

## ALCOHOL DETECTION AND MONITERING SYSTEM FOR VEHICLES

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### ABSTRACT

**In this project we have used an alcohol detecting sensor in vehicle for safe driving system of vehicle for drunk and driving cases, which senses and detects alcohol particles and send messages if alcohol concentration is above hazardous level. In this process GSM and GPS modules are connected to microcontroller for controlling purpose. GPS module get the position of vehicle with longitude and latitude and it send message to authorized person. We have also provided the security system for vehicle that is keypad for giving password to secure the vehicle.**

**KEYWORDS: GSM, GPS, LCD, Alcohol sensor (MQ3).**

used in schools, colleges, offices and some public places such as hospital.

The system detects the presence of alcohol in the vehicle and immediately locks the engine of the vehicle. At the same time buzzer is ringing and by using GSM send a SMS to the authorized person. And by using GPS we can the location of the vehicle at that instant. Hence the system reduces the quantum of road accidents and fatalities due to drunk driving in future. In vehicle tracking project, you can track the location of your vehicle. This contains longitude and latitude of the location of vehicle. Microcontroller is the heart of our project. Microcontroller gets the coordinates from GPS modem and then it sends this information to user in text SMS through GSM.

### I. INTRODUCTION

This system senses the content of alcohol in breath and level of concentration. This system uses 8051, LCD display, MQ3 Gas sensor, Relay and buzzer, keypad and GPS and GSM techniques. The output of the sensor is directly proportional to the content of alcohol consumed. Now a day alcohol sensor play a significant in our society and it has wast applications. This type of sensors in cars is a great safety factor which can be embedded in steering of the cars. When the driver starts the ignition, sensor measure the content of the alcohol in his breath and if the concentration is above the hazardous level then automatically it will stop the ignition of the car. Thus we can reduce accident rate due to drink and drive hence these kinds of detectors have great relevance. It can also be

### II. EASE OF USE

#### A-BLOCK DIAGRAM

The main part of this project is an "Alcohol sensor". If the person inside car has consumed alcohol then it is detected by alcohol sensor. Sensor gives this signal to a comparator IC. The output of comparator is connected to the microcontroller. Microcontroller is the heart of this project. It is the CPU of the complete circuit. Microcontroller gives high pulse to the buzzer circuit and the buzzer is turned on. At the same time a relay is off. Due to this the ignition of the car is deactivated.

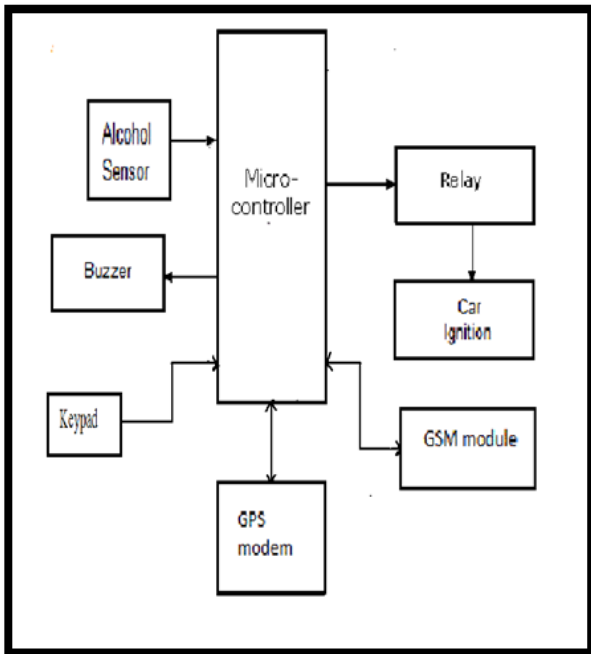


Figure: Block Diagram Alcohol Detection and Monitoring System.

If we don't want to turn off the ignition of car then we can use GSM and GPS modem for track location of vehicle. We have also use GSM and GPS module. GPS detect the location of vehicle with longitude and latitude and GSM will send messages to relatives of the driver. Now for vehicle accidents prevention system, we will use ultrasonic sensor which sensing the limited distance from other vehicles, neither sensor will be activate and send messages to relatives of the vehicle.

**B-CIRCUIT DIAGRAM OF POWER SUPPLY-**

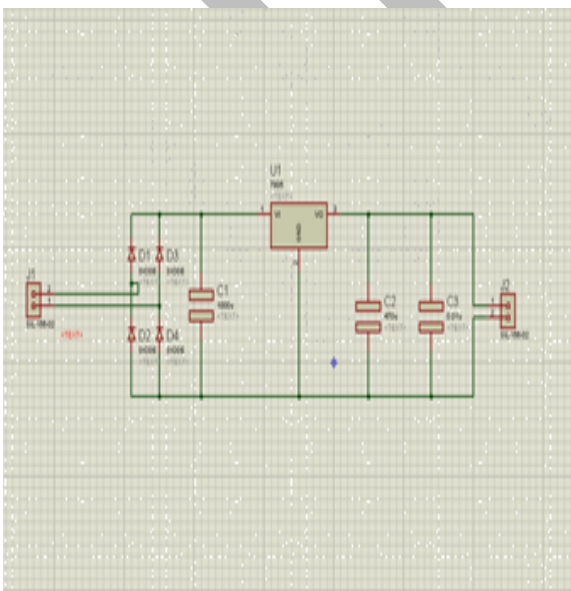


Figure: Circuit Diagram of Power Supply

The above figure show circuit diagram of power supply. In this the DC input is given to the bridge rectifier which converts the voltage to desired voltage level. Then output of rectifier is given to the filter which gives filtered output means filter converted the pulsating DC to pure DC.

The output of filter is given to the voltage regulator for the regulate the voltage means constant output voltage which is required for the system. In this power supply we have used the voltage regulator IC7805 because we required 5V DC supply for whole system. And hence we get constant 5V DC output to the output pins of the power supply.

**C-RELAY MODULE**

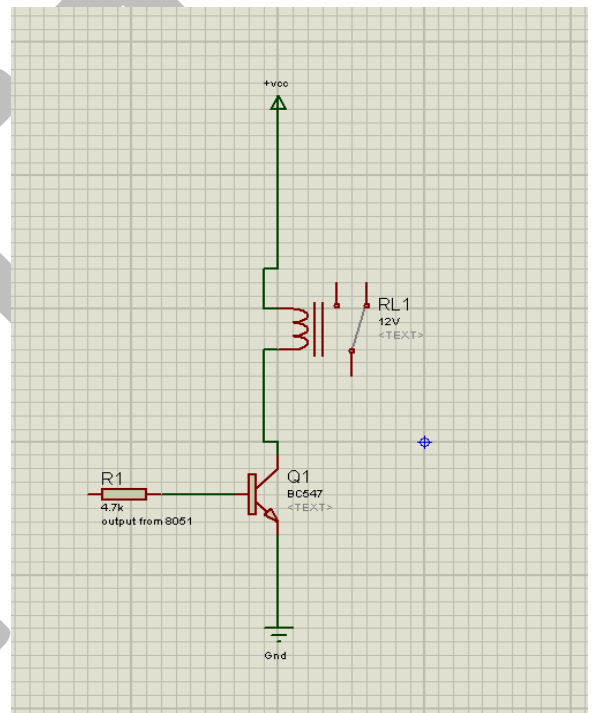


Figure: Circuit Diagram of Relay Module.

The above figure shows the circuit diagram of relay module. In this relay will work according to micro controller output. If the all condition are ok the micro controller send output to the pin to which relay is connected. When output pin s high then transistor act as closed switch and relay will operate otherwise it will not operate. When output pin is not high then transistor act as a open switch and hence relay will not operate. In relay module resistor of 4.7k ohm and BC547 are used.

**D-CIRCUIT DIAGRAM OF ALCOHOL DETECTION AND MONITORING SYSTEM FOR VEHICLES**

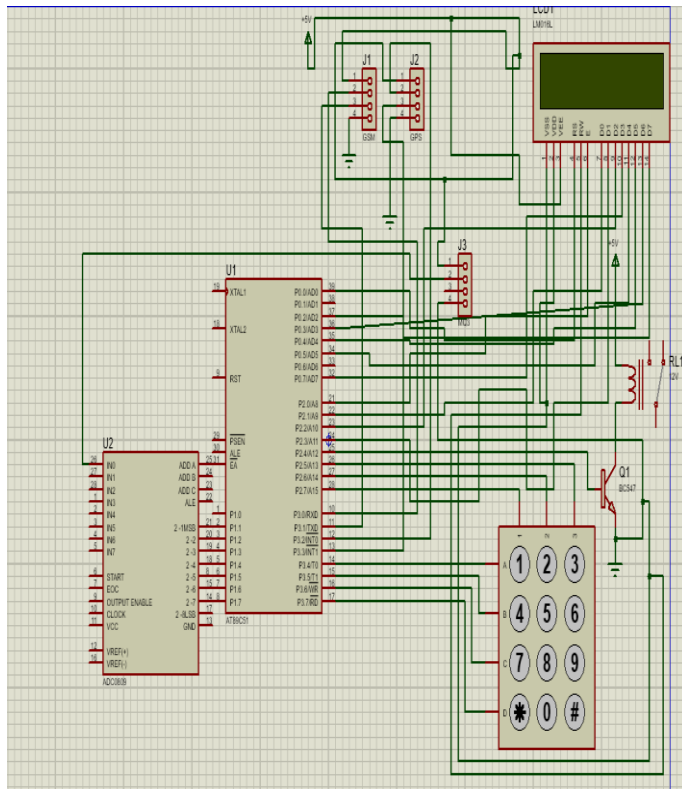


Figure: Circuit Diagram of Alcohol Detection and Monitoring System for Vehicles

The main part of this project is an "Alcohol sensor". If the person inside car has consumed alcohol then it is detected by alcohol sensor. Sensor gives this signal to a comparator IC. The output of comparator is connected to the microcontroller. Microcontroller is the heart of this project. It is the CPU of the complete circuit. Microcontroller gives high pulse to the buzzer circuit and the buzzer is turned on. At the same time a relay is off. Due to this the ignition of the car is deactivated.

**E- ALCOHOL SENSOR**

An alcohol sensor detects the attentiveness of alcohol gas in the air and in analogs voltage is an output voltage is an output reading from -10 to 50deg. With a power supply is less than 150 ma to 5v .The sensing range is from 0.04 mg/l to 4 mg/l, which is suitable for breathalyzers.



Photograph: Alcohol Sensor

The MQ3 gas sensor consist of 4 pins including Vcc,Ground,Aout and Dout. There is a heating system inside the sensor ,which is made up of aluminum oxide, thin dioxide.

When it sense the alcohol particles then properties of sensor material changes and it will gives two output according to concentration that are analog and digital outputs.

**D-GSM MODULE**

A GSM module is a specified type of module which accept the SIM card ,operates over a subscription to a mobile operator ,just like a mobile phone .when a GSM module connected to a computer ,to used the GSM module communicate over the mobile network. This GSM module used frequently used to provide mobile internet connectivity.



Photograph: GSM Module

**E- GPS MODULE**



Photograph: GPS module

GPS is used here to track the position of vehicle when the alcohol concentration is above the hazardous level and password is wrong. The GPS firstly measures the distance from the satellite to the GPS receiver.

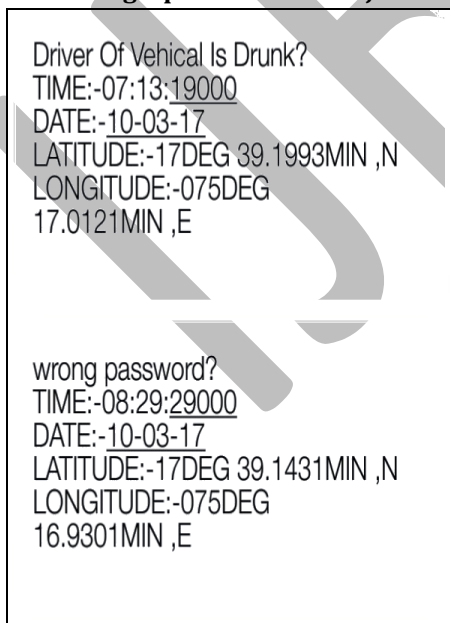
### RESULT

The system is secured by means if driver enter the password correctly then and then only vehicle will start otherwise not and after this it will send message to authorized person that entered password is wrong also it will send the longitude and latitude through message.

If the password is correct then it will check next condition that whether alcohol is detected or not. If alcohol concentration is below hazardous level then relay will trip and ignition of vehicle will start. If the alcohol concentration is above hazardous level then it will send the message that driver is drunk and also longitude and latitude will send to authorized.



**Photograph: Result of Project**



**Photograph: Message of Alert**

### CONCLUSION

Our project is efficiently checks drunken driving. We have implemented this smart system in vehicles for safe driving and reduce the accident rates due to drunken drive. We have also implemented the tracking as well as security system for vehicles.

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