



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 12, Issue 5, May 2023

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.423



Solar based Wireless Electric Vehicle

Prof. MOHAMAD MUSHAIB¹, JYOTI SHEJVAL², JAYSHREE DHOLE³, SWAPNALI RANE⁴

Project Guide, Dept. of Electronics & Telecommunication Engineering, P. G. Moze College of Engineering, India¹

UG Scholar, Dept. of Electronics & Telecommunication Engineering, P. G. Moze College of Engineering, India²

UG Scholar, Dept. of Electronics & Telecommunication Engineering, P. G. Moze College of Engineering, India³

UG Scholar, Dept. of Electronics & Telecommunication Engineering, P. G. Moze College of Engineering, India⁴

ABSTRACT: For electric vehicle (EV) charging, wireless power transfer (WPT) is regarded as a plug-less option. Induction or magnetic coupling techniques are seen as appropriate EV charging strategies under the WPT idea. The WPT system for EV is explored and simulated in this paper. The introduction and simulation of an intelligent WPT system for charging EVs This system can use the finger print approach to automatically align the transmitting and receiving coils. The newly developed system can start charging the car intelligently during off-peak hours, minimise driver time, eliminate human error in the car's WPT technique, and save energy. It is quite helpful for EV users in terms of energy conservation and lowering electricity costs.

Keywords- Battery control; EV charging; Resonant inductive coupling; Wireless charging.

I. INTRODUCTION

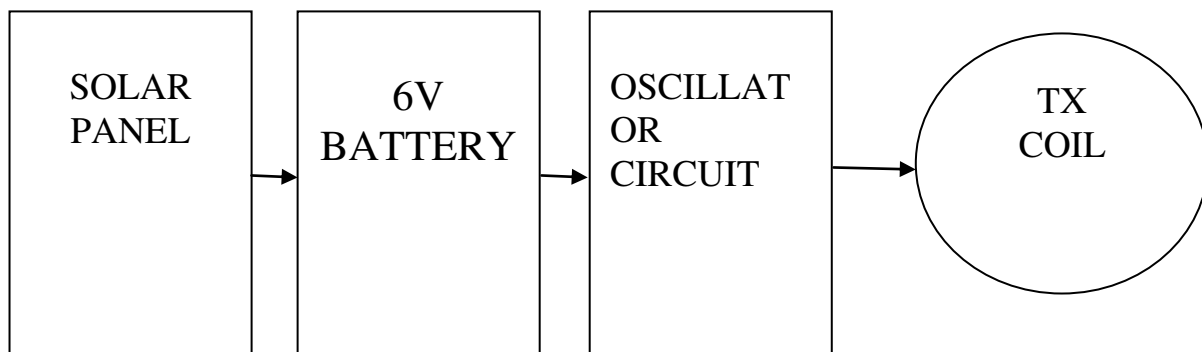
Environmental pollution is considered a significant issue around the globe. Global warming, greenhouse gases, air pollution, and acid rains are just some of the consequences, to name a few. A large contribution to pollution is obtained from vehicle emissions. Gasoline-powered cars emit greenhouse gases into the natural atmosphere, which could be the primary cause of global warming. Transitioning to sustainable technologies is one of the possible solutions for the climate and a starting point to deal with vehicle pollution. The transition from petrol-powered transports to EVs would be a ponderable contribution to sustaining a healthy environment.

EV implementation is a relatively global-accepted idea in the transportation industry and a great step towards eco-friendly technologies. EVs run on electricity, obtaining their power from the battery installed in the car, which powers the motors and runs the wheels. The battery is rechargeable using grid electricity. EVs are gasoline-free, and they are quite economical alternatives as the price of fossil fuels increases steadily. Along with eco-friendliness, electric cars considerably reduce noise and pollution and require less vehicle maintenance in comparison with conventional cars.

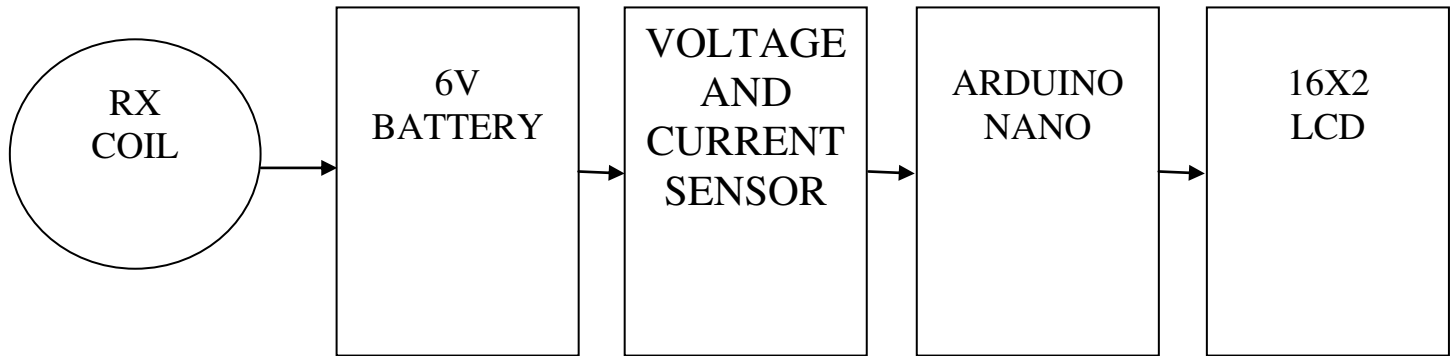
II. RELATED WORK

A. *BasicBlockDiagram:*

TRANSMITTER BLOCK DIAGRAM



RECIVER BLOCK DIAGRAM

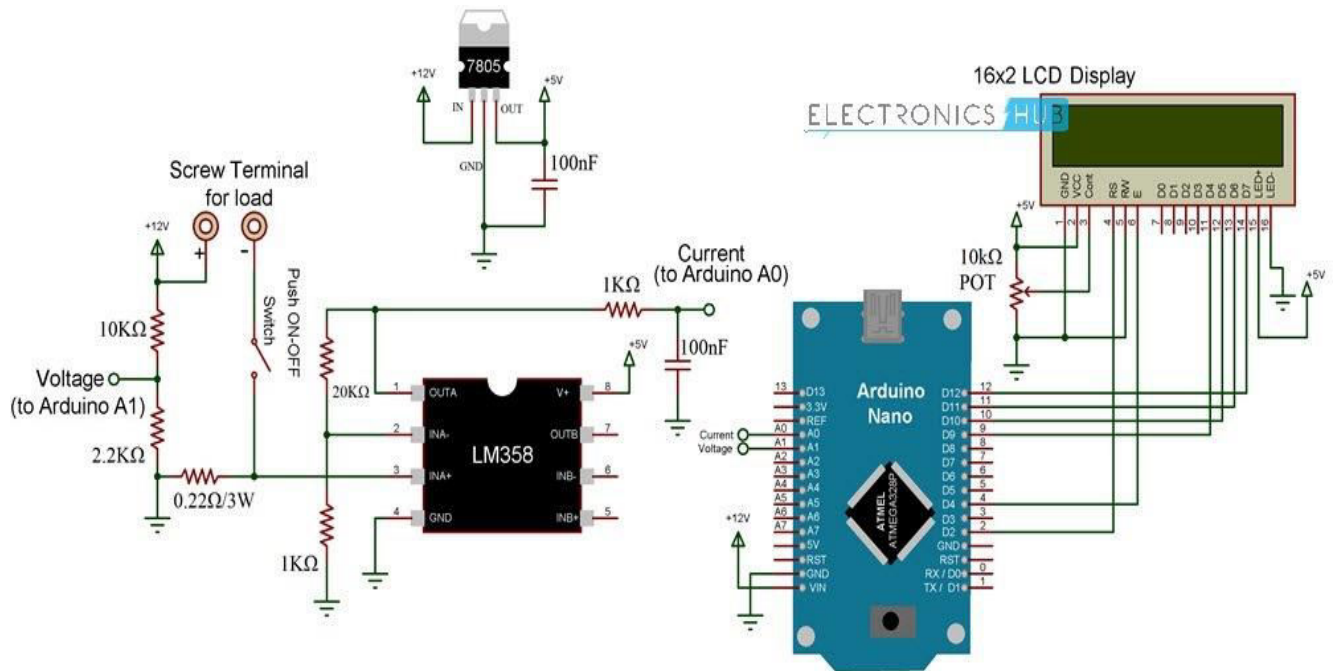


B. *Mainly this block diagram consists of the following essential blocks.*

6 Watt Solar Panel

- 6 Voltage Battery
- Oscillator circuit using IC 555
- 1mm Gauge Coper wire with 30 turn of 10cm diameter at Tx as well as Rx
- Arduino Nano
- Atmega Controller
- Battery
- Voltage Sensor
- LCD Display
- Transformer
- Regulator Circuitry
- Transmitter and Receiver Coils
- Vehicle Body
- Wheels
- Switches
- LED's
- PCB Board
- Resistors
- Capacitors
- Transistors
- Cables and Connectors

PROPOSED SYSTEM BLOCK DIAGRAM



PROJECT CONCEPT

This project is divided into two parts: the transmitter and the receiver. The transmitter part converts the input voltage into magnetic flux, and the receiver converts this magnetic flux into a DC output voltage. The transmitter part consists of resistors and capacitors, a 555 timer IC, a BD139 transistor, and a primary coil. The resistors and capacitors are connected to the 555 timer IC, and the IC produces a pulse output. The BD139 transistor works as a switching device that is controlled by the IC output, and it is used to produce oscillations in the primary coil. The primary coil produces the DC-biased magnetic flux. The receiver part consists of a secondary coil, capacitor, and LED. The secondary coil comes into this magnetic flux, and then power transfers from the primary coil to the secondary coil. This power filter was provided by the capacitor and turned on the LED.

LCD

An electronic display module called an LCD (liquid crystal display) screen has several uses. A 16x2 LCD display is a very fundamental module that is frequently included in many different devices and circuits. A 16x2 LCD can show 16 characters per line on each of its two lines. Each character on this LCD is presented using a 5x7 pixel matrix. The command and data registers on this LCD are its two registers. The temperature and the warning "fault occurs" are displayed here.



fig. 3-LCD

APPLICATIONS

- Industrial fault detection system
- It is used in distribution and transmission fault detection system
- It can be used in mines

ADVANTAGES

- Technology based in Adriano offers significant sophistication
- Flexibilities cut down on the human interface.
- Boost system performance and availability.

FUTURESCOPE

- In the future, we will be able to call someone and get information about the defect and its location.
- We are currently showing a defect on the LCD, and the MSEB offices' computers can also display it

III. CONCLUSION

To expand an automated tripping mechanism for the 3-section delivery device while both brief and permanent faults occur, various problems have been simulated in the papers. The fault analysis in this case makes use of a relay. Long length will result in an endless voyage, whereas short length will once again cause the weight to be delivered immediately, known as a brief voyage.

REFERENCES

- [1] Kang Miao, Bidirectional battery charger for electric vehicles, Asia (ISGT Asia) 2018.
- [2] Pinto, J. G. Bidirectional battery charger with Grid-to-vehicle, Vehicle -to-Grid and Vehicle-to-Home technologies, IEEE 2020.
- [3] Bugatha Ram Vara prasad, "Solar Powered BLDC Motor with HCC Fed Water Pumping System for Irrigation," Int. J. Res. Appl. Sci. Eng. Technol., vol. 7, no. 3, pp. 788–796, 2019, doi: 10.22214/ijraset.2019.3137.
- [4] Gallardo-Lozano, Milanes-Monster, Guerrero-Martinez, Three-phase bidirectional battery charger for smart electric vehicles, International Conference-Workshop 2021.
- [5] M. C. Kisacikoglu, "Vehicle-to-grid (V2G) reactive power operation analysis of the EV/PHEV bidirectional battery charger," Ph.D. dissertation, University of Tennessee, Knoxville, 2019.
- [6] BUGATHA RAM VARA PRASAD, C. PRASANTHI, G. JYOTHIKA SANTHOSHINI, K. J. S. V. KRANTI KUMAR, and K. YERNAIDU, "Smart Electrical Vehicle," i-manager's J. Digit. Signal Process., vol. 8, no. 1, p. 7, 2020, doi: 10.26634/jdp.8.1.17347.
- [7] X. Zhou, S. Lukic, S. Bhattacharya, and A. Huang, "Design and control of grid-connected converter in bi-directional battery charger for plug-in hybrid electric vehicle application," in Proc. IEEE Vehicle Power and Propulsion Conference (VPPC), 2019, pp. 1716–1721.
- [8] Bugatha Ram Vara prasad, D. V. S. J. Poojitha, and K. Suneetha, "Closed-Loop Control of BLDC Motor Driven Solar PV Array Using Zeta Converter Fed Water Pumping System," vol. 04, no. 17, pp. 2795–2803, 2017.
- [9] Sagolsem Kripachariyasinh, T. S. Hasarmani, and R. M. Holmukhe wireless transmission of electrical power overview of recent research and development, International journal of Computer and Electrical Engineering, Vol.4, No.2, April 2019.
- [10] Bugatha Ram Vara prasad, K. M. Babu, K. Sreekanth, K. Naveen, and C. V. Kumar, "Minimization of Torque Ripple of Brushless DC Motor Using HCC with DC-DC Converter," vol. 05, no. 12, pp. 110–117, 2018.
- [11] A. W. Green and J. T. Boys, "10KHz inductively coupled power transfer-concept and control," in Proc. 5th Int. Conf. Power Electron. Variable-Speed Drives, Oct. 2019, pp. 694–699.
- [12] Bugatha Ram Vara prasad T. deepthi, n. satyavathi, v. satishvarma, r. hemakumar, "Solar charging station for electric vehicles," Int. J. Adv. Res. Sci. Commun. Technol., vol. 7, no. 2, pp. 316–325, 2021, doi: 10.48175/IJARSC-1752.
- [13] T. D. Nguyen, S. Li, W. Li, and C. Mi, "feasibility study on bipolar pads for efficient wireless power chargers," in Proc. APEC Expo., Fort Worth, TX, USA 2020.
- [14] Bugatha Ram Vara prasad and K. Aswini, "Design of Bidirectional Battery Charger for Electric Vehicle," Int. J. Eng. Res. Technol., vol. 10, no. 7, pp. 410–415, 2021, doi: 10.1088/1757-899x/1055/1/012141.
- [15] M. Singh, K. Thirugnanam, P. Kumar, I. Kar Real-time coordination of electric vehicles to support the grid at the distribution substation level IEEE Syst J, 9 (2019), pp. 1000-1010, 10.1109/JSYST.2013.2280821.



INNO SPACE
SJIF Scientific Journal Impact Factor
Impact Factor: 8.423



ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

9940 572 462 **6381 907 438** **ijirset@gmail.com**



www.ijirset.com

Scan to save the contact details