



AUTOMATIC VEHICLE ACCIDENT DETECTOR

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ABSTRACT

Since There Are Many Types of Devices Are Available In The Market To Prevent Accident, But No Any Devices Are Available Which Will Call And Send sms Immediately Just After The Accident For The Immediate Help. This Project Is All About The Detection of Accident, Fire in Vehicle, Drink and Drive case invehicle Through Sensors Fitted in the Device. If The Sensors Will Detect Any of these phenomenon's It Gets Activated And In Such Cases The Device Will Call And Also Give The information of Respective Phenomenon Through sms to the feeded Numbers Such as relatives, Police, Ambulance. So that we can prevent human Life from Accident.

Keywords: Accident, Sensors, Vehicle, Information.

1. INTRODUCTION

As we know in present scenario a lot of people are subjected to death because their information is not circulated to their relatives, ambulance & police station just after accident. This result in more accidentthat interns leads to the traffic jams and people doesn't get help instantaneously. This module provides information about the accident to the hospital, their relatives & police station. As a result, the sudden help will save people life and the traffic jams can also be reduced.

2. HARDWARE USED

- *Microcontroller*
- *Gsm Module Sim 300*
- *Vibrational Sensors*
- *Alcohol Sensors*
- *Smoke Sensors*
- *Connecting Wires*
- *Buzzer*
- *Push Button*

2.1 MICROCONTROLLER

It has built in input, output capabilities. So it can read and write digital and analog value or states and connect to the real world. A microcontroller can connect directly to switches, buttons, LCD display, LEDs, RELAYS, and SERIAL PORTS. Microcontrollers are generally used for low to medium complexity, specific task in equipment.



2.2 GSM MODULE

A GSM MODULE is basically a GSM MODEM (like SIM 300/900) connected to PCB with different types of output taken from the board (for Arduino and other microcontrollers). We only need to make 3 connections between the GSM module and Arduino.



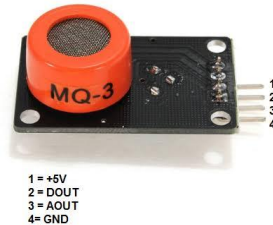
2.3 VIBRATIONAL SENSORS

THE VIBRATIONAL SENSOR comes with a breakout board that includes a comparator and an adjustable onboard potentiometer for sensitivity threshold selection and signal indication LED. This sensor module produces logic states depending upon the vibration and external force applied on it.



2.4 ALCOHOL SENSOR

This alcohol sensor (MQ 3) used as Breathalyzer to check person's blood alcohol level. It generally comparerange of normal alcohol level with person's alcohol level.Itgives output reading as analog and digital.



2.5 SMOKE SENSOR

This smokesensor(MQ2)is flammable gas and smoke detector. It is very sensitive to gases (LPG,BUTANE,PROPANE,METHANE,HYDROGEN).It detects the concentration of combustible gases. It gives reading as analog voltage and it consume less than 150mA at 5V.



2.6 CONNECTING WIRES

Wires are used to bear mechanical loadsWe have used these wires for connecting differenthardware.These wires are used for communication purpose.



2.7 BUZZER

The buzzer is basically to aware us about the accident that is if the frequency will be higher than the specific frequency set on the sensor, then it beeps for 10 seconds.



2.8 GPS

The GPS attached in cars help us to traced the position of that car. We attach GPS to GSM module through serial port so that location (Latitude and Longitude) of that car will be share to the fed number.



3. WORKING

- *We have constructed this model for the purpose of saving human life. We have attached vibrational sensors at front and back part of the vehicle in such a way that as the vehicle come into the contact with any obstacle which cause accident then frequency of vibrational sensor increases, if the vibrations or the frequency of the sensors are greater than that of the normal (set) vibration then this sensor gets activated.*
- *In this project smoke sensor is also attached, it will sense if there is smoke nearby, it will give output in the form of analog voltage. We have set a condition in our code that if the out put value is greater than 500 then this sensor will gets activated.*
- *When any of the sensor gets activated then a buzzer will beep for sometimes(10 seconds). A push button is attach to the microcontroller if the driver is able to press the reset button before the end of the buzzer beep that means driver is safe and frequency will be reset and call or message will not be sent to the user contact. And if someone did not press the reset button within the decided time(10 seconds). that means the driver is injured and the message will be generated through GSM and will be sent to the owner, relatives, police & ambulance so they can get help with the specific information about the incident.*
- *The SIM inserted inside the GSM will be responsible for sending the messages to the user contacts fed by user in SIM.*



- We can connect our device with GPS for the purpose of sending message along with the location (Latitude and Longitude) of the vehicle.
- We have also attached alcohol sensor for safety, which will sense alcohol presence in body through breath of driver if alcohol presence in body is more than normal level as mentioned in the below chart then it will be activated and will stop car immediately. And to stop car two blocking device is attached, one at inlet of air filter so that air cannot come in contact with combustion chamber and another at fuel outlet which will help to stop fuel supply.



Working Mechanism
SMOKE SENSOR

Approximate Blood Alcohol Content (BAC) in One Hour
Source: National Highway Traffic Safety Administration

Drinks	100	120	140	160	180	200	220	240	Influenced
1	.05	.04	.03	.02	.02	.02	.02	.02	Possibly
2	.09	.08	.07	.06	.05	.05	.04	.04	
3	.14	.13	.11	.09	.08	.07	.06	.06	Impaired
4	.18	.15	.13	.11	.10	.09	.08	.08	
5	.23	.19	.16	.14	.13	.11	.10	.09	Legally Intoxicated
6	.27	.23	.19	.17	.15	.14	.12	.11	
7	.32	.27	.23	.20	.18	.16	.14	.13	
8	.36	.30	.26	.23	.20	.18	.17	.15	
9	.41	.34	.29	.26	.23	.20	.19	.17	
10	.45	.38	.32	.28	.25	.23	.21	.19	

Subtract .015 for each hour after drinking.
One drink equals 1.5 oz. of 80 proof liquor (40%), 12 oz. beer (4.5%), or 5 oz. wine (12%). Note: The figures are averages and may vary based on the amount of food in your stomach.

ALCOHOL SENSOR

4. COMMERCIAL IMPORTANCE

A General problem has been observed when any accident happens when we are travelling on highway which are little far away from city area. If any accident occurs there will be no one to help the victims. In that case this accident detector is very smart and it will immediately call and send the message to the relatives and nearest zone ambulance, police, mobile police, hospital. This project will be very helpful to the car user and many lives. In this way our project provides services to the society. Normally our government has scheme to the family whose family member is lost but the value of life cannot be compared with amount.

5. CONCLUSION

This may lead to a perfect solution for the safety of human inside the vehicle while an accident.

It will reduce the accidental death rate.

The technique will increase the superiority of sense of safety in the car.

It also prohibits the drink and drive cases.

6. ACKNOWLEDGEMENT

I was influenced to research on the topic by observing the accidental death rate and drink and drive cases.

7. REFERENCES

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Internet



Observation & Experiment

8. ABOUT THE AUTHOR

Rahul Kumar is a student of LNCT Bhopal. He is pursuing bachelor of electrical engineering and currently he is in IV semester. In the above paper he has brainstormed the idea and played a major role in establishing the backbone for the research.

Adarsh Kumar Singh is a student of LNCT Bhopal. He is currently pursuing Electrical Engineering and is in IV semester. He has played an important role in documenting and concluding in above paper.

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