IOT Based Accident Detection System with Smart Notification

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Abstract
Now a day's infrastructure has been developed highly but accordingly the accident rate also increased highly. In the current system the human will see that the accident has occurred, and they suddenly call to the emergency ambulance and if ambulance fail to reach the spot at the time, then we'll lose one human life, so for that a solution is brought upped by using vibration sensor which senses during the occurrence of accident and using GPS the latitude and the longitude of the position can be found and using GSM modem the position of the message can be sent to the operating centre and the operating centre will have the GIS through which can find the location easily, and they can call to the nearby ambulance and ambulance driver can find the nearby path of accident area then will reach the spot fast and this all will happens within two minutes by this human life can be saved.

Keyword: *GPS; GSM;*

1. INTRODUCTION

Now a day's communications has developed but the number of accidents is also getting increased even although many accidents are slight but due to lack of first aid and the reach of ambulance to the spot is late so there is a huge number of people are losing the life every day. Twenty people die every hour in road accidents in India - times India reports on 2017. To decrease the number of people behind the life in the proposed system, sending automatic in order to the ambulance, and the ambulance will reach the spot fast and can save human life and decrease number of people disappearing every day. The proposed system is to reduce the death rate of human every day due to accidents by sending automatic SMS to the ambulance and so can save human life. To make sure the security of the passenger and help the passenger if the accident occurs is the key role plays in our project.

2. LITERATURE REVIEW

In existing system, the technology helps the user to send their message or call to emergency unit from the accidental area, thus there would be a lack of time and information only can be conveyed. When accident occurs, the system sends short message to the care taker via SMS through GSM. The latitude and longitude of the accident location will send to care taker via SMS through GSM.

2. PROPOSED SYSTEM

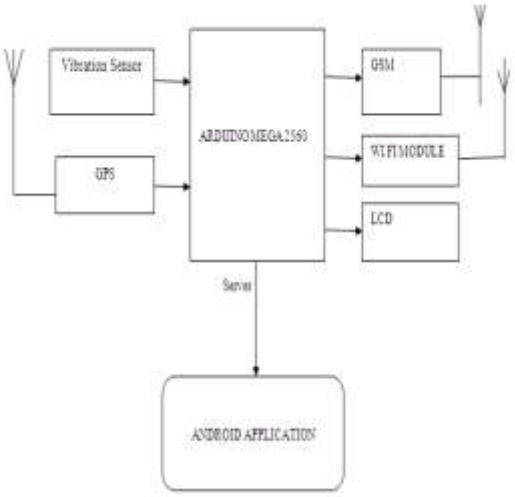

Figure 1: Block Diagram of proposed system

The vibration sensor is used to find the accident of the vehicle. These values are displayed in the LCD, when it reached that set threshold value update latitude and longitude in server also send message to the specified number .The GPS Module is connected to the arduino mega2560. The arduino mega2560 is getting the longitude, latitude and altitude values of the vehicle. The GPS module is given these values to controller. GSM modem is also is connected to the arduino mega2560. The vibration sensor is connected to the controller. If any vibration in the vehicle, the controller identify as the accident occur. Then the controller send the message to the set phone number for indicate the accident. The latitude, longitude and altitude values of accident's place send to that phone number.

3. MATERIALS AND METHODS

Smartphone

Smartphones is the smart revolutionary invention of 21st century. Here we are going to use this smart phone whenever the accident occurs the information will get notified to the ambulance driver by application. The accident place will be seen in the application because GPS also tracked by the maps

Wi-Fi module ESP8266

The ESP8266 is competent of either hosting an application or offloading all Wi-Fi networking functions from another application processor. If the user produces the WIFI then he will be admin otherwise he will be considered as a client.

ARDUINO MEGA 2560

The Arduino Mega can be involuntary with the Arduino software. It has 54 digital input/output pins. In this Arduino power from 5v and ground will be connected to the LED display of ground and 5v. Analog of A0 will be connected to vibration sensor for giving information to display while accident occurs. Then PWM pins from 2-7 will be connected to LED display. The program will be feed in Arduino board for running the application in the smart mobile.

Figure 2: Arduino mega 2560 board

BLUETOOTH MODULE

It is a wireless serial communication. It is used to fetch the latitude and longitude details about the accidental area. This module hc-05 will be connected to the app called Bluetooth application. The module will visible in the vehicle.

VIBRATION SENSOR

A piezoelectric sensor is a tool that uses the piezoelectric effect, to calculate changes pressure, acceleration, temperature, strain, or force by converting them to an electrical charge. This sensor will be placed on each and every vehicle while accident is occurring the sensor will detect.

Figure 3: vibration sensor

LCD

A liquid crystal show is a thin, flat display device made up of any figure of color or monochrome pixels arrayed in face of a light source or reflector. The threshold value will display during the accident occurs. We can increase or decrease the threshold value.

4. SIMULATION

It is a programming language used to create or develop software and application all around the world. In this php has been developed and the backend html was created the outline of this application. Extensible Mark-up language (XML) is a mark-up language that defines a set of rules or encoding documents in a format that is both human-readable and machine-readable. After this procedure in the certain distance the notification will be sent for nearby the ambulance. If one person of ambulance driver is accepted. The notification will be declined for other drivers. The ambulance driver will be having this application. If accident is occurs this app will notify to the ambulance driver.

5. CONCLUSION

Thus, the proposed system provides a solution for the vehicle accident information, if a vehicle gets accident, then the global positioning system (GPS) modem gathers the latitude, longitude of the accident zone and sends to the operating centre through global system for mobile communication (GSM) modem. So, the operating centre will receive the SMS within few seconds after the accident occurs and the operating centre consists of geographical information system (GIS) which gives current position of the accident and then the operating centre will call to the nearby ambulance and gives the intimation and so the human life can be saved.Zone and sends to the operating centre through global system for mobile communication (GSM) modem. So, the in service centre will receive the SMS surrounded by few seconds after the accident occurs and the operating centre consists of geographical information system (GIS) which gives current position of the accident and then the operating centre will call to the nearby ambulance and gives the intimation and so the human life can be saved.

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