Patent Search

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Abstract:

The present invention provides a compact wireless charging mechanism enabling direct power transfer between portable electronic devices using resonant inductive coup donor device boosts its low-voltage battery output through a voltage booster and stabilization circuit before energizing a transmitter circuit and resonant coil that generate high-frequency magnetic field. An acceptor device, equipped with a tuned receiver coil, harvests the induced energy, which is then rectified, smoothed, and regulated to pr a safe DC charging output. The system supports charging distances up to approximately 3.5 cm and operates efficiently across heterogeneous device types. The invention eliminates the need for cables or fixed charging stations, offering a portable, energy-efficient, and emergency-ready device-to-device wireless charging solution.

Complete Specification

Description:FIELD OF THE INVENTION

[001] The present invention relates generally to the domain of wireless power transfer (WPT) technologies and portable electronic device power systems. More specifical the invention pertains to a compact and resonant inductive coupling–based mechanism that enables direct, device-to-device wireless charging between handheld or portable electronic devices without the use of physical connectors, charging pads, or fixed base stations. The invention further relates to the design and implementation tuned resonant coils, voltage boosting and buffering circuits, frequency-controlled transmitter modules, and regulated receiver modules that collectively facilitate efficier stable, and contactless power transmission across an air gap in the near-field region. The invention additionally concerns integration of such wireless charging systems ir mobile devices, adapters, or auxiliary modules to provide safe, portable, and energy-efficient power sharing between heterogeneous electronic devices.

BACKGROUND OF THE INVENTION

[002] Wireless power transfer technologies have been widely explored in recent decades, particularly for consumer electronics, medical devices, and low-power embedde systems. Conventional inductive charging solutions typically rely on fixed charging pads, stationary docks, or cradle-based systems in which the transmitter coil is integra into a dedicated charging station connected to a stable power source. Although these systems provide acceptable performance for commercial charging applications, the inherently lack portability, mobility, and device-to-device interoperability. Users remain dependent on external charging infrastructure, and the inability to share power

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