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ALCOHOL SENSING ALERT WITH ENGINE LOCKINGSYSTEM

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ABSTRACT

This system is intended at making vehicle driving safer than before. This is provided using Arduino. We have evolved the driver's condition in real time environment and we propose the detection of alcohol using alcohol detector and connected to Arduino such that when the level of alcohol crosses a permissible limit, the vehicle ignition system will turn off and the GPS module will capture the present location of the vehicle. Also, the GSM module will automatically send distress message to police or family members.

INTRODUCTION

Alcohol detector in car project is designed for the safety of the people seating inside the car. Alcohol detection with vehicle controlling project helps to control the vehicle in case the driver has consumed the alcohol. The system implemented by us aims at reducing the road accidents in the near future due to drunken driving. The system detects the presence of alcohol in the vehicle and immediately locks the engine. In this project Arduino Arduino is used for the programming and interfacing purpose; LCD display is used to show the percentage of the alcohol present in alcoholic breath of the person, MQ3 sensor is used to detect the alcohol molecules. This sensor is placed on the steering of the car.

LITERATURE SURVEY

The author has proposed a method to detect alcohol but uses GPS and GSM module which increases the overall cost which could be avoided. In our project, we are using a siren which will be more cost efficient. Use of siren will alert the people nearby and hence any kind of necessary action can be taken.

The authors have proposed a system to prevent the accidents due to drunken driving. Major drawback of this system is

that they have used PIC16F877A microcontroller which is not as useful as Arduino Uno microcontroller that we are using. Also, they have used an old design system which is not useful and increases the overall cost of the system which makes it expensive and somewhat unaffordable to certain segments of society thereby limiting its scope to be used. Hence, our system is more cost effective and can be easily afforded.

PROPOSED METHOD

Using Arduino Uno microcontroller, we propose to design a system consisting of an alcohol sensor, MQ3, to detect the presence of alcohol by analyzing a person's breath and shutting down the vehicle's engine when a specific amount of alcohol is detected to prevent any kind of mishap or accident that may occur due to the driver taking control over the vehicle. Hence, drunken driving is controlled, thereby minimizing the loss of life and property.

Arduino Uno is based on ATmega 328P microcontroller. It consists of 20 pins out of which 14 are digital pins and the rest 6 are PWM. It can be programmed using a computer on Arduino IDE. Arduino being open sourced, has a really good community which makes development very convenient and any kind of problems are taken care of by the community. We are using it because it is open sourced and hence very cheap as compared to conventional microcontrollers. It can handle a large number of operations making it very convenient to use.

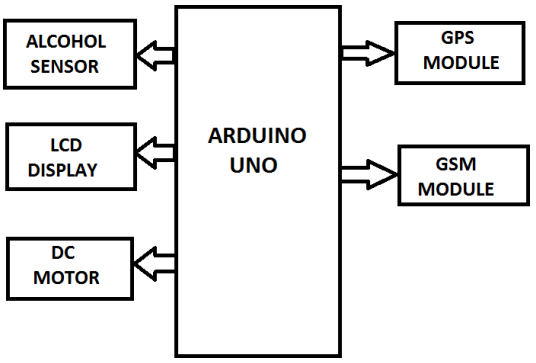

Fig: Block diagram of alcohol detection

ARDUINO: The arduino board is the central unit of the system. All the components are interfaced to the board and programmed as per their functionality to operate in synchronization.

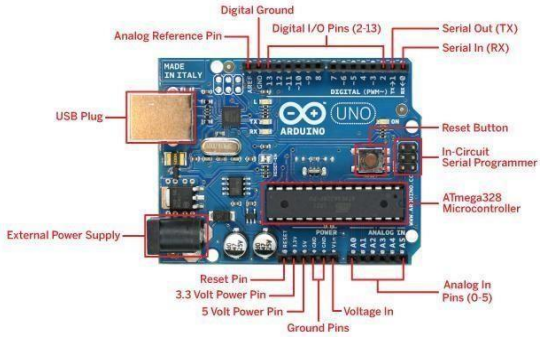

Fig: Arduino board

ALCOHOL MODULE*:* It is used to sense the alcohol. The analog output of which is applied to the arduino board.

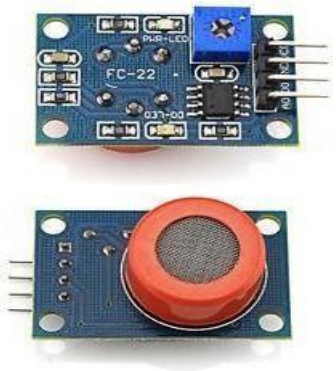

Fig: MQ-3 sensor

GSM: It is used to send an SMS to the contacts of the user about the location of the vehicle. It is beneficial in emergency situations.

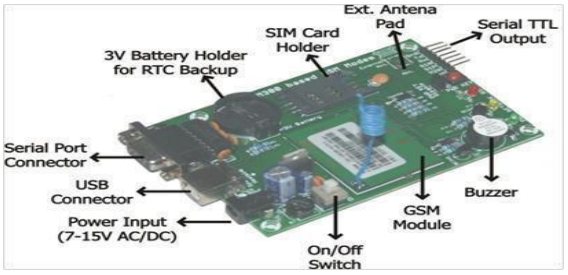

Fig: GSM Module

GPS: It is used to track the location of the user which is send via SMS through GSM module.

Fig: GPS Module

LCD: If alcohol is detected it displays the message indicating "Alcohol Detected".

Fig: LCD Display

DC MOTOR: It is used as a dummy for indicating the engine locking facility whenever alcohol is detected.

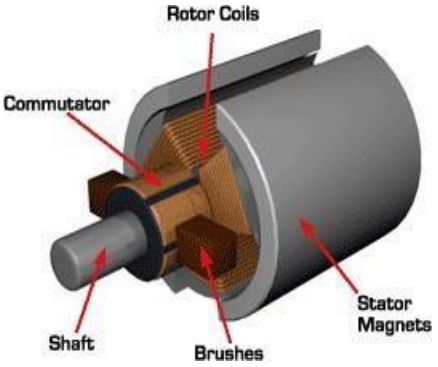

Fig: DC Motor

BUZZER: A buzzer is used in the system to alert the people nearby so that they can analyze the situation and take necessary action accordingly. The buzzer is connected to pin 3 of the Arduino Uno. It gets activated whenever alcohol is detected by the MQ3 sensor. It's frequency and tone can be changed and used according to the requirements. Hence, it is an easy and cheap way to alert people and grab attention to point out that something is wrong.

Fig: Buzzer

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SYSTEM FLOW CHART

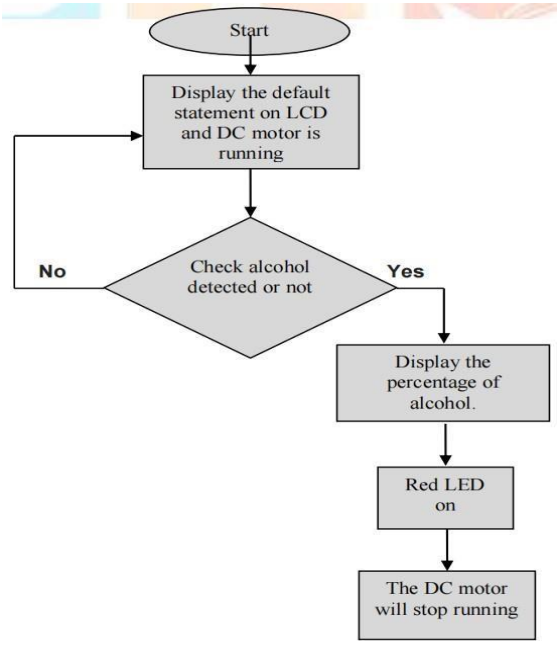

Fig: system flowchart

ADVANTAGES:

1. The chance of loss of life and property due to drunken driving is minimized.
2. Simple implementation leads to accurate results.
3. Can be implemented on various types of vehicles.
4. Less accidents, more safety.

APPLICATIONS:

1. This system can be implemented in vehicles to avoid accidents due to drunken driving.
2. It can also be used by various organizations or authorities to monitor its employees and keep a check on them.

RESULT:

Whenever a drunk person tries to take control of vehicle, the alcohol sensor will detect the presence of alcohol and if presence of alcohol is detected by the sensor, it will shut down the vehicle's engine and sound an alarm thereby alerting the nearby people. The LCD screen present in the vehicle will display "Alcohol Detected" so that people are aware of the situation and hence can take the necessary action that may be required. Therefore, by using this system on a vehicle, any kind of loss of life or damage to property can be avoided. Simulation of the system has been done in Proteus software. All the components have been tested and connected as required thereby providing us with the desired result as shown in the below image.

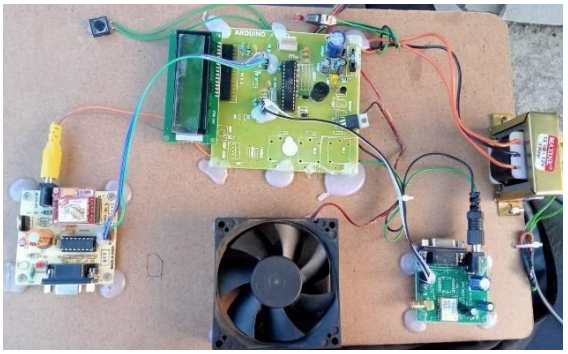

Fig: result and discussion

CONCLUSION

In this project, we have developed an efficient system to tackle the menace of drunken driving. Our main aim is to minimize the loss of lives and property which happen due to drunken driving. This system once implemented on a large scale will prove to be really helpful by shutting down the vehicle's engine and alerting the nearby people before any mishap takes place. The sensor used in the project is very accurate and can be configured according to the requirements thereby increasing the efficiency.

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