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Vehicle Controlling with Alcohol Detection

M. Vipul Reddy[1], M. Ram Charan[2]
[1, 2]*B. Tech Student, Dept of Electronics and Communication Engineering*

Abstract: ***The main aim behind this project is to identify drunk driving. Now a days, many accidents are happening because of the alcohol consumption of the person who is driving the vehicle. Thus, Drunk driving is the major reason behind accidents in almost everywhere. This device is designed for the safety of the people travelling in the cars/automobiles. This device should be installed in the driver's cabin, so as to detect the driver's soberness(the state of being sober/not drunk). Alcohol detection devices have been existing from long ago but controlling the vehicle by detection has been not yet implemented outside. So, the advantages of this setup must be explained to the government and get permission for installing this setup in the drivers cabinet. Even this setup doesn't occupy a large space so we can fix it above the steering in the range of the driver***
Keywords: Alcohol detection ,MQ-3 Alcochol sensor, Buzzer, Arduino uno, DC Motor.

I. INTRODUCTION

India had won the dubious distinction of getting more deaths worldwide due to road accidents. Road safety is emerging as a major social concern worldwide, especially in India. . Drinking and driving is already a serious public health problem, which is likely to emerge as one of the most significant problems in the near future. The program put in place by us aims to reduce road deaths due to drunken driving in the near future. . The system detects the presence of alcohol in the vehicle and immediately locks the engine of the vehicle. Hence the system reduces the quantum of road accidents and fatalities due to drunk driving in future Now a days ,Accidents have been increasing rapidly in number In 2015,501,423 road accidents were reported. In India, driving under the influence of alcohol was attributed to 16,298 (3.2%), according to the latest available data from the Ministry of Alcohol. The data further reveal that 6,755 people died and 18,813 injured in drink-driving accidents in 2015.There were nine road accidents that killed three people every 10 minutes in 2015,IndiaSpend announced an rise of 9 per cent over four years on 9 January 2017 on the basis of the National Crime Records Bureau (NRCB) data. So in order to prevent accidents due to alcohol we have come with this project.

II. LITERATURE SURVEY

As in [1**],**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. They have also used an old design method that is not useful and raises the system's total expense, making it costly and relatively cheap for other segments of society, thereby restricting its ability to be used. Our program is also more cost-effective, and can be handled easily. As in [2], the writers discuss and plan to address the question of drunken driving by proposing a system .In any case, the significant downside of their framework is that they are utilizing MQ2 liquor sensor which isn't precise and isn't explicitly touchy to liquor. In our task, we are utilizing a MQ3 sensor which is intended to be precise towards liquor discovery which gives progressively exact outcomes and recoveries from raising bogus alerts. Also, they have used a PIC microcontroller which is expensive when compared to Arduino Uno which is open sourced

III. HARDWARE COMPONENTS

A. DC Motor

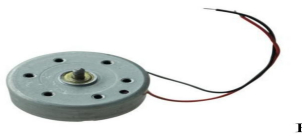

Fig 1

DC motor is any of a class of rotary electrical machines that converts direct current electrical energy into mechanical energy. The most widely recognized sorts depend on the powers delivered by attractive fields. About a wide range of DC engines have some inward component, either electromechanical or electronic, to intermittently alter the course of current stream in part of the engine

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B. Transformer

Usually, DC voltages are required to work different electronic gear and these voltages are 5V, 9V or 12V. Be that as it may, these voltages can't be acquired straightforwardly.In this manner the A.C input available at the mains supply i.e., 230V is to be brought down to the vital voltage level. This is finished by a transformer. Along these lines, a stage down transformer is utilized to diminish the voltage to a necessary level. .

C. Filter

Capacitive channel is utilized in this undertaking. It expels the waves from the yield of rectifier and smoothens the D.C. Yield got from this channel is steady until the mains voltage and burden is looked after consistent. Be that as it may, if both of the two is changed, D.C. voltage got now changes. In this way a controller is applied at the yield stage

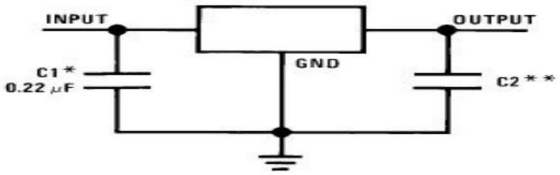

Fig 2

D. Voltage Regulator

As the name itself suggests, it controls the info applied to it. A voltage controller is a figure electrical controller intended to consequently keep up a consistent voltage level. In this undertaking, power supply of 5V and 12V are wanted. So as to get these voltage levels, 7805 and 7812 voltage controllers are to be utilized. The principal number 78 speaks to positive inventory and the numbers 05, 12 speak to the necessary voltage levels

Fig 3

E. Buzzer

Buzzers have a positive and a negative terminal, set apart on their case. The positive terminal ought to be associated with the positive voltage supply. The negative terminal ought to be associated with the sign from the driver. The realistic on the left shows how some portion of the PCB may search for a PCB-mounted bell associated with a driver. How some portion of the PCB may look .If a signal with flying leads is utilized then a terminal square is mounted on the PCB and wires from this are associated with the ringer. Manufacture and test the unit that will give the driving information signal before including the bell

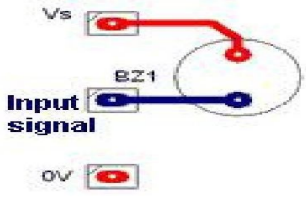

Fig 4

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F. Alcohol Sensor Module

It is used to sense the alcohol. The simple yield of which is applied to the comparator. The simple gas sensor - MQ3 is appropriate for distinguishing liquor, this sensor can be utilized in a Breathalyzer. It has a high affectability to liquor and little affectability to Benzene. The affectability can be balanced by the potentiometer. Touchy material of MQ-3 gas sensor is SnO2, which with lower conductivity in clean air. Exactly when the target alcohol gas exist, the sensor's conductivity is higher close by the gas obsession rising, usage of essential electro circuit, Convert change of conductivity to relate yield sign of gas focus MQ-3 gas sensor [3]

Fig 5

1) *Sensitivity Adjustment:* Resistance estimation of MQ-3 is contrast to different sorts and different fixation gases. In this way, when utilizing these parts, affectability change is exceptionally essential. It is prescribed to adjust the finder for 0.4mg/L (around 200ppm) of liquor fixation in air and use estimation of burden opposition that (RL) around 200 Kω (100KΩ to 470 Kω). has high affectability to Alcohol, and has great protection from upset of gas, smoke and fume. The sensor could be utilized to recognize liquor with various fixation; it is with minimal effort and reasonable for various application. At the point when precisely estimating, the best possible alert point for the gas locator must be resolved in the wake of considering the temperature and dampness impact
2) *Character Configuration:* Good sensitivity to alcohol gas • Simple drive circuit • Long life and low cost • High sensitivity to alcohol and small towards benzene
3) *Specifications:* Power supply needs: 5V • Interface type: Analog • Pin Definition: 1-Output 2-GND 3-VCC • High sensitivity to alcohol and small sensitivity to Benzene • Fast response and High sensitivity • Stable and long life • Simple drive circuit with size: 40x20mm

IV. IMPLEMENTATION

A. Block Diagram

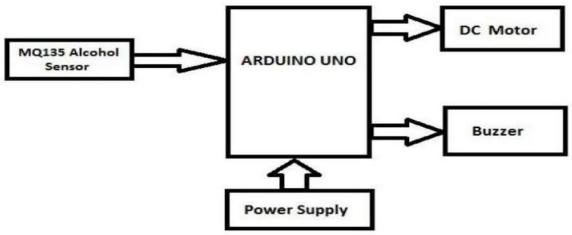

Fig 6

1) *Implementation:* Firstly, the alcohol sensor only senses the alcohol level in the driver's cabinet and produces a signal which is proportional to the alcohol level in the environment. This signal will be in analog form when it is taken from Aout terminal of alcohol sensor. This signal is given to the ARDUINO UNOs analog input terminal (A0). The Arduino is uploaded with the related program where a threshold is set i.e., 300. The alcohol sensor senses the alcohol level and passes a signal to Arduino, the Arduino is fixed with ATMEGA328 microcontroller in which the program is dumped. So, the microcontroller receives the digital input through an ADC which is inbuilt. The microcontroller compares the alcohol signal with the threshold and if the alcohol value is lesser than the threshold(Aout<threshold) the digital output of Arduino(D7) will be logic 0, and the DC motor runs as usual. If the alcohol value is greater than the threshold(Aout>threshold) then the digital output(D7) will be logic 1, due to which the buzzer will be blown and the DC motor will not run.

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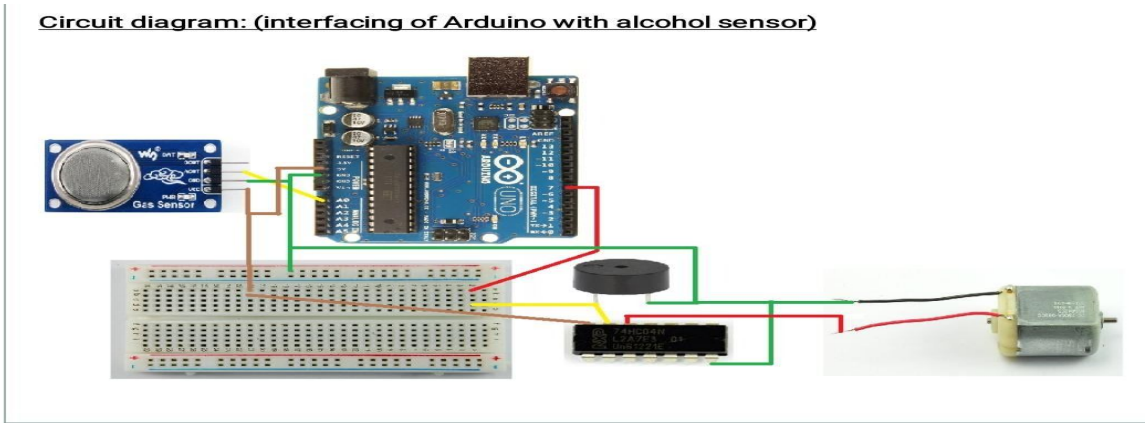

Fig 7

V. RESULTS

A. *Output Window*

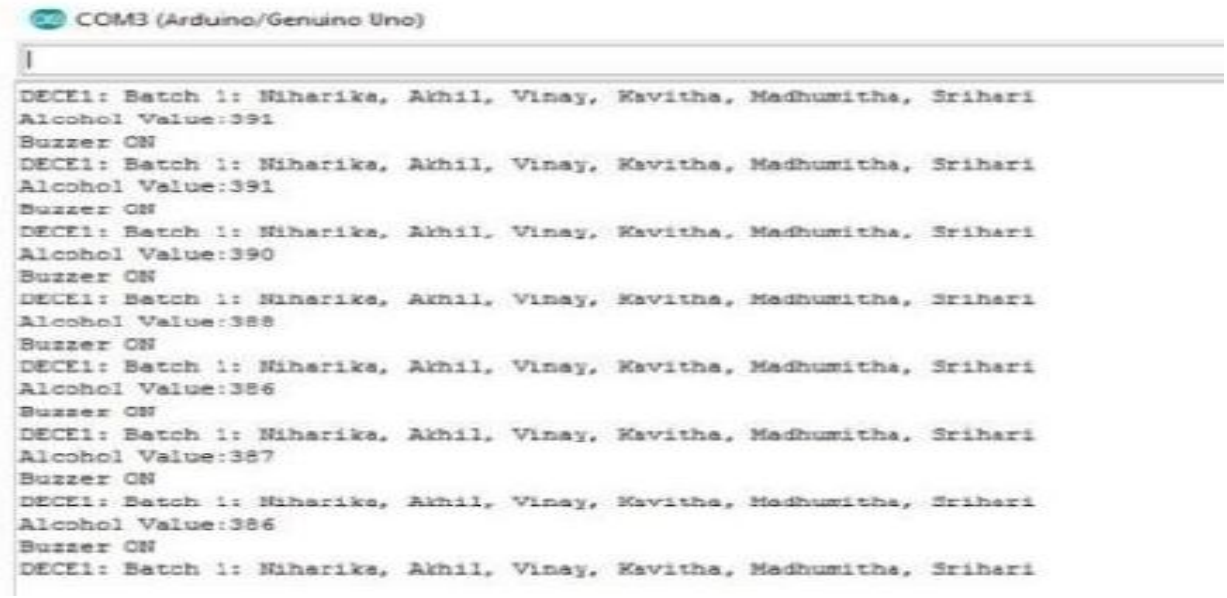

Fig 8

We set the threshold value to 350 So, for all the values above 350, buzzer turns ON. From the above Output window we can observe all the values are above 350, So it is displayed as buzzer ON.

VI. CONCLUSION AND FUTURE SCOPE

A. *Conclusion*

Thus a completely automated system has been designed to prevent drunk and drive in automobiles, which improves the level of safety. Thus, ensuring a completely drunk and drive free roads that reduces the risk of accidents and enhancing the level of driver's safety.This is a created plan to productively check intoxicated driving. By actualizing this plan a protected vehicle venture is conceivable diminishing the mishap rate because of drinking. By executing this plan, tanked drivers can be controlled so are the mishaps because of intoxicated driving. Government must implement laws to introduce such circuit in each vehicle and must direct all vehicle organizations to preinstall such instruments while producing the vehicle itself. On the off chance that this is accomplished the passings because of intoxicated drivers can be brought to least level . In this type of system, future scope can be safely landing of car aside without disturbing others.

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B. Future Scope

This is a developed design to efficiently check drunken driving. By implementing this design a safe car journey is possible decreasing the accident rate due to drinking. By implementing this design, drunken drivers can be controlled so are the accidents due to drunken driving. The future scope of this project can be

1) We can execute GSM innovation with liquor indicator. So Alcohol recognition and vehicle controlling through content SMS will educate the family members or proprietors regarding the vehicle about the liquor utilization

2) We can actualize GPS innovation so that once liquor recognition is done, the framework will discover the area of the vehicle. This undertaking is called GPS tracker and liquor finder with motor locking framework utilizing GSM

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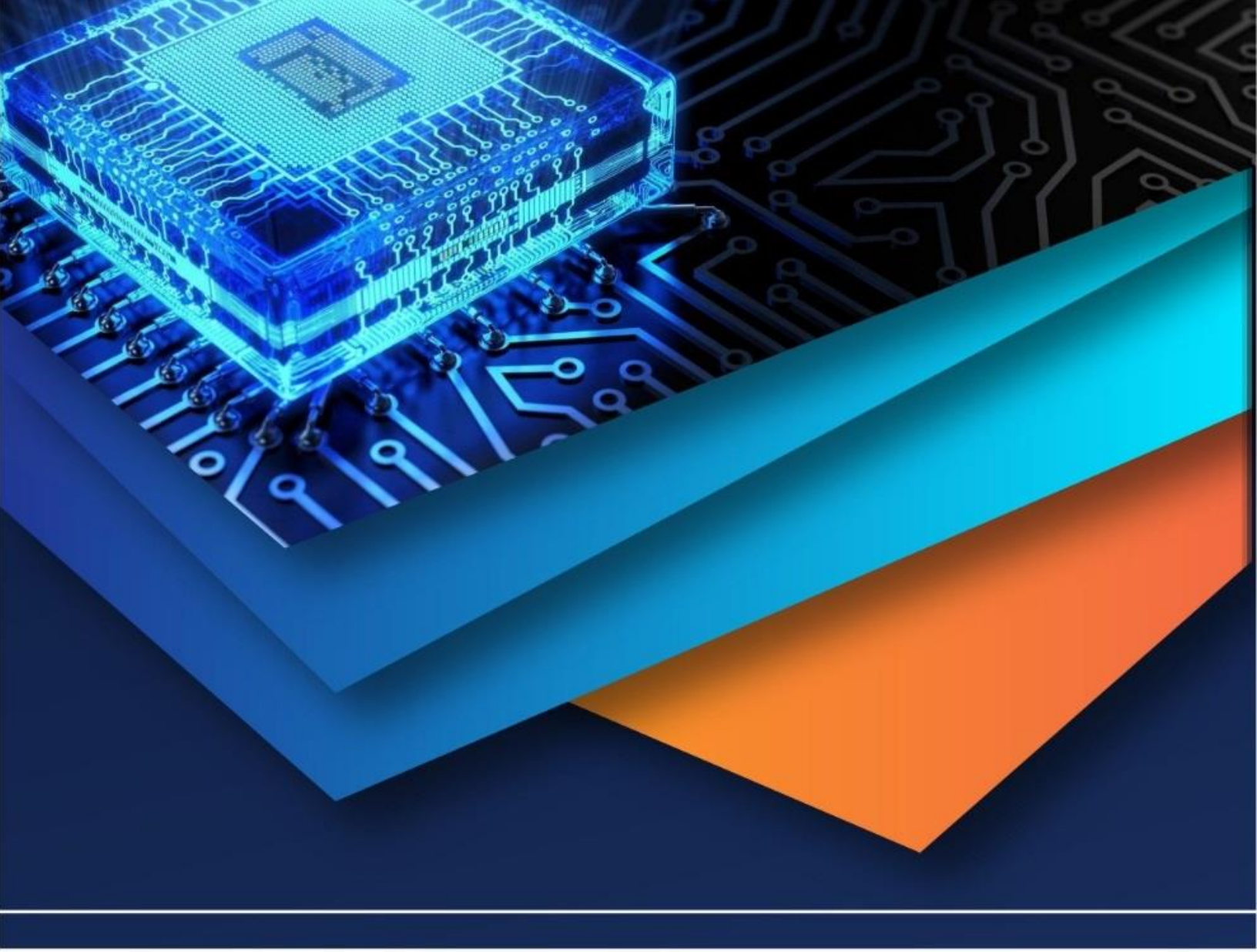

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