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# ELECTRICAL VEHICLE WIRELESS CHARGING SYSTEM USING SOLAR PANEL

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## ABSTRACT

All vehicles in India are switching to electric vehicles which will play a significant part in the future. It reduces energy and pollution. Currently, electric vehicles are growing in figures because of high rates of energy Electric vehicles have now hit the road worldwide and are sluggishly growing in figures. Also, it's proven that electric vehicles help reduce the cost of trips and which is cheaper than energy. So, we have developed an electric charging system with unique ideas for working the charging system problem. In this electric vehicle no need for any line, no need for external power force, and no need to stop a vehicle for charging, we can charge EVs in moving conditions. In this system, we use, a battery, motor, Atmega regulator, TV display, nonsupervisory circuit, solar panel, coils of bobby, and AC to DC transformers to develop the system more accurately.

This whole system describes how an electric vehicle can be charged in moving conditions and also barring the need to stop the vehicle and charge it. Therefore, by separating the bobby Coil in the road, we can charge the electric vehicle in the moving condition.

**Keywords:** Wireless Charging System, Electric Vehicle, Solar Power, Transmitting And Receiving Coil.

## I. INTRODUCTION

The increasing adoption of electric vehicles (EVs) represents a significant milestone in the transition to a cleaner and more sustainable mode of transportation. As the world seeks to reduce its reliance on fossil fuels and combat climate change, EVs have emerged as a promising solution. However, to fully realize the potential of electric mobility, it is essential to develop efficient and environmentally friendly charging infrastructure. This introduction explores an innovative solution in the form of an Electric Vehicle Wireless Charging System that integrates solar panels, offering a compelling answer to the growing demand for cleaner, more convenient, and sustainable charging methods.

The industry has been steadily shifting toward electric propulsion systems as EVs gain traction due to their environmental benefits and technological advancements. However, one of the key challenges in EV adoption is the availability and accessibility of charging infrastructure. Traditional charging methods often require cumbersome cables and fixed charging stations, limiting convenience and mobility.

The Need for Sustainable Charging: While electric vehicles themselves produce zero tailpipe emissions, the electricity used to charge them may still come from non-renewable sources, such as coal or natural gas. To fully capitalize on the environmental advantages of EVs, it is crucial to ensure that the electricity used for charging is generated from clean and sustainable sources.

Innovation at the Intersection of Solar Power and Wireless Charging: The solution we present in this introduction combines two transformative technologies: solar panels and wireless charging. By integrating solar panels into the EV charging infrastructure, we create an innovative system that addresses multiple challenges simultaneously. This system capitalizes on the abundance of solar energy, making it a sustainable power source for electric vehicle charging. Moreover, it removes the need for physical connectors and cables by using wireless power transfer technology, making the charging process incredibly convenient and user-friendly.

## II. LITERATURE SURVEY

1) S. S. Rajput, M. R. Khan, and M. S. Al-Haddad "Solar-Powered Wireless Charging of Electric Vehicles: This review article provides a comprehensive overview of solar-powered wireless charging for electric vehicles. It covers various aspects of the technology, including the underlying principles, system components, and control strategies. The article also discusses the current state of research and development in this field and identifies the challenges and opportunities associated with solar-powered wireless EV charging.

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2) S. H. Han and H. J. Lee "Wireless Solar-Powered Charging Station for Electric Vehicles" This research paper proposes a wireless solar-powered charging station for electric vehicles. The system consists of a solar panel array, a wireless power transfer unit, and a battery storage system. The paper describes the design and implementation of the system and evaluates its performance under different operating conditions.
3) M. N. Islam, S. S. Rajput, and M. R. Khan "Optimal Design of Solar-Powered Wireless Charging System for Electric Vehicles" This research paper presents an optimal design methodology for a solar-powered wireless charging system for electric vehicles. The methodology considers various factors such as system efficiency, cost, and environmental impact to arrive at an optimal design. The paper also includes a case study to demonstrate the effectiveness of the proposed methodology.

## III. TECHNICAL REQUIREMENTS

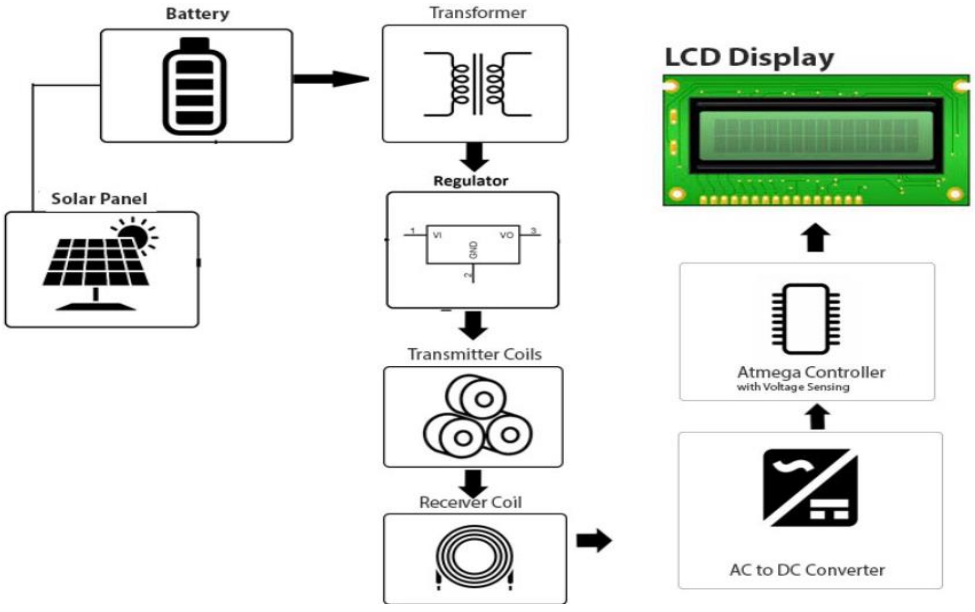
The following are requirements to build an Ev wireless charging system

- Atmega Controller
- Battery
- Voltage Sensor
- LCD Display
- Transformer
- Regulator Circuitry
- Transmitter and Receiver Coils
- Switches
- LED's
- PCB Board
- Capacitors
- Resistors
- Transistors
- Cables and Connector

## IV. OBJECTIVES

The main goal of this project is to realize wireless energy transfer through inductive coupling between transmitting and receiving coils to charge the vehicle's battery.
This energy allows the vehicle to travel long distances at efficient speeds and consumes less power at a charging station

## V. BLOCK DIAGRAM



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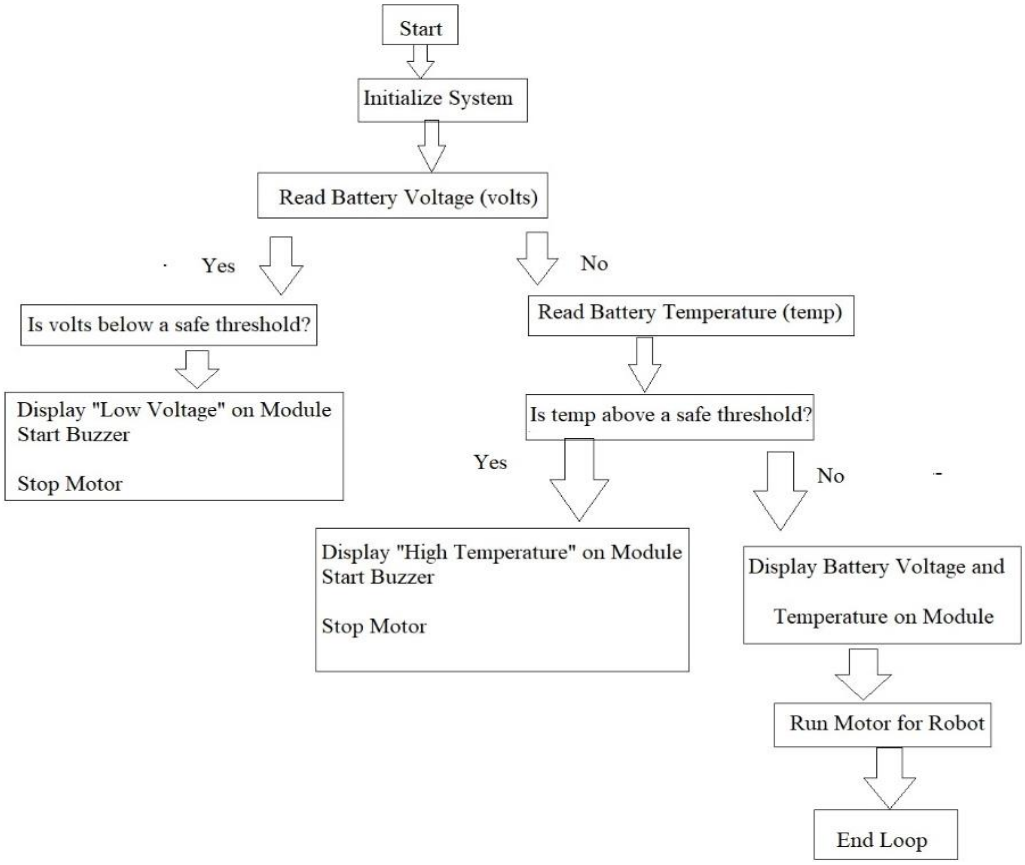
## VI. ADVANTAGES

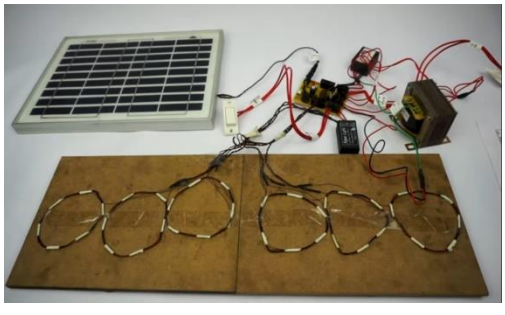
1) Wireless charging of vehicles without any wires
2) No need to stop charging, the vehicle charges while moving
3) Solar power for keeping the charging system going
4) No external power supply needed
5) Coils integrated into the road to avoid wear and tear

## VII. FLOW CHART

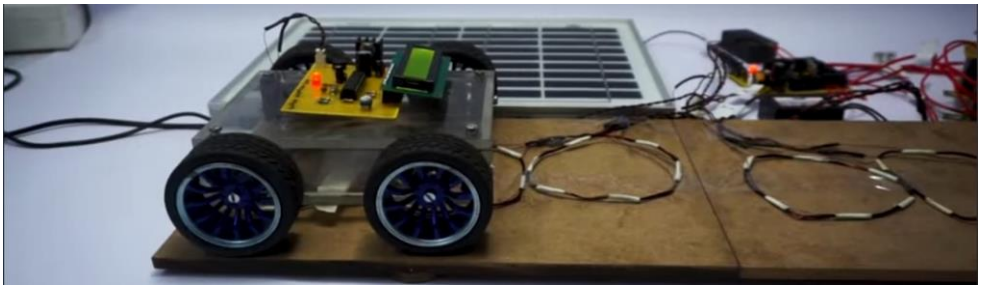



## VIII. RESULTS

**Stage1**: starting setup



**Stage 2:** car is in no charging stage



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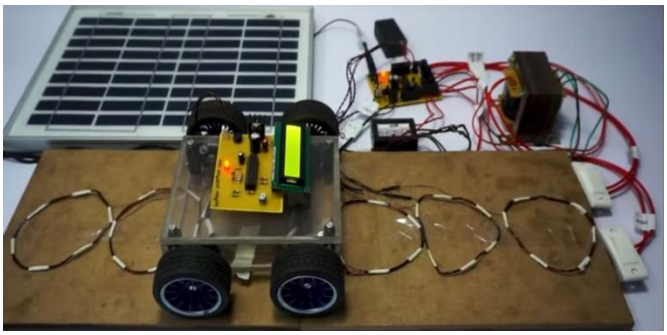
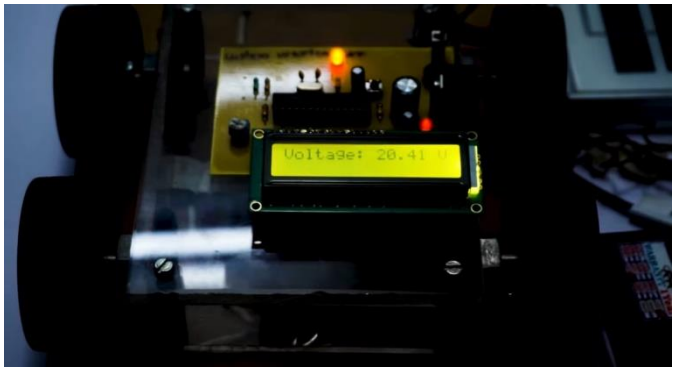
**Stage 3:** Car is charging



**Stage4:** LCD display the solar voltage




## IX. CONCLUSION

The below study effectively demonstrated the construction of a wireless electric vehicle charging system using solar panels. The electric vehicle charging wirelessly reduces the need for a transmission line and reduces energy consumption, making it a simple and more practical way.

This system reduces the rid of tackle factors wear and tear. This wireless charging system can be enforced through a dynamic electrical vehicle charging system.

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[6] https://youtu.be/71ULHkx6rIU?si=g4O6W6O ieL8U-DqV