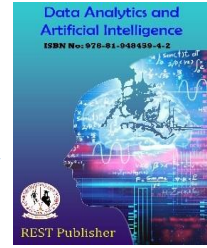




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Wireless Charging in Mobile Phone

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Abstract: *The main objective of wireless charge system is to charge the battery by using wireless charger. The dream of wireless charging is just to be able to plop your phone on a shelf work and have it fully charged when you pick it up again on your way out. This technology will replace cables and standardize on one interface, potentiality being able to adjust power settings to charge different types of batteries.*

1. INTRODUCTION

In our wireless charging system there are two circuits, a transmitter circuit and a receiver circuit. With mobile phones becoming a basic part of life, the recharging of mobile phone batteries has always been a problem. The mobile phones vary in their talk time and battery stand by according to their manufacturer and batteries. So that concept of wireless charging has been evolved. The transmitter circuit consists of step down transformer of 230/12v. this transformer steps down 230v ac from main supply to 12v dc with the help of bridge rectifier. After that a 2200/25v capacitor is used to filter the ripples and pure dc is supplied. Then the oscillator circuit oscillates circuit at 10mhz and with the help of transmitting coil it transmits the wireless power. The receiver circuit receives the power through voltage coil and passes through voltage multiplier circuit and through that voltage the mobile charging is achieved. What is wireless charging? Wireless charging is based on the principle of magnetic resonance or inductive power transfer the process whereby electricity is transferred between two objective through coils. In this charging there is a no physical connection between the transmitting and receiving device.

Components

There are certain components that are the used in wireless charging.

1. Transmitter
2. Receiver
3. Rectenna

Transmitter:

In wireless charging we have to transfer the electricity without any physical contact so there may be one transmitter for transmitting the electricity. In wireless charging the transmitter is generates the magnetic field, radio waves, microwaves.

Receiver:

In wireless charging there is one small device connected to device that requires the charging means the every battery device that are supported to the wireless charging. In receiver there is one device that is connected to the receiver known as rectenna which is used to convert the waves into electric current.



FIGURE 1. Transmitter



FIGURE 2. Receiver

Rectenna:

A rectenna is a rectifying antenna, a special type of antenna that is used to directly convert microwave energy into dc electricity. A simple rectenna can be constructed from a schottky diode placed between antenna dipoles. The diode rectifies the current induced in the antenna by the microwaves. Rectenna are highly efficient at converting microwave energy to electricity.

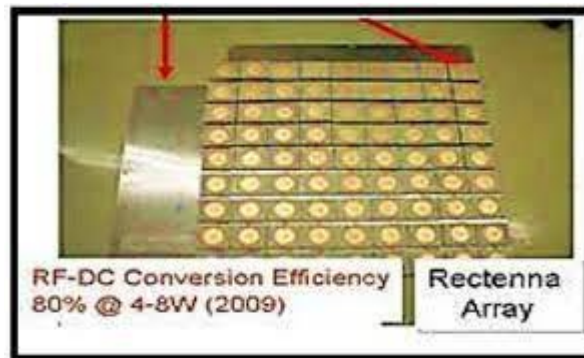


FIGURE 3. Rectenna

2. TYPES OF WIRELESS CHARGING

there are basically 3 types of wireless charging these are:

Resonance charging

Radio charging

Inductive charging

Resonance charging:

In resonance charging, two copper coils are used. One coil, attached to a power source, is the sending unit. The other coil, attached to the device to be charged, is the receiver. Both coils are tuned to the same electromagnetic frequency.

Radio charging:

In radio charging a radio wave once transmitted, propagates in all directions until it reaches an antenna tuned to proper frequency to receive it.



FIGURE 4. Radio charging

Inductive charging:

This method works on the principle of “ELECTROMAGNETIC INDUCTION” where the charger device will create an E.M field with alternating polarity.



FIGURE 5. Inductive charging

Advantage:

- 1.Charging of mobile phone is done wirelessly
- 2.We can saving time for charging mobiles
- 3.Waste of power is less
- 4.Mobile get charged as we make call even during long journey.

Disadvantages:

1. Cannot useful for long distance.
2. Only one microwave transmitter can serve to all the service providers in that area.
3. The cost is high.

Application:

1. Electric cars
2. Laptops
3. Mobiles
4. Robots
5. Home applications
6. Watches

3. CONCLUSION

Thus we understand the concept of wireless charging. How this concept is useful to us, and the types of wireless charging, its components.

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