



ALCOHOL DETECTOR WITH ENGINE LOCKING SYSTEM

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Abstract: The current scenario shows that the most of the road accidents are occurring due to drunk-driving. The restricted ability of enforcement agents undermines each manual effort geared toward edge drink-driving. There is therefore the need for an alcohol detection system that can function without the restriction of space and time. This project presents the design and implementation of an Alcohol Detection with Engine Locking for cars using the Ultrasonic Sensor and Arduino UNO. The system will continuously monitor level of alcohol concentration in alcohol detection sensor and thus turn off the engine of vehicle if the alcohol concentration is above threshold level. The project provides an efficient solution to control accidents due to drunk driving.

Keywords: Arduino UNO, MQ3 Sensor, Buzzer, LED, DC motor, Relay, Switch

I. INTRODUCTION

The current scenario shows that the most of the road accidents are occurring due to drunk-driving. The drivers who drink alcohol are not in stable condition and so, rash driving occurs on highway which can be risky to the lives of the people on road, the driver inclusive. The enormity of the dangerous driving transcends boundary. The laws in India are currently prohibiting drivers to drink and drive so that the fine can stop them to drink and drive. Whatsoever, effective observation of inebriated drivers could be a challenge to the policemen and road safety officers, the rationale for this stems from the natural inability of citizenry to be present additionally as state among identical house and time. This restricted ability of enforcement agents undermines each manual effort geared toward edge drink-driving. Therefore the need for an alcohol detection system that can function without the restriction of space and time.

II LITERATURE SURVEY

The writer has put forward a technique which utilizes GPS and GSM to ascertain alcohol but this technique is very expensive but the expenses can be cut off to a great extent. In this project a siren is being used which is highly economical, and can keep people in close proximity vigilant.

Wearing smart helmet prevent any mishap is suggested by writer which have certain deficiencies. Firstly restrictions on the use of helmets to only two wheelers. Secondly microcontroller are software based mega system in comparison to the economical siren that are open source hardware.

Composite health monitoring and sensors based on infrared are utilized to ascertain alcohol as talked about by writer but the chance of false alarm can't be avoided in this system, because minute change in some situations can result in false alarm but in our project use of required technology makes it more authentic.

Worrying about the drunken driving the writer suggests the system to overcome the issue but using MQ2 alcohol sensor has come flames .MQ2 alcohol sensor is not authentic and raises the chance of false alarm while we have used MQ3 which is highly authentic

To cope with helmet negligence and alcohol detection simultaneous the writer proposed a system which is very complicated and use of P89V57RD2 microcontroller makes it highly expensive also this system can only be equipped with 2 wheelers whereas , Aurdino UNO microcontroller is economical as well as can be equipped with any class of vehicle making it more authentic and successful

2.1 Outcome of Literature Survey

By the literature survey we came to know that we can solve the problem road accidents occurring by driver's while drinking .and also save the life of many people by this project by fixing in automobiles and also we will implement and undate this project to get more advantages .and reduce accidents.

III PROBLEM STATEMENT

1.3 PROBLEM STATEMENT

previously, there was no technology to lock the engine of the vehicle after sensing the alcohol consumption by the driver which was considered to the main cause of the accidents. There was manual checking after particular distance on the roads or the highways but still these checks were not sufficient to stop the happening of the misshapes. To avoid these problems, this project vehicle detection and alcohol sensing alert with engine locking system is developed.

IV OBJECTIVES

1. To provide alcohol detection with engine locking system which ensures the driver safety.
2. To avoid road accidents due to driver under alcohol influence.

V METHODOLOGY

Our proposed work consists of various units that make up the system: the power supply unit, the alcohol detection unit, the engine locking unit, ignition system unit, display unit, alarm unit and indicating unit. An LCD display will be fitted inside the car to act as an indicator to the motorist together with everyone in the vehicle. A DC motor is used as the car engine to demonstrate the concept of engine locking. The ATmega328 microcontroller under the brand name of Arduino Uno will be used to keep looking for the output from the alcohol sensor. The Arduino Uno sketch which is the environment for programming is used to write the code, compile, generate hex file and load it to the microntroller.

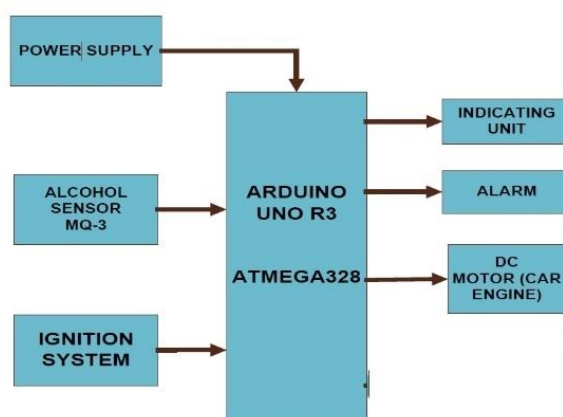


Fig.5:Block Diagram

The block diagram of the proposed system is shown in figure .It consists of power supply section, MQ-3 alcohol sensor, DC motor, LCD, microcontroller, alarm and LEDs. The various units were designed and tested separately.

The detected analog voltage values are read by the microcontroller; the Arduino Uno board contains 8 channels, 10-bit device that changes an analog voltage on a pin to a digital number. The system will link input voltages from 0-5V with values from 0-1023V to generate 5Vs for every 1024 units. The system will process the analog signal and convert it to digital value of 0 or 1. Also, the analog values from the alcohol sensor will be scaled to percentage, and this percentage is equivalent to the analog voltage values in ppm (part per million). The first condition is the intoxication stage; the second condition is the slightly drunk stage and the last stage is drunkenness stage. Each stage will be a condition to perform a task based on the level of alcohol. In the intoxication stage, the LED indicator will be activated only, the alarm will be OFF and the car engine will be ON. In stage two, the alarm and the green LED indicator will be ON, as well as the car engine. Finally, the driver is mentally and physically inactive in stage three, so the engine will be OFF while the alarm and red LED will be ON. Therefore, once the system detect alcohol in stage three the car will be stopped and the driver can park by the roadside

ADVANTAGES/DISADVANTAGES/APPLICATIONS

Advantages:

- The Alcohol detection with engine locking system can be implemented in any 4- wheelers.
- The Alcohol detection with engine locking system can help prevent accidents due to drunk driving.
- The Alcohol detection with engine locking system can be very helpful for police.
- The Alcohol detection with engine locking system provide automatic safety system for cars and other vehicles.

Disadvantages:

It requires some extra amount to implement
Implementation is difficult, But it can be implemented in inbuilt

Applications:

- Used in Automobiles
- It can be very helpful for police

CONCLUSION

In this project we have developed a real time model that can automatically lock the engine when a drunken driver tries to drive a car. By fitting this alcohol sensor into the car, we can safe guard the life of the driver and also the remaining passengers. It is a very simple application. The life time of the project is high and also low maintenance and low power consumption.

This project is developed to efficiently check drunken driving. By implementing this project we can decrease the accident rates under the influence of alcohol.

Future Scope

We can implement GSM technology to inform the relatives or owner of the vehicle about the alcohol consumption.
We can directly make this product to inbuilt with the existing automobiles.

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