

# Intelligent Alcoholic, Drowsiness and Accident Identification and Intimation System

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**Abstract:** In today's world highway accident have become a common occurrence. Many people die each year due to improper medical care after the accident happen. There is no effective method by which the correct authorities can be informed in time so that the person's life can be saved. We are designing such a device which will not only detect any accident that happens to the car but also inform the appropriate authorities immediately as soon as the accident occurs. We have attached digital sensors to the microcontroller which are placed at various location of the vehicle. As soon as any accident is detected a pulse is given to microcontroller. The microcontroller then operates a buzzer and sends an emergency SMS to the concerned persons. Accident are mainly caused due to the alcohol consumption, sleeping of driver.

**Keywords:** *Embedded System, Intelligent sensors, Artificial Intelligence*

## I. INTRODUCTION

Now-a-days, it became very difficult to know that an accident has occurred and to locate the position where it has happened and the reason for accident. There is no system of identification and intimation regarding an accident. Later on the SMS service begins for intimation purpose. GPS and GSM make the usage for intimation and identification of place. It's very difficult for the lives of victims until anyone noticed and informed it to the ambulance or to any hospital and if it occurs in remote areas there will be no hope to survive. To overcome these, GSM and GPS technologies are used. The GPS based vehicle accident identification module contains sensors and a GPS modem connected to the microcontroller. When an accident occurs, various sensors give signal to the microcontroller, which sends the information to android phone through GSM network. The vehicle is tracked for every time using GPS and the position of the vehicle is also sent to the mobile in terms of latitude and longitude.

## II.OBJECTIVE

The objective is to design an intelligent alcohol, drowsiness and accident identification and intimation system using ARM7 LPC 2148 microcontroller and also to identify whether the driver has consumed alcohol and during drowsiness.

## II. LITERATURE SURVEY

Supriya vidhate, Mamta Tadavi, Manisha Jagtap and Rajratan Janrao developed an accident identification system using sms notification. It has been designed in such a way that it will not only detect any accident that happens to the car but also the inform the appropriate authorities immediately as soon as the accident occurs [1].

Rajkiran and Anusha M has developed Intelligent Automatic Vehicle Accident Detection System Using Wireless Communication. It described the main application of which is

early accident detection. It can be automatically detect traffic accidents using accelerometers and immediately notify a central emergency dispatch server after an accident using GPS coordinates [2].

Venkateshwara Reddy and Subba Rao D.V has developed vehicle tracking and accident identification system and implemented using the Vibration sensors and LPC2148 controller based mobile technology [3].

Vijay Savani, Hardik Agarvat and Dhurmil Patel explained Alcohol Detection and Accident Prevention of Vehicle in which they have used an alcohol detecting sensor in vehicle which senses and detects alcohol gases and sends message continuously to their relatives within every 5 minutes [4].

Pankaj Verma and Bhatia J.S have designed and developed gps-gsm based tracking system with google map based monitoring. This tracking system can inform us the location and route travelled by vehicle, and that information can be observed from any other remote location. It also includes the web application that provides exact location of target. This system enables us to track target in any weather conditions[5].

Saranya S, Shankar M, Muthulingam N, Sakthivarman T have developed intelligent automobile system for accident prevention and detection. This can be simulated in LABVIEW and can easily understand how the accident occurs[6].

Arun Sahayadhas, Keneth Sundaraj, Murugappan Murugappan has explained the detection of Driver Drowsiness Based on Sensors[7].

Rino Bošnjak, Ljupko Šimunovića, Zvonko Kavran have designed Automatic Identification System in Maritime Traffic and Error Analysis where they have explained Automatic Identification System (AIS) is used for security ships and ports, their identification and protection of marine environment[8].

Yong-Kul Ki has explained Accident Detection System using Image Processing and MDR in which they have described traffic accidents were detected and recorded by the system. The video clips are invaluable for intersection safety analysis[9].

Sonika S, Dr.K.Sathiyasekar, Jaishree S designed Intelligent accident identification system using GPS and GSM modem in which they have used ARM processors and PIC controller. This system is fully automated, thus it locates the accident spot accurately, controls the traffic lights, provide the shortest path to reach the location and to hospital in time[10].

## IV.PROPOSED METHOD

### A. Arm Controller

The LPC2148 microcontroller is based on a 32/16 bit ARM7TDMI-S CPU with real-time emulation and embeddedtrace support, that combines the microcontroller with

embedded high speed flash memory ranging from 32 kB to 512kB. It is cost effective and reliable. In my paper the .Hex file of my code is dumped in this controller.

### B. GPS Module

The Global Positioning System (GPS) is a satellite based navigation system that sends and receives radio signals. The basis of the GPS technology is a set of 24 satellites that are continuously orbiting the earth. These satellites are equipped with atomic clocks and send out radio signals as to the exact time and their location. These radio signals from the satellites are picked up by the GPS receiver. Once the GPS receiver locks on to four or more of these satellites, it can triangulate its location from the known positions of the satellites. In my paper when accident occurs the GPS receiver finds the latitude and longitude values so that the accident location is find out and the victims can be rescued.

### C. GSM Module

GSM (Global System for Mobile communications) is an open, digital cellular technology used for transmitting mobile voice and data services. GSM uses a variation of Time Division Multiple Access (TDMA) and is the most widely used of the three digital wireless telephone technologies (TDMA, GSM, and CDMA). It operates at either the 900 MHz or 1,800 MHz frequency band. It supports voice calls and data transfer speeds of up to 9.6 kbit/s, together with the transmission of SMS (Short Message Service). In my paper GSM modem is used at two points. One is when the driver exceeds speed limits at speed limit zone, the vehicle and the speed limit zone details are sent to the traffic police system using GSM modem. Other is when accident occurs location values are taken from GPS receiver and sent through GSM modem.

### D. Accident Detection Module (MEMS)

An MEMS accelerometer measures acceleration (change in speed) of anything that it's mounted on. Single axis accelerometers measure acceleration in only one direction. Dual-axis accelerometers, which are the most common, measure acceleration in two directions, perpendicular to each other. Three-axis accelerometers measure acceleration in three directions. Accelerometers are very handy for measuring the orientation of an object relative to the earth, because gravity causes all objects to accelerate towards the earth. A two-axis accelerometer can be used to measure how level an object is with a three-axis accelerometer, you can measure an object's acceleration in every direction. when the MEM sensor is shaken it assumes that the accident occurred.

### E. Alcohol Gas Sensor

Wide detecting scope, Fast response and High sensitivity, Stable and long life Simple drive circuit.

### F. Liquid Crystal Display (LCD)

To display interactive messages we are using LCD Module. We examine an intelligent LCD display of two lines, 16 characters per line that is interfaced to the controllers. The protocol (handshaking) for the display is as shown. Whereas D0 to D7th bit is the Data lines, RS, RW and EN pins are the control pins and remaining pins are +5V, -5V and GND to provide supply. Where RS is the Register Select, RW is the Read Write and EN is the Enable pin.

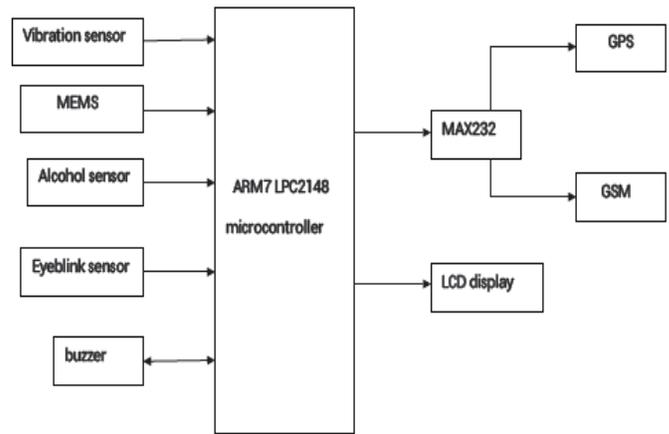


Figure 1: Block diagram

## V. WORKING

The main aim is to design intelligent alcohol, drowsiness and accident identification and intimation system. In this, LPC 2148 microcontroller is used. When an accident occurs, MEMS gets disturbed and sends output signal to LPC 2148 so that the location is identified using GPS. If the driver has consumed alcohol, it can be detected by using alcoholic gas sensor and intimates the alcoholic percentage and the drowsiness is detected using eye blink sensor.

When an ARM microcontroller reads the signal from MEMS it indicates that an accident has been occurred. In order to locate the spot of accident, we use GPS and the output of GSM and GPS is given to MAX 232. Max 232 is a level converter. When an accident occurs, GPS is activated and it gives the values of location in terms of latitude and longitude.

## CONCLUSION

The project is all about intelligent alcoholic, drowsiness and accident identification and intimation system. The system is about identifying the one who drives a vehicle has consumed alcohol, during drowsiness and identify the accident has occurred by the use of GPS, GSM technology and a web application.

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