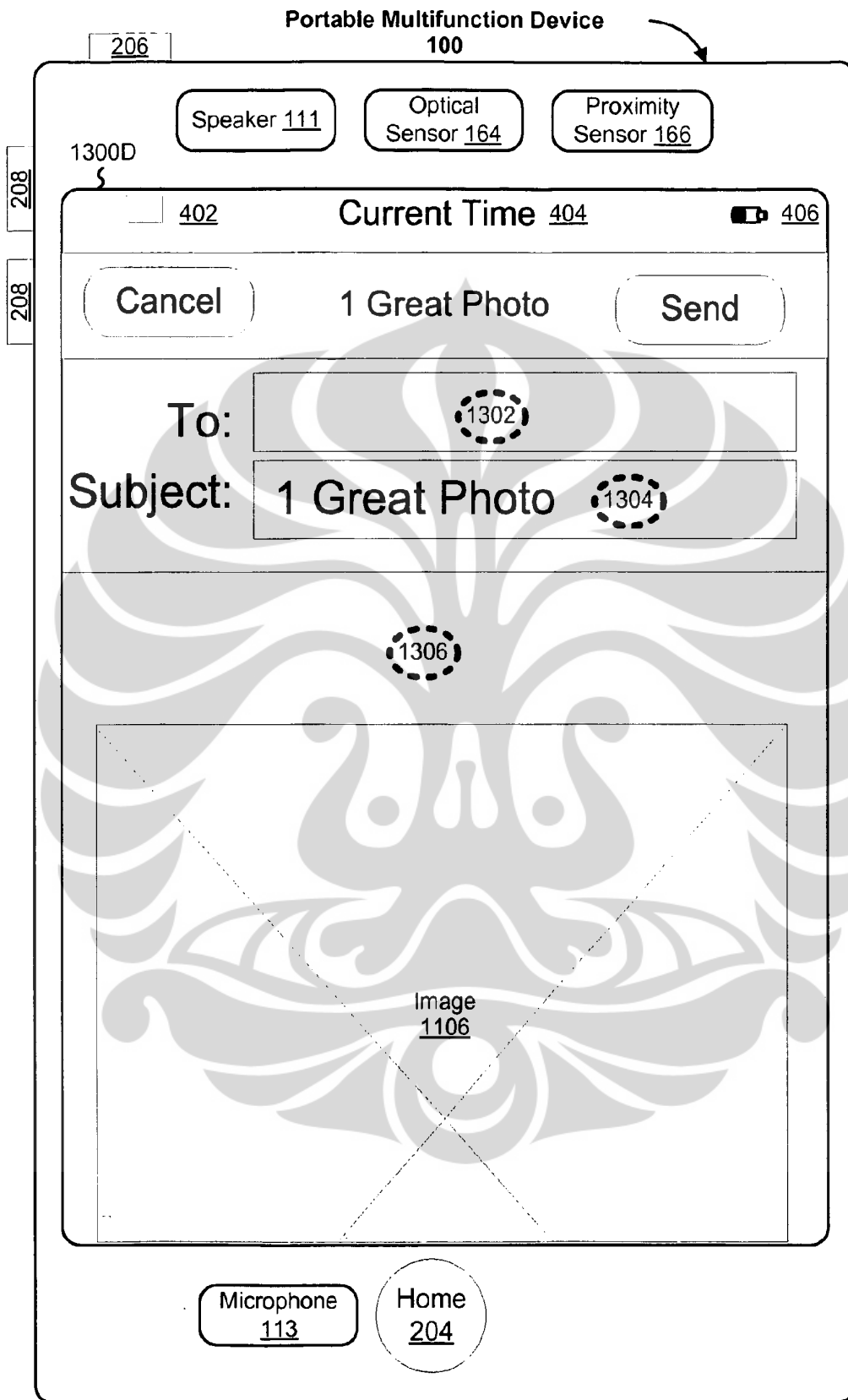


Figure 13D

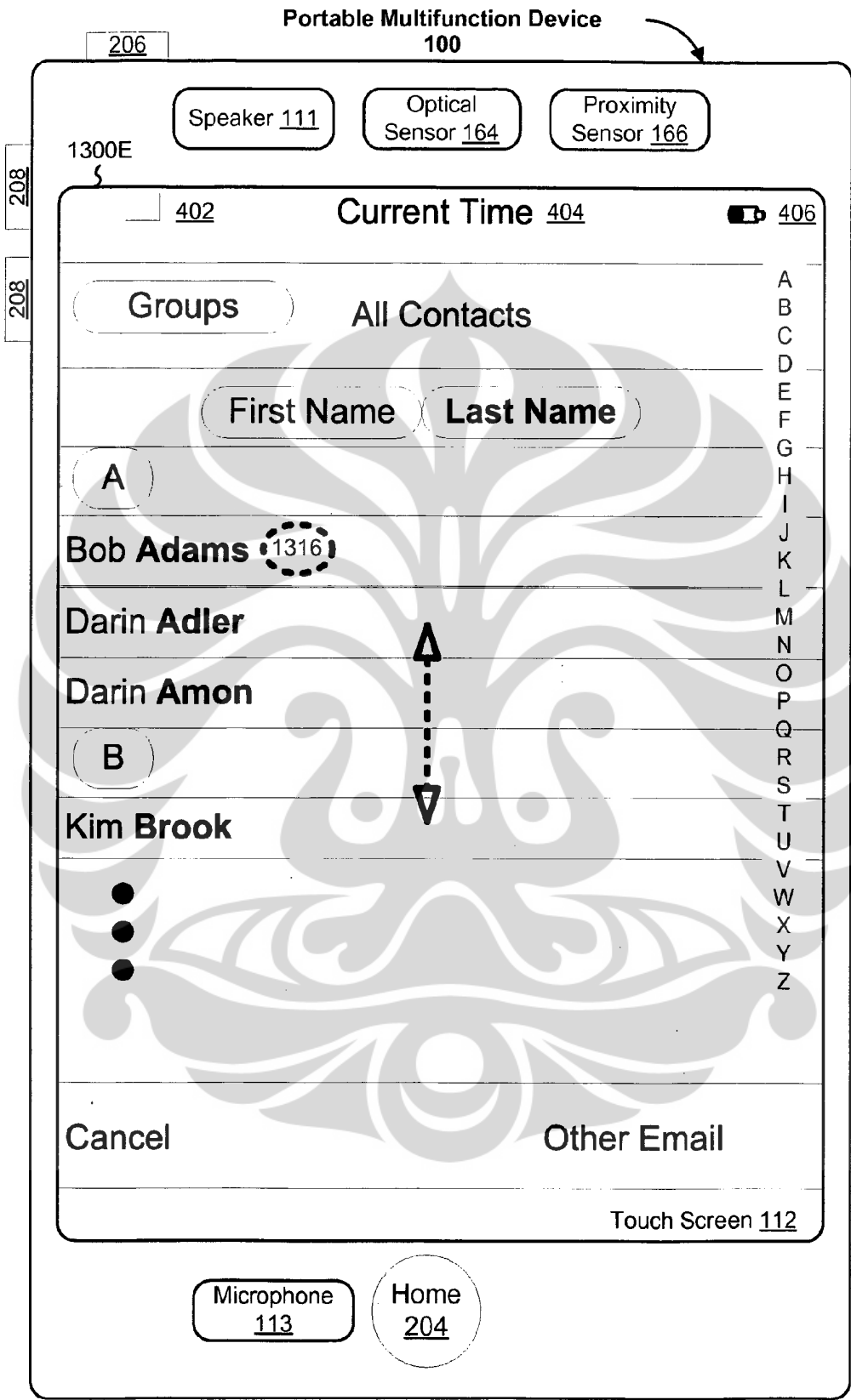


Figure 13E

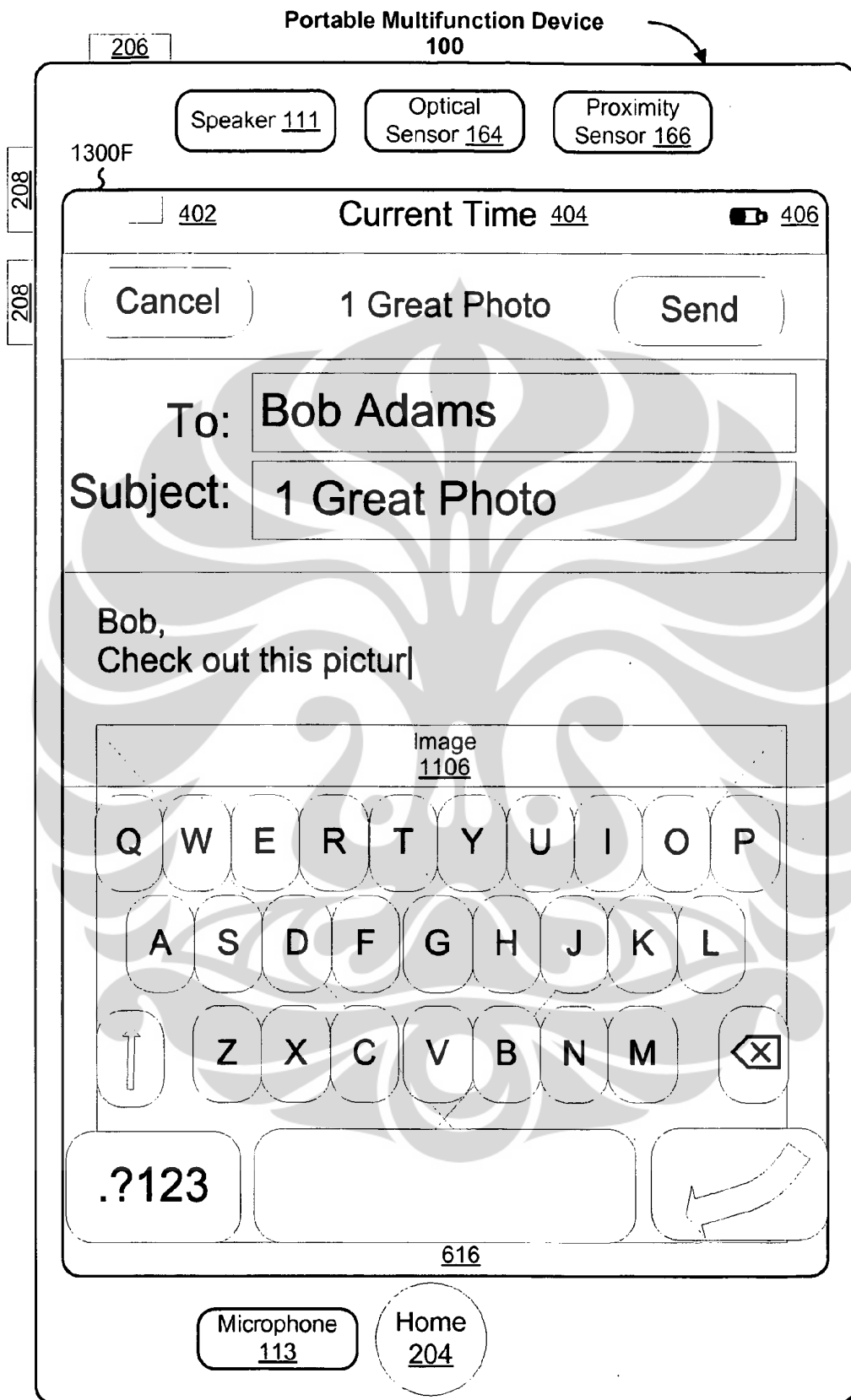


Figure 13F

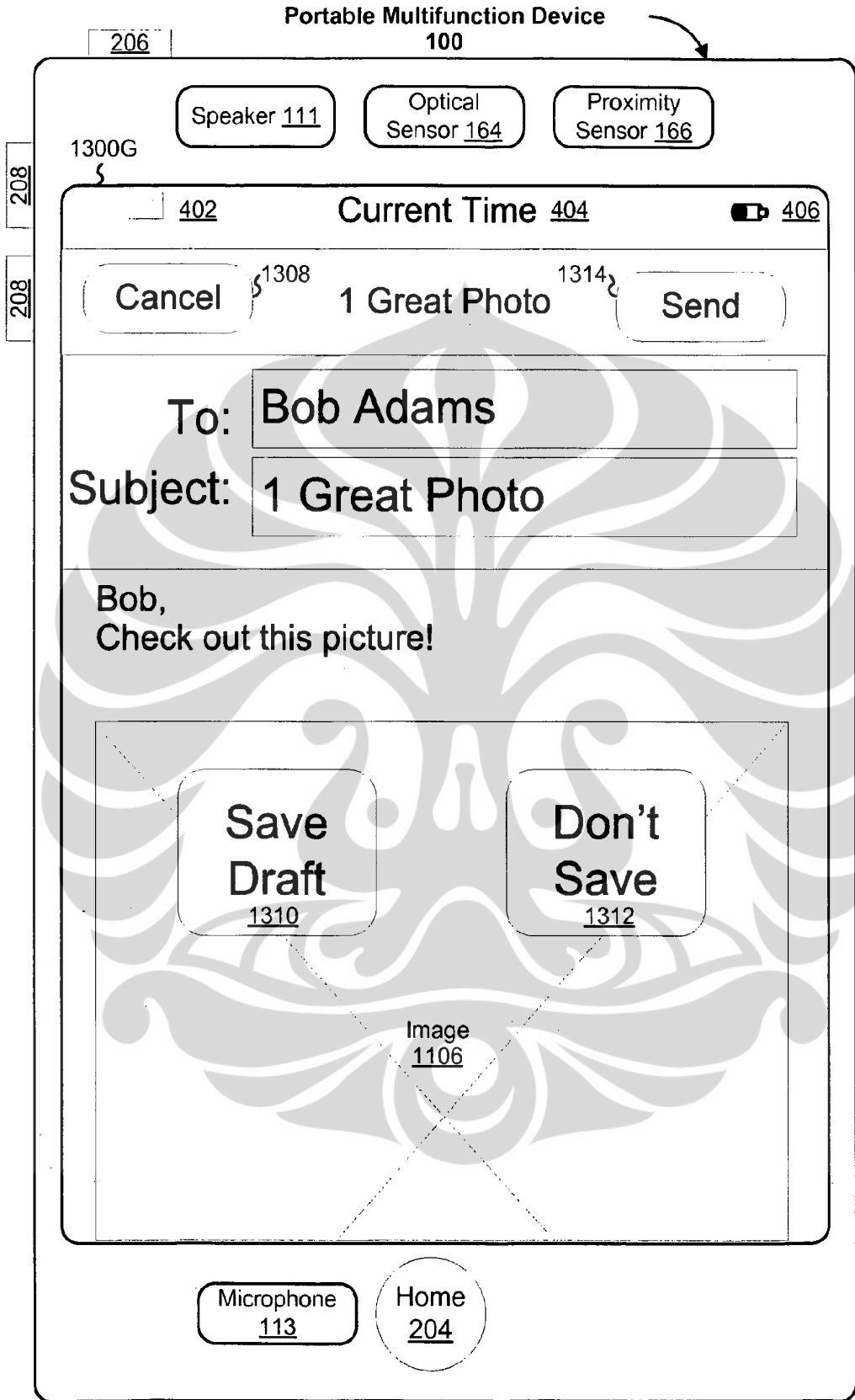


Figure 13G

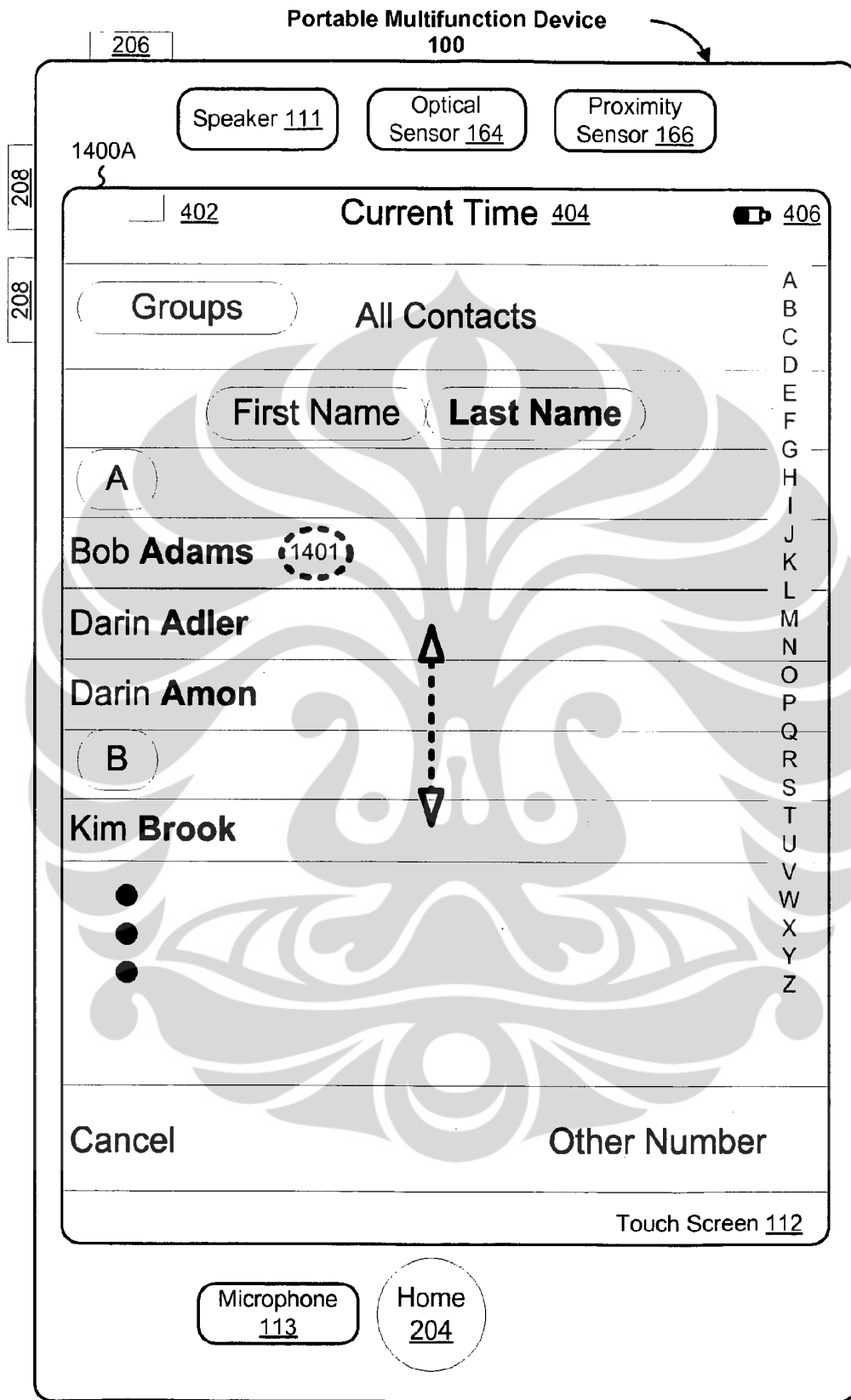


Figure 14A



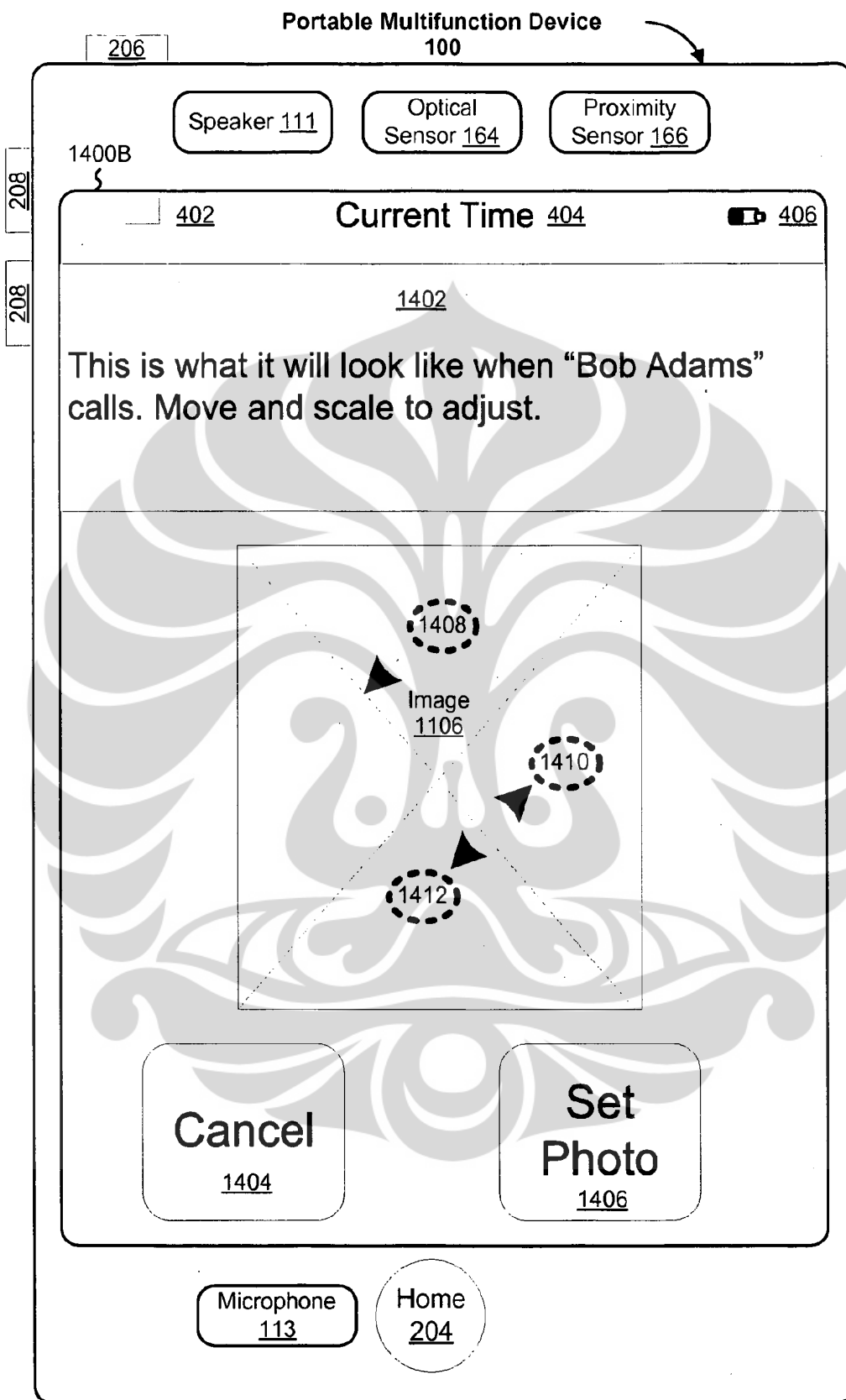


Figure 14B

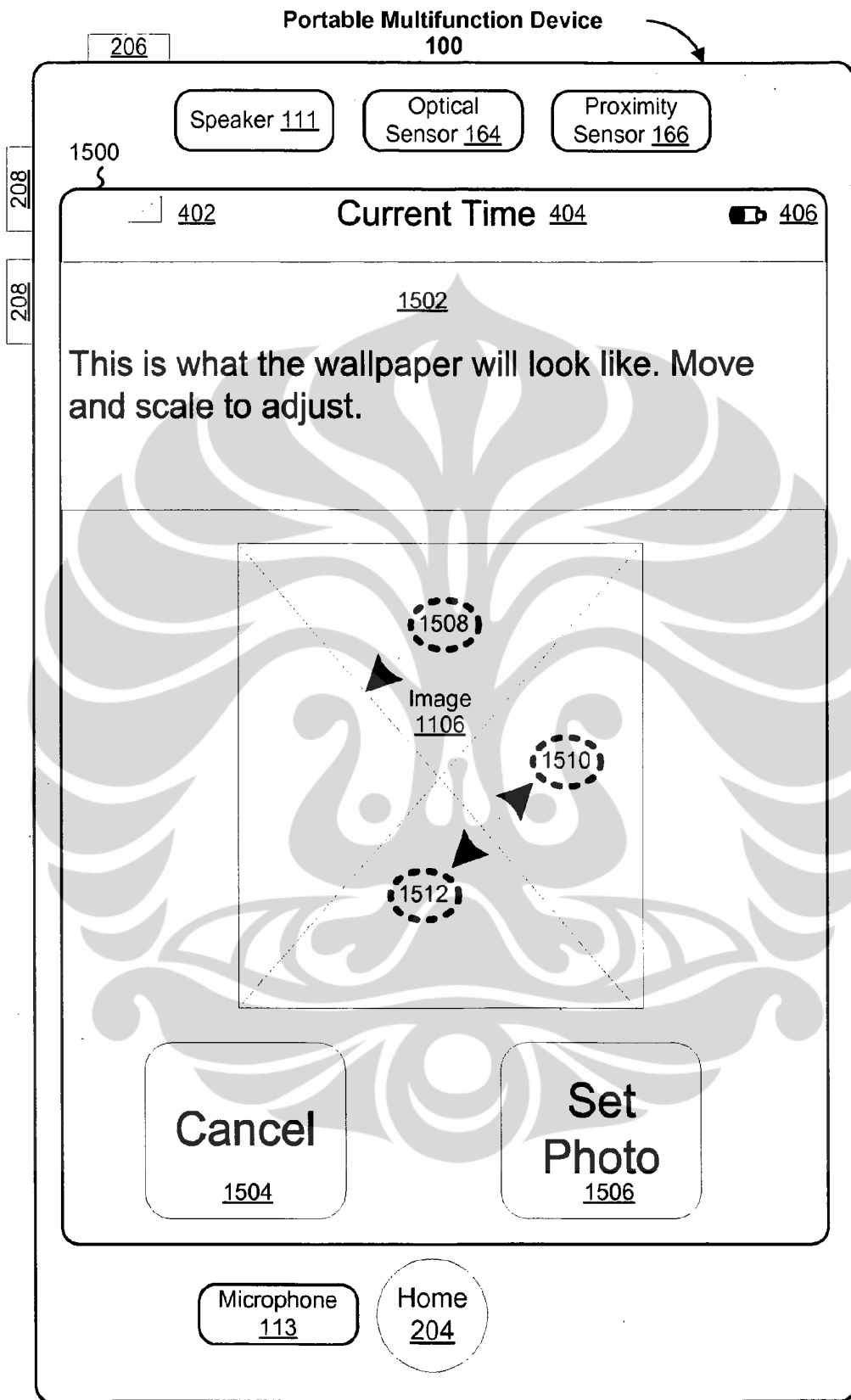


Figure 15

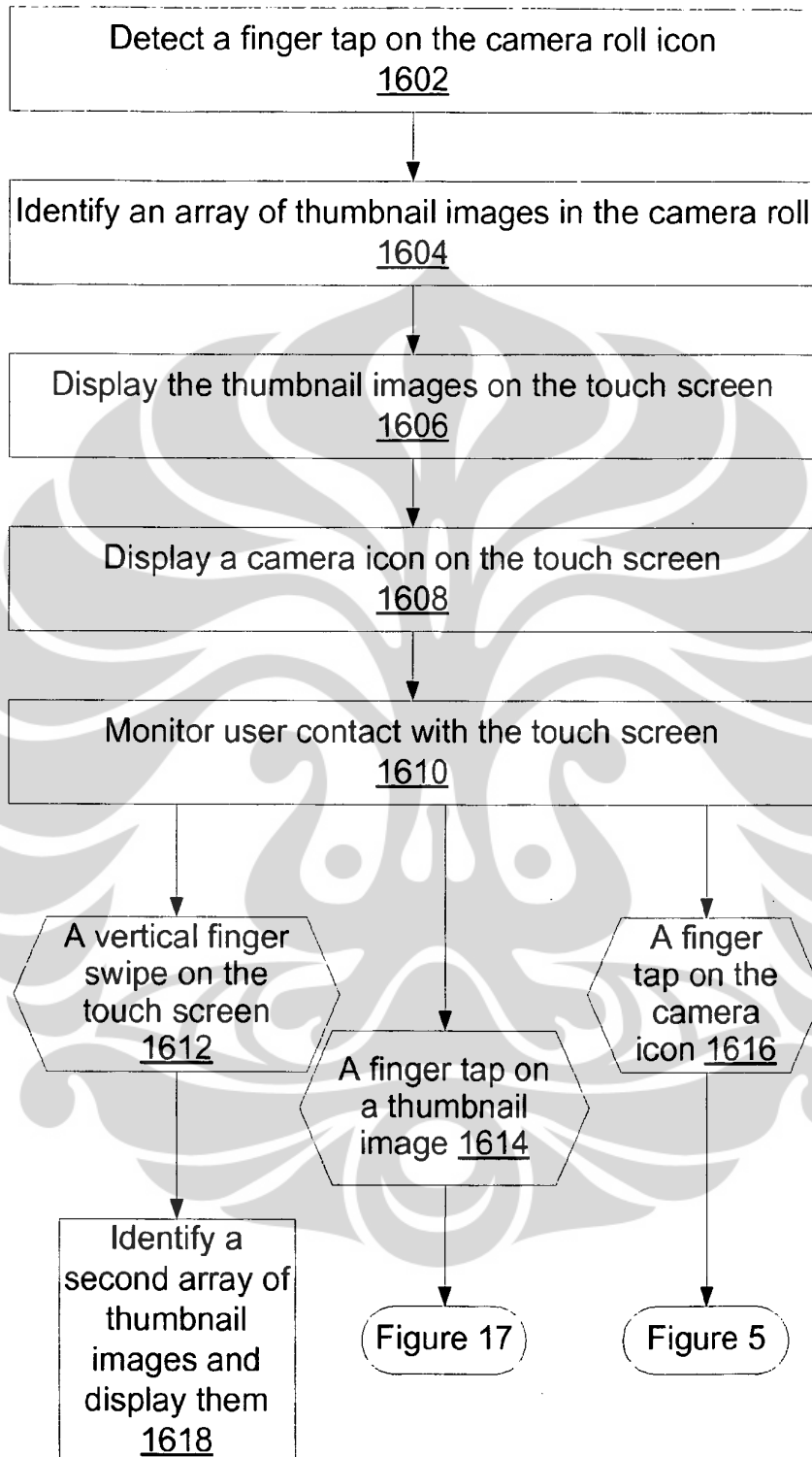


Figure 16

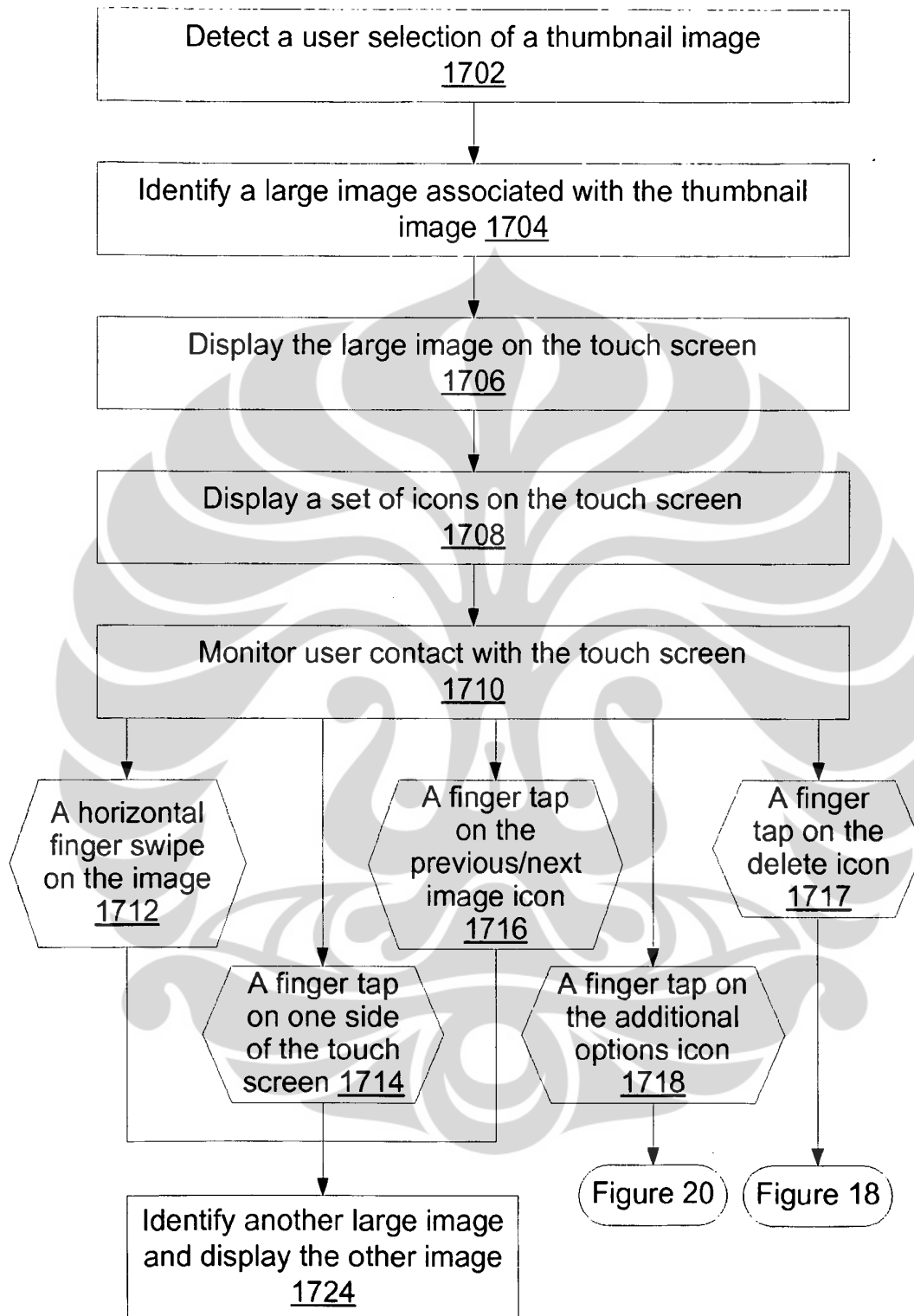


Figure 17

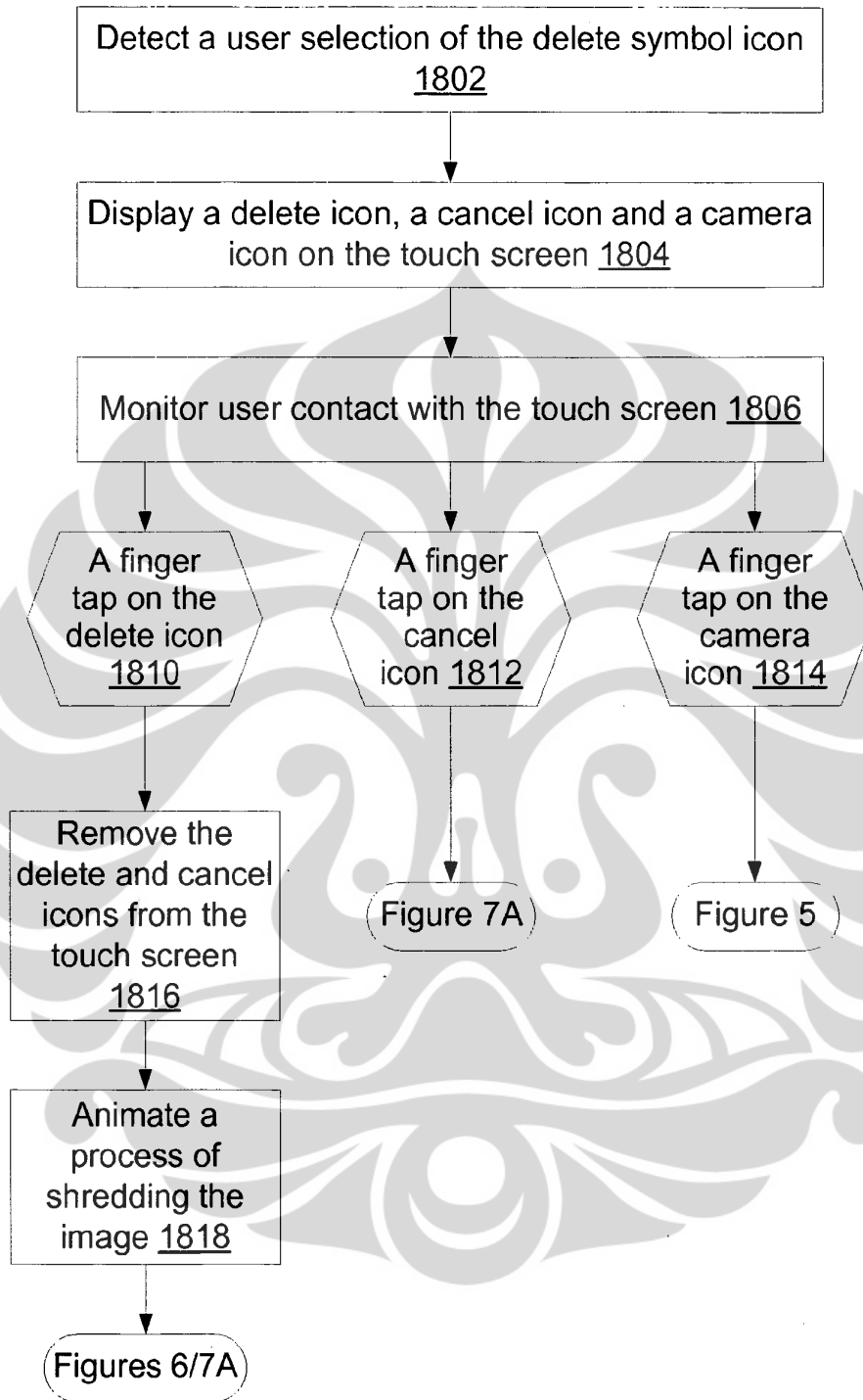


Figure 18

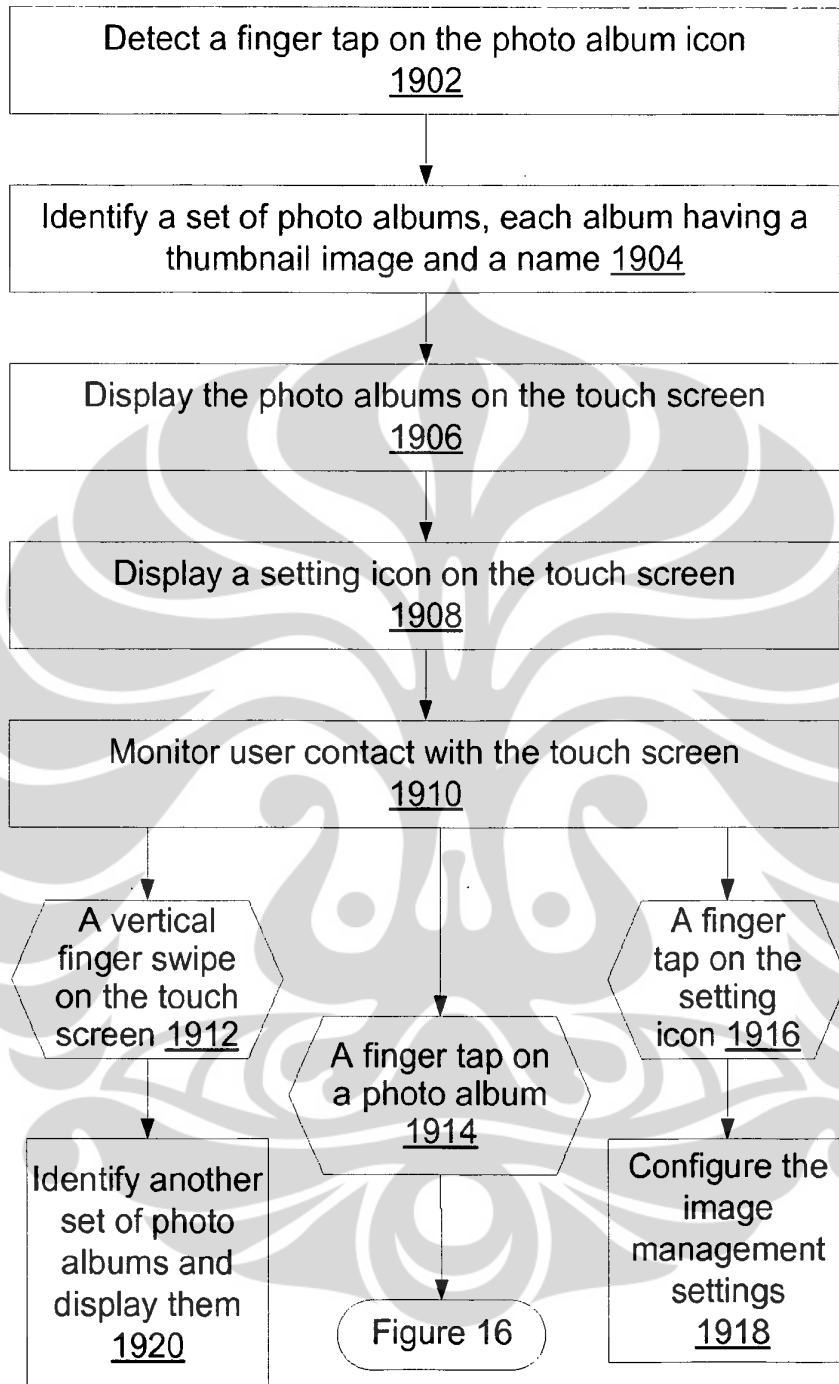


Figure 19

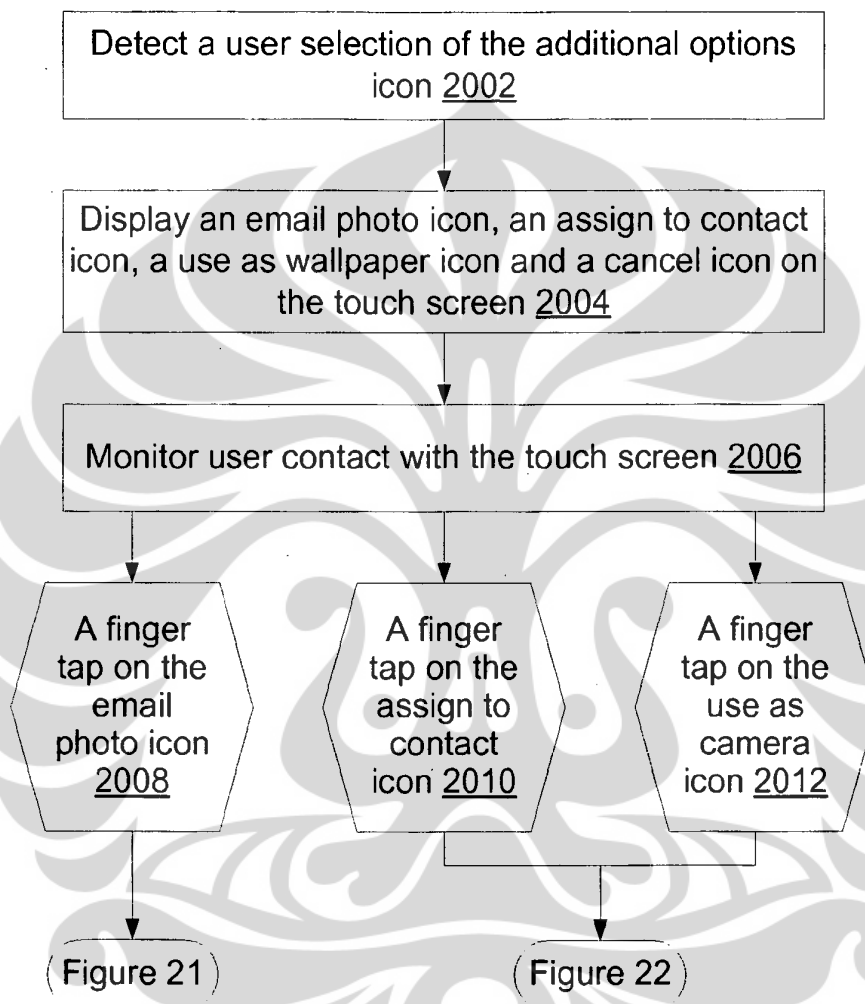


Figure 20

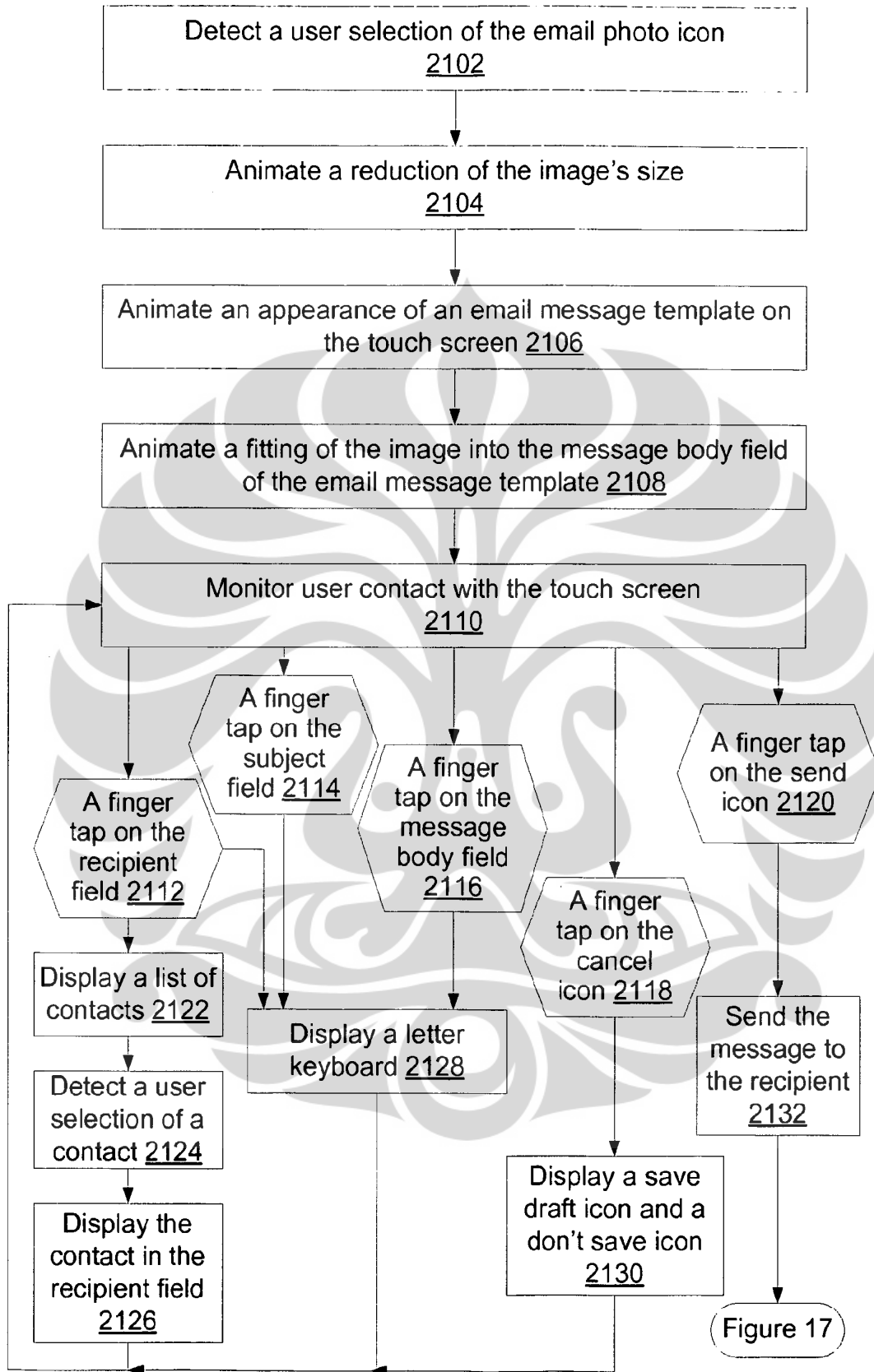


Figure 21



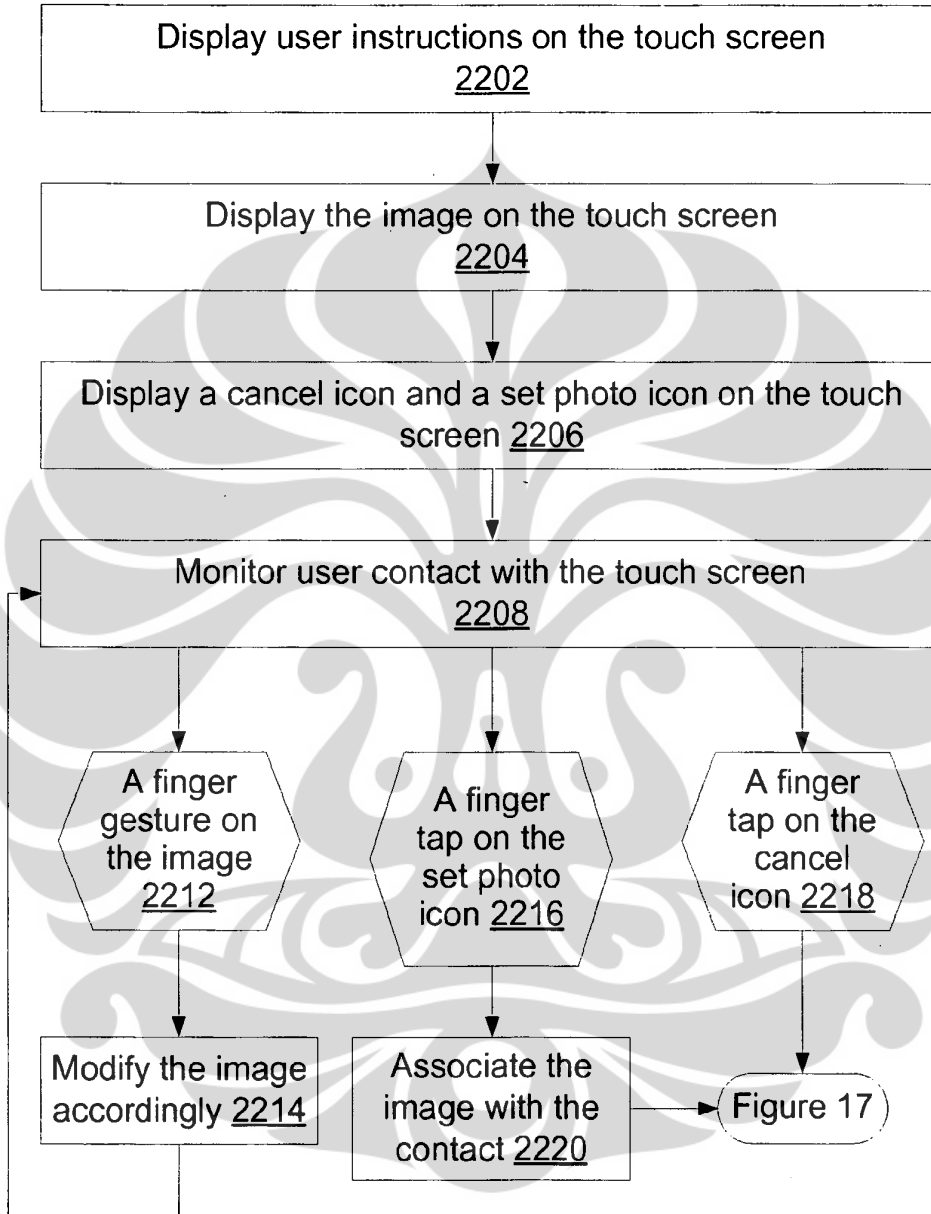


Figure 22

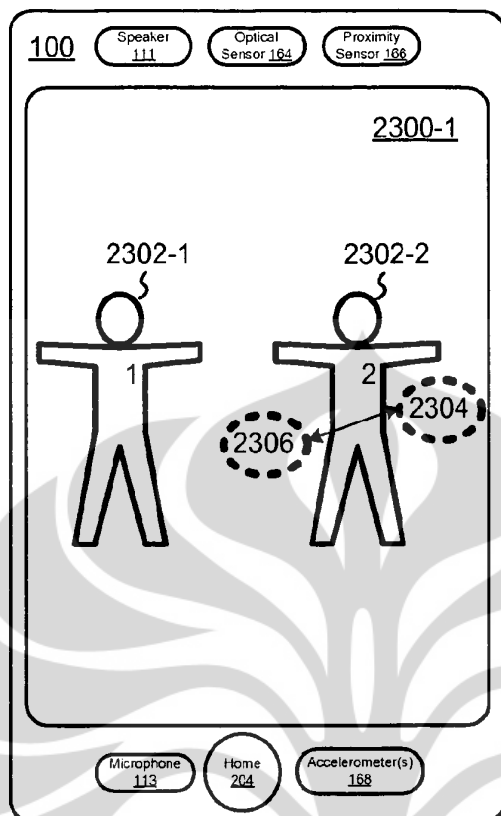


Figure 23A

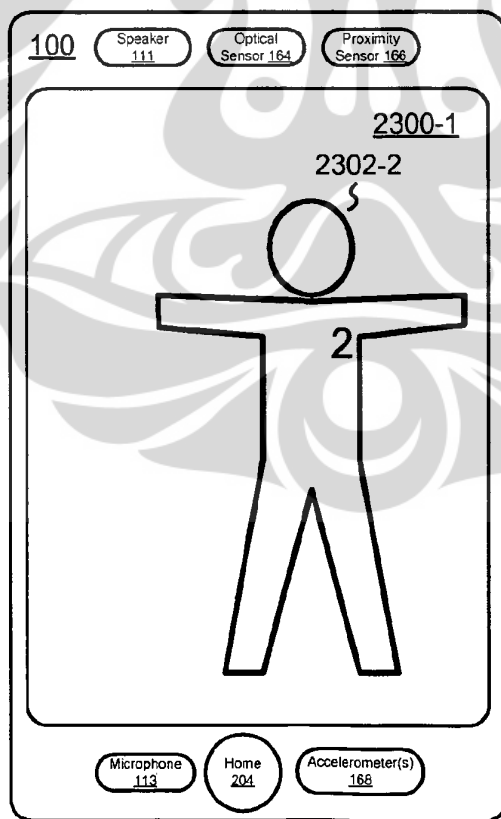


Figure 23B

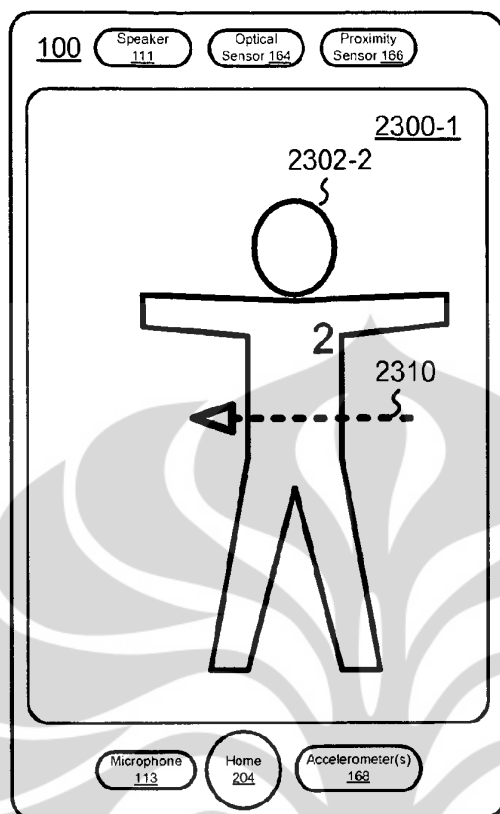


Figure 23C

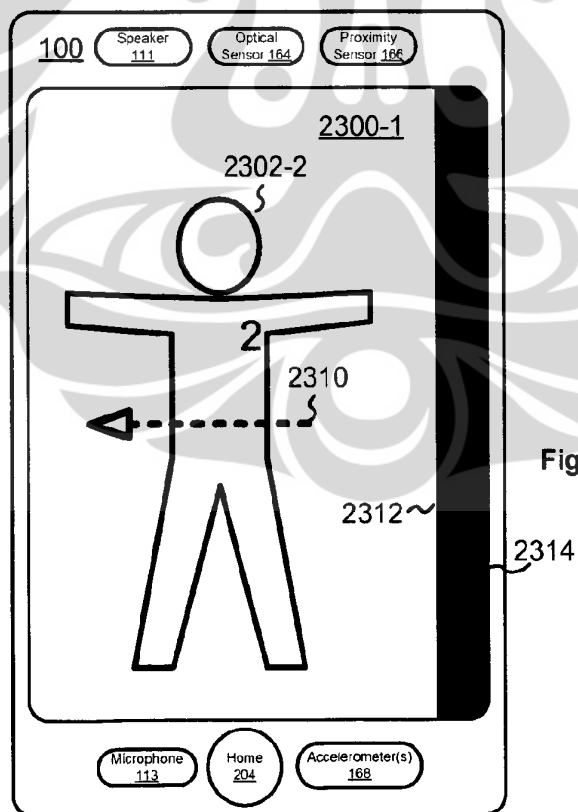


Figure 23D

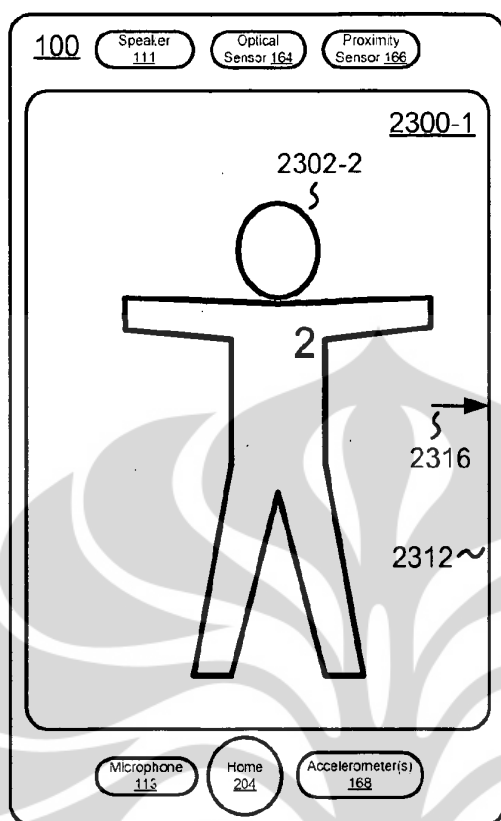


Figure 23E

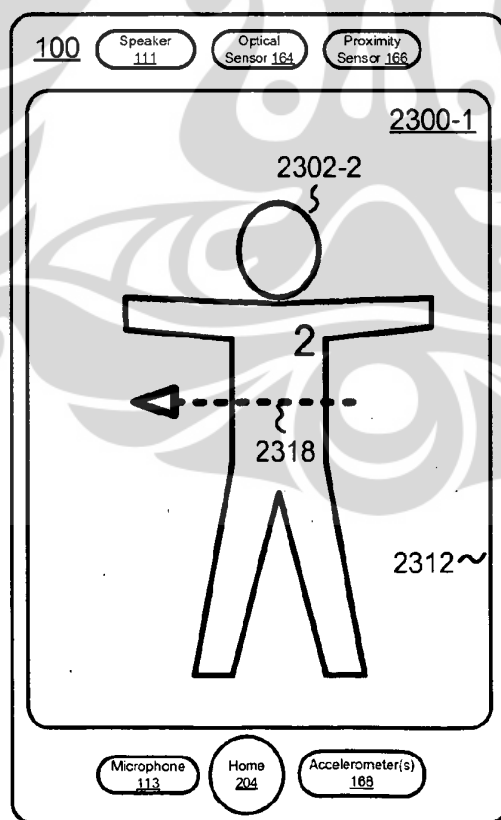


Figure 23F

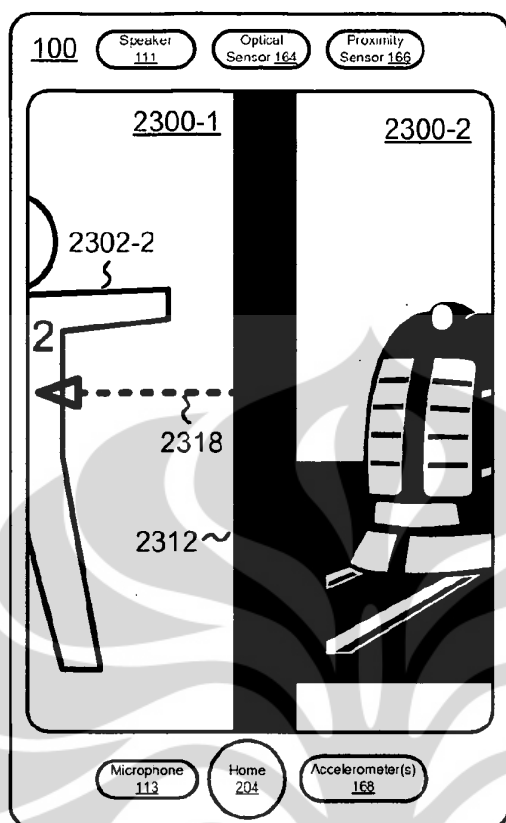


Figure 23G

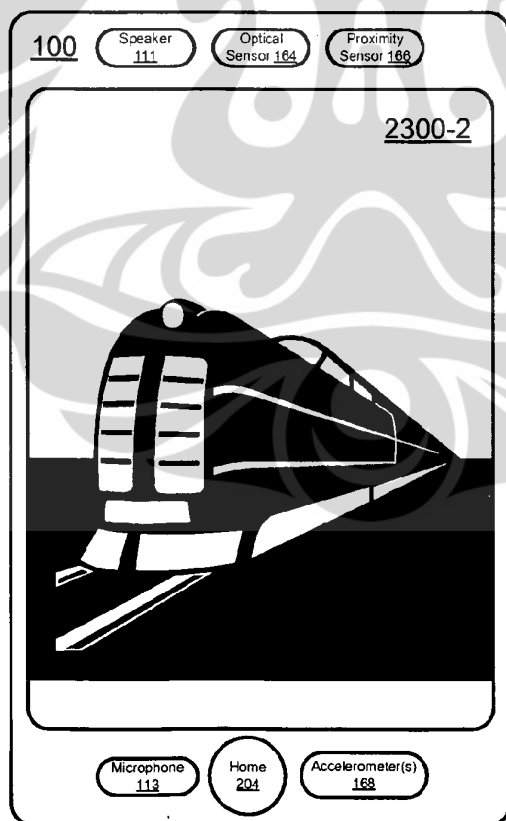
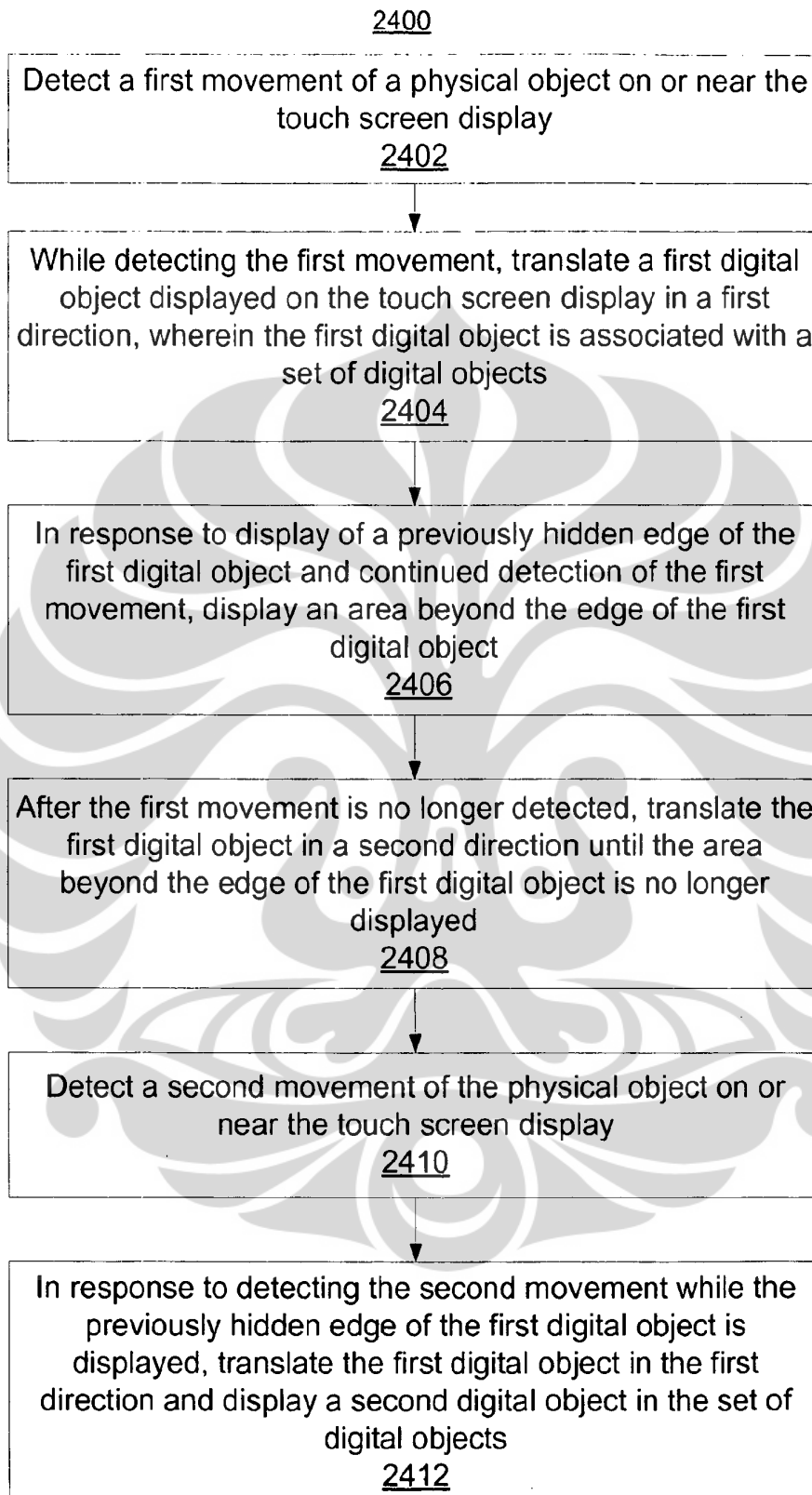


Figure 23H



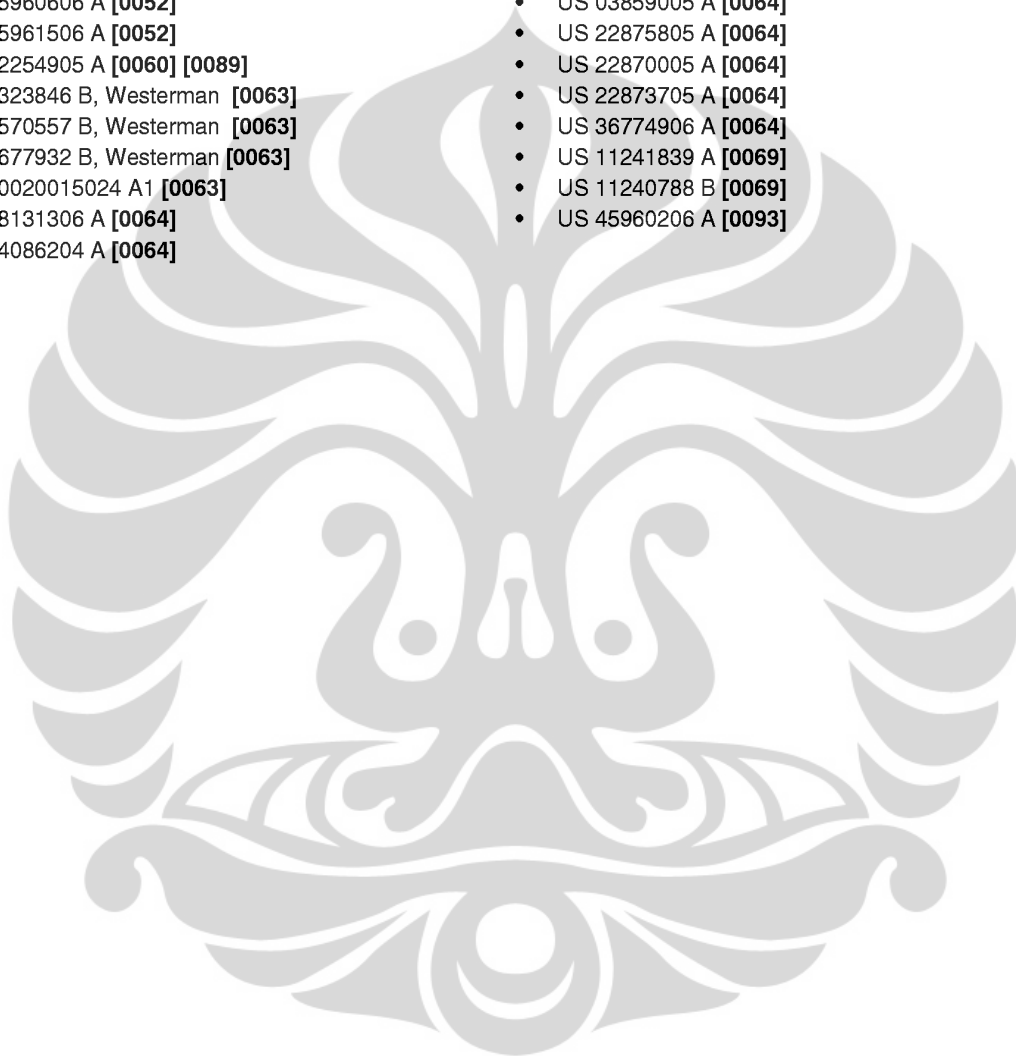
**Figure 24**

REFERENCES CITED IN THE DESCRIPTION

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(54) **Touch event model**

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Modèle à événement tactile

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**81679 München (DE)**

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Remarks:

The file contains technical information submitted after the application was filed and not included in this specification

**EP 2 098 948 B1**

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**Description****Field of the Invention**

5 [0001] This relates to multi-point and multi-touch enabled devices in general, and more specifically to recognizing single and multiple point and touch events in multi-point and multi-touch enabled devices.

**Background of the Invention**

10 [0002] Multi-touch enabled devices are known in the art. A multi-touch enabled device is a device that can sense multiple touches at the same time. Thus, a multi-touch enabled device can, for example, sense two touch events that take place simultaneously at two different positions on a multi-touch panel and are caused by two fingers being pressed down on the panel. Examples of multi-touch enabled devices are discussed in U.S. Pat. Application No. 11/649,998, entitled "PROXIMITY AND MULTI-TOUCH SENSOR DETECTION AND DEMODULATION," filed on January 3, 2007  
15 (corresponding to WO-A-2008-085418). Multi-point enabled devices define a more general set of devices that include multi-touch enabled devices as well as similar devices such as the multi-proximity sensor devices discussed in U.S. Pat. Application No. 11/649,998 mentioned above.

[0003] While the benefits of multi-touch enabled interfaces are known, these devices can present some interface design challenges. Existing interface design conventions have assumed a single pointing user input device that specifies a single location at a time. Examples include a mouse or a touch pad.  
20

[0004] More specifically, many existing graphical user interface (GUI) systems provide user interfaces in which various portions of a display are associated with separate software elements. Thus, for example, portions of a display can be associated with a window, and the window can be associated with a specific software application and/or process. A mouse can be used to interact with the window and the application or process associated with that window. The mouse cursor can then be moved to another window to interact with another application or process. Because only a single pointing device is used, interaction with only a single window and application or process can occur at a time.  
25

[0005] The assumption of a single interaction with a window at any one time can greatly simplify user interface design. The application and/or process running within a window can operate under the assumption that a detected interaction with that particular window is the only input being received. Thus, the application and/or process need not concern itself with the possibility of other user interactions occurring in other portions of the display outside that window. Furthermore, a window can be additionally partitioned into various elements, wherein each element is associated with a specific portion of the window. Each element can be implemented by a separate software element (e.g., a software object). Again, each software object can process interactions that occur in its associated area without concerning itself with interactions that may be simultaneously occurring elsewhere.  
30

[0006] On the other hand, if a multi-touch interface is being used, two or more touch events can simultaneously occur at different portions of the display. This can make it difficult to split the display into different portions and have different independent software elements process interactions associated with each portion. Furthermore, even if the display is split up into different portions, multiple touch events can occur in a single portion. Therefore, a single application, process or other software element may need to process multiple simultaneous touch events. However, if each application, process or other software element needs to consider multiple touch interactions, then the overall cost and complexity of software running at the multi-touch enabled device may be undesirably high. More specifically, each application may need to process large amounts of incoming touch data. This can require high complexity in applications of seemingly simple functionality, and can make programming for a multi-touch enabled device generally difficult and expensive. Also, existing software that assumes a single pointing device can be very difficult to convert or port to a version that can operate on a multi-point or a multi-touch enabled device.  
35  
40  
45

[0007] US 2006/0097991 A1 discloses a touch panel having a transparent capacitive sensing medium configured to detect multiple touches or near touches that occur at the same time and at distinct locations in the plane of the touch panel and to produce distinct signals representative of the location of the touches on the plane of the touch panel for each of the multiple touches.  
50

**Summary of the Invention**

[0008] Embodiments of the present invention are directed to methods, software, devices and APIs for defining touch events for application level software. Furthermore, some embodiments are directed to simplifying the recognition of single and multiple touch events for applications running in multi-touch enabled devices. To simplify the recognition of single and multiple touch events, each view within a particular window can be configured as either a multi-touch view or a single touch view. Furthermore, each view can be configured as either an exclusive or a non-exclusive view. Depending on the configuration of a view, touch events in that and other views can be either ignored or recognized.

Ignored touches need not be sent to the application. Selectively ignoring touches can allow for simpler applications or software elements that do not take advantage of advanced multi touch features to be executed at the same device (and even at the same time) as more complex applications or software elements.

## 5 Brief Description of the Drawings

### [0009]

10 Fig. 1 is a diagram of an input/output processing stack of an exemplary multi-touch capable device according to one embodiment of this invention.

Figs. 2A is a diagram of an exemplary multi-touch enabled device according to one embodiment of this invention.

15 Figs. 2B is a diagram of another exemplary multi-touch enabled device according to one embodiment of this invention.

Fig. 3 is a diagram of an exemplary multi-touch display according to one embodiment of this invention.

20 Fig. 4 is a flow chart showing an exemplary method of operation of the multi-touch flag according to one embodiment of this invention.

Figs. 5A and 5B are flowcharts showing an exemplary method of operation of the exclusive touch flag according to one embodiment of this invention.

## 25 Detailed Description of the Preferred Embodiment

[0010] In the following description of preferred embodiments, reference is made to the accompanying drawings which form a part hereof, and in which it is shown by way of illustration specific embodiments in which the invention may be practiced. It is to be understood that other embodiments may be utilized and structural changes may be made without departing from the scope of the preferred embodiments of the present invention.

30 [0011] This relates to a touch event model that simplifies the recognition of single and multiple touch events for user interface applications running in multi-point and multi-touch enabled devices. To simplify the recognition of single and multiple touch events, each view within a particular window can be configured as either a multi-touch view or a single touch view. Furthermore, each view can be configured as either an exclusive or a non-exclusive view. Depending on the configuration of a view, touch events in that and other views can be either ignored or recognized.

35 [0012] Although embodiments of the present invention may be described and illustrated herein in terms of specific multi-touch capable devices, it should be understood that embodiments of the present invention are not limited to such devices, but is generally applicable to any multi-touch capable device. Furthermore, embodiments of the invention are not limited to multi-touch devices but also include multi-point devices, such as multi proximity sensor devices as discussed in U.S. Application No. 11/649,998, mentioned above.

40 [0013] Some embodiments are related to APIs. In general, an API is a source code interface that a computer system provides in order to support requests for services from a software operation. An API is specified in terms of a program language that can be interpreted or compiled when a system is built, rather than an explicit low level description of how data is laid out in memory. The software that provides the functionality of an API is said to be an implementation of the API. Various devices such as computer systems, electronic devices, portable devices and handheld devices have software applications. The device interfaces between the software applications and user interface software to provide a user of the device with certain features and operations.

45 [0014] At least some embodiments of the invention can include one or more APIs in an environment with user interface software interacting with a software application. Various function calls or messages are transferred via the APIs between the user interface software and the software applications. Transferring the function calls or messages may include issuing, initiating, invoking or receiving the function calls or messages. Example APIs can include sending touch event information. An API may also implement functions having parameters, variables or pointers. An API may receive parameters as disclosed or other combinations of parameters. In addition to the APIs disclosed, other APIs individually or in combination can perform similar functionality as the disclosed APIs.

50 [0015] FIG. 1 is a diagram of an input/output processing stack of an exemplary multi-touch capable device according to some embodiments of the invention. Hardware 100 can be provided at the base level of a multi-touch enabled device. It can include various hardware interface components, such as a multi-touch enabled panel 101 and/or an accelerometer 102. The multi-touch panel can include a display and a panel that senses multiple touches simultaneously. An example of such a panel is discussed in more detail in the 11/649,998 application mentioned above. The accelerometer can be

a hardware device that senses acceleration of the multi-touch enabled device. It can be used to sense when the device is being moved, how it is being moved, if it is dropped, etc. Other hardware interface devices, such as gyroscopes, speakers, buttons, infrared (IR) sensors, etc. (not shown) can also be included.

5 [0016] A driver or a set of drivers 103 can communicate with the hardware 100. The drivers can receive and process input data from received from the hardware. A core Operating System (OS) 104 can communicate with the driver(s). The core OS can process raw input data received from the driver(s). In some embodiments, the drivers can be considered to be a part of the core OS.

10 [0017] A set of OS application programming interfaces (APIs) 105 can communicate with the core OS. These APIs can be a set of APIs that are usually included with operating systems (such as, for example, Linux or UNIX APIs). User Interface APIs 106 (UI APIs) can include a set of APIs designed for use by applications running on the device. The UI APIs can utilize the OS APIs. Applications 107 running on the device can utilize the APIs of the UI APIs in order to communicate with the user. The UI APIs can, in turn, communicate with lower level elements, ultimately communicating with the multi-touch panel 101 and various other user interface hardware. While each layer can utilize the layer underneath it, that is not always required. For example, in some embodiments, applications 107 can occasionally communicate with OS APIs 105. APIs 105 and 106 can comprise respective sets of application programming interfaces as well as their respective implementations. For example UI APIs 106 can also include user interface (UI) software for implementing the UI APIs.

15 [0018] Figs. 2A and 2B are diagrams of two types of exemplary multi-touch enabled devices according to some embodiments of the invention. Fig. 2A shows exemplary device 200. Device 200 can include a CPU 201 and a memory 202 connected through a bus 204. The bus can also connect to a multi-touch display 203. The multi-touch display can include a multi-touch panel and a display. The multi-touch panel and the display can be combined to form the multi-touch display 203. The multi-touch display can correspond to the multi-touch panel 101 within hardware layer 100 of Fig. 1. The CPU can be used to execute software stored in the memory. The software executed by the CPU can include layers 103-109 of Fig. 1. Thus, the software can include drivers, an OS, various APIs and applications.

20 [0019] Fig. 2B shows alternative device 210. Device 210 can be similar to device 200. However, device 210 can include a separate multi-touch panel (212) and display (211) instead of the single unit of device 200. Thus, for device 210 one need not touch the display in order to interact with the multi-touch panel. Device 210 can be, for example, a multi-touch track-pad equipped laptop computer (the multi-touch panel serving as a track pad).

25 [0020] The multi touch panel and/or display of Figs. 2A and 2B can also utilize other sensory technology, such as proximity sensing, as discussed in U.S. App. No. 11/649,998, mentioned above. Generally, a multi-point panel and/or display can be used for the devices of Figs 2A and 2B. The multi-point panel and/or display can feature various types of sensor technology. For example, it can feature multi-touch technology only (thus resulting in a multi-touch panel and/or display), multi-proximity sense technology, a combination of the two, or another type of multi-point technology.

30 [0021] The devices of Figs 2A and 2B can include various different types of multi-touch enabled devices. For example, they can include a mobile telephone, a portable video game console, an electronic music player, an e-book, a PDA, an electronic organizer, an e-mail device, a laptop or other personal computer, a kiosk computer, a vending machine, etc.

35 [0022] Fig. 3 is a diagram of an exemplary multi-touch display 300. The multi-touch display can be display 203 of Fig. 2A or display 211 of Fig. 2B. The display can display various user interface elements (such as graphics, etc.) generated by software running in the device incorporating the display (e.g., device 200 of Fig. 2A or device 210 of Fig. 2B). The user can interact with the various user interface elements in order to interact with the software. When using the device of Fig. 2A, the user can interact with the user interface elements by touching them directly on the display. When using the device of Fig. 2B, the user can touch the separate multi-touch panel 212 in order to move and control one or more cursors on the display 211, the cursors being used to interact with the software.

40 [0023] The user interface elements rendered at the display 300 can include one or more views. Each view can represent a graphical user interface element handled by a separate software element. The separate software elements can include different applications, different processes or threads (even if within the same application), different routines or subroutines, different objects, etc. In some embodiments, each separate software element can create user interface elements for its respective portion of the display as well as receive and handle touch inputs for that portion of the display. The touch inputs can be processed by the various layers discussed in connection with Fig. 1, which can subsequently send processed touch input data to the software element (which can be part of applications 109). The processed touch input data can be referred to as touch event(s) and can be in a format that is easier to handle than raw touch data generated by the multi-touch panel. For example, each touch event can include a set of coordinates at which a touch is currently occurring. In some embodiments, the set of coordinates may correspond to the centroid of a touch. For the sake of brevity and simplicity, the discussion below may refer to a software element associated with a view by simply referring to the view itself.

45 [0024] Views can be nested. In other words, a view can include other views. Consequently, the software element associated with a first view can include or be linked to one or more software elements associated with views within the first view. While some views can be associated with applications, others can be associated with high level OS elements, such as graphical user interfaces, window managers, etc.

**[0025]** The exemplary display of Fig. 3 shows a music browsing application. The display can include a status bar view 301 that indicates the overall status of the device. The status bar view can be part of the OS. Title view 302 can also be included. The title view can itself include several other views, such as center title view 310, back button 312 and forward button 311. Table view 303 can also be included. Table view 303 can include one or more table element views, such as table element view 304. As seen, in one embodiment, the table element views can be song titles. A button bar view 305 can also be included. The button bar view can include buttons 306-309.

**[0026]** Each view and its associated software element may be able to receive, process and handle touch events that occur at that particular view. Thus, for example, if a user touches song title view 304, the software element associated with that view can receive a touch event indicating that the view has been touched, process it and respond accordingly. For example, the software element can change the graphical representation of the view (i.e., highlighting the view), and/or cause other actions such as playing a song associated with the touched view.

**[0027]** In some embodiments, touch events are processed at the lowest level of the view hierarchy. Thus, for example, if a user touches title bar view 302, the touch event need not be directly processed by the software element associated with the title bar view, but instead can be processed by a software element associated with a view included within the title bar view where the touch occurred (i.e., a software element associated with one of views 310, 311 and 312). In some embodiments, some higher level views can also handle touch events. In addition, various software elements that are not associated with a view being touched can nevertheless be alerted or can discover that the view is being touched.

**[0028]** Since display 300 is a multi-touch display, multiple touches can occur at the same time. The multiple touches can occur in the same view, or in two or more different views. Furthermore, the user can perform gestures (e.g., by pressing down one or more fingers and moving them) that can have predefined meanings. Multi-touch gestures are discussed in more detail in U.S. Pat. Application No. 10/903,964, entitled "GESTURES FOR TOUCH SENSITIVE INPUT DEVICES," filed on July 30, 2004 (corresponding to WO-A-2006/020305).

**[0029]** A view can receive touch events that start within the view. If a user keeps a finger pressed against the display, then the view can receive multiple touch events indicating a continuous touch. If a user moves a pressed finger, the view can receive multiple touch events indicating movement of the touch. If a user moves a pressed finger outside of the view, then the view can still receive touch events associated with that movement (and the views to which the finger has been moved need not receive such touch events). Thus, a view can receive events associated with a gesture or a movement that begins at the view, even if it continues outside of the view.

**[0030]** A touch can refer to an act which begins with pressing a finger or another body part or object to the surface of a multi touch panel (or multi touch display) and ends when the finger or object is removed from the display. Thus, the touch can include moving of the finger or object, or keeping the finger or object at the same place for a period of time.

**[0031]** Touch events can be sent to views (or the software elements that implement the views) by one or more APIs (and their respective implementations). An example of an API for handling touch events is provided in Appendix A below. According to the API of Appendix A, the API can send each view a touch event data structure that includes one or more single touch data structures (or touch data structures). Each touch event data structure can define the current state of all touches taking place at the view at a particular moment in time. The respective touch data structures within a touch event data structure can define the current states of one or more respective single touches at the particular moment in time. Thus, if there are three touches taking place at a particular moment in time in a particular view, a touch event data structure comprising three touch data structures defining the states of the five touches can be sent to the view. In some embodiments, touch data structures can be sent even if their associated touches are no longer taking place in order to alert the view that the touches have terminated.

**[0032]** As noted above, a touch may include an act that need not be instantaneous. E.g., a touch can include an act of moving or holding a finger against a display for a period of time. A touch data structure, however, defines a state of a touch at a particular time. Therefore, multiple touch data structures may be associated with a single touch, thus defining the single touch at different points in time.

**[0033]** Each touch data structure can comprise various fields. A "first touch for view" field can indicate whether the touch data structure defines the first touch for the particular view (since the software element implementing the view was instantiated). A "time stamp" field can indicate the particular time that the touch data structure relates to.

**[0034]** An "info" field can be used to indicate if a touch is a rudimentary gesture. For example, the "info" field can indicate whether the touch is a swipe and, if so, in which direction the swipe is oriented. A swipe is a quick drag of one or more fingers in a straight direction. The API implementations can determine if a touch is a swipe and pass that information to the application through the "info" field, thus alleviating the application of some data processing that would have been necessary if the touch were a swipe.

**[0035]** A "tap count" field can indicate how many taps have been sequentially performed at the position of the touch. A tap can be defined as a quick pressing and lifting of a finger against a panel at a particular position. Multiple sequential taps can occur if the finger is again pressed and released in quick succession at the same position of the panel. Thus, the API implementation can count taps for various application and relay this information through the tap "count field." Multiple taps at the same location are sometimes considered to be a very useful and easy to remember command for

touch enabled interfaces. Thus, by counting taps, the API can again alleviate some data processing from the application.

**[0036]** A "phase" field can indicate a particular phase the touch is currently in. The phase field can have various values, such as "touch phase began" which can indicate that the touch data structure defines a new touch that has not been referenced by previous touch data structures. A "touch phase moved" value can indicate that the touch being defined has moved from a position defined in a previous touch data structure. A "touch phase stationary" value can indicate that the touch has stayed in the same position since the last touch data structure for that touch was generated. A "touch phase ended" value can indicate that the touch has ended (e.g., the user has lifted his/her finger from the surface of a multi touch display). A "touch phase cancelled" value can indicate that the touch has been cancelled by the device. A cancelled touch can be a touch that is not necessarily ended by a user, but which the device can determine to ignore. For example, the device can determine that the touch is being generated inadvertently (i.e., as a result of placing a portable multi touch enabled device in one's pocket) and ignore the touch for that reason. Each value of the "phase field" can be a integer number.

**[0037]** Thus, each touch data structure can define what is happening with a touch at a particular time (e.g., whether the touch is stationary, being moved, etc.) as well as other information associated with the touch (such as position). Accordingly, each touch data structure can define the state of a particular touch at a particular moment in time. One or more touch data structures referencing the same time can be added in a touch event data structure that can define the states of all touches a particular view is receiving at a moment in time (as noted above, some touch data structures may also reference touches that have ended and are no longer being received). Multiple touch event data structures can be sent to the software implementing a view as time passes, in order to provide the software with continuous information describing the touches that are happening at the view. One or more elements of the device such as, for example, hardware 100, drivers 103, core OS 104, OS APIs 105 and UI APIs can detect touches at the multi touch panel 101 and generate the various touch event data structures defining these touches.

**[0038]** The ability to handle multiple touches and multi-touch gestures can add complexity to the various software elements. In some cases, such additional complexity can be necessary to implement advanced and desirable interface features. For example, a game may require the ability to handle multiple simultaneous touches that occur in different views, as games often require the pressing of multiple buttons at the same time. However, some simpler applications and/or views (and their associated software elements) need not require advanced interface features. For example, a simple button (such as button 306) can be satisfactorily operable with single touches and need not require multi-touch functionality. In these cases, the underlying OS may send unnecessary or excessive touch data (e.g., multi-touch data) to a software element associated with a view that is intended to be operable by single touches only (e.g., a button). Because the software element may need to process this data, it may need to feature all the complexity of a software element that handles multiple touches, even though it is associated with a view for which only single touches are relevant. This can increase the cost of development of software for the device, because software elements that have been traditionally very easy to program in a mouse interface environment (i.e., various buttons, etc.) may be much more complex in a multi-touch environment.

**[0039]** Embodiments of the present invention address the above discussed issues by selectively providing touch data to various software elements in accordance with predefined settings. Thus, a simpler interface can be provided for selected software elements, while others can take advantage of more complex multi-touch input.

**[0040]** Embodiments of the invention can rely on one or more flags associated with one or more views, wherein each flag or combination thereof indicates a mode of touch event processing for a particular view. For example, multi-touch and/or exclusive touch flags can be used. The multi-touch flag can indicate whether a particular view is capable of receiving multiple simultaneous touches or not. The exclusive touch flag can indicate whether a particular view is to allow other views to receive touch events while the view is receiving a touch event.

**[0041]** Fig. 4 is a flow chart showing the operation of the multi-touch flag according to one embodiment of the invention. At step 400, a user can touch a view at a first location within the view. It can be assumed that no other touches are present on the multi-touch display when the touch of step 400 is received. At step 402, the OS can send a touch event defining the received touch to a software element associated with the touched location.

**[0042]** At step 404, the user can touch the view at a second location while not releasing the first touch (i.e., while keeping a finger pressed down at the first location). Thus, for example, the user can touch the right portion of table element view 304 at step 400 and touch the left portion of table element view 304 at step 404 without releasing his/her finger from the right portion. Therefore, the second touch is contemporaneous with the first touch (thus taking advantage of the multi-touch capabilities of display 300).

**[0043]** At step 406, the OS can determine whether the multi-touch flag for the view being touched is set. If the multi-touch flag is set, then the view can be a view that can handle multiple contemporaneous touches. Therefore, at step 408, a second touch event for the second touch can be sent to the software element associated with the view. It should be noted that new instances of the first touch event can also be sent, indicating that the first touch event is still taking place (i.e., the finger at the first location has not been lifted). The new instances of the first touch event can specify different locations if the finger at the first location is moved away from that location without being lifted (i.e., if it is being

"dragged" on the surface of the display).

**[0044]** If, on the other hand, the multi-touch flag is not set, the OS can ignore or block the second touch. Ignoring the second touch can result in not sending any touch events associated with the second touch to the software element associated with the touched view. In some embodiments, the OS can alert other software elements of the second touch, if necessary.

**[0045]** Thus, embodiments of the present invention can allow relatively simple software elements that are programmed to handle only a single touch at a time to keep their multi-touch flag unasserted, and thus ensure that touch events that are part of multiple contemporaneous touches will not be sent to them. Meanwhile, more complex software elements that can handle multiple contemporaneous touches can assert their multi-touch flag and receive touch events for all touches that occur at their associated views. Consequently, development costs for the simple software elements can be reduced while providing advanced multi-touch functionality for more complex elements.

**[0046]** Figs. 5A and 5B are a flow chart showing an exemplary method of operation of the exclusive touch flag according to one embodiment of the invention. At step 500, a user can touch a first view. At step 502, the OS can send a touch event to a first software element associated with the first view. At step 504, the user can touch a second view without releasing the first touch.

**[0047]** At step 506, the OS can check whether the exclusive touch flag for the first view is asserted. If it is set (asserted), that means that the first view needs to receive touches exclusively, and no other touches are to be sent to other views. Thus, if the exclusive touch flag is set, the OS can ignore (or block) the second touch and not send it to any software elements. If the exclusive view flag is not set, then the process can continue to step 510 of Fig. 5B.

**[0048]** In step 510, the OS can determine if the exclusive view flag for the second view is set. If that flag is set, then the second view can only receive exclusive touch events. Thus, if there is another touch event already being received by another view (i.e., the first view), the second view cannot receive a touch event, and the OS can ignore the second touch (step 512). However, if the exclusive touch flag for the second touch is not set (unasserted), the OS can send a touch event associated with the second touch to the second view. More specifically, the OS can send a touch event associated with the second touch to a software element associated with the second view (step 514).

**[0049]** Thus, the exclusive touch flag can ensure that views flagged as exclusive only receive touch events when they are the only views on the display receiving touch events. The exclusive flag can be very useful in simplifying the software of applications running on a multi-touch enabled device. In certain situations, allowing multiple views to receive touches simultaneously can result in complex conflicts and errors. For example, if a button to delete a song and a button to play a song are simultaneously pressed, this may cause an error. Avoiding such conflicts may require complex and costly software. However, embodiments of the present invention can reduce the need for such software by providing an exclusive touch flag which can ensure that a view that has that flag set will receive touch events only when it is the only view that is receiving a touch event. Alternatively, one or more views can have their exclusive touch flags unasserted, thus allowing multiple simultaneous touches at two or more of these views.

**[0050]** In some embodiments the exclusive flag can signify exclusivity for the entire display. Thus, when a view with the exclusive flag set is receiving a touch event, all other views in the display can be blocked from receiving any touch events. In alternative embodiments, the exclusive flag can signify exclusivity in a smaller area such as a single application, or a single window. For example, a first view with its exclusivity flag set can block other views that are in the same window from receiving any touch events while the first view is receiving a touch event, but not block views in other windows.

**[0051]** The exclusive touch and multi-touch flags can be combined. Accordingly, one or more views being displayed can each include two flags - a multi-touch flag and an exclusive touch flag. In some embodiments, all displayed views can include these two flags. The value of one flag need not depend on the value of another. In one example, a view with both exclusive and multi-touch flags set can allow multiple touches within the view but may only receive touches exclusively (i.e., when the view is receiving touches, touches to other views can be blocked). A view with both flags unasserted can block multiple touches within the view but allow single touches within the view even if touches are simultaneously taking place in other views. A view with the multi-touch flag unasserted and the exclusive touch flag asserted can allow only single touches within the view when no other touches are taking place in any other views. A view with the multi-touch flag asserted and the exclusive touch flag unasserted can allow all touches received for the view. A view with both flags asserted can allow multiple touches in the view while no other touches are taking place for other views.

**[0052]** Alternative embodiments can feature only one of the flags (and the associated functionality). Thus, some embodiments can use the multi-touch flag only or exclusive touch flag only. In some embodiments, different views can use different combinations of the flags.

**[0053]** The various functionalities performed by the OS in Figs 4, 5A and 5B can instead be performed by other software, such as various utility software. These functionalities can be performed by software at any one layer of layers 103 through 108 of Fig. 1. In an alternative embodiment, these functionalities can even be performed by hardware 100.

**[0054]** Provided below is an exemplary set of code showing the methods of an exemplary software element associated with a view according to some embodiments of the invention. A person of skill in the art would recognize that other code may also be used to implement the functionalities discussed above.

**[0055]** While the above discussion centers on multi-touch displays and panels, the present invention is not limited to multi-touch device but may include various multi-point devices as discussed above (including, for example, multi-proximity sensor devices). For multi-point devices, multi-point and an exclusive point flags can be used. These flags can operate in a similar manner to the multi-touch and exclusive touch flags discussed above.

**[0056]** Although the present invention has been fully described in connection with embodiments thereof with reference to the accompanying drawings, it is to be noted that various changes and modifications will become apparent to those skilled in the art. Such changes and modifications are to be understood as being included within the scope of the present invention as defined by the appended claims.

## APPENDIX A

### EXEMPLARY UI API CODE

```
@interface UIResponder
```

```
[0057]
```

- (void)touchesBegan:(NSSet \*)touches withEvent:(UIEvent \*)event;
- (void)touchesMoved:(NSSet \*)touches withEvent:(UIEvent \*)event;
- (void)touchesEnded:(NSSet \*)touches withEvent:(UIEvent \*)event;
- (void)touchesCanceled;

```
// This method can be implemented instead of the individual
touchBegan:/touchMoved:/touchEnded:
// methods if the view author wishes to handle all associated touches
simultaneously.
```

- (void)touchesChangedwithEvent:(UIEvent \*)event;

```
@end
```

```
typedef enum {
UITouchPhaseBegan, // whenever a finger touches the surface.
UITouchPhaseMoved, // whenever a finger moves on the surface.
UITouchPhaseStationary, // whenever a finger is touching the
surface but hasn't moved since the previous event.
UITouchPhaseEnded, // whenever a finger leaves the surface.
UITouchPhaseCanceled, // whenever a touch doesn't end but we
need to stop tracking (e.g. putting device to face)
} UITouchPhase;
```

```
enum {
UITouchSwipedUp = << 0, // more than one of the swipe flags
can be set if it's swiped at an angle.
UITouchSwipedDown = 1 << 1, // these swipe directions are
relative to the UI orientation (see UIApplication)
UITouchSwipedLeft = 1 << 2,
UITouchSwipedRight = 1 << 3,
};
```

```
typedef unsigned int UITouchInfo;
```

```
@interface UITouch : NSObject
```

```
{
BOOL _firstTouchForView;
NSTimeInterval _timestamp;
UITouchPhase _phase;
UITouchInfo _info;
NSUInteger _tapcount;
UIWindow * window;
UIView *-view;
CGPoint locationInView;
CGPoint previousLocationInView;
}
```

```

- (NSTimeInterval)timestamp;
- (UITouchPhase)touchPhase;
- (UITouchInfo)touchInfo;
- (NSUInteger)tapCount; // touch down within a certain point within a certain amount of time
5 - (UIWindow *)window;
- (UIView *)view;
- (CGPoint)locationInView;
- (CGPoint)previousLocationInView;

10 @end
@interface UIEvent : NSObject
{
    CFTypeRef _event;
    NSTimeInterval _timestamp;
15 NSMutableSet *_touches;
    CFMutableDictionaryRef keyedTouches;
}

- (NSTimeInterval)timestamp;
- (NSSet *)allTouches;
20 - (NSSet *)touchesForWindow:(UIWindow *)window;
- (NSSet *)touchesForView:(UIView *)view;

@end
25

```

## Claims

1. A method for handling touch events at a multi-touch device (200, 210), comprising:
 

30 displaying one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
 executing one or more software elements, each software element being associated with a particular view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
 associating a multi-touch flag or an exclusive touch flag with each view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312), said multi-touch flag indicating whether a particular view is allowed to receive multiple  
 35 simultaneous touches and said exclusive touch flag indicating whether a particular view allows other views to receive touch events while the particular view is receiving a touch event;  
 receiving one or more touches at the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312); and  
 40 selectively sending one or more touch events, each touch event describing a received touch, to one or more of the software elements associated with the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) at which a touch was received based on the values of the multi-touch and exclusive touch flags.
2. The method of claim 1, further comprising:
 

45 if a multi-touch flag is associated with a particular view, allowing other touch events contemporaneous with a touch event received at the particular view to be sent to software elements associated with the other views.
3. The method of claim 1, wherein if a multi-touch flag is associated with a particular view, the multi-touch flag indicates whether the software element associated with that particular view is allowed to process multiple contemporaneous  
 50 touches located in that view.
4. The method of claim 1, wherein the exclusive touch flag prevents touch events from being sent to software elements associated with views other than a view with an asserted exclusive touch flag while a touch is being received at the view with the asserted exclusive touch flag.
- 55 5. The method of claim 1, wherein the multi-touch device (200, 210) is a mobile telephone.



6. The method of claim 1, wherein the multi-touch device (200, 210) is a digital media player.

7. The method of claim 1, comprising:

5 associating a multi-touch flag with a first view;  
receiving a first touch at the first view, the first view being one of the one or more views;  
sending a touch event describing the first touch to a first software element,  
the first software element being one of the one or more software elements and associated with the first view;  
10 determining whether the multi-touch flag associated with the first view indicates that the first view is a multi-touch view; and  
if the first view is not a multi-touch view, blocking all touch events describing any other touches located in the first view until the first touch is no longer received.

8. The method of claim 7, further comprising:

15 associating an exclusive touch flag with each of the one or more views;  
determining whether the exclusive touch flag associated with the first view indicates that the first view is an exclusive touch view; and  
if the first view is an exclusive touch view, blocking all touch events describing any other touches located in any view other than the first view until the first touch is no longer received.

9. The method of claim 8, wherein the first view is not an exclusive touch view, the method further comprising:

25 receiving a second touch at the multi touch panel, the second touch located at a second view and associated with a second software element;  
determining whether the exclusive touch flag associated with the second view indicates that the second view is an exclusive touch view; and  
if the second view is an exclusive touch view, preventing a touch event associated with the second touch from being sent to the second software element until the first touch is no longer received.

10. The method of claim 9, further comprising:

30 if the second view is not an exclusive touch view, sending a touch event describing the second touch to the second software element.

11. A computer readable medium comprising a plurality of instructions configured for execution at a multi-touch device (200, 210), the instructions being configured to cause the multi-touch device (200, 210) to:

40 display one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
execute one or more software elements, each software element being associated with a particular view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
associate a multi-touch flag or an exclusive touch flag with each view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312), said multi-touch flag indicating whether a particular view is allowed to receive multiple simultaneous touches and said exclusive touch flag indicating whether a particular view allows other views to receive touch events while the particular view is receiving a touch event;  
45 receive one or more touches at the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312); and  
selectively send one or more touch events, each touch event describing a received touch, to one or more of the software elements associated with the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) at which a touch was received based on the values of the multi-touch and exclusive touch flags.

12. The computer readable medium of claim 11, wherein the instructions are further configured to cause the multi-touch device (200, 210) to:

55 if a multi-touch flag is associated with a particular view, allowing other touch events contemporaneous with a touch event received at the particular view to be sent to software elements associated with the other views.

13. The computer readable medium of claim 11, wherein if a multi-touch flag is associated with a particular view, the

multi-touch flag indicates whether the software element associated with that particular view is allowed to process multiple contemporaneous touches located in that view.

- 5
14. The computer readable medium of claim 11, wherein the exclusive touch flag prevents touch events from being sent to software elements associated with views other than a view with an asserted exclusive touch flag while a touch is being received at the view with the asserted exclusive touch flag.
15. The computer readable medium of claim 11, wherein the multi-touch device (200, 210) is a mobile telephone.
- 10
16. The computer readable medium of claim 11, wherein the multi-touch device (200, 210) is a digital media player.
17. The computer readable medium of claim 11, wherein the instructions are further configured to cause the multi-touch device (200, 210) to:
- 15
- associate a multi-touch flag with a first view;  
receive a first touch at the first view, the first view being one of the one or more views;  
send a touch event describing the first touch to a first software element, the first software element being one of the one or more software elements and associated with the first view;  
20
- determine whether the multi-touch flag associated with the first view indicates that the first view is a multi-touch view; and  
if the first view is not a multi-touch view, block all touch events describing any other touches located in the first view until the first touch is no longer received.
- 25
18. The computer readable medium of claim 17, wherein the instructions are further configured to cause the multi-touch device (200, 210) to:
- associate an exclusive touch flag with each of the one or more views;  
determine whether the exclusive touch flag associated with the first view indicates that the first view is an exclusive touch view; and  
30
- if the first view is an exclusive touch view, blocking all touch events describing any other touches located in any view other than the first view until the first touch is no longer received.
- 35
19. The computer readable medium of claim 18, wherein the first view is not an exclusive touch view and the instructions are further configured to cause the multi-touch device (200, 210) to:
- receive a second touch at the multi touch panel, the second touch located at a second view and associated with a second software element;  
determine whether the exclusive touch flag associated with the second view indicates that the second view is an exclusive touch view; and  
40
- if the second view is an exclusive touch view, prevent a touch event associated with the second touch from being sent to the second software element until the first touch is no longer received.
- 45
20. The computer readable medium of claim 19, wherein the instructions are further configured to cause the multi-touch device (200, 210) to:
- if the second view is not an exclusive touch view, send a touch event describing the second touch to the second software element.
- 50
21. A multi-touch enabled device (200, 210) including a computer readable medium comprising a plurality of instructions configured for execution at the device (200, 210), the instructions being configured to cause the device (200, 210) to:
- display one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 11, 312);  
execute one or more software elements, each software element being associated with a particular view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
55
- associate a multi-touch flag or an exclusive touch flag with each view (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) , said multi-touch flag indicating whether a particular view is allowed to receive multiple simultaneous touches and said exclusive touch flag indicating whether a particular view allows other views to

receive touch events while the particular view is receiving a touch event;  
receive one or more touches at the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312); and  
selectively send one or more touch events, each touch event describing a  
received touch, to one or more of the software elements associated with the one or more views (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) at which a touch was received based on the values of the multi-touch and exclusive touch flags.

22. The multi-touch enabled device (200, 210) of claim 21, wherein the multi-touch enabled device (200, 210) is a mobile telephone.

23. The multi-touch enabled device (200, 210) of claim 21, wherein the multi-touch enabled device (200, 210) is a digital media player.

## Patentansprüche

1. Verfahren zur Behandlung von Berührungseignissen bei einer Mehrfachberührungsvorrichtung (200, 210), aufweisend:

Anzeigen einer oder mehrerer Ansichten (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
Ausführen eines oder mehrerer Softwareelemente, wobei jedes Softwareelement mit einer besonderen Ansicht (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) assoziiert ist;  
Assoziieren eines Mehrfachberührungsflags oder eines exklusiven Berührungsflags mit jeder Ansicht (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312), wobei das Mehrfachberührungsflag zeigt, ob es einer besonderen Ansicht erlaubt ist, mehrere gleichzeitige Berührungen zu empfangen, und das exklusive Berührungsflag zeigt, ob eine besondere Ansicht es den anderen Ansichten erlaubt, Berührungseignisse zu empfangen während die besondere Ansicht gerade ein Berührungseignis empfängt;  
Empfangen einer oder mehrerer Berührungen in der einen oder den mehreren Ansichten (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
Selektives Senden eines oder mehrerer Berührungseignisse an ein oder mehrere der Softwareelemente, die mit der einen oder den mehreren Ansichten (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) assoziiert sind, in denen eine Berührung auf der Basis der Werte der Mehrfachberührungs- und exklusiven Berührungsflag empfangen wird, wobei jedes Berührungseignis eine empfangene Berührung beschreibt.

2. Verfahren nach Anspruch 1, weiterhin aufweisend:

wenn ein Mehrfachberührungsflag mit einer besonderen Ansicht assoziiert ist, Erlauben, dass andere Berührungseignisse bei gleichzeitigem Empfang eines Berührungseignisses in der besonderen Ansicht an Softwareelemente, die mit den anderen Ansichten assoziiert sind, gesendet werden.

3. Verfahren nach Anspruch 1, wobei wenn ein Mehrfachberührungsflag mit einer besonderen Ansicht assoziiert ist, das Mehrfachberührungsflag zeigt, ob es dem mit der besonderen Ansicht assoziierten Softwareelement erlaubt ist, mehrere gleichzeitige Berührungen, die sich in der Ansicht befinden, zu verarbeiten.

4. Verfahren nach Anspruch 1, wobei das exklusive Berührungsflag verhindert, dass Berührungseignisse an Softwareelemente gesendet werden, die mit Ansichten assoziiert sind, die anders als eine Ansicht mit einem gültig gemachten exklusiven Berührungsflag sind, während eine Berührung in der Ansicht mit dem gültig gemachten exklusiven Berührungsflag empfangen wird.

5. Verfahren nach Anspruch 1, wobei die Mehrfachberührungsvorrichtung (200, 210) ein Mobiltelefon ist.

6. Verfahren nach Anspruch 1 wobei die Mehrfachberührungsvorrichtung (200, 210) ein digitales Medienabspielgerät ist.

7. Verfahren nach Anspruch 1, aufweisend:

Assoziieren eines Mehrfachberührungsflags mit einer ersten Ansicht;

Empfangen einer ersten Berührung in der ersten Ansicht, wobei die erste Ansicht eine von der einen oder den mehreren Ansichten ist;

Senden eines Berührungseignisses, das die erste Berührung beschreibt, an ein erstes Softwareelement, wobei das erste Softwareelement eines von dem einen oder den mehreren Softwareelementen und mit der ersten Ansicht assoziiert ist;

Bestimmen, ob das Mehrfachberührungsflag, das mit der ersten Ansicht assoziiert ist, zeigt, dass die erste Ansicht eine Mehrfachberührungsansicht ist; und

wenn die erste Ansicht nicht eine Mehrfachberührungsansicht ist,

Blockieren aller Berührungseignisse, die irgendwelche anderen sich in der ersten Ansicht befindenden Berührungen beschreiben, bis die erste Berührung nicht mehr empfangen wird.

8. Verfahren nach Anspruch 7, weiterhin aufweisend:

Assoziieren eines exklusiven Berührungsflags mit jeder von der einen oder den mehreren Ansichten;

Bestimmen, ob das exklusive Berührungsflag, das mit der ersten Ansicht assoziiert ist, zeigt, dass die erste Ansicht eine exklusive Berührungsansicht ist; und

wenn die erste Ansicht eine exklusive Berührungsansicht ist, Blockieren aller Berührungseignisse, die irgendwelche anderen Berührungen beschreiben, die sich in irgendeiner Ansicht anders als die erste Ansicht befinden, bis die erste Berührung nicht mehr empfangen wird.

9. Verfahren nach Anspruch 8, wobei die erste Ansicht nicht eine exklusive Berührungsansicht ist, wobei das Verfahren weiterhin aufweist:

Empfangen einer zweiten Berührung bei dem Mehrfachberührungsfeld, wobei sich die zweite Berührung in einer zweiten Ansicht befindet und mit einem zweiten Softwareelement assoziiert ist;

Bestimmen, ob das mit der zweiten Ansicht assoziierte exklusive Berührungsflag zeigt, dass die zweite Ansicht eine exklusive Berührungsansicht ist; und

wenn die zweite Ansicht eine exklusive Berührungsansicht ist, Verhindern, dass ein mit der zweiten Berührung assoziiertes Berührungseignis an das zweite Softwareelement gesendet wird, bis die erste Berührung nicht mehr empfangen wird.

10. Verfahren nach Anspruch 9, weiterhin aufweisend:

wenn die zweite Ansicht nicht eine exklusive Berührungsansicht ist,

Senden eines Berührungseignisses, das die zweite Berührung beschreibt, an das zweite Softwareelement.

11. Computerlesbares Medium, das eine Mehrzahl von Anweisungen aufweist, die für die Ausführung bei einer Mehrfachberührungsvorrichtung (200, 210) konfiguriert sind, wobei die Anweisungen konfiguriert sind, die Mehrfachberührungsvorrichtung (200, 210) dazu zu veranlassen:

Anzeigen einer oder mehrerer Ansichten (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);

Ausführen eines oder mehrerer Softwareelemente, wobei jedes Softwareelement mit einer besonderen Ansicht (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) assoziiert ist;

Assoziieren eines Mehrfachberührungsflags oder eines exklusiven Berührungsflags mit jeder Ansicht (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312), wobei das Mehrfachberührungsflag zeigt, ob es einer besonderen Ansicht erlaubt ist, mehrere gleichzeitige Berührungen zu empfangen, und das exklusive Berührungsflag zeigt, ob eine besondere Ansicht es den anderen Ansichten erlaubt, Berührungseignisse zu empfangen während die besondere Ansicht ein Berührungseignis gerade empfängt;

Empfangen einer oder mehrerer Berührungen in der einen oder den mehreren Ansichten (301, 302, 03, 304, 305, 306, 307, 308, 309, 310, 311, 312); und

Selektives Senden eines oder mehrerer Berührungseignisse an eines oder mehrere der Softwareelemente, die mit der einen oder den mehreren Ansichten (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) assoziiert sind, in denen eine Berührung auf der Basis der Werte des Mehrfachberührungs- und exklusiven Berührungsflags empfangen wird, wobei jedes Berührungseignis eine empfangene Berührung beschreibt.

12. Computerlesbares Medium nach Anspruch 11, wobei die Anweisungen weiterhin konfiguriert sind, die Mehrfachberührungsvorrichtung (200, 210) dazu zu veranlassen:

wenn ein Mehrfachberührungsflag mit einer besonderen Ansicht assoziiert ist, Erlauben, dass andere Berührungseignisse beim gleichzeitigen Empfang eines Berührungseignisses in der besonderen Ansicht an Softwareelemente, die mit den anderen Ansichten assoziiert sind, gesendet werden.

- 5 **13.** Computerlesbares Medium nach Anspruch 11, wobei wenn ein Mehrfachberührungsflag mit einer besonderen Ansicht assoziiert ist, das Mehrfachberührungsflag zeigt, ob es dem mit der besonderen Ansicht assoziierten Softwareelement erlaubt ist, mehrere gleichzeitige Berührungen, die sich in der Ansicht befinden, zu verarbeiten.
- 10 **14.** Computerlesbares Medium nach Anspruch 11, wobei das exklusive Berührungsflag verhindert, dass Berührungseignisse an Softwareelemente gesendet werden, die mit Ansichten assoziiert sind, die anders als eine Ansicht mit einem gültig gemachten exklusiven Berührungsflag sind, während eine Berührung in der Ansicht mit dem gültig gemachten exklusiven Berührungsflag empfangen wird.
- 15 **15.** Computerlesbares Medium nach Anspruch 11, wobei die Mehrfachberührungsvorrichtung (200, 210) ein Mobiltelefon ist.
- 16.** Computerlesbares Medium nach Anspruch 11, wobei die Mehrfachberührungsvorrichtung (200, 210) ein digitales Medienabspielgerät ist.
- 20 **17.** Computerlesbares Medium nach Anspruch 11, wobei die Anweisungen weiterhin konfiguriert sind, die Mehrfachberührungsvorrichtung (200, 210) dazu zu veranlassen:
- Assoziieren eines Mehrfachberührungsflags mit einer ersten Ansicht;  
Empfangen einer ersten Berührung in der ersten Ansicht, wobei die erste Ansicht eine von der einen oder den  
25 mehreren Ansichten ist;  
Senden eines Berührungseignisses, das die erste Berührung beschreibt, an ein erstes Softwareelement, wobei das erste Softwareelement eines von dem einen oder den mehreren Softwareelementen und mit der ersten Ansicht assoziiert ist;  
Bestimmen, ob das mit der ersten Ansicht assoziierte Mehrfachberührungsflag zeigt, dass die erste Ansicht  
30 eine Mehrfachberührungsansicht ist; und  
wenn die erste Ansicht nicht eine Mehrfachberührungsansicht ist,  
Blockieren aller Berührungseignisse, die irgendwelche anderen Berührungen beschreiben, die sich in der ersten Ansicht befinden, bis die erste Berührung nicht mehr empfangen wird.
- 35 **18.** Computerlesbares Medium nach Anspruch 17, wobei die Anweisungen weiterhin konfiguriert sind, die Mehrfachberührungsvorrichtung (200, 210) dazu zu veranlassen:
- Assoziieren eines exklusiven Berührungsflags mit jeder von der einen oder den mehreren Ansichten;  
Bestimmen, ob dass mit der ersten Ansicht assoziierte exklusive Berührungsflag zeigt, dass die erste Ansicht  
40 eine exklusive Berührungsansicht ist; und  
wenn die erste Ansicht eine exklusive Berührungsansicht ist, Blockieren aller Berührungseignisse, die irgendwelche anderen Berührungen beschreiben, die sich in irgendeiner Ansicht anders als die erste Ansicht befinden, bis die erste Berührung nicht mehr empfangen wird.
- 45 **19.** Computerlesbares Medium nach Anspruch 18, wobei die erste Ansicht nicht eine exklusive Berührungsansicht ist und die Anweisungen weiterhin konfiguriert sind, die Mehrfachberührungsvorrichtung (200, 210) dazu zu veranlassen:
- Empfangen einer zweiten Berührung bei dem Mehrfachberührungsfeld, wobei sich die zweite Berührung in  
50 einer zweiten Ansicht befindet und mit einem zweiten Softwareelement assoziiert ist;  
Bestimmen, ob das mit der zweiten Ansicht assoziierte exklusive Berührungsflag zeigt, dass die zweite Ansicht eine exklusive Berührungsansicht ist; und  
wenn die zweite Ansicht eine exklusive Berührungsansicht ist, Verhindern, dass ein mit der zweiten Berührung assoziiertes Berührungseignisse an das zweite Softwareelement gesendet wird, bis die erste Berührung nicht  
55 mehr empfangen wird.
- 20.** Computerlesbares Medium nach Anspruch 19, wobei die Anweisungen weiterhin konfiguriert sind, die Mehrfachberührungsvorrichtung (200, 210) dazu zu veranlassen:

wenn die zweite Ansicht nicht eine exklusive Berührungsansicht ist,  
Senden eines Berührungseignisses, das die zweite Berührung beschreibt, an das zweite Softwareelement.

- 5 21. Mehrfachberührungsfähige Vorrichtung (200, 210), die ein computerlesbares Medium aufweist, das eine Mehrzahl von Anweisungen aufweist, die für die Ausführung bei der Vorrichtung (200, 210) konfiguriert sind, wobei die Anweisungen konfiguriert sind, die Vorrichtung (200, 210) dazu zu veranlassen:

10 Anzeigen einer oder mehrerer Ansichten (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312);  
Ausführen eines oder mehrerer Softwareelemente, wobei jedes Softwareelement mit einer besonderen Ansicht (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) assoziiert ist;  
Assoziieren eines Mehrfachberührungsflags oder eines exklusiven Berührungsflags mit jeder Ansicht (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312), wobei das Mehrfachberührungsflag zeigt, ob es einer besonderen Ansicht erlaubt ist, mehrere gleichzeitige Berührungen zu empfangen, und das exklusive Berührungsflag zeigt, ob eine besondere Ansicht es anderen Ansichten erlaubt, Berührungseignisse zu empfangen  
15 während die besondere Ansicht ein Berührungseignis gerade empfängt;  
Empfangen einer oder mehrerer Berührungen in der einen oder den mehreren Ansichten (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312); und  
Selektives Senden eines oder mehrerer Berührungseignisse an eines oder mehrere der Softwareelemente, die mit der einen oder den mehreren Ansichten (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) assoziiert sind, in denen eine Berührung auf der Basis der Werte des Mehrfachberührungs- und exklusiven Berührungsflags empfangen wurde, wobei jedes Berührungseignis eine empfangene Berührung beschreibt.

- 25 22. Mehrfachberührungsfähige Vorrichtung (200, 210) nach Anspruch 21, wobei die mehrfachberührungsfähige Vorrichtung (200, 210) ein Mobiltelefon ist.

- 30 23. Mehrfachberührungsfähige Vorrichtung (200, 210) nach Anspruch 21, wobei die mehrfachberührungsfähige Vorrichtung (200, 210) ein digitales Medienabspielgerät ist.

## 30 Revendications

1. Un procédé pour gérer des événements tactiles avec un dispositif tactile multipoints (200, 210), comprenant :

35 l'affichage d'une ou plusieurs vues (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) ;  
l'exécution d'un ou plusieurs éléments logiciels, chaque élément logiciel étant associé à une vue particulière (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) ;  
l'association à chaque vue (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) d'un indicateur tactile multipoints ou d'un indicateur tactile exclusif, ledit indicateur tactile multipoints indiquant si une vue particulière est autorisée ou non à recevoir des contacts tactiles simultanés multiples et ledit indicateur tactile exclusif indiquant si une vue particulière permet ou non à d'autres vues de recevoir des événements tactiles pendant que la vue particulière est en train de recevoir un événement tactile ;  
40 la réception d'un ou plusieurs contacts tactiles sur les une ou plusieurs vues (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) ; et  
l'envoi sélectif d'un ou plusieurs événements tactiles, chaque événement tactile décrivant un contact tactile reçu, à un ou plusieurs des éléments logiciels associés à la une ou plusieurs vues (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) sur lesquels un contact tactile a été reçu en fonction des valeurs des indicateurs tactiles multipoints et tactiles exclusifs.

- 50 2. Le procédé de la revendication 1, comprenant en outre :

si un indicateur tactile multipoints est associé à une vue particulière, la permission donnée aux autres événements tactiles contemporains d'un événement tactile reçu par la vue particulière d'être envoyés aux éléments logiciels associés aux autres vues.

- 55 3. Le procédé de la revendication 1, dans lequel, si un indicateur tactile multipoints est associé à une vue particulière, l'indicateur tactile multipoints indique si l'élément logiciel associé à cette vue particulière est autorisé ou non à traiter des contacts tactiles contemporains multiples situés dans cette vue.

4. Le procédé de la revendication 1, dans lequel l'indicateur tactile exclusif empêche des événements tactiles d'être envoyés aux éléments logiciels associés aux vues autres qu'une vue avec un indicateur tactile exclusif attribué, tandis qu'un contact tactile est en train d'être reçu par la vue avec l'indicateur tactile exclusif attribué.
- 5 5. Le procédé de la revendication 1, dans lequel le dispositif tactile multipoints (200, 210) est un téléphone mobile.
6. Le procédé de la revendication 1, dans lequel le dispositif tactile multipoints (200, 210) est un dispositif de reproduction de supports numériques.
- 10 7. Le procédé de la revendication 1, comprenant :
- l'association d'un indicateur tactile multipoints à une première vue ;  
la réception d'un premier contact tactile sur la première vue, la première vue étant l'une des une ou plusieurs vues ;  
15 l'envoi d'un événement tactile décrivant le premier contact tactile à un premier élément logiciel, le premier élément logiciel étant l'un des un ou plusieurs éléments logiciels et étant associé à la première vue ;  
la détermination du point de savoir si l'indicateur tactile multipoints associé à la première vue indique ou non que la première vue est une vue tactile multipoints ; et  
20 si la première vue n'est pas une vue tactile multipoints, le blocage de tous les événements tactiles décrivant tous les autres contacts tactiles situés dans la première vue jusqu'à ce que le premier contact tactile ne soit plus reçu.
8. Le procédé de la revendication 7, comprenant en outre :
- 25 l'association d'un indicateur tactile exclusif à chacune des une ou plusieurs vues ;  
la détermination du point de savoir si l'indicateur tactile exclusif associé à la première vue indique ou non que la première vue est une vue tactile exclusive ; et  
30 si la première vue est une vue tactile exclusive, le blocage de tous les événements tactiles décrivant tous les autres contacts tactiles situés dans une quelconque vue autre que la première vue jusqu'à ce que le premier contact tactile ne soit plus reçu.
9. Le procédé de la revendication 8, dans lequel la première vue n'est pas une vue tactile exclusive, le procédé comprenant en outre :
- 35 la réception d'un second contact tactile sur le panneau tactile multipoints, le second contact tactile situé sur une seconde vue et associé à un second élément logiciel ;  
la détermination du point de savoir si l'indicateur tactile exclusif et associé à la seconde vue indique ou non que la seconde vue est une vue tactile exclusive ; et  
40 si la seconde vue est une vue tactile exclusive, l'empêchement de l'envoi d'un événement tactile associé au second contact tactile au second élément logiciel jusqu'à ce que le premier contact tactile ne soit plus reçu.
10. Le procédé de la revendication 9, comprenant en outre :
- 45 si la seconde vue n'est pas une vue tactile exclusive, l'envoi d'un événement tactile décrivant le second contact tactile au second élément logiciel.
11. Un support lisible par ordinateur comprenant une pluralité d'instructions configurées pour être exécutées par un dispositif tactile multipoints (200, 210), les instructions étant configurées pour faire en sorte que le dispositif tactile multipoints (200, 210) produise :
- 50 l'affichage d'une ou plusieurs vues (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) ;  
l'exécution d'un ou plusieurs éléments logiciels, chaque élément logiciel étant associé à une vue particulière (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) ;  
55 l'association à chaque vue (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) d'un indicateur tactile multipoints ou d'un indicateur tactile exclusif, ledit indicateur tactile multipoints indiquant si une vue particulière est autorisée ou non à recevoir des contacts tactiles simultanés multiples et ledit indicateur tactile exclusif indiquant si une vue particulière permet ou non à d'autres vues de recevoir des événements tactiles pendant

que la vue particulière est en train de recevoir un événement tactile ;  
la réception d'un ou plusieurs contacts tactiles sur les une ou plusieurs vues (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) ; et  
l'envoi sélectif d'un ou plusieurs événements tactiles, chaque événement tactile décrivant un contact tactile reçu, à un ou plusieurs des éléments logiciels associés à la une ou plusieurs vues (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) sur lesquels un contact tactile a été reçu en fonction des valeurs des indicateurs tactiles multipoints et tactiles exclusifs.

12. Le support lisible par ordinateur de la revendication 11, dans lequel les instructions sont en outre configurées pour faire en sorte que le dispositif tactile multipoints (200, 210) produise :

si un indicateur tactile multipoints est associé à une vue particulière, la permission donnée aux autres événements tactiles contemporains d'un événement tactile reçu par la vue particulière d'être envoyés aux éléments logiciels associés aux autres vues.

13. Le support lisible par ordinateur de la revendication 11, dans lequel, si un indicateur tactile multipoints est associé à une vue particulière, l'indicateur tactile multipoints indique si l'élément logiciel associé à cette vue particulière est autorisé ou non à traiter des contacts tactiles contemporains multiples situés dans cette vue.

14. Le support lisible par ordinateur de la revendication 11, dans lequel l'indicateur tactile exclusif empêche des événements tactiles d'être envoyés aux éléments logiciels associés aux vues autres qu'une vue avec un indicateur tactile exclusif attribué, tandis qu'un contact tactile est en train d'être reçu par la vue avec l'indicateur tactile exclusif attribué.

15. Le support lisible par ordinateur de la revendication 11, dans lequel le dispositif tactile multipoints (200, 210) est un téléphone mobile.

16. Le support lisible par ordinateur de la revendication 11, dans lequel le dispositif tactile multipoints (200, 210) est un dispositif de reproduction de supports numériques.

17. Le support lisible par ordinateur de la revendication 11, dans lequel les instructions sont en outre configurées pour faire en sorte que le dispositif tactile multipoints (200, 210) produise :

l'association d'un indicateur tactile multipoints à une première vue ;  
la réception d'un premier contact tactile sur la première vue, la première vue étant l'une des une ou plusieurs vues ;  
l'envoi d'un événement tactile décrivant le premier contact tactile à un premier élément logiciel, le premier élément logiciel étant l'un des un ou plusieurs éléments logiciels et étant associé à la première vue ;  
la détermination du point de savoir si l'indicateur tactile multipoints associé à la première vue indique ou non que la première vue est une vue tactile multipoints ; et  
si la première vue n'est pas une vue tactile multipoints, le blocage de tous les événements tactiles décrivant tous les autres contacts tactiles situés dans la première vue jusqu'à ce que le premier contact tactile ne soit plus reçu.

18. Le support lisible par ordinateur de la revendication 17, dans lequel les instructions sont en outre configurées pour faire en sorte que le dispositif tactile multipoints (200, 210) produise :

l'association d'un indicateur tactile exclusif à chacune des une ou plusieurs vues ;  
la détermination du point de savoir si l'indicateur tactile exclusif associé à la première vue indique ou non que la première vue est une vue tactile exclusive ; et  
si la première vue est une vue tactile exclusive, le blocage de tous les événements tactiles décrivant tous les autres contacts tactiles situés dans une quelconque vue autre que la première vue jusqu'à ce que le premier contact tactile ne soit plus reçu.

19. Le support lisible par ordinateur de la revendication 18, dans lequel la première vue n'est pas une vue tactile exclusive et les instructions sont en outre configurées pour faire en sorte que le dispositif tactile multipoints (200, 210) produise :

la réception d'un second contact tactile sur le panneau tactile multipoints, le second contact tactile situé sur



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une seconde vue et associé à un second élément logiciel ;  
la détermination du point de savoir si l'indicateur tactile exclusif et associé à la seconde vue indique ou non  
que la seconde vue est une vue tactile exclusive ; et  
si la seconde vue est une vue tactile exclusive, l'empêchement de l'envoi d'un événement tactile associé au  
second contact tactile au second élément logiciel jusqu'à ce que le premier contact tactile ne soit plus reçu.

5  
**20.** Le support lisible par ordinateur de la revendication 19, dans lequel les instructions sont en outre configurées pour  
faire en sorte que le dispositif tactile multipoints (200, 210) produise :

10 si la seconde vue n'est pas une vue tactile exclusive, l'envoi d'un événement tactile décrivant le second contact  
tactile au second élément logiciel.

15 **21.** Un dispositif activé par contacts tactiles multipoints (200, 210) comprenant un support lisible par ordinateur com-  
prenant une pluralité d'instructions configurées pour être exécutées par le dispositif (200, 210), les instructions étant  
configurées pour faire en sorte que le dispositif (200, 210) produise :

l'affichage d'une ou plusieurs vues (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) ;  
l'exécution d'un ou plusieurs éléments logiciels, chaque élément logiciel étant associé à une vue particulière  
(301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) ;

20 l'association à chaque vue (301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312) d'un indicateur tactile  
multipoints ou d'un indicateur tactile exclusif, ledit indicateur tactile multipoints indiquant si une vue particulière  
est autorisée ou non à recevoir des contacts tactiles simultanés multiples et ledit indicateur tactile exclusif  
indiquant si une vue particulière permet ou non à d'autres vues de recevoir des événements tactiles pendant  
que la vue particulière est en train de recevoir un événement tactile ;

25 la réception d'un ou plusieurs contacts tactiles sur les une ou plusieurs vues (301, 302, 303, 304, 305, 306,  
307, 308, 309, 310, 311, 312) ; et

l'envoi sélectif d'un ou plusieurs événements tactiles, chaque événement tactile décrivant un contact tactile  
reçu, à un ou plusieurs des éléments logiciels associés à la une ou plusieurs vues (301, 302, 303, 304, 305,  
306, 307, 308, 309, 310, 311, 312) sur lesquels un contact tactile a été reçu en fonction des valeurs des  
indicateurs tactiles multipoints et tactiles exclusifs.

30 **22.** Le dispositif activé par contacts tactiles multipoints (200, 210) de la revendication 21, dans lequel le dispositif activé  
par contacts tactiles multipoints (200, 210) est un téléphone mobile.

35 **23.** Le dispositif activé par contacts tactiles multipoints (200, 210) de la revendication 21, dans lequel le dispositif activé  
par contacts tactiles multipoints (200, 210) est un dispositif de reproduction de supports numériques.

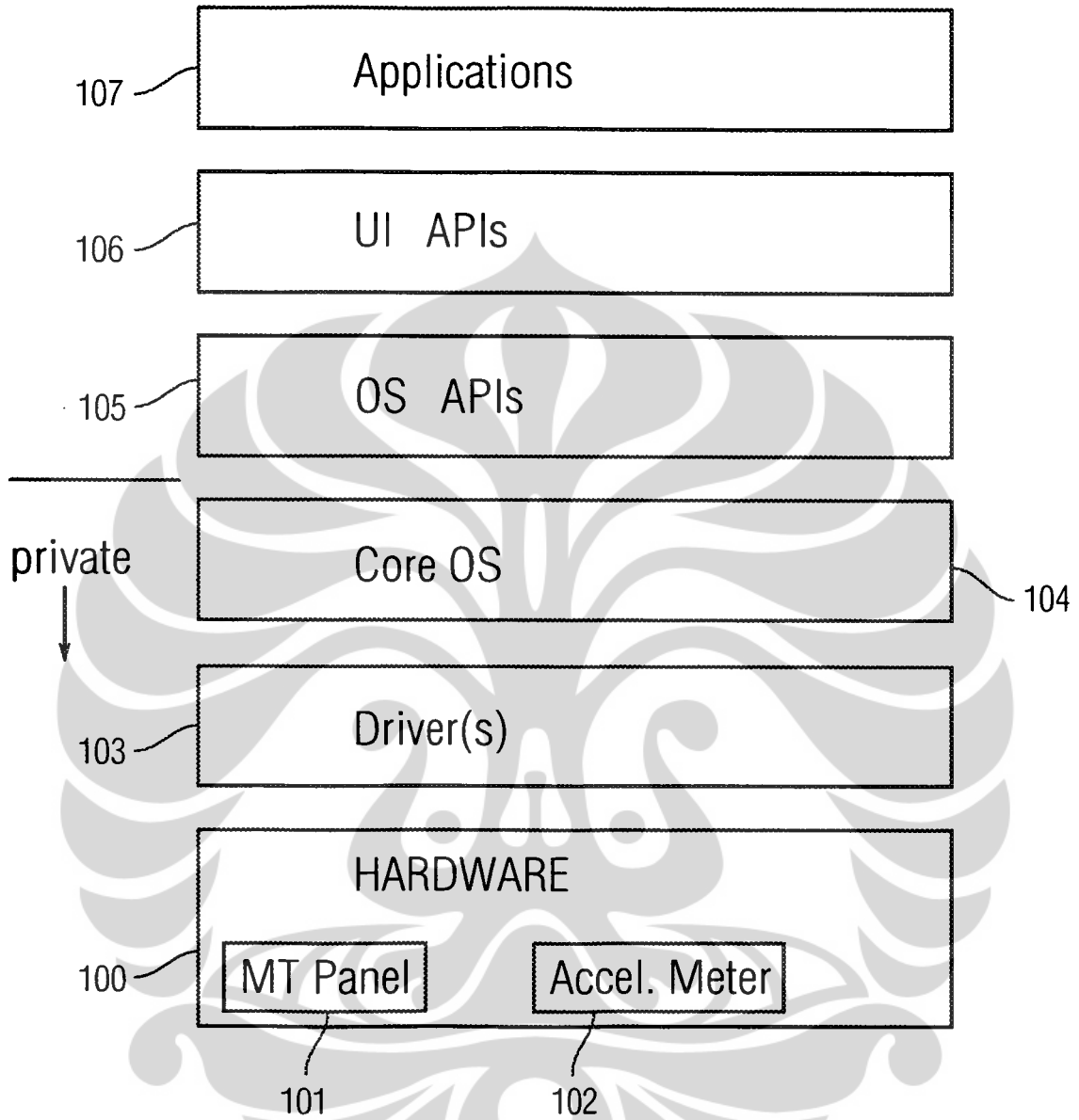


Fig. 1

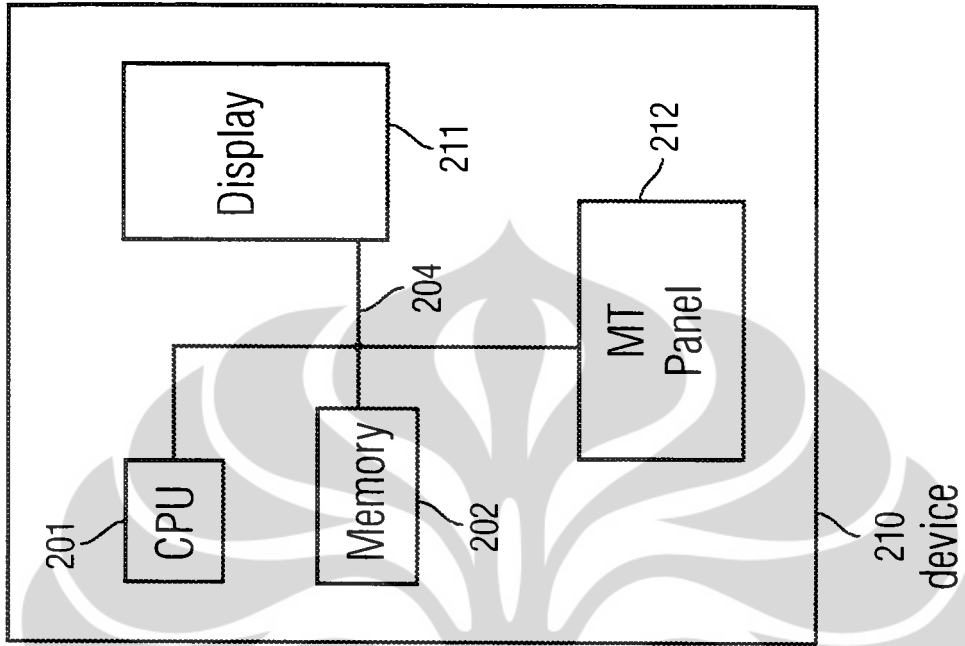


Fig. 2B

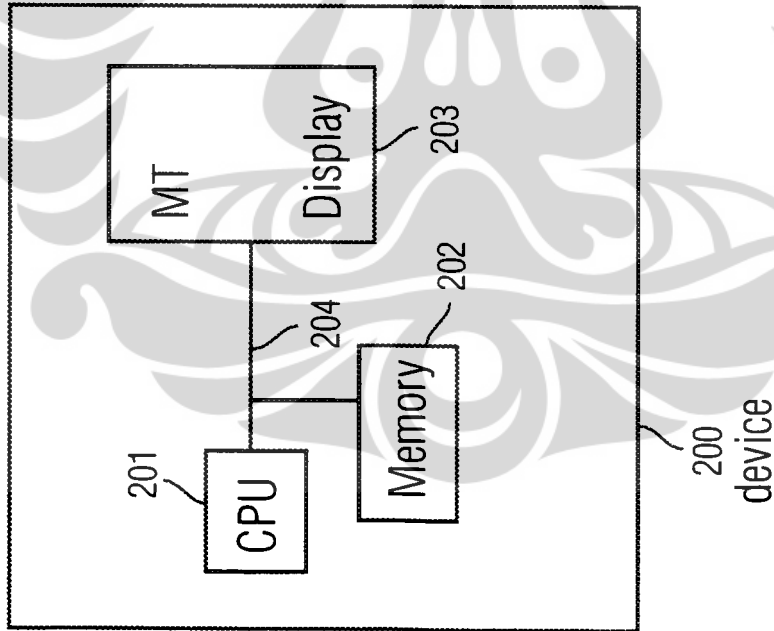


Fig. 2A

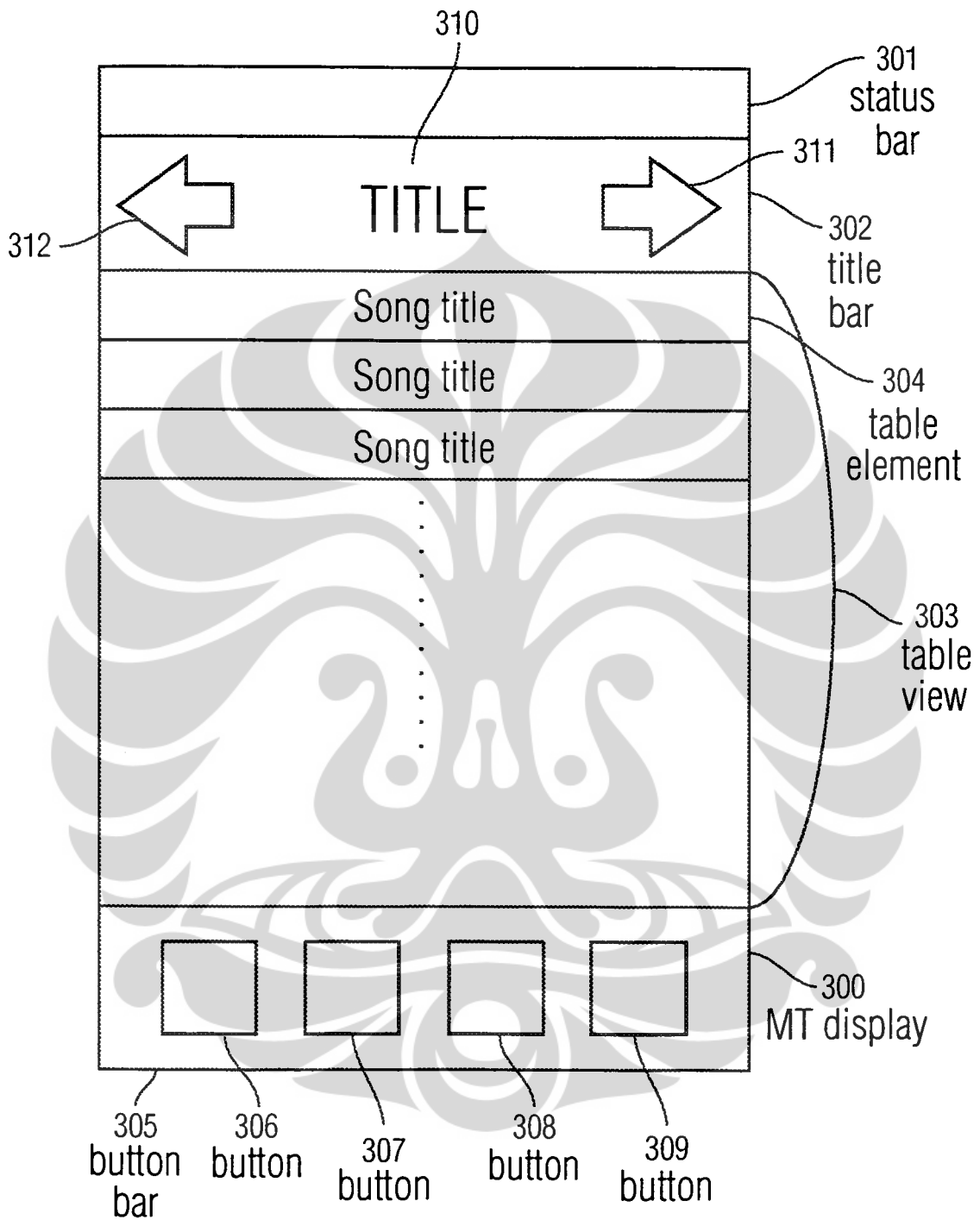


Fig. 3

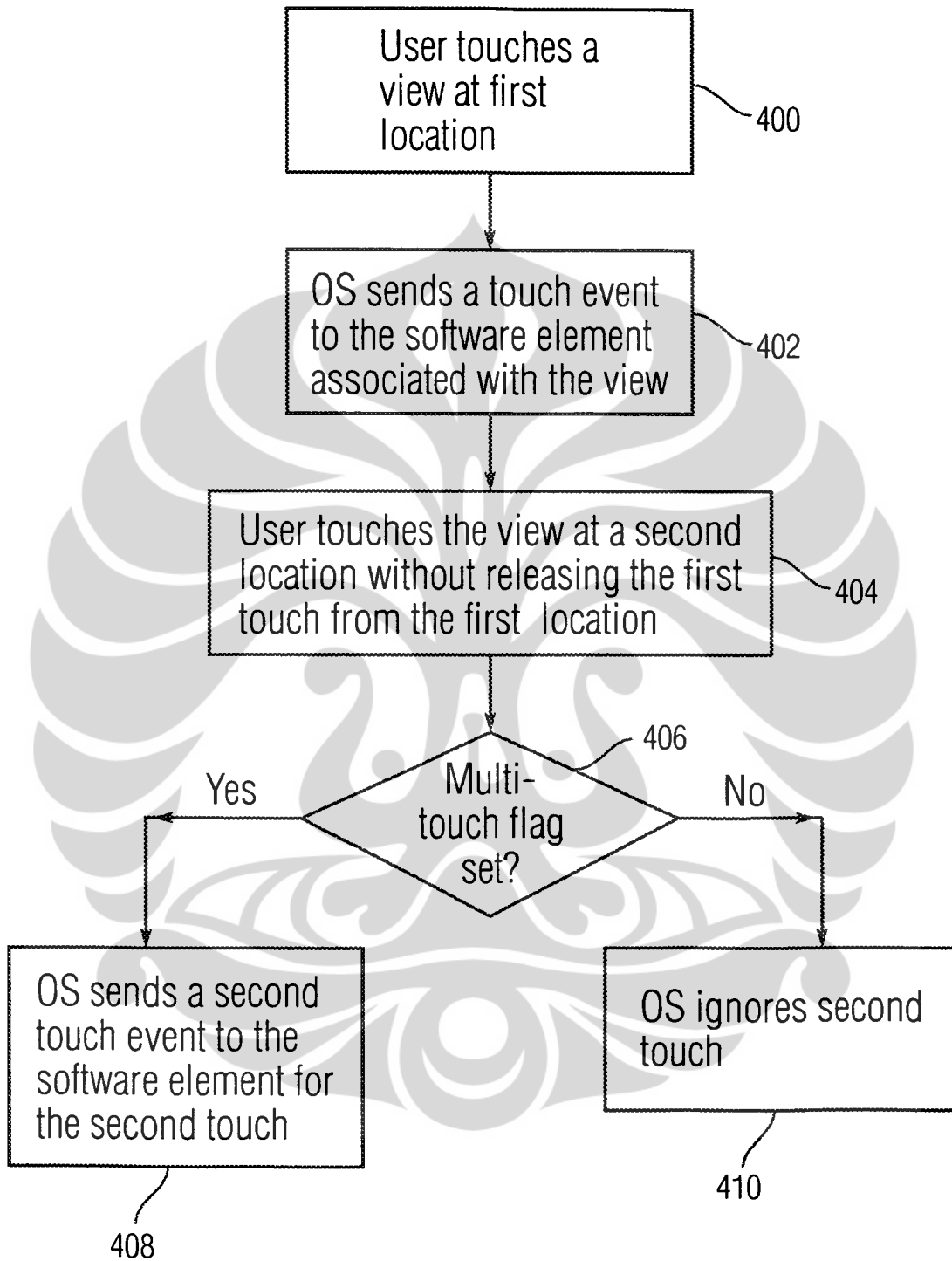


Fig. 4

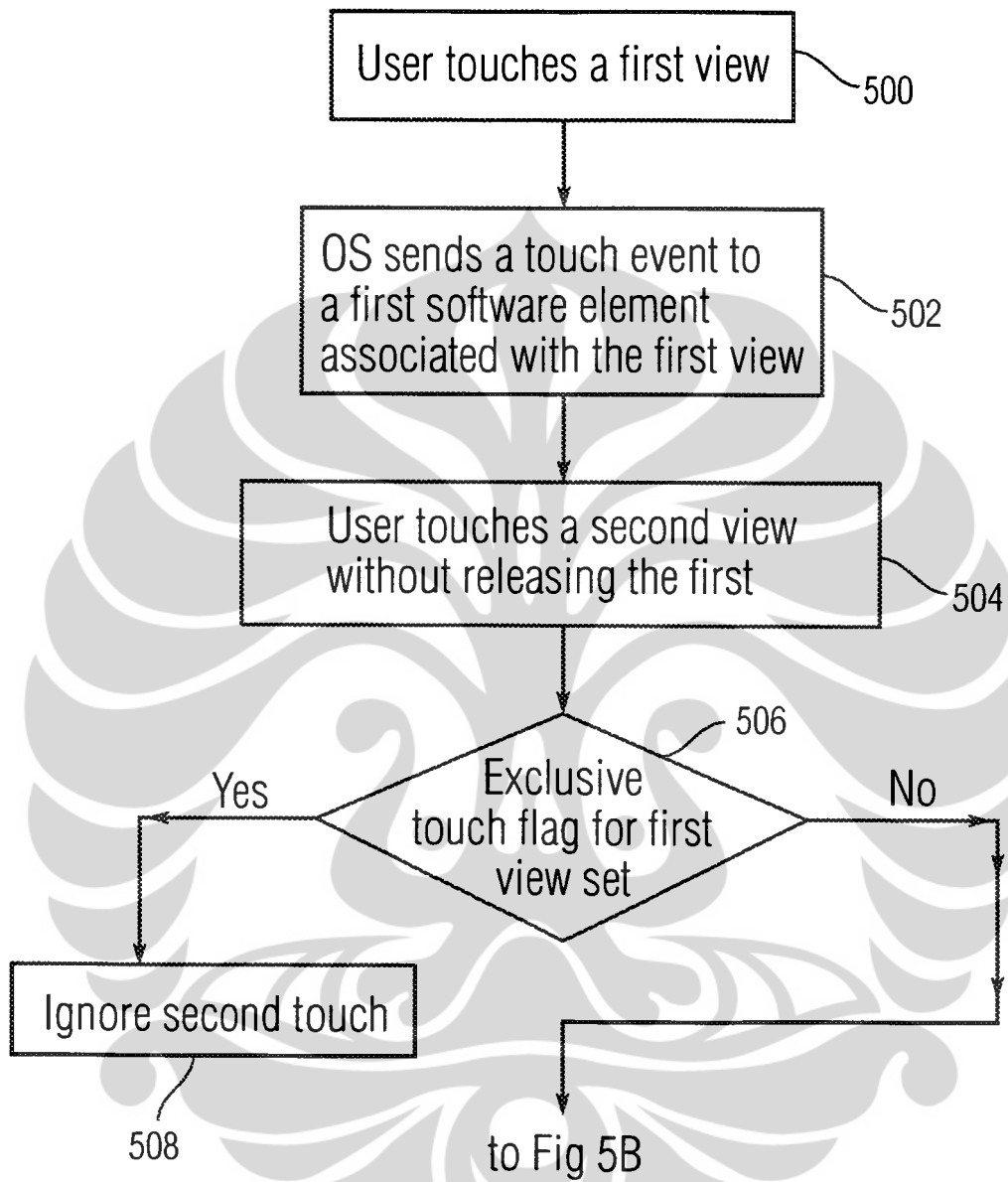


Fig. 5A

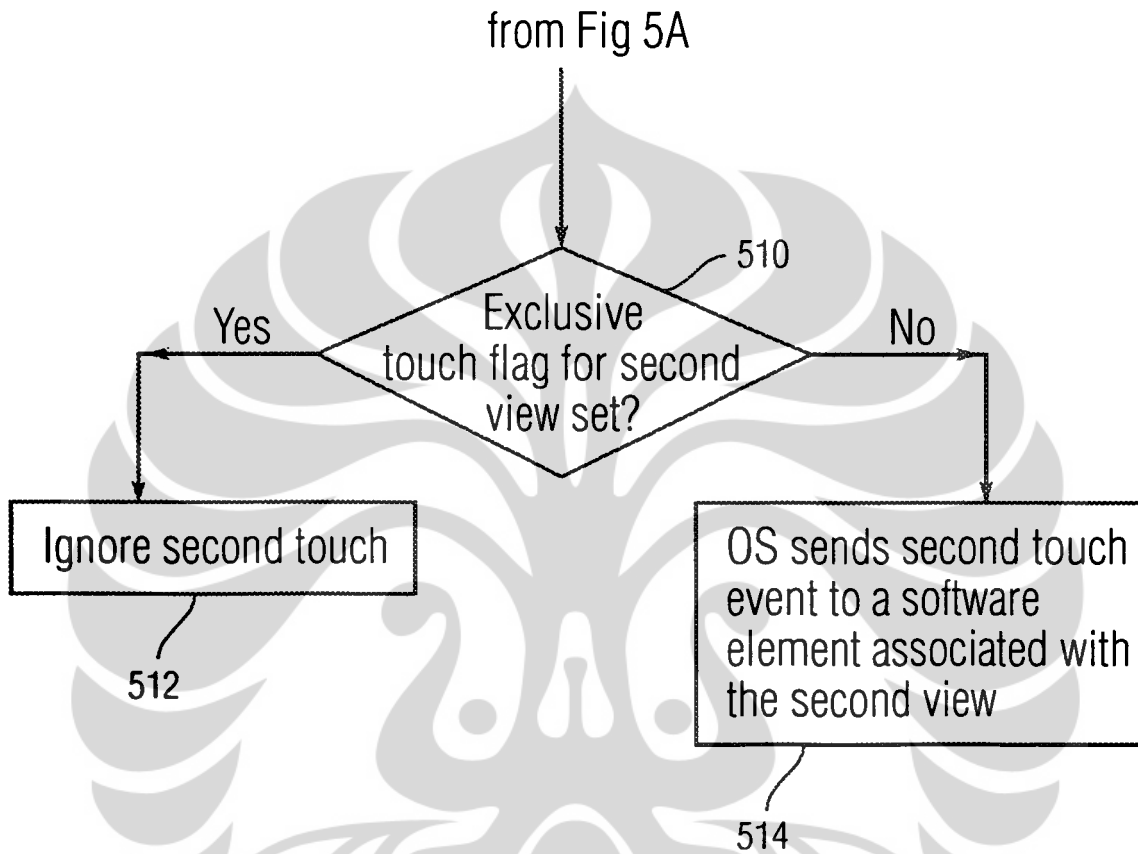


Fig. 5B

**REFERENCES CITED IN THE DESCRIPTION**

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**(54) UNLOCKING A DEVICE BY PERFORMING GESTURES ON AN UNLOCK IMAGE**

ENTSPERRUNG EINER VORRICHTUNG DURCH DURCHFÜHRUNG VON GESTEN AUF EINEM ENTSPERRUNGSBILD

DEVERROUILLAGE D'UN DISPOSITIF PAR DES GESTES EFFECTUES SUR UNE IMAGE DE DEVERROUILLAGE

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## Description

### TECHNICAL FIELD

**[0001]** The disclosed embodiments relate generally to user interfaces that employ touch-sensitive displays, and more particularly, to the unlocking of user interfaces on portable electronic devices.

### BACKGROUND

**[0002]** Touch-sensitive displays (also known as "touch screens" or "touchscreens") are well known in the art. Touch screens are used in many electronic devices to display graphics and text, and to provide a user interface through which a user may interact with the devices. A touch screen detects and responds to contact on the touch screen. A device may display one or more soft keys, menus, and other user-interface objects on the touch screen. A user may interact with the device by contacting the touch screen at locations corresponding to the user-interface objects with which she wishes to interact.

**[0003]** Touch screens are becoming more popular for use as displays and as user input devices on portable devices, such as mobile telephones and personal digital assistants (PDAs). One problem associated with using touch screens on portable devices is the unintentional activation or deactivation of functions due to unintentional contact with the touch screen. Thus, portable devices, touch screens on such devices, and/or applications running on such devices may be locked upon satisfaction of predefined lock conditions, such as upon entering an active call, after a predetermined time of idleness has elapsed, or upon manual locking by a user.

**[0004]** Devices with touch screens and/or applications running on such devices may be unlocked by any of several well-known unlocking procedures, such as pressing a predefined set of buttons (simultaneously or sequentially) or entering a code or password. Document WO 2004/001560 discloses unlocking a touch screen upon detecting touches on predetermined areas in a given order. These unlock procedures, however, have drawbacks. The button combinations may be hard to perform. Creating, memorizing, and recalling passwords, codes, and the like can be quite burdensome. These drawbacks may reduce the ease of use of the unlocking process and, as a consequence, the ease of use of the device in general.

**[0005]** Accordingly, there is a need for more efficient, user-friendly procedures for unlocking such devices, touch screens, and/or applications. More generally, there is a need for more efficient, user-friendly procedures for transitioning such devices, touch screens, and/or applications between user interface states (e.g., from a user interface state for a first application to a user interface state for a second application, between user interface states in the same application, or between locked and

unlocked states). In addition, there is a need for sensory feedback to the user regarding progress towards satisfaction of a user input condition that is required for the transition to occur.

### SUMMARY

**[0006]** A method of controlling a portable electronic device with a touch-sensitive display is defined by the appended claims.

**[0007]** The aforementioned method may be performed by a portable electronic device having a touch-sensitive display with a graphical user interface (GUI), one or more processors, memory and one or more modules, programs or sets of instructions stored in the memory for performing these methods. In some embodiments, the portable electronic device provides a plurality of functions, including wireless communication.

**[0008]** Instructions for performing the aforementioned methods may be included in a computer program product configured for execution by one or more processors.

### BRIEF DESCRIPTION OF THE DRAWINGS

**[0009]** For a better understanding of the aforementioned embodiments of the invention as well as additional embodiments thereof, reference should be made to the Description below, in conjunction with the following drawings in which like reference numerals refer to corresponding parts throughout the figures.

**[0010]** Figure 1 is a block diagram illustrating a portable electronic device, according to some embodiments of the invention.

**[0011]** Figure 2 is a flow diagram illustrating a process for transitioning a device to a user-interface unlock state, according to some embodiments of the invention.

**[0012]** Figure 3 is a flow diagram illustrating a process for transitioning a device to a user-interface unlock state, according to some embodiments of the invention.

**[0013]** Figures 4A - 4B illustrate the GUI display of a device in a user-interface lock state, according to some embodiments of the invention.

**[0014]** Figures 5A - 5D illustrate the GUI display of a device at various points of the performance of an unlock action gesture, according to some embodiments of the invention.

**[0015]** Figure 6 is a flow diagram illustrating a process for indicating progress towards satisfaction of a user input condition according to some embodiments of the invention.

**[0016]** Figures 7A - 7D illustrate the GUI display of a device that is transitioning the optical intensity of user-interface objects, according to some embodiments of the invention.

**[0017]** Figures 8A- 8C are graphs illustrating optical intensity as a function of the completion of the user input condition, according to some embodiments of the invention.

**[0018]** Figure 9 is a flow diagram illustrating a process for transitioning a device to a user interface active state, according to some embodiments of the invention.

**[0019]** Figure 10 illustrates the GUI of a device in a user-interface lock state that displays a plurality of unlock images, according to some embodiments of the invention.

**[0020]** Figures 11A - 11F illustrate the GUI display of a device at various points in the performance of an unlock action gesture, according to some embodiments of the invention.

#### DESCRIPTION

**[0021]** Reference will now be made in detail to embodiments, examples of which are illustrated in the accompanying drawings. In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the present invention. However, it will be apparent to one of ordinary skill in the art that the present invention may be practiced without these specific details. In other instances, well-known methods, procedures, components, and circuits have not been described in detail so as not to unnecessarily obscure aspects of the embodiments.

**[0022]** Figure 1 illustrates a portable electronic device, according to some embodiments of the invention. The device 100 includes a memory 102, a memory controller 104, one or more processing units (CPU's) 106, a peripherals interface 108, RF circuitry 112, audio circuitry 114, a speaker 116, a microphone 118, an input/output (I/O) subsystem 120, a touch screen 126, other input or control devices 128, and an external port 148. These components communicate over the one or more communication buses or signal lines 110. The device 100 can be any portable electronic device, including but not limited to a handheld computer, a tablet computer, a mobile phone, a media player, a personal digital assistant (PDA), or the like, including a combination of two or more of these items. It should be appreciated that the device 100 is only one example of a portable electronic device 100, and that the device 100 may have more or fewer components than shown, or a different configuration of components. The various components shown in Figure 1 may be implemented in hardware, software or a combination of both hardware and software, including one or more signal processing and/or application specific integrated circuits.

**[0023]** The memory 102 may include high speed random access memory, and may also include non-volatile memory, such as one or more magnetic disk storage devices, flash memory devices, or other non-volatile solid state memory devices. In some embodiments, the memory 102 may further include storage remotely located from the one or more processors 106, for instance network attached storage accessed via the RF circuitry 112 or external port 148 and a communications network (not shown) such as the Internet, intranet(s), Local Area Net-

works (LANs), Wide Local Area Networks (WLANs), Storage Area Networks (SANs) and the like, or any suitable combination thereof. Access to the memory 102 by other components of the device 100, such as the CPU 106 and the peripherals interface 108, may be controlled by the memory controller 104.

**[0024]** The peripherals interface 108 couples the input and output peripherals of the device to the CPU 106 and the memory 102. The one or more processors 106 run various software programs and/or sets of instructions stored in the memory 102 to perform various functions for the device 100 and to process data.

**[0025]** In some embodiments, the peripherals interface 108, the CPU 106, and the memory controller 104 may be implemented on a single chip, such as a chip 111. In some other embodiments, they may be implemented on separate chips.

**[0026]** The RF (radio frequency) circuitry 112 receives and sends electromagnetic waves. The RF circuitry 112 converts electrical signals to/from electromagnetic waves and communicates with communications networks and other communications devices via the electromagnetic waves. The RF circuitry 112 may include well-known circuitry for performing these functions, including but not limited to an antenna system, an RF transceiver, one or more amplifiers, a tuner, one or more oscillators, a digital signal processor, a CODEC chipset, a subscriber identity module (SIM) card, memory, and so forth. The RF circuitry 112 may communicate with the networks, such as the Internet, also referred to as the World Wide Web (WWW), an Intranet and/or a wireless network, such as a cellular telephone network, a wireless local area network (LAN) and/or a metropolitan area network (MAN), and other devices by wireless communication. The wireless communication may use any of a plurality of communications standards, protocols and technologies, including but not limited to Global System for Mobile Communications (GSM), Enhanced Data GSM Environment (EDGE), wideband code division multiple access (W-CDMA), code division multiple access (CDMA), time division multiple access (TDMA), Bluetooth, Wireless Fidelity (Wi-Fi) (e.g., IEEE 802.11a, IEEE 802.11b, IEEE 802.11g and/or IEEE 802.11n), voice over Internet Protocol (VoIP), Wi-MAX, a protocol for email, instant messaging, and/or Short Message Service (SMS)), or any other suitable communication protocol, including communication protocols not yet developed as of the filing date of this document.

**[0027]** The audio circuitry 114, the speaker 116, and the microphone 118 provide an audio interface between a user and the device 100. The audio circuitry 114 receives audio data from the peripherals interface 108, converts the audio data to an electrical signal, and transmits the electrical signal to the speaker 116. The speaker converts the electrical signal to human-audible sound waves. The audio circuitry 114 also receives electrical signals converted by the microphone 116 from sound waves. The audio circuitry 114 converts the electrical signal to

audio data and transmits the audio data to the peripherals interface 108 for processing. Audio data may be retrieved from and/or transmitted to the memory 102 and/or the RF circuitry 112 by the peripherals interface 108. In some embodiments, the audio circuitry 114 also includes a headset jack (not shown). The headset jack provides an interface between the audio circuitry 114 and removable audio input/output peripherals, such as output-only headphones or a headset with both output (headphone for one or both ears) and input (microphone).

**[0028]** The I/O subsystem 120 provides the interface between input/output peripherals on the device 100, such as the touch screen 126 and other input/control devices 128, and the peripherals interface 108. The I/O subsystem 120 includes a touch-screen controller 122 and one or more input controllers 124 for other input or control devices. The one or more input controllers 124 receive/send electrical signals from/to other input or control devices 128. The other input/control devices 128 may include physical buttons (e.g., push buttons, rocker buttons, etc.), dials, slider switches, sticks, and so forth.

**[0029]** The touch screen 126 provides both an output interface and an input interface between the device and a user. The touch-screen controller 122 receives/sends electrical signals from/to the touch screen 126. The touch screen 126 displays visual output to the user. The visual output may include text, graphics, video, and any combination thereof. Some or all of the visual output may correspond to user-interface objects, further details of which are described below.

**[0030]** The touch screen 126 also accepts input from the user based on haptic and/or tactile contact. The touch screen 126 forms a touch-sensitive surface that accepts user input. The touch screen 126 and the touch screen controller 122 (along with any associated modules and/or sets of instructions in the memory 102) detects contact (and any movement or break of the contact) on the touch screen 126 and converts the detected contact into interaction with user-interface objects, such as one or more soft keys, that are displayed on the touch screen. In an exemplary embodiment, a point of contact between the touch screen 126 and the user corresponds to one or more digits of the user. The touch screen 126 may use LCD (liquid crystal display) technology, or LPD (light emitting polymer display) technology, although other display technologies may be used in other embodiments. The touch screen 126 and touch screen controller 122 may detect contact and any movement or break thereof using any of a plurality of touch sensitivity technologies, including but not limited to capacitive, resistive, infrared, and surface acoustic wave technologies, as well as other proximity sensor arrays or other elements for determining one or more points of contact with the touch screen 126. The touch-sensitive display may be analogous to the multi-touch sensitive tablets described in the following U.S. Patents: 6,323,846 (Westerman et al.), 6,570,557 (Westerman et al.), and/or 6,677,932 (Westerman), and/or U.S. Patent Publication 2002/0015024A1. However, the touch

screen 126 displays visual output from the portable device, whereas touch sensitive tablets do not provide visual output. The touch screen 126 may have a resolution in excess of 100 dpi. In an exemplary embodiment, the touch screen 126 may have a resolution of approximately 168 dpi. The user may make contact with the touch screen 126 using any suitable object or appendage, such as a stylus, finger, and so forth.

**[0031]** In some embodiments, in addition to the touch screen, the device 100 may include a touchpad (not shown) for activating or deactivating particular functions. In some embodiments, the touchpad is a touch-sensitive area of the device that, unlike the touch screen, does not display visual output. The touchpad may be a touch-sensitive surface that is separate from the touch screen 126 or an extension of the touch-sensitive surface formed by the touch screen 126.

**[0032]** The device 100 also includes a power system 130 for powering the various components. The power system 130 may include a power management system, one or more power sources (e.g., battery, alternating current (AC)), a recharging system, a power failure detection circuit, a power converter or inverter, a power status indicator (e.g., a light-emitting diode (LED)) and any other components associated with the generation, management and distribution of power in portable devices.

**[0033]** In some embodiments, the software components include an operating system 132, a communication module (or set of instructions) 134, a contact/motion module (or set of instructions) 138, a graphics module (or set of instructions) 140, a user interface state module (or set of instructions) 144, and one or more applications (or set of instructions) 146.

**[0034]** The operating system 132 (e.g., Darwin, RTXC, LINUX, UNIX, OS X, WINDOWS, or an embedded operating system such as VxWorks) includes various software components and/or drivers for controlling and managing general system tasks (e.g., memory management, storage device control, power management, etc.) and facilitates communication between various hardware and software components.

**[0035]** The communication module 134 facilitates communication with other devices over one or more external ports 148 and also includes various software components for handling data received by the RF circuitry 112 and/or the external port 148. The external port 148 (e.g., Universal Serial Bus (USB), FIREWIRE, etc.) is adapted for coupling directly to other devices or indirectly over a network (e.g., the Internet, wireless LAN, etc.).

**[0036]** The contact/motion module 138 detects contact with the touch screen 126, in conjunction with the touch-screen controller 122. The contact/motion module 138 includes various software components for performing various operations related to detection of contact with the touch screen 122, such as determining if contact has occurred, determining if there is movement of the contact and tracking the movement across the touch screen, and determining if the contact has been broken (i.e., if the

contact has ceased). Determining movement of the point of contact may include determining speed (magnitude), velocity (magnitude and direction), and/or an acceleration (including magnitude and/or direction) of the point of contact. In some embodiments, the contact/motion module 126 and the touch screen controller 122 also detects contact on the touchpad.

**[0037]** The graphics module 140 includes various known software components for rendering and displaying graphics on the touch screen 126. Note that the term "graphics" includes any object that can be displayed to a user, including without limitation text, web pages, icons (such as user-interface objects including soft keys), digital images, videos, animations and the like.

**[0038]** In some embodiments, the graphics module 140 includes an optical intensity module 142. The optical intensity module 142 controls the optical intensity of graphical objects, such as user-interface objects, displayed on the touch screen 126. Controlling the optical intensity may include increasing or decreasing the optical intensity of a graphical object. In some embodiments, the increase or decrease may follow predefined functions.

**[0039]** The user interface state module 144 controls the user interface state of the device 100. The user interface state module 144 may include a lock module 150 and an unlock module 152. The lock module detects satisfaction of any of one or more conditions to transition the device 100 to a user-interface lock state and to transition the device 100 to the lock state. The unlock module detects satisfaction of any of one or more conditions to transition the device to a user-interface unlock state and to transition the device 100 to the unlock state. Further details regarding the user interface states are described below.

**[0040]** The one or more applications 130 can include any applications installed on the device 100, including without limitation, a browser, address book, contact list, email, instant messaging, word processing, keyboard emulation, widgets, JAVA-enabled applications, encryption, digital rights management, voice recognition, voice replication, location determination capability (such as that provided by the global positioning system (GPS)), a music player (which plays back recorded music stored in one or more files, such as MP3 or AAC files), etc.

**[0041]** In some embodiments, the device 100 may include the functionality of an MP3 player, such as an iPod (trademark of Apple Computer, Inc.). The device 100 may, therefore, include a 36-pin connector that is compatible with the iPod. In some embodiments, the device 100 may include one or more optional optical sensors (not shown), such as CMOS or CCD image sensors, for use in imaging applications.

**[0042]** In some embodiments, the device 100 is a device where operation of a predefined set of functions on the device is performed exclusively through the touch screen 126 and, if included on the device 100, the touchpad. By using the touch screen and touchpad as the primary input/control device for operation of the device 100,

the number of physical input/control devices (such as push buttons, dials, and the like) on the device 100 may be reduced. In one embodiment, the device 100 includes the touch screen 126, the touchpad, a push button for powering the device on/off and locking the device, a volume adjustment rocker button and a slider switch for toggling ringer profiles. The push button may be used to turn the power on/off on the device by depressing the button and holding the button in the depressed state for a predefined time interval, or may be used to lock the device by depressing the button and releasing the button before the predefined time interval has elapsed. In an alternative embodiment, the device 100 also may accept verbal input for activation or deactivation of some functions through the microphone 118.

**[0043]** The predefined set of functions that are performed exclusively through the touch screen and the touchpad include navigation between user interfaces. In some embodiments, the touchpad, when touched by the user, navigates the device 100 to a main, home, or root menu from any user interface that may be displayed on the device 100. In such embodiments, the touchpad may be referred to as a "menu button." In some other embodiments, the menu button may be a physical push button or other physical input/control device instead of a touchpad.

#### *User Interface States*

**[0044]** The device 100 may have a plurality of user interface states. A user interface state is a state in which the device 100 responds in a predefined manner to user input. In some embodiments, the plurality of user interface states includes a user-interface lock state and a user-interface unlock state. In some embodiments, the plurality of user interface states includes states for a plurality of applications.

**[0045]** In the user-interface lock state (hereinafter the "lock state"), the device 100 is powered on and operational but ignores most, if not all, user input. That is, the device 100 takes no action in response to user input and/or the device 100 is prevented from performing a predefined set of operations in response to the user input. The predefined set of operations may include navigation between user interfaces and activation or deactivation of a predefined set of functions. The lock state may be used to prevent unintentional or unauthorized use of the device 100 or activation or deactivation of functions on the device 100. When the device 100 is in the lock state, the device 100 may be said to be locked. In some embodiments, the device 100 in the lock state may respond to a limited set of user inputs, including input that corresponds to an attempt to transition the device 100 to the user-interface unlock state or input that corresponds to powering the device 100 off. In other words, the locked device 100 responds to user input corresponding to attempts to transition the device 100 to the user-interface unlock state or powering the device 100 off, but does not

respond to user input corresponding to attempts to navigate between user interfaces. It should be appreciated that even if the device 100 ignores a user input, the device 100 may still provide sensory feedback (such as visual, audio, or vibration feedback) to the user upon detection of the input to indicate that the input will be ignored.

**[0046]** In embodiments where the device 100 includes the touch screen 126, while the device 100 is locked, a predefined set of operations, such as navigation between user interfaces, is prevented from being performed in response to contact on the touch screen 126 when the device 100 is locked. In other words, when the contact is being ignored by the locked device 100, the touch screen may be said to be locked. A locked device 100, however, may still respond to a limited class of contact on the touch screen 126. The limited class includes contact that is determined by the device 100 to correspond to an attempt to transition the device 100 to the user-interface unlock state.

**[0047]** In the user-interface unlock state (hereinafter the "unlock state"), the device 100 is in its normal operating state, detecting and responding to user input corresponding to interaction with the user interface. A device 100 that is in the unlock state may be described as an unlocked device 100. An unlocked device 100 detects and responds to user input for navigating between user interfaces, entry of data and activation or deactivation of functions. In embodiments where the device 100 includes the touch screen 126, the unlocked device 100 detects and responds to contact corresponding to navigation between user interfaces, entry of data and activation or deactivation of functions through the touch screen 126.

#### *Unlocking a Device via Gestures*

**[0048]** Figure 2 is a flow diagram illustrating a process 200 for transitioning a device to a user-interface unlock state, according to some embodiments of the invention. As used herein, transitioning from one state to another refers to the process of going from one state to another. The process may be, as perceived by the user, instantaneous, near-instantaneous, gradual or at any suitable rate. The progression of the process may be controlled automatically by the device, such as the device 100 (Figure 1), independent of the user, once the process is activated; or it may be controlled by the user. While the process flow 200 described below includes a number of operations that appear to occur in a specific order, it should be apparent that these processes may include more or fewer operations, which may be executed serially or in parallel (e.g., using parallel processors or a multi-threading environment).

**[0049]** A device is set to the lock state (202). The device may be set (that is, transition completely to the lock state from any other state) to the locked state upon satisfaction of any of one or more lock conditions. The lock conditions may include events such as the elapsing of a predefined time of inactivity, entry into an active call, or

powering on the device. The lock conditions may also include user intervention, namely the user locking the device by a predefined user input. In some embodiments, the user may be allowed to specify the events that serve as lock conditions. For example, the user may configure the device to transition to the lock state upon the elapsing of a predefined time of inactivity but not upon powering on the device.

**[0050]** In some embodiments, the locked device displays on the touch screen one or more visual cues of an unlock action that the user may perform to unlock the device (204). The visual cue(s) provide hints or reminders of the unlock action to the user. The visual cues may be textual, graphical or any combination thereof. In some embodiments, the visual cues are displayed upon particular events occurring while the device is locked. The particular events that trigger display of the visual cues may include an incoming call, incoming message, or some other event that may require the user's attention. In some embodiments, the visual cues may also be displayed upon particular user inputs, such as the user interacting with the menu button, the user making contact with the locked touch screen and/or the user interacting with any other input/control device. The locked device, when not displaying the visual cues, may power down the touch screen (which helps to conserve power) or display other objects on the touch screen, such as a screen saver or information that may be of interest to the user (e.g., battery charge remaining, date and time, network strength, etc.).

**[0051]** The unlock action includes contact with the touch screen. In some embodiments, the unlock action is a predefined gesture performed on the touch screen. As used herein, a gesture is a motion of the object/appendage making contact with the touch screen. For example, the predefined gesture may include a contact of the touch screen on the left edge (to initialize the gesture), a horizontal movement of the point of contact to the opposite edge while maintaining continuous contact with the touch screen, and a breaking of the contact at the opposite edge (to complete the gesture).

**[0052]** While the touch screen is locked, the user may initiate contact with the touch screen, i.e., touch the touch screen (206). For convenience of explanation, contact on the touch screen in the process 200 and in other embodiments described below will be described as performed by the user using at least one hand using one or more fingers. However, it should be appreciated that the contact may be made using any suitable object or appendage, such as a stylus, finger, etc. The contact may include one or more taps on the touch screen, maintaining continuous contact with the touch screen, movement of the point of contact while maintaining continuous contact, a breaking of the contact, or any combination thereof.

**[0053]** The device detects the contact on the touch screen (208). If the contact does not correspond to an attempt to perform the unlock action, or if the contact

corresponds to a failed or aborted attempt by the user to perform the unlock action (210 - no), then the device remains locked (212). For example, if the unlock action is a horizontal movement of the point of contact across the touch screen while maintaining continuous contact with the touch screen, and the detected contact is a series of random taps on the touch screen, then the device will remain locked because the contact does not correspond to the unlock action.

**[0054]** If the contact corresponds to a successful performance of the unlock action, i.e., the user performed the unlock action successfully (210 - yes), the device transitions to the unlock state (214). For example, if the unlock action is a horizontal movement of the point of contact across the touch screen while maintaining continuous contact with the touch screen, and the detected contact is the horizontal movement with the continuous contact, then the device transitions to the unlock state.

**[0055]** In some embodiments, the device begins the process of transitioning to the unlock state upon detection of any contact on the touch screen and aborts the transition as soon as the device determines that the contact does not correspond to an unlock action or is a failed/aborted unlock action. For example, if the unlock action is a predefined gesture, the device may begin the process of transitioning to the unlock state as soon as it detects the initial contact of the gesture and continues the progression of the transition as the gesture is performed. If the user aborts the gesture before it is completed, the device aborts the transition and remains in the lock state. If the gesture is completed, the device completes the transition to the unlock state and becomes unlocked. As another example, if the unlock action is a horizontal movement of the point of contact across the touch screen while maintaining continuous contact with the touch screen, and the user taps the touch screen once, the device begins the process of the state transition as soon as it detects the tap but also aborts the process soon after because it realizes that the tap is just a tap and does not correspond to the unlock action.

**[0056]** While the device is unlocked, the device may display on the touch screen user-interface objects corresponding to one or more functions of the device and/or information that may be of interest to the user. The user-interface objects are objects that make up the user interface of the device and may include, without limitation, text, images, icons, soft keys (or "virtual buttons"), pull-down menus, radio buttons, check boxes, selectable lists, and so forth. The displayed user-interface objects may include non-interactive objects that convey information or contribute to the look and feel of the user interface, interactive objects with which the user may interact, or any combination thereof. The user may interact with the user-interface objects by making contact with the touch screen at one or more touch screen locations corresponding to the interactive objects with which she wishes to interact. The device detects the contact and responds to the detected contact by performing the operation(s)

corresponding to the interaction with the interactive object(s).

**[0057]** While the device is locked, the user may still make contact on the touch screen. However, the locked device is prevented from performing a predefined set of actions in response to any detected contact until the device is unlocked. The prevented predefined set of action may include navigating between user interfaces and entry of data by the user.

**[0058]** While the device is locked, the device may display one or more visual cues of the unlock action, as described above. In some embodiments, the device may also display, along with the visual cues, an unlock image. The unlock image is a graphical, interactive user-interface object with which the user interacts in order to unlock the device. In other words, the unlock action is performed with respect to the unlock image. In some embodiments, performing the unlock action with respect to the image includes dragging the unlock image in a predefined manner, which moves the unlock image across the touch screen. In some embodiments, if the unlock action is not completed, the GUI display can show reverse progress towards the locked state by gradually returning the unlock image to its position in the locked state

**[0059]** In some embodiments, in addition to visual feedback, the electronic device supplies non-visual feedback to indicate progress towards completion of the unlock action. In some embodiments, in addition to visual feedback, the electronic device supplies non-visual feedback to indicate completion of the unlock action. The additional feedback may include audible feedback (e.g., sound(s)) or physical feedback (e.g., vibration(s)).

**[0060]** Figure 3 is a flow diagram illustrating a process 300 for transitioning a device to a user-interface unlock state using an unlock image, according to some embodiments of the invention. The process 300 is similar to the process 200 (Figure 2) with the addition of an unlock image that is displayed with the visual cues. The unlock action in the process 300 is performed with respect to the unlock image, i.e., the unlock action includes interaction with the unlock image. While the process flow 300 described below includes a number of operations that appear to occur in a specific order, it should be apparent that these processes can include more or fewer operations, which can be executed serially or in parallel (e.g., using parallel processors or a multi-threading environment).

**[0061]** The device is locked upon satisfaction of a lock condition (302), similar to the operation 202 (Figure 2). An unlock image and visual cues of the unlock action using the unlock image are displayed (304). The operation 304 is the same as the operation 204 (Figure 2), except that in the operation 304 an unlock image is displayed in addition to the visual cues.

**[0062]** As described above, the unlock action includes interaction with the unlock image. In some embodiments, the unlock action includes the user performing a predefined gesture with respect to the unlock image. In some

embodiments, the gesture includes dragging the unlock image to a location on the touch screen that meets one or more predefined unlock criteria. In other words, the user makes contact with the touch screen at a location corresponding to the unlock image and then performs the predefined gesture while maintaining continuous contact with the touch screen, dragging the image to the location that meets the predefined unlock criteria. In some embodiments, the unlock action is completed by breaking the contact with the touch screen (thus releasing the unlock image) upon completion of the predefined gesture.

**[0063]** A location meeting one or more predefined unlock criteria is simply a location on the touch screen that is predefined as a location to which the unlock image is to be dragged in order to unlock the device. The location (s) may be defined narrowly or broadly and may be one or more particular locations on the touch screen, one or more regions on the touch screen, or any combination thereof. For example, the location may be defined as a particular marked location, areas at each of the four corners of the touch screen, or a quadrant of the touch screen, etc.

**[0064]** In some embodiments, the interaction includes dragging the unlock image to a predefined location on the touch screen. For example, the unlock action may include dragging the unlock image from one corner of the touch screen to another corner of the touch screen. As another example, the unlock action may include dragging the unlock image from one edge of the touch screen to the opposite edge. The emphasis here is on the final destination of the unlock image (and of the finger). Thus, the user can drag the unlock image from its initial location along any desired path. As long as the unlock image reaches the predefined location and is released at that location, the device is unlocked. It should be appreciated that the predefined location may be, as described above, defined narrowly or broadly and may be one or more particular locations on the touch screen, one or more regions on the touch screen, or any combination thereof.

**[0065]** In some other embodiments, the unlock action includes dragging the unlock image along a predefined path. For example, the unlock action may include dragging the unlock image clockwise along the perimeter of the touch screen (the path being the perimeter of the touch screen), from one of the corners and back. As another example, the unlock action may include dragging the unlock image from one edge of the touch screen to the opposite edge in a linear path. The emphasis here is on the path along which the unlock image (and the finger) moves. Because of the emphasis on the path, the final location to which the unlock image is to be moved may be defined broadly. For example, the unlock action may be to drag the unlock image from its initial location, along the predefined path, to any spot within a predefined region on the touch screen. The predefined path may include one or more straight lines or lines with twists and turns.

**[0066]** The user makes contact with the touch screen (306), similar to the operation 206 (Figure 2). The device detects the contact with the touch screen (308), similar to the operation 208 (Figure 2). If the contact does not correspond to successful performance of the unlock action with respect to the image (310 - no), the device remains locked. If the contact does correspond to successful performance of the unlock action with respect to the image (310 - yes), the device is unlocked (314).

**[0067]** Figures 4A- 4B illustrate the GUI display of a device in a user-interface lock state, according to some embodiments of the invention. In Figure 4A, device 400 includes a touch screen 408 and a menu button 410. The device 400 is locked and the touch screen 408 is displaying an unlock image 402 and visual cues. The visual cues shown include a channel 404 indicating the path of the gesture/movement along which the unlock image 402 is to be dragged, similar to a groove along which a slider switch moves; and one or more arrows 406 indicating the direction of the gesture/movement. The end of the channel 404 (in Figures 4A - 4B and 5A - 5D, the "end" of the channel is the right end) also serves as a predefined location to which the unlock image 402 is to be dragged. The unlock image 402 may also include an arrow to further remind the user the direction of the gesture/movement. As described above, the visual cues and the unlock image may be displayed by the device 400 upon an event that may require the user's attention (e.g., incoming call or message) or upon user intervention (e.g., the user pressing the menu button 410 while the device is locked).

**[0068]** In some embodiments, the arrows 406 and the arrow on the unlock image 402 may be animated. For example, the arrow on the unlock image 402 may appear and disappear in a pulse-like manner and the arrows 406 may emanate from one end of the channel 406 in sync with the pulsing of the arrow on the unlock image 402. As shown in Figure 4B, the arrow 406 may move along the channel 404 and disappear when it moves to the end of the channel 404.

**[0069]** The visual cues illustrated in Figures 4A and 4B remind the user that the unlock action is a predefined gesture that includes a horizontal movement of the finger (and thus moving the point of contact) along the channel 404, from the beginning of the channel 404, where the unlock image is initially located, to the end of the channel 404. It should be appreciated, however, that the visual cues shown in Figures 4A - 4B are merely exemplary and that more or fewer visual cues, or alternative visual cues may be used. The content of the visual cues may be based on the particulars of the unlock action.

**[0070]** Figures 5A - 5D illustrate the GUI display of a device at various points of the performance of an unlock action gesture, according to some embodiments of the invention. In Figure 5A, the user, represented by the hand and finger 502 (not drawn to scale), begins the unlock action by touching the touch screen 408 of device 400 with her finger 502. In some embodiments, the touch screen 408 is initially in sleep mode and/or dark, and the



screen 408 displays the unlock image 402 when touched. The user touches the touch screen 408 at the location corresponding to the unlock image 402, which is located initially at the left end of the channel 404. The contact, either overlapping with the unlock image 402 or in proximity to the unlock image 402, is detected by the device 400 and is determined to be an attempt to unlock the touch screen, based on the fact that the user 502 is interacting with the unlock image 402.

**[0071]** In Figure 5B, the user is in the process of performing the gesture by moving her finger, which is in continuous contact with the touch screen 408, in the direction of movement 504. The unlock image 402 is dragged along the channel 404 as a result of the gesture. The channel 404 reminds the user that the unlock gesture is a horizontal motion. In some embodiments, the channel 404 indicates the predefined location (in Figures 5A - 5D, the right end of the channel) to which the user drags the unlock image 402 to complete the unlock action and/or the predefined path along which the user drags the unlock image 402 to complete the unlock action.

**[0072]** In Figure 5C, the user has dragged the unlock image 402 to the right end of the channel 404. Once the user releases the unlock image 402 at the right end of the channel 404, the unlock action is complete. Upon completion of the unlock gesture, the device unlocks and displays on the touch screen 408 user-interface objects associated with normal operation of the device 400. Figure 5D illustrates an example of user-interface objects that may be displayed when the device 400 is unlocked. In Figure 5D, the device 400 displays a menu 506. The menu 506 includes interactive user-interface objects corresponding to various applications or operations. A user may interact with the user-interface objects to activate an application or perform an operation. It should be appreciated, however, that the device 400, upon being unlocked, may display additional or alternative user-interface objects.

**[0073]** In some embodiments, the unlock image 402 may also be used to indicate failure of performance of the unlock action. For example, if the user breaks the contact with the touch screen before the unlock image reaches the right end of the channel 404, the unlock action has failed. The device 400 may display the unlock image 402 returning to its initial position on the left end of the channel 404, allowing the user to attempt the unlock action again, if she so chooses. In some embodiments, the device goes back to sleep if no gesture is applied in a predetermined period of time.

**[0074]** In some embodiments, the user may unlock the device 400 by contacting the touch screen 408 and moving the point of contact horizontally along a fraction of the channel 404, i.e., the user need not move all the way to the right end of the channel. In some embodiments, the user may unlock the device 400 by making contact anywhere on the touch screen 408 and moving the point of contact horizontally as if he or she were following the channel 404.

**[0075]** In some embodiments, the lock/unlock feature may apply to specific applications that are executing on the device 400 as opposed to the device 400 as a whole. In some embodiments, an unlock gesture transitions from one application to another, for example, from a telephone application to a music player or vice versa. The lock/unlock feature may include a hold or pause feature. In some embodiments, as the user transitions from a first application and to a second application, a user interface for the second application may fade in (i.e., increase in intensity) and a user interface for the first application may fade out (i.e., decrease in intensity). The fade in and fade out may occur smoothly over a predetermined time interval, such as 0.2 s, 1 s or 2s. The pre-determined time interval may be in accordance with the unlock gesture, such as the time it takes the user to perform the gesture.

#### *Indication of Progress Towards Satisfaction of a User Input Condition*

**[0076]** Figure 6 is a flow diagram illustrating a process 600 for indicating progress towards satisfaction of a user input condition according to some embodiments of the invention. While the process flow 600 described below includes a number of operations that appear to occur in a specific order, it should be apparent that these processes can include more or fewer operations, which can be executed serially or in parallel (e.g., using parallel processors or a multi-threading environment).

**[0077]** While an electronic device is in a first user-interface state, progress is detected (602) towards satisfaction of a user input condition needed to transition to a second user-interface state. In some embodiments, the first user-interface state is for a first application and the second user-interface state is for a second application. In some embodiments, the first user-interface state is a lock state and the second user-interface state is an unlock state.

**[0078]** While the device is in the first user-interface state, progress is indicated (604) towards satisfaction of the condition by transitioning an optical intensity of one or more user interface objects associated with the second user-interface state. The change in optical intensity of the user-interface objects provides a user with sensory feedback of the progress in transitioning between user interface states.

**[0079]** In some embodiments, in addition to visual feedback, the device supplies non-visual feedback to indicate progress towards satisfaction of the user input condition. The additional feedback may include audible feedback (e.g., sound(s)) or physical feedback (e.g., vibration(s)).

**[0080]** The device transitions (606) to the second user-interface state if the condition is satisfied. In some embodiments, in addition to visual feedback, the device supplies non-visual feedback to indicate satisfaction of the user input condition. The additional feedback may include audible feedback (e.g., sound(s)) or physical feed-

back (e.g., vibration(s)).

**[0081]** The optical intensity of a user-interface object, as used herein, is the object's degree of visual materialization. The optical intensity may be measured along a scale between a predefined minimum and a predefined maximum. In some embodiments, the optical intensity may be measured along a logarithmic scale. In some embodiments, the optical intensity may be perceived by users as a transparency effect (or lack thereof) applied to the user-interface object. In some embodiments, the minimum optical intensity means that the object is not displayed at all (i.e., the object is not perceptible to the user), and the maximum optical intensity means that the object is displayed without any transparency effect (i.e., the object has completely materialized visually and is perceptible to the user). In some other embodiments, the optical intensity may be the visual differentiation between the user-interface object and the background, based on color, hue, color saturation, brightness, contrast, transparency, and any combination thereof.

**[0082]** In some embodiments, the optical intensity of the user-interface objects to be displayed in the second user-interface state is increased smoothly. Smoothly may include a transition time that is greater than a predefined threshold, for example, 0.2 s, 1s or 2s. The rate of the transition of the optical intensity may be any predefined rate.

**[0083]** In some embodiments, the indication of progress towards completion of the user input condition is a function of the user's satisfaction of the condition. For example, for a transition to an unlock state, the indication of progress towards completion is a function of the user's performance of an unlock action. For a linear function, the indication of progress is 10% complete when the unlock action is 10% complete; the indication of progress is 50% complete when the unlock action is 50% complete, and so forth, up to 100% completion of the unlock action, at which point the transition to the unlock state occurs. Correspondingly, for a linear function, the transition of the optical intensity from an initial value to a final value is 10% complete when the unlock action is 10% complete; the transition is 50% complete when the unlock action is 50% complete, and so forth, up to 100% completion of the unlock action, at which point the optical intensity is at its final value. In some embodiments, the user may perceive the optical intensity transition as a fading in of the user-interface objects as the unlock action is performed. It should be appreciated that the function need not be linear and alternative functions may be used, further details of which are described below, in relation to Figures 8A - 8C.

**[0084]** If the user input condition includes a predefined gesture then the indication of progress of the gesture may be defined in terms of how much of the gesture is completed and how much of the gesture is remaining. For example, if the gesture includes moving the finger from one edge of the screen to the opposite edge horizontally, then the indication of progress may be defined

in terms of the distance between the two edges because the distance remaining objectively measures how much further the user has to move her finger to complete the gesture.

**[0085]** If the user input condition includes dragging an image to a predefined location, then the indication of progress may be defined in terms of the distance between the initial location of the image and the predefined location to which the image is to be dragged in order to complete the input condition.

**[0086]** If the user input condition includes dragging an image along a predefined path, then the indication of progress may be defined in terms of the length of the predefined path.

**[0087]** Figures 7A- 7D illustrate the GUI display of a device that is transitioning the optical intensity of user-interface objects concurrent with a transition from a first user interface state to a second user interface state, according to some embodiments of the invention. In Figure 7A, the device 700 is locked and has received an incoming call. The device 700 is displaying a prompt 706 to the user, informing the user of the incoming call, on the touch screen 714. The device is also displaying the unlock image 702 and channel 704 so that the user can unlock the device 700 in order to accept or decline the incoming call. The user begins the unlock action by making contact on the touch screen with her finger 710 on the unlock image 702.

**[0088]** In Figure 7B, the user is in the process of dragging the unlock image 702 along the channel 704 in the direction of movement 712. As the user drags the unlock image, a set of virtual buttons 708 appears and increases in optical intensity. The virtual buttons 708 are shown with dotted outlines to indicate that they are not yet at their final optical intensity levels. The virtual buttons 708 are associated with the prompt 706; the virtual buttons shown in Figure 7B - 7D allow the user to decline or accept the incoming call. However, the user cannot interact with the virtual buttons 708 until the device is unlocked and the virtual buttons have reached their final optical intensity. In Figure 7C, the user drags the unlock image 702 further along the channel 704 in the direction of movement 712. The virtual buttons 708 have increased further in optical intensity relative to their optical intensity in Figure 7B, as illustrated by their different style of dotted outlines. The increases in optical intensity indicate to the user progress towards completion of the unlock action.

**[0089]** In Figure 7D, the user completes the unlock action by dragging the unlock image to the right end of the channel 704 and releasing the unlock image 702. The device 700 transitions to the unlock state. The unlock image 702 and the channel 704 disappear from the display and the virtual buttons 708 are at their final optical intensity levels, as illustrated by their solid outlines. At this point the user may interact with the virtual buttons 708 and accept or decline the incoming call.

**[0090]** As described above in relation to Figures 5A - 5D, if the unlock action fails because the user releases

the unlock image prematurely, the unlock image may return to its initial location. In some embodiments, the optical intensity of the virtual buttons 708 or other user-interface objects that were increasing in optical intensity as the unlock action was performed may, concurrent with the return of the unlock image to its initial location, have their optical intensity decreased smoothly, back to their initial levels.

**[0091]** Figures 8A - 8C are graphs illustrating optical intensity as a function of the completion of the user input condition, according to some embodiments of the invention. In Figure 8A, the optical intensity is a linear function of the completion of the user input condition. At 0% completion, the optical intensity is at an initial value (in this case, the initial value is 0). As the completion percentage increases, the optical intensity increases linearly with the completion percentage, until it reaches the final value at 100% completion.

**[0092]** In Figure 8B, the optical intensity is a nonlinear function of the completion of the user input condition. At 0% completion, the optical intensity is at an initial value (in this case, the initial value is 0). As the completion percentage increases, the optical intensity increases gradually at first, but the increase becomes steeper as the completion percentage increases, until it reaches the final value at 100% completion.

**[0093]** In Figure 8C, the optical intensity is another nonlinear function of the completion of the user input condition. At 0% completion, the optical intensity is at an initial value (in this case, the initial value is 0). As the completion percentage increases, the optical intensity increases steeply at first, but the increase becomes more gradual as the completion percentage increases, until it reaches the final value at 100% completion. In some embodiments, the optical intensity may increase according to a logarithmic scale.

**[0094]** In some embodiments, the optical intensity may reach its final value prior to 100 % completion of the user input condition (e.g., at 90% completion).

#### *User Interface Active States Corresponding to Events or Applications*

**[0095]** Figure 9 is a flow diagram illustrating a process 900 for transitioning a device to a user interface active state corresponding to one of a plurality of unlock images, according to some embodiments of the invention. In some embodiments, the device may have one or more active applications running when the device becomes locked. Additionally, while locked, the device may continue to receive events, such as incoming calls, messages, voicemail notifications, and so forth. The device may display multiple unlock images on the touch screen, each unlock image corresponding to an active application or incoming event. Performing the unlock action using one of the multiple unlock images unlocks the device and displays the application and/or event corresponding to the unlock image. The user interface active state, as used

herein, means that the device is unlocked and a corresponding application or event is displayed on the touch screen to the user. While the process flow 900 described below includes a number of operations that appear to occur in a specific order, it should be apparent that these processes can include more or fewer operations, which can be executed serially or in parallel (e.g., using parallel processors or a multi-threading environment).

**[0096]** The device is locked upon satisfaction of a predefined lock condition (902). The device may have active applications running when it is locked and the active applications may continue running while the device is locked. Additionally, while the device is locked, the device may receive events, such as incoming calls, messages, and voicemail notifications.

**[0097]** The device displays a plurality of unlock images, each displayed unlock image corresponding to an active application running or an event received while the device is locked (904). In some embodiments, the device also displays visual cues of the unlock action with respect to each unlock image. The device may display additional unlock images and visual cues as additional events are received. The user makes contact with the touch screen (906). The device detects the contact gesture (908). If the detected contact gesture does not correspond to successful performance of the unlock action with respect to any one of the displayed unlock images (e.g., because the contact is not an attempt to perform the unlock action or the unlock action failed/was aborted) (910 - no), the device remains locked (912). If the detected contact gesture does correspond to successful performance of the unlock action with respect to one of the displayed unlock images (910 - yes), the touch screen is unlocked and the running application or event corresponding to the one of the unlock images is displayed on the touch screen (914). In other words, the device transitions to a first active state corresponding to the first image if the detected contact corresponds to a predefined gesture with respect to the first image; the device transitions to a second active state distinct from the first active state and corresponding to the second image if the detected contact corresponds to a predefined gesture with respect to the second image; and so on.

**[0098]** The device becomes unlocked and makes the corresponding event or application visible to the user, active, or running in the foreground, as opposed to running in the background, upon performance of the unlock action with respect to the particular unlock image. The user-interface active state includes the running application or incoming event corresponding to the particular unlock image with which the user interacted being displayed prominently on the touch screen, in addition to the device being unlocked. Thus, unlocking using a first unlock image (if multiple unlock images are displayed) transitions the device to a first user-interface active state, in which the device is unlocked and the application/event corresponding to the first unlock image is displayed prominently. Unlocking using a second image transitions

the device to a second user-interface active state, in which the device is unlocked and the application/event corresponding to the second unlock image is displayed prominently.

**[0099]** In some embodiments, the device may prioritize which unlock images to display. The device may display a subset of the corresponding unlock images on the touch screen at one time. The device may decide which subset to display based on one or more predefined criteria. For example, the device may display only unlock images corresponding to the most recent events and/or running applications. As another example, the device may display only unlock images corresponding to incoming events.

**[0100]** Figure 10 illustrates the GUI of a device 1000 in a user-interface lock state that displays a plurality of unlock images, according to some embodiments of the invention. In Figure 10, the touch screen 1014 of the device 1000 is locked. A first unlock image 1002 is displayed with corresponding visual cues, such as the first channel 1004 and arrow 1006. A second unlock image 1008 is displayed with corresponding visual cues, such as the second channel 1010 and arrow 1012. The touch screen 1014 may display additional unlock images and visual cues. The first unlock image 1002 corresponds to a first running application or received event. The second unlock image 1008 corresponds to a second running application or received event. The first and second unlock images and visual cues are similar to the unlock image and visual cues described above, in relation to Figures 4A and 4B. The arrows 1006 and 1012 may be animated to move from one end of the channels 1004 and/or 1010 to the other end, in order to indicate the proper direction of the predefined gesture or movement of the unlock image.

**[0101]** Figures 11A - 11F illustrate the GUI display of a device at various points in the performance of an unlock action gesture corresponding to one of a plurality of unlock images, according to some embodiments of the invention. In Figure 11A, the user makes contact with the touch screen 1014 using her finger 1102 (not shown to scale), at the location corresponding to the second unlock image 1008. The user performs the unlock action gesture by moving the point of contact, dragging the second unlock image 1008. Figure 11B shows a snapshot of the device 1000 during the pendency of the unlock action. The second unlock image 1008 is moved along in the channel 1010 in the direction of movement 1104.

**[0102]** Figure 11C shows the second unlock image 1008 moved to the end of the channel 1010, where the unlock action with respect to the second unlock image 1008 will be completed once the user breaks the contact (and releases the second unlock image 1008). In some embodiments, the unlock action is completed when the unlock image 1008 is moved to the end of the channel 1010, with or without the user breaking contact, and the second unlock image 1008 disappears. As shown in Figure 11D, upon completion of the unlock action with respect to the second unlock image 1008, the device displays on the touch screen the user-interface objects 1106

associated with the application or event corresponding to the second unlock image 1008. In Figure 11D, the event corresponding to the second unlock image is an incoming text message event and a prompt for the user to read it.

**[0103]** The user, instead of performing the unlock action with respect to the second unlock image 1108, may instead perform the unlock action gesture with respect to the first unlock image 1002. In Figure 11E, the user does so and performs the unlock action with respect to the first unlock image 1002 by dragging the first unlock image, in the direction 1104, to the right end of the channel 1004. Upon completion of the unlock action, the device 1000 displays the user-interface objects 1108 associated with the application or event corresponding to the first unlock image 1002. In Figure 11F, the application corresponding to the first unlock image is a music player application.

**[0104]** In some embodiments, the transition to a user interface active state, as described in Figures 9 and 11A-11E, may also include a concurrent transition in the optical intensity of user-interface objects, similar to that described above in relation to Figures 6, 7A-7D, and 8A - 8C. Concurrent with the transition to a user interface active state, the user-interface objects associated with the application or event corresponding to the unlock image with which the user interacted to unlock the device increase in intensity. For example, the optical intensity of the user-interface objects 1106 associated with the text message prompt in Figure 11D may be increased smoothly, as a function of the progress towards completion of the unlock action with respect to the second unlock image 1008. As another example, the optical intensity of the user-interface objects 1108 associated with music player application in Figure 11F may be increased smoothly, as a function of the progress towards completion of the unlock action with respect to the first unlock image 1002.

**[0105]** The foregoing description, for purpose of explanation, has been described with reference to specific embodiments. However, the illustrative discussions above are not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its practical applications, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated.

## Claims

1. A computer-implemented method of controlling a portable electronic device (400, 1000) comprising a touch-sensitive display (408, 1014), comprising:

detecting (308, 908) contact with the touch-sensitive display (408, 1014) while the device is in a user-interface lock state;

transitioning (314, 914) the device (400, 1000) to a user-interface unlock state if the detected contact corresponds to a predefined gesture; and

maintaining (312, 912) the device (400, 1000) in the user-interface lock state if the detected contact does not correspond to the predefined gesture;

**characterized by**

moving an unlock image (402, 1002, 1008) along a predefined displayed path on the touch-sensitive display (408, 1014) in accordance with the contact, wherein the unlock image (402, 1002, 1008) is a graphical, interactive user-interface object with which a user interacts in order to unlock the device (400, 1000).

2. The computer-implemented method of claim 1, further comprising displaying (304) the unlock image (402) and one or more visual cues on the touch-sensitive display (408) while the portable electronic device (400) is in a user-interface lock state, wherein the one or more visual cues indicate a movement of the unlock image (402) along the touch-sensitive display (408) that will unlock the device (400).

3. The computer-implemented method of claim 1, further comprising displaying (304) the unlock image (402) on the touch-sensitive display (408) while the device (400) is in a user-interface lock state; and wherein the predefined gesture corresponds to moving the unlock image (402) along the predefined displayed path on the touch-sensitive display (408) to a predefined location on the touch-sensitive display (408).

4. The computer-implemented method of claim 1, further comprising displaying (304) the unlock image (402) on the touch-sensitive display (408) while the device (400) is in a user-interface lock state; and wherein the predefined gesture corresponds to moving the unlock image (402) across the touch-sensitive display (408) according to the predefined displayed path on the touch-sensitive display (408).

5. The computer-implemented method of claim 1, further comprising:

displaying (904) a first unlock image (1002) and a second unlock image (1008) on the touch-sensitive display (1014) while the device (1000) is in a user-interface lock state; and

wherein transitioning the device (1000) to a user-interface unlock state comprises:

transitioning (914) the device (1000) to a first active state corresponding to the first unlock image (1002) if the detected contact corresponds to a predefined gesture with respect to the first unlock image (1002); and

transitioning (914) the device (1000) to a second active state distinct from the first active state if the detected contact corresponds to a predefined gesture with respect to the second unlock image (1008).

6. A portable electronic device (100, 400, 1000), comprising:

a touch-sensitive display (126, 408, 1014);

one or more processors (106);

memory (102); and

one or more programs (132 to 146), wherein the one or more programs (132 to 146) are stored in the memory (102) and configured to be executed by the one or more processors (106), the programs (132 to 146) including instructions for:

detecting (308, 908) contact with the touch-sensitive display (126, 408, 1014) while the device (100, 400, 1000) is in a user-interface lock state;

transitioning (314, 914) the device (100, 400, 1000) to a user-interface unlock state if the detected contact corresponds to a predefined gesture;

and

maintaining (312, 912) the device (100, 400, 1000) in the user-interface lock state if the detected contact does not correspond to the predefined gesture;

**characterized in that**

the programs (132 to 146) further include instructions for moving an unlock image (402, 1002, 1008) along a predefined displayed path on the touch-sensitive display (126, 408, 1014) in accordance with the contact,

wherein the unlock image (402, 1002, 1008) is a graphical, interactive user-interface object with which a user interacts in order to unlock the device (100, 400, 1000).

7. The portable electronic device of claim 6, wherein the device (100, 400, 1000) is a portable multifunction device.

8. The portable electronic device of claim 6, further comprising instructions for preventing (302, 310, 312) the device (100, 400) from performing a predefined set of actions in response to detecting any contact with the touch-sensitive display (126, 408) that

does not correspond to the predefined gesture while the device (100, 400) is in the user-interface lock state.

9. The portable electronic device of claim 6, wherein the predefined displayed path is a channel (404). 5
10. The portable electronic device of claim 6, wherein the detected contact is a movement of a point of contact across the touch-sensitive display (126, 408) while maintaining continuous contact with the touch-sensitive display (126, 408). 10
11. The portable electronic device of claim 10, wherein the movement of the point of contact across the touch-sensitive display (126, 408) while maintaining continuous contact with the touch-sensitive display (126, 408) is a horizontal movement. 15
12. The portable electronic device of claim 6, wherein the one or more programs (132 to 146) further comprise instructions for displaying (304) the unlock image (402) and one or more visual cues on the touch-sensitive display (126, 408) while the portable electronic device (100, 400) is in a user-interface lock state, wherein the one or more visual cues indicate a movement of the unlock image (402) along the touch-sensitive display (126, 408) that will unlock the device (100, 400). 20
13. The portable electronic device of claim 12, wherein the one or more visual cues include an arrow. 25
14. The portable electronic device of claim 12, wherein the one or more visual cues include text. 30
15. The portable electronic device of claim 6, wherein the one or more programs (132 to 146) further comprise instructions for displaying (304) the unlock image (402) on the touch-sensitive display (126, 408) while the device (100, 400) is in a user-interface lock state; and wherein the predefined gesture corresponds to moving the unlock image (402) along the predefined displayed path on the touch-sensitive display (126, 408) to a predefined location on the touch-sensitive display (126, 408). 35
16. The portable electronic device of claim 6, wherein the one or more programs (132 to 146) further comprise instructions for displaying (304) the unlock image on the touch-sensitive display while the device is in a user-interface lock state; and wherein the predefined gesture corresponds to moving the unlock image (402) across the touch-sensitive display (126, 408) according to a predefined displayed path on the touch-sensitive display (126, 408). 40
17. The portable electronic device of claim 6, wherein the one or more programs further comprise instructions for displaying (904) a first unlock image (1002) and a second unlock image (1008) on the touch-sensitive display (1014) while the device (1000) is in a user-interface lock state; and wherein the instructions for transitioning the device to a user-interface unlock state comprise: 45
- instructions for transitioning the device (1000) to a first active state corresponding to the first unlock image (1002) if the detected contact corresponds to a predefined gesture with respect to the first unlock image (1002), and instructions for transitioning the device (1000) to a second active state distinct from the first active state if the detected contact corresponds to a predefined gesture with respect to the second unlock image (1008). 50
18. A computer program product with instructions configured for execution by one or more processors (106), which when executed by a portable electronic device (100, 400, 1000) with a touch-sensitive display (126, 408, 1014), cause the device (100, 400, 1000) to perform the method of any of claims 1 to 5. 55

17. The portable electronic device of claim 6, wherein the one or more programs further comprise instructions for displaying (904) a first unlock image (1002) and a second unlock image (1008) on the touch-sensitive display (1014) while the device (1000) is in a user-interface lock state; and wherein the instructions for transitioning the device to a user-interface unlock state comprise:

instructions for transitioning the device (1000) to a first active state corresponding to the first unlock image (1002) if the detected contact corresponds to a predefined gesture with respect to the first unlock image (1002), and instructions for transitioning the device (1000) to a second active state distinct from the first active state if the detected contact corresponds to a predefined gesture with respect to the second unlock image (1008).

18. A computer program product with instructions configured for execution by one or more processors (106), which when executed by a portable electronic device (100, 400, 1000) with a touch-sensitive display (126, 408, 1014), cause the device (100, 400, 1000) to perform the method of any of claims 1 to 5.

#### Patentansprüche

1. Computerimplementiertes Verfahren zur Steuerung einer tragbaren elektronischen Vorrichtung (400, 1000), umfassend eine berührungsempfindliche Anzeigevorrichtung (408, 1014), umfassend:

Detektieren (308, 908) eines Kontaktes mit der berührungsempfindlichen Anzeigevorrichtung (408, 1014), während sich die Vorrichtung in einem gesperrten Zustand einer Benutzerschnittstelle befindet;

Überführen (314, 914) der Vorrichtung (400, 1000) in einen entsperrten Zustand der Benutzerschnittstelle, wenn der detektierte Kontakt zu einer vordefinierten Geste korrespondiert; und Beibehalten (312, 912) der Vorrichtung (400, 1000) in dem gesperrten Zustand der Benutzerschnittstelle, wenn der detektierte Kontakt nicht zu der vordefinierten Geste korrespondiert;

#### gekennzeichnet durch

Bewegen eines Entsperrbildes (402, 1002, 1008) entlang eines vordefinierten angezeigten Pfades auf der berührungsempfindlichen Anzeigevorrichtung (408, 1014) im Einklang mit dem Kontakt, wobei das Entsperrbild (402, 1002, 1008) ein graphisches interaktives Benutzerschnittstellenobjekt ist, mit dem ein Benutzer interagiert, um die Vorrichtung (400, 1000) zu entsperren.

2. Computerimplementiertes Verfahren gemäß Anspruch 1, weiterhin umfassend Anzeigen (304) des Entsperrbildes (402) und von einem oder mehreren visuellen Hinweisen auf der berührungsempfindlichen Anzeigevorrichtung (408) während sich die elektronische Vorrichtung (400) in einem gesperrten Zustand der Benutzerschnittstelle befindet, wobei der eine oder die mehreren visuellen Hinweise eine Bewegung des Entsperrbildes (402) entlang der berührungsempfindlichen Anzeigevorrichtung (408) anzeigen, die die Vorrichtung (400) entsperrt. 5
3. Computerimplementiertes Verfahren gemäß Anspruch 1, weiterhin aufweisend: Anzeigen (304) des Entsperrbildes (402) auf der berührungsempfindlichen Anzeigevorrichtung (408), während sich die Vorrichtung (400) in einem gesperrten Zustand der Benutzerschnittstelle befindet; und wobei die vordefinierte Geste zu einer Bewegung des Entsperrbildes (402) entlang des vordefinierten angezeigten Pfades auf der berührungsempfindlichen Anzeigevorrichtung (408) zu einem vordefinierten Ort auf der berührungsempfindlichen Anzeigevorrichtung (408) korrespondiert. 10 15 20 25
4. Computerimplementiertes Verfahren gemäß Anspruch 1, weiterhin umfassend: Anzeigen (304) des Entsperrbildes (402) auf der berührungsempfindlichen Anzeigevorrichtung (408), während sich die Vorrichtung (400) in einem gesperrten Zustand der Benutzerschnittstelle befindet; und wobei die vordefinierte Geste zu einer Bewegung des Entsperrbildes (402) über die berührungsempfindliche Anzeigevorrichtung (408) gemäß dem vordefinierten angezeigten Pfad auf der berührungsempfindlichen Anzeigevorrichtung (408) korrespondiert. 30 35
5. Computerimplementiertes Verfahren gemäß Anspruch 1, weiterhin umfassend: 40  
 Anzeigen (904) eines ersten Entsperrbildes (1002) und eines zweiten Entsperrbildes (1008) auf der berührungsempfindlichen Anzeigevorrichtung (1014), während sich die Vorrichtung (1000) in einem gesperrten Zustand der Benutzerschnittstelle befindet; und 45  
 wobei die Überführung der Vorrichtung (1000) in einem entsperrten Zustand der Benutzerschnittstelle umfasst: 50  
 Überführen (914) der Vorrichtung (1000) in einen ersten aktiven Zustand, der zu dem ersten Entsperrbild (1002) korrespondiert, wenn der detektierte Kontakt zu einer vordefinierten Geste in Bezug auf das erste Entsperrbild (1002) korrespondiert; und  
 Überführen (914) der Vorrichtung (1000) in einen zweiten aktiven Zustand, der sich von dem ersten aktiven Zustand unterscheidet, wenn der detektierte Kontakt zu einer vordefinierten Geste in Bezug auf das zweite Entsperrbild (1008) korrespondiert. 55
6. Tragbare elektronische Vorrichtung (100, 400, 1000), umfassend:  
 eine berührungsempfindliche Anzeigevorrichtung (126, 408, 1014);  
 einen oder mehrere Prozessoren (106);  
 Speicher (102); und  
 ein oder mehrere Programme (132 bis 146), wobei das eine oder die mehreren Programme (132 bis 146) in dem Speicher (102) abgelegt sind und konfiguriert sind, um auf dem einen oder den mehreren Prozessoren (106) ausgeführt zu werden, wobei die Programme (132 bis 146) Anweisungen enthalten zum:  
 Detektieren (308, 908) von Kontakten mit der berührungsempfindlichen Anzeigevorrichtung (126, 408, 1014) während sich die Vorrichtung (100, 400, 1000) in einem gesperrten Zustand einer Benutzerschnittstelle befindet;  
 Überführen (314, 914) der Vorrichtung (100, 400, 1000) in einen entsperrten Zustand der Benutzerschnittstelle, wenn der detektierte Kontakt zu einer vordefinierten Geste korrespondiert; und  
 Beibehalten (312, 912) der Vorrichtung (100, 400, 1000) in dem gesperrten Zustand der Benutzerschnittstelle, wenn der detektierte Kontakt nicht zu der vordefinierten Geste korrespondiert;  
**dadurch gekennzeichnet, dass**  
 die Programme (132 bis 146) Anweisungen enthalten zur Bewegung eines Entsperrbildes (402, 1002, 1008) entlang eines vordefinierten angezeigten Pfades auf der berührungsempfindlichen Anzeigevorrichtung (126, 408, 1014) im Einklang mit dem Kontakt, wobei das Entsperrbild (402, 1002, 1008) ein graphisches, interaktives Benutzerschnittstellenobjekt ist, mit dem ein Benutzer interagiert, um die Vorrichtung (100, 400, 1000) zu entsperrern.
7. Tragbare elektronische Vorrichtung gemäß Anspruch 6, wobei die Vorrichtung (100, 400, 1000) eine tragbare Multifunktionsvorrichtung ist.
8. Tragbare elektronische Vorrichtung gemäß Anspruch 6, weiterhin umfassend Anweisungen, um zu verhindern (302, 310, 312), dass während sich die Vorrichtung (100, 400) in dem gesperrten Zustand

- der Benutzerschnittstelle befindet die Vorrichtung (100, 400) einen vordefinierten Satz von Aktionen in Reaktion auf die Detektierung jeglichen Kontakts mit der berührungsempfindlichen Anzeigevorrichtung (126, 408) ausführt, der nicht zu der vordefinierten Geste korrespondiert. 5
- 9.** Tragbare elektronische Vorrichtung gemäß Anspruch 6, wobei der vordefinierte angezeigte Pfad ein Kanal (404) ist. 10
- 10.** Tragbare elektronische Vorrichtung gemäß Anspruch 6, wobei der detektierte Kontakt eine Bewegung eines Kontaktpunktes über die berührungsempfindliche Anzeigevorrichtung (126, 408) darstellt, bei dem ein kontinuierlicher Kontakt mit der berührungsempfindlichen Anzeigevorrichtung (126, 408) aufrechterhalten wird. 15
- 11.** Tragbare elektronische Vorrichtung gemäß Anspruch 10, wobei die Bewegung des Kontaktpunktes über die berührungsempfindliche Anzeigevorrichtung (126, 408) unter Beibehaltung eines kontinuierlichen Kontakts mit der berührungsempfindlichen Anzeigevorrichtung (126, 408) eine horizontale Bewegung ist. 20 25
- 12.** Tragbare elektronische Vorrichtung gemäß Anspruch 6, wobei das eine oder die mehreren Programme (132 bis 146) des Weiteren Anweisungen enthalten zur Anzeige (304) des Entsperrbildes (402) und von einem oder mehreren visuellen Hinweisen auf der berührungsempfindlichen Anzeigevorrichtung (126, 408), während sich die tragbare elektronische Vorrichtung (100, 400) in einem gesperrten Zustand der Benutzerschnittstelle befindet, wobei der eine oder die mehreren visuellen Hinweise eine Bewegung des Entsperrbildes (402) entlang der berührungsempfindlichen Anzeigevorrichtung (126, 408) anzeigen, die die Vorrichtung (100, 400) entsperrt. 30 35 40
- 13.** Tragbare elektronische Vorrichtung gemäß Anspruch 12, wobei der eine oder die mehreren visuellen Hinweise einen Pfeil enthalten. 45
- 14.** Tragbare elektronische Vorrichtung gemäß Anspruch 12, wobei der eine oder die mehreren visuellen Hinweise Text enthalten. 50
- 15.** Tragbare elektronische Vorrichtung gemäß Anspruch 6, wobei das eine oder die mehreren Programme (132 bis 146) des Weiteren Anweisungen umfassen zur Anzeige (304) des Entsperrbildes (402) auf der berührungsempfindlichen Anzeigevorrichtung (126, 408), während sich die Vorrichtung (100, 400) in einem gesperrten Zustand der Benutzerschnittstelle befindet; und wobei die vordefinierte 55
- Geste zur einer Bewegung des Entsperrbildes (402) entlang des vordefinierten angezeigten Pfades auf der berührungsempfindlichen Anzeigevorrichtung (126, 408) zu einem vordefinierten Ort auf der berührungsempfindlichen Anzeigevorrichtung (126, 408) korrespondiert.
- 16.** Tragbare elektronische Vorrichtung gemäß Anspruch 6, wobei das eine oder die mehreren Programme (132 bis 146) des Weiteren Anweisung umfassen, zur Anzeige (304) des Entsperrbildes auf der berührungsempfindlichen Anzeigevorrichtung, während sich die Vorrichtung in einem gesperrten Zustand der Benutzerschnittstelle befindet; und wobei die vordefinierte Geste zu einer Bewegung des Entsperrbildes (402) über die berührungsempfindliche Anzeigevorrichtung (126, 408) gemäß einem vordefinierten angezeigten Pfad auf der berührungsempfindlichen Anzeigevorrichtung (126, 408) korrespondiert.
- 17.** Tragbare elektronische Vorrichtung gemäß Anspruch 6, wobei das eine oder die mehreren Programme des Weiteren Anweisungen umfassen, zu Anzeige (904) eines ersten Entsperrbildes (1002) und eines zweiten Entsperrbildes (1008) auf der berührungsempfindlichen Anzeigevorrichtung (1014), während sich die Vorrichtung (1000) in einem gesperrten Zustand der Benutzerschnittstelle befindet; und wobei die Anweisungen zum Überführen der Vorrichtung in einen entsperrten Zustand der Benutzerschnittstelle umfassen:
- Anweisungen zur Überführung der Vorrichtung (1000) in einen ersten aktiven Zustand, der zu dem ersten Entsperrbild (1002) korrespondiert, wenn der detektierte Kontakt zu einer vordefinierten Geste in Bezug auf das erste Entsperrbild (1002) korrespondiert, und Anweisungen zur Überführung der Vorrichtung (1000) in einen zweiten aktiven Zustand, der sich von dem ersten aktiven Zustand unterscheidet, wenn der detektierte Kontakt zu einer vordefinierten Geste in Bezug auf das zweite Entsperrbild (1008) korrespondiert.
- 18.** Ein Computerprogrammprodukt mit Anweisungen, die zur Ausführung auf einem oder mehreren Prozessoren (106) konfiguriert sind, und die bei ihrer Ausführung auf einer tragbaren elektronischen Vorrichtung (100, 400, 1000) mit einer berührungsempfindlichen Anzeigevorrichtung (126, 408, 1014) die Vorrichtung (100, 400, 1000) veranlassen, das Verfahren gemäß einem der Ansprüche 1 bis 5 auszuführen.



## Revendications

1. Un procédé mis en oeuvre par ordinateur de contrôle d'un dispositif électronique portable (400, 1000) comprenant un afficheur sensible au toucher (408, 1014), comprenant :

la détection (308, 908) du contact avec l'afficheur sensible au toucher (408, 1014) lorsque le dispositif est dans un état de verrouillage de l'interface utilisateur ;  
la transition (314, 914) du dispositif (400, 1000) vers un état de déverrouillage de l'interface utilisateur si le contact détecté correspond à un geste prédéfini ; et  
le maintien (312, 912) du dispositif (400, 1000) dans l'état de verrouillage de l'interface utilisateur si le contact détecté ne correspond pas au geste prédéfini ;

### caractérisé par :

le déplacement d'une image de déverrouillage (402, 1002, 1008) le long d'un trajet affiché prédéfini sur l'afficheur sensible au toucher (408, 1014) en fonction du contact, où l'image de déverrouillage (402, 1002, 1008) est un objet d'interface utilisateur interactif graphique avec lequel un utilisateur interagit afin de déverrouiller le dispositif (400, 1000).

2. Le procédé mis en oeuvre par ordinateur de la revendication 1, comprenant en outre l'affichage (304) de l'image de déverrouillage (402) et d'un ou plusieurs repères visuels sur l'afficheur sensible au toucher (408) lorsque le dispositif électronique portable (400) est dans un état de verrouillage de l'interface utilisateur, où les un ou plusieurs repères visuels indiquent un mouvement de l'image de déverrouillage (402) le long de l'afficheur sensible au toucher (408) qui déverrouillera le dispositif électronique portable (400).
3. Le procédé mis en oeuvre par ordinateur de la revendication 1, comprenant en outre l'affichage (304) de l'image de déverrouillage (402) sur l'afficheur sensible au toucher (408) lorsque le dispositif (400) est dans un état de verrouillage de l'interface utilisateur ; et dans lequel le geste prédéfini correspond au déplacement de l'image de déverrouillage (402) le long du trajet affiché prédéfini sur l'afficheur sensible au toucher (408) vers un emplacement prédéfini de l'afficheur sensible au toucher (408).
4. Le procédé mis en oeuvre par ordinateur de la revendication 1, comprenant en outre l'affichage (304) de l'image de déverrouillage (402) sur l'afficheur sensible au toucher (408) lorsque le dispositif (400)

est dans un état de verrouillage d'interface utilisateur ; et dans lequel le geste prédéfini correspond au déplacement de l'image de déverrouillage (402) sur l'étendue de l'afficheur sensible au toucher (408) en fonction du trajet affiché prédéfini sur l'afficheur sensible au toucher (408).

5. Le procédé mis en oeuvre par ordinateur de la revendication 1, comprenant en outre :

l'affichage (904) d'une première image de déverrouillage (1002) et d'une seconde image de déverrouillage (1008) sur l'afficheur sensible au toucher (1014) lorsque le dispositif (1000) est dans un état de verrouillage de l'interface utilisateur ; et

dans lequel la transition du dispositif (1000) vers un état de déverrouillage de l'interface utilisateur comprend :

la transition (914) du dispositif (1000) vers un premier état actif correspondant à la première image de déverrouillage (1002) si le contact détecté correspond à un geste prédéfini par rapport à la première image de déverrouillage (1002) ; et  
la transition du dispositif (1000) vers un second état actif distinct du premier état actif si le contact détecté correspond à un geste prédéfini par rapport à la seconde image de déverrouillage (1008).

6. Un dispositif électronique portable (100, 400, 1000), comprenant :

un afficheur sensible au toucher (126, 408, 1014) ;  
un ou plusieurs processeurs (106) ;  
de la mémoire ; et  
un ou plusieurs programmes (132 à 146), où les un ou plusieurs programmes (132 à 146) sont stockés dans la mémoire (102) et configurés pour être exécutés par les un ou plusieurs processeurs (106), les programmes (132 à 146) comprenant des instructions pour :

détecter (308, 908) le contact avec l'afficheur sensible au toucher (126, 408, 1014) lorsque le dispositif (100, 400, 1000) est dans un état de verrouillage d'interface utilisateur ;  
produire une transition (314, 914) du dispositif (100, 400, 1000) vers un état de déverrouillage de l'interface utilisateur si le contact détecté correspond à un geste prédéfini ; et  
maintenir (312, 912) le dispositif (100, 400,

1000) dans l'état de verrouillage de l'interface utilisateur si le contact détecté ne correspond pas au geste prédéfini ;

**caractérisé en ce que**

les programmes (132 à 146) comprennent en outre des instructions pour déplacer une image de déverrouillage (402, 1002, 1008) le long d'un trajet affiché prédéfini sur l'afficheur sensible au toucher (126, 408, 1014) en fonction du contact, où l'image de déverrouillage (402, 1002, 1008) est un objet d'interface utilisateur interactif graphique avec lequel un utilisateur interagit afin de déverrouiller le dispositif (100, 400, 1000).

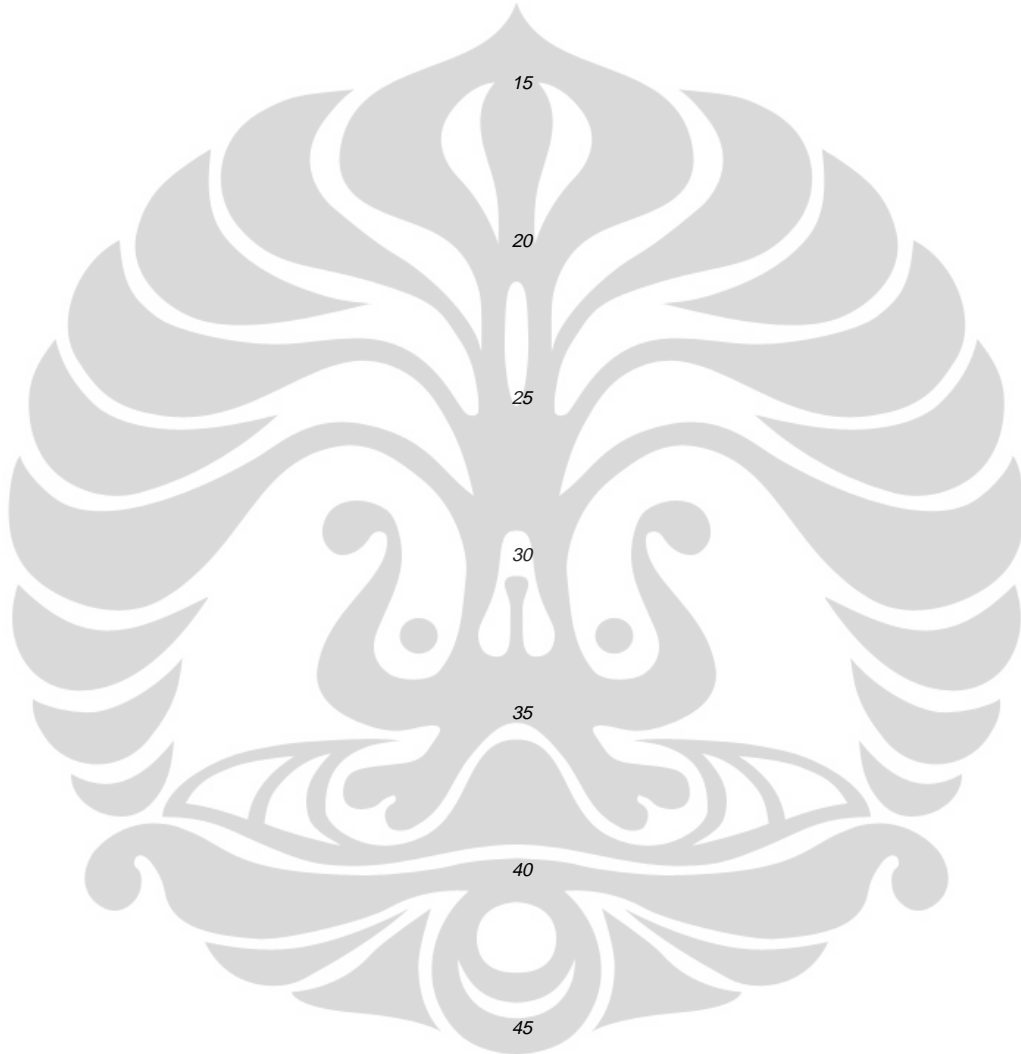
7. Le dispositif électronique portable de la revendication 6, dans lequel le dispositif (100, 400, 1000) est un dispositif multifonction portable.
8. Le dispositif électronique portable de la revendication 6, comprenant en outre des instructions pour empêcher (302, 310, 312) le dispositif (100, 400) d'exécuter un ensemble prédéfini d'actions en réponse à la détection d'un quelconque contact avec l'afficheur sensible au toucher (126, 408) qui ne correspond pas au geste prédéfini lorsque le dispositif (100, 400) est dans l'état de verrouillage de l'interface utilisateur.
9. Le dispositif électronique portable de la revendication 6, dans lequel le trajet affiché prédéfini est un canal (404).
10. Le dispositif électronique portable de la revendication 6, dans lequel le contact détecté est un déplacement d'un point de contact sur l'étendue de l'afficheur sensible au toucher (126, 408) tout en maintenant un contact continu avec l'afficheur sensible au toucher (126, 408).
11. Le dispositif électronique portable de la revendication 10, dans lequel le déplacement du point de contact sur l'étendue de l'afficheur sensible au toucher (126, 408) tout en maintenant un contact continu avec l'afficheur sensible au toucher (126, 408) est un mouvement horizontal.
12. Le dispositif électronique portable de la revendication 6, dans lequel les un ou plusieurs programmes (132 à 146) comprennent en outre des instructions pour afficher (304) l'image de déverrouillage (402) et un ou plusieurs repères visuels sur l'afficheur sensible au toucher (126, 408) lorsque le dispositif électronique portable (100, 400) est dans un état de verrouillage de l'interface utilisateur, où les un ou plusieurs repères visuels indiquent un déplacement de l'image de déverrouillage (402) le long de l'afficheur sensible

au toucher (126, 408) qui déverrouillera le dispositif (100, 400).

13. Le dispositif électronique portable de la revendication 12, dans lequel les un ou plusieurs repères visuels comprennent une flèche.
14. Le dispositif électronique portable de la revendication 12, dans lequel les un ou plusieurs repères visuels comprennent du texte.
15. Le dispositif électronique portable de la revendication 6, dans lequel les un ou plusieurs programmes (132 à 146) comprennent en outre des instructions pour afficher (304) l'image de déverrouillage (402) sur l'afficheur sensible au toucher (126, 408) lorsque le dispositif (100, 400) est dans un état de verrouillage de l'interface utilisateur ; et dans lequel le geste prédéfini correspond au déplacement de l'image de déverrouillage (402) le long du trajet affiché prédéfini sur l'afficheur sensible au toucher (126, 408) vers un emplacement prédéfini sur l'afficheur sensible au toucher (126, 408).
16. Le dispositif électronique portable de la revendication 6, dans lequel les un ou plusieurs programmes (132 à 146) comprennent en outre des instructions pour afficher (304) l'image de déverrouillage sur l'afficheur sensible au toucher lorsque le dispositif est dans un état de verrouillage de l'interface utilisateur ; et dans lequel le geste prédéfini correspond au déplacement de l'image de déverrouillage (402) sur l'étendue de l'afficheur sensible au toucher (126, 408) en fonction d'un trajet affiché prédéfini sur l'afficheur sensible au toucher (126, 408).
17. Le dispositif électronique portable de la revendication 6, dans lequel les un ou plusieurs programmes comprennent en outre des instructions pour afficher (904) une première image de déverrouillage (1002) et une seconde image de déverrouillage (1008) sur l'afficheur sensible au toucher (1014) lorsque le dispositif (1000) est dans un état de verrouillage de l'interface utilisateur ; et dans lequel des instructions pour opérer une transition du dispositif vers un état de déverrouillage de l'interface utilisateur comprennent :  
des instructions pour opérer une transition du dispositif (1000) vers un premier état actif correspondant à la première image de déverrouillage (1002) si le contact détecté correspond à un geste prédéfini par rapport à la première image de déverrouillage (1002), et des instructions pour opérer une transition du dispositif (1000) vers un second état actif distinct du premier état actif si le contact détecté corres-

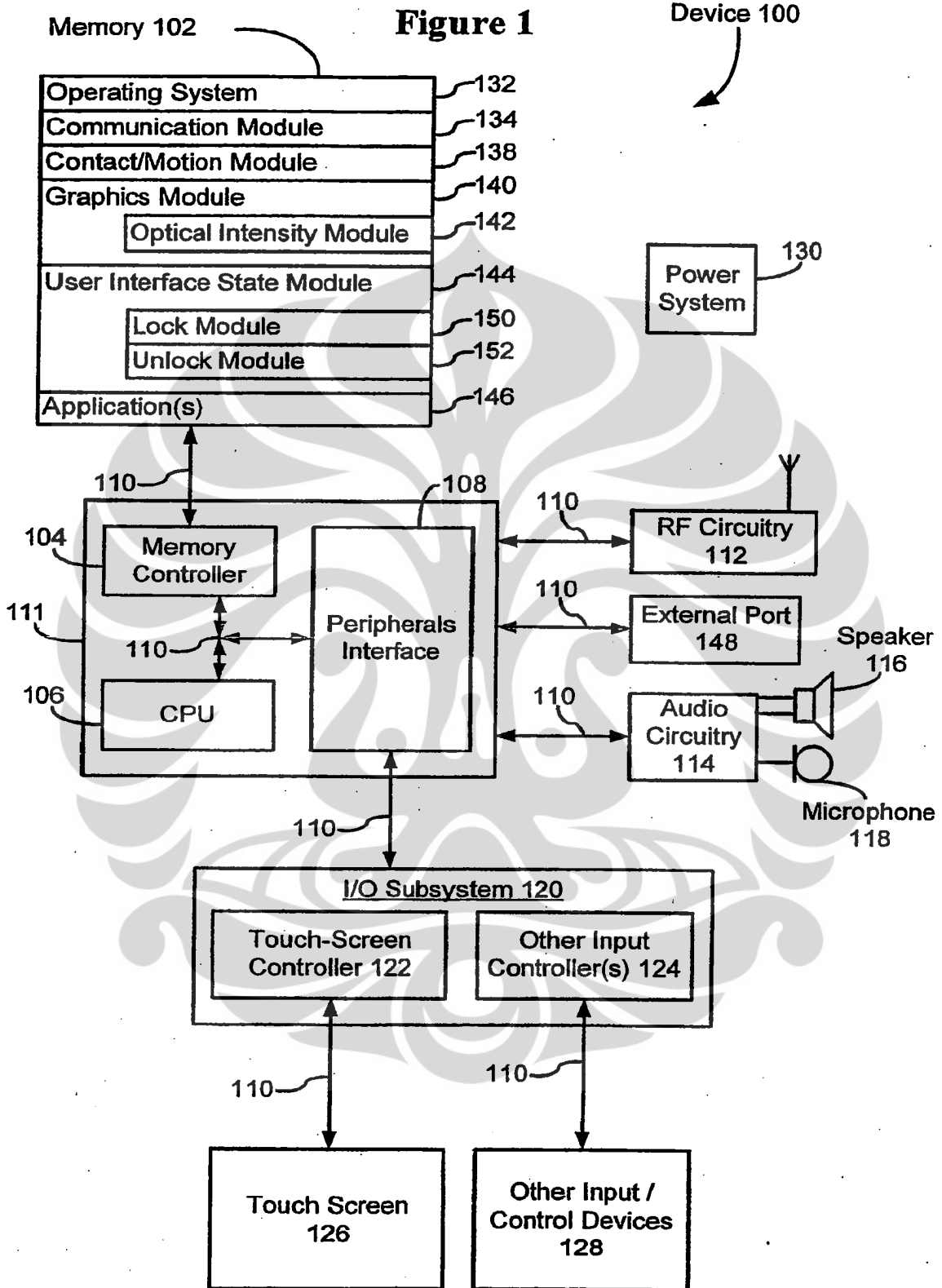
pond à un geste prédéfini par rapport à la seconde image de déverrouillage (1008).

18. Un programme-produit informatique avec des instructions configurées pour exécution par un ou plusieurs processeurs (106); qui lorsqu'elles sont exécutées par un dispositif électronique portable (100, 400, 1000) avec un afficheur sensible au toucher (126, 408, 1014), font en sorte que le dispositif (100, 400, 1000) exécute le procédé de l'une quelconque des revendications 1 à 5.



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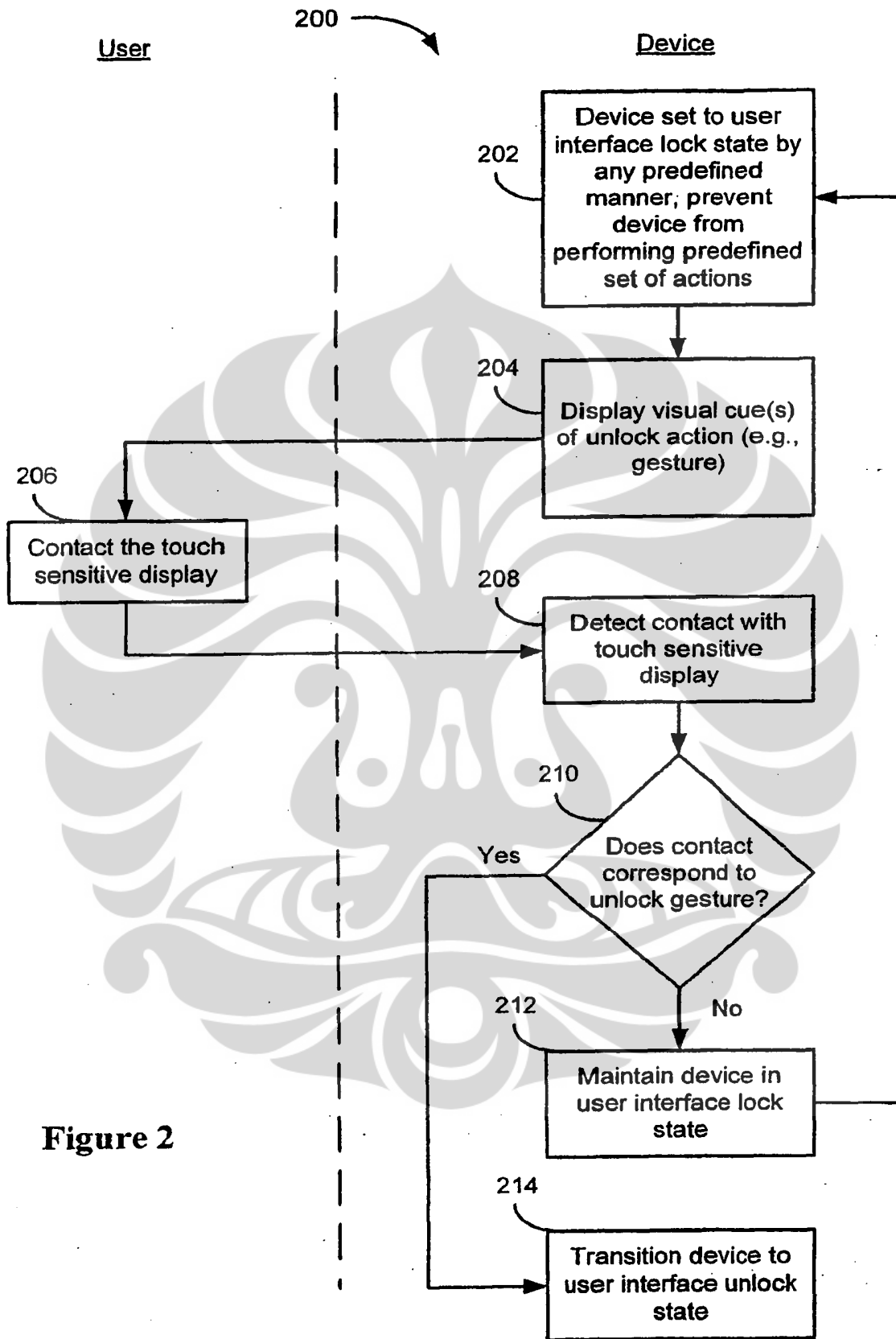


Figure 2

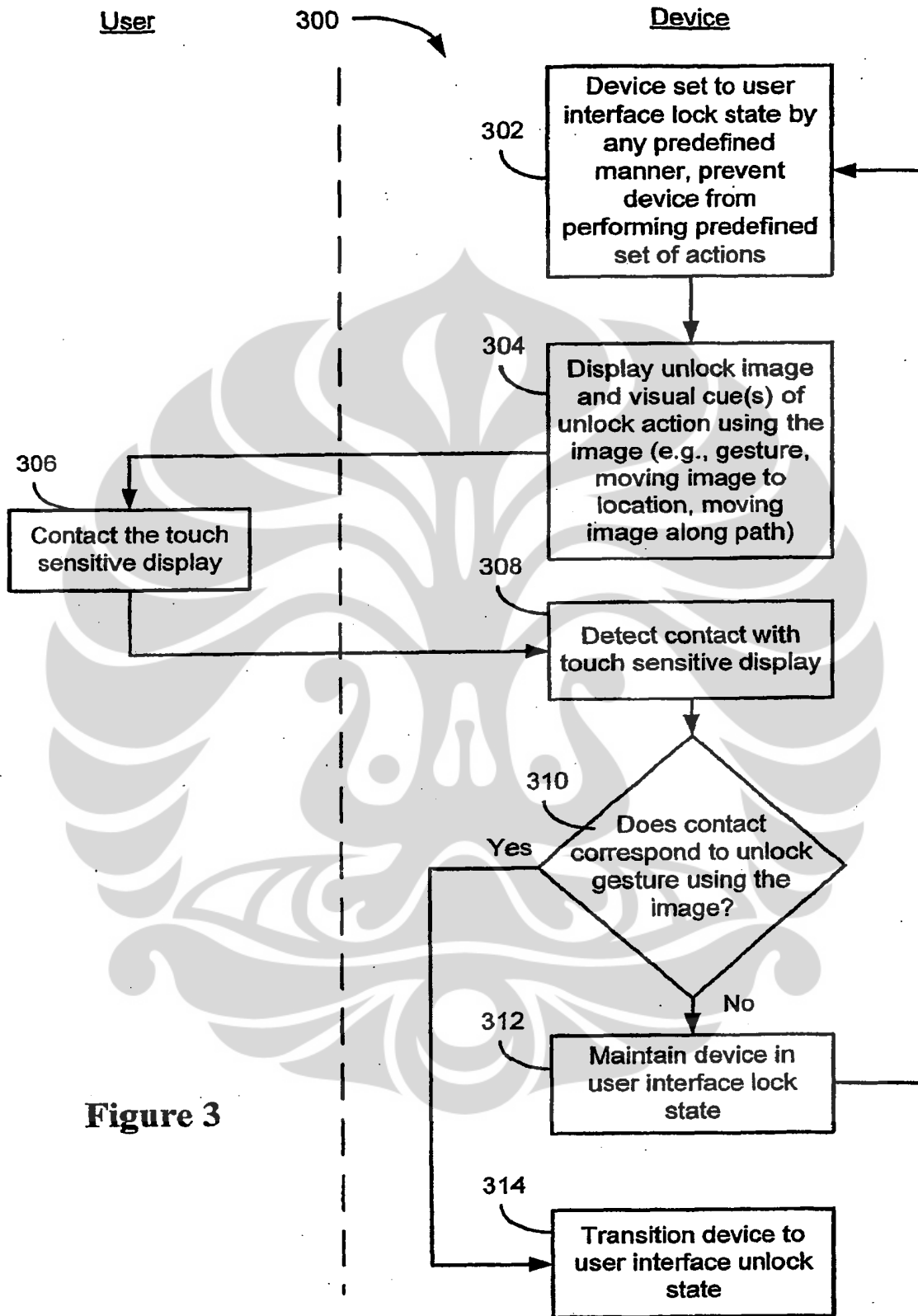


Figure 3

Device  
400

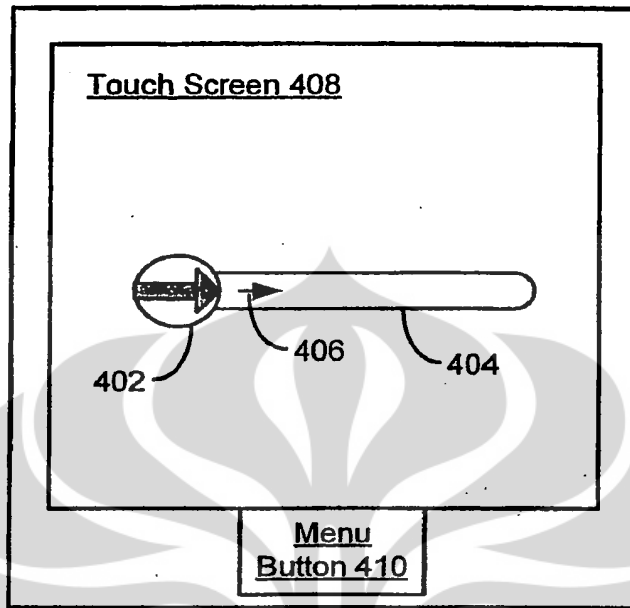


Figure 4A

Device  
400

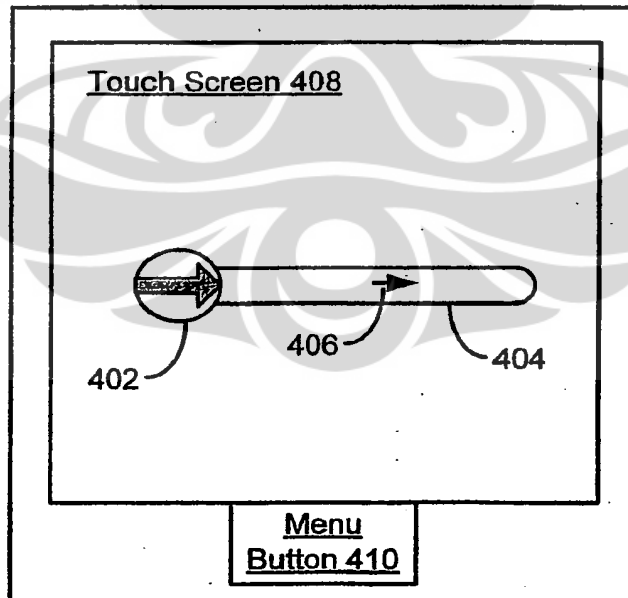


Figure 4B

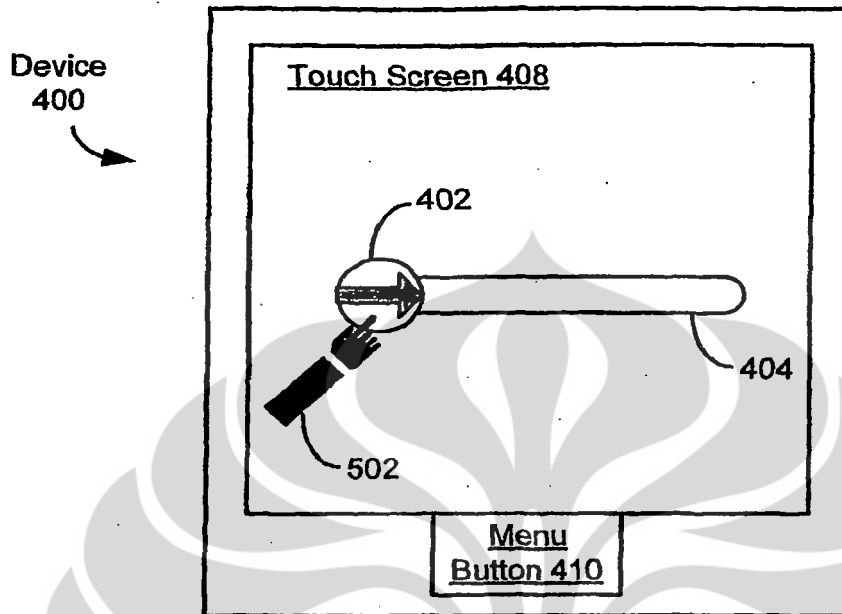


Figure 5A

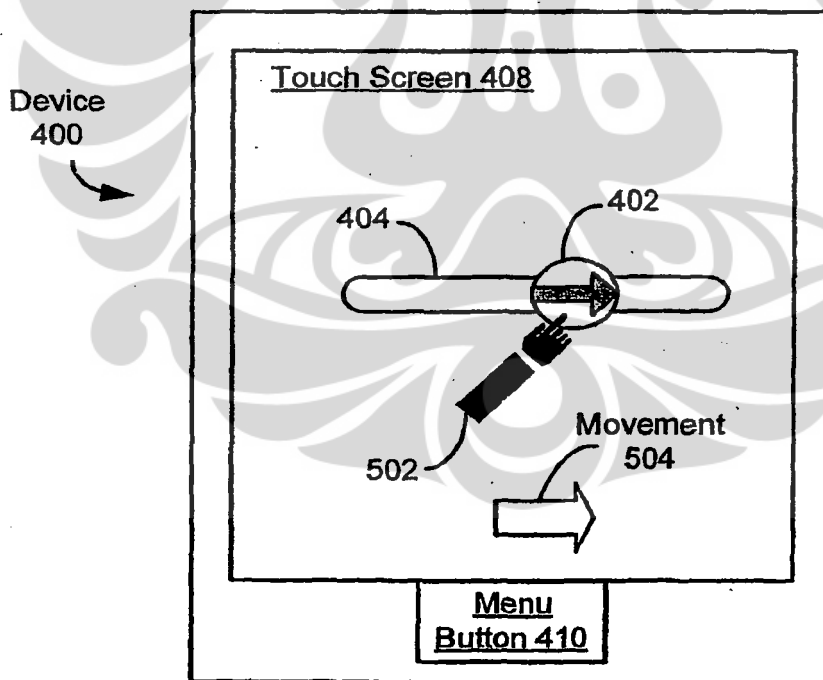


Figure 5B



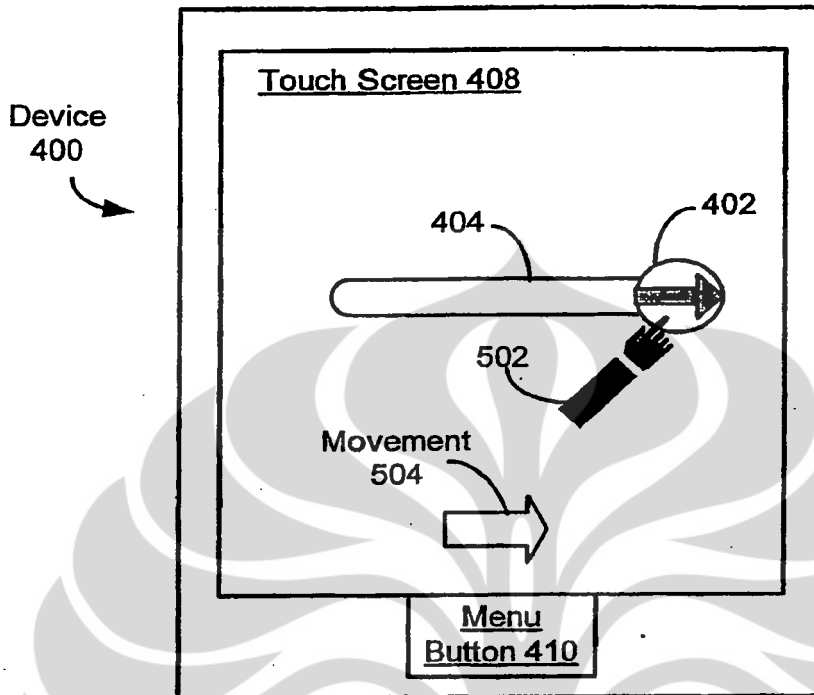


Figure 5C

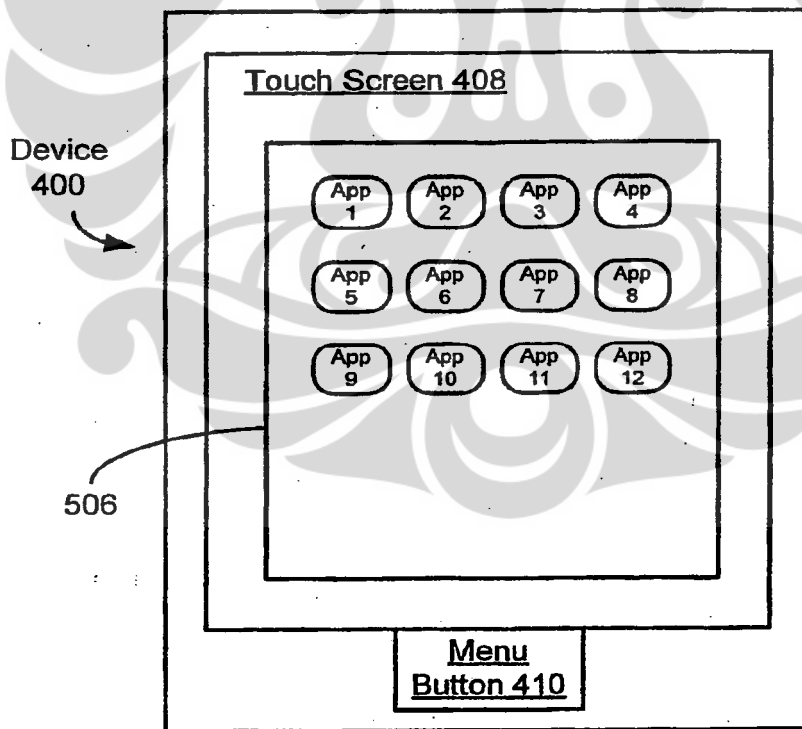
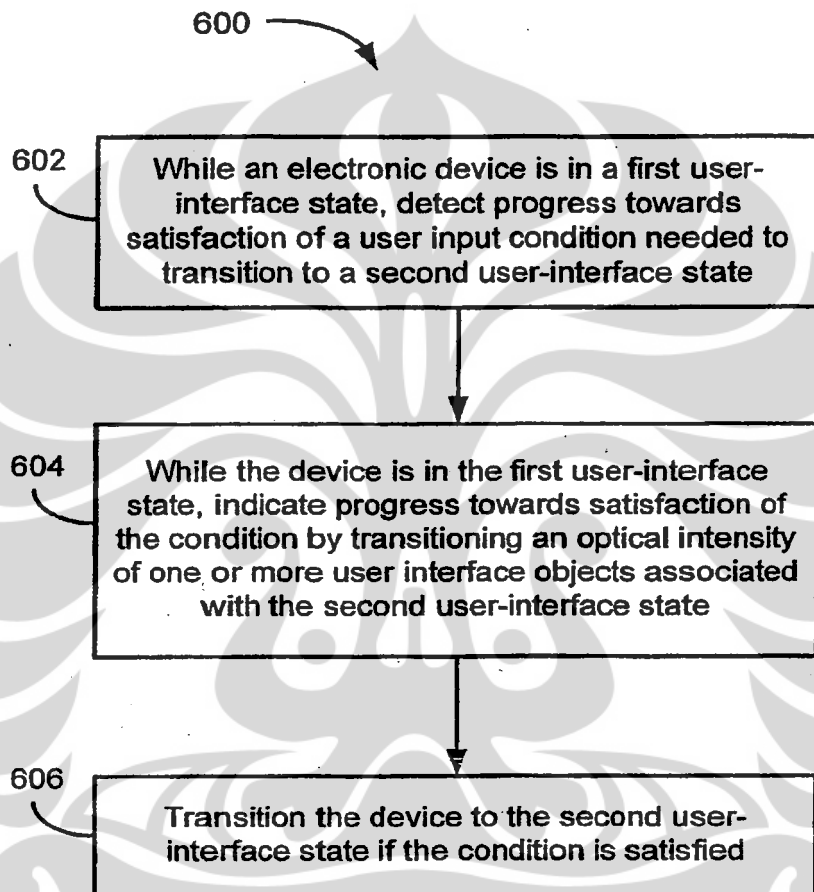


Figure 5D



**Figure 6**

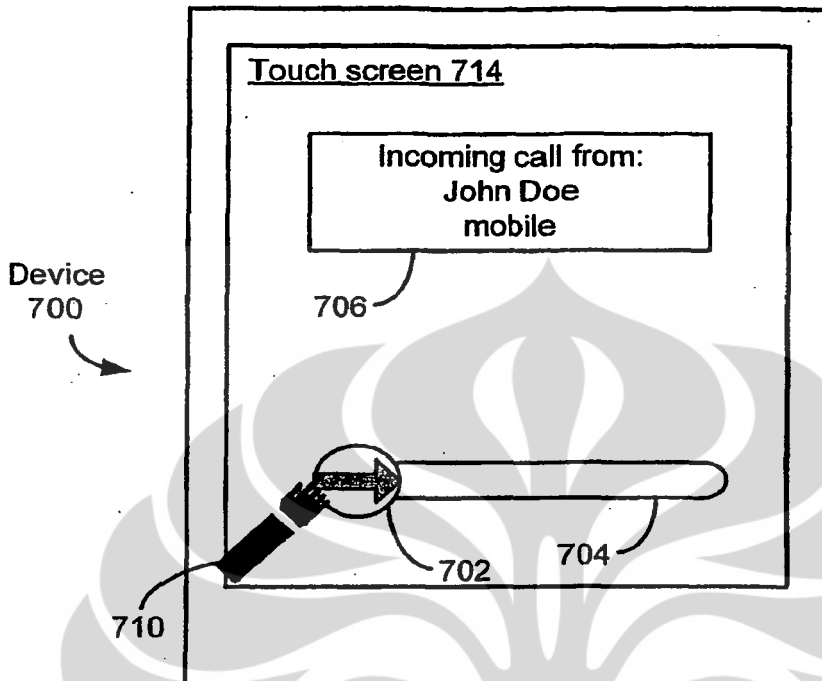


Figure 7A

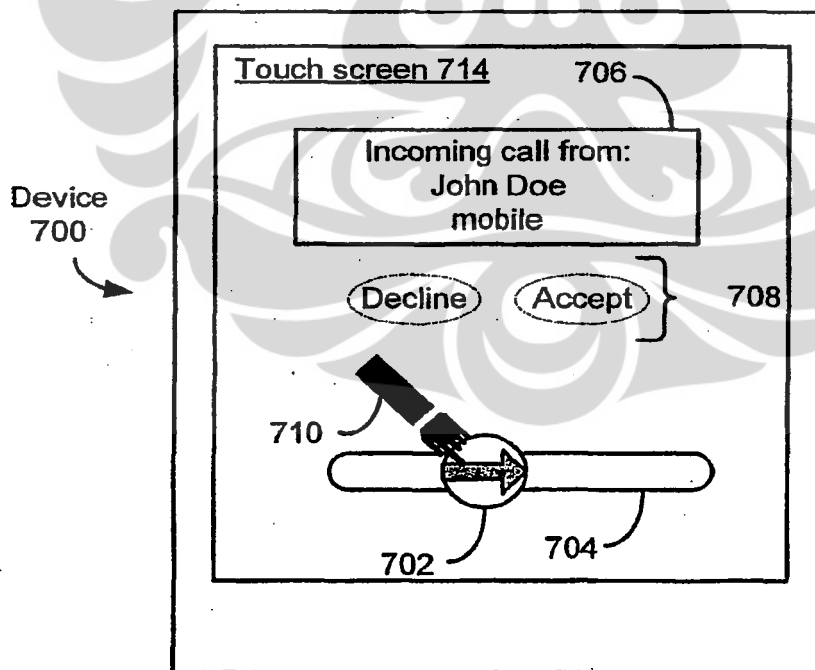
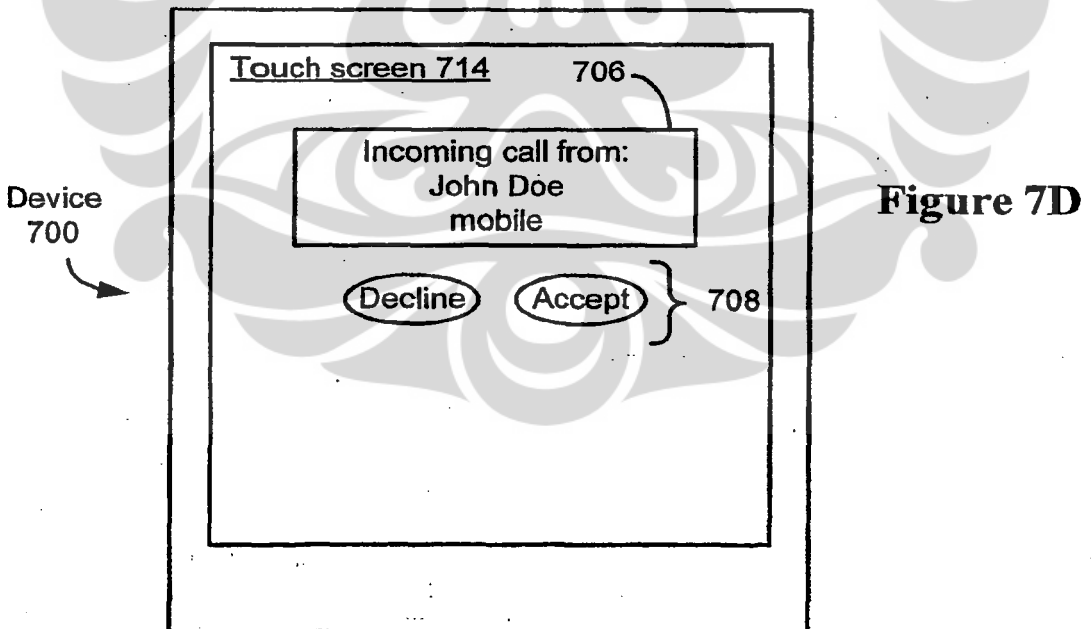
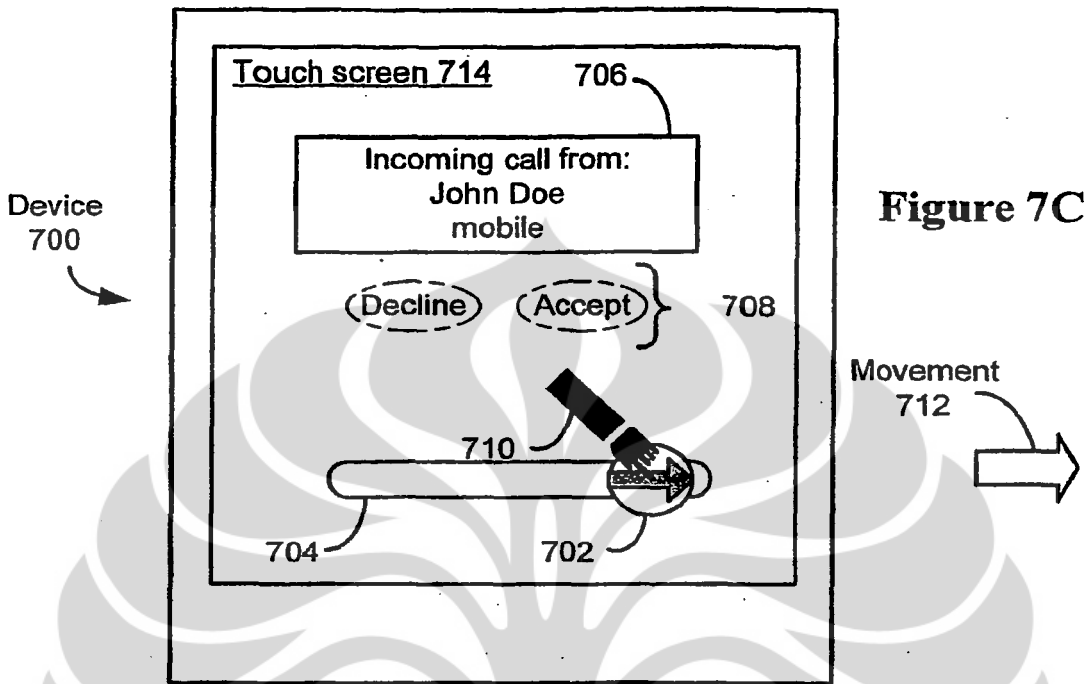
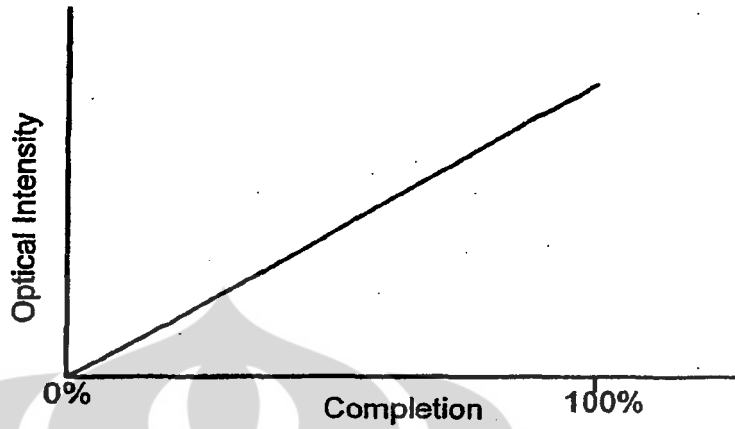


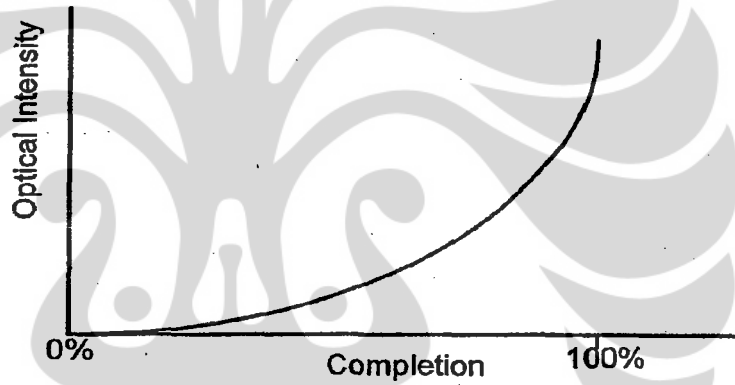
Figure 7B



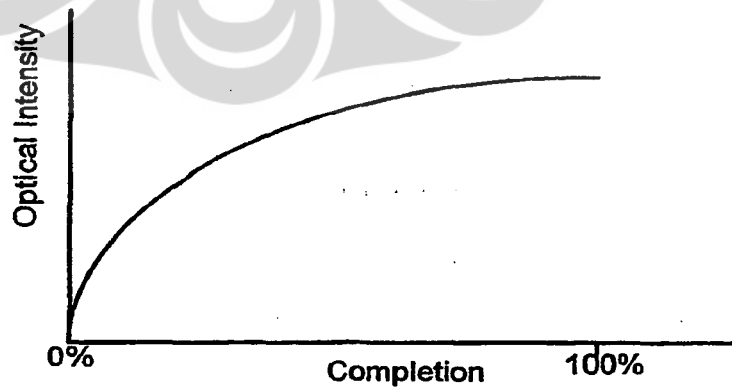
**Figure 8A**



**Figure 8B**



**Figure 8C**



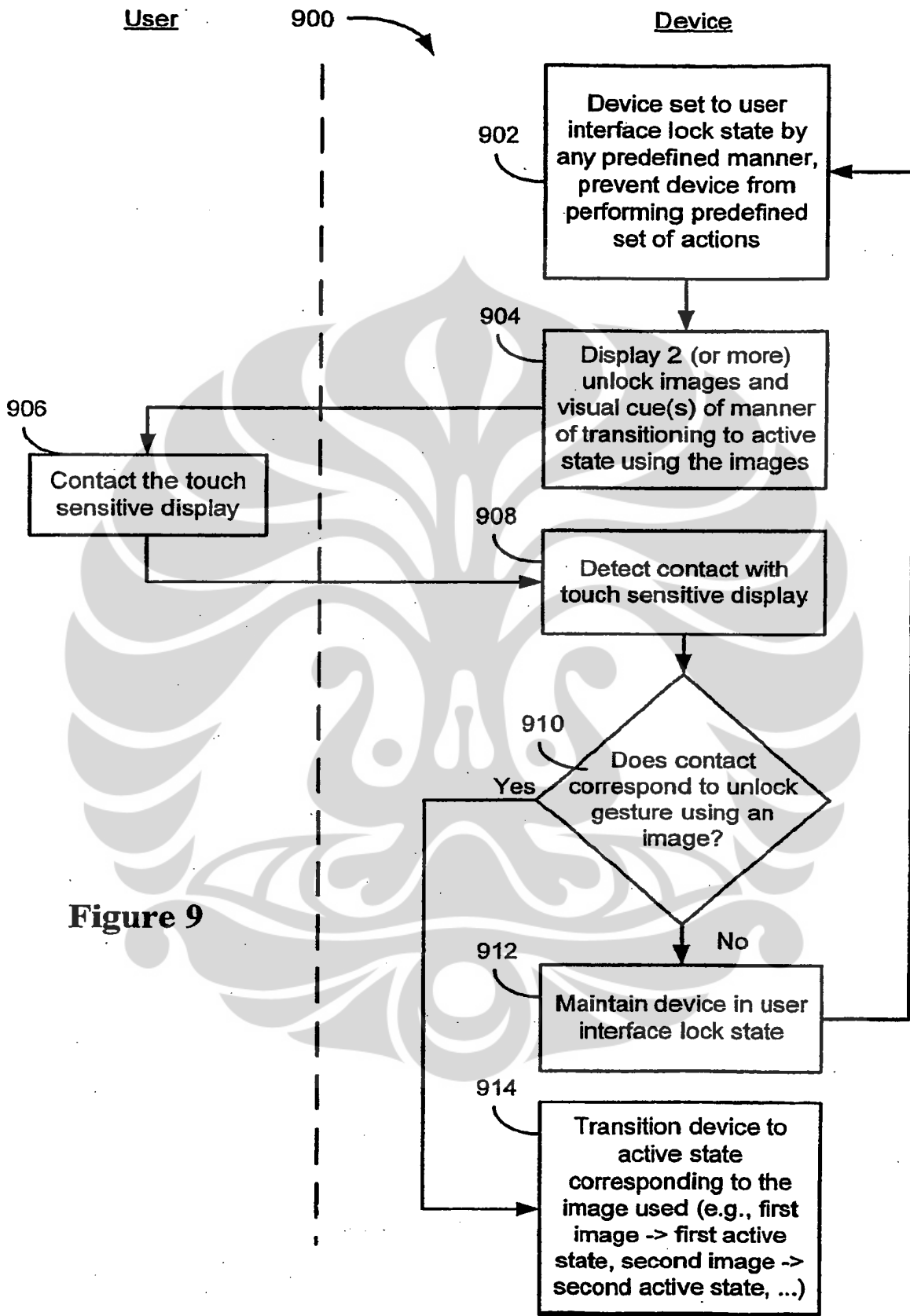


Figure 9

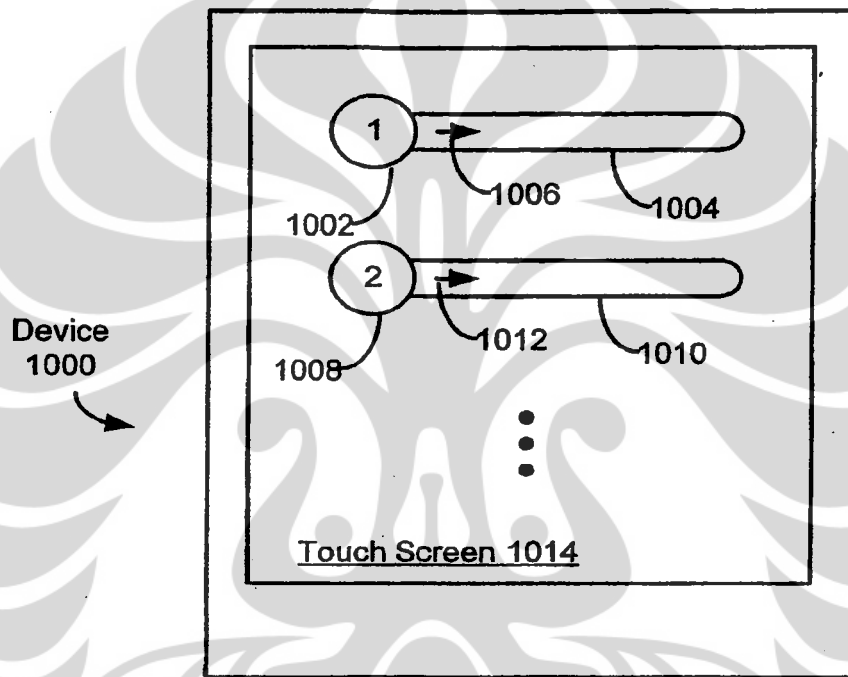


Figure 10

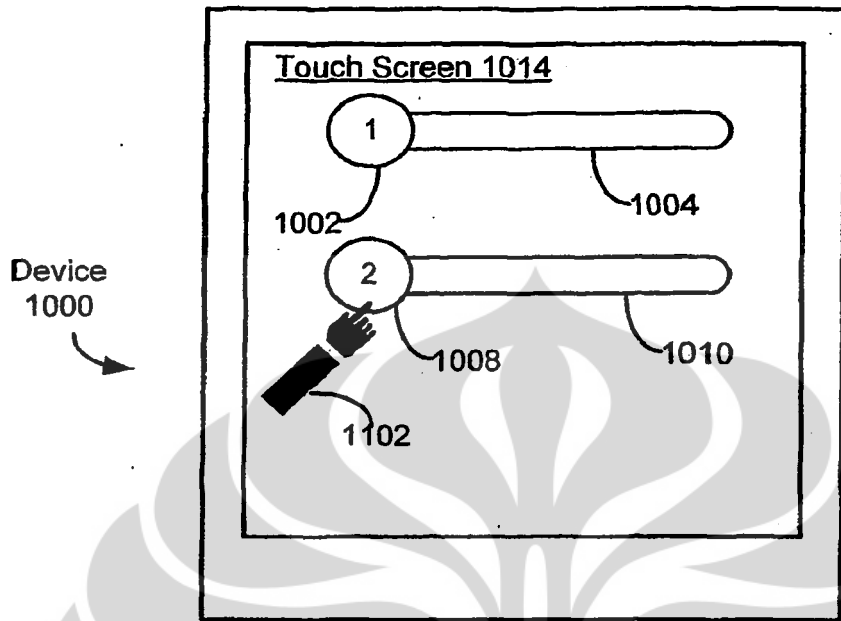


Figure 11A

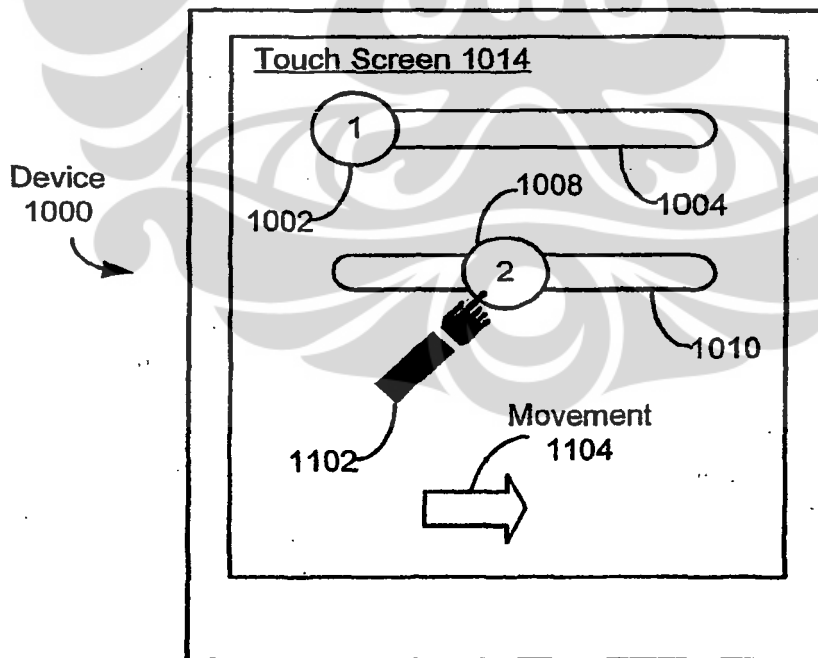


Figure 11B



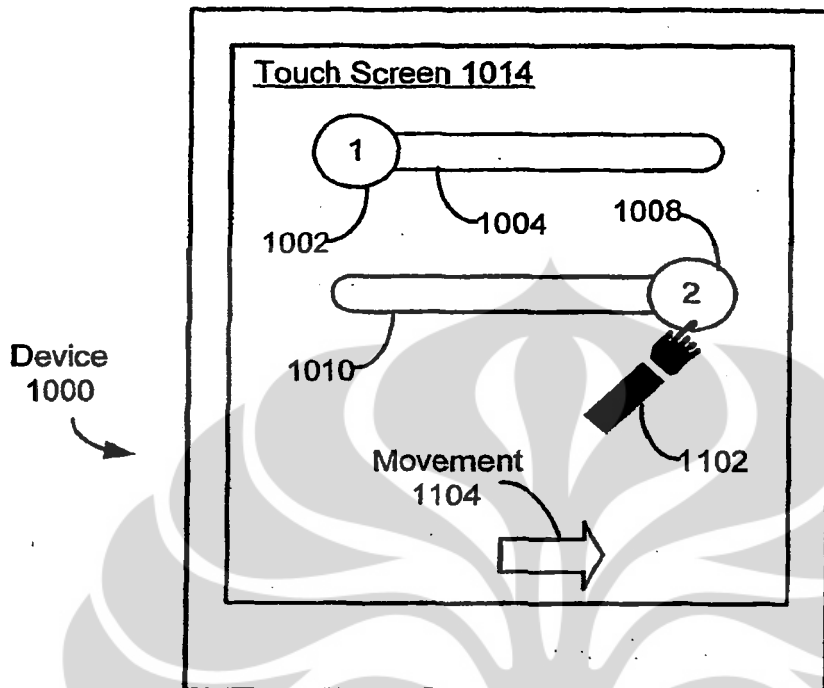


Figure 11C

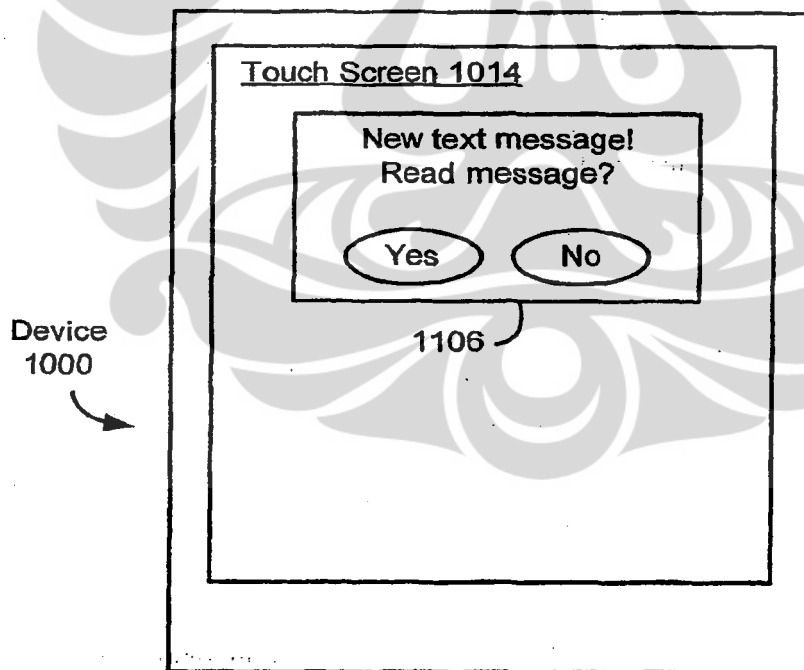


Figure 11D

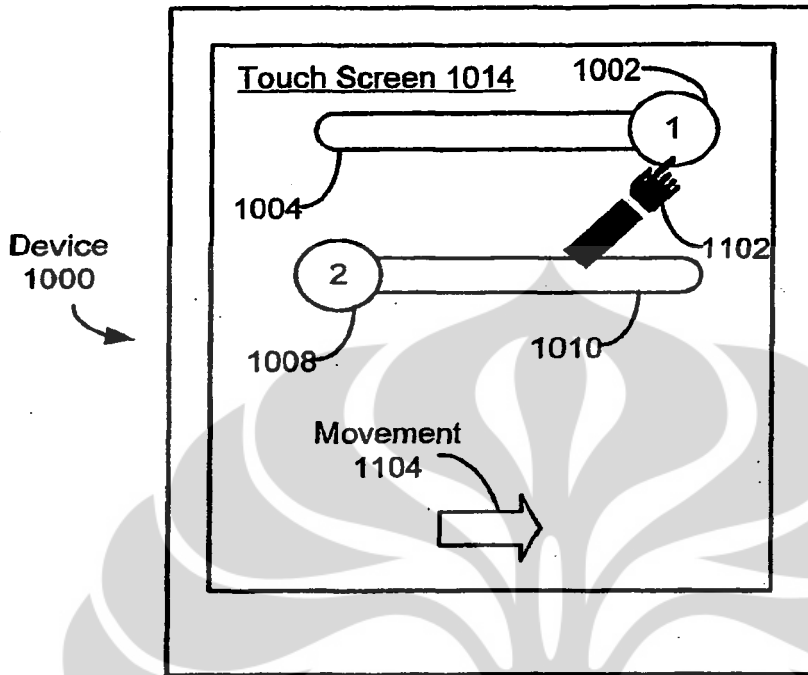


Figure 11E

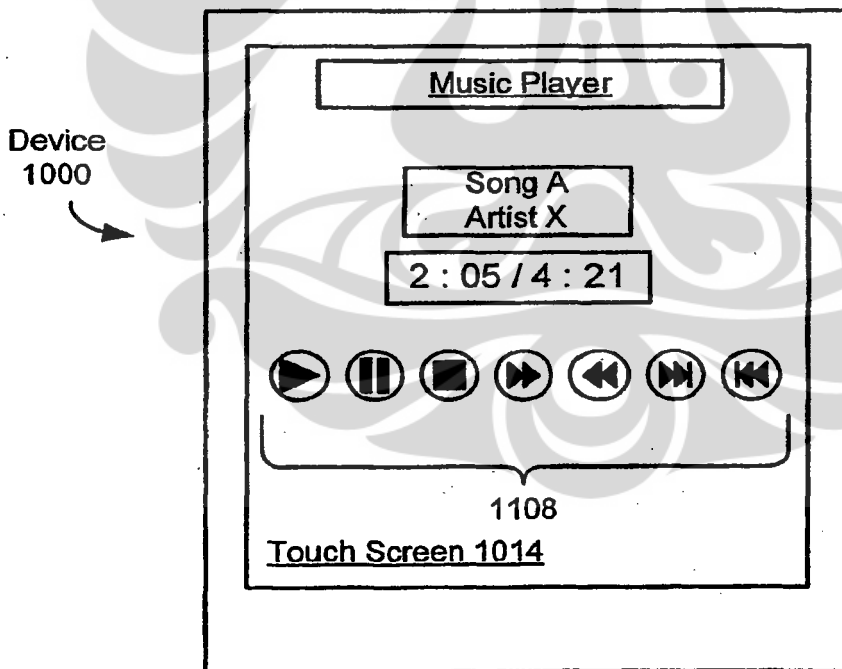


Figure 11F

**REFERENCES CITED IN THE DESCRIPTION**

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## **EXHIBIT D**



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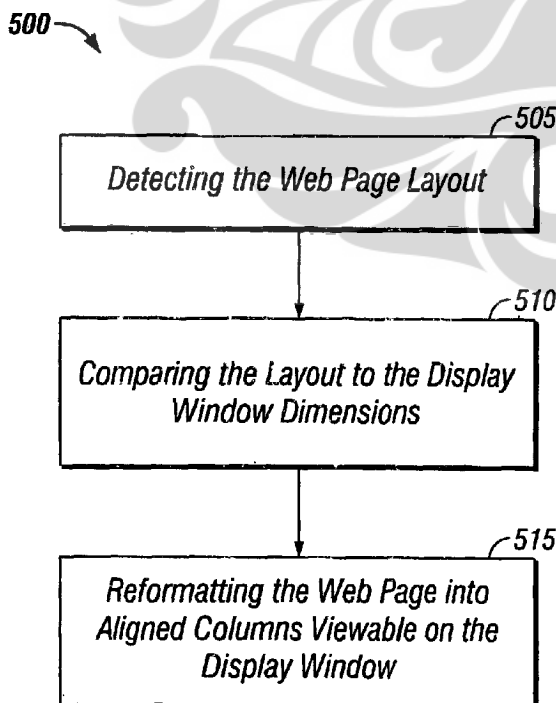
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[Continued on next page]

(54) Title: CONTROLLING CONTENT DISPLAY



(57) Abstract: Viewing an electronic document in a display window of a display may include detecting a layout of the electronic document (505) and comparing the layout of the electronic document to a width of the display window (510). The electronic document may be reformatted into at least two columns, with each of the columns having a width that does not exceed a width of the display window (515). Navigating on the display may include tracking motion of an input tool on a display, comparing a motion of the input tool to a threshold, and changing a position of the visible portion of a page of information on the display if the input tool motion exceeds the threshold. The position of the visible portion of the page of information on the display may be constrained if the motion does not exceed the threshold. Navigating on a display also may include tracking coordinate information of an input tool on a display and moving a visible portion of a page of information on the display a distance equal to a change in the coordinate information of the input tool multiplied by a multiplier. Navigating on a display also may include providing a navigation control operable to change a viewable portion of a page of information on a display from a first view to a second view. In response to operation of the navigation control, the display may be animated to create an appearance of motion as the viewable portion of the page of information changes

from the first view to the second view in response to operation of the navigation control.



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European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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## **CONTROLLING CONTENT DISPLAY**

### **TECHNICAL FIELD**

The following description relates generally to a viewing and navigation aid for displaying information on an electronic device having limited display capability.

5

### **BACKGROUND**

Web pages and other electronic documents generally are formatted for viewing and navigation in display windows of standard-sized or oversized displays, such as, for example, in a display window on a monitor for a desktop computer. The user of the computer can view the entire Web page on one screen display or can easily scroll a short distance to view other portions of the Web page. However, when content is displayed on an electronic device having a display window with smaller dimensions, such as, for example, the display window of a personal digital assistant ("PDA"), only a small portion of the Web page is displayed. This may render the document may be difficult to read.

15

### **SUMMARY**

A document served to a device having a small display or a small display window, such as, for example, a PDA, a telephone, a handheld computer, or an electronic book, can be reformatted such that the width of the document is divided into columns, with each column being displayable across the entirety of the small display or display window. In this manner, the width of the small display or display window is used to display less than all of the width of the document. The columns may be defined based on the content within the document, as long as the column width does not exceed the width of the small display or display window. For instance, when the content corresponds to a hypertext markup language ("HTML") page, several natural or logical columns that are recognizable within the HTML page may be used to define the columns being served to the small display or display window, even if those columns don't have a uniform width.

25

In one general aspect, viewing an electronic document in a display window of a display includes detecting a layout of an electronic document and comparing the

layout of the electronic document to a width of the display window. The electronic document then is reformatted into at least two columns, with each of the columns having a width that does not exceed the width of the display window.

Implementations may include one or more of the following features. For example, detecting the layout of the electronic document may include detecting logical columns of the electronic document, and reformatting the electronic document may include reformatting each logical column to have a width that does not exceed the width of the display window. Detecting the layout of the electronic document also may include identifying a format code of the electronic document, such as a HTML format code (e.g., a header tag, a body tag, or a table tag).

Reformatting the electronic document into at least two columns may further include aligning the columns for viewing in the display window.

The display may be part of a client of a client/host architecture, and comparing the layout may further include notifying a host of the display window size from information residing at the client. A connection may be established between the client and the host. Notifying the host may include notifying the host once upon establishment of a connection between the client and the host. The host may be updated with information residing at the client at time intervals after establishing the connection between the client and the host. Reformatting the electronic document may further include requesting that the host reformat the electronic document in response to a command executed by the client.

The electronic document may be coded in hypertext markup language ("HTML"). Reformatting the electronic document may include recoding the electronic document in a language other than HTML.

The columns may be displayed on the display of an electronic device. The electronic device may be connected to the Internet, and may be, for example, a personal digital assistant, a mobile phone, an Internet-enabled television set-top box, or a computer of a small physical size for portability relative to a desktop computer and having a display size smaller than that of a desktop computer.



In another general aspect, navigating on a display includes tracking motion of an input tool on a display, comparing the motion of the input tool to a threshold, changing the position of the visible portion of a page of information on the display if the motion exceeds the threshold, and constraining the position of the visible portion of the page of information on the display if the motion does not exceed the threshold.

Implementations may include one or more of the following features and one or more of the features noted above. For example, the input tool may be a pen stylus or a finger, and tracking motion of the input tool may include tracking the pen or finger on the display surface.

The display may include a touch screen and tracking motion of the input tool may include tracking motion of the input tool on the touch screen. The touch screen may include, for example, a resistive sensor, a capacitive sensor, an acoustic wave sensor, or an infrared sensor. The touch screen may include a sensor activated by a touch activation force by the input tool on the display.

The motion may be separated into a horizontal component and a vertical component relative to the display, the horizontal component may be compared to the threshold, and horizontal movement of the visible portion of the page of information on the display may be constrained if the horizontal component does not exceed the threshold. Vertical motion may be left uncomparing and unconstrained or comparing the motion also may include comparing the vertical component and constraining the vertical movement of the visible portion of the page of information on the display. Comparing the motion of the input tool to the threshold may include comparing the motion of the input tool to a user-defined threshold or to a system-defined threshold.

The page of information may include columns of information, and constraining the position of the page of information on the display may include constraining the position of the columns of information on the display or constraining the horizontal position of a column of information on the display. The columns of information may include logical columns, and constraining may include constraining the horizontal position of a logical column on the display.

In another general aspect, navigating on a display includes moving a stylus on a display to cause the display to change the viewable portion of the page of information on the display from a first page view to a second page view, tracking the motion of the stylus on the display, comparing a horizontal motion of the stylus on the display to a threshold, maintaining the viewable portion of the page of information at the first page view if the horizontal motion does not exceed the threshold, and positioning the viewable portion of the page of information at the second page view if the horizontal motion exceeds the threshold.

Implementations may include one or more of the features described above.

In another general aspect, navigating on a display includes tracking a motion of a stylus in contact with a display surface of a device that is operable to change a position of a visible portion of a page of information on the display from a first page position to a second page position in response to the motion of the stylus. A horizontal or vertical component of the motion of the stylus on the display surface is compared to a threshold, and the visible portion of the page of information on the display is repositioned to a horizontal or vertical position corresponding to the first page position after the pen stylus is removed from the display surface if the horizontal or vertical component does not exceed the threshold.

Implementations may include one or more of the features described above.

In another general aspect, navigating on a display includes tracking coordinate information of an input tool of a device having a display. The device is operable to move a page of information on the display in response to the coordinate information, and a visible portion of the page of information on the display is moved a distance equal to a change in the coordinate information of the input tool multiplied by a multiplier having a value other than one.

Implementations may include one or more following features and one or more of the features described above. For example, the input tool may include a stylus, a mouse, or a finger. The display may include a touchscreen on which the input tool may be tracked. The touchscreen may include, for example, a resistive sensor, a capacitive sensor, an acoustic wave sensor, or an infrared sensor.

Tracking the coordinate information of the input tool may include tracking vertical coordinates and horizontal coordinates of the input tool, and moving the visible portion of the page of information on the display may include moving the page of information on the display a vertical distance equal to the change in the vertical  
5 coordinates multiplied by the multiplier and a horizontal distance equal to the change in the horizontal coordinates of the input tool multiplied by the multiplier. The multiplier may be defined by the user. The multiplier may be less than or greater than one. Different multipliers may be provided for horizontal and vertical movement.

The coordinate information may include pixel coordinates on the display,  
10 tracking may include tracking pixel coordinates of the position of the input tool on the display, and moving may include moving the page of information a distance equal to a change in the pixel coordinates of the input tool multiplied by the multiplier. Moving the page of information may include moving the page a distance equal to a change in the coordinate information of the input tool multiplied by a factor based on  
15 the acceleration or the velocity of the input tool.

In another general aspect, positioning a reference marker on a display with an input tool includes positioning an input tool on a display, determining a first coordinate position from the position of the input tool on the display, moving the reference marker to the first coordinate position, and tracking movement of the  
20 pointer device to a second coordinate position on the display. The reference marker on the display then is moved in a direction defining a vector pointing from the first coordinate position to the second coordinate position and a distance equal to the difference between the second coordinate position and the first coordinate position multiplied by a multiplier.

25 Implementations may include one or more of the features described above.

In another general aspect, navigating on a display includes providing a navigation control operable to change a viewable portion of a page of information on a display from a first view to a second view. The display is animated to create an appearance of motion as the viewable portion of the page of information changes

from the first view to the second view in response to operation of the navigation control.

Implementations may include one or more of the following features and one or more of the features described above. For example, the navigation control may include a screen icon that changes the display from the first view to the second view. A first screen icon may correspond to the first view and a second screen icon may correspond to the second view. The first view may include a first discrete area of the page of information and the second view may include a second discrete area of the page of information. Actuation of the first screen icon may position the viewable portion of the page of information to view the first discrete area and actuation of the second screen icon may position the viewable portion of the page of information to view the second discrete area.

The page of information may include more than one column of information. Actuating a screen icon that corresponds to a column of information may result in showing the corresponding column of information on the display. Animating the display may include shifting the viewable portion of the page of information on the display in a horizontal direction.

Reformatting may include reformatting the page of information into more than one logical column with each logical column having a corresponding screen icon. Operation of the navigation control may include actuating the screen icon to view the corresponding logical column. The navigation control may include a mouse, a stylus, a touchscreen, or voice control.

Animating the display may include slowly scrolling the display to give the display an appearance of slow motion, illustrating a visible portion of the page of information moving continuously on the display from the first view to the second view, drawing a line from the first view to the second view, gradually shifting content on the page of information from the first view to the second view, or opening a window on the display that shows a reference marker moving from the first view to the second view. The page of information may include a Web page coded in HTML.

The animation may be defined by a user control. The user-defined control may allow selection of a time interval to change the viewable portion of the page of information from the first view to the second view, selection of a constant velocity at which to change the viewable portion of the page of information from the first view to the second view, or selection of an acceleration at which to change the viewable portion of the page from the first view to the second view. The velocity or the acceleration may be variable or constant during the change in the viewable portion of the page from the first view to the second view.

Implementations of the techniques described may include a method or process, an apparatus or system, or computer software on a computer-accessible medium. The techniques may be used in conjunction with devices such as, for example, PDAs, telephones, including wireless and web phones, handheld computers, monitors, games, and electronic books. The details of one or more implementations are set forth in the accompanying drawings and the description below. Other features will be apparent from the description, the drawings, and the claims.

### DESCRIPTION OF DRAWINGS

Figs. 1A-1D are screen shots of a page on display windows of varying dimensions.

Fig. 2 illustrates a display window superimposed onto a page.

Fig. 3 illustrates a display window superimposed onto a column of information from a page.

Figs. 4A and 4B illustrates reformatting of a page.

Fig. 5 is a flow chart of a method of reformatting a page.

Fig. 6 illustrates a display window and pen stylus superimposed onto a page.

Fig. 7 illustrates a display window with navigation buttons.

Figs. 8A-8C illustrate display windows superimposed onto a page.

Figs. 9 and 10 each illustrate a display window superimposed onto a page.

Fig. 11 is a flow chart of a method of navigating on a display window.

Figs. 12, 13, 14A and 14B each illustrate a display window superimposed onto a page.

Fig. 15 is a flow chart of a method of constraining the scrolling of information on a display window.

5 Fig. 16 illustrates a display window superimposed onto a page.

Figs. 17A and 17B each illustrate a display window and a stylus.

Fig. 18 is a block diagram of a computer and communications system.

Like reference symbols in the various drawings indicate like elements.

### DETAILED DESCRIPTION

10 Pages coded according to hypertext markup language (“HTML”) are designed for display in display windows of different sizes. On smaller displays, a width of a display window often corresponds to a width of a display minus a width of a window frame and a width of a vertical scroll bar, and may be constrained to be no larger. On larger displays, the width of a display window may constitute a smaller portion of the  
15 entire width of the display. In some cases, a display window may constitute the entirety of the display (i.e., there may be no window frame or scroll bar). In other cases, the display window may be purposefully sized to be substantially smaller than the overall size of the display. For example, a user of a desktop system with a large display may open a small display window to view a particular page.

20 Typically, a page expands or shrinks to match the width of the display window. Fig. 1A illustrates a page 100 in a wide display window 105 having a window frame 106 and a scroll bar 107. The display window 105 may be, for example, the window that would be displayed on the monitor of a desktop computer. As shown, the page 100 expands to fit the window width 108.

25 Fig. 1B shows the page 100 on a device having a smaller display window 110. As shown, the page width is reduced to fit the width of the display window 110 by reducing the width of columns 115, 120 and 125 presented in the display window 100 relative to the width of corresponding columns 130, 135 and 140 in the display window 105. In particular, the center column 120 in the display window 110 is

substantially narrower than the corresponding center column 135 in the display window 105.

The width of the columns may only be reduced until a minimum width for the page is reached. Fig. 1C shows the page 100 in a display window 145 that is narrower than the established minimum width of the page 100 such that the page 100 exceeds the bounds of the display window 145 and only a portion of the page 100 is displayed by display window 145. As shown, the entire width of the center column 150 is displayed, while only portions of the left column 155 and the right column 160 are displayed. The display window 145 also includes a horizontal scroll bar 165 and a vertical scroll bar 170 for use in selecting and viewing the columns and the portions thereof that are displayed.

In some cases, the display window is narrower than the width of a single column. For example, Fig. 1D shows the page 100 in a display window 175 of a portable electronic device, such as, for example, an Internet-enabled cellular telephone. As shown, only a portion of a single column 180 is displayed. As a result, the user must scroll back and forth horizontally, using, for example, a scroll bar 185, to read each line of text.

Fig. 2 illustrates a display window 200 superimposed onto the page 100. The display window 200 is representative of the display of, for example, a PDA. Since the page and column are each larger than the display window 200, the user must scroll back and forth to read each line of text. PDA browsers may use various reformatting methods to enhance the readability of the page. Reformatting may include scaling down images, text size, and other page components.

Fig. 3 shows the page 100 reformatted as a single column 300. In particular, the columns of the page 100 are stacked to form the single column 300, the width of the column 300 is limited to the width of the display window 200, and word wrapping is used to provide continuity/readability. The display window 200 stays centered on the column as the user scrolls down the page to read the text.

Figs. 4A and 4B show that a page 400 (Fig. 4A) having elements 402, 404, 406 and 408 of differing widths and sized to fit a wide window width 410 may be

reformatted as a page 415 (Fig. 4B) having elements 417, 419, 421 and 423 with widths corresponding to the width 425 of a narrow display (e.g., a PDA display). The elements 417, 419, 421 and 423 are readable columns of information that each fit within the width 425 of the display window or can be reduced to a width that does not exceed the width of the display window 425. The elements 417, 419, 421 and 423 are aligned to correspond with the topology of the page 400. Thus, even though the page 415 exceeds the viewing boundaries of the display window, the user can view various portions of the page 415 with a better sense of the orientation of the content on the page 415 and can navigate on the page 415 more easily. Each column of text can be read without requiring the user to scroll back and forth horizontally. Instead, the user scrolls down as if reading a newspaper column.

Reformatting a page requires identification of the page topology from the page format coding. As shown in Fig. 4, a common HTML page topology includes a header 430 with no logical columns, a body including one or more logical column elements 402, 404, 406 and 408, and a colophon 435 with no logical columns. Other variations of this topology include a header, a first body having N columns, another header, a second body having M columns, with M being the same as or different from N, and a colophon; a header, multiple bodies, and a colophon; a header, a body, and no colophon; no header, a body, and no colophon; or a header, no body, and no colophon.

The topologies described above have some common features. For example, the headers usually do not contain long paragraphs of text. Thus, headers seldom need to be reformatted for the display window of the PDA viewing device. In the event that the header is wider than the display window, navigation through the header is not difficult for the user. Similarly, the colophon usually does not contain long paragraphs of text and may be easily navigated. Typically, the body or bodies are laid out in one or more columns. The columns can be constrained to the window width to enhance readability, as described with respect to Figs. 3, 4A and 4B. Based on these topologies, most HTML pages are readily reformatted into constrained sets of logical columns, with no column exceeding the display width.



Referring to Fig. 5, a process 500 for enabling viewing of a page on a display includes detecting the page layout (step 505), comparing the layout to the dimensions of the display window (step 510), and reformatting the page into aligned columns that are viewable on the display (step 515). In one implementation, the page layout is  
5 detected (step 505) by separating the layout of the page into components and then analyzing those components. The page coding may be identified to recognize formatting codes. For example, HTML code includes identifiable header, body, or table tags. Once the HTML tags are identified, the page may be recoded in a language other than HTML for easier viewing on the small display window.

10 The width of each logical column is less than or equal to the display window width. The logical columns may be produced by comparing the width of each column of the page to a width of the display window and establishing a new column width that does not exceed the display window width. Typically, the new column width is smaller than the original column width. However, in some implementations, a  
15 column that is narrower than the display window width may be widened to have a new width that does not exceed the display window width. The logical columns then are aligned for viewing on the display.

When the display is part of a client of a client/host architecture, the host may be notified of the display window size from information residing at the client or  
20 residing at the client. For example, the host may be notified upon establishment of a connection between the client and the host, at time intervals after establishing the connection between the client and the host, or after any change in the display window size. The host then may reformat the page based on the display window size prior to delivery to the client. Alternatively, the client may perform the reformatting.

25 Typically, PDA navigation is performed by using scroll bars to move on or between pages of information on the display.

Referring to Fig. 6, another common PDA navigation feature is the capability to scroll the display window by placing a stylus 600 on the display window 605 and then dragging the stylus 600. However, such "touch-and-drag" scrolling can result in  
30 information 610 that is positioned in the display window 605 but is difficult to view

or read since the user may inadvertently navigate to a position where only a portion of a column or an image is visible in the PDA display window 605.

Referring to Fig. 7, to aid user navigation to view a desired text column, a display window 700 includes small icons 705, 710, and 715 that represent navigation buttons. Each of navigation buttons 705, 710 and 715 represents a logical column of the page currently being viewed. The navigation buttons 705, 710 and 715 provide the user with a graphical representation of the number of logical columns 700 available on the page. In other implementations, the navigation buttons correspond to columns of predetermined absolute or relative position within the page (e.g., leftmost column, rightmost column, left adjacent column, right adjacent column or center column). Each button also is used to properly position the display window 700 on the corresponding column of text when the user selects the icon. For example, referring to the tri-column display of Fig. 8A, when the user selects the left-most navigation button 705, the window 700 is positioned on the left-most or first logical column 805 of a page 800. Referring to Fig. 8B, when the user selects the central navigation button 710, the window 700 is positioned on the second logical column 810 of the page 800. Referring to Fig. 8C, when the user selects the right-most navigation button 715, the window 700 is positioned on the third or right logical column 815 of the page 800.

The number of navigation buttons can vary according to the number of logical columns. For example, if a page displayed in the window 700 has just one column, then the display includes one column navigation icon. If the page being displayed has two columns, then the display includes two column navigation icons. Depending upon the display limitations of the window, any number of icons can be displayed to correspond with the number of columns. When the element displayed in the window is one that has no logical column, such as, for example, a header or a colophon, the icons for the following or preceding logical columns may be displayed depending on the user's preference.

As the number of logical columns increases, the user has more options for jumping discretely between columns. This can cause the user to become disoriented

concerning the position of the page relative to the display window, which may result in the user selecting an incorrect scrolling direction to view other parts of the page. For example, referring to Fig. 9, the user may begin viewing a page 900 by selecting a first column 905 of columns 905, 910 and 915 for display in the window 920. The user then may decide to jump to the third text column 915 to view the information in that column. Subsequently, the user may decide to return to the previously viewed first column 905. However, since the appearance of the display window 920 changed instantaneously when the user jumped discretely between the text columns 905 and 915, the user may not recall the position of the previously-viewed text column relative to the currently-displayed column.

Referring to Fig. 10, as the user navigates to various positions on the page 900, animation effects 925 are provided to give the user a better sense of direction and position. The animation effects add a sense of motion to the content being displayed. For example, in one implementation, when the user actuates a navigation button 930 to move to a new location on the page 900, the user sees the page 900 slowly scrolling across the display window, as represented by the series of arrows 935 in Fig. 10, until the new location is centered on the display window 920. Animation also may be provided in response to a stylus or finger used on a display window with a touchscreen. The touchscreen may include, for example, a resistive sensor, a capacitive sensor, an acoustic wave sensor, or an infrared sensor.

Referring to Fig. 11, a procedure 1100 for supporting navigation on a display includes providing a navigation control operable to change a viewable portion of a page of information on a display from a first view to a second view (step 1105), permitting operation of the navigation control to change the display from the first view to the second view (step 1110), and animating the display to create an appearance of motion as the viewable portion of the page of information changes from the first view to the second view (step 1115). Operation of the navigation control may include operation of a device such as a mouse or trackball, use of a stylus, or use of a voice command.

Animation on the display may include one or more animation effect. For example, animating the display (step 1115) may include slowly scrolling or shifting the display content to give the display an appearance of slow motion. In another implementation, animating the display (step 1115) includes illustrating a visible  
5 portion of the page of information moving continuously on the display from the first view to the second view. In a further implementation, animating the display (step 1115) includes drawing a line from the first view to the second view. In still a further implementation, animation (step 1115) includes displaying a reference marker moving from the first view to the second view. This may be done, for example, using a  
10 separate window or portion of the display. In one implementation, the user selects a velocity at which to change the viewable portion of the page from the first view to the second view. In another implementation, the user selects an acceleration at which to change the viewable portion of the page of information from the first view to the second view. The user also may select a constant or variable velocity or acceleration.  
15 For example, the user may select a variable velocity that begins scrolling the display slowly, picks up speed, and then slows down again as the displayed portion approaches the second view.

Referring to Fig. 12, on a stylus-based PDA, the user can use a stylus 1200 to scroll a display window 1205 vertically down a page 1210 in order to read a column  
20 1215, 1220 or 1225 of text of the page 1205. However, referring to Fig. 13, vertical touch-and-drag scrolling has a drawback in that slight horizontal motion or “wobbling” of the pen 1200, as represented by the series of arrows 1230, can cause the text column 1125, 1220, or 1225 to become misaligned on the display 1205, resulting in a misalignment between the column 1215, 1220, or 1225 and the display  
25 window 1205. To correct for this and to view a desired one of the columns 1215, 1220, or 1225 in one view, the user manually centers the desired column in the display window 1205 by making one or more left or right corrections to the stylus 1200.

Referring to Fig. 14A, a vertical alignment control, as represented by the  
30 vertical bars 1400, can minimize wobble of the display 1205 during vertical scrolling with the pen 1200. As the user scrolls the page up or down with the stylus 1200, the

vertical alignment control ignores slight horizontal motion such that the text column 1220 remains aligned in the display window 1205. This is based on the assumption that, when the window 1205 is positioned over a logical column 1220 and the user drags the pen up or down without significant horizontal motion, the intention of the user is to view only the logical column 1220. Based on this assumption, the alignment control constrains screen scrolling to the vertical direction as long as the stylus stays between the bars 1400.

The user can define the sensitivity of the vertical alignment control. For example, the user may specify a horizontal motion threshold (i.e., the spacing between the bars 1400). If the threshold is not exceeded, any horizontal motion by the pen 1200 on the screen is ignored. If the threshold is exceeded, the displayed text moves left or right accordingly. In one implementation, the user can adjust the sensitivity of the horizontal motion by establishing a threshold for a parametric number of pixels. The two vertical bars 1400 represent the threshold of horizontal motion, measured as the parametric amount of pixels, which must be exceeded to scroll the display window 1205 left or right. The vertical alignment controls may be enabled or disabled by the user.

Referring to Fig. 14B, in another implementation, the vertical alignment control is enabled when the user lifts the pen 1200 from the display 1205. This causes the logical column 1220 to snap into alignment with the display window 1205 as the user stops scrolling. The user can adjust the snap sensitivity by, for example, setting the alignment control to snap to the nearest logical column based on a user-defined snap threshold. If the user's scrolling does not exceed the threshold, which indicates an intention to continue to view the text column 1220, the display 1205 centers the logical column 1210 as the pen 1200 is lifted from the screen. If the user's scrolling exceeds the threshold, which indicates an intention to move beyond the boundary of the logical column 1220, the display is snapped to the adjacent or repositioned column. In other implementations, no snapping occurs when the user's scrolling exceeds the threshold. The snap-on-column feature can also be animated to provide an appearance of movement as the display scrolls to the correct column-viewing position.

A similar horizontal alignment control also may be provided. Such a control may be used to limit vertical movement when scrolling horizontally in, for example, a spreadsheet application.

Referring to Fig. 15, a procedure 1500 for supporting navigation on a display includes tracking user motion of an input tool for a display (step 1505), comparing a motion of the input tool to a threshold (step 1510), and constraining the position of the visible portion of the page of information on the display if the user motion does not exceed the threshold (step 1515). The input tool may be a stylus 1200 or finger used on a display window 1205 with a touchscreen. The touchscreen may include, for example, a resistive sensor, a capacitive sensor, an acoustic wave sensor, or an infrared sensor.

The method 1500 may include separating the user motion of the input tool into a horizontal component and a vertical component. The horizontal component may be compared to the threshold to constrain horizontal motion of the page 1210 in the display window 1205 if the horizontal component does not exceed the threshold. Vertical motion may be left unconstrained, or may be compared to the same or a different threshold. In other implementations, only vertical motion may be constrained.

Referring to Fig. 16, touch-and-drag scrolling of a display window 1600 may be limited to the width and length of the display window. For example, as the user scrolls from left to right across the entire width 1605 of the display 1600, the document slides across the screen a distance that is equal to the width 1605 of the display 1600. Thus, movement up, down, left, or right is limited to a distance that is equal to the length 1610 or width 1605 of the display 1600. The user must then lift the pen or stylus from the screen and repeat the scrolling operation.

Typical desktop computers can associate movement of the operating system cursor with movement of the pointing device. In these systems, the cursor is both a software variable to detect user intentions and a graphic representation to provide the user with the location of the cursor. On a PDA, however, the cursor is not displayed

on the screen because the tip of the pen already defines the location of the cursor. This location is forwarded to the application software by the operating system.

The operating system uses drivers that convert the movement or the position of the pointing device, which may be expressed in centimeters, to the movement of the cursor, which may be expressed in pixels. PDAs usually follow a paradigm inherited from the desktop computer, in that movement between the cursor is equivalent to movement of the document. Thus, the page scrolls an amount equal to the distance of the pen movement. For example, when the cursor moves 10 pixels, the document scrolls 10 pixels.

On a PDA or other device with a small display, scrolling the width or length of the display area provides viewing of only a small amount of document data. The user often must repeat the scrolling operation until the desired text comes into view.

A scrolling multiplier allows the user to specify movement of the document on the display as a multiplier or percentage of the physical movement of the stylus on the display. For example, referring to Fig. 17A, when the proportional movement is set to 200%, document scrolling 1700 on a display 1705 is 20 pixels for each 10 pixels of stylus or other input movement 1710. When the proportional movement is set to 50%, the document scrolling is 5 pixels for each 10 pixels of stylus or other input movement on the display. Referring to Fig. 17B, when the proportional movement is set to 300%, the document scrolling 1715 is 30 pixels for each 10 pixels of stylus or other input movement 1720 on the display 1725.

As shown in Fig. 17A, when the proportional movement is set to 200% and a new display 1730 is centered around the endpoint 1735 of the maximum potential document scrolling, the user has the capability to scroll a document area that is nine times the area of the display window 1705. Similarly, as shown in Fig. 17B, when the proportional movement is set to 300% and a new display 1740 is centered around the endpoint 1745 of the maximum potential document scrolling, the user has the capability to scroll a document area that is 16 times the area of the display window 1725. By contrast, when proportional movement is set to 100%, the user is able to scroll a document area that is four times the area of the display window. Thus,

increasing proportional movement provides the user with the capability to scroll through several pages of the document with a single point-and-drag action. Alternatively, the user can make very fine position adjustments by setting a multiplier that is less than one.

5           An additional benefit is the enhancement in the perceived responsiveness and scroll speed capability of the application software. Since with the same action there is additional scrolling, the scrolling action appears to occur at a higher velocity. Stated more simply, the motion of the document is perceived to be zippy instead of sluggish. In another implementation, the user may set the multiplier based on the speed or  
10           acceleration of the pointing device. For example, a higher stylus velocity translates into a higher multiplier to generate the appropriate number of pixels to move the cursor. In yet another implementation, different multipliers may be used for horizontal and vertical movement.

          For illustrative purposes, Fig. 18 describes a communications system for  
15           implementing a navigation aid to display information on an electronic device having limited display capability. For brevity, several elements in Fig. 18 are represented as monolithic entities. However, as would be understood by one skilled in the art, these elements each may include numerous interconnected computers and components designed to perform a set of specified operations and/or dedicated to a particular  
20           geographical region.

          Referring to Fig. 18, a communications system 1800 is capable of delivering and exchanging data between a client system 1805 and a host system 1810 through a communications link 1815. The client system 1805 typically includes one or more client devices 1820 and/or client controllers 1825, and the host system 1810 typically  
25           includes one or more host devices 1830 and/or host controllers 1835. For example, the client system 1805 or the host system 1810 may include one or more general-purpose computers (e.g., personal computers), one or more special-purpose computers (e.g., devices specifically programmed to communicate with each other and/or the client system 1805 or the host system 1810), or a combination of one or more general-  
30           purpose computers and one or more special-purpose computers. The client system



1805 and the host system 1810 may be arranged to operate within or in concert with one or more other systems, such as, for example, one or more LANs ("Local Area Networks") and/or one or more WANs ("Wide Area Networks").

The client device 1820 (or the host device 1830) is generally capable of  
5 executing instructions under the command of a client controller 1825 (or a host controller 1835) and is capable of processing instructions or queries from the host system 1810. For example, the host system 1810 may query the client system 1805 as to the display size of the PDA device. The query may occur when the client 1805 and the host 1810 are connected or at periodic time intervals. The client device 1820 (or  
10 the host device 1830) is connected to the client controller 1825 (or the host controller 1835) by a wired or wireless data pathway 1840 or 1845 capable of delivering data.

Each of the client device 1820, the client controller 1825, the host device 1830, and the host controller 1835 typically includes one or more hardware components and/or software components. An example of a client device 1820 or a  
15 host device 1830 is a general-purpose computer (e.g., a personal computer) capable of responding to and executing instructions in a defined manner. Other examples include a special-purpose computer, a workstation, a server, a device, a component, other physical or virtual equipment or some combination thereof capable of responding to and executing instructions. Often, the client device 1820 is  
20 implemented as a PDA or a mobile telephone.

An example of client controller 1825 or a host controller 1835 is a software application loaded on the client device 1820 or the host device 1830 for commanding and directing communications enabled by the client device 1820 or the host device 1830. Other examples include a program, a piece of code, an instruction, a device, a  
25 computer, a computer system, or a combination thereof, for independently or collectively instructing the client device 1820 or the host device 1830 to interact and operate as described. The client controller 1825 and the host controller 1835 may be embodied permanently or temporarily in any type of machine, component, physical or virtual equipment, storage medium, or propagated signal capable of providing  
30 instructions to the client device 1820 or the host device 1830.

The communications link 1815 typically includes a delivery network 1850 making a direct or indirect communication between the client system 1805 and the host system 1810, irrespective of physical separation. Examples of a delivery network 1850 include the Internet, the World Wide Web, WANs, LANs, analog or digital wired and wireless telephone networks (e.g., PSTN, ISDN, and xDSL), radio, television, cable, satellite, and/ or any other delivery mechanism for carrying data. The communications link 1850 may include communication pathways 1855, 1860 that enable communications through the one or more delivery networks 1850 described above. Each of the communication pathways 1855, 1860 may include, for example, a wired, wireless, cable or satellite communication pathway.

The described processes and techniques may be performed by a browser running on the client system 1805 (e.g., a PDA). The processes and techniques also may be performed at a host or other remote device (e.g., a server) through which a web page is passed or from which a web page is received. The processes and techniques may be applied both to large displays and to small displays, to display windows that occupy varying portions of a display, and to full screen displays.

A number of implementations have been described. Nevertheless, it will be understood that various modifications may be made. Accordingly, other implementations are within the scope of the following claims.

**WHAT IS CLAIMED IS:**

1. A method of viewing an electronic document in a display window of a display, the method comprising:

5 detecting a layout of an electronic document having at least two columns;  
comparing the layout of the electronic document to a width of the display window; and  
reformatting the electronic document into at least two columns, with each of the columns having a width that does not exceed the width of the display window.

10 2. The method of claim 1 wherein:

detecting the layout of the electronic document includes detecting logical columns of the electronic document; and

reformatting the electronic document includes reformatting each logical column to have a width that does not exceed the width of the display window.

15 3. The method of claim 1 wherein detecting the layout of the electronic document includes identifying a format code of the electronic document.

4. The method of claim 3 wherein identifying the format code includes identifying a HTML format code.

20 5. The method of claim 1 wherein reformatting the electronic document into at least two columns further includes aligning the columns for viewing in the display window.

6. The method of claim 1 wherein the display is part of a client in a client/host architecture and comparing further includes notifying a host of the display window size from information residing at the client.

25 7. The method of claim 6 further comprising establishing a connection between the client and the host.

8. The method of claim 7 wherein notifying the host includes notifying the host once upon establishment of a connection between the client and the host.

9. The method of claim 7 wherein notifying the host includes updating the host with information residing at the client at time intervals after establishing the connection between the client and the host.

10. The method of claim 1 wherein the display is part of a client of a client/host architecture and reformatting the electronic document further includes requesting that the host reformat the electronic document in response to a command executed by the client.

11. The method of claim 1 wherein the electronic document is coded in HTML.

12. The method of claim 11 wherein reformatting further includes recoding the electronic document in a language other than HTML.

13. The method of claim 1 further comprising displaying the columns on the display of an electronic device.

14. The method of claim 13 wherein the electronic device is connected to the Internet.

15. The method of claim 13 wherein the electronic device comprises a personal digital assistant.

16. The method of claim 13 wherein the electronic device comprises a mobile phone.

17. A method of viewing an electronic document on a display, the method comprising:

detecting a layout of an electronic document having at least two columns;

comparing the layout of the electronic document to a width of the display; and

reformatting the electronic document into at least two columns, with each of the columns having a width that does not exceed the width of the display.

18. The method of claim 17 wherein:

detecting the layout of the electronic document includes detecting logical columns of the electronic document; and

reformatting the electronic document includes reformatting each logical column to have a width that does not exceed the width of the display.

19. The method of claim 17 wherein reformatting the electronic document into at least two columns further includes aligning the columns for viewing in the display window.

20. A system for viewing an electronic document, the system comprising:  
a display; and  
a processor connected to the display and programmed to:

detect a layout of an electronic document having at least two columns;  
compare the layout of the electronic document to a width of a display window of the display;

reformat the electronic document into at least two columns, with each of the columns having a width that does not exceed the width of the display window;  
and

display a column of the electronic document in the display window of the display.

21. The system of claim 20 wherein the processor is programmed to:

detect logical columns of the electronic document; and

reformat each logical column to have a width that does not exceed the width of the display window.

22. The system of claim 20 wherein the processor is programmed to align the columns for viewing in the display window.

23. A system for viewing an electronic document, the system comprising:

means for detecting a layout of an electronic document having at least two columns;

means for comparing the layout of the electronic document to a width of a display window of a display;

means for reformatting the electronic document into at least two columns, with each of the columns having a width that does not exceed the width of the display window; and

5 means for displaying a column of the electronic document in the display window of the display.

24. The system of claim 23 wherein the means for reformatting includes:

means for detecting logical columns of the electronic document; and

means for reformatting each logical column to have a width that does not exceed the width of the display window.

10 25. The system of claim 23 wherein means for reformatting includes means for aligning the columns for viewing in the display window.

26. A method of navigating on a display, the method comprising:

tracking motion of an input tool on a display;

comparing a motion of the input tool to a threshold;

15 changing a position of the visible portion of a page of information on the display if the motion exceeds the threshold; and

constraining the position of the visible portion of the page of information on the display if the motion does not exceed the threshold.

20 27. The method of claim 26 wherein the input tool is a stylus and tracking motion of the input tool includes tracking the stylus on a display surface.

28. The method of claim 26 wherein the display includes a touchscreen and tracking motion of the input tool includes tracking motion of the input tool on the touchscreen.

25 29. The method of claim 28 wherein the touchscreen includes a sensor activated by touch and tracking motion includes tracking a touch activation force by the input tool on the display.

30. The method of claim 29 wherein the input tool includes a stylus having a resistive property and the touchscreen includes a resistive sensor operable to detect

the resistive property of the stylus such that tracking includes tracking the stylus with the resistive sensor.

31. The method of claim 26 further comprising separating the motion into a horizontal component and a vertical component relative to the display, wherein  
5 comparing the user motion of the input tool to the threshold includes comparing the horizontal component to the threshold and constraining the position of the visible portion of the page of information on the display includes constraining horizontal movement of the visible portion of the page of information on the display if the horizontal component does not exceed the threshold.

10 32. The method of claim 31 wherein constraining the position includes leaving vertical motion unconstrained.

33. The method of claim 26 further comprising separating the motion into a horizontal component and a vertical component relative to the display, wherein  
15 comparing the user motion of the input tool to the threshold includes comparing the vertical component to the threshold and constraining the position of the visible portion of the page of information on the display includes constraining vertical movement of the visible portion of the page of information on the display if the vertical component does not exceed the threshold.

20 34. The method of claim 26 wherein comparing the user motion of the input tool to the threshold includes comparing the user motion of the input tool to a user-defined threshold.

35. The method of claim 26 wherein comparing the user motion of the input tool to the threshold includes comparing the user motion of the input tool to a system-defined threshold.

25 36. The method of claim 26 wherein the page of information includes at least one column of information and constraining the position of the page of information on the display includes constraining the position of the column of information on the display.

37. The method of claim 36 wherein constraining the position of the page of information on the display includes constraining the horizontal position of the column of information on the display.

38. The method of claim 37 wherein:

5 the column of information includes a logical column; and

constraining the position of the page of information on the display includes constraining the horizontal position of the logical column on the display.

39. A method of navigating on a display, the method comprising:  
tracking motion of a stylus on a display;

10 comparing a component of motion of the stylus on the display in one direction to a threshold; and

correcting a position of a page of information on the display if the motion in the one direction does not exceed the threshold.

40. The method of claim 39 wherein the component of motion comprises  
15 horizontal motion, the one direction comprises a horizontal direction, and correcting the position of the page comprises correcting a horizontal position of the page.

41. The method of claim 40 wherein the page of information includes at  
least one column of information such that correcting the horizontal position of the  
page of information on the display includes correcting the horizontal position of the  
20 column of information on the display.

42. The method of claim 41 wherein the first column of information  
includes a logical column having a width not exceeding a width of the display such  
that correcting the original horizontal position includes correcting the original  
horizontal position of the logical column on the display.

25 43. The method of claim 39 wherein the component of motion comprises vertical motion, the one direction comprises a vertical direction, and correcting the position of the page comprises correcting a vertical position of the page.

44. A method of navigating on a display, the method comprising:



tracking motion of a stylus in contact with a display surface;

comparing a component of motion of the stylus on the display surface in one direction to a threshold; and

repositioning a visible portion of a page of information on the display to an original position after the stylus is removed from the display surface if the component  
5 of motion in the one direction does not exceed the threshold.

45. The method of claim 44 wherein the component of motion comprises horizontal motion, the one direction comprises a horizontal direction, and repositioning comprises repositioning the visible portion of the page of information  
10 on the display to an original horizontal position.

46. The method of claim 45 wherein the page of information includes at least one column of information such that correcting the original horizontal position includes correcting the original horizontal position of the column of information on the display.

15 47. The method of claim 46 wherein the column of information includes a logical column having a width not exceeding a width of the display such that repositioning includes repositioning the logical column on the display.

48. The method of claim 46 wherein the page of information includes at least one column of information such that repositioning the visible portion of the page  
20 includes correcting the original horizontal position of the column of information on the display.

49. The method of claim 46 wherein the column of information includes a logical column having a width not exceeding a width of the display such that repositioning includes repositioning the logical column on the display.

25 50. The method of claim 44 wherein the component of motion comprises vertical motion, the one direction comprises a vertical direction, and repositioning comprises repositioning the visible portion of the page of information on the display to an original vertical position.

51. A system for navigating on a display, the system comprising:

a stylus; and

a device with a display surface having a touchscreen and a processor operable to compare a horizontal motion of the stylus on the display surface to a threshold and reposition the visible portion of the page of information on the display to a first  
5 horizontal position after the stylus is removed from the display surface if the horizontal motion does not exceed the threshold.

52. The system of claim 51 wherein the page of information includes a column of information such that correcting the first horizontal position includes correcting the first horizontal position of the column of information on the display.

10 53. The system of claim 52 wherein the column of information includes a logical column having a width not exceeding a width of the display such that correcting the first horizontal position includes correcting the first horizontal position of the logical column on the display.

15 54. The system of claim 51 wherein the processor is operable not to reposition the visible portion of the page of information on the display to the first horizontal position after the pen stylus is removed from the display surface if the horizontal motion exceeds the threshold.

20 55. A method of navigating on a display, the method comprising:  
tracking coordinate information of an input tool on a display, and  
moving a visible portion of a page of information on the display a distance equal to a change in the coordinate information of the input tool multiplied by a multiplier having a value other than one.

25 56. The method of claim 55 wherein the input tool includes a stylus and the display includes a touchscreen such that tracking includes tracking coordinate information of the stylus on the touchscreen.

57. The method of claim 55 wherein the input tool includes a mouse such that tracking includes tracking coordinate information of the mouse.

58. The method of claim 55 wherein:

tracking the coordinate information of the input tool includes tracking vertical coordinates of the input tool; and

moving the visible portion of the page of information on the display includes moving the page of information on the display a vertical distance equal to a change in the vertical coordinates multiplied by a vertical multiplier having a value other than one.

59. The method of claim 58 wherein:

tracking the coordinate information of the input tool includes tracking horizontal coordinates of the input tool; and

10 moving the visible portion of the page of information on the display includes moving the page of information on the display a horizontal distance equal to a change in the horizontal coordinates multiplied by a horizontal multiplier having a value other than one.

60. The method of claim 55 wherein:

15 tracking the coordinate information of the input tool includes tracking horizontal coordinates of the input tool; and

moving the visible portion of the page of information on the display includes moving the page of information on the display a horizontal distance equal to a change in the horizontal coordinates multiplied by a horizontal multiplier having a value other than one.

20 61. The method of claim 55 further comprising defining the multiplier in response to input from the user.

62. The method of claim 55 wherein the multiplier is less than one such that moving the visible portion of the page of information on the display includes moving the page of information a distance less than the change in the coordinate information of the input tool.

63. The method of claim 55 wherein the multiplier is greater than one such that moving the visible portion of the page of information on the display includes

moving the page of information a distance greater than the change in the coordinate information of the input tool.

64. The method of claim 55 wherein:

the coordinate information includes pixel coordinates on the display;

5 tracking includes tracking pixel coordinates of the position of the input tool on the display; and

moving includes moving the page of information a distance equal to a change in the pixel coordinates of the input tool multiplied by the multiplier.

65. The method of claim 55 wherein moving includes moving the page of  
10 information a distance equal to a change in the coordinate information of the input tool multiplied by a factor based on the acceleration of the input tool.

66. The method of claim 55 wherein moving includes moving the page of information a distance equal to a change in the coordinate information of the input tool multiplied by a factor based on the velocity of the input tool.

15 67. A system for navigating on a display, the system comprising:

a display surface having a touch screen;

a stylus detectable by contact with the touchscreen; and

a processor operable to:

track coordinate information of the stylus on the display; and

20 move a visible portion of a page of information on the display a distance equal to a change in the coordinate information of the stylus multiplied by a multiplier.

68. The system of claim 67 wherein the system further comprises a personal digital assistant including the processor and the display.

69. The system of claim 67 wherein the system further comprises a web  
25 phone having the display.

70. The system of claim 67 wherein the system further comprises a hand held computer including the processor and the display.

71. The system of claim 67 wherein the system further comprises a monitor including the processor and the display.

72. The system of claim 67 wherein the system further comprises an e-book including the processor and the display.

5 73. The system of claim 67 further comprising a database storage unit coupled to the processor, the database storage unit being operable to store the coordinate information.

74. A method of positioning a reference marker on a display with an input tool, the method comprising:

10 positioning an input tool on a display;

determining a first coordinate position from the position of the input tool on the display;

moving the reference marker to the first coordinate position;

15 tracking movement of the pointer device to a second coordinate position on the display; and

moving the reference marker on the display in a direction defining a vector pointing from the first coordinate position to the second coordinate position and a distance equal to the difference between the second coordinate position and the first coordinate position multiplied by a multiplier.

20 75. A method of navigating on a display, the method comprising:

providing a navigation control operable to change a viewable portion of a page of information on a display from a first view to a second view; and

25 in response to operation of the navigation control, animating the display to create an appearance of motion as the viewable portion of the page of information changes from the first view to the second view in response to operation of the navigation control.

76. The method of claim 75 wherein the navigation control includes a screen icon and operation of the navigation control includes actuation of the screen icon to change the display from the first view to the second view.

77. The method of claim 76 wherein:

5 the screen icon includes a first screen icon corresponding to the first view and a second screen icon corresponding to the second view; and

actuation of the first screen icon positions the viewable portion of the page of information at the first view and actuation of the second screen icon positions the viewable portion of the page of information at the second view.

10 78. The method of claim 77 wherein the first view includes a first discrete area of the page of information and the second view includes a second discrete area of the page of information such that actuation of the first screen icon positions the viewable portion of the page of information to view the first discrete area and actuation of the second screen icon positions the viewable portion of the page of  
15 information to view the second discrete area.

79. The method of claim 76 wherein:

the page of information includes more than one column of information;

the screen icon includes a column icon corresponding to each column of information; and

20 actuating a column icon positions the corresponding column of information on the display.

80. The method of claim 75 wherein animating the display includes shifting the viewable portion of the page of information on the display in a horizontal direction.

25 81. The method of claim 80 further comprising reformatting the page of information into more than one logical column with each logical column having a corresponding screen icon such that operation of the navigation control includes actuating the screen icon to view the corresponding logical column.

82. The method of claim 75 wherein operation of the navigation control includes clicking a mouse.

83. The method of claim 75 wherein operation of the navigation control includes touching a stylus to a touchscreen.

5 84. The method of claim 75 wherein animating the display includes slowly scrolling the display to give the display an appearance of slow motion.

85. The method of claim 75 wherein animating the display includes illustrating a visible portion of the page of information moving continuously on the display from the first view to the second view.

10 86. The method of claim 75 wherein animating the display includes drawing a line from the first view to the second view.

87. The method of claim 75 further comprising opening a window on the display that shows a reference marker moving from the first view to the second view.

15 88. The method of claim 75 further comprising operating the navigation control in response to enunciation of a voice command.

89. The method of claim 75 wherein the page of information includes a Web page coded in HTML such that operating the navigation control changes the viewable portion of the Web page on the display from the first view to the second view.

20 90. The method of claim 75 wherein animating the display includes gradually shifting content on the page of information from the first view to the second view.

91. The method of claim 75 further comprising providing a user defined control such that animating the display further includes controlling the animation with the user defined control.

92. The method of claim 91 wherein controlling animation with the user-defined control includes selecting a time interval to change the viewable portion of the page of information from the first view to the second view.

93. The method of claim 91 wherein controlling animation with the user-defined control includes selecting a velocity to change the viewable portion of the page of information from the first view to the second view.

94. The method of claim 93 wherein selecting the velocity includes  
5 selecting a constant velocity during the change in the viewable portion of the page from the first view to the second view.

95. The method of claim 93 wherein selecting the velocity includes selecting a variable velocity during the change in the viewable portion of the page from the first view to the second view.

10 96. The method of claim 91 wherein controlling animation with the user-defined control includes selecting an acceleration to change the viewable portion of the page of information from the first view to the second view.

97. The method of claim 96 wherein selecting the acceleration includes selecting a constant acceleration during the change in the viewable portion of the page  
15 from the first view to the second view.

98. The method of claim 96 wherein selecting the acceleration includes selecting a variable acceleration during the change in the viewable portion of the page from the first view to the second view.

99. A system for navigating on a display, the system comprising:  
20 a display surface;  
a navigation control on the display; and  
a processor operable to:  
change the viewable portion of a page of information on the display from a first view to a second view when the navigation control is operated; and  
25 animate the display to create an appearance of motion as the page of information changes from the first view to the second view.

100. The system of claim 99 wherein:  
the navigation control includes a screen icon; and



the processor is operable to change the viewable portion of the display by actuating the screen icon.

101. The system of claim 100 wherein:

the screen icon includes a first screen icon corresponding to the first view and  
5 a second screen icon corresponding to the second view; and

the processor is operable to position the visible portion of the page of information on the display at the first view when the first screen icon is actuated and at the second view when the second screen icon is actuated.

102. The system of claim 99 wherein:

10 the page of information includes more than one column of information, and  
the screen icon includes a column icon corresponding to each column of information; and

the processor is operable to position the column of information on the display when the corresponding column icon is actuated.

15 103. The system of claim 99 wherein the processor is operable to move the visible portion of the page of information in a horizontal direction on the display to change from the first view to the second view when the navigation control is operated.

104. The system of claim 99 wherein the processor is operable to:

20 reformat the page of information into more than one logical column each having a corresponding screen icon, the logical column having a width not exceeding a width of the display; and

position the logical column for viewing on the display when the screen icon corresponding to the logical column is actuated.

105. The system of claim 99 wherein the processor is operable to animate  
25 the display by illustrating the visible portion of the page of information moving continuously on the display from the first view to the second view

106. The system of claim 99 wherein the system further includes a personal digital assistant including the processor and the display.

107. The system of claim 99 wherein the system further includes a hand-held computer including the processor and the display.



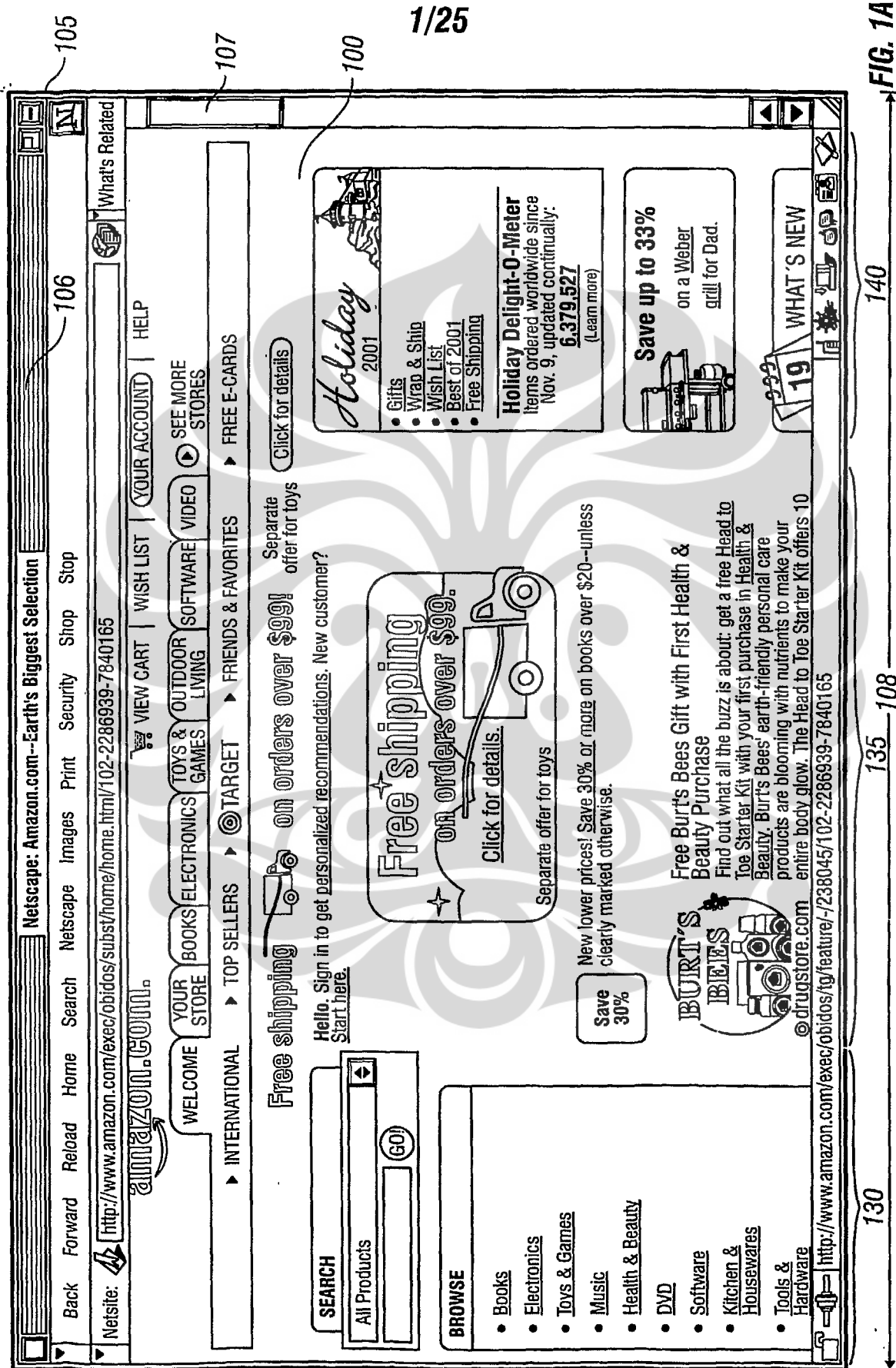


FIG. 1A

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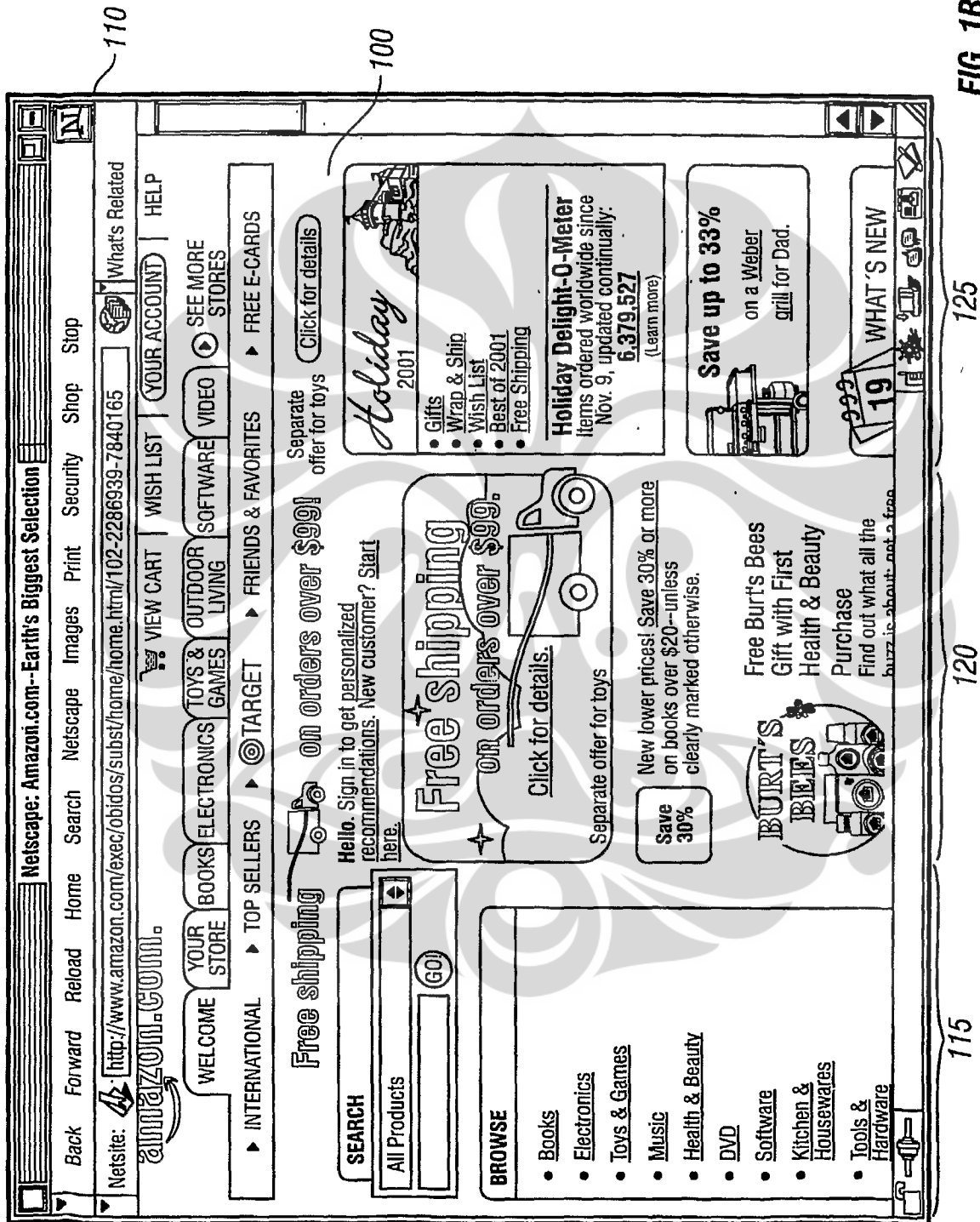


FIG. 1B

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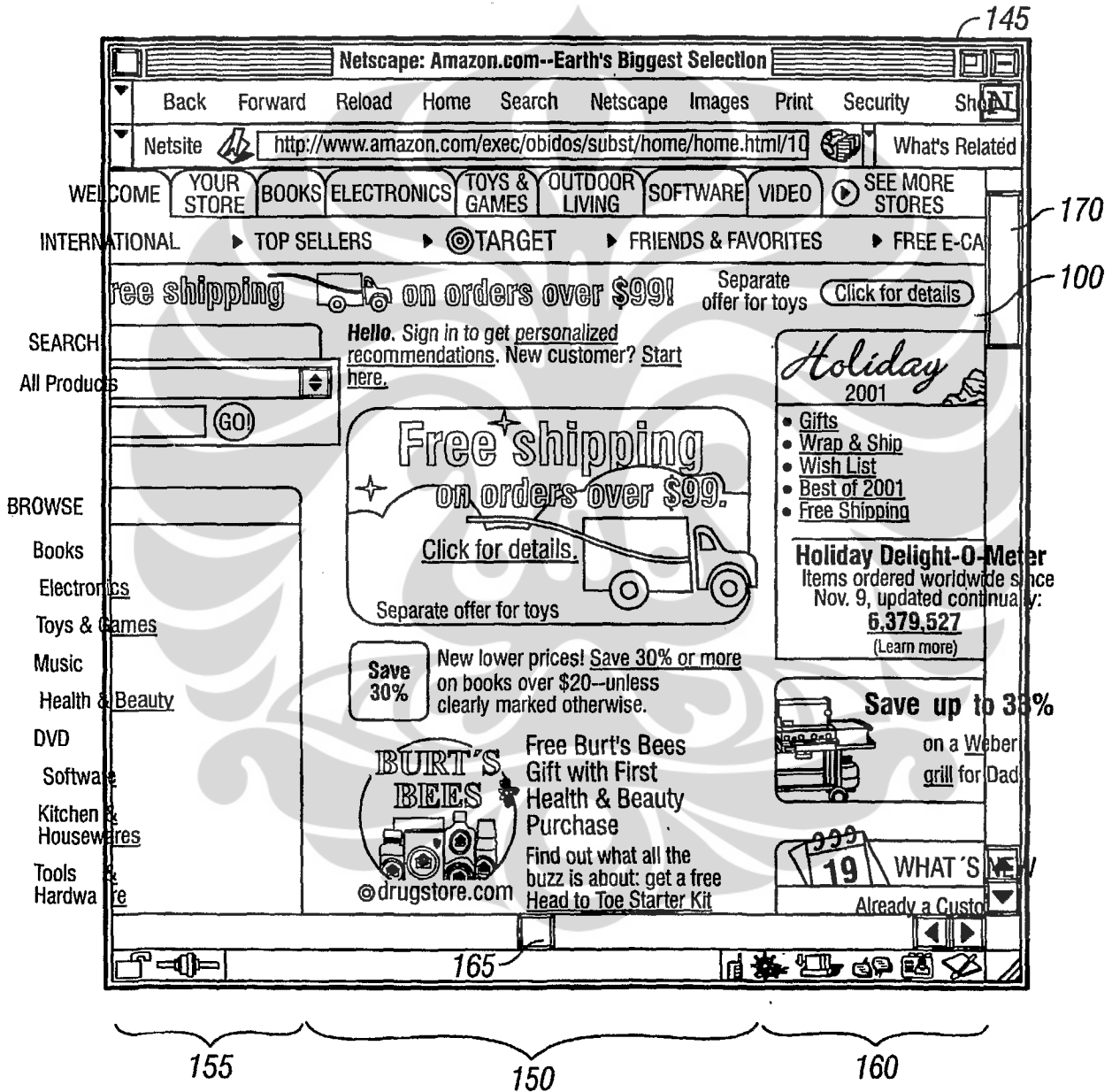


FIG. 1C

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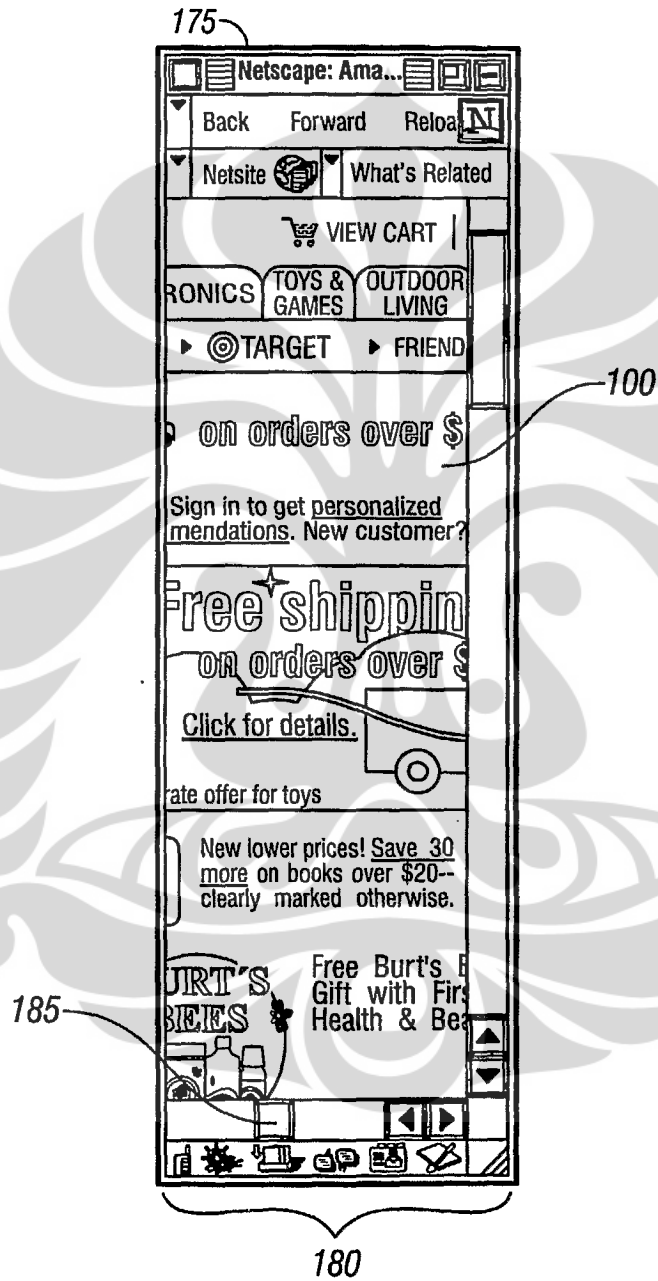


FIG. 1D

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Analysts said business for both online and traditional retailers appeared to be picking up after shopping virtually ground to a halt following the Sept. 11 attacks.

Amazon stock rose \$1.62 to \$8.91 on Nasdaq Wednesday afternoon. Analysts also were encouraged by Amazon's recent partnerships with retailers like Target Corp. (NYSE: TGT-news).

402 "Online sales should go up (this holiday season) because people won't be traveling as much. Amazon seems to be doing much better, and I credit it to their recent partnerships," said Geri Spieler, an analyst with GartnerG2.

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FIG. 4A

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<p>Wednesday November 14 1:58 PM ET</p> <p><b>Amazon Up 22 Percent on Retail Data</b></p> <p>Audio/Video</p> <p><b>UPDATE Analyst HD beginning to harness earnings power - (ON24)</b></p> <p><b>Daily Investment Strategy: FD rides retail sales coattails - (ON24)</b></p> <p>LOS ANGELES (Reuters)- Amazon.com Inc.'s (Nasdaq AMZN) news shares rose 22 percent in heavy trade on Wednesday along with other retailers, buoyed by a Commerce Department (news-web sites)'s report that total retail sales rose a better than-expected 7.1 percent in October.</p> <p>Analysis and business for both online and traditional retailers appeared to be picking up after shopping virtually ground to a halt following the Sept 11 attacks.</p> <p>Amazon stock rose \$1.62 to \$8.91 on Nasdaq Wednesday afternoon. Analysts also were encouraged by Amazon's recent partnerships with retailers like Target Corp. (NYSE: TGT) news.</p> <p>"Online sales should go up (this holiday season) because people won't be traveling as much. Amazon seems to be</p>	<p>Related Quotes</p> <table border="1"> <tr><td>\$</td><td>45.79</td><td>+1.11</td></tr> <tr><td>FD</td><td>36.96</td><td>+2.13</td></tr> <tr><td>GPS</td><td>14.96</td><td>+0.96</td></tr> <tr><td>TGT</td><td>37.50</td><td>+1.28</td></tr> <tr><td>AMZN</td><td>9.39</td><td>+2.10</td></tr> </table> <p><input type="button" value="Get Quotes"/></p> <p>delayed 20 mins - disclaimer</p> <p>Full Coverage</p> <p>In-depth coverage about Internet Stocks</p> <p>Related News Stories</p> <ul style="list-style-type: none"> <li>• NetRatings Gobble Up Analysts - TechWeb/Yahoo! News (Oct 26, 2001)</li> <li>• Jupiter Shoots Up After NetRatings Deal - Reuters (Oct 26, 2001)</li> <li>• Intkorn to Offer 12.5 Million Shares - Reuters (Oct 26, 2001)</li> <li>• Homestore.com to Cut Jobs - Los Angeles Times (Oct 26, 2001)</li> <li>• Overture pulls off Web miracle - Wall St Journal/MSNBC (Oct 26, 2001)</li> </ul> <p>More</p> <p>Opinion &amp; Editorials</p> <ul style="list-style-type: none"> <li>• It Never Rains in eBay Land - Ecommerce Times (Oct 24, 2001)</li> <li>• Amazon Needs a Christmas Present - Business Week (Oct 2, 2001)</li> <li>• It's Time to Investigate Those Who Inflated the</li> </ul>	\$	45.79	+1.11	FD	36.96	+2.13	GPS	14.96	+0.96	TGT	37.50	+1.28	AMZN	9.39	+2.10	<p><b>CASH BACK ON EVERY 1,000 SHARES TRADED</b></p> <p>last 0.0050 rates apply to other orders only may be know for other traders</p> <p><b>BROKERAGE AMERICA™</b></p> <p>Member of SIPC</p>
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FIG. 4B

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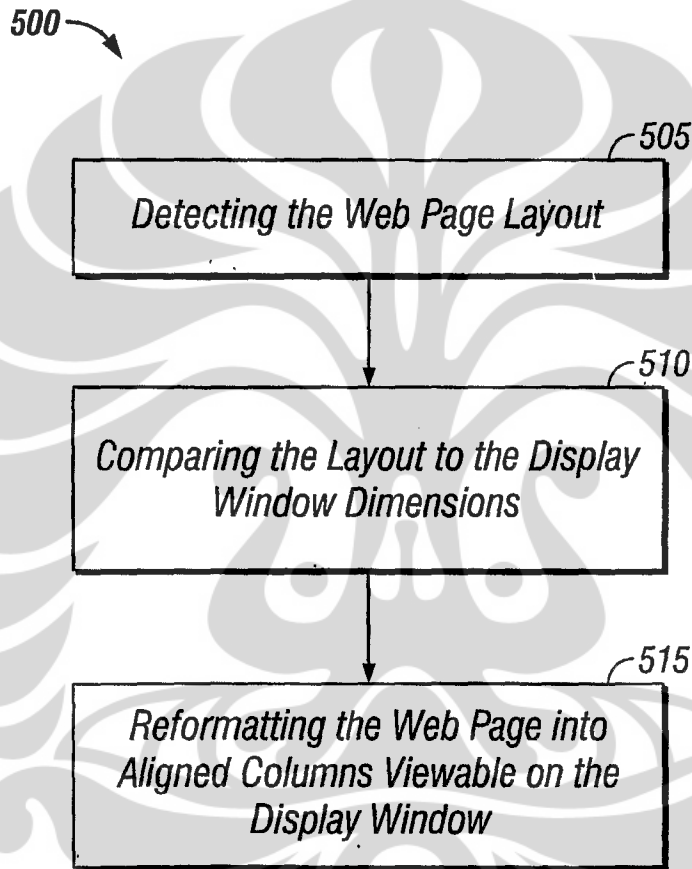


FIG. 5

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FIG. 6

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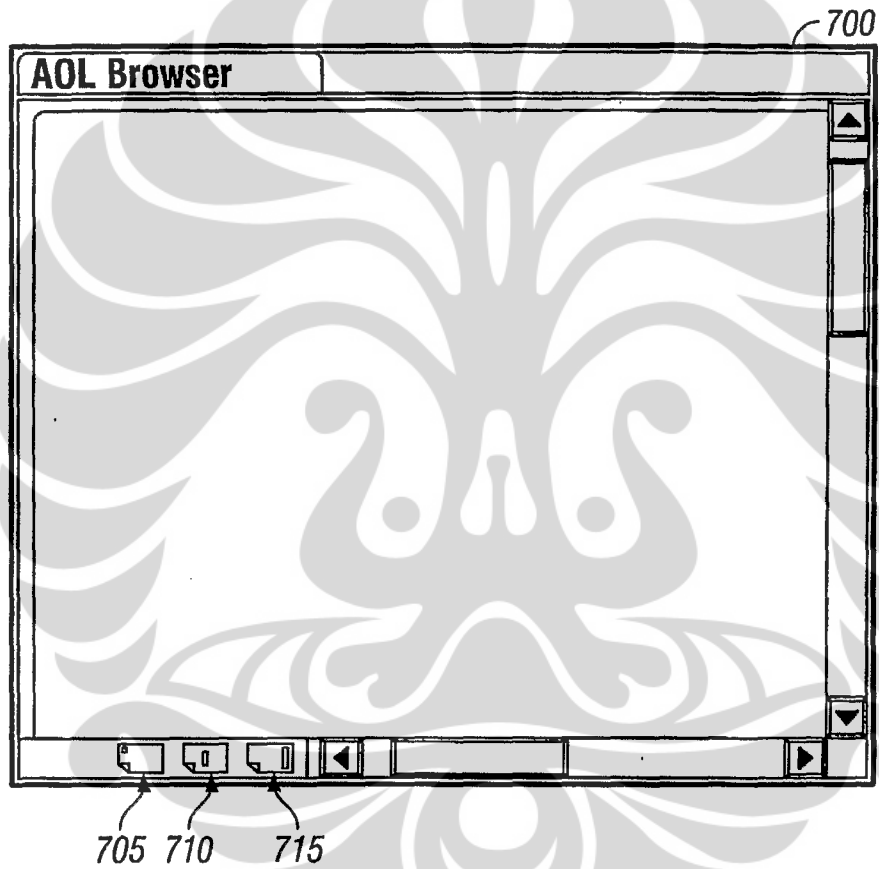


FIG. 7

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FIG. 8A

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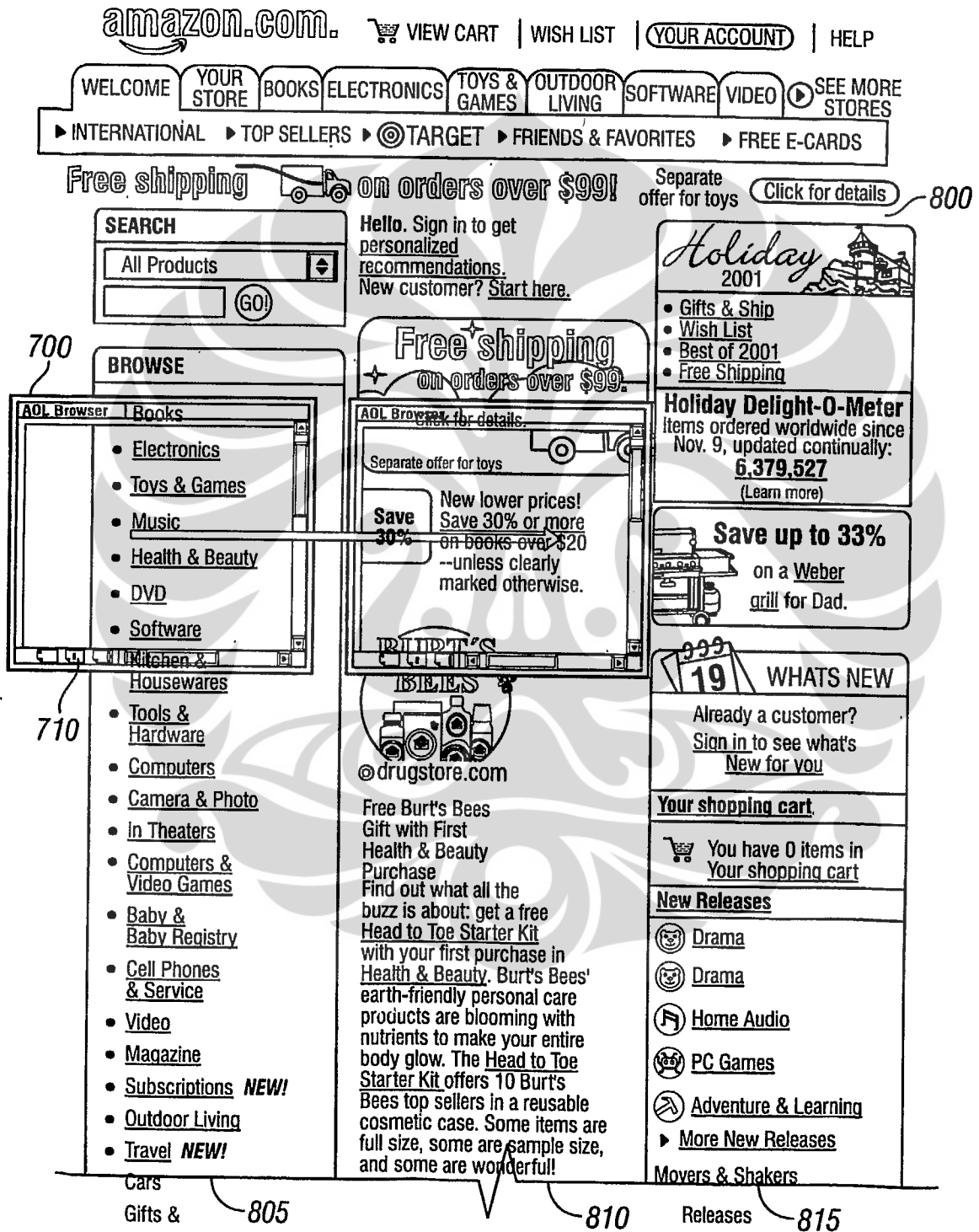


FIG. 8B

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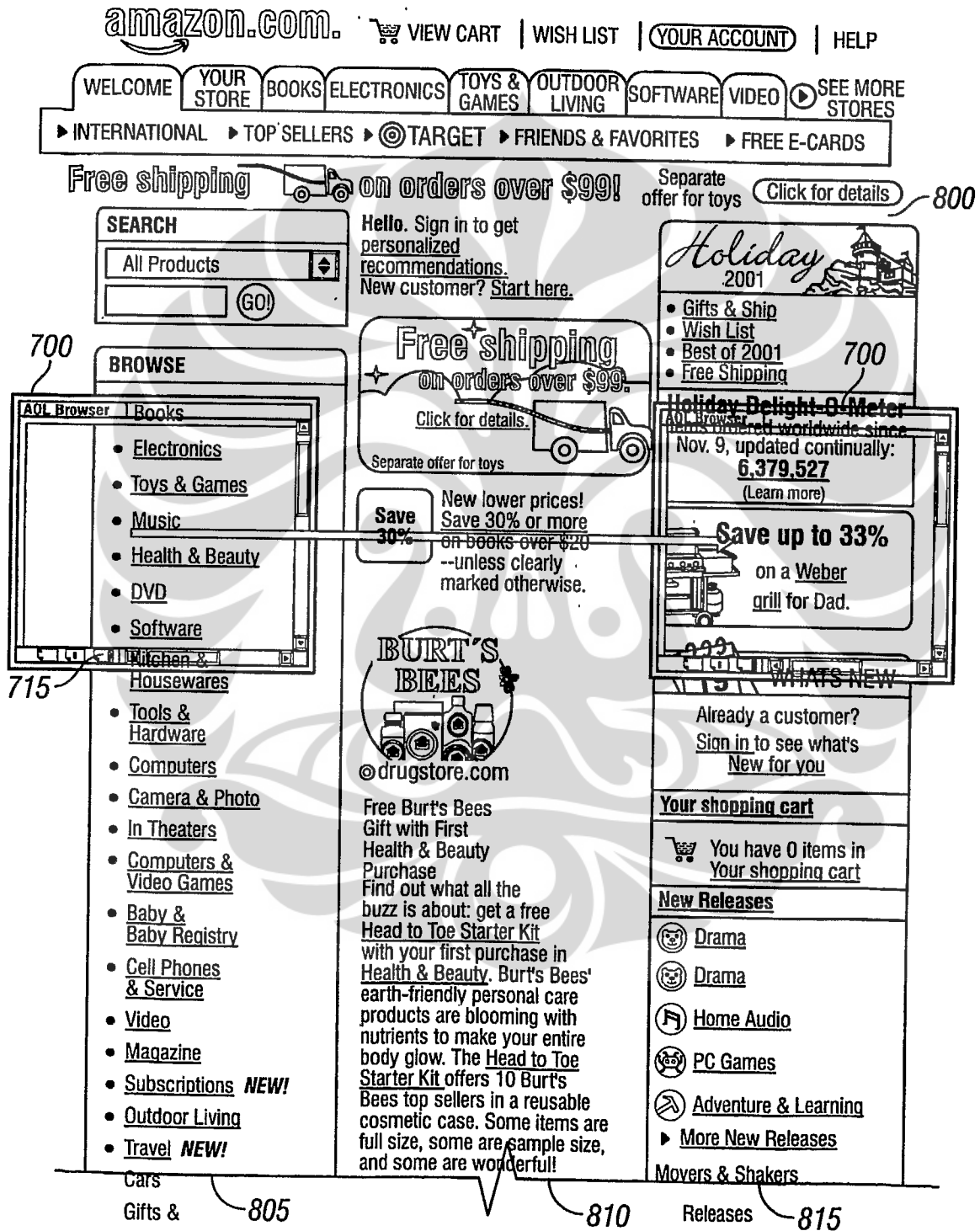


FIG. 8C

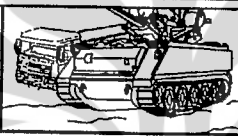


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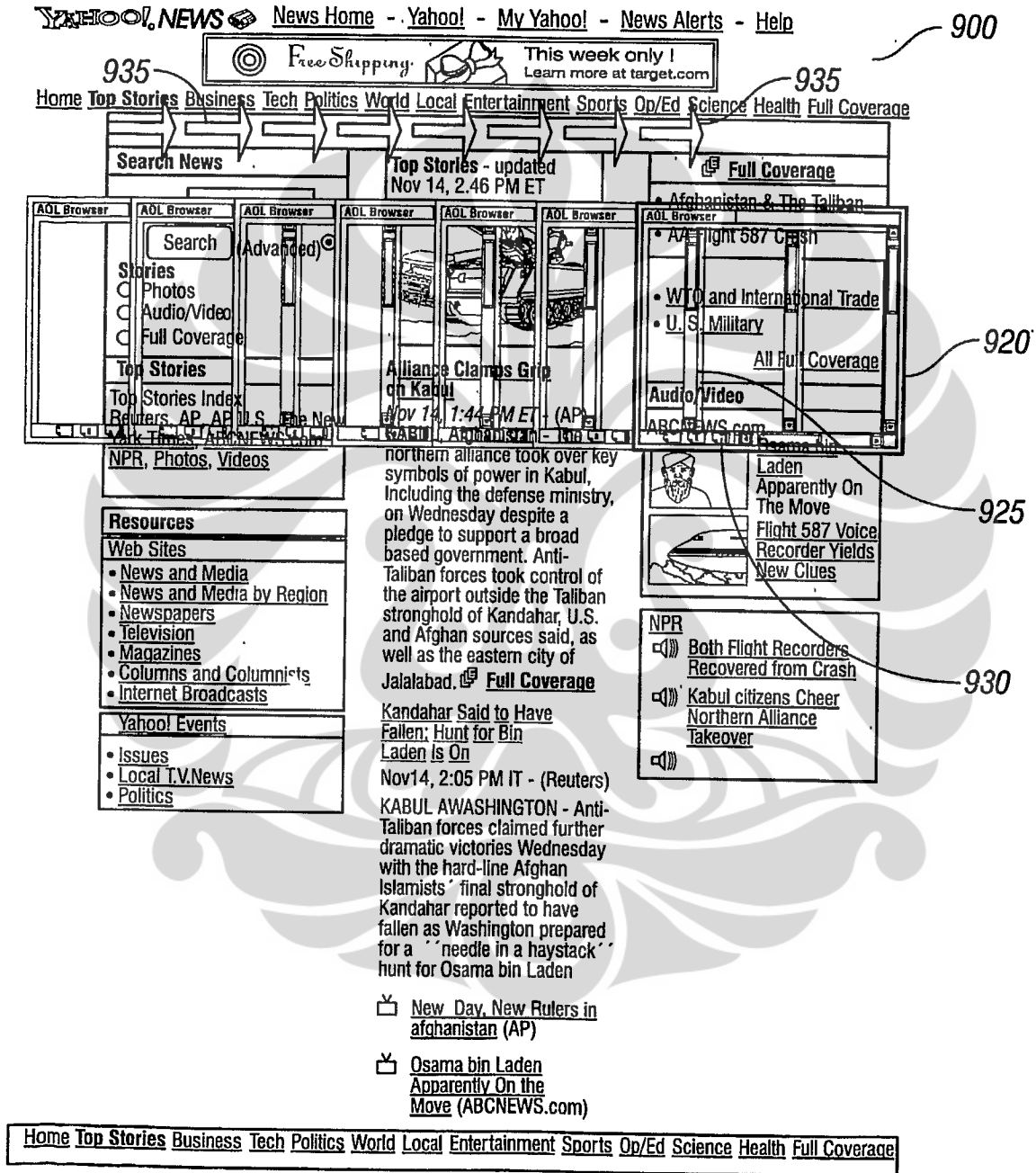


FIG. 10

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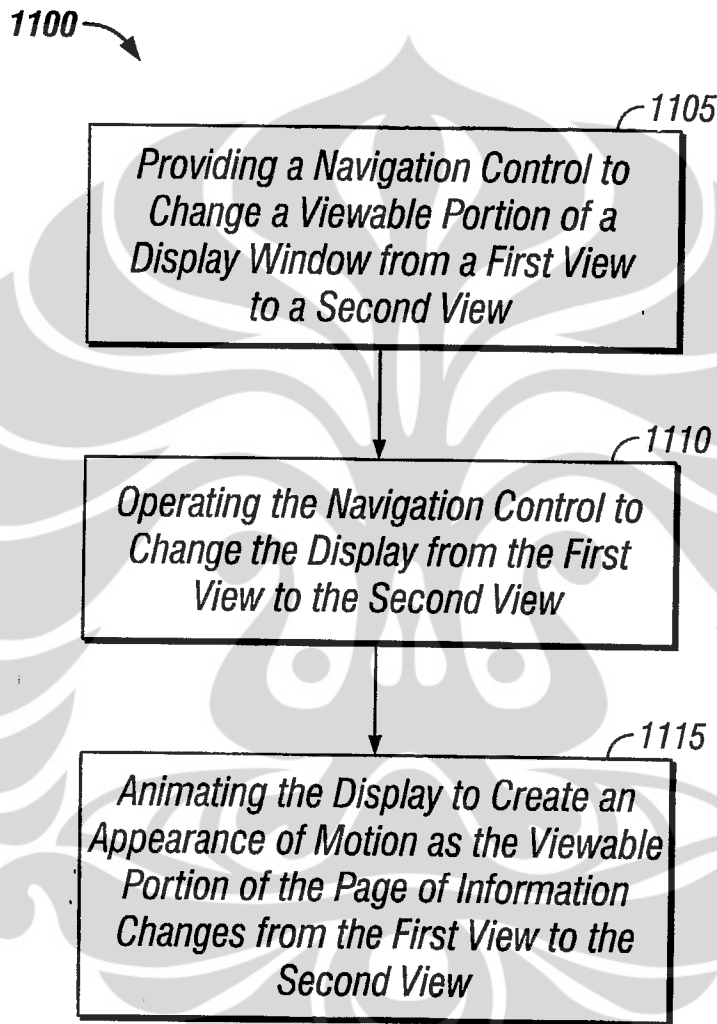


FIG. 11

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Osama bin Laden Apparently On The Move  
Flight 587 Voice Recorder Yields New Clues

NPR

- Both Flight Recorders Recovered from Crash
- Kabul citizens Cheer Northern Alliance Takeover

Alliance Gains Grip on Kabul

Nov 14, 2:44 PM ET - (AP)

KABUL Afghanistan - The northern alliance took over key symbols of power in Kabul, officials there said Wednesday despite a pledge to support a broad based government. Anti-Taliban forces took control of the airport outside the Taliban stronghold of Kandahar, U.S. and Afghan sources said, as well as the eastern city of Jalalabad. Full Coverage

Kandahar Said to Have Fallen; Hunt for Bin Laden Is On

Nov 14, 2:05 PM ET - (Reuters)

KABUL AWASHINGTON - Anti-Taliban forces claimed further dramatic victories Wednesday with the hard-line Afghan Islamists' final stronghold of Kandahar reported to have fallen as Washington prepared for a "needle in a haystack" hunt for Osama bin Laden

1200

1205

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1215

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FIG. 12

19/25

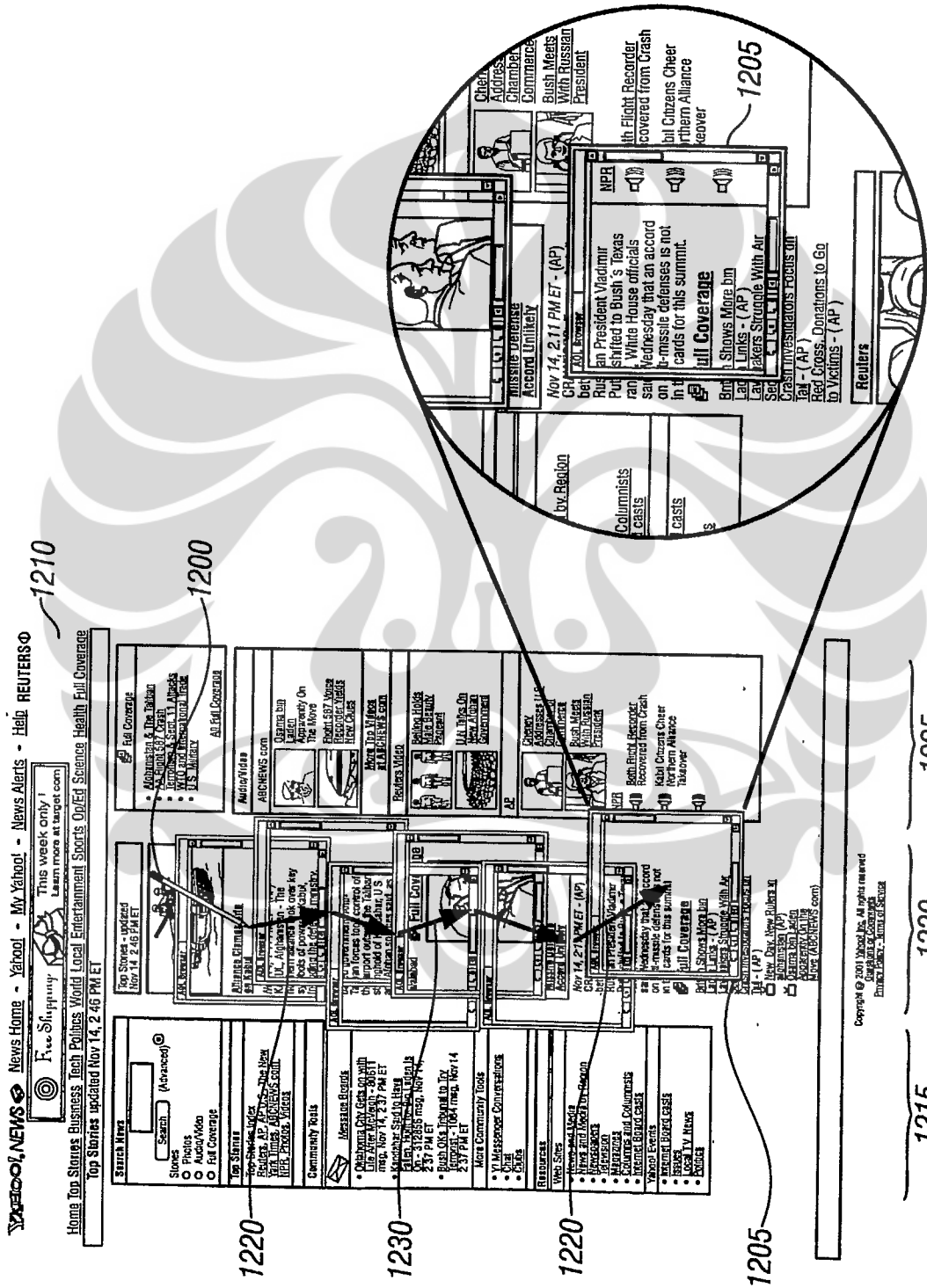


FIG. 13

1225

1220

1215

20/25

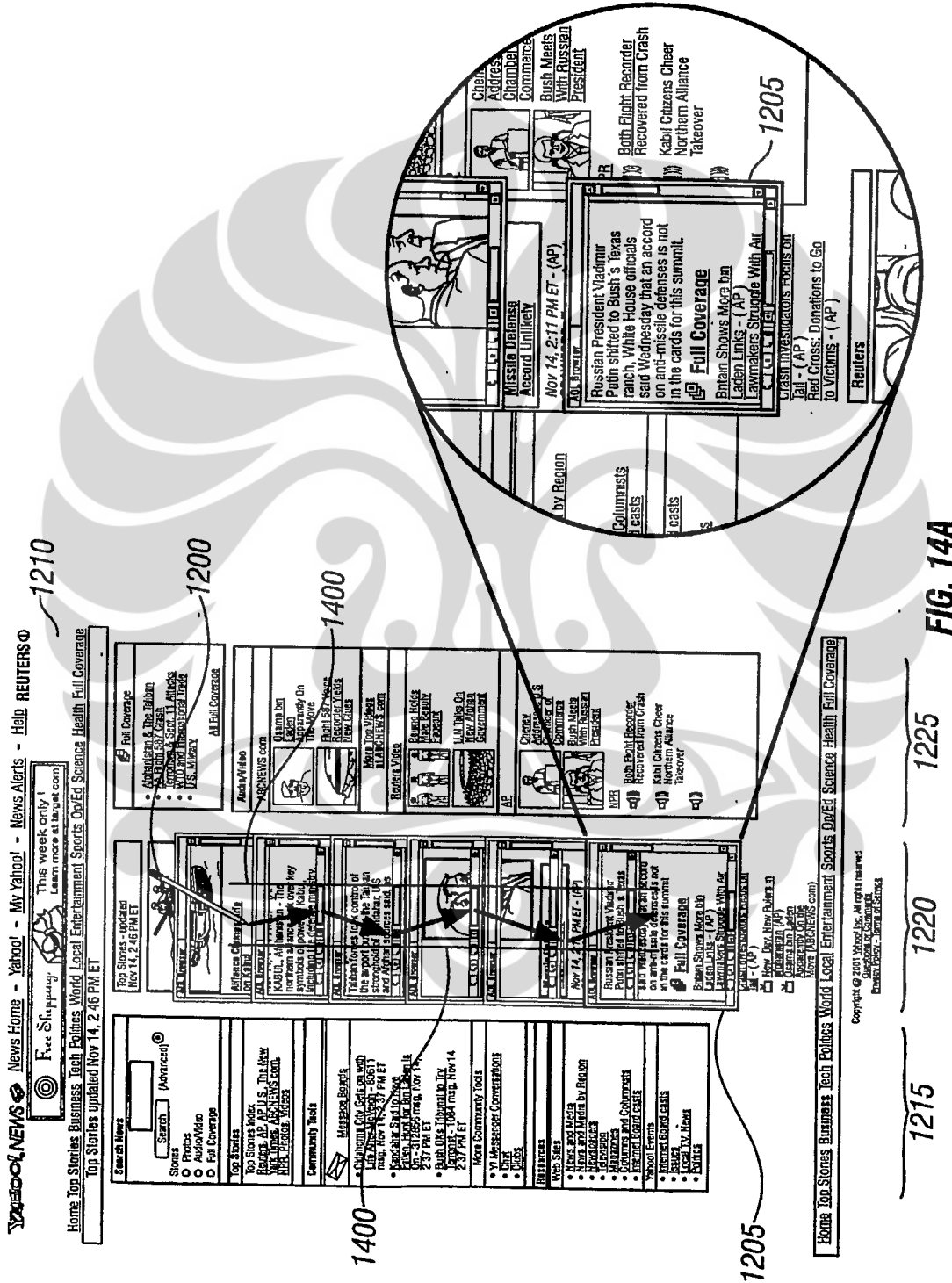
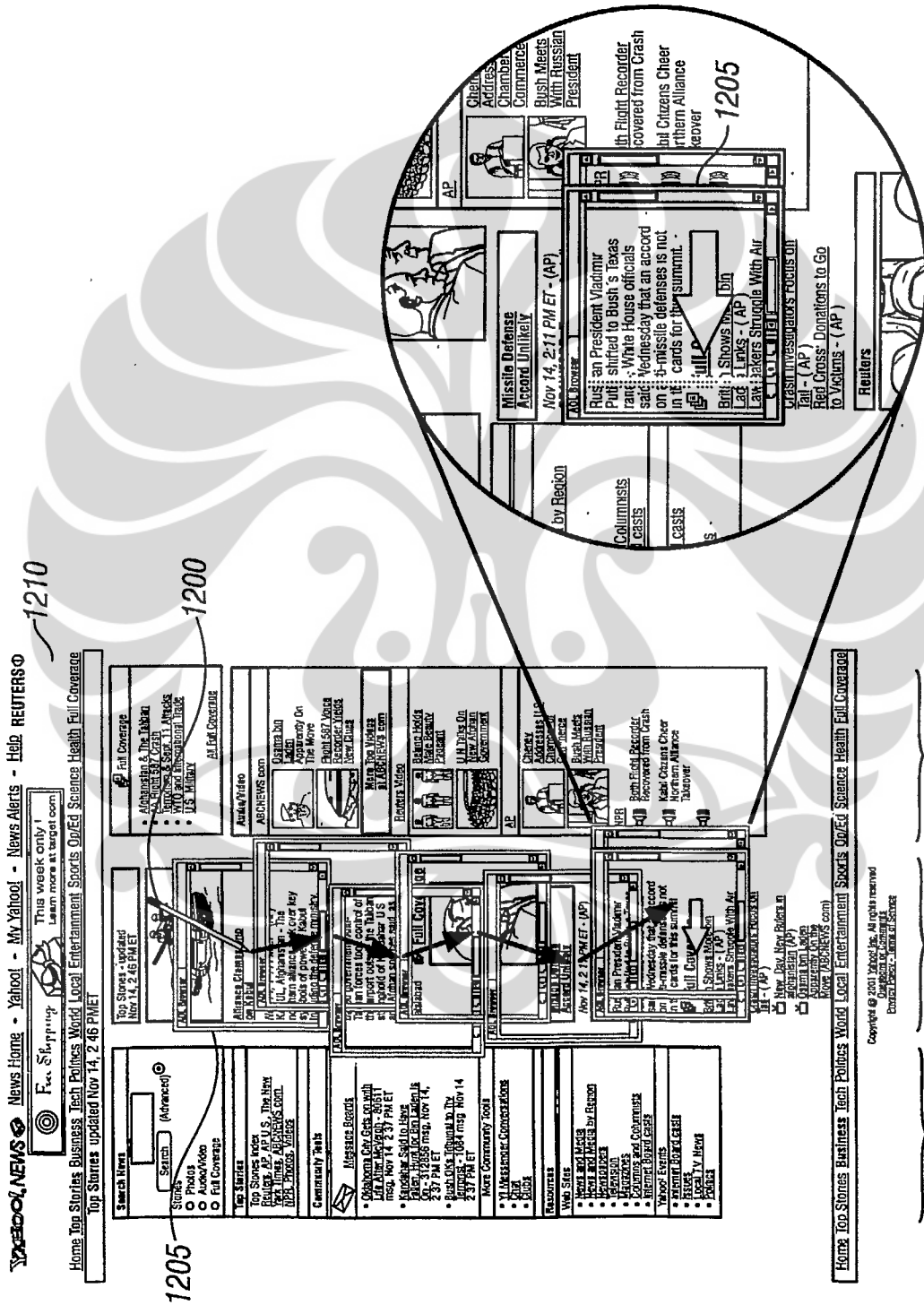


FIG. 14A

21/25



1210

1200

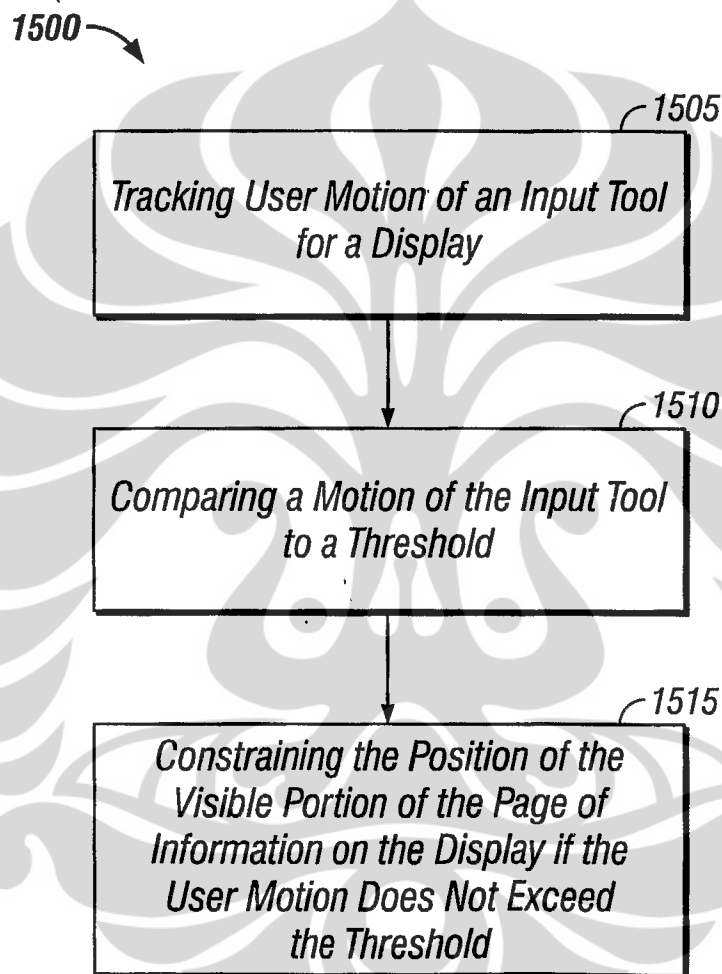
FIG. 14B

1225

1220

1215

1205



**FIG. 15**



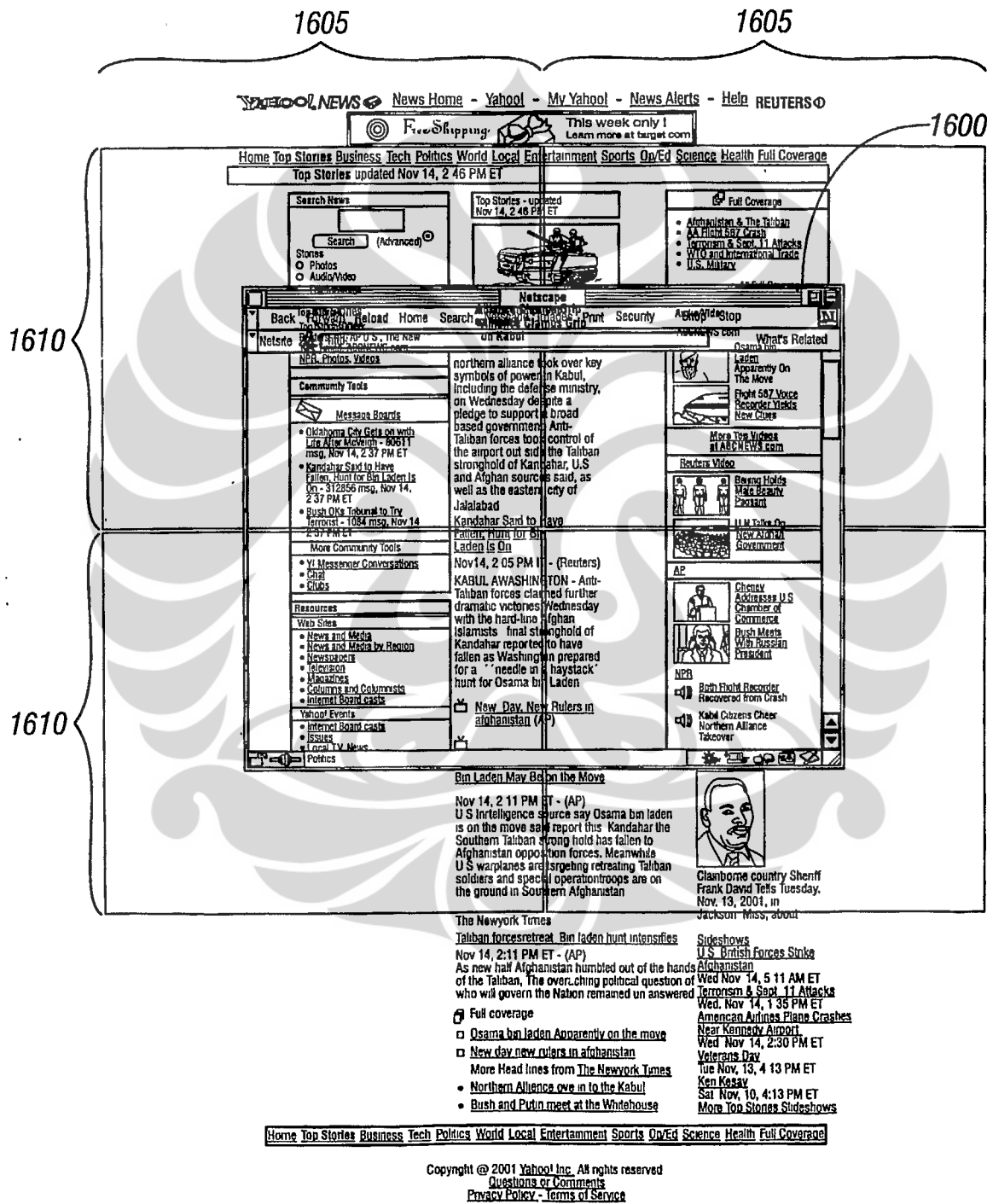


FIG. 16

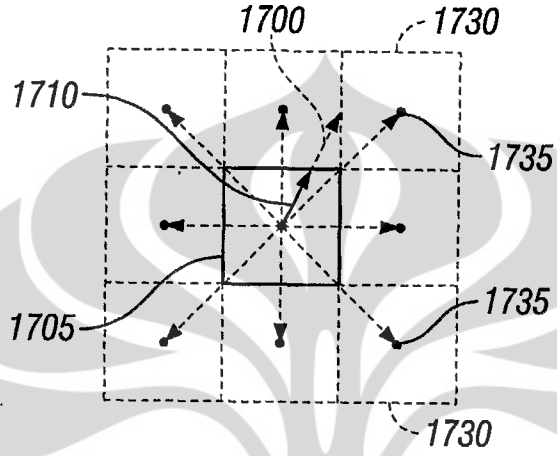


FIG. 17A

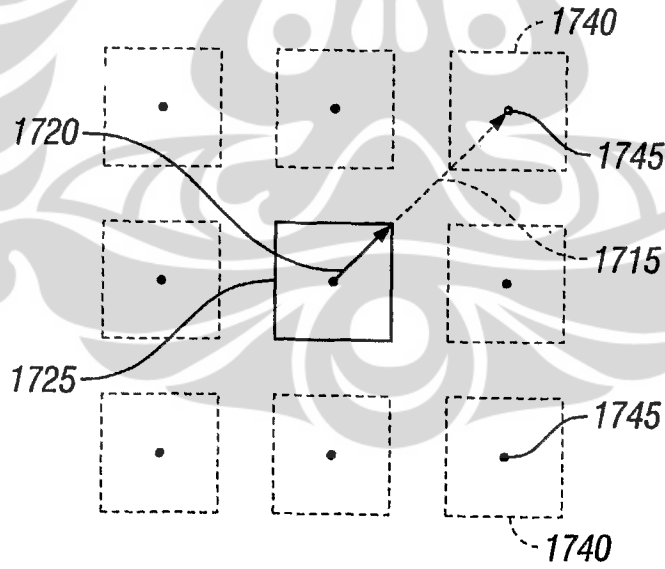


FIG. 17B

25/25

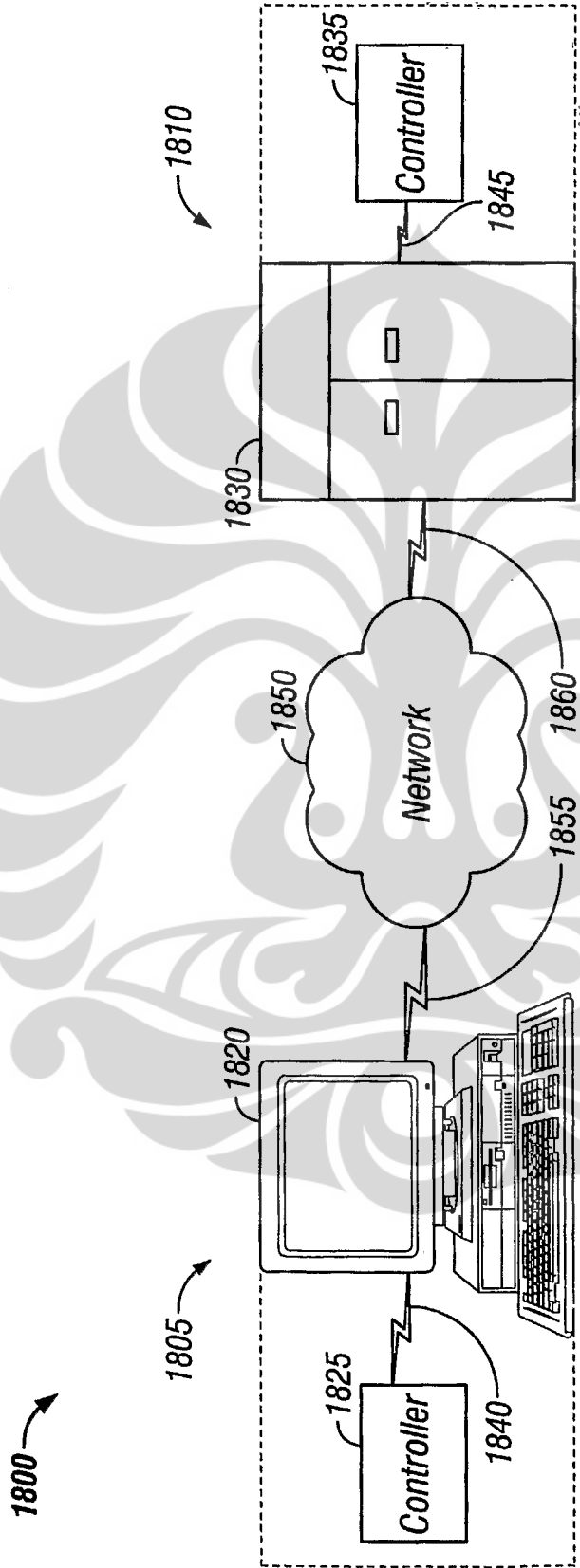


FIG. 18

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US03/08400

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>				
IPC(7) : G06F 17/21				
US CL : 715/513				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>				
Minimum documentation searched (classification system followed by classification symbols) U.S. : 715/513, 503				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
A,P	US 6,456,307 B1 (BATES et al) 24 September 2002 (24.09.2002) ✓	75-107		
A	US 5,038,138 A (AKIYAMA et al) 06 August 1991 (06.08.1991) ✓	26-66		
A	US 6,211,877 B1 (STEELE et al) 03 April 2001 (03.04.2001) ✓	1-107		
A,P	US 6,456,305 B1 (QURESHI et al) 24 September 2002 (24.09.2002) ✓	1-107		
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.				
* Special categories of cited documents: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;">                     "A" document defining the general state of the art which is not considered to be of particular relevance                      "E" earlier application or patent published on or after the international filing date                      "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)                      "O" document referring to an oral disclosure, use, exhibition or other means                      "P" document published prior to the international filing date but later than the priority date claimed                 </td> <td style="width: 50%; vertical-align: top;">                     "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention                      "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone                      "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art                      "&amp;" document member of the same patent family                 </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family			
Date of the actual completion of the international search		Date of mailing of the international search report		
12 May 2003 (12.05.2003)		<b>29 MAY 2003</b>		
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230		Authorized officer Heather R Herndon <i>Heather Herndon</i> Telephone No. (703) 306-5631		



US008095879B2

**(12) United States Patent  
Goertz**

**(10) Patent No.: US 8,095,879 B2  
(45) Date of Patent: Jan. 10, 2012**

**(54) USER INTERFACE FOR MOBILE  
HANDHELD COMPUTER UNIT**

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(75) Inventor: **Magnus Goertz**, Stockholm (SE)

(73) Assignee: **Neonode Inc.**, Santa Clara, CA (US)

(\* Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1228 days.

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(21) Appl. No.: **10/315,250**

(22) Filed: **Dec. 10, 2002**

**(65) Prior Publication Data**

US 2004/0109013 A1 Jun. 10, 2004

(51) **Int. Cl.**  
**G06F 3/00** (2006.01)

(52) **U.S. Cl.** ..... **715/716; 715/864; 715/702**

(58) **Field of Classification Search** ..... **715/864,  
715/702**

See application file for complete search history.

*Primary Examiner* — Ryan Pitaro

(74) *Attorney, Agent, or Firm* — Soquel Group LLC

**(57) ABSTRACT**

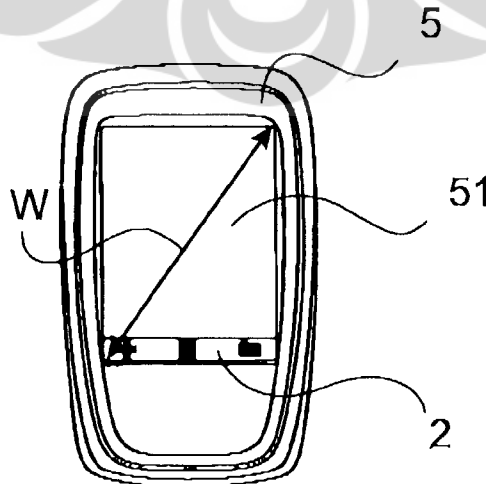
The present invention relates to a user interface for a mobile handheld computer unit, which computer unit comprises a touch sensitive area (1), which is divided into a menu area (2) and a display area (3). The computer unit is adapted to run several applications simultaneously and to present an active application on top of any other application on the display area (3). The menu area (2) is adapted to present a representation of a first (21), a second (22) and a third predefined (23) function. The first function (21) is a general application dependent function, the second function (22) is a keyboard function, and the third function (23) is a task and file manager. Any one of these three functions can be activated when the touch sensitive area (1) detects a movement of an object with its starting point within the representation of the function on the menu area (2) and with a direction from the menu area (2) to the display area (3).

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**17 Claims, 4 Drawing Sheets**



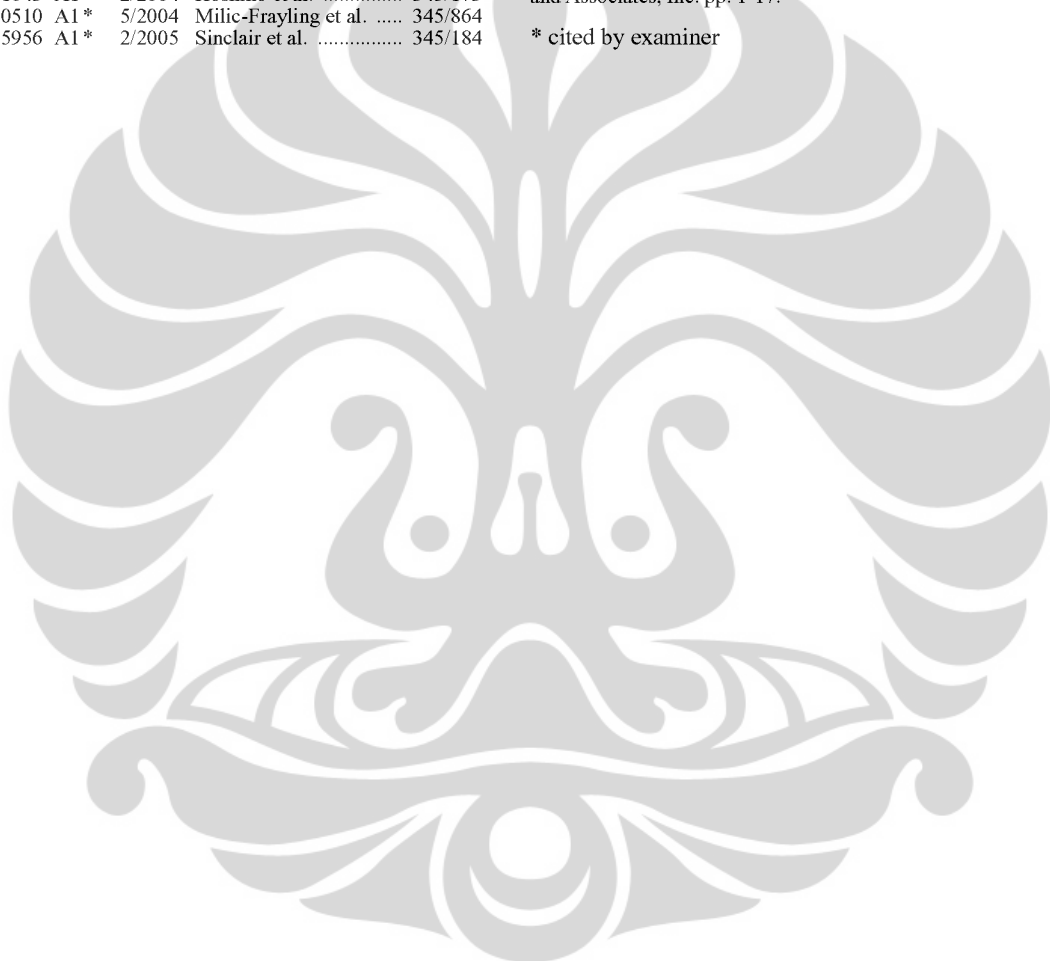
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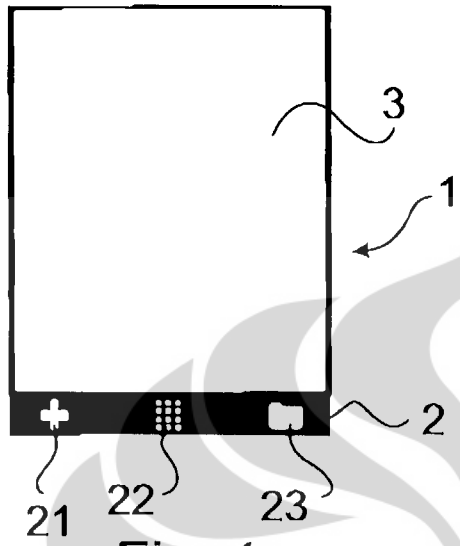


Fig. 1.

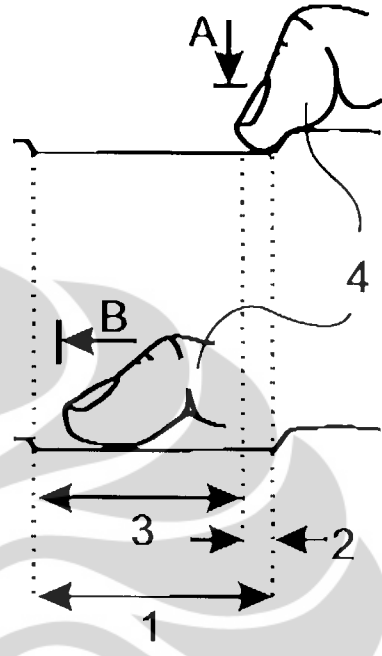


Fig. 2.

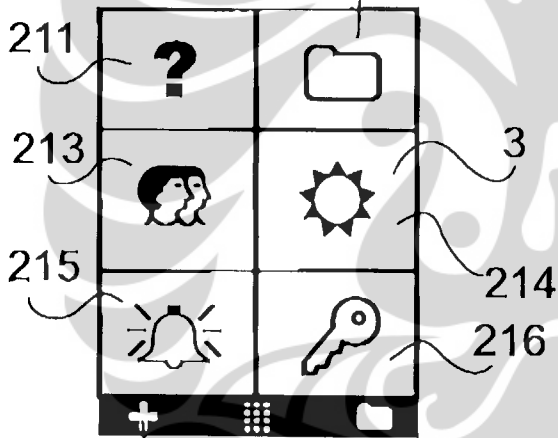


Fig. 3.

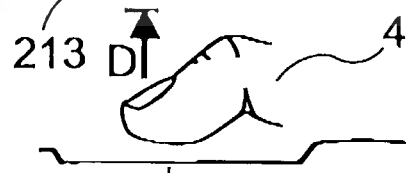
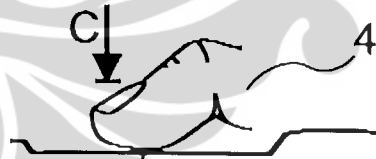


Fig. 4.

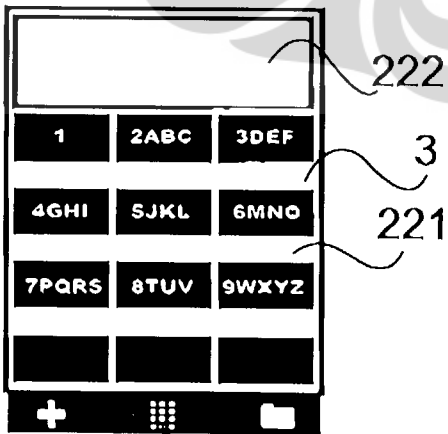


Fig. 5.

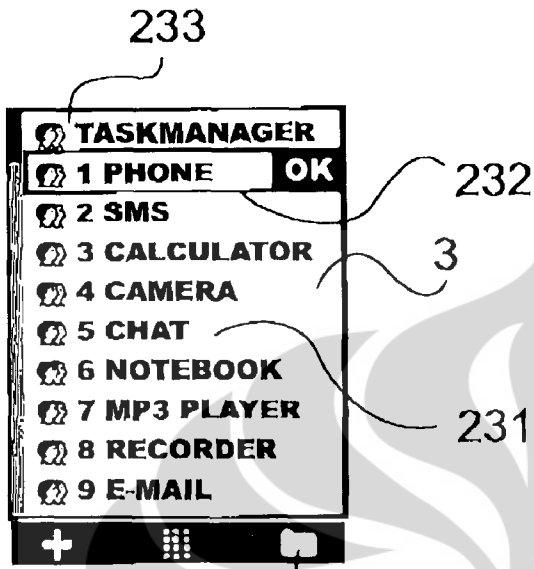


Fig. 6.

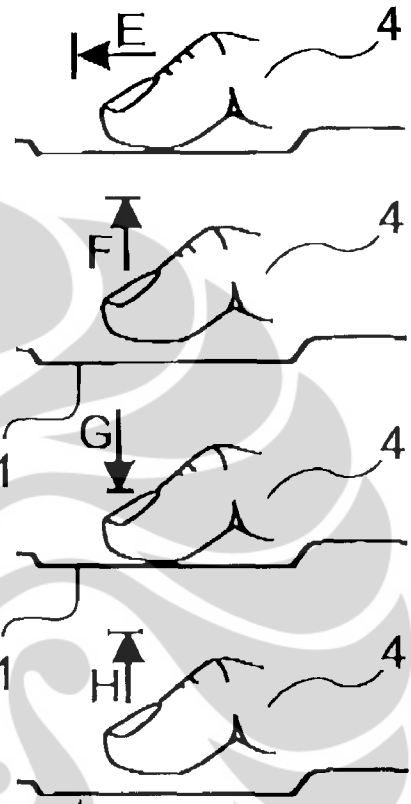


Fig. 7.

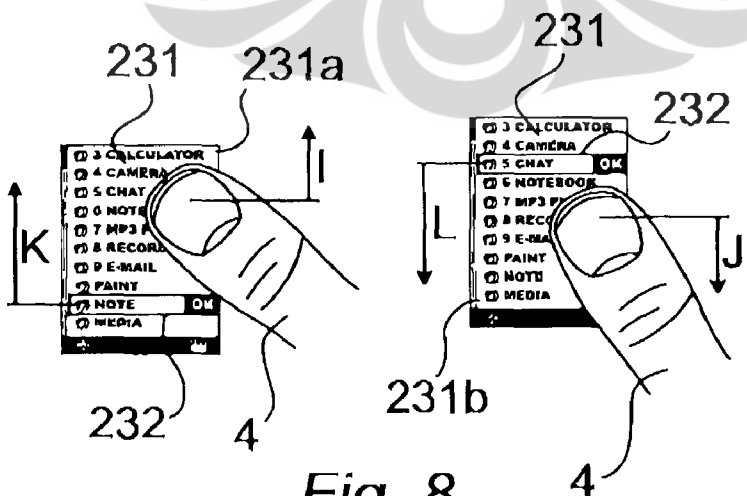


Fig. 8.



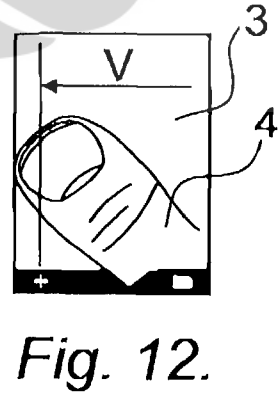
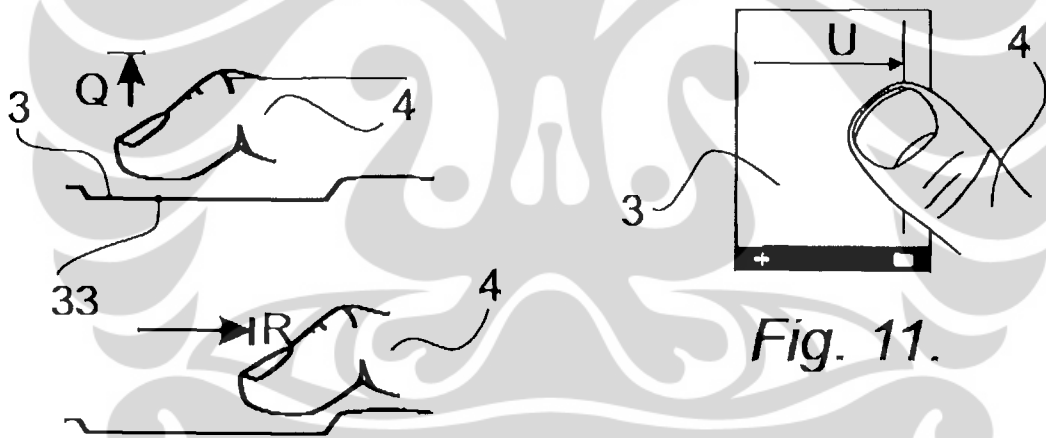
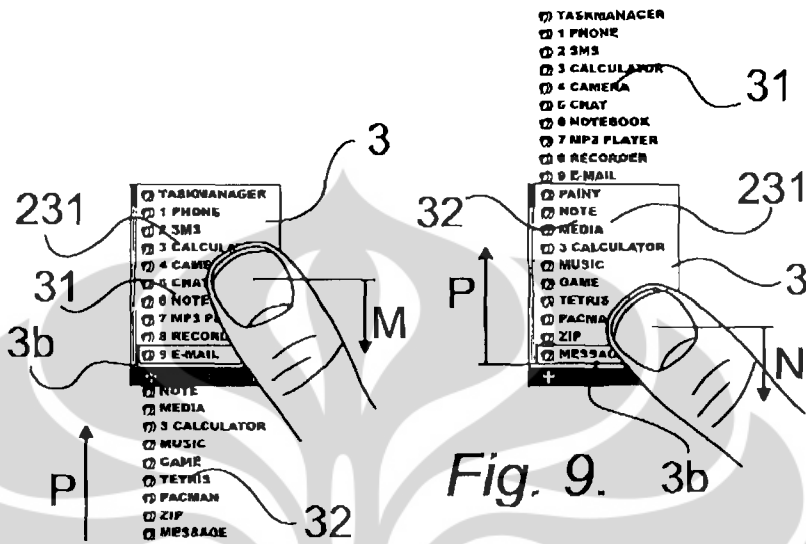


Fig. 10.

Fig. 12.

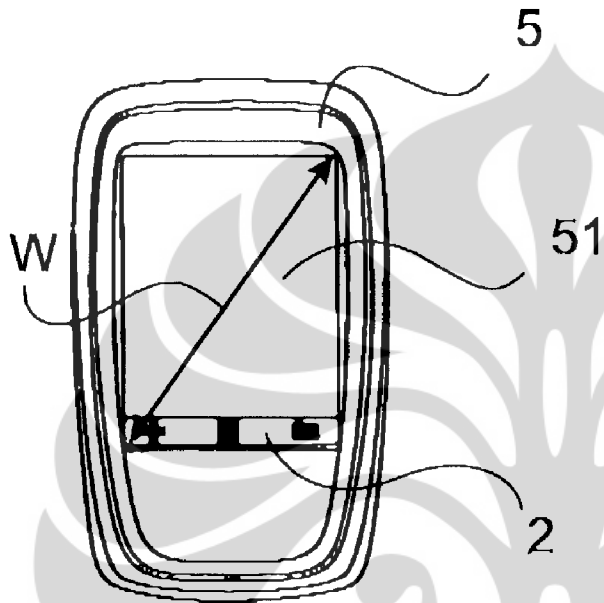


Fig. 13.

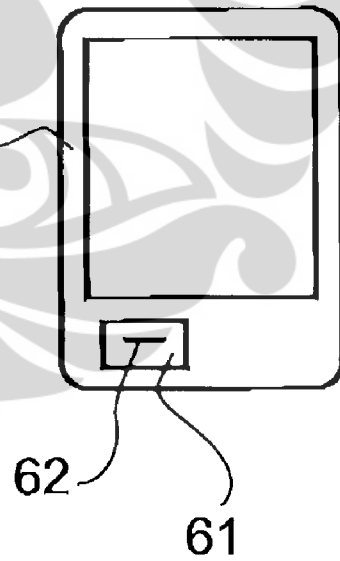


Fig. 14.

**USER INTERFACE FOR MOBILE  
HANDHELD COMPUTER UNIT**

TECHNICAL FIELD

The present invention relates to a user interface for a mobile handheld computer unit, which computer unit comprises a touch sensitive area, and which touch sensitive area is divided into a menu area and a display area.

The computer unit is adapted to run several applications simultaneously and to present any active application on top of any other application on the display area.

The present invention also relates to an enclosure for a handheld computer unit.

The present invention also relates to a computer readable medium. A computer program product with computer program code is stored within the computer readable medium, which code, when read by a computer, will make it possible for this computer to present a user interface according to the invention.

DESCRIPTION OF BACKGROUND ART

Mobile handheld computers are known in various embodiments. One kind of handheld computer is the personal digital assistant (PDA), which is getting more and more powerful.

Another kind of handheld computer unit is the mobile phone, which also is getting more and more powerful. There are also examples of where the mobile phone and the PDA are merging into one unit.

A third kind of handheld computer is the laptop computer, which is getting smaller and smaller, even competing in size with the PDA's.

The need to manage more information has led the development towards new solutions regarding user interfaces and navigation. The PDA's and mobile phones are getting larger and larger in order to provide a user-friendly interface.

Since the users have gotten used to small handheld units, it is hard to move towards larger units. This has led to foldable keyboards, different kinds of joy sticks and different kinds of touch sensitive displays and pads intended to help in providing a user interface that is suitable for small handheld computer units.

SUMMARY OF THE PRESENT INVENTION

Technical Problems

It is a problem to provide a user-friendly interface that is adapted to handle a large amount of information and different kinds of traditional computer-related applications on a small handheld computer unit.

It is a problem to provide a user interface that is simple to use, even for inexperienced users of computers or handheld devices.

It is a problem to provide a small handheld computer unit with an easily accessible text input function.

It is also a problem to provide a simple way to make the most commonly used functions for navigation and management available in the environment of a small handheld computer unit.

Solution

Taking these problems into consideration, and with the starting point from a user interface for a mobile handheld computer unit, which computer unit comprises a touch sen-

sitive area, which touch sensitive area is divided into a menu area and a display area, which computer unit is adapted to run several applications simultaneously and to present an active application on top of any other application on the display area, the present invention teaches that the menu area is adapted to present a representation of a first, a second and a third predefined function, where the first function is a general application dependent function, the second function is a keyboard function, and the third function is a task and file manager. The present invention also teaches that any one of these three functions can be activated when the touch sensitive area detects a movement of an object with its starting point within the representation of the function on the menu area and with a direction from the menu area to the display area.

With the purpose of providing a simple way of managing any application or the operations system, the present invention teaches that if the first function is activated, the display area is adapted to display icons representing services or settings, depending on the current active application. One of the icons always represents a "help"-service, regardless of application. The icons are adapted to represent services or settings of the operations system of said computer unit, such as background picture, clock, users, help, etc. if no application is currently active on the computer unit.

Selections of preferred service or setting is done by tapping on corresponding icon.

With the purpose of providing the access to a text input function in any application in the computer unit, the present invention teaches that when the second function is activated, the display area is adapted to display a keyboard and a text field,

If a text passage in an active application is highlighted, then this text passage is displayed in the text field for editing through the keyboard and that the highlighted text passage is replaced by the edited text passage when the second function is deactivated.

If no text passage in an active application is highlighted, then the text field is available for inputting and editing of text through the keyboard.

In the case of the latter the first function can be activated, or the second function can be closed, in which a choice of saving or deleting the inputted text is given. The choice of saving the inputted text results in an activation of the first function. In this case the first function will present services or settings available for the inputted text, such as saving the inputted text for later use, using the inputted text as telephone number in a telephone application, or sending the inputted text as message in communications application.

In order to provide a task and file management in a user interface for a handheld mobile computer, the present invention teaches that, if the third function is activated, the display area is adapted to display a list with a library of available applications and files on the computer unit. A selection of an application will start the application, and a selection of a file will open the file in an application intended for the file.

A selection of an application or a file is done by moving the object so that the representation of desired application or file is highlighted, removing the object from the touch sensitive area, and then tapping on the touch sensitive area.

According to the present invention a navigation in the list is performed by moving the object in a direction towards the top of the list or towards the bottom of the list. This will cause the marking to move in the same direction. The speed of the movement of the marking is lower than the speed of the movement of the object, with the purpose of making the navigation easier.

The user interface of the present invention is specifically adapted to be used with a small computer unit where the size of the touch sensitive area is in the order of 2-3 inches. The user interface is also adapted to be operated by one hand, where the object can be a finger, such as the thumb, of a user of the computer unit.

#### Advantages

Those advantages that can be primarily associated with a user interface or a computer readable medium according to the present invention reside in the ability to establish a user-friendly interface for small handheld computers, both regarding general application set-up functions, text input functions, and file and task management.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described in more detail with reference to the accompanying drawings, in which

FIG. 1 is a schematic and highly simplified view of a touch sensitive area on a mobile handheld computer unit;

FIG. 2 is a schematic side view illustrating the activation of a function;

FIG. 3 is a schematic illustration of a first function;

FIG. 4 is a schematic side view illustrating the selection of a service or setting represented by an icon;

FIG. 5 is a schematic illustration of a second function;

FIG. 6 is a schematic side view illustrating the selection of a third function;

FIG. 7 is a schematic illustration of an application or file;

FIG. 8 is a schematic illustration on how navigation is performed;

FIG. 9 is a schematic illustration of how the content of the display area is changed;

FIG. 10 is a schematic side view further illustrating how navigation is performed;

FIG. 11 is a schematic illustration of moving forwards in an application;

FIG. 12 is a schematic illustration of moving backwards in, or closing, an application;

FIG. 13 is a schematic illustration of an enclosure

FIG. 14 shows a computer readable medium in the form of a solid state memory.

#### DESCRIPTION OF EMBODIMENTS AT PRESENT PREFERRED

FIG. 1 illustrates a user interface for a mobile handheld computer unit. The user interface according to the present invention is specifically adapted to computer units comprising a touch sensitive area 1, which is divided into a menu area 2 and a display area 3. It should be understood that there are several different kinds of known touch sensitive displays and that the present invention does not depend on what kind of touch sensitive display that is used in relation to the inventive user interface.

The computer unit is adapted to run several applications simultaneously and to present an active application on top of any other application on the display area 3. It should be understood that by simultaneously it is meant any technology that will make it appear to a user of the computer unit that applications are run simultaneously and that the present invention does not depend on how this is realised, whether it is through time-sharing of one processor, parallel use of several processors, or any other technique.

According to the present invention the menu area 2 is adapted to present a representation of a first 21, a second 22 and a third 23 predefined function.

The first function 21 is a general application dependent function, the second function 22 is a keyboard function, and the third function 23 is a task and file manager.

FIG. 2 shows that any one of these three functions 21, 22, 23 can be activated when the touch sensitive area 1 detects a movement of an object 4 with its starting point A within the representation of a function on the menu area 2 and with a direction B from the menu area 2 to the display area 3.

FIG. 3 shows that if the first function 21 is activated, then the display area 3 is adapted to display icons 211, 212, 213, 214, 215, 216 representing services or functions depending on the current active application. One of the icons, in the figure exemplified by icon 211, always represents a "help"-service, regardless of application. Any key that, because of lack of space on the display area, or because the key should be hidden from the active application, or because of any other reason is not shown on the display area of an active application, can be represented by one of the icons 212, 213, 214, 215, 216 that is shown when the first function 21 is activated.

If for instance the active application handles a picture, then the icons that are shown when the first function is activated can be services such as "save to disk", "send as SMS", or "delete" and they can be settings such as "resolution", "colour", or "brightness".

If no application is currently active on the computer unit, then the icons 211, 212, 213, 214, 215, 216 are adapted to represent services or settings of the operations system of the computer unit, such as background picture, clock, alarm 215, users 213, help 211, etc.

FIG. 4 shows that selection of a preferred service or setting is done by tapping C, D on corresponding icon 213.

FIG. 5 shows that if the second function 22 is activated, then the display area 3 is adapted to display a keyboard 221 and a text field 222.

Two different scenarios can be at hand when this function key is activated. A first scenario can be that a text passage in the active application is highlighted as the second function is activated. If this is the case then the highlighted text passage is displayed in the text field 222 for editing through the keyboard 221.

The highlighted text passage is replaced by the edited text passage when the second function 21 is deactivated.

A second scenario can be that no text passage in the active application is highlighted. If this is the case then the text field 222 is available for inputting and editing of text through the keyboard 221.

In the case of the latter scenario, the first function 21 can be activated, or the second function 22 can be closed. If the second function 22 is closed then a choice of saving or deleting the inputted text is given, where the choice of saving the inputted text results in an activation of the first function 21.

As the first function 21 is activated with the second function 22 as currently active application the first function 21 will present services or settings available for the inputted text, such as saving the inputted text for later use, using the inputted text as telephone number in a telephone application, or sending the inputted text as message in communications application, such as e-mail, SMS, or fax.

FIG. 6 shows that if the third function 23 is activated, then the display area 3 is adapted to display a list 231 with a library of available applications and files on the computer unit.

A selection of an application will start the application, and a selection of a file will open the file in an application intended

for the file. The name of a selected file can be edited by activation of the second function **22** as the file is highlighted.

FIG. **7** shows that a selection of an application or a file is done by moving **E** the object **4** so that the representation of desired application or file is highlighted, removing **F** the object **4** from the touch sensitive area **1**, and then tapping **G**, **H** on the touch sensitive area **1**.

An application or file is highlighted by placing some kind of marking **232** on the representation of the application or file. This marking can be done in different ways, for example by putting a frame around the representation of the application or file, as shown in the figure, or by inverting the representation of the application or file.

It should be understood that all lists in the computer unit, such as a list of contact information in an address book, a list of e-mail messages in a mailbox, or a telephone log, can be managed in the above described manner.

The list **231** can be adapted to present only files or only applications. In this case, the top area of the list **231** can present a field **233** through which the content of the list **231** can be altered. If the list only presents files, then the field **233** can display a representation of a task manager and a selection of the field **233** will cause the list **231** to after to present only applications, and if the list **231** only presents applications, then the field **233** displays a representation of a file manager and a selection of the field **233** will cause the list **231** to after and present only files.

FIG. **8** shows that navigation in the list is performed by moving the object **4** in a direction **I** towards the top **231a** of the list **231** or towards **J** the bottom **231b** of the list **231**. This movement **I**, **J** of the object **4** will cause the marking **232** to move **K**, **L** in the same direction. The speed of the movement **K**, **L** of the marking **232** is lower than the speed of the movement **I**, **J** of the object **4**.

FIG. **9** shows that if the number of applications and/or files in the list **231** exceeds the number of applications and/or files that can be presented on the display area **3**, and if the object **4** is moved to the top or bottom position of the display area, then lifted, replaced on the display area, and then again moved to the top or bottom of the display area, then the content of the display area will be replaced one whole page, meaning that if the object **4** is positioned **N** at the bottom **3b** of the display area **3**, then lifted, replaced on the display area **3**, and then again moved **M** to the bottom **3b** of the display area **3**, then the content **31** of the display area **3** will be replaced **P** by the following applications and/or files **32** in the list **231**. In the same way, but not shown in the figure, if the object is positioned at the top of the display area, then lifted, replaced on the display area **3**, and then again moved to the top of the display area, the content of the display area will be replaced by the preceding applications and/or files in the list.

FIG. **10** shows that if the object **4** is removed **Q** from a first position **33** on the display area **3** and then replaced **R**, **S** on a second position **34** on the display area **3**, then the navigation can be continued **T** from the second position **34**.

FIG. **11** shows that moving **U** the object **4** from the left of the display area **3** to the right of the display area **3** moves the active application, function, service or setting on one step forwards. FIG. **12** shows that, in a similar manner, the active application, function, service or setting is closed or backed one step by moving **V** the object **4** from the right of the display area **3** to the left of the display area **3**.

As shown in FIG. **1**, the menu area **2** is positioned at the bottom of the touch sensitive area **1**. The representation of the first function **21** is positioned at the left side of the menu area **2**, the representation of the second function **22** is positioned at

the middle of the menu area **2**, and the representation of the third function **23** is positioned at the right side of the menu area **2**.

As shown in FIG. **13**, the present invention relates to a user interface for a hand held mobile unit that preferably can be manageable with one hand. Hence the present invention teaches that the user interface is adapted to a touch sensitive area **1** with a size that is in the order of 2-3 inches, meaning the diagonal distance **W** between two corners of the touch sensitive area **1**.

The user interface is adapted to be operated by one hand, where the object **4** can be a finger, such as the thumb shown in the figures, of a user of the computer unit. It should be understood though that the present invention might also be used with another object, such as a pen or other pointing device.

According to one preferred embodiment of the present invention the computer unit is covered with an enclosure **5**, which is provided with an opening **51** for the display area **3**, and where the representations of the menu area **2** is printed on top of the enclosure **5**. It should be understood that the opening **51** might be a transparent part of the enclosure **5** or that it might be an open aperture depending on among other things technical considerations pertaining to the touch sensitive area **1**.

This makes it possible to allow the enclosure **5** to be removable and exchangeable.

FIG. **14** shows a computer readable medium, in the figure schematically shown as a solid-state memory **61**. A computer program product is stored within the computer readable medium. This computer program product comprises computer readable code **62**, which, when read by a computer **6**, will make it possible for the computer **6** to present a user interface according to the present invention.

The present invention also teaches that the computer program product is adapted to function as a shell upon an operations system.

It will be understood that the invention is not restricted to the aforedescribed and illustrated exemplifying embodiments thereof, and that these embodiments can be modified within the scope of the inventive concept illustrated in the accompanying Claims.

The invention claimed is:

**1.** A non-transitory computer readable medium storing a computer program with computer program code, which, when read by a mobile handheld computer unit, allows the computer to present a user interface for the mobile handheld computer unit, the user interface comprising:

- a touch sensitive area in which a representation of a function is provided, wherein the representation consists of only one option for activating the function and wherein the function is activated by a multi-step operation comprising (i) an object touching the touch sensitive area at a location where the representation is provided and then (ii) the object gliding along the touch sensitive area away from the touched location, wherein the representation of the function is not relocated or duplicated during the gliding.

**2.** The computer readable medium of claim **1**, wherein the function, when activated, causes the user interface to display icons representing different services or settings for a currently active application.

**3.** The computer readable medium of claim **2**, wherein the user interface is characterised in, that a selection of a preferred service or setting is done by tapping on a display icon corresponding to the preferred service or setting.

4. The computer readable medium of claim 1, wherein the function, when activated, causes the user interface to display a keyboard and a text field.

5. The computer readable medium of claim 4, wherein said text field is used for inputting and editing of text through said keyboard.

6. The computer readable medium of claim 1, wherein the function, when activated, causes the user interface to display a list with a library of available applications and files on the mobile handheld computer unit.

7. The computer readable medium of claim 6, wherein the user interface is characterised in, that a selection of an application or file is done by gliding the object along said touch sensitive area so that a representation of a desired one of said application or file is highlighted, raising said object from said touch sensitive area, and then tapping on said touch sensitive area.

8. The computer readable medium of claim 7, wherein the user interface is characterised in, that at any given time said list presents only files or only applications, and that an area of said list presents a field through which said list can be changed from presenting files to presenting applications, or from presenting applications to presenting files.

9. The computer readable medium of claim 7, wherein the user interface is characterised in, that, one item in said list is highlighted by a moveable marking, and the user interface enables list navigation whereby gliding the object along the touch sensitive area in a direction towards the top of said list or towards the bottom of said list causes said marking to move in the same direction without scrolling the list.

10. The computer readable medium of claim 9, wherein the user interface is characterised in, that, if the number of applications or files in said list exceeds the number of applications or files that can be presented on said touch sensitive area as content, and if the object is (i) glided along said touch sensi-

tive area to the top or bottom of said touch sensitive area, then (ii) raised above said touch sensitive area, then (iii) replaced on said touch sensitive area, and then (iv) again glided along said touch sensitive area to the top or bottom of said touch sensitive area, said list navigation pages the content of said list up or down by one whole page.

11. The computer readable medium of claim 10, wherein the user interface is characterised in, that if the object is raised from any first position on said touch sensitive area and then replaced on any second position on said touch sensitive area, said list navigation can be continued from said second position.

12. The computer readable medium of claim 1, wherein the user interface is characterised in, that an active application, function, service or setting is advanced one step by gliding the object along the touch sensitive area from left to right, and that the active application, function, service or setting is closed or backed one step by gliding the object along the touch sensitive area from right to left.

13. The computer readable medium of claim 1, wherein the user interface is characterised in, that said representation of said function is located at the bottom of said touch sensitive area.

14. The computer readable medium of claim 1, wherein the touch sensitive area is 2-3 inches in diagonal dimension.

15. The computer readable medium of claim 1, characterised in, that said computer program code is adapted to function as a shell upon an operating system.

16. The computer readable medium of claim 1, wherein the representation is finger-sized.

17. The computer readable medium of claim 1, wherein the location where the representation is provided does not provide touch functionality for a different function.

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