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ON ROAD ELECTRIC VEHICAL CHARGING

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ABSTRACT- On Road Electric Vehicle (OLEV) using magnetic resonance is the technology which could set human free from the annoying wires. In fact, the OLEV adopts the same basic theory which has already been developed for at least 30 years with the term inductive power transfer. OLEV technology is developing rapidly in recent years. At kilowatts power level, the With a grid to load efficiency above 90%, the transfer distance increases from a few millimetres to several hundred millimetres. Thanks to the developments, both stationary and dynamic EV charging applications find the WPT to be particularly appealing. The electrification of transportation has been going on for many years for reasons related to energy, the environment, and many other things. Electric locomotives have been well developed for many years in railway networks. On a set track, a train travels. Pantograph sliders make it simple to obtain electrical power from a conductor rail. For electric vehicles (EVs), however, the great degree of flexibility makes it difficult to obtain electricity in a comparable manner. An alternative is typically a high-power, large-capacity battery pack.

I. INTRODUCTION

Electric vehicles (EVs) can be charged using contactless power transfer (CPT) devices without a ny physical connectivity.Roadways can be equipped with these systems so that cars can be charg ed while they are moving.This research investigates the use of such onroad charging devices to increase the driving range and reduce the size of the EV battery.It is estimated how much of the road should be covered and how well the system can transfer power.

The distribution and length of the CPT segments over the road, for example, are few design fac tors that are explained.The potential for directly supplying EVs with renewable energy is then ex amined after calculating the overall power requirement for all passingby vehicles using the syste m.This system based on Contactless Power Transfer (CPT), it is assumed that the vehicle can be powered while driving. The CPT systems can be installed on the main traffic lanes. The car will get energy supplied by the on-road CPT system and therefore a greater driving range can be achieved. Moreover, a smaller battery can be an install ed to the car providing the same of even greater driving range. As a result, such systems can be a pathway to overcome the main

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bottlenecks of electric mobility i.e. the limited driving range and the high cost, which are both related to the technology and the specifications of today's batteries. A Contactless Power Transfer System (CPT) refers to a system where power can be transferred electro-magnetically with no physical contact. The system consists basically of an air-core transformer with two windings. The efficiency of such a transformer depends on the parameters of the primary and the secondary winding, coupling factor, as well as on the load and the operating frequency.

II. PROBLEM DEFINITION

• Because a transformer is substituted by a group of loosely coupled coilsit is important to design for the least amount of wiring charging.
• The system for electrical car charging is based on the contactless power transfer principle.
• To create the framework for the CPT system, which will be used to charge electric vehicles.
It is aligned with a primary winding that is connected to a power source and has a pick-up winding located underneath the chassis.

OBJECTIVES

- To design On Road Electric Vehicle Charging System.
- To design wireless vehicle charging, as it name suggest wireless means purposed system transfer power wirelessly.
- To maximize energy consumption.
- To design for when the coils are placed close to each other with coinciding axes, which indicates high coupling between the coils and expected to have maximum power transfer in contactless systems.
-

III. METHODOLODY

HARDWARE REQUIREMENTS

MICROCONTROLLER:

Arduino was born at the Ivrea Interaction Design Institute as an easy tool for fast prototyping, aimed at students without a background in electronics and programming. As soon as it reached a wider community, the Arduino board started changing to adapt to new needs and challenges, differentiating its offer from simple 8-bit boards to products for IoT applications, wearable, 3D printing, and embedded environments.

ATmega328

• Operating Voltage: 5V

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• Input Voltage(recommended):7-12V

• Input Voltage (limits): 6-20V

• Digital I/O Pins: 14 (of which 6 provide PWM output)

• Analog Input Pins: 6

• DC Current per I/O Pin: 40mA

• DC Current for 3.3V Pin: 50mA

• Flash Memory: 32 KB(ATmega328)

• SRAM: 2 KB (ATmega328)

• EEPROM: 1 KB (ATmega328)

• Clock Speed: 16 MHz

SOFTWARE REQUIREMENTS

ARDUINO software is used

1. | Get an Arduino or Genuino board and USB cable. ...
2. | Download and install the Arduino Software (IDE) ...
3. | Connect the board. ...
4. | Install the board drivers. ...
5. | Launch the Arduino Software (IDE) ...
6. | Open the blink example. ...
7. | Select your board. ...
8. | Select your serial port.

IV. SIMULATION

CIRCUIT DIAGRAM

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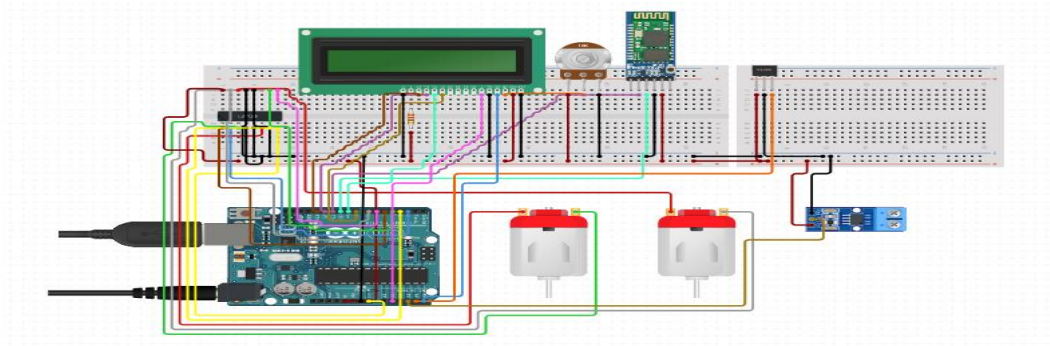
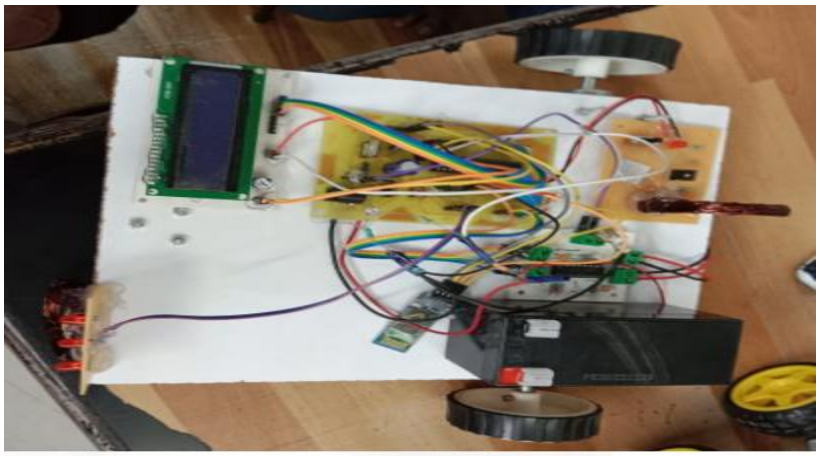


Fig 1 Circuit diagram

IV. RESULT



V. CONCLUSION

The creation of the Charging system for EV project involved a number of engineering fields, incl uding mechanical, electrical, and electronic engineering.The goal of this effort was to give the O LEV a framework.The suggested charging scheme will be one of the steps done to make the cam pus "green."It is undeniably true that proposed battery charging system outperforms the current electrical charging technology in terms of both efficiency and cost.Researchers working on this project get a fundamental understanding of system design and construction for a variety of practi cal applications, such as electrical vehicle systems.

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