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# Wireless Runtime Electric Vehicle Charge System by Using Renewable Energy Source

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**ABSTRACT:** This Project proposes a solar charging scheme for electric vehicles (EVs) as an alternative to cleaner air and greenhouse gas emissions. By harnessing solar energy, EVs can provide on-the-go benefits, eliminating the need for stationary charging stations and alternative energy sources. These devices provide exceptional and sustainable mobility, reduce reliance on fossil fuels and reduced environmental impact. With increasing global EV adoption, the demand for efficient and environmentally friendly charging products is of the utmost importance. Our study demonstrates the feasibility and effectiveness of these progressive solutions in addressing urgent environmental problems. Solar charging now not only provides the most convenient blessing but also provides economic benefits to EV owners by reducing fuel costs. As countries build international EVs, separate policies that adoption for a greener destiny becomes more urgent.

**KEYWORDS:** Arduino, Voltage Sensor, Motor Drive, DC Motor, Receiving Coil, Transmitter Coil, Solar Panel

## I. INTRODUCTION

As electric vehicles (EVs) proliferate on roads worldwide, their environmental benefits and cost-saving potential have attracted increasing attention. In their role in reducing carbon emissions after 2010, EVs are tangible ways to reduce transportation costs by using electricity as a cost-effective alternative to traditional fuel sources. Providing solutions in this context, our project has introduced an underground EV charging system that is ready to revolutionize urban mobility design.

At the heart of our innovation is a unique and revolutionary way to charge an EV. Our system boasts wireless charging capabilities, eliminating the need for complex cables and simplifying the user experience. The key to our solution is to integrate simple charging functionality at vehicle speeds, eliminating the need for static charging stops and providing smooth navigation. A key feature of our design philosophy is independence from external power sources, as our design utilizes on-board strengths to facilitate cost efficiency. Through the use of integrated coils in the road design, we minimize the problem of erosion, and ensure durability and reliability. Offering a comprehensive range of benefits, including wireless functionality, continuous charging on the move, and self-contained power supply, our EV charging system is exemplary in approach in the development and implementation of electric vehicle systems. Representing a change as the global shift to electric mobility gains momentum, our business is at the forefront of innovation, poised to create a future of sustainable transportation.

In the following sections we explore the technical challenges of our system, and elucidate its design principles, implementation strategies, and performance considerations. Through rigorous analysis and simulation we evaluate how our solution is more efficient and effective, and we lay the groundwork for its broader applicability.

In summary, our project exemplifies the convergence of technical intelligence and environmental stewardship, providing a tangible path towards a cleaner and more efficient transportation ecosystem. As we embark on this journey of innovation and research, we invite stakeholders across sectors to join us in creating a green, sustainable vision for urban mobility.

### 1. Block Diagram of the designed system

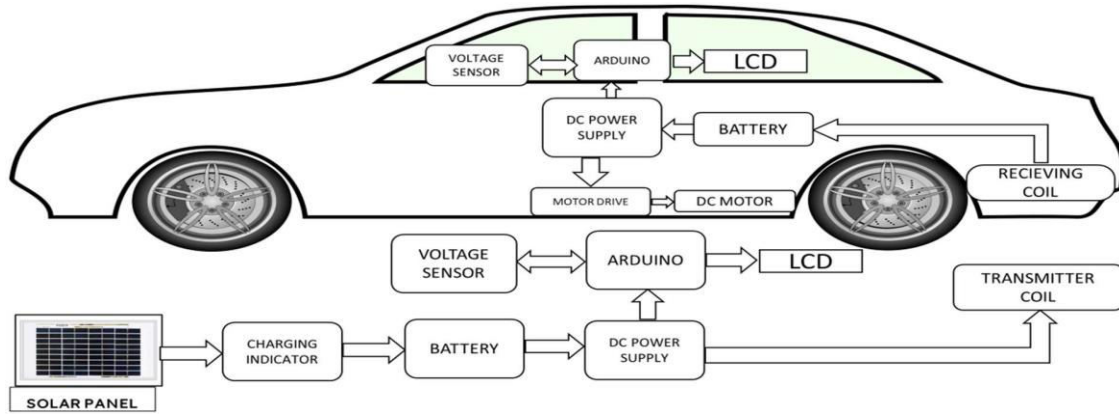


Fig 1. Block Diagram

**Working** The transmitter coil as a main Source is Solar Panel and the Generated Energy is Stored in Battery .So then the Transmitter Side Battery Transmits Power by the Help of Transmitter Coil and in Transmitter side the Arduino Control's the Sensor and Display the input Voltage By the help of Voltage Sensor . The Voltage Sensor sense the Input Voltage it Shows the in Figure 1. And the other side means Transmitter Side also same Similar Operation and Working But the only Difference is the Receiver coils Receive's the power form Transmitter coils wirelessly and it Stores in Battery . Then the Battery Source gives all Supply to the Receiver Side. The Bolck Diagram Shows in figure 1.

### 2. REQUIRED COMPONENTS



Fig 2. Monocrystalline

Monocrystalline solar panels, also known as mono panels, are made from monocrystalline sun cells .Shows in Fig 2 These cells are crafted from a unmarried, excessive-purity silicon crystal grown right into a cylindrical log form referred to as an ingot, after which sliced into skinny discs. The call "mono-crystalline" shows thatthe wafer is crafted from unmarried-crystal silicon.

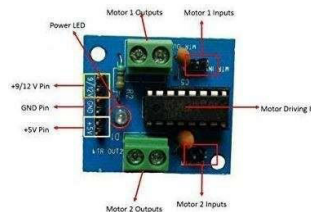


Fig 3. Motor Driver

The Motor Driver that can drive a DC Motor and also Control's. By the Dual H-Bridge Integrated Motor Driver.



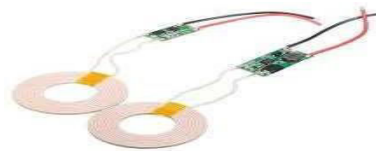
**Fig 4. Regulator Circuitry**

A regulator circuit is a circuit that provides a constant voltage despite varying input levels and output requirements. It is commonly used in electronics and power supply.



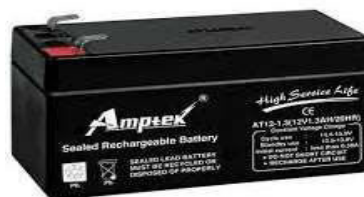
**Fig 5. Voltage Sensor**

A voltage sensor is a device that measures the electrical pressure or voltage in a circuit and can be used in many applications. Voltage sensors can detect high voltage, low current, and magnetic field. It can be attached to equipment, machinery, or property, sending alerts to the facility's computerized maintenancesystem (CMMS).

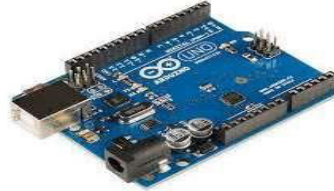


**Fig 6. Copper Coils**

The wireless receiver and transmitter coil comprise a wireless charging system that transfers energy by electromagnetic induction. The transmitter sends energy to the receiver, which then converts the electromagnetic energy into electricity to charge the device.



**Fig 7. 12 V Battery**



**Fig 8. Arduino**



**Fig 9.LCD Display**

A Figure 7 Shows the 12v Rechargeable battery it be charged again after being discharged and while Charging applying DC to its terminals and it well Charge Again.

Arduino is an open-source electronics platform based on easy-to-use hardware and software Arduino boards are able to read inputs-light on a sensor, a finger on a button , or a twitter message – and turn it into an output – activating a motor, turning on an LED , publishing Something online.

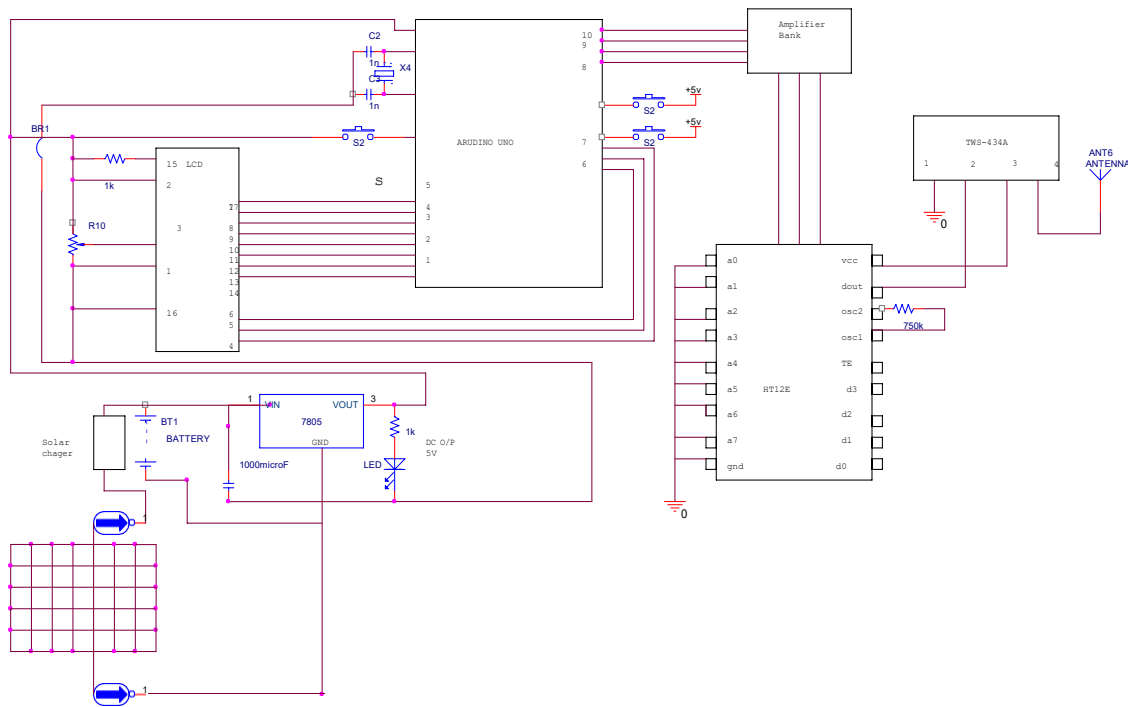
The Liquid crystal display (LCD) Is a Flat panel display or other electronically modulated optical device that uses the light modulating properties of liquid crystals combined with polarizers. And the Liquid crystal do not emit light directly but instant use a back light or reflector to produce images in colour or monochrome

**TABEL 1: REQUIRED TOOLS**

SL.No	Item Name	Quantity
01	Monocrystalline Solar Panel	01
02	Motor Driver L293D	01
03	Regulator Circuitory	01
04	voltage sensor	02
05	Copper Coils (receiver and transmitter coil)	As Per Required
06	12 V Battery	02
07	Arduino UNO	02
08	16x2 LCD display	02

**DESCRIPTION ON CIRCUIT DIAGRAM**

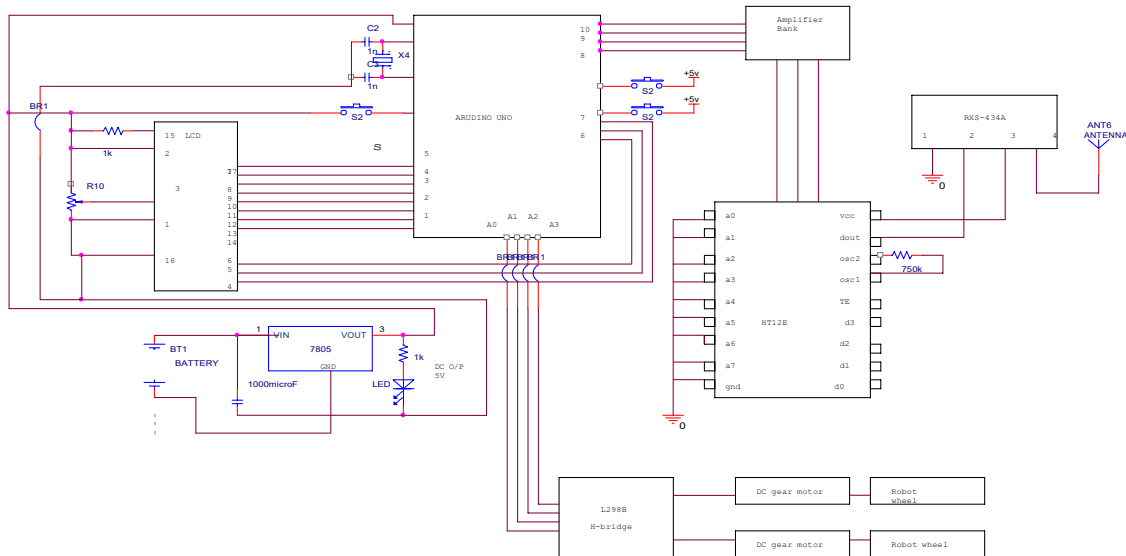
**TRANSMITTER CIRCUIT :**



**Fig 10. Transmitter Circuit**

The Figure 10 Shows the Transmitter Circuit and its Connected to DC Battery which the main Source form Solar .The Circuit Shows the inner Connections of the Different Parts of Electrical Components where there are HT12E Encoder , LCD , Battery and Arduino Uno . The Arduino Uno is used Control the Transmitter Side . and Mainly The Transmitter Circuit will Transform the Power Wirelessly By the help of Transmitting Copper Coil.

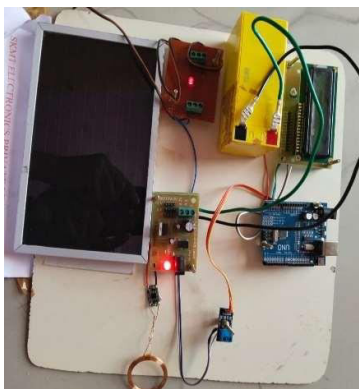
**RECEIVER CIRCUIT:**



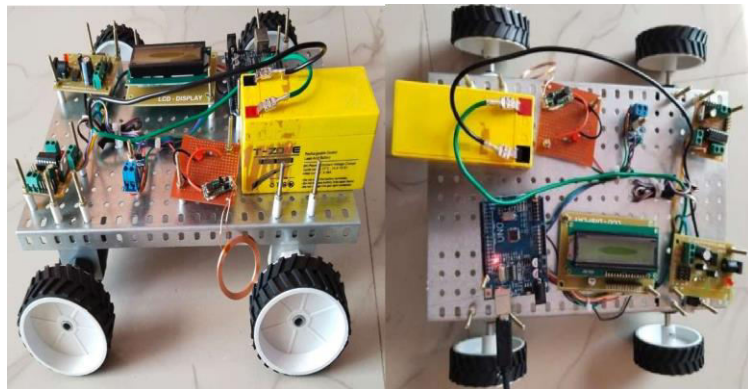
**Fig 11.Receiver Circuit**

The figure 11 Shows the Receiver Circuit . That will Receives the Power Wirelessly by the help of Receiver Coil . We can see the Circuit Where it is Connected to DC Gear Motor with the help of H-Bridge and the DC Gear Motor is Connected to Robot Wheel

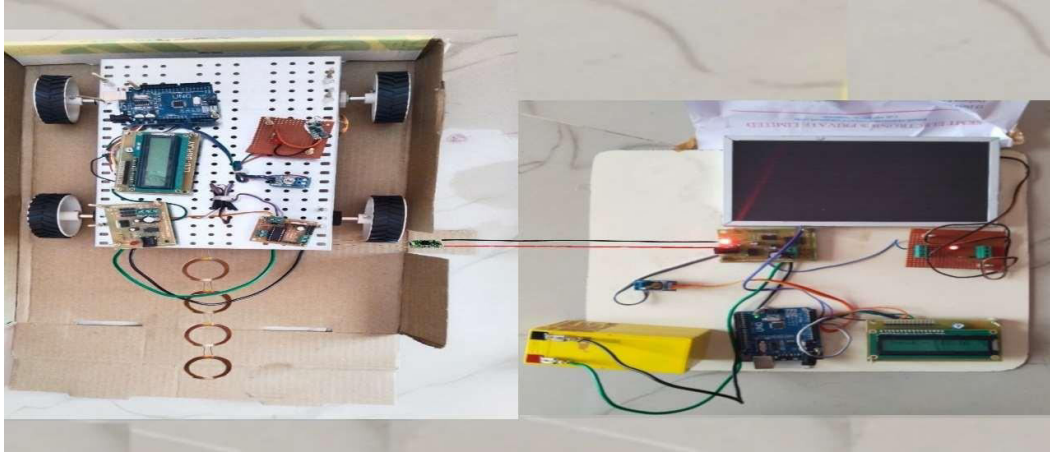
**5.PROJRCT KIT HARDWARE SETUP**



**Fig 12.Transmitter Kit**



**Fig 13.Receiver Kit**



**Fig 14. Output Result**

## II. CONCLUSION

In end, the challenge has efficaciously validated the feasibility and effectiveness of constructing a wireless charging machine for electric powered vehicles powered by way of sun energy. This modern method no longer most effective simplifies the charging system by using putting off the want for transmission wires however also contributes to environmental sustainability by using lowering gas consumption. The adoption of a wi-fi device minimizes the damage and tear of hardware components, doubtlessly decreasing protection expenses and growing the device's sturdiness. Moreover, the implementation of dynamic charging—in which motors are charged whilst in motion—in addition complements the practicality and applicability of this technology in contemporary transportation infrastructure. This study underscores the capability of wireless solar charging structures to revolutionize the electric vehicle enterprise, paving the way for greater sustainable and efficient transportation answers

## III. FUTURE SCOPE

Now a Days the technology has expanded from smartphones to a variety of useful products, . Most computers and kitchen appliances are in the electric car industry. There are many different types The main purpose of wireless charging is to eliminate cords. automotive, healthcare and manufacturing Companies are rapidly adopting this technology with a commitment to improve mobility and a commitment to. Enabling IoT (Internet of Things) devices to operate remotely. In our opinion, the specific group. The technology described in this study aims to provide the above technological improvements a offering a new level and total guarantee to be user-friendly while saving time and also its root causes it affects our behavior and undermines the use of traditional methods. The aim of this study was to address the widely discussed factor of environmentally friendly ways of incorporating any technology Who ensure that all commitments are met and that existing existing technology is delivered and improved. In the distant future, we repeat this study to help fellow researchers make it more accessible Charging facility for electric car owners and we have a clearer and more efficient approach to the concept is possible The case of wireless charging. Hopefully one day our ideas of roads, freeways,. Many people benefit in a positive way. With technological developments accelerating day by day, we have this idea which is not impossible at all Imagine growing up in a place where you can just walk the world and not have to worry about them The car is worth it. And that's the future where we all think we're in our backyard and we're just moving on In the normal aspects of life





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