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Design and Development of Anticheating Seatbelt System and Alcohol Detector in Vehicles

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ABSTRACT

Drink and drive has become a main cause of road accidents in the modern world. It has been found that more than 62% of road accidents are caused due to drink and drive. Drunk driving not only puts the person who has drowned at risk but also the person sitting in the same car with him and the people on the road, and also causing many deaths due to avoiding the use of seatbelts. Therefore, this growing threat should be given immediate attention.

The aim of our project is to build a system that can take care of this hazard, a system that can sense the alcohol in the driver's breath and ensure proper use of seatbelts and preventive measures shall be taken. As if there are many laws to penalize such drivers but it cannot be implemented on a large scale as the police cannot check drunk drivers on every road. Perhaps this is the main reason for the accidents. Therefore, there is an urgent need for a system that can check drunk drivers and reduce further threats. Deaths due to drunk driving and not wearing seatbelts are increasing day by day which raises a question that who can reduce the increasing number of these cases? The system is a best way to find out drunken people and also proper usage of seatbelt. The system will basically comprise of a breath analyzing sensor, MQ-3, which will sense the level of alcohol in drivers breath. In India, the quality legal limit of alcohol in blood is 0.03% that means 30 micro litters of alcohol in 100 milliliters of blood and IR Sensor will near seatbelt retractor will ensure proper use of seatbelt, If the alcohol content in drivers breath is above this threshold limit and seatbelt is not used properly then the engine will not start and the person will not be able to drive. Thus, by using such system, we can reduce car accidents and deaths. This project can help prevent life and property loss because of drunk driving and deaths due to avoiding seatbelt.

KEYWORDS: *IR SENSOR, MQ-3, ARDUINO UNO, ARDUINO NANO*

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1. INTRODUCTION

The idea of developing an accident prevention system came in the mind of many researchers after reviewing the daily newspaper articles on the increasing number of road accidents and deaths. These accidents mainly occur due to increased number of vehicles, alcohol consumption, violation of rules and carelessness of driver and deaths due to avoiding seatbelts. There are many reasons for road accidents and deaths but in this project the main cause which is addressed is alcohol consumption and avoiding use of seatbelt by drivers. If this issue is addressed, road accidents and deaths can be reduced to a larger extent. Alcohol Level Detection System in cars for Driver's Security is an initiative to reduce the number of accidents due to drink and drive and also ensuring proper usage of seatbelt hence will safeguarding the lives of the driver as well as the people inside the car and people on road. It is an automated and most importantly, an

intelligent system which will help the people as well as the environment.

A temperature sensor measures the temperature of the breath sample to ensure that it is the same temperature as human breath. A sensor is used for a specific volume of the breath sample, which is used to determine the alcohol content. A Microcontroller is used to convert the output into a reading which represents the breath alcohol content of the breath sample. This analysis is used as part of an overall automobile ignition locking system which prohibits starting the car when the operator is intoxicating. The system also requires rolling retests to ensure that the driver is still sober

Drunk driver can be prevented from starting a car at initial stage itself by using a simple alcohol sensor. This will mandate the driver to blow into a device which collects breath sample of the driver to process further to determine the output signal. The car alcohol sensing device will have a threshold to allow the driver to start the car. The driver can start car only when he consumes alcohol lower than the threshold level. Ignition interlock systems which meets federal standards requires test on engine start and also require a test every few minutes while driving is called as rerolling test. This is going to be a simple fool proof system which does not allow a drunk driver to start his car, until his alcohol consumption level goes below the threshold. Threshold should be adjustable, in case government changes the permissible level, ultimately threshold could also be changed. While the traditional use of the breath analyzing devices has been by law enforcement officers to test a suspected intoxicated driver, the breath analyzing devices now are being used in combination with an ignition locking system to prevent an intoxicated driver from being able to start the vehicle

2. LITERETURE REVIEW

2.1. INTRODUCTION

It is known that alcohol use affects driving skills and increases accident risk. It has been found that while driving under the consumption of alcohol, the risk of having an accident causing injury and death increases. Drink and drive has a high probability to cause serious accidents. Even with a small amount of alcohol consumption, driver is is likely to be involved in traffic accidents than the sober drivers. Therefore, many countries are working on solutions to drink and drive accidents for a longer period of time, including publicity and education and tough drunk-driving laws. The laws have been enacted to reduce driving after drinking and have imposed severe .Seatbelt is one of the most efficient feature in a vehicle which is used to reduce the injury to the vehicle passengers in cars that results from road accidents. Failure to use a seat-belt is a major risk factor for road traffic deaths and injury among vehicle occupants. Passengers who do not wear seatbelts and have a front crash are most likely to suffer a head injury.

2.2. REVIEW OF LITERATURE

2.2.1. "Alcohol Detection in Real-Time To Prevent Drink Drive" [1]

In this paper, a liquor level identification framework is introduced alongside its upsides and downsides. It features the expanding number of mishaps because of rash and indiscreet driving; it advances the utilization of this framework to limit cases like these. A MQ-3 liquor sensor alongside the microcontroller Atmega328 will distinguish the driver's breath liquor content. A portion of the situations are recorded as underneath:

1. At the point when the driver enters the vehicle in drunk state: In such a case, the sensor will identify the liquor level when the driver enter inside and the vehicle won't begin.
2. At the point when the driver takes liquor after the vehicle is begins or while driving. The Framework is planned so that it will keep on running during the whole course of driving and will continue to check the liquor content persistently
3. In case Passengers are drinking liquor while the vehicle is on running however not the driver: In such a case, it will not recognize since the framework is introduced on the directing wheel.

2.2.2. "Crash Risk of Alcohol Involved Driving: A Case-Control Study" [2]

Drive under the influence of alcohol perceived as the fundamental driver of traffic wellbeing in the mid 20th century it actually keeps on being a primary street security issue. The contextual analysis examined the mishap risks related with driver's blood liquor utilization. The acquired worth, is portrayed as the proportion 9 of extent of degree of crash drivers to the degree of, control drivers in a BAC gathering, contrasted with a comparably shaped extent of drivers with zero percent BACs.

2.2.3. "Vital Signs: Alcohol-Impaired Driving Among Adults" [3]

Approximately 1/4 of all the vehicles, crash accidents cause due to drunk driving. In 2009, 10, 909 people died in accidents in which at least one driver had blood alcohol consumption greater than 0.08 g/dL. Rates of self-revealed alcoholic driving have declined in the past years. However, still the rates is been high among the youths.

To reduce this drink and driving cases, states and countries have increased alcohol taxes, directing alcohol outlet density, and enacting on these laws strictly. States without seat belt laws ought to consider enacting on them to help lessen fatalities due to drunk driving

2.2.4. "IOT-ENABLED ALCOHOL DETECTION SYSTEM FOR ROAD TRANSPORTATION SAFETY IN SMART CITY" [4]

In this paper, an alcohol level detection system was invented for road safety in smart cities using Internet of Things (IoT) technology. The system not only checks alcohol impaired driving by automatically locking down the car which the drunk person is Operating but even enables the traffic experts to effectively discover the shutdown

Vehicles utilizing the coordinates of the vehicle by sending it to a web server. The advancements which are implanted in this framework are adequate to guarantee the shut down and furthermore a pick-up of the driver of the vehicle through the location sent by means of message or mail.

2.2.5. "Drunk-Driver Detection and Alert System (DDDAS) for Smart Vehicles"[5]

This paper talks about plan, live execution trial of drive under the influence recognizable proof and ready cum vehicle control model to lessen street mishaps because of driving drunk. The basic piece of the framework configuration is variety in separation from the source. The point is to make the vehicle adequately shrewd to Discover the alcoholic condition of the driver and make preventive moves before any disaster occurs on street. In light of late keen gas detecting and combination of satellites and versatile remote correspondences advances, the framework detects the alcoholic state and on-vehicle sound alert is gone on to caution individuals on street and vehicle control framework is set off to lock the start or stop fuel inflow to the vehicle. Also with the assistance of GPS and GSM cell organization, area is shipped off family, companion or police.

2.2.6. "Novel drunken driving detection and prevention models using Internet of things"[6]

Drink drive is one of the major causes behind majority of the deaths in the today's world. In this paper, Novel based IOT module is proposed to save the individuals from deaths caused by road accidents due to drunk driving. The Proposed framework uses Internet of things tech. device as Raspberry Pi 3 model B as a core. It mostly includes alcohol concentration detection sensor, Touch sensor, Heart beat rate, Facial recognition, eye detection system, etc. to safeguard the tipsy driver. Different sorts of securing things, for instance, Triggering an alert GPS module and Automatic get going, etc are used.

2.3. Identification of Gaps

- There is no system present that can ensure proper usage of seatbelt by the driver.
- There are many advanced system installed in the vehicles which can check the performance of the vehicles but this system is different from those as it checks the drivers state while he is driving the vehicle.
- Alcohol detection techniques which are used presently like handheld sensors, skin sensors, are contact based or need person's participation.
- Some of this existing system does not maintain the feature of early alert and auto shut down of vehicle.

2.4. Problem statement

- Most of the road accidents are occurred due to drink and drive. It is a major problem in India but due to lack of research and measures this problem still exists.
- A report by Alcohol and Drugs Information Centre (AIDC) revealed that about 35% of road accidents in India caused due to driving under the influence of alcohol consumption.
- Failure to use a seatbelt is a main risk factor for road accident deaths and injuries among vehicle passengers.
- Passengers who do not wear seatbelts and have a front crash are most likely to suffer by head injury.

2.5. OBJECTIVE

- To build a reliable and cost effective system to reduce the accidents and to safeguard human life.
- To Explore and examine the appropriate software and hardware required to implement the system.
- To manufacture a prototype of accident prevention system that can eliminate the danger.
- Test the performance of the implemented system to achieve the desired outcome for safe transport system

2.6. Scope of work

- This accident prevention system using alcohol sensor that can detect the driver's alcohol consumption which is the main cause of accidents.
- By Using IR sensor near seatbelt retractor which can be use to ensure proper use seatbelt.
- Can help driver to prevent road accidents before by alerting them and automatically shutting down the vehicle if alcohol is detected.

3. METHODOLOGY

The system consists of three main steps. Firstly, to check whether driver has used seatbelt then to check the driver's breath whether he is drunk or not and pass the decision made on the basis of this measurement and lastly ensure alcohol consumption and use of seatbelt to start the vehicle.

3.1. Methodology details

1. The driver sits inside the car and uses the seatbelt calibrated patch of belt will be coloured black so the IR sensor near reactor will detect the patch.
2. Then it will send signal via Arduino to microcontroller to instruct the ignition system.
3. Ensuring that he has properly used the seatbelt.
4. If the driver is drunk then the sensor placed on the steering wheel will detect his breath and send the output which is converted to digital through arduino and the output is then sent to the microcontroller.
5. If the output reading is more than a certain set threshold, then driver has consumed alcohol above limit and he is declared drunk.
6. If the output is more than the threshold, then the driver is heavily drunk and if he does not use seatbelt then the car engine won't start.
7. If the person starts drinking while driving, the sensor will again sense his breath and stop the vehicle.
8. If alcohol is not detected during the whole drive, the car will run smoothly.

3.2 Coding for Both the Circuits

Fig.3.1 CODING FOR MQ-3 ALCOHOL SENSOR

Fig.3.2 CODING FOR IR SENSOR

a. Instrumentation

Fig.3.3 Design of Prototype

The CAD Design of the project prototype is as seen above. The frame is manufactured according to the design and the design is made by considering the actual dimensions and position of driver inside the automobile.

The Sensors are placed according to the requirement and the front desk is used to illustrate as an dashboard where the circuits are kept the alcohol sensor is mounted on the centre of the steering wheel which is used to detect the alcohol value and the irsensor is placed near the retractor of the seat belt which is used to detect the seat belt proper usage.

The MQ3 sensor receives the data from the cabin and then sends it to the Arduinonano sensor and the data is processed if the data is within the set value the

ignition system will work otherwise the ignition system will not start when the alcohol value crosses the set value the motor stops and the buzzer starts buzzing and also the led stops glowing which represents the ignition system is off due to more alcohol value and it is demonstrated by an dc motor same with the IR sensor if the seat belt is not used properly then it will not allow the working of ignition system.

4. COMPONENT DESCRIPTION

4.1. MQ-3 ALCOHOL DETECOR SENSOR

The MQ-3 is a cost effective sensor that is used to detect the alcohol gases in a person's breath, from 0.05 mg/L up to 10 mg/L concentrations. SnO2 (Tin dioxide)material is used for sensing, which has low conductivity in clean air and the conductivity increments with the concentration of alcohol gases present in breath. MQ3 sensor is highly sensitive to alcohol and has a few resistance to disturbance caused due to gasoline, vapour and smoke. It provides both analog and digital outputs. It can be effectively interfaced with Microcontrollers, Arduino Boards, Raspberry Pi, and so on.

The alcohol sensor detects the alcohol in a person's breath, like a common breath analyzer. The circuit is quite simple in construction and all it needs is a resistor. Sensor has 4 pins but we use 3 the other two are used for power ground and input. This sensor has a heating framework inside which is made up of tin dioxide, aluminum oxide. It has heat coils are used to produce heat, and it is used as a heat sensor module.

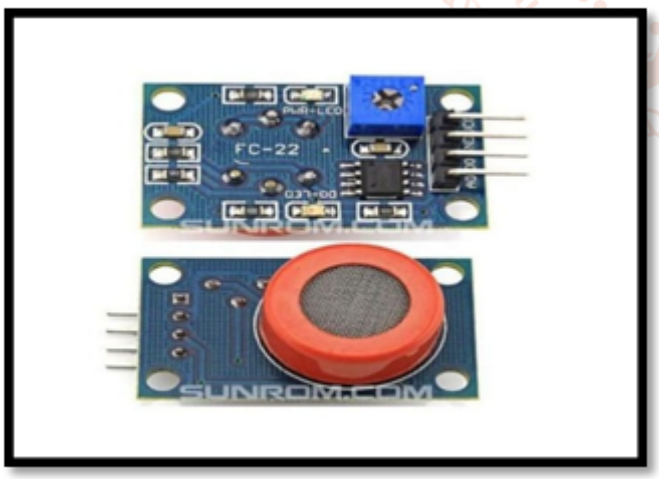

Fig4.1 MQ-3 ALCOHOL SENSOR

The alcohol sensor used here is the MQ-3 sensor. MQ-3 sensor is not only sensitive to alcohol, but also sensitive to ethanol, which is one type of alcohol found in wine, beer, and liquor. MQ-3sensor circuit can be used as a breath analyzer to check a person's blood alcohol level. Just as we exhale carbon dioxide when we breathe out, we also breathe out some alcohol if we have alcohol in our blood. Any alcometer device can measure this alcohol content. The more ethanol in your blood, the more there is in the air on exhalation. This alcohol content gives an indication for if a person is drunk and how much percent drunk they are. The amount of alcohol exhaled into the air is proportionate to the amount of alcohol which will be found in a individual's blood. Alcometers use an in-built formula to guesstimate blood alcohol content from exhaled air alcohol content.

4.1.1. Working Principle

The framework is cubical shape. An Alumina tube covered by SnO2 (tin dioxide) and between them, there is a Gold (Au) anode. At the point when liquor particles in air come into contact with the cathode, for example between tin dioxide and alumina, a compound response happens in which acidic corrosive is framed by consuming of ethanol and afterward more current produces and based on that current it decides the liquor even out and create the simple yield.

4.1.2. Features:

- Highly sensitive to alcohol
- Has long life
- Has fast response
- Simple circuit
- Easily available and cheap

4.1.3. Technical Specifications:

- Gas Detected: Alcohol
- Concentration: 0.4mg/L – 4mg/L
- Supply Voltage: <25V
- Heater Voltage: 5.0V ± 0.2V (H.igh), 1.6V ± 0.1V (Low)
- Load Resistance: Adjustable
- Heater Resistance: 30Ω ± 3Ω
- Heater Consumption: <900Mw

4.2. ARDUINO BOARD

Arduino is open source platform which is mostly used for building projects. It contains both software and hardware that runs on computers. From smallest things like robots to automation systems, Arduino can be used everywhere to make everyday life easier. Arduino board is a microcontroller. It has 14 digital pins(out of which 6 can be used as PWM outputs) and 6 analog pins, the microcontroller or the main chip that allows us to program the Arduino so that it can take commands and execute accordingly, USB port which issued communicate with computer and also used to powered the Arduino, reset button, power jack and more. It contains everything expected to help the microcontroller

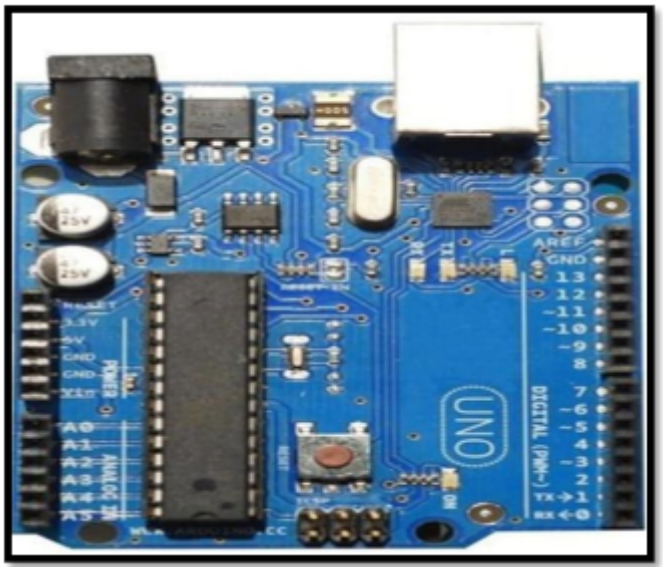

Fig.4.2 ARDUINO BOARD

It is also proficient of receiving and sending information over the web with the help of various Arduino shields. Arduino uses a hardware known as the Arduino development board and software for developing the code known as the Arduino IDE (Integrated Development Environment). Built up with the 8-bit Atmel AVR microcontroller's that are manufactured by Atmel or a 32-bit Atmel ARM, these microcontrollers can be programmed simply using the C or C++ language in the Arduino IDE

4.2.1. FEATURES:

- Microcontroller: ATmega328
- Operating Voltage: 4V
- Input Voltage: 8-13V
- Digital I/O Pins: 14
- Analog Input Pins: 6
- DC Current per I/O Pin: 40 mA
- DC Current for 3.3V Pin: 50 mA
- Flash Memory: 31 KB (ATmega328)
- SRAM: 2 KB (ATmega328)
- EEPROM: 1 KB (ATmega328)
- Clock Speed: 15 MHz

4.3. IR SENSOR

This Infrared object detection sensor is easy to use. It comes with on board potentiometer to adjust the sensitivity. The output is digital signal so it is easy to interface with any microcontroller such as Mega, Zero, 101, Arduino UNO even the Raspberry Pi This IR sensor offers simple, fast and user friendly obstacle detection via IR reflection, it is non-contact detection. It is based on light reflection, the detection can vary with different surface. And any infrared source might also interfere the detection it comes in a pair of Infrared emitter and receiver at the front of module, whenever there is object blocking the infrared source, it reflects the infrared and the receiver get it and the signal go through a comparator circuit on board. And depending on the threshold that being adjusted, it will output logic low at output pin and the green LED will light up to indicate the detection

Fig.4.3 IR SENSOR

4.4. DC MOTOR

A DC Motor converts electrical energy into mechanical energy. It works on the rule of electromagnetism that is the point at which a current conveying conductor is set in an attractive field, it encounters a power which makes it pivot. The armature curl and the stator are the two fundamental pieces of DC engine. The armature is the turning part though the stator is the fixed part. The armature curl is associated with DC supply. It comprises of reporters and brushes. The observer changes over the AC current initiated in the armature into DC current. The brushes move the current from the pivoting part to the fixed outside load. The armature is put between the north pole and south pole of the lasting or electromagnets. At the point when DC supply is given to the armature, current beginnings moving through it. This current fosters its own field around the loop. By the communication of fields, resultant field is created across the conductor. The resultant field recaptures its unique position. The field applies power around the finish of the conductor and the loop begins turning

Fig.4.4 DC MOTOR

The working principle of DC (Direct Current) motor is, when a conductor, is placed in a magnetic field, it

experiences a torque and has a propensity to move. This is known as motoring action. If the path of current in the wire is inverted, the way of spin also reverses. When magnetic field and electric field interact, they produce a mechanical force, and based on that the working principle of DC motor established. The direction of rotation of DC motor is as defined by Fleming's left hand rule.

4.5. DESIGNED STRUCTURE

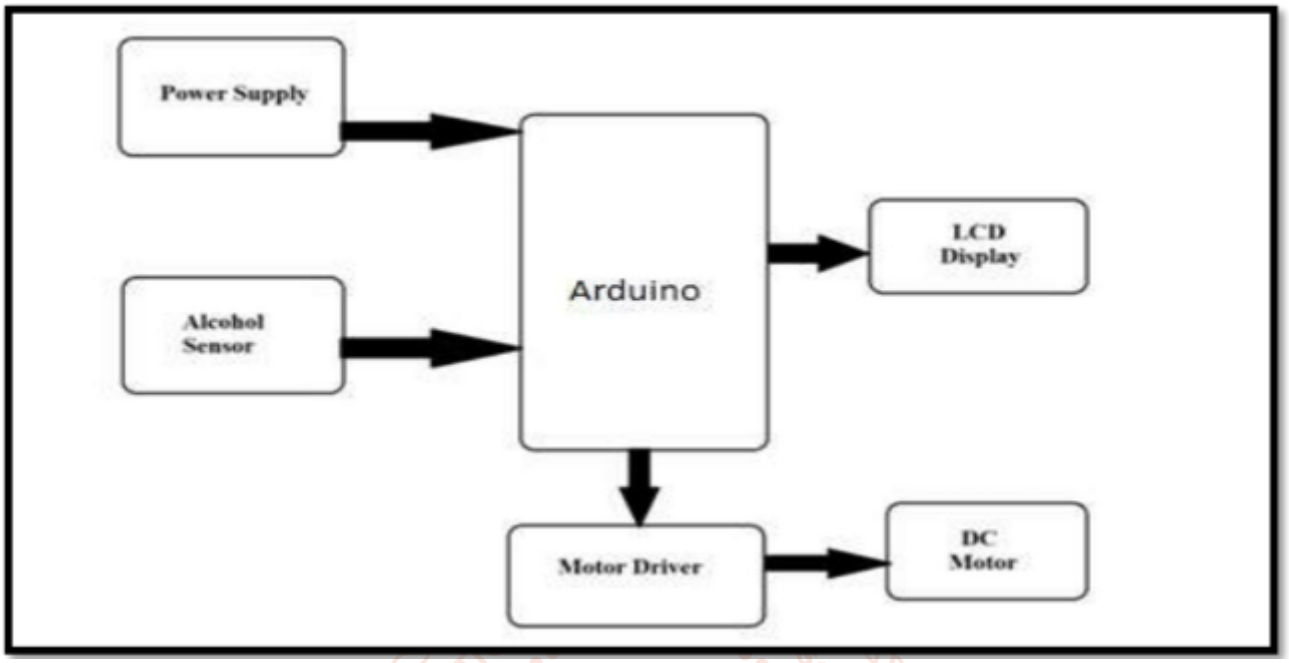

Fig 4.5 MQ-3 ALCOHOL SENSOR CIRCUIT SCHEMATIC

Here we propose a system where the person is detected for alcohol level in his body to avoid accidents. drivers will be sensed before they start their vehicle. Driver will be sensed by an sensor once he sited on the driver seat by his breath. sensor is placed in the steering to monitor the breath level if the alcohol content in breath is 0.08% then car engine will not ignite. in this system if the driver is not drunk he can drive otherwise he can't drive until the alcohol content decreases.

This is the structure where the sensor is placed in the steering. it will sense the driver's alcohol content in his breath.

Arduino is configured and connected with the sensor also LCD display and one dc motor is connected. Once the connection is given power supply is given to it so that the motor will start running. Now alcohol is sprayed in it where the alcohol content is above 0.08% so the LCD display will show that alcohol content is overflow, dc motor will stop running and ignition also stopped.

This process is implemented same in all vehicle where the car engine will be connected to the sensor. Once the sensor sensed its output will be sent to the motor by referring the range engine will stop its execution While implementing this proposed system we can reduce the accidents by 75% and reduce the loss of property and lives.

4.6. Connecting DC Motor with Microcontroller

Motors cannot be driven directly through microcontroller. We use these motor drivers as an interfacing device between motors and microcontrollers. Motor drivers take a low current control signal and provide a high current signal which is used to drive the motors hence they act as current amplifiers. Using L293D chip is a simple way to control the motor using a microcontroller. The internal circuit has two H-bridge driver circuits. This chip is so designed as how to control the two motors. L293D has two sets of arrangements where one set has input 1, input 2, output1, output 2, with enable pin. Whereas, the other set has input 3, input 4, output 3, output 4 with another enable pin

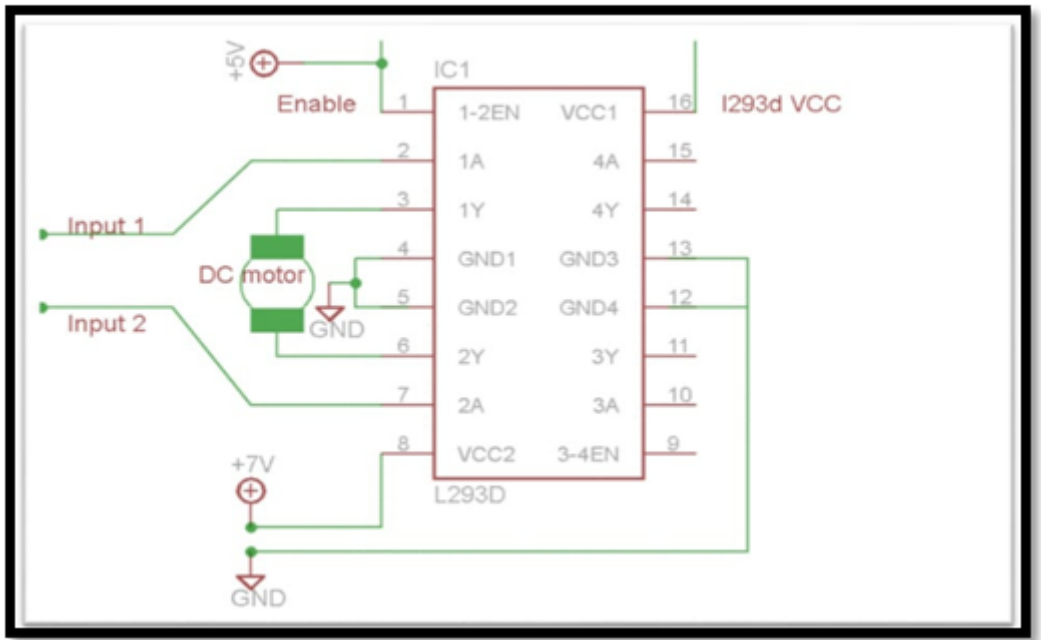

Fig.4.6 CONNECTING DC MOTOR WITH MICROCONTROLLER

4.7. Features Of Alcohol detector

- It has sensible sensitivity to alcohol in wide selection, and has benefits like long period of time, low value and easy drive circuit & etc.
- Touch water Sensitivity of the sensors are going to be reduced once spattered or swaybacked in water.
- Freezing Do avoid icing on sensor's surface, otherwise sensing material are going to be broken and lost sensitivity.
- Applied voltage on detector mustn't be over stipulated worth, though the detector isn't physically broken or broken, it causes down-line or heater broken, and produce on sensors' sensitivity characteristic modified badly.
- Voltage on wrong pins for six pins detector, Pin 2&5 is heating electrodes, Pin (1,3)/(4,6) area unit testing electrodes (Pin one connects with Pin three, whereas Pin four connects with Pin 6).If apply voltage on Pin 1&3 or 4&6, it'll build lead broken; and no signal out if apply on pins 2&4

4.8. Circuit Diagram of Alcohol Detection

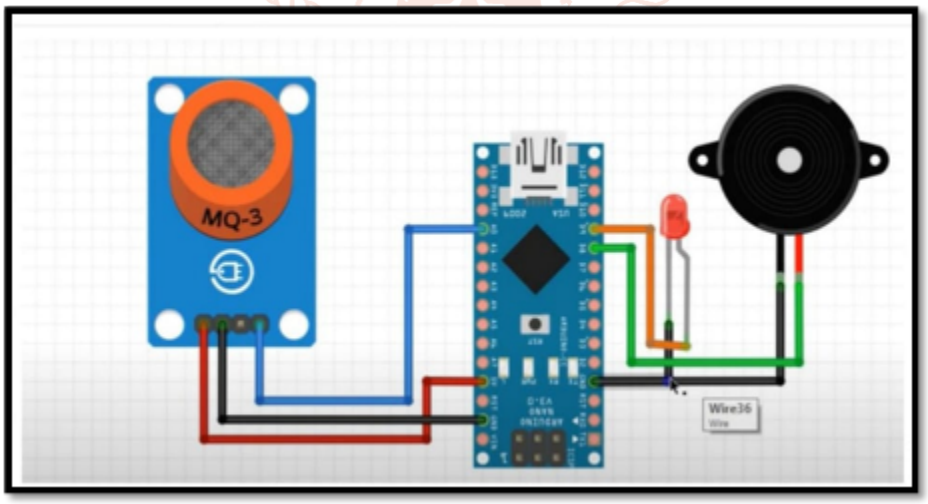

Fig 4.7 ALCOHOL DETECTION CIRCUIT DIAGRAM

4.9. Circuits Diagram of IR Sensor

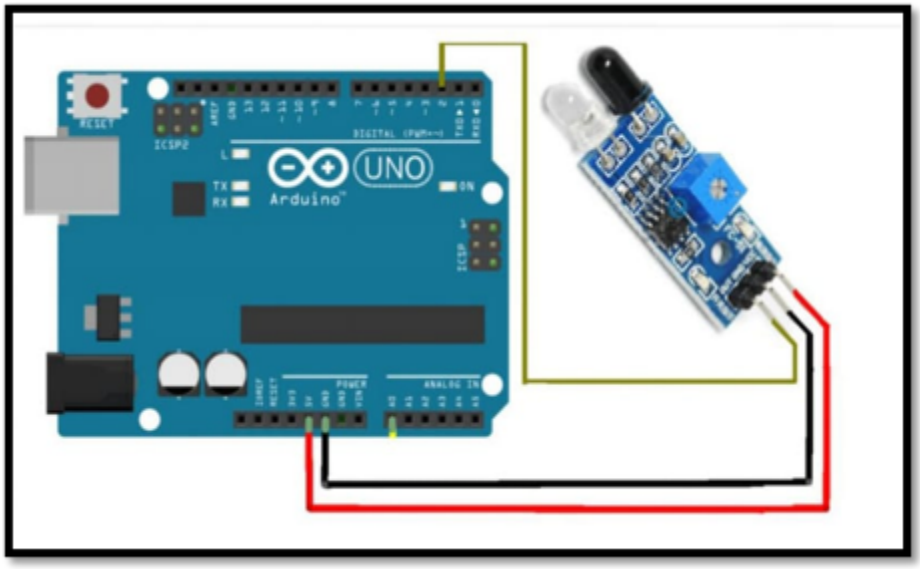

Fig.4.8 IR SENSOR CIRCUIT DIAGRAM

5. SOFTWARE DESCRIPTION

The Arduino Integrated Development Environment - or Arduino Software (IDE) – use text editor for writing code, a text console, a toolbar, a message region with catches for normal capacities and a progression of menus. It interfaces with the Arduino and Genuino equipment to transfer programs and speak with them.

Writing Sketches

Projects composed utilizing Arduino Software are called as portrayals. These representations are written in the word processor and are saved with the record expansion. The supervisor has highlights for reordering and for supplanting text. The message region gives criticism while saving and sending out and furthermore shows blunders. The control center is utilized to shows text yield by the Arduino Software including total mistake messages and other data. The base right hand corner of the window shows the arranged board and sequential port. The toolbar catches is utilized and permits us to check and transfer programs, make, open, and save outlines, and open the chronic screen.

Extra orders are found inside the five menus: File, Edit, Help Sketch, Tools, and. The menus are setting delicate, which implies just those things applicable to the work as of now being

Sketchbook

The Arduino Software uses the concept of a sketchbook: a standard place to store your programs (or sketches). The sketches in your sketchbook can be opened from the File > Sketchbook menu or from the Open button on the toolbar. The first time you run the Arduino software, it will automatically create a directory for your sketchbook. You can view or change the location of the sketchbook location from with the Preferences dialog.

Beginning with version 1.0, files are saved with a .ino file extension. Previous versions use the. pde extension. You may still open. pde named files in version 1.0 and later, the software will automatically rename the extension to .ion. Tabs, Multiple Allows you to manage sketches with more than one file (each of which appears in its own tab). These can be normal Arduino code files (no visible extension), C files (.c extension), C++ files (.cpp), or header files (.h).

Uploading

Prior to transferring your sketch, you need to choose the right things from the Tools > Board and Tools > Port menus. The sheets are portrayed underneath. On the Mac, the sequential port is presumably something like/dev/tty.usbmodem241 (for an Uno or Mega2560 or Leonardo) or/dev/tty.usbserial-1B1 (for a Duemilanove or prior USB board), or/dev/tty.USA19QW1b1P1.1 (for a sequential board associated with a Key span USB-to-Serial connector). On Windows, it's likely COM1 or COM2 (for a sequential board) or COM4, COM5, COM7, or higher (for a USB board) – to discover, you search for USB sequential gadget in the ports part of the Windows

Device Manager. On Linux, it ought to be/dev/ttyACMx,/dev/ttyUSBx or comparative. Whenever you've chosen the right sequential port and board, press the transfer button in the toolbar or select the Upload thing from the Sketch menu. Current Arduino sheets will reset naturally and start the transfer. With more seasoned sheets (pre-Decimal) that need auto-reset, you'll need to press the reset button on the board not long prior to beginning the transfer. On most sheets, you'll see the RX and TX LEDs squint as the sketch is transferred. The Arduino Software (IDE) will show a message when the transfer is finished, or show a blunder.

Third-Party Hardware

Support for third-party hardware can be added to the equipment catalog of your sketchbook registry. Stages introduced there may incorporate board definitions (which show up in the board menu), center libraries, boot loaders, and developer definitions. To introduce, make the equipment registry, then, at that point unfasten the outsider stage into its own sub-index. (Try not to utilize "arduino" as the sub-catalog name or you'll supersede the inherent Arduino stage.) To uninstall, essentially erase its index. For details on creating packages for third-party hardware, see the Arduino IDE 1.5 3rd party Hardware specification.

Serial Monitor

This displays serial sent from the Arduino or Genuino board over USB or chronic connector. To send information to the board, enter text and snap on the "send" catch or press enter. Pick the baud rate starting from the drop menu that coordinates with the rate passed to Serial. Start in your sketch. Note that on Windows, Mac or Linux the board will reset (it will rerun your sketch) when you interface with the chronic screen. If it's not too much trouble, note that the Serial Monitor doesn't handle control characters; if your sketch needs a total administration of the sequential correspondence with control characters, you can utilize an outside terminal program and associate it to the COM port allotted to your Arduino board. You can also talk to the board from Processing, Flash, MaxMSP, etc (see the interfacing page for details)

Language Support

Since structure 1.0.1, the Arduino Software (IDE) has been changed over into 30+ different vernaculars. Obviously, the IDE loads in the language picked by your functioning system. (Note: on Windows and possibly Linux, this is constrained by the region setting which controls cash and date plans, not by the language the functioning system is displayed in.)

On the off chance that you might want to change the language physically, start the Arduino Software (IDE) and open the Preferences window. Close to the Editor Language there is a dropdown menu of presently upheld dialects. Select your favored language from the menu, and restart the product to utilize the chose language. On the off chance that your working framework language isn't upheld, the Arduino Software will default to English. You can return the software to its default setting of choosing its language dependent on your working framework by choosing System Default from the Editor Language drop-down. This setting will produce results when you restart the Arduino Software (IDE). Likewise, subsequent to changing your working framework's settings, you should restart the Arduino Software (IDE) to refresh it to the new default language.

Boards

The board choice has two impacts: it sets the boundaries (e.g., CPU speed and baudrate) utilized when aggregating and transferring representations; and sets and the document and breaker settings utilized by the consume boot loader order. A portion of the board definitions vary just in the last mentioned, so regardless of whether you've been transferring effectively with a specific choice you'll need to check it prior to consuming the boot loader. You can discover a correlation table between the different sheets here.

Arduino Software remembers the help for the sheets for the accompanying rundown, all dependent on the AVR Core. The Boards Manager remembered for the standard establishment permits adding support for the developing number of new board dependent on various centers like Edison, Arduino Zero, Galileo, Arduino Due, etc.

6. RESULTS

We know that the flow of our system depends on whether the driver is drunk or not and he has wear the seatbelt properly, So therefore, if driver is not drunk and use seat belt properly the DC motor will keep rotating. The driver sits inside the car and uses the seatbelt calibrated patch of belt will be colored black so the IR sensor near retractor will detect the patch and if the value goes above 1000 it means the black patch is detected and driver has n used seatbelt properly and LED gets on and if value remains between 15 to 50 it means he has not used seatbelt and motor start rotating.

Set value	10-50	1000
Status	WHITE PATCH	BLACK PATCH DETECTED
Ignition System	OFF	ON

After conforming the proper use of seatbelt, if the driver is drunk then the sensor placed on the steering wheel will detect his breath and value goes above 800 the buzzer will beep and motor will stop rotating

Set Threshold	180	180-700	<800
Status	Normal	Slightly Drunk	Drunk
Ignition System	ON	ON	OFF

Fig. 6.1 CODING FOR ALCOHOL SENSOR

7. LIMITATIONS

- If the driver is wearing a mask or his mouth is covered by any means, the measure of alcohol consumption in breath will be less to trigger sensor.
- If the driver has covered the MQ3 sensor by any means it won't work appropriately.
- If windows of car are open the sensor won't distinguish whether the driver is drunk or not as the gases and the air currents will not allow the sensor to function accurately and if he is drunk the accurate alcohol concentration won't be detected.

8. FUTURE SCOPE

- This can be used in every vehicle as a safety measure.
- Use of GPS tracking system to locate the position of car.
- This location can be further forwarded to inform driver's friend or relative after alcohol detection is more than the permitted limit.
- Email or SMS can be sent to driver's friend or relative after more alcohol detection to pick them from their current location.
- The alcohol detection with engine locking system prove automatic safety system for cars and other vehicles

9. CONCLUSION

- This system can help to prevent drink and drive cases to a much larger extent as well as protect and safeguard the lives of innocent people from getting harmed due to this drink and drive on road.
- This system will ensure Compulsion of wearing seatbelts which will assure safety of driver.
- This Safety system can be installed in vehicles to prevent road accidents and deaths due to avoiding the use of seatbelts.
- If this system is implemented in automobile, the accidents due to drink and drive can be reduce down to a minimum level and also will save life by assuring use of seatbelts.
- If accident is detected then it shares the accident location to the emergency services using GSM and GPS. But, when vehicle is still moving even after alcohol detection then the location of the vehicle is sent to concerned authorized services. If accident is detected then it shares the accident location to the emergency services using GSM and GPS. But, when vehicle is still moving even after alcohol detection then the location of the vehicle is sent to concerned authorized services.

9.1. COST ESTIMATION

9.1.1. Costing of parts

SR NO	PART NAME	QUANTITY	COST
01	Prototype	01	**2000**
02	Seat	01	1500
03	Steering	01	1500
04	Seatbelt	01	2200
TOTAL COST		**7200**	

9.1.2. Costing of Sensors and motor

Sr No	PART NAME	QUANTITY	COST
01	Alcohol Sensor	01	150
02	Arduino Board	01	700
03	IR Sensor	01	50
04	DC Motor	01	80
	TOTAL COST		**950**

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