

Rancang Bangun Alat Deteksi Gas Karbon Monoksida (CO) Berbasis Internet of Things (IoT) pada Parkiran Bawah Tanah Mall di Jakarta = Design of Detection Tools in Carbon Monoxide (CO) Gas Based on Internet of Things (IoT) in Basement Parking Mall in Jakarta.

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Abstrak

Kadar kualitas udara yang ada pada suatu daerah menjadikan tolak ukur keamanan dan kebersihan daerah tersebut. Begitu juga dengan area tertutup seperti parkiran bawah tanah (basement). Persentase kadar gas yang terperangkap di parkiran basement jauh lebih tinggi dibandingkan tempat tertutup lainnya. Hal ini dikarenakan pada area tersebut terdapat aktivitas keluar masuk kendaraan sehingga potensi terperangkapnya gas karbon monoksida (CO) yang berasal dari kendaraan sangat tinggi. Berdasarkan kondisi tersebut diperlukan untuk dibuat sistem monitoring kadar gas CO di area parkir. Pada penelitian ini, dibuat rancang bangun alat deteksi kadar gas CO berbasis Internet of Things (IoT). Sensor gas yang dipakai adalah MQ-7 yang digabungkan dengan mikrokontroler Arduino Uno. Untuk jalur pengiriman data secara real-time digunakan WiFi modul ESP8266. Data yang telah diambil oleh sensor akan disimpan dalam ThingSpeak cloud melalui ESP8266. Berdasarkan hasil monitoring didapatkan nilai kadar gas CO parkiran basement mall di Jakarta Utara memiliki nilai rata-rata yang tertinggi, yaitu dengan nilai rata-rata 16,22 ppm dan mall di Jakarta Timur memiliki nilai rata-rata terendah di antara wilayah-wilayah lain di Jakarta, yaitu 15,03 ppm.Air quality levels that exist in an area make a measure of the safety and cleanliness of the area, likewise with closed areas such as basement parking. The percentage of gas trapped in the basement parking lot is much higher than in other enclosed places. It is because, in that area, there is an activity in and out of the vehicle so that the potential for trapping carbon monoxide (CO) gas coming from the vehicle is very high. Under these conditions, it is necessary to set up a CO gas content monitoring system in the parking area. In this research, an Internet of Things (IoT)-based CO gas detection tool was designed. The gas sensor used is the MQ-7, that combined with the Arduino Uno microcontroller. The WiFi module ESP8266 used for the data transmission path in realtime. The researcher used ThingSpeak cloud via ESP8266 to store the data that has been taken by the sensor. Based on the monitoring results, the CO gas basement mall basement level in North Jakarta has the highest average value, with an average value of 16.22 ppm and the mall in East Jakarta has the lowest average cost among other regions in Jakarta, which is 15.03 ppm