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Wireless Power Transfer for Smart Power Outlet

Abstract

Wireless power transmission, based on electromagnetic principles, involves delivering electrical energy from a power source to an electrical load without physical conductors. This technology is precious when wires are impractical, unsafe, or unfeasible. In wireless power transmission, the paramount consideration is efficiency. Ensuring that a substantial portion of the energy generated reaches the intended receiver(s) is crucial for optimizing economic viability and minimizing power loss during transmission. Conventional power outlet sockets, often serving as extension points for multiple devices, are standard fixtures in small offices and homes. However, their wired nature limits distance introduces clutter, and raises safety concerns. Addressing these drawbacks, this paper presents a wireless power transfer solution - an intelligent power outlet. This innovative outlet is powered via wireless transmission, utilizing primary and secondary coils. Furthermore, the intelligent power outlet can be conveniently toggled ON/OFF using a remote control, enhancing its functionality and practicality.

Keywords

Efficiency; Electromagnetic Principles; Intelligent Power Outlet; Power Loss; Wireless Power Transmission