# Project Title

Wireless charging of EV's battery system from RF sources by using rectenna methodology.

Project Background Earlier, people used to avoid buying electric vehicles because of short life span of the batteries and the exchange service was too high. Now the technology has improved in terms of EVs and the people use lead acid battery and lithium ion battery pack as different OEMs companies suggested for the respective vehicle’s requirement.

Charging technology of the battery was introduced earlier as a charge adapter and heavy-duty electrical connections. In this method people connect their vehicles with the help of adapters and wire connectors and the charging time is too slow. At present people prefer to buy commercial fuel vehicles as it takes barely minutes to refuel and then it can travel up to large distances. But electric vehicles take 8-12hours to charge and only goes up to 100 to 150 km.

# Problem Statement

Present situation and development of technology are the evidence that in coming years there will be huge use of Battery Operated Vehicles (BOV). So, the following issues need to be addressed:-1.Wired charging only allows us to charge single vehicle at a time.2.The present charging system is very inconvenient due to the use of cables and adapters.3.The cars are fitted with heavy and expensive batteries .

# Solution

1.We have developed our own rectenna based device which generates electricity in the presence of radio waves which will not only wirelessly charge any electric vehicle from a distance but will also remove the use of cables and power adapters .

2.With the help of this, distance charging we can charge multiple electric vehicles simultaneous using only one source .

3. Establishing this technology on roads and highways will provide never ending charge while driving. This will shrink the size of batteries and will improve the car's performance.

# Innovation

1. We have designed a rectenna based device which has made it possible and convenient to wirelessly charge multiple electric vehicles simultaneously in a range of 5 meters using radio frequencies as source.
2. We have build our own voltage regulator that will provide constant voltage output.
3. Establishing our developed technology on roads and highways will provide consistent charging to electric vehicles which will prevent the batteries from running out of charge while driving.

# Plan to build Prototype

Our planning of prototype began with the research mainly based on rectenna technology and the procedure we will be following is :-

1. Designing of circuit and its software implementation.
2. Designing a voltage regulator for our device to attain constant voltage output.

3.Procuring the required materials according to the designed circuit.

4.Execution of the designed circuit .

5.Designing a CAD model for better interpretation of prototype.

6.Finally testing the prototype by charging a 12 volt battery and then we will be testing it on electric vehicle’s batteries.

7. Testing the efficiency and effectiveness of the device .

# Keywords

Rectenna methodology, Electric vehicle, Charging stations, Radio frequencies, Distance charging, Radio frequencies , Wireless charging , Voltage regulator , RF energy harvesting.