### IJARSCT



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 4, Issue 1, December 2024

# **IOT-based Accident Detection and Alert System**

Ms. Preeti Mohare<sup>1</sup>, Mrs. Sulakshana Nishikant Bhatlawande<sup>2</sup>, Pratiksha J. Shelke<sup>3</sup>, Karishama R. Savalekar<sup>4</sup>

Lecturer, Department of E&C Engineering, Y. B. Patil Polytechnic, Akurdi, Pune<sup>1,2</sup> Student, E&C Engineering., Y. B. Patil Polytechnic, Akurdi, Pune<sup>3,4</sup>

Abstract: Speed is the one of the basic reasons for vehicle accident in India. To reducing the accidents the system is used that is 'Accident Detection and Alert System'. This system alert when accident occurred and immediately contact to the emergency unit. Arduino UNO is processor of this system. It control the whole system. The input are Acceleration meter, Gyroscope, Vibration Sensor and output are LCD, Buzzer, GSM module, GPS module .When accident occurred their vibrations are detected by vibration sensor and accelerometer detects sudden changes in speed that may indicate an accident or crash. Gyroscope monitors changes in orientation or rotation of the vehicle, which can be useful for detecting rollovers or sudden swerving. GPS module provides real-time location data, which is useful for sending SMS of accident locations to emergency unit. GSM module get accident location and data send it to emergency unit. And Buzzer get ON and LCD display danger message.

### Keywords: IoT

### I. INTRODUCTION

Nowadays vehicles are important parts of human life. The use of vehicles increases rapidly. The major reason for the death rates over the world is due to road accidents. The increasing number of vehicles has also increased not only road accidents but traffic hazards also.

Due to more road accident takes place in various cities. If an accident met in national highway roads no one there to rescue the person to meet with an accident this is due to lack of emergency facilities and rescue team overcome these drawback our paper purposed the system that is 'Accident Detection and Alert System '

Reason for accident are :

Accidents occur due to human errors like distracted while driving, focus away from the road, spending more hours in driving vehicles etc.

Some of the common reason like over speeding, drunken driving, red light jumping, bad road conditions, animal crossing, etc.

### Objectives

The main aim of this project is to design and develop a system which observe status of vehicle, if there is changed in vehicle status or accident occurred this system will detect and alert the emergency unit. Emergency unit contact to ambulance and police station and they will rescue the accident as quick as possible.

This can help us to minimize the accidents and increase the chances of saving life.

So, this system will reach the rescue accident in time and save lives.

### **Purpose of Project**

The project which is accident detection and alert system, the purpose of this project is that in 2022, India ranked #1 in the world for traffic accidents, with one causing death occurring there almost every three and a half minutes. In India, the most recent Road Accidents report shows that, on average, there are 1,264 road accidents and 462 fatalities each day, or 53 crashes and 19 fatalities per hour. The accident was caused by factors like speeding, drunk driving, etc.

Copyright to IJARSCT www.ijarsct.co.in DOI: 10.48175/IJARSCT-22620







International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

#### Volume 4, Issue 1, December 2024

IJARSCT



### System Diagram



### **Block Diagram**





### IJARSCT



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 4, Issue 1, December 2024

Flowchart



ISSN 2581-9429 IJARSCT

Copyright to IJARSCT www.ijarsct.co.in

DOI: 10.48175/IJARSCT-22620

## IJARSCT



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

#### Volume 4, Issue 1, December 2024

### Application –

- In different vehicles such as Car, Truck, and other 4 wheeler.
- Industry
- Army
- To identify the vehicle accident.
- To continuously monitor vehicle status.
- It is useful for the busy schedule persons.

### Advantage -

- Cost effective
- Assured safety
- Victim life can be save quickly
- Low power consumption
- Better accuracy
- Efficient time consumption
- Reduce the chance of human error.

### **II. FUTURE SCOPE**

The future scope of this project involves designing and implementing an accident detection system that not only identifies accidents but also detects exact location and alerts rescue teams on time. Additionally, a wireless webcam can be installed in the car which could capture images to provide further assistance to drivers. In this system, the vibration sensor will be triggered because of the vibrations received and also processed by the processor. The processor is linked to the devices which can lock the brakes when triggered.

This system can be also used in fleet management, food services, traffic violation cases, rental vehicle services etc. In future we access the near camera's because of we can find the who is the responsible for this accident.

### **III. CONCLUSION**

This is system which detects and alert an event of accident happened. The main proposed of this system is to 'Accident Detection and Alert System'. Arduino UNO is processor unit. Accelerometer and Vibration Sensor is input to Arduino&LCD and Buzzer is the output device of this system and this is connected to output terminal of Arduino UNO. GPS and GSM module is processing device. By using GPS and GSM module we collect the data and send sms to emergency unit .

### REFERENCES

- [1]. T Kalyani, S Monika, B Naresh, Mahendra Vucha, Accident Detection and Alert System, IJITEE, March 2019(Base paper).
- [2]. Sayanee Nanda, Harshada Joshi, SmithaKhairnar, An IOT Based Smart System for Accident Prevention and Detection, IEEE, 2018.
- [3]. S.Sonika, Dr.K.Sathyasekhar, S.Jaishree, Intelligent accident identification system using GPS, GSM modem, DARCCE, 2014.
- [4]. https://pib.gov.in/PressReleasePage.aspx?PRID=1973295#:~:text=As%20per%20the%20report%2C%20a,inju ries%20to%204%2C43%2C366%20persons.
- [5]. https://opencity.in/what-does-the-ncrb-traffic-accidents-data-say/

Copyright to IJARSCT www.ijarsct.co.in

DOI: 10.48175/IJARSCT-22620



148