Alcohol Detection For Car Locking System

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ABSTRACT:

The identification of alcohol with the locking mechanism of the engine decreases the spike of road accidents caused by drivers' extreme alcohol intake. The device controls alcohol in the driver's exhaled breath to activate the engine locking system. Alcohol sensor Arduino Mega microcontroller, DC motor, is used for system creation. The car engine is switched off, and the emergency siren is blown as soon as alcohol is detected, minimizing the likelihood of any potential mishaps. Driving any vehicle in a developing country like Malaysia takes great dedication, rapid thought, and drivers' judgment talents to help stop traffic accidents. The proposed device would measure the many conditions that can cause an alarm to signify the driver's drunk or sober state when fitted on a steering wheel within the car. For the recommendation to improve the project in the future, particularly in preventing system cheats and device damage. Concerning anti- cheating, one common approach to cheating the device is to request another person to take a clean sample of a breath when starting the car. The recommended advancement and generations to work to mitigate this problem involve a face lock application for security to ensure that the car is the authorized driver taking the check procedure.

Keywords—Alcohol detection system; Vehicle control; Gas sensor; MQ3 sensor; DC motor; Arduino.

I.INTRODUCTION:

[1] The scenario indicates that most road events are triggered by drunk driving. Drivers drinking alcohol are not stable, so they drive belligerently. It takes place on the lane, which can both be dangerous for the lives of road users, including drivers. The vastness of the disruptive phenomenon is beyond limits.

[2] Roads safety have always been in the center of attention. The signboards, direction arrows and lanes have made following rules much easier and served as an excellent guide, nevertheless, uncontrollable factors such as drunken drivers exits and thus accidents still happen. In the unitedstates of America alone and during 2014 nearly “9,967 people died of alcohol-impaired-driving” [3], that is one alcohol-impaired driving fatality every 53 minutes. The list goes on and on for other countries too [4], therefore it is necessary to enhance and improvise new techniques. This project pushes towards the public safety in general and roads safety in particular. The idea is characterized by being deliberately dependent on personal contribution. The system should make a significant leap in terms of public awareness in addition to the reduction of accidents caused by drunken drivers.

[5] 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 an 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. [6] 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. There is therefore the need for an alcohol detection system that can function without the restriction of space and time.

II.LITERATURE SURVEY:

Dr. Pavan Shukla et al. proposed a system [3] 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.
V. Ramireddy et al. published a review on [4] Wearing smart helmet to prevent any mishap is suggested by writer which have certain deficiencies. Firstly restrictions on the use of helmets to only 2 wheelers. Secondly, microcontrollers 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

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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.

K. P. Prashanth et al. proposed a system [7] To prevent the mishap of drunken driving writer have used PIC16F877A microcontroller which is an outdated system and expensive one also which restrains its use to only certain class of society whereas we are using Arduino and Uno microcontroller which is advanced as well as economical.

B. Y. Rao et al. proposed a system [8] 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.

S. L. A. Muthukarpan et al. published a review [9] 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.

III.PROPOSED METHODOLOGY:

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 model will also send the message of whereabouts of the vehicle through SIM900A.

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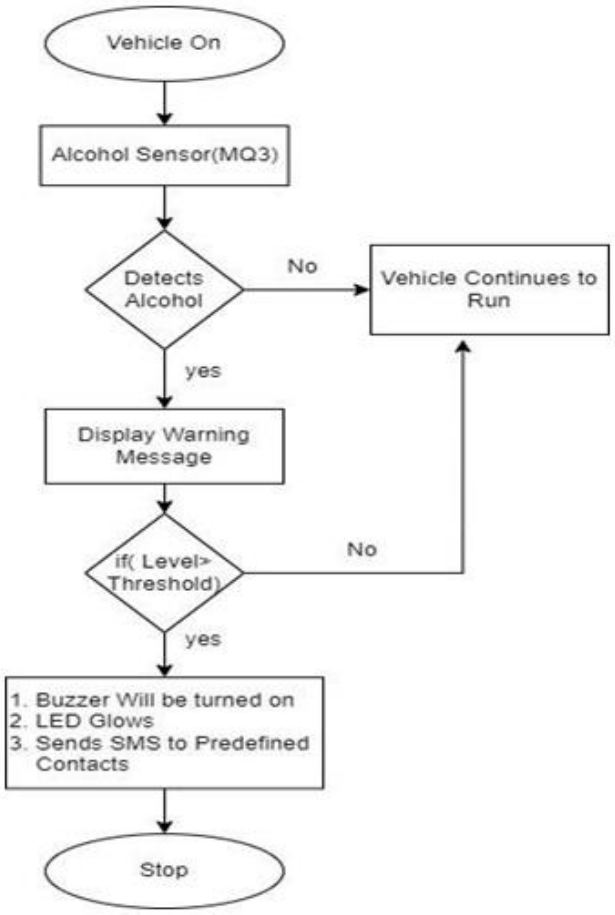
SYSTEM METHODOLOGY:

Its a device to test alcohol concentration from driver breath installed before driver seat connected to the engine ignition. If the test result reach regulated level, the lock will be activated and the engine can't be started. The locking device can constantly monitor the driver breath to prevent cheating start.

FLOW CHART:



Alcohol detection:

The system may use various technologies to measure the drivers blood alcohol concentration(BAC). Common methods include breath analysers or sensors in the steering wheel.

Threshold Setting:

Simply put, a compressor's threshold setting allows you to set the point at which the compressor starts compressing your audio signal. Any parts of your audio signal which are louder than the threshold will be turned down by the compressor.

Auto Engine Cutoff:

The idea behind the start-stop system is simple: If the engine is stopped for short periods, for example while waiting at traffic lights, fuel consumption and emissions are reduced. In this way, the automatic start-stop system helps to save fuel and protect the climate.

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Prevention of Drunk Driving:

If you know you will have a few drinks, designate a sober driver for the evening. If someone in your social group doesn't want to do it, try asking them to pool resources for a designated driver service to pick you up or arrange to take public transportation. The same goes if you're heading out on your own.

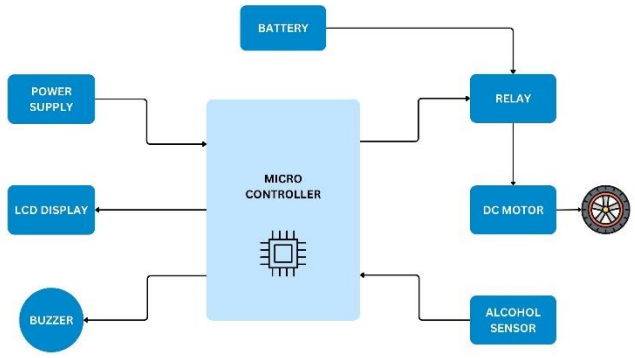
Alcohol Sensor:

Module Selection: Choose an alcohol sensor module (e.g., MQ3 or similar) that interfaces well with Arduino. Ensure that the sensor has Arduino libraries and documentation available.
Wiring: Connect the alcohol sensor module to the appropriate pins on the Arduino. This typically involves connecting power (VCC), ground (GND), and communication lines (TX/RX).
Library Installation: Install the Arduino library for the chosen alcohol sensor module. Libraries provide pre-written code and functions to interact with the sensor, simplifying the integration process.
Initialization: Write code to initialize the alcohol sensor, set up communication, and configure any necessary parameters, such as threshold level.

Status Indicator (DC motor):

Motor: Connect motor to simulate the engine of a car. Integrate a relay module.

BLOCK DIAGRAM:



MQ3 SENSOR TABLE:

Parameter Name	Sensor type	Detection gas	Concentration	Voltage	Load resistance (R_L)	Heater resistance (R_H)	Sensing resistance (Rs)	Slope	Temp humidity
	Semiconductor	Alcohol gas	0.04-4mg/l alcohol	±5.0V	Adjustable	31Ω ±3 Ω	2KΩ-20KΩ (in 0.4mg/l alcohol)	200-1000ppm	20±2; 65%±5%RH

IV.Results:

This project aims to demonstrate the alcohol concentration for the drive system that uses an alcohol sensor. As a result, the driver's safety can be ensured by engine locking, which has been shown to reduce the number of accidents as shown in the fig.

The Alcohol Sensor to determine the existence of a silent in-vehicle breathalyzer detection system for the driver is currently unclear. Figure 1 shows a reading of 85.94 for the alcohol level. Because the level is less than 150, it is safe to assume that using the alcohol sensor, no alcohol composition was discovered in the driver's exhaled air. As a result, it could be regarded as an alcohol level that has gone undetected depicts an alcohol level reading ranging from150 to 400 milligrams per litre. In the driver's exhaled breath, the sensor detects a bit of concentration of alcohol. As a result, a "DRUNK" message will appear on the screen, and the buzzer will begin to buzz loudly to alert the driver. The buzzer will continue to ring incessantly. The purpose of the system is to protect the folks when driving a vehicle by reducing the number of accidents caused by the engine locking system as shown in the table.

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PPM (PART PER MILLION)	PERCENTAGE (%)
0	0
100	10
200	20
300	30
400	40
500	50
600	60
700	70
800	80
900	90
1000	100

This proves that the driver consumed an excessive amount of alcohol. Nonetheless, the driver could not start the engine and drive at this point. Additionally, the driver must wait until the level of alcohol in their exhaled breath has decreased.

V.Conclusion:

We have presented a new eye blink monitoring algorithm to detect drowsiness in real time. This technique gives highly accurate results when used under good illumination conditions and executed using a high resolution camera. This indicates that it has worked well under ideal conditions. We further aim to test the technique on persons with different physical features like wearing eyesight glasses, having facial hair, having some eye disease or having the mouth covered. We monitor the number of frames in which the eyes are closed. When the number of frames is above a certain threshold, the driver is informed about his drowsy state by a warning message shown on the display.

A detected blink is equivalent of a closed eye, if the closing state continues for more than 6 consecutive frames then drowsiness condition is displayed. The proposed system detects eye blinks with a 94% accuracy and a 1% false positive rate. Our experiments showed that the proposed system produces fast and accurate results for the detection of drowsiness. According to the real world experiments, the most important factors that affect the performance of our method are the presence of glasses and high illumination changes. Indeed, the presences of glasses affect the core components of the system including face detection, eye detection and symmetry calculation.

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