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Development Of Wireless Power Transfer system using resonance principle with security features   (Article)

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Abstract   ⌄ View references (16)

This research describes a resonance principle based low power Wireless Power Transfer (WPT) system. The reflective impedance model is derived to evaluate the resonance coupling between coils. Additionally, a Cockroft-Walton voltage boosting circuit is incorporated to boost up the received voltage to the appropriate level, instead of using traditional conditioning circuits. The prototype model, operating at 130 kHz, is demonstrated experimentally and analysed graphically to validate the performance of the designed circuit. For an overall span of 100 mm coil separation distance, a maximum efficiency of 60% with no load and 36% with loaded system, is observed at a distance of 55 mm with approximate (e.g., manual) axial orientation of coils. It can be supported widely for portable electronic products and biomedical devices. As an added contribution, the WPT circuit was enabled by a password security feature using an Arduino microcontroller.

Author keywords

Microcontroller   Refelective impedance   Resonant frequency   Wireless power transfer

References (16)

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(2011) IEEE Antennas and Propagation Society, AP-S International Symposium (Digest)

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