

IoT System for Handling Vehicle Hazards

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Abstract- In highly populated Countries, everyday people lose their lives cause of accidents and lack of emergency facilities. Accidental people lives could have been saved if medical facilities are provided at the correct time. Now days, numerous accidents are happening because of the drinking alcohol of the driver or the person who is driving the vehicle. Thus drunk driving is a big reason of accidents in almost all countries all over the world. This project suggest a system which is a solution to this drawback, when a vehicle meets with an accident immediately a Vibration sensor will detect the signal, and sends it to the Arduino Controller. Arduino Controller will send an alert message including the location to the near Ambulance driver. So the ambulance driver can immediately trace the location after receiving the information. Drivers send information to near hospital. Fingerprint Biometric Attendance System is placed in vehicle. In this system are store the information of person who's sitting in vehicle. If accident not occurs then information of person is automatically delete. Or accident occurs then information of person is automatically store and it will helpful to the hospital.

Keywords- Accident detection, Alcohol detection, GSM, Alert message, Fingerprint Machine, vibration sensor..

I. INTRODUCTION

Motivations:

Life of the people is under danger; a million of peoples expire each one year as result of road traffic crashes. This is because of the lack of emergency facilities available in our country.

Objectives:

- The main objective of this project is to design, develop and deploy an accident detector and alert message send to ambulance system. To design it need to understand the Arduino controller, vibration sensor characteristics of this system. Moreover it must be learn and practice technical skills to overcome problem occur in implement the project.
- To detect the vehicle accident and transmit the location of the accident to the ambulance driver, so

Will get the exact location by the geographical coordinates transmitted via message with the help of map.

- To minimizing the delay of ambulance to save the injured.

Literature Survey

Car accident detection in parking slot: Moving cars are detected by using foreground extraction and motion map. Limitation of this project is used in only parking slot. Previous methods are not suitable for to detecting car accident in roadside slot [5]. Real-time traffic accident detection using WSN: In this paper they use GPS technology to measure speed of vehicle but sometime GPS not reliable at the time of polluted air, claimant dense foliage that's why accident going to undetected in long drive[4]. Compressive solution to road traffic accident and ambulance: In this paper they used Smartphone sensor to detect accident but it may not detect all accident because of sampling rate [3]. Accident Detection System Using Image Processing and MDR: In this paper accident detection system for automatically detecting and reporting traffic accidents at junction. This project extracts the vehicles from the video image of camera, tracks the moving vehicles, and extracts features such as the variation rate of the velocity, position, area, and direction of moving vehicles. Then it makes decisions on the traffic accident based on the extracted features. We suggested and designed the metadata registry for the system to improve the interoperability. The video clip is invaluable for intersection safety analysis this system take large time to detect accident. Previous system takes longer time to detect vehicle accident.

II. PROPOSED SYSTEM

Proposes combine independent and complementary solutions in a global accident detection system to provide stable and accurate positioning of car accident even in severe urban environments. The proposed solutions consist of augmenting the navigation solution exploiting the inertial sensor to estimate the dynamics of vehicle to extract the accident.

A power supply is electronic equipment and that supplies electrical energy to an electrical load. Here Arduino Uno, sensor, GPS, GSM operates with DC 12V supply. It is the mobile phone which consists of the transceiver, the display and the processor and is controlled by a SIM card operating over the network.

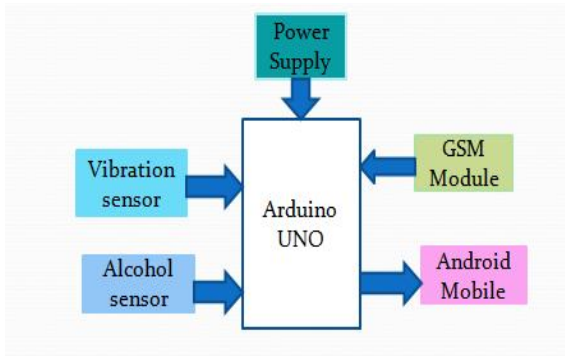


Fig: a) Block diagram of accident detection system

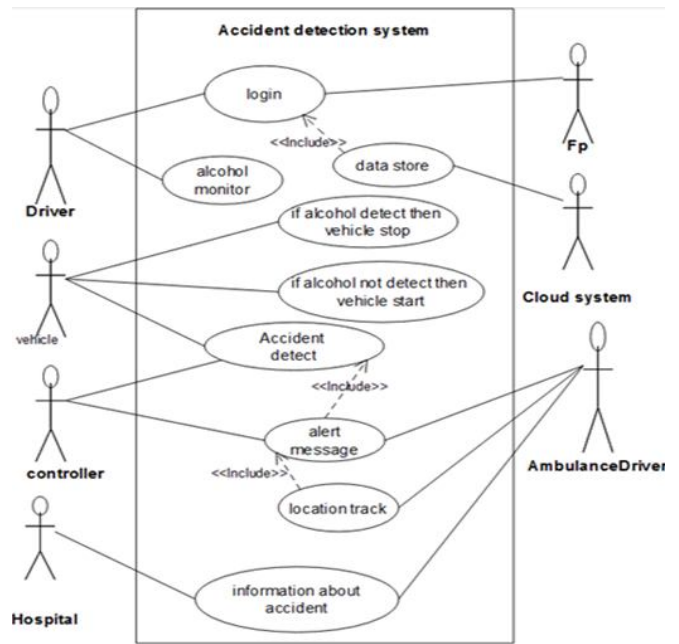
III. FEASIBILITY STUDY

Hardware Feasibility:

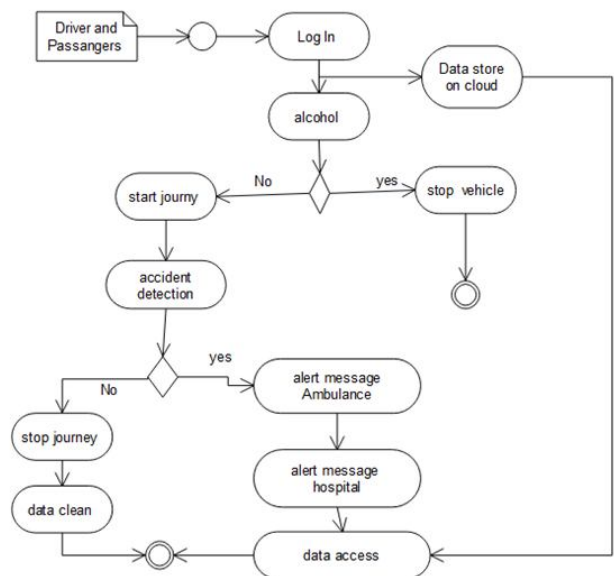
- Arduino
- Vibration sensor
- Thumb Reader
- GSM module
- Ultrasonic sensor
- IR sensor
- Alcohol sensor

Software Feasibility:

- Arduino IDE
- Embedded C
- Android studio



Use Case Diagram



Activity Diagram

Outcomes:

- Alcohol Detect
- Accident detect
- Alert message send to the Ambulance driver
- Data store

Application:

- Automatic accident detection.
- Automatic ambulance management.

- Navigation through maps.

IV. CONCLUSION

This device provides much advanced facilities in now a day's life as it can be easily implemented in vehicles.

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- [5] Do Kyung Shin¹ , Woo Jin Jeong² , Jong Min Lee² , Ki Tae Park³ , and Young Shik Moon² Car accident detection in parking lots