

Evaluation of Mobile Phone Wireless Charging System Using Solar and Inductive Coupling

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ABSTRACT

The wireless charging system now becomes one of the emerging technologies especially in the application of communication systems and beneficial to the wireless electronic appliances. Among them are mobile phones, cameras, personal digital assistance (PDA), cooler, torchlight and drill. Those wireless devices require battery to store and provide power before the device can be used. Hence, in order to solve the problem of short life of the battery of mobile phone, this project proposes adding a solar charging system base on inductive coupling method to the mobile phone to improve the usage of mobile phone in term of standby time, talk-time, online applications and power consumption especially in the remote area. Inductive coupling is among the effective method in wireless charging system to charge electronics device and reduce the constraint of the power cord or wired system. Meanwhile, solar cell is among the energy harvesting devices that is widely employed in many electronics application. The outcome of the project describes the comparison of the power consumption between the wire charging systems with solar-based wireless charging system. From the analysis of the results, solar-powered mobile phone with inductive coupling produced 21 h 46 min standby time after charging for 13 h 15 min compared to the existing charging system (wired system) which produce 17 h 5 min standby time after charging for 2 h 30 min. In addition, proposed system has high power consumption in term of standby time, talk-time and online application. Based on the results of the project, it could suggest that the wireless solar-powered mobile phone can replace the existing charging system in term of standby time.

KEYWORDS

Wireless charging system; Mobile phone; Solar; Inductive coupling; Standby time

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