

Project Reference Number : **46S\_BE\_5171**

Title of the project : **“DYNAMIC HYBRID WIRELESS CHARGING ON ROAD”**

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## **INTRODUCTION :**

WPT technique requires, no physical contact between vehicle & charging device, therefore overcome the inconvenience & hazards caused by traditional conductive method. The aim is to replace conductive charging method by WPT technology, while maintaining a comparable power level & efficiency the long -term goal is to dynamically power the moving vehicles on road as it reduces battery pack& extends driving range.

WCS ( Wireless Charging System ) provide further advantages in terms of convenience, dependability & use WPT technology is transferring electrical energy or power over distance without wires with basic of electricity & magnetism.

By the application of this various automatic industry will be able develop smaller batteries, which in turn will lead to cheaper more spacious vehicles.

## **OBJECTIVE :**

The aim of this project is to build a wireless charging of vehicles on road while running.

## **METHODOLOGY :**

There are 4 methods of wirelessly charging of EV vehicle .

1. Wireless Capacitive Charging.
2. Permanent Magnetic Gear Wireless Charging.
3. Inductive Wireless Charging.
4. Resonant Induction Charging .

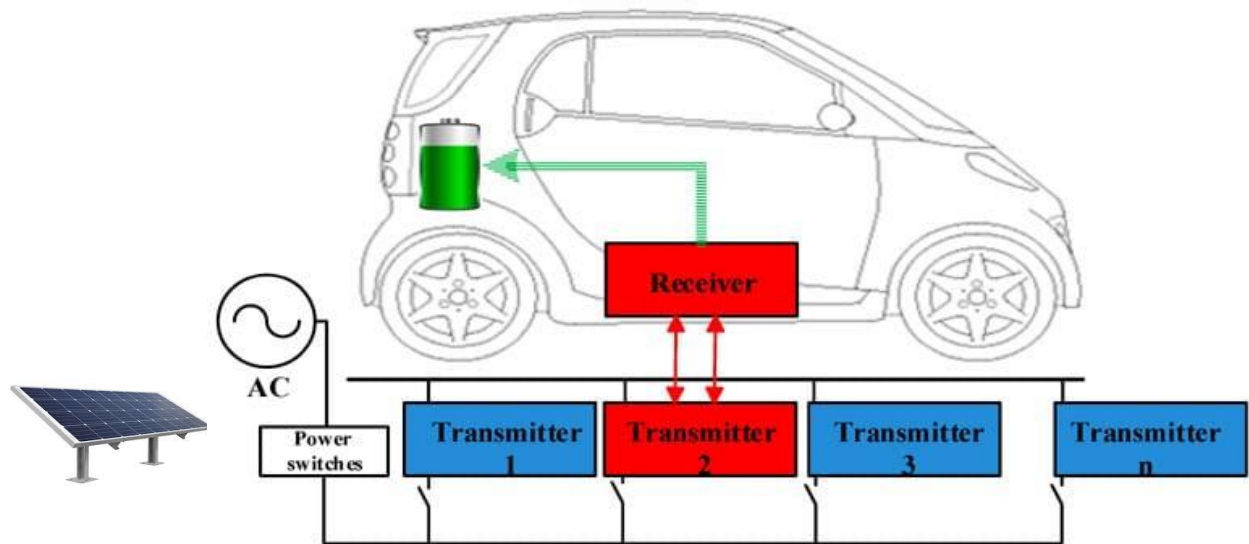
Among these, resonant inductive charging is well now & sophisticated type. A source power is fed into the transmitter or main winding, a power is delivered the secondary coil or receiver by varied magnetic fields.

Effective power transfer is possible when the primary & secondary coils are near as possible. In a wireless power transmission system, a transmitter device driven by electrical power from a power source generates a time varying EMF. This EMF is main source for this wireless power transmission. The technology of wireless power transmission can eliminate the use of wires & batteries thus increasing the mobility, convenience & safety of an electronic devices for all users.

### **Hardware Materials :**

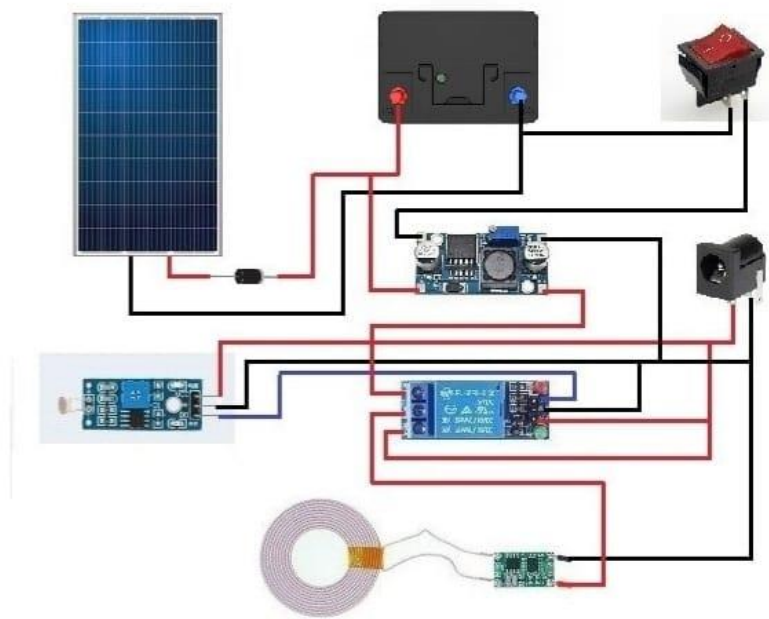
1. Voltage Booster.
2. Node MCU.
3. Voltage Sensor.
4. Power Receiving coil.
5. Power Transmitting coil.
6. LCD Module.
7. Relay Module.
8. Solar Module.
9. LDR module.
10. Batteries.
11. Diode.
12. SPDT Switches.
13. Power Jack.

**BLOCK DIAGRAM :**



**Figure 1: Wireless Electric Power Transfer Basic Structure.**

## CIRCUIT DIAGRAM:



**Figure 2: Wireless Electric Power Transmitting Car Circuit.**

## **WORKING:**

The receiver coil gets included by self-induction and the energy will be stored in the voltage rating. The voltage booster to boost the voltage rating. The voltage booster step up on input voltage to some higher level required by a load. The LCD IS used for display the voltage rating of the battery. SPDT switch used for operating power supply of the battery. Power transmitter is used to connect external generator such as solar panel. Power jack is used for constant supply of voltage (it allows steady power source to be plugged in. The diode is used between solar panel and battery so that allows the forward bias current to the battery. A relay is used to protect the electrical system and minimize the damage to the equipment connected in the system due to over voltage or current. The LDR module is used to detect whether its night or day. So, power supply to the transmitter coil can be switched either by solar panel battery or main supply.

## **CONCLUSION:**

This sophisticated technology of charging EV vehicle while running on road is extremely efficient and very affordable. This formation of green road is very simple. We install a receiver coil at the bottom of the vehicle and transmitter at the road. With help of this project its going to be even useful to replace the vehicle which are running by using fossil fuels and causing serious environment effect.

## **FUTURE SCOPE:**

As we know, we need to find a best alternative for transportation and EV vehicle are the one. The dynamic charging of EV vehicle allows us to charge battery while running. This is future progress in EV charging station. By using this we can save time of the user. As we know charging is the asset of time so the most natural thing is to convert roads into a charging asset.

We know there are 1.4 billion vehicles on the planet. There is no way to provide a charger per vehicle and it's not sustainable so, we used a shared charging platform and hence the wireless is the key. Due to this our city's landscape will change dramatically, no more gas stations nor some battery charging stations.