

# STUDY & SURVEY ON WIRELESS ENERGY GENERATE USING COIL

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## ABSTRACT

Wireless charging is a technology through which power is transmitted through an air gap to the electrical devices for the motive of replenishment of energy. At present wireless charging techniques and development of commercial products have provided a promise to address the energy bottleneck of portable battery powered devices. The incorporation of wireless charging into existing wireless communication system brings a series of challenges like implementation, scheduling, and power management. The paper presents a detailed view on wireless charging techniques along with its need, invention, advantages, disadvantages and standards. It will also present working of one these technologies. It is a hectic task to carry the charger of mobile phones everywhere or any electronic gadget while travelling and it is very cruel when your mobile phone getting off by the time you urgently need it, so today's world requires the complete technology so here is an overview of existing wireless charging techniques. The paper also discusses about the problems and challenges which takes place while implementing wireless charging technology. In addition it also envisions practical future of wireless charging technology.

**Keywords-** Wireless Charging, Load, Coil.

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## I. INTRODUCTION

Nowadays, wireless charging is rapidly evolving from theories toward standard features on commercial products, especially mobile phones and portable smart devices. For instance, in 2014, many leading smart phone manufacturers such as Samsung, Apple and Huawei, began to release new generation devices featured with builtin wireless charging capabilities. IMS Research envisioned that wireless charging would be a 4.5 billion market by 2016. Pike Research estimated that wireless powered products will triple by 2020 to a 15 billion market. Wireless charging is also known as inductive charging that uses electromagnetic field to transfer energy between two or more objects, which is usually done through charging station.

### Overview:

- It reduces the cost associated with maintaining direct connectors.

- It provides greater convenience for charging of everyday electronic devices.
- It ensures safe power transfer to applications that need to remain sterile or hermetically sealed.
- It reduces the risk of corrosion as the electronics can be fully enclosed.
- It delivers reliable power transfer in critical systems like wet, dirty and moving environments.

### Problem Faced with Wired Technology

1. Device Maintenance
2. User Experience
3. Frequently used wired charger then it may be fault in cable.
4. Different charger system to different device.

## II. LITERATURE SURVEY

[1] "Wireless Charging Technologies: Fundamentals, Standards, and Network Applications", the integration of inductive charging with existing communication networks creates new opportunities as well as challenges for resource allocation. This research has shown the existing solutions of providing seamless wireless power transfer via static charger scheduling, mobile charger dispatch and wireless charger deployment. Among those studies, various other issues including online mobile charger dispatch strategies, schemes for nearfield energy beamforming, mobile networks energy provisioning, distributed deployment strategies of wireless charger, and multiple access control for wireless power communication networks are less explored and further investigation is required.

[2] Hadley, Franklin. "Goodbye wire.". MIT News. Massachusetts Institute of Technology. They realizing their recent theoretical prediction, the team was able to light a 60W light bulb from a power source which is seven feet (more than two meters) away; no physical connection exist between the source and the appliance. The MIT team refers to its concept as "WiTricity" (as in wireless electricity). The work will be reported in the June 7 issue of Science Express, the advance online publication of the journal Science.

[3] Planar Wireless Charging Technology for Portable Electronic Products and Qi S. Y. Hui, Fellow IEEE (2009-2010). The commercialization of mobile phones in the 1980s has significantly sped up the research and development stuff in planar wireless charging systems. In this paper, developments of short-range planar wireless power transfer technologies for portable electronic products have been described. The choice of wireless charging over capacitive charging is explained. The horizontal flux and vertical flux techniques are explained and compared. It is more than essential to design planar inductive charging systems with compliance with a range of international regulations including electromagnetic compatibility and human exposure to electromagnetic fields.

[4] Short Range Wireless Charging System for Smart Phone through New Energy Harvesting Circuit, J.Gobinath (Asst Prof), M.Vinoth Kumar (Asst Prof), M.Lenin (P.G Scholar). This research shows that charge energy by using Bluetooth technology. Somehow the amount of charging energy is not enough to use ambient charging technology now, proposed circuit based on Bluetooth technology can improve to capture higher charging energy. It can useful for most of electronic devices like Tablet PC, PDA. the proposed system gives a new charging circuit based on schottky diode with a

real commercial film-type antenna on mobile device terminal. New power-charging structures have a charging efficiency approximately by 160%, i.e. 0.45 mA rather than 5 mA for a current Smartphone in the market.

## III. BLOCK DIAGRAM

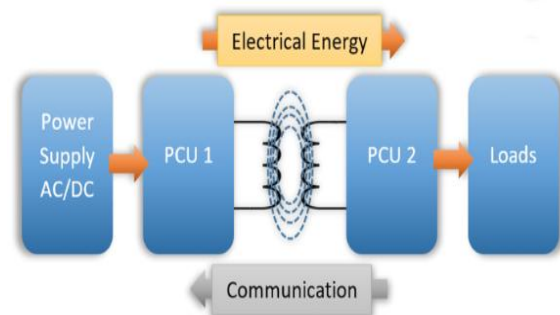


Fig 1. Block diagram

Wireless charging also known as inductive charging uses an electromagnetic field to transfer energy between two objects through electromagnetic induction. This is conventionally done with a charging pad also called charging station. Energy is sent through an inductive coupling to an electronic device, which can then use that energy to charge batteries of electronic devices. Induction chargers use an induction coil to create an alternating electromagnetic field from within a charging station, and a second induction coil in the portable device takes power from electromagnetic field and converts it back into electric current to charge the battery. The two induction coils in proximity combine to form an electrical transformer. Most wireless chargers only operate over a short distance, however, and while physical contact between a electronic device and its charging station isn't necessary for induction to work but the field generated is very weak and device must be in direct contact of charging station.

## IV. ADVANTAGES

**Connections are protected** –No tension of electrical faults like short circuit because of insulation failure, majorly where connections are made or broken frequently.

**Infection risk is low** – For embedded medical devices, transmission of power through a magnetic field passing through the skin ignores the infection risks associated with wires penetrating the skin.

**Durable** – No need to constantly plug and unplug the device, there is basically less wear and tear on the socket of the device and the attaching cable.

**Convenience and aesthetic quality increased** – avoid cables.

## V. CONCLUSION

Wireless charging technology offers the possibility of eradicating the last remaining cord connections required to charge portable electronic devices. This wonderful technology has significantly advanced during the past few decades and brings a large amount of user-friendly applications.

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