iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 11 **Issue:** V **Month of publication:** May 2023

DOI: https://doi.org/10.22214/ijraset.2023.51370

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 11 Issue V May 2023- Available at www.ijraset.com

Vehicle Detection System

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Abstract: ***Now a days there are increase in accidents everyday so to minimize the accidents rate some system must be used to avoid the accident and save the lives of peoples. We are aware of many security systems that are available in the market still they are not used in certain areas and suitable for environmental condition.***
We try to provide a solution by making a cheap system which has the capability to sensing the motion of vehicles. The idea behind this project is that when the car came in the range of sensor it gives signal to other car, to stop or go.
This project involves the use of Arduino Uno, IR sensor, LED light & Buzzer. The IR sensor detect any motion in its range and triggers the buzzer. With this system we can avoid the collision of vehicle and life of people.
Keywords: Vehicle Detection, IR Sensor, LCD Display (16*2), LED, Buzzer, Arduino UNO, Hilly roads.

I. INTRODUCTION

In our project we have designed a cheap vehicle detection system. These system will helps you to avoid collision of vehicles and saves life of peoples. In this project we used component such as Arduino (Uno), Infrared (IR) sensor, LED lights, Buzzer etc.
In recent year there is extreme growth in transport vehicle due to which there is increase in accidents every day, due to the driver carelessness, rough condition of road, climatic conditions or due to bad traffic control. As per a survey, crashes on curved roads have approx. 14-15% of total number of traffic crashes. Correspondingly, the number of deaths accounted for 15%. In narrow curved roads in Ghats regions and many more places. Hence our team make a model by which we can reduce accidents ratio and save lives of people. Several methods we can used to avoid accidents such as, convex mirror is placed at bend point where a driver can see a opposite vehicle coming from other side the size of mirror is large so driver could see the vehicles is coming, but problem with this method is that in unfavorable condition such rainy season, foggy, dust etc. Another method could be by using horns that drivers on opposite sides judge the vehicle distance by using horn, but this method can't avoid accident. So the best method to avoid collision of vehicle by using sensors technology. The system can further be improved for adding GSM Module for reporting of accident to nearby police station and hospital which can help in saving lives of people. Speed detection capability can also be added for alerting drivers and avoiding accidents on hilly areas, sharp turns due to over speeding, driver carelessness or many reasons.
For these project work we used different components such as:

- Arduino UNO
- Buzzer
- LCD Display
- LED Light
- IR Sensor
- Batteries (6v)

A. Arduino UNO

Arduino UNO is an open source microcontroller and programmable device. It consist of digital (14) and analog (6) pins. In arduino the code can be reset using reset button. It display digital value on computer. In arduino 6 input pins are programmable and arduino is coded using this 6 input pins. It used in collision avoidance system.

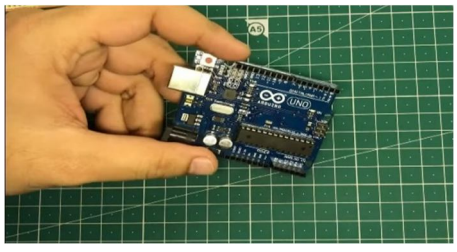


Fig-1

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B. Buzzer

It is a device, which convert audio signal into sound signal. Types of buzzer used is alarm, timer etc.

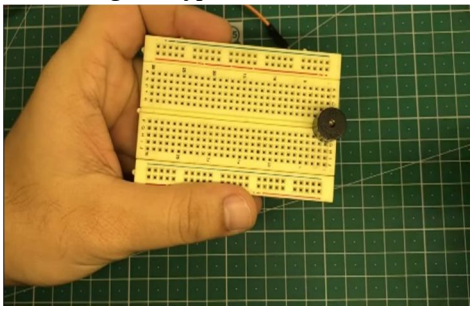


Fig-2

C. LCD Display

LCD is a electronic display module in various device like phone, computers etc. It contain 16 pins. It display digital value. It convert electrical signal into digital value.



Fig-3

D. LED Light

In LED Light we used red and green light. It alerts the driver which is coming from other side of ghat etc.



Fig-4

E. IR Sensor

It is a device which detects the motion of an any object. It ranges from 1 to 5 meter.

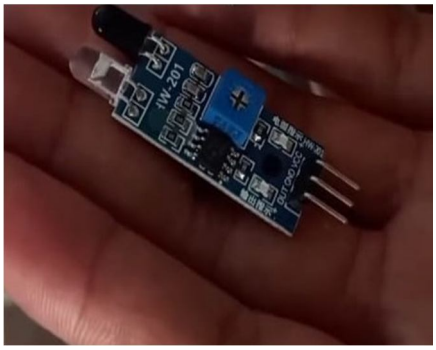


Fig-5

F. Battery

Battery convert chemical energy into electrical energy. 6 volt battery is used in the system.

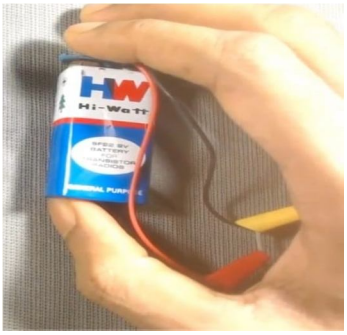


Fig-6

G. Circuit Diagram

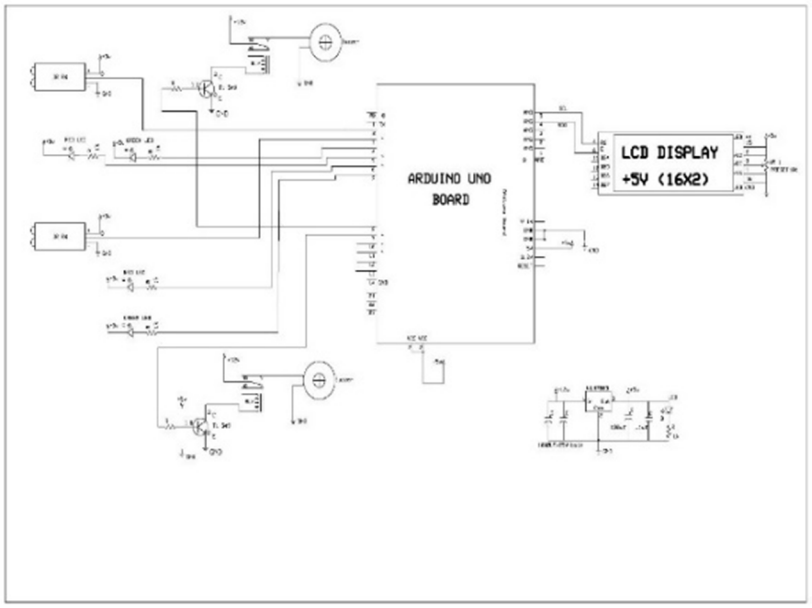


Fig-7

The above figure represents the IR Sensor circuit diagram for vehicle accident prevention system at hilly areas.

H. Final Result



Fig-8

II. CONCLUSION

Hence, we have successfully completed the project on a 'Vehicle Detection System' by using components such as Arduino UNO, IR Sensors, Buzzer, Display, LED Bulbs. Hence the the vehicle on the either side of road get detected by the sensor and LED glows and buzzer buzzed and in this way collision between the vehicle will be avoided.

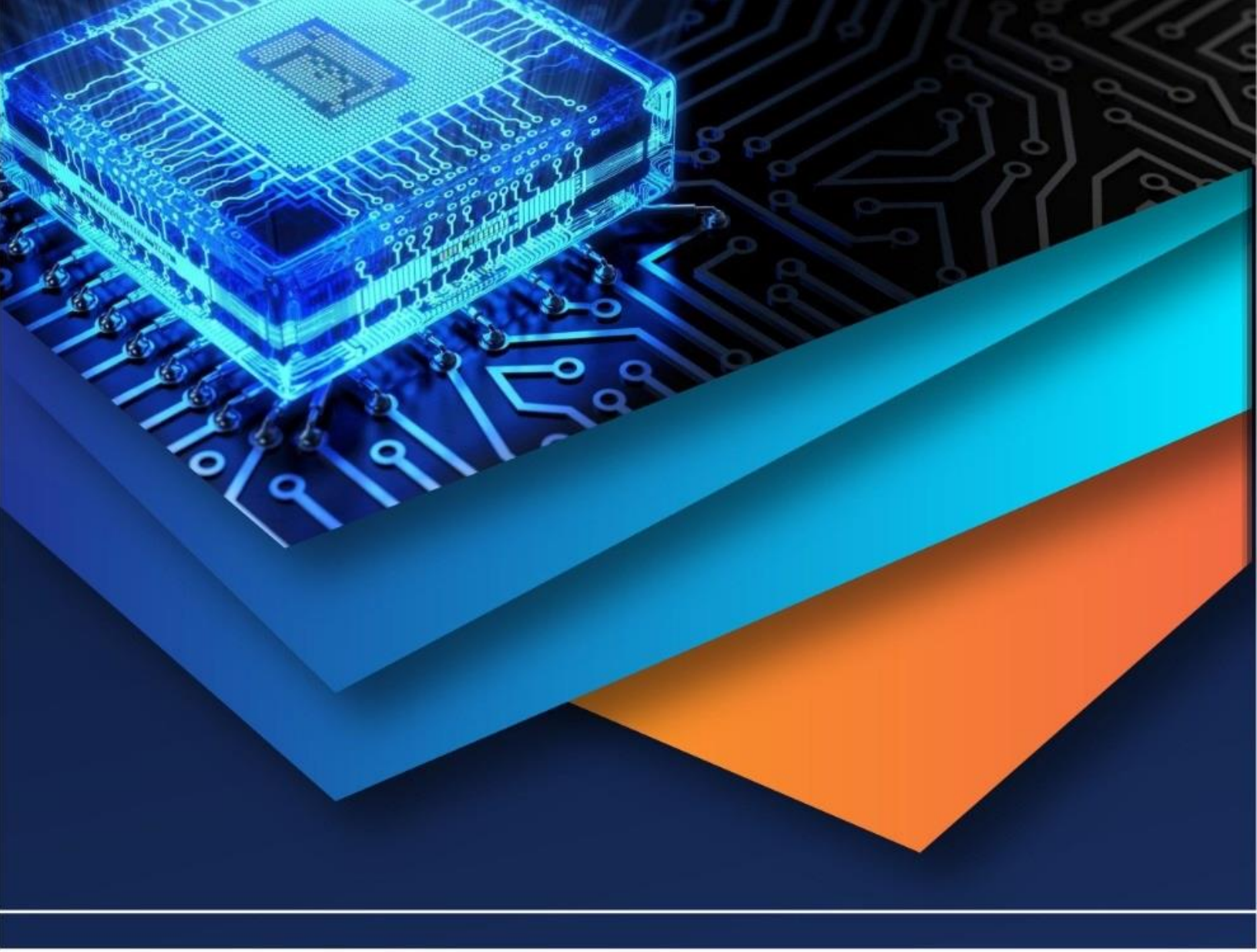
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ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
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