

## A Real Time Vehicle Accident Detection, Ambulance Rescue and Hospital Management System

Komal G. Pabale, Mayuri R. Patil, and Kalyani D. Vadtalle

Department of Computer Engineering, Sandip Institute of Technology and Research Centre, Nashik, India.

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### ABSTRACT

Now-a-days the lots of accidents happen on highways due to increase in traffic and also due to a rash driving of the drivers. In many situations the family members or the ambulance and police authority is not informed in time. This result in delaying the help reached to the person suffered due to accident. The purpose of this paper is to find the vehicle where it is and locate the vehicle by means of sending a message using a system which is placed inside of vehicle system .Most of the times we may not be able to find accident location because we don't know where accident will happen. Real Time Vehicle Accident Detection, Ambulance Rescue and Hospital Management System is designed to avoid such situations. This is an intension to implement an innovative solution for this problem.

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### Introduction

Now-a-days lots of accident happen on highways due to increase in traffic and also due to rash driving of the drivers. In many situations the family members or the ambulance and police authority is not informed in time. This result in delaying the help reached to the person suffered due to accident. Our project A Real Time Vehicle Accident Detection, Ambulance Rescue and hospital Management System with GPS is design to avoid such situations.

The GPS receives the location of vehicle that met with an accident and gives the information back. This information will be sent to a mobile number through a message. This message will be received using internet present in the circuit. The message will give the information of longitude and latitude values. Using these values the position of the vehicle can be estimated.

### Proposed System

After studying all benefits and limitations of existing systems, proposed system for Real Time Vehicle Accident Detection Ambulance Rescue and Hospital Management System has been designed.

In our proposed system we attach the hardware kit to our vehicle in that we connect GPS, Vibration Sensor, Pressure Sensor, with Arduino. All these devices connected to each other and attached that device to user vehicle. When user can travel from road the device continuously detect the position of vehicle by using GPS and also pressure and vibration of vehicle in normal condition both sensed value will be normal. But if in case, accident will be held of users vehicle the pressure and vibration sensor can sense the value beyond the limit. In short the device can detect the accident of users vehicle then the MSG can send automatically to users family, insurance company admin, police admin and nearby hospital admin by using of SMS Gateway with the exact location of accidental spot. This accidental spot will be detected by GPS.

### These are following module in our proposed system.

- User Module
- Admin Module
- Hospital Module

**User Module:** The users of the product are the victim person, he has assign a RFID tag or reader card. The hospital admin, insurance service admin, family, police admin should have a system and should have the basic skills to deal with it.

**Admin Module:** Admin can login the system and Add, View, Delete Hospital with its admin and location. Also add Insurance company with its admin detail. And RFID tag and reader according to user detail. The admin can add device to vehicle with vehicle detail and detail of vehicle owner with emergency contact number of owner family or friends.

**Hospital Module:** Hospital admin can login on the system, they can add ambulance with detail, and view the accident spot of user device kit. This admin can also view the ambulance patient RFID detail. If someone hospital can disprove the request of users accident case then MSG will send automatically to another nearby hospital admin.

### Methodology

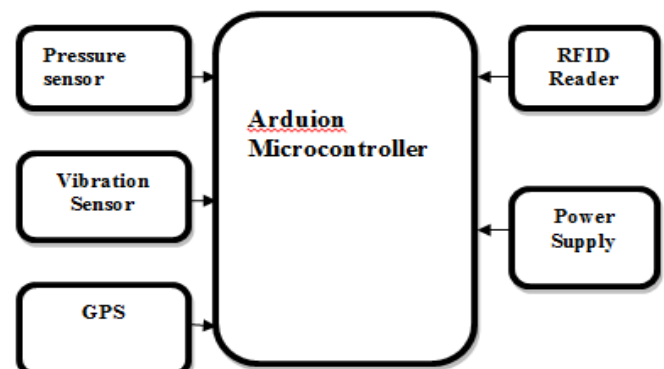


Fig 1. Block diagram of accidental system.

## Tools and Technology

### • Pressure Sensor

The Pressure sensor is a device for pressure measurement of gases or liquids. Pressure is an expression of the force required to stop a pressure from expanding, and is usually stated in terms of force per unit area. The pressure sensor usually acts as a transducer; it generates a signal as a function of the pressure imposed. When accident happened pressure sensor is activated and notification is generated.



### • Vibration Sensor

The vibration sensor is also called a piezoelectric sensor. These sensors are flexible devices which are used for measuring various processes. This sensor uses the piezoelectric effects while measuring the changes within acceleration, pressure, temperature, force otherwise strain by changing to an electrical charge. In that when accident happened Vibration sensor is activated and notification is generated.



### • GPS Module

Which stands for Global Positioning System, is a radio navigation system that allows land, sea, and airborne users to determine their exact location, velocity, and time 24 hours a day, in all weather conditions, anywhere in the world. It will recognize the location of the accident.



### • RFID Reader

A radio frequency identification reader (RFID reader) is a device that used to gather information from an RFID tag, which is used to track individual objects. RFID is a

technology similar in theory to bar codes. However, the RFID tag does not have to be scanned directly, nor does it require line-of-sight to a reader. In our project we put the users all information, and hospital can see details of traveller with their blood group using RFID Card information.



### RFID Tag

Radio-Frequency Identification (RFID) is the use of radio waves to read and capture information stored on a tag attached to an object. A tag can be read from up to several feet away and does not need to be within direct line-of-sight of the reader to be tracked.

### ARDUINO UNO

Arduino Uno is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller. Simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

### Power Supply

Is an electronic device that supplies electric energy to an electrical load. The primary function of a power supply is to convert one form of electrical energy to another and, as a result, power supplies are sometimes referred to as electric power converters.

### Software Resource Required

#### Platform

1. Front End: Java
2. Database: MySQL
3. Domain: IOT
4. Programming Language: Java

### Applications

- Automotive and transport vehicles.
- Security, remote monitoring and transportation and logistics.
- This system also can be interfaced with vehicle alerting system.

### Conclusion

The proposed system uses the IoT for vehicle accident detection and alarming the authorities regarding accidents, vehicle tracking using GPS Modem. In this project we have designed IoT based vehicle accident detection and tracking system using GPS Modem. Hence IoT can revolutionize the way the system interact and respond for the variety of applications especially in case of traffic control.

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