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Accident Alert & Alarm System based on GPS & GSM

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Abstract—Increase in population is the significant purpose behind quick development of innovation and vehicles, which is additionally liable for some number of mishaps in this quick moving world. Numerous passes are caused because of the absence of crisis administrations. Along these lines, in this undertaking we intend to give crisis administrations to the individuals who meet with a mishap as quickly as time permits. At the point when a vehicle meets with a mishap, promptly the accelerometer sends varieties to the Arduino and subsequently the Arduino sends the alarm message through the GSM MODULE, including the area which is distinguished by GPS MODULE to recently spared crisis contacts. In the event that the mishap is not serious, at that point the alarm message can be ended by the driver by a key gave. This paper points in giving crisis benefits as quickly as time permits for future extension, we include numerous applications like liquor recognition and rest discovery and so forth.

Keywords: GPS, GSM , ARDIUNO

I. INTRODUCTION

Quick development in the populace has expanded the interest of vehicles, in this occupied and quick moving life mishaps may happen anytime of time. Numerous individuals lose their lives in mishaps because of the absence of medical aid or crisis traditions. In India, mishaps are the significant wellspring of death just as wounds. As per the National Crime Records Bureau 2016 report, there were 496,762 streets, railroads and rail line crossing-related car crashes in 2015. Reports from Autocar Pro express, that on regular routine street mishaps have taken 405 lives and harmed 1020 individuals in 2017. On a yearly premise, 1.5 lakh individuals are seen to have passed on in mishaps by a study directed by WHO. There have been circumstances where delay in crisis administrations have additionally caused passings. Since anticipation of mishaps is not in our grasp, we expect to give crisis benefits as quickly as time permits through our task. In this task we intend to follow the vehicle, so at 6 Page 5-12 © MAT Journals 2020. All Rights Reserved Journal of Signal Processing Volume 6 Issue 1 any place the mishap happens, since the vehicle is under following, promptly the spot of mishap can be followed and sent to crisis contacts in a couple of moments seconds so that
the closest medical clinic can arrive at the spot as quickly as time permits and spare the life of the individual. On the off chance that the mishap is not extreme, we give a key which lets the driver end the framework, with the goal that the message has not been sent consequently helping in sparing the hour of the rescue vehicle. The message is sent through GSM MODULE and the area is followed by a GPS module. The mishap is recognized with the assistance of an accelerometer sensor. The accelerometer is utilized as an accident or rollover identifier of the vehicle during and after an accident. With signals from an accelerometer, the seriousness of the mishap can be perceived. This venture gives answers for some serious issues. Vehicle following framework furnishes security to vehicles and furthermore with the assistance of GPS an individual can follow his vehicle and discover the vehicle development and its past exercises. Mishap ready framework primarily means to spare the valuable existence to the individuals. The gear is small and can be fit into any vehicle effectively.
Taken vehicle recuperation will be simpler since we are following the vehicle. A basic framework can be utilized for different purpose

II. RELATED WORK

Vehicle tracking system's main aim is to give Security to all vehicles. Accident alert system's main aim is to rescue people in accidents. This is to improve security systems for vehicles. The latest, like GPS, is highly useful nowadays, this system enables the owner to observe and track his vehicle and find out vehicle movement and its past activities. This new technology, popularly called vehicle Tracking Systems which created many wonders in the security of the vehicle. This hardware is fitted onto the vehicle in such a manner that it is not visible to anyone who is inside or outside of the vehicle. Thus it is used as a covert unit which continuously or by any interrupt to the system, sends the location data to the monitoring unit. When the vehicle is stolen, the location data from the tracking system can be used to find the location and can be informed to police for further action. Some Vehicle tracking Systems can even detect unauthorized movements of the vehicle and then alert the owner. This gives an edge over other pieces of technology for the same purpose. This

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accident alert system in it detects the accident and the location of the accident occurred and sends GPS coordinates to the specified mobile, computer etc
It is mainly beneficial for the companies which are based on transport systems. Since it can show the position of all vehicles in real time, so that they can create the expected data accordingly. These tracking systems can store the whole data where the vehicle had gone, where did it stop, how much time it takes at every stop and can create whole data analysis. It is also used in buses and trains, to estimate how far away they are, how much time it takes for them to come to a particular stop.
These systems are used to data capture, data storage, data analysis and finally data transfer.
This system is based on new technology, its main purpose is to detect an accident and alert the control room, so the victim can find some help. It can detect the intensity of the accident without any visual contact from the control room. If this system is inserted in every vehicle then it is easy to understand how many vehicles are involved in a particular accident and how intense it is. So that the help from the control room will be according to the control room.

The present board design has both vehicle tracking and accident alert systems, which make it more valuable and useful. This board alerts us from theft and on accident detection also. This device detects fire accidents also by placing a fire detector in one of the interrupt pins.
Tracking in India is mainly used by transport systems, taxi companies, and traffic operators. Taxi operators use this to estimate how far the vehicle is from a particular area and send this information to call centers and they can inform the general public about the distance of the taxi location and time it takes to come to them. Another use is for traffic police if this system is located in every vehicle they can estimate the traffic by looking on the map and if any accident is detected then they can route the traffic into another way. This is how tracking is useful because India is one of the busiest traffic countries and this system can control many of the traffic problems Vehicle tracking system's main aim is to give Security to all vehicles. Accident alert system's main aim is to rescue people in accidents. This is to improve security systems for vehicles. The latest, like GPS, is highly useful nowadays, this system enables the owner to observe and track his vehicle and find out vehicle movement and its past activities. This new technology, popularly called vehicle Tracking Systems which created many wonders in the security of the vehicle. This hardware is fitted onto the vehicle in such a manner that it is not visible to anyone who is inside or outside of the vehicle. Thus it is used as a covert unit which continuously or by any interrupt to the system, sends the location data to the monitoring unit. When the vehicle is stolen, the location data from the tracking system can be used to find the location and can be informed to police for further action. Some Vehicle tracking Systems can even detect unauthorized movements of the vehicle and then alert the owner. This gives an edge over other pieces of technology for the same purpose. This accident alert system in it detects the accident and the location of the accident occurred and sends GPS coordinates to the specified mobile, computer etc
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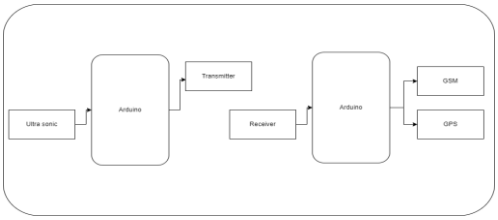
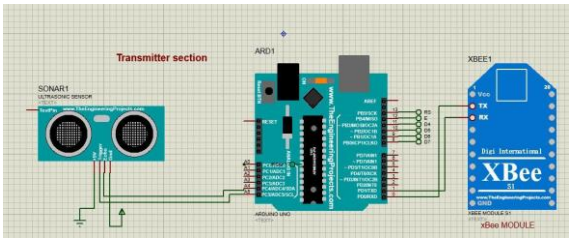
III. PROPOSED METHOD

A. System Design





B. Implementation

- The Arduino controller used in this project is the controller that is used to control all the circuit modules. The two key components other than the controller are the GPS module and GSM module used as receiver.

The GPS module is used to receive the coordinates of the vehicle and GSM will send the received coordinates to the user via SMS. If a person driving the vehicle has an accident, the ultrasonic sensor senses the sudden change in information is sent to Arduino and the location of the vehicle is sent to the GSM module through GPS module and the vehicle coordinates are sent to the GSM module.

- The GSM module plays an important role in receiving the Arduino UNO in the above block diagram. When the power supply is supplied to the circuit until the ultrasonic sensor senses sudden shift, it sends the signal to the Arduino and the position of the vehicle obtained by the GPS module, and the vehicle coordinates are sent to the GSM module. The received data is gathered and sent via SMS to the valued individual.
- This system consists of two main parts. The first part detects whether the vehicle has fallen down or met with any impact or any fire accident has taken place. This module consist of ultrasonic sensor, Xbee, arduino, jumping wires. Once the vehicle accident is detected the information is sent to the second part of the system. The second part consists of an Arduino uno, GSM module, GPS module. When any of the three sensors gets activated based on the level of impact then the microcontroller Atmega in the Arduino fetches the location from the GPS receiver and sends the corresponding information to the contact number mentioned in the code which is dumped in the Arduino i.e., to near and dear ones via SMS.

V. CONCLUSION

Every human life is precious and worth saving. Life should not end on the road waiting for help in a crash. This project shouts out for help where we are unable to shout for help. The system can detect the accident and then alert the victim's near and dear ones to provide medical aid to the accident victim. Ultrasonic sensors are used to determine whether an accident had occurred and also gives the owner the feature of tracking his vehicle in case of theft. The communications between the system and the responder or owner is done by GSM. We have observed the performance of accident detection and alerting via SMSs using GPS,GSM and sensors. It helps not only in finding the location of a vehicle but also it is helpful in saving the lives of victims by finding where an accident has happened. This device offers the most realistic alternative to the inadequate emergency services given to victims of road accidents. With the aid of this technology, when an accident happens, prompt action can be taken by alerting the appropriate individuals by sending a message

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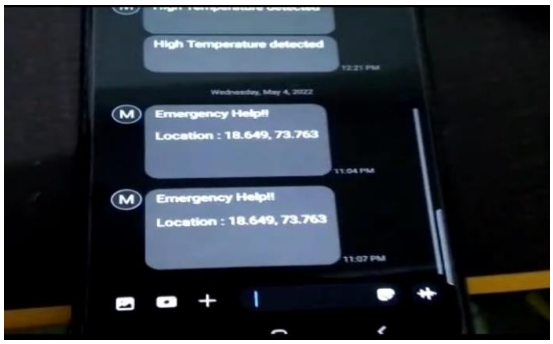
VI. RESULTS



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