Accident Detection and Reporting: A Review

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Abstract

An accident is an unpredicted and unintentional event. Considering the alarming increase in the number of vehicle driver and the number of accident happening in our country, this system ensures to make the vehicles driving safer than before for the drivers. The lack of treatment in proper time is the major reason for half of the deaths in road accidents. This system aims at providing early detection of accident and communicating the information immediately to the emergency response on time to provide quick assistance for the injured person.

When the user met with an accident and the vibration is more than its normal level, the vibration sensor which is embedded in the IOT device senses the vibration frequency and transfers GPS data from the GPS module and the message with all the necessary information is sent quickly to the registered emergency contacts of the driver. This system assures to provide immediate assistance to the victim of the accident. The results give exact locations of the accident.

INTRODUCTION

Vehicle tracking system main aim is to give Security to all vehicles. Accident alert system main aim is to rescuing people in accidents. This is improved security systems for vehicles. The latest like GPS are highly useful now days, this system enables the owner to observe and track his vehicle and find out vehicle movement and its past activities of vehicle.

This new technology, popularly called vehicle Tracking Systems which created many wonders in the security of the vehicle. This hardware is fitted on to 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 tracking system can be used to find the location and can be informed to police for further action. Some Vehicle tracking System 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.

It is mainly benefit for the companies which are based on transport system. Since it can show the position of all vehicles in real time, so that they can create the expected data accordingly. These tracking system can store the whole data where the vehicle had gone, where did it stop, how much time it take at every

stop and can create whole data analysis. It is also used in buses and trains, to estimate how far are they, 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.
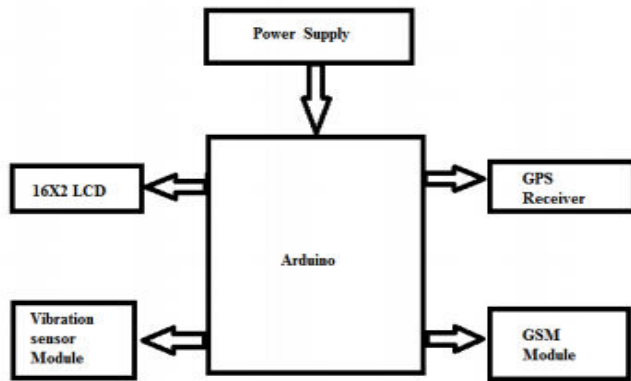
ACCIDENT DETECTION AND ALERT SYSTEM

Figure 1: Block diagram of accident detection and alert system

The suggested device configuration is designed to provide information about the incident and where the incident occurred. It helps to make it easier for the supervisor to support the victim of the incident. The device helps us to find the vehicle location using GPS module. The GPS receive the vehicle location that met an accident, and returns the details. Such detail is sent over a call to a mobile number. This message is sent using the circuit's GSM modem. The message will offer the longitude values and latitude value's information. Using those values, you can estimate the vehicle's location.

ARDUINO

The Arduino Nano is a small, complete, and breadboard-friendly board based on the ATmega328P released in 2008. It offers the same connectivity and specs of the Arduino Uno board in a smaller form factor.

The Arduino Nano is equipped with 30 male I/O headers, in a dip-30 like configuration, which can be programmed using the Arduino Software integrated

development environment (IDE), which is common to all Arduino boards and running both online and offline. The board can be powered through a type-b micro-USB cable or through a 9V battery.
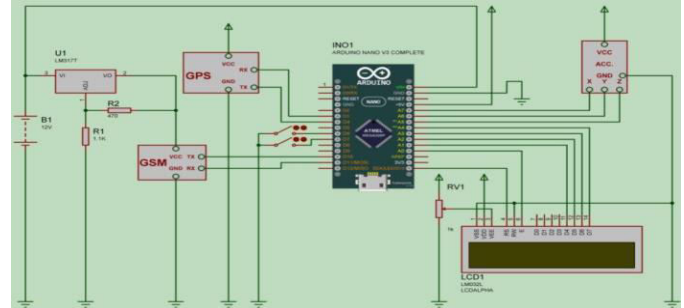
GSM MODULE

For providing communication between the GPS, says that, it is GSM and the allocated mobile number GSM SIM900 module is preferred. The name SIM900 a tri band work ranging a frequency of 900MHz to 1900 MHz such as EGSM900 MHz, PCS 1900 MHz and DSC 100 MHz Receiving pin of GSM module and transmitting pin of GPS module are used for communication between the modules and the mobile phone.

GPS MODULE

To find the location on the earth the whole is divided into some coordinates where the location can be easily captured by a module called GPS module. Here the GPS used is SIM28ML. This GPS module will find the location of the vehicle and the information fetched by the GPS receiver is received through the coordinates and the received data is first send to arduino and the information is transmitted to the saved contact through GSM module. The frequency is operated in the range of 1575.42 MHz and the output of GPS module is in NMEA format which includes data like location in real time.

LCD MODULE

To display the numbers, alphabets and special characters an LCD module with 16x2 alphanumeric types is used. Using the higher bit data lines of LCD pins such as pin 11,12,13 and 14 are interfaced to digital pins of Arduino such as pin 8,9,10 in 4 bit

mode as shown in the below figure. RS and E pins of LCD are connected to pin 12 and 13. To perform the write operation on LCD the read/write pin is connected to ground.

CONCLUSION AND FUTURESCOPE

Vehicle tracking system makes better fleet management and planning can enable you handle larger jobs loads within a particular time. Vehicle tracking both in case of personal as well as business purpose improves safety and security, communication medium, performance monitoring and increases productivity. So in the coming year, it is going to play a major role in our day-to-day living.

   Main motto of the accident alert system project is to decrease the chances of losing life in such accident which we can't stop from occurring. Whenever accident is alerted the paramedics are reached to the particular location to increase the chances of life. This device invention is much more useful for the accidents occurred in deserted places and midnights. This vehicle tracking and accident alert feature plays much more important role in day to day life in future.

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