Accident Detection and Alert System for Emergency Help Using IOT And Mobile Applications

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ABSTRACT

We're able to track vehicles using various applications, which aids in securing personal vehicles, public vehicles, foot units and others. Further on the road, the Accident Rate is on the rise. This paper is about a system that can be easily detected and alert the nearest hospitals and medical services about an accident. It also can pinpoint the location of the accident so the medical services can be directed immediately after it. The purpose of this paper is to build up a vehicle accidental monitoring system using GPS and GSM technologies. The system contains accelerometers, GPS and GSM Module support. The accelerometer is used to detect fall, and Threshold Algorithms (Sign-Signal) are used to detect accident. Short- Messages will contain GPS coordinates, which help in finding the vehicles.

Keywords: *GPS, GSM, IOT*

1.INTRODUCTION

India is an unindustrialized nation with a gigantic population of almost 135.26 centers. It has generally associated street network for 5,897,671 km. Because of the dense population and lack of respect for traffic rules, the number of accidents increases every year day.

[1] Lots of individuals take their own the last gasp for the absence of a crisis peak time administration and in addition, because of the traffic jam on the street. If an accident happens in a populated place, until then they will drive emergency vehicles, etc. and a imagine situation where the scene of the accident has no one to support this point
[2] Because life is valuable for everyone, to reduce the delay in crisis administrations, we thought about a business to warn relatives whenever an accident occurs
[3] With the expanding issue of cars, traffic risks and street accidents have also expanded. The lives of individuals are at increased risk
[4] Inadequate implementation of accident detection frameworks and various problems have gradually become indispensable
[5] In this enterprise, a programmed notification model is presented, which is used for traffic accidents
[6] This model shows the plan and use of an accident warning framework that depends on remote organizational exchanges that depend on Arduino, GPS, and GSM
[7] We have processed a number of review papers from IEEE journals regarding our endeavor and referred to the use of investigative papers within existing structures and proposed another system that robotics measures to detect an accident and send a warning message to family members who demonstrate a specific territory at the site of the accident
[8] The approach we proposed in this paper basically focuses on three modules. They are

1. Accident Detection
2. Location tracking of the vehicle.
3. Sending the alert messages to the family members.

2. EXISTING SYSTEM

With the quantity of passing cases expanding there are a few frameworks previously proposed yet there is no appropriate model which can catch the vehicle's area continually, persistently and send the alarm messages when accident happens to overcome this kind of situation, we have developed this model to save the lives of the people. Street accidents are not kidding aim of passing, wounds and loss of lives each year in India. The current accidents are broadened to a bigger degree. More number of passing during accidents happens because of absence of salvage in the crisis time. If an accident occurs in a clamoring spot where there would be various people around, there will be no difficulty since people around him will manage the driver and do the basic necessities to save the rider . Regardless, if the mishap occurs in a remote zone there is a lot of delay in getting the rescue from the people which prompts the death of a person.

3. PROPOSED METHODOLOGY

In our system we have install cellular 4G LTE technology which is fast and efficient as well. Additional we in our system we have used shock detector which keep detecting shock when the shock is measure above the defined value then vehicles are located anywhere in the world using GPS technology. Broadcast the marked location and alert the nearest emergency services such as police stations, hospitals, ambulances and the person's family. The Android mobile application also informs us that all device components are already available for Android devices. So, the application will detect an accident and send a notification and live location to your contact number of choice.

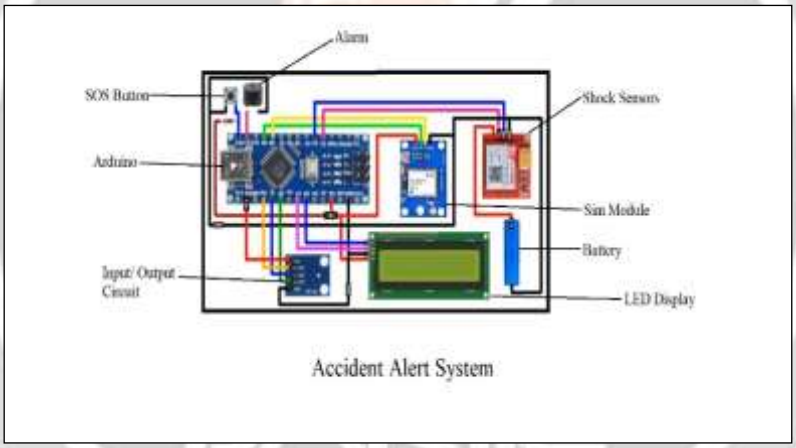

Fig - 1 : System Architecture

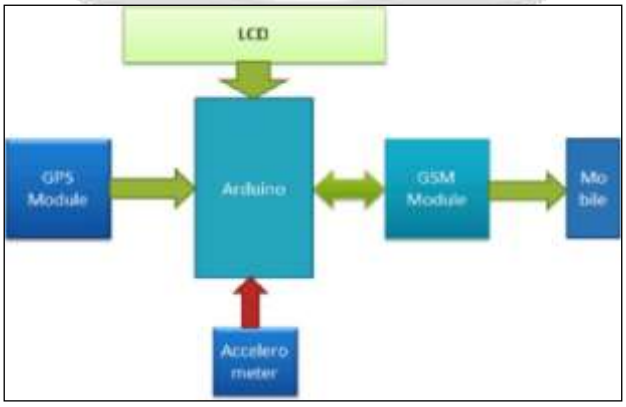

Fig – 2: Block Diagram of the accident alert system

3.1 WORKING:

To overcome the existing problem, we will implement a new system in which there is automatic detection of the accident. A vibration sensor is fitted in every vehicle and when an accident occurs, signals from the vibration sensor are sent to the Arduino Nano. The signal is transferred from Arduino to the central unit using IoT platform. The GPS module provides the latitude and longitude coordinates of victim vehicle which are sent to the control using IoT platform. The central unit sends the location coordinates to the mobile phone to the emergency numbers registered in the system.

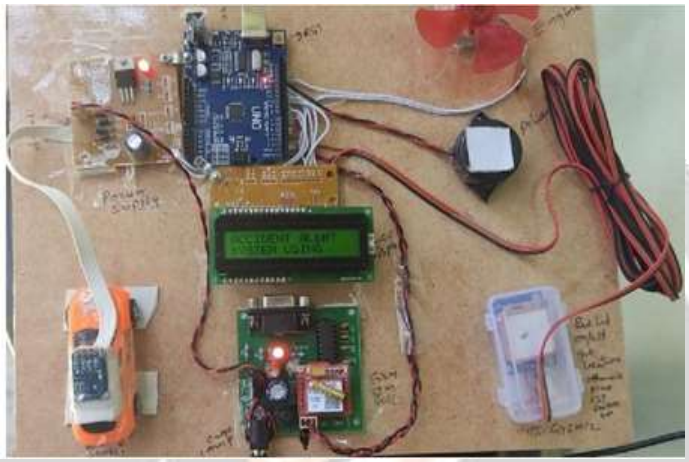

Fig – 3 : Hardware Model of Accident Alert System

3.2 ADVANTAGES

- It is easy to design and manufacture as all the components are easily available.
- It is highly accurate and precise and also very reliable.
- It is portable and hence can be placed anywhere.
- The use of a micro-controller increases its scope of applications and modifications.
- Power consumption is less
- It has low cost of manufacturing

3.3 DISADVANTAGES

- If power supply fails; system won't work.
- Failure of device/components may have dire consequences, fatal accidents can occur

4. ANDROID APPLICATION

Many components come pre-installed on Android devices, so I didn't need to install them separately. Simply create an Android application using a powerful tool like Android Studio. Implement an android app at the same time as an accident happens while walking in the city. This application helps you send messages to contact numbers.

Fig – 4: UI of Android Application

- I need to add multiple contacts when an accident occurs. The application will then detect the incident and send a message and location to the contact number of your choice.

4.1 OUTPUT:

Fig – 5: Output Message on Device

5. FUTURE ENHANCEMENT

The proposed system deals with the detection of the accidents. But this can be extended by providing medication to the victims at the accident spot. By increasing the technology, we can also avoid accidents by providing alerts systems that can stop the vehicle to overcome the accidents.

6. CONCLUSION

The proposed programmed accident detection system can be a rescuer of life for the people who met with accidents. The proposed system is exceptionally easy to understand and even a non-specialized Person can use it without any problem. The system consists of equipment and programming segments. The equipment unit

includes accident detection sensors that are constrained by an Arduino board and is fitted in the vehicle. Then again, the programming part is an Android application introduced in drivers Smartphones which is used to get the point-by-point map. In general, the benefits of this system are low cost, secure and simple to use. The system introduced in this work reduces the casualties due to accident

7. REFERENCES

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