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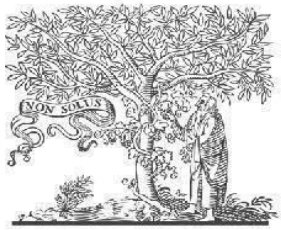

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AUTOMATIC ENGINE LOCKING SYSTEM FOR DRUNKEN DRIVERS

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ABSTRACT-Drunken driving remains a significant cause of road accidents worldwide. To address this issue, we propose an Automatic Engine Locking System (AELS) designed to prevent intoxicated individuals from operating vehicles. This system utilizes an alcohol sensor to detect the presence of alcohol in the driver's breath. Upon exceeding a predefined threshold, the system triggers an alarm, alerting the driver to their impaired state. If the driver persists in attempting to start the vehicle, the AELS will automatically lock the engine, immobilizing the vehicle until the alcohol concentration falls below the safe limit.

Keywords: Alcohol Detection, Micro controller, DC Motor representing as the vehicle engine, Buzzer for signalling an alarm to the driver, MQ-3 alcohol sensor for alcohol detection.

I.INTRODUCTION

Accidents caused by drunken driving are leading causes of fatality on Indian roadways. This occurs as a result of drunk people being able to drive despite being inebriated. To address this pressing concern, we propose an Automatic Engine Locking System designed to prevent intoxicated individuals from operating motor vehicles [1]. This system utilizes advanced alcohol detection technology to monitor a driver's breath alcohol content (BAC). If the BAC exceeds a predetermined threshold, the system will automatically immobilize the vehicle, effectively preventing the driver from starting or operating it [2]. By integrating this innovative technology into vehicles, we aim to significantly reduce the number of drunk driving accidents and promote safer roads for all. So if the driver even attempt's to drive the vehicle in a bevvy state, they will not be able to do so [3]. Therefore, this project has been designed in such a way that it pushes public safety first especially road safety.

II.LITERATURE REVIEW

In this project, we proposed to detect alcohol using many types of relevant method like use of siren which is cost effective and this type of siren will alert the driver or passenger if any about the presence of alcohol [4]. When driver is drunk or an unconscious state due to over consumption of alcohol, the MQ-3 alcohol sensor will detect alcohol and a buzzer will be triggered, module will send an alert message . The main disadvantage is showing a false alarm. The minute changes in some situation can result in false alarm but the authors have designed the prototype in such a manner that it can detect accurately without raising any false or anything [8]. An expensive system like an Arduino will be used in which is much more sophisticated and also much more features can be added to them [6]. The authors have also proposed the use of a DC motor which is represented as the engine of the vehicle or the motor which keeps the

engine running . Once alcohol is detected , the buzzer is sounded the engine is stopped and the control of restarting the engine is taken away [10].

III.SYSTEM MODEL

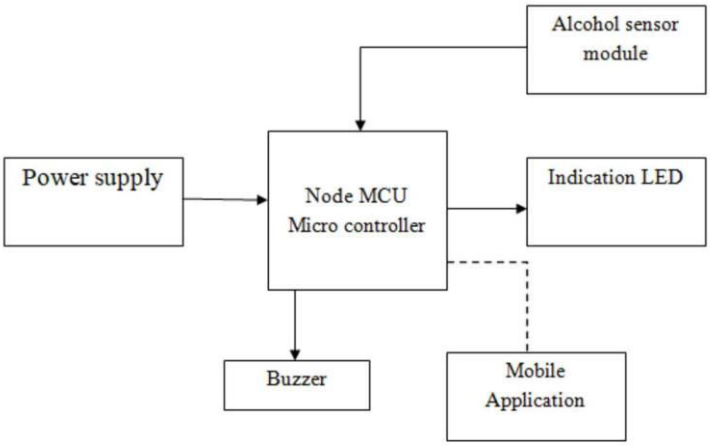

Fig. 1. Block diagram of Automatic engine locking system

>The MQ3 alcohol sensor detects the alcohol and outputs the value through A0 pin of the Arduino.
(printing the value to keep a note of it)
> The L293D IC helps in controlling the DC motor and requires 9V input voltage.
> The enable and direction pin are being controlled by pin 9, pin & and pin 7 of the Arduino.
> Pin 8 and 7 will drive when they have different voltage level. Initially, we set pin 8 as HIGH and pin 7 as LOW. When both are LOW, the DC motor stops [9].
> Whenever the sensor detects alcohol above given threshold and the pin 8 and pin 7 are both set to LOW and hence DC motor stops [7].
>Eventually, we will generate sound through piezo buzzer by making use of pin 12 and passing a wave using tone() function.

NODE MCU ESP8266:
The ESP32 is a low-cost system-on-chip (SoC) series created by Systems. It is an improvement on the popular ESP8266 that is widely used in IoT projects. The ESP32 has both Wi-Fi and Bluetooth capabilities, which make it an all-rounded chip for the development of IoT projects and embedded systems in general [5].

Fig.2 Node MCU

LCD(Liquid Crystal Display):

A liquid-crystal display (LCD) is a flat-panel display or other electronically modulated optical device that uses

the light-modulating properties of liquid crystals combined with polarizers to display information.

Fig. 3. LCD

MQ3 ALCOHOL SENSOR:

In this alcohol sensor detect the alcohol person. It is a low cost semiconductor device it have four pins first pin is AO, second pin is DO , third pin is VCC , fourth pin is ground. It is a sensitive material .A simple interface is could be a 0-3.3V ADC

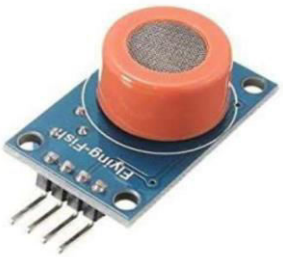

Fig. 4. MQ3 Alcohol sensor

BUZZER:

A buzzer could be a tiny however economical part to feature sound options to our project/system,it's terribly tiny and compact 2-pin structure thus may be simply used on bread board, Perf Board and even on PCBs that makes this a wide used part in most electronic applications.

A buzzer or beeper is an audio signaling device, which may be mechanical, electro mechanical.

Fig. 5. Buzzer

DC MOTOR:

A DC motor is any of a class of rotary electrical motors that converts direct current (DC) electrical energy into mechanical energy. The most common types rely on the forces produced by magnetic fields

Fig. 6. DC Motor

POWER SUPPLY:

In this project we use power supply input regarding the components we prefer or use in this project. Everyone know that we will be having different power supply for every particular components so we will be using +5v for the powering Arduino or other components in the project we use. We know that power supply plays major role and it is the source of the project.

IV.RESULT

In this project we came to know that whenever a drunk person will try to take control of a vehicle the sensor after sensing the presence of alcohol will automatically lock the car's engine, preventing the driver to drive.Now-a-days car accidents are mostly seen due to drunk and drive. So ,By fitting this alcohol sensor into the car, we can save guard the life of the driver and also the remaining passengers. After the engine is locked it will sound the buzzer again indicating that it is not safe to drive. Also the LCD screen will display 'Alcohol Detected' so that the other people are made aware of the situation and also so that they can act accordingly. Therefore, by using this system we avoid any kind of loss in life or property.

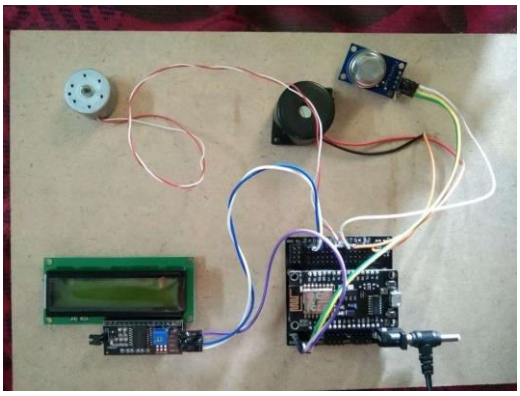

Fig. 7 Output

V. 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. Now-a-days car accidents are mostly seen due to drunk and drive. So, by fitting this alcohol sensor into the car, we can save guard the life of the driver and also the remaining passengers. The Alcohol detection should be act as an another key for the car .If the driver entered in to the, then it has to test the alcohol ethanol percentage ,if it is low it has to allow him to raid the vehicle otherwise it has to turn off the vehicle and should allow him raid it. It will reduces more road accidents.In the future various car companies can use this circuit to prevent people from driving if they are drunk. Also, government should also make some laws for the automobile industry to mandate the implement of these circuits to reduce the cases of drunk driving. In this type of system securely stopping the car so that it doesn't affect the incoming traffic can also be implemented in the near future.

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