

“DRUNK DRIVE DETECTION USING CAR IGNITION LOCK”

Rohit V. Baviskar (CSE Third Year), Avinash R. Thakur (CSE Third Year), Rahul N. Ranve (CSE Third Year),
Nayan R. Thakur (CSE Third Year)

G.H.Raisoni College of Engineering and Management Jalgaon

Department of Computer Science & Engineering

Abstract

In the present day's alcohol-attributable accidents are increasing rapidly where the concern as alcohol is a factor in many categories of injury. Every year it is reported about 2.3 million premature deaths due to harmful consumption of alcohol [1]. In this paper we proposed an improved alcohol detection for use in an automobile ignition locking system using Arduino. A temperature sensor is used to measure the temperature of the breath sample to ensure that it is the same temperature as human breath. A sensor is used for a specific volume of the breath sample, which is used to determine the alcohol content. A Micro Controller is used to convert the output into a reading which represents the breath alcohol content of the breath sample. This analysis is used as part of an overall automobile ignition locking system which prohibits starting the car when the operator is intoxicating. The system also requires rolling retests to ensure that the driver is still sober.

Key words: Arduino, Temperature sensor, Micro controller, Ignition locking.

Introduction-

Driver can be prevented from starting a car at initial stage itself by using a simple alcohol sensor. This will mandate the driver to blow into a device which collects breath sample of the driver to process further to determine the output signal.

The car alcohol sensing device will have a threshold to allow the driver to start the car. The driver can start car only when he consumes alcohol lower than the threshold level. Ignition interlock systems which meets federal standards requires test on engine start and also require a test every few minutes while driving is called as rerolling test. This is going to be a simple fool proof system which does not allow a drunk driver to start his car, until his alcohol consumption level goes below the threshold. Threshold should be adjustable, in case government changes the permissible level, ultimately threshold could also be changed. While the traditional use of the breath analyzing devices has been by law enforcement officers to test a suspected intoxicated driver, the breath analyzing devices now are being used in combination with an ignition locking system to prevent an intoxicated driver from being able to start the vehicle.

Needs and Motivation:

Reliability -

As the data is saved one can add, modify and delete data as and when required. Processing is done by the computers are accurate provided that user is accurate and the reports generated as appropriate, attractive and more readable so users may rely on the computer.

Speed/Communication -

Being electronic device, the computer processing is faster and that increase the speed of work and within few seconds the record of previous year can also be processed. It affects the communication and decision making also.

Security -

As the data stored and doesn't get damaged unless the physical device is not proper. The part of the data can be viewed and can be taken on printers as and when.

Objective-

The target of this project is to give a idea and inventive method for avoiding drunken driving of a Motorcar by locking the car. Likewise to permit a man who is not alcoholic to drive a same Motorcar. To broaden this thought with more innovative headways and make it accessible in a financially effective way. We need to plan a sort of framework which can recognize the alcohol content in the cars to prevent the conduct of alcoholic driving. The framework comprises of these two sections:

1. Sensor Part- - used to identify the centralization of alcohol all around and send the concentration as accompanying part.

2. voltage signals to the Display Part—used to get the prepared signal and demonstrate the information to users in LCD. The sensor will be fixed close to the driver's seat. The driver should breath to the system before the individual begins the car. On the off chance that the alcohol level identified is underneath the permissible standard, the car can be started regularly. In the event that the alcohol level is over the suitable standard, the framework will send caution to the driver through LCD display. The framework ought to be protected, delicate, exact, advantageous and cheap. This sort of framework can be fixed on each car to guarantee the driver's driving security. Drunk driving detection using car ignition locking project have primary targets which need to outline the framework with the ability that gives notification to drunken driver before driving the vehicles. The project is to set up intelligent innovations for vehicles to produce alert as the notice and message will be shown in LCD display as drunken driver. Another objective is to utilize alcohol sensor as the primary sensor to sense the presence of alcohol gas noticeable all around. Essentially, the alcohol gas was identified

Methodology-

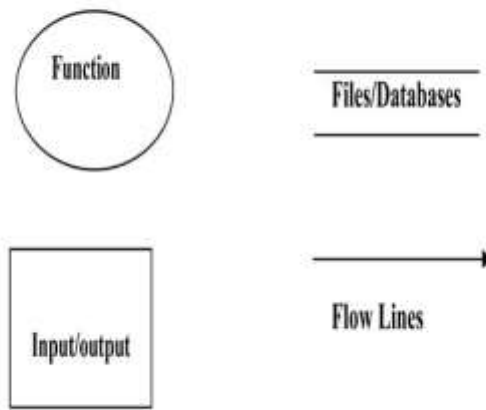
Here we propose a framework where the individual is identified for liquor level in his body to stay away from accidents. Drivers will be detected before they begin their vehicle. Driver will be detected by a sensor once he seated on the driver seat by his breath. Alcohol Sensor is put in the steering to screen the breath level if the liquor content in breath is 0.08% then car motor won't start. In this framework if the driver isn't drunk he can drive else he cannot drive until the point that the liquor content decreases. Arduino uno is arranged and associated with the sensor additionally LCD display and one dc motor is associated. Once the association is given power supply to it so the engine will start running.

Data Flow Diagram-

A data flow diagram is a graphical representation of the flow of data through an information system. Often they are preliminary step used to create an overview of the system which can later be elaborated. DFD's can also be used for visualization of data processing.

A DFD shows what type of data will be imputed to and output from the system, where the data will come and go to, and where the data will be stored.

Following are the symbols with their purpose used to draw DFD-



Block Diagram-

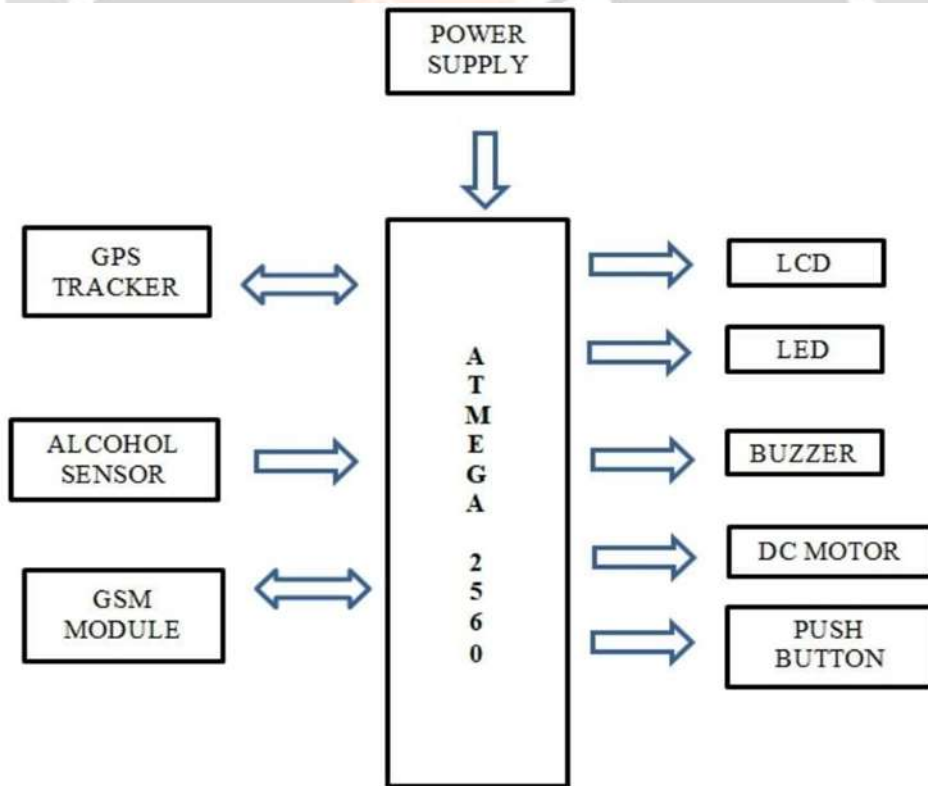


Figure 1. Block diagram of system

Hardware Requirement-

MQ 3 Alcohol Ethanol Sensor

Buzzer

DC Motor

Motor Driver IC

Vtg Regulator IC

IC Socket

LCD Display

Crystal Oscillator

Resistors, Capacitors

Transistors

Cables and Connectors

Diodes, PCB and Breadboards

LED, Transformer/Adapter

Push Buttons

Switch, IC

IC Sockets

Future Scope:

In Future work, Government must authorize laws to introduce such circuit in each car and must manage all car organizations to preinstall such systems while manufacturing the car itself. If it is achieved the death rate because of drunken drivers can be brought to least level. In this kind of system, securely landing of car aside without disturbing other vehicles can also be added as a future extension.

Conclusion-

Drunken driving and alcohol detection with alert system have successfully been completed as per requirements. The system runs perfectly in detecting the presence of alcohol in the driver's breath that does a further action which is tracking the location of the car and sending its position in latitude and longitude via text message to authorized persons. This system is then fixed in a car prototype which shows how it works if implemented in the car. This system can be further modified for better improvement in future. The limitation can be overcome by using more precise and advanced software to be implemented in the steering. In addition, the reading should not influence by the presence of perfume or air freshener. A secondary sensor can be added so that it will support the functionality of alcohol sensor and will give an accurate output and a system that provides more useful details about the accident vehicle other than the location and driver's condition. Besides that, rather than sending text messages to authority, it is best to send the location to a system base or web server. As such a cloud base data must be created so that it is easier for authorized person to trace the location of car for monitoring purposes.

References-

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