

## Perancangan sistem transfer daya nirkabel untuk beban arus searah (DC) daya rendah = Design wireless power transfer system for low power direct current (DC) load

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### Abstrak

Penerapan sistem transfer daya nirkabel didalam kehidupan sehari –hari kini semakin berkembang. Kebutuhan sistem transfer daya nirkabel yang mampu digunakan secara praktis serta mampu melayani beban arus searah ( DC ) untuk daya rendah seperti charging handphone, menjadikan sistem ini terus dikembangkan. Sehingga perancangan sistem transfer daya nirkabel dilakukan untuk memperoleh efisiensi yang baik serta handal. Rancangan Colpiitts Osilator yang dipadukan dengan flat spiral coil pada sistem transmitter digunakan untuk memperoleh efisiensi daya, kestabilan frekuensi dan amplitudo tegangan osilasi sehingga diperoleh jarak penghantaran listrik yang diinginkan dalam dimensi yang kecil serta rangkaian yang sederhana namun tetap handal dalam transfer daya ke beban arus searah ( DC ) di receiver. Untuk itu, pada penelitian ini dilakukan perancangan sistem transfer daya nirkabel yang bekerja pada frekuensi 333,1 KHz dengan efisiensi daya transfer sebesar 53.29 % pada jarak efektif 3 mm untuk dapat melayani beban arus searah ( DC ) berupa lampu 12V/5Watt.

*The application of wireless power transfer systems in daily life is now growing. The need for a wireless power transfer system that can be used practically and able to serve low power direct current (DC) load such as charging mobile phones, making this system continues to be developed. So that design wireless power transfer system is being done to obtain good efficiency and reliable. Design Colpitts oscillator combined with a flat spiral coil in the transmitter system used to obtain power efficiency, stability of oscillation frequency and amplitude of voltage in order to obtain the desired electrical transfer distances in small dimensions and simple circuit but reliable in the power transfer to the DC load on the receiver . Therefore, in this study conducted design wireless power transfer system that worked at a frequency of 333,1 KHz with efficiency system of 53.29% at a distance of 3 mm effectively and able to direct current ( DC ) load in the form of a light 12V/5Watt.*