Alcohol Detector using Node MCU ESP 8266

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Abstract: *Nowadays many accidents happen because of the alcohol consumption of the driver or the person who is driving the Vehicle. Drunk and driving is a major cause of the accident in practically every country on the planet. The goal the alcohol detection in automobile projects is to ensure the safety of those who are seated within the vehicle. We frequently see drunk driving situations, in which intoxicated drivers wreck their automobiles while under the influence of alcohol, causing property and life harm. As a result, we offer an innovative strategy to prevent such occurrences. Our proposed system would be constantly monitoring the driver's breath by placing it on the drivers wheel or somewhere the driver's breath can be constantly monitored by it. As a result, we suggest a novel strategy to eliminate such situations. Our suggested device would continually monitor the driver's breath by mounting it on the steering wheel or anywhere else where the driver's breath could be detected. If a drunk driver tries to drive, the system detects alcohol in his or her breath and locks the engine, preventing the car from starting. In another scenario, if the driver is not inebriated when the vehicle is started and the engine is running, but drinks while driving, the sensor detects alcohol in his breath and stops the engine, allowing the driver to guide the vehicle to its destination roadside and a warning message is sent to a webserver through Node MCU ESP8266 Board.*

Keywords: Alcohol, Drunk and driving, Node MCU ESP8266

I. INTRODUCTION

Accidents caused by inebriated driving are leading causes of mortality on Indian roadways. This occurs as a result of drunk people being able to drive despite being inebriated. We propose to prevent this issue in our proposal by making a system that automatically shuts off the vehicle's engine when a particular amount of alcohol is detected in the driver's breath. When the presence of alcohol is detected, the microcontroller shuts down the vehicle's engine and sounds a siren to inform others around. Something is wrong with the car, and the message "Alcohol Detected" flashes on the LCD screen embedded in the system, allowing surrounding individuals to assess the severity of the problem and notify the appropriate authorities to avoid any incident. When this system is installed in cars, it will not only assist to prevent facilities and property losses caused by drunk driving, but it will also help to reduce the overall number of accidents that occur as a result of it. Moreover, people in other vehicles or pedestrians will be much safer because the vehicle is stopped right away.

	Official NodeMCU	**NodeMCU Carrier Board**	**LoLin NodeMCU**
Microcontroller	ESP-8266 32bit	ESP-8266 32-bit	ESP-8266 32-bit
NodeMCU Model	Amica	**Amica**	Clone LoLin
NodeMCU Size	49mm x 26mm	49mm x 26mm	58mm x 32mm
Carrier Board Size	n/a	102mm x 51mm	n/a
Pin Spacing	**0.9" (22.86mm)**	**0.9" (22.86mm)**	1.1" (27.94mm)
Clock Speed	80 MHz	80 MHz	80 MHz
USB to Serial	CP2102	**CP2102**	CH340G
USB Connector	Micro USB	Micro USB	Micro USB

Operating Voltage	3.3V	3.3V	3.3V
Input Voltage	4.5V-10V	4.5V-10V	4.5V-10V
Flash Memory/SRAM	4 MB / 64 KB	4 MB / 64 KB	4 MB / 64 KB
Digital I/O Pins	11	11	11
Analog In Pins	1	1	1
ADC Range	0-3.3V	0-3.3V	0-3.3V
UART/SPI/I2C	1 / 1 / 1	1 / 1 / 1	1 / 1 / 1
Wi-Fi Built-In	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n
Temperature Range	-40C - 125C	-40C - 125C	-40C - 125C

II. SCHEMATIC DIAGRAM
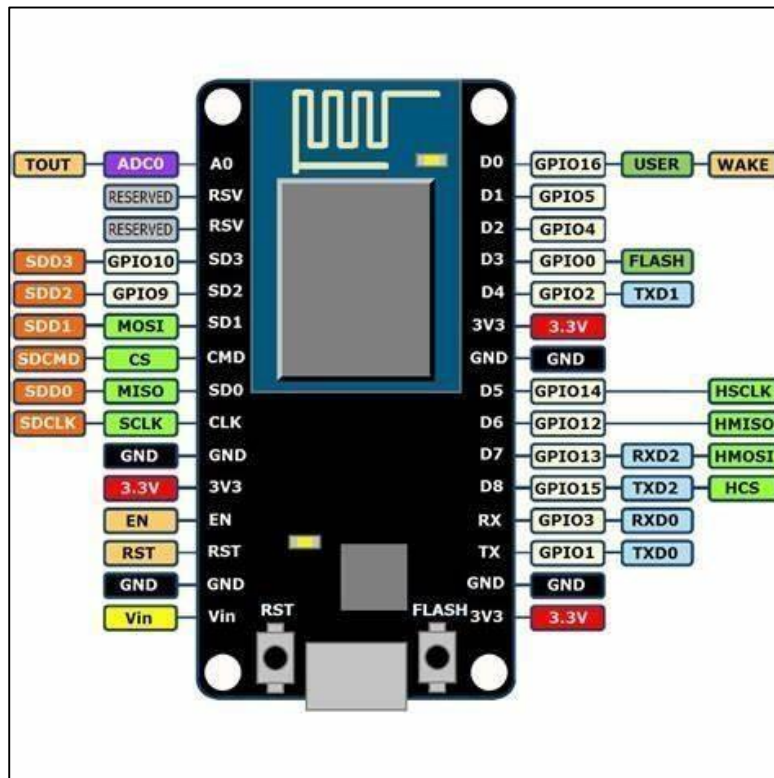
III. ALGORITHM

1. Turn on your Wi-Fi router first.
2. Turn on your hardware i.e., node MCU.
3. Wait till your node MCU connects to internet.
4. Open blink app in your android mobile.
5. Check that hardware is connected to internet in blink app.
6. If hardware is connected use your blink app to turn ON and OFF the devices.
7. Generate QR code so that anyone can use that blink app.

IV. WORKING

The alcohol sensor is technically referred to as a MQ3 sensor which detects ethanol in the air. When a drunk person breathes near the alcohol sensor it detects the ethanol in his breathe and provides an output based on alcohol concentration. If there is more alcohol concentration more LEDs would lit. And when the alcohol is detected, it gives signal to buzzer and the buzzer starts beeping. As well as you can monitor the level of alcohol in your blink mobile app synced with your NODE MCU ESP8266.

V. RESULT

- Total Simulates   20
- Total Successfully Detected 18
- Total Missed Detection   2
- Total False Detection   0
- Probability Of Detection   90%

VI. CONCLUSION

An effective solution to resolve the issue like drunk and drive requires an effective intelligent system for vehicles which monitors the Alcohol Consumption by the driver. Here the data is acquired by the Alcohol sensor and if the person is having alcohol the engine will be locked automatically by turning off the motor and a warning message is displayed on the LCD display and also sent to the webpage by using ESP8266 Wi-Fi module on nodemcu Board.

The overall conclusion of the project is we can avoid many road accidents. If the he/she don't wear helmet and incase if the driver is drunken the ignition will not turn on. Unfortunately, if the driver is met with an accident using GSM and GPS system the information will be delivered immediately with their family members as well as the accident occurred location can be seen in google maps with the help of latitude and longitude of GPS coordinates in things board. So, he/she can be rescued and medical help. By this way we can reduce road accidents and save their lives

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