

Master 2018

Ms. Srujana Patel

Design of an Optimized Wireless Charger Complying with Qi Standards.

ABSTRACT - Masterthesis

A wireless charger is an invention leading to the cable-free world providing lower E-waste, spatial freedom and multi-device usage when compared to a wired charger technology. A wireless charger can be used where one cannot afford power losses during transmission due to the resistance of wire used for the grid. But, even the most efficient wireless power chargers lack behind regarding capital cost, free usability, and time required to full-charge. Furthermore, a wireless charger is not much better concerning free-positioning of mobile device when compared to the traditionally wired chargers.

The thesis focuses on various combinational methods for improved Wireless power transmission. The reason for this study is to analyse parameters like power transfer rate (between the charger and load); shielding effect (in the ping phase); the relation between sizes of the charging coil to full charge. These phenomena mentioned above are analysed through literature study and required experiments. The outcome of this research and analysis waved path for a new design to be implemented.

The most commonly used wireless power transmission method in low-cost Chargers is inductive coupling. A new model for a receiver module complying with the Qi standard specifications, using inductive coupling method is proposed in this thesis.

This module is mainly designed for installing in the tiny devices; with high efficiency, cost-effective and quick charge abilities. This thesis hopes to be a solution for the above-mentioned issues and thus making a small contribution to improving the wireless power transmission.