ALCOHOL SENSING ALERT WITH ENGINE LOCKING PROJECT

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ABSTRACT

The aim of our project is to makes human driving safe and to overcome accident rate due to the drunk and drive. Driving under the impact of alcohol has overblown and killed numerous number of people's live . Due drink driver put his self in trouble along with other people also. So we are here suggesting an innovational and initial system to reduce the accidents due to the drunk and drive . According to the proposing system the car is controlled spontaneously driver can't be drive the car after drinking . We are making use of alcohol detection sensor(MQ-3), Arduino Nano, Relay, Dc motor. The system is trying to make safe life setting inside the vehicle and surrounding people.

Key words: Alcohol sensor, Arduino.

INTRODUCTION

   It could be very unusual to select out up the newspaper and examine roughly a street accident. In fact, India holds the world record in the large amount of street injuries annually, in line with a file launched through W H O .In this project, we can move over the way to construct an alcohol sensor with an Arduino. The alcohol sensor we can use is the MQ-3 sensor. This is a sensor that is not only delicate to alcohol, especially ethanol, that's the kind of alcohol that's determined in wine, beer, and liquor .This kind of sensor circuit can be used as a breathalyzer to test someone's blood alcohol level. Just as we exhale carbon dioxide when we breathe out, we will also breathe out a few alcohol if we've alcohol in our blood. Any Alco meter tool can degree this alcohol content material. The extra ethanol on your blood, the extra there's within the air on exhalation. This alcohol content material offers an awesome indication for if someone is inebriated and the way inebriated they are.

In this project , we're evolved a gadget as a way to lock the engine when the driving force is inebriated. So right here we intimate an progressive gadget to get rid of corresponding cases. Our suggested gadget could be keep an eye on tracking the driving force breath through setting it at the driving force wheel or someplace the drivers breath may be continuously monitored through it. So if a driving force is inebriated and aims to pressure the gadget detects alcohol presence in his/her breath and locks the engine in order that the automobile fails to begin. In every other case if the driving force isn't always inebriated even as he begins off evolved the automobile and engine is commenced however he/she beverages even as riding the sensor nevertheless detects alcohol in his breath and prevents the engine in order that the auto could now no longer boost up any in addition and motive force can steer it to roadside. In this gadget we use an Arduino Nano that's interfaced with an alcohol sensor in conjunction with the buzzer and a dc motor to illustrate the concept. So right here the alcohol

sensor is used to reveal customers breath and continuously sends alerts to the Arduino Nano. The Arduino Nano on encountering excessive alcohol sign from the alcohol sensor shows alcohol detection note and buzzer buzzes and additionally stops the dc motor to illustrate as engine locking. The gadget wishes a push button to begin the engine. If alcohol is detected on the time of beginning the engine the engine does now no longer begin at all. If alcohol is detected after engine beginning, the gadget locks the engine at that time.

 In this undertaking we can pass over the way to construct an alcohol sensor with an Arduino. The alcohol sensor we can use is the MQ-three sensor. This is a sensor that isn't always handiest touchy to alcohol, mainly ethanol, that is the sort of alcohol that is determined in wine, beer, and liquor .This type of sensor circuit can be used as a breathalyzer to examine someone's blood alcohol level. Just as we exhale carbon dioxide while we breathe out, we will also breathe out a few alcohol if we've alcohol in our blood. Any Alco meter tool can degree this alcohol content material. The large amount ethanol on your blood, the larger amount there can be within the air on exhalation. This alcohol content material offers an awesome indication for if someone is under the influence of alcohol and the way under the influence of alcohol they are.

  The contemporary state of affairs indicates that the maximum of the street injuries are happening because of drunk-using. The drivers who drink alcohol aren't in an solid situation and so, rash using happens on dual carriageway which may be volatile to the lives of the humans on avenue, the motive force inclusive. The enormity of the damaging using transcends boundary. The legal guidelines in India are presently prohibiting drivers to drink and force in order that the first-rate can prevent them to drink and drive. Whatsoever, powerful remark of under the influence of alcohol drivers might be a mission to the policemen and avenue protection officers, the reason for this stems from the herbal lack of ability of citizenry to be gift moreover as nation amongst equal residence and time. This constrained cappotential of enforcement dealers undermines every guide attempt geared towards aspect drink-using. There is consequently the want for an alcohol detection machine that may characteristic without the limit of area and time.

The Indian Ministry of Statistics said heaps of avenue injuries in 2016. Though the file declared velocity violation is the most cause for those injuries, it's going to effectively be inferred that the majority of the instances are due to drivers risky situation resulting from drivers turning into inebriated earlier than they pressure. The research finished via way of means of the Planet Health Organization in 2008 indicates that regarding 50%-60% of traffic accidents rectangular degree connected to drink-driving. Moreover, WHO statistics on avenue site visitors deaths disclosed million site visitors deaths have been recorded globally in 2013 with the low- and middle-earnings nations having better fatality charges in keeping with a 100K population (24.1% and 18.four% respectively), statistics gathered confirmed that numerous of financial cars drivers in Bharat admitted to consuming alcohol at some point of working days. This indicates that the majority drivers, mainly enterprise and critical obligation vehicles drivers engage in drink- driving, which can also additionally bring about accident. Bharat units a felony restrict of 30mg/100mL blood alcohol concentration (BAC), any level higher than it really is identical to be ineligible. The BAC depicts the quantity of alcohol in an incredibly positive quantity of blood. It's measured as both grams of alcohol in keeping with metric ability unit of blood or milliliters of blood, (mg/ml, applied in a whole lot of of Europe). For BAC degree from 0.four to 0.6, drivers experience dazed/careworn or in any other case disoriented, and it is commonly now no longer secure for a driving force to pressure a car under such situation. Also, BAC degree for 0.7 to 0.eight makes a drivers mental, bodily and sensory features to be significantly impaired. At this stage, a driving force is inactive and incapable of driving. BAC degree of 0.2 to 0.three remains now no longer secure but the purpose pressure still. So, there may be want of such machine that could lessen the variety of avenue injuries induced because of inebriated driving

1. The author has recommend a way which makes use of GPS and GSM to check alcohol however this approach may be very high priced, however the charges may be reduce off to a terrific extent. In this challenge a siren is getting used that is quite reasonable, and may hold human beings in near proximity vigilant.

2. 2, Wearing clever helmet to save you any mishap is usually recommended via way of means of author that have positive deficiencies. Firstly regulations on the usage of helmets to most effective 2 wheelers. Secondly, microcontrollers are software program primarily depend totally on mega gadget in consideration to the reasonable siren which are open supply hardware.

3. 3. Composite fitness tracking and sensors primarily based totally on infrared are applied to check alcohol as mentioned via way of means of author however the threat of fake alarm cannot be prevented on this device, due to the fact minute alternate in a some cases can bring about false alarm however in our take exception to use of required generation makes it extra actual.

4. 4.To save you the mishap of drunken riding author have used PIC16F877A microcontroller that is an old device and high priced one additionally which restrains its use to most effective positive magnificence of society while we're the usage of Arduino and Uno microcontroller that is superior in addition to reasonable.

5. 5. Worrying approximately the drunken riding the author shows the device to conquer the problem however the usage of mQ2 alcohol sensor has come flames .MQ2 alcohol sensor isn't actual and increases the threat of fake alarm whilst we've got used MQ3 that is quite actual.

II. PROBLEM STATEMENT

Drunken driving is considered as one of the major reason of accidents in world wide. Drivers under the influence of alcohol shows a clear failure of perception recognition and vehicle control .So, by this accident occutrs.

III. METHODOLOGY

Based on our problem statement, we have to create a prototype to implement alcohol sensing alert device if he/she falls asleep. The main components of the project are Arduino Nano, Relay, Alcohol Sensor(MQ-3), Motor, Buzzer, Power supply. Here we use Arduino Nano connected to alcohol sensor, which gives output to the relay. Relay is connected to the buzzer when the person's breath is detected by the Alcohol sensor detects from transmitter-receiver. Such the sensor detects and gives the signal to the Buzzer, which alerts the person.

Figure 1: Methodology Flowchart
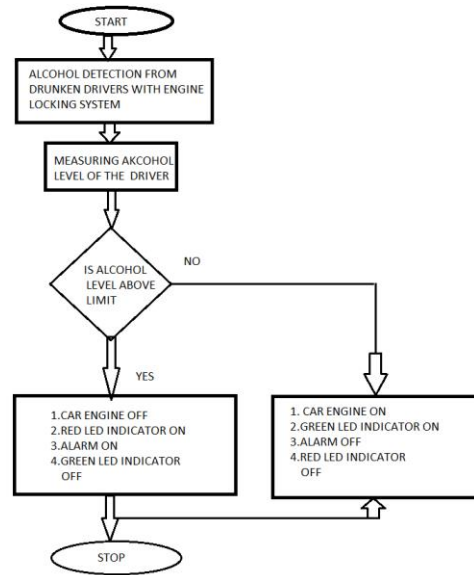
The device set of rules contains of 3 foremost steps. First is besides up the device, subsequent is the measuring state, this degree measure the quantity of alcohol stage from the drivers. A prescribed set restrict may be given as enter to the Arduino Nano, as soon as the alcohol stage exceeds the restrict the automobile will now no longer start.

STEP 1: Start

STEP 2: Alcohol detection from the drunken drivers

STEP 3: Measuring the alcohol level of the driver

STEP 3.1If the Alcohol level above the limit.

STEP 4: Turn off the Engine

STEP 5: Alarm ON

STEP 6: Else

STEP 7: Car engine doesn't stops it goes on moving.

STEP 8: Alarm OFF

BLOCK DIAGRAM

The block diagram represents the alcohol sensing alert with engine locking project which shows the basic components used to make this device and the relation between them. Further as per the code relay turns ON/OFF the buzzer to make the person awake.
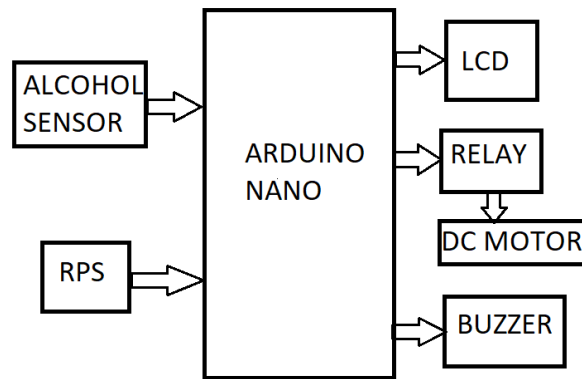
Figure: Block diagram

Firstly the Power supply and Alcohol sensor is connected to Arduino Nano .When the alcohol is detected in the person's breath then alcohol sensor detects it and sends the message to the Arduino Nano. The Relay which is connected to the Arduino Nano which helps in stops the engine and thus signal is given to the buzzer its gives the alarm sound and thus the motor stops thereby detection is displayed on the LCD.

COMPONENTS USED

A: ARDUINO NANO

The Arduino board is the main functional unit of the organizing. The Arduino Nano is the microcontroller board first and foremost placed completely at the ATmega 328. It is a configurable microcontroller for simulating electromechanical equipments.it has 14 virtual inputs/output pins (of which 6 may be used as PWM output) , 6 analog inputs , a sixteen MHz ceramic resonators the Arduino different from all foregoing boards.
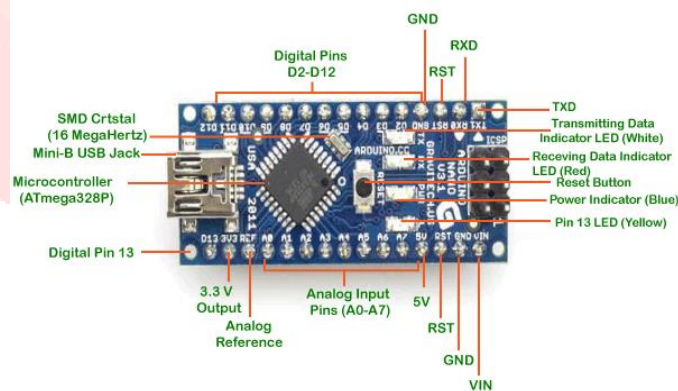

Figure: Arduino Nano

B: ALCOHOL SENSOR (MQ-3)

The analog fuel sensor-MQ-three is appropriate for alcohol detecting, this sensor may be utilized in a breath analyzer. It has a excessive sensitivity to alcohol and small sensitivity to benzene. The sensitivity may be adjusted through the potentiometer touchy cloth of MQ-three fuel sensor is SnO2, which with decrease conductivity in easy air. while the goal alcohol fuel exist, the sensors conductivity is better at the side of the fuel awareness rising, use of easy electro circuit, convert alternate of conductivity to correspond output sign of fuel concentration.

Figure:MQ-3sensor

C: RELAY

Relay is used for interfacing and control various appliances, its operating voltage and current is5V, 10A. It is controlled from a microcontroller (Arduino, 8051, DSP, ARM, TTL logic) directly with 3.3V or 5V logic signals.

Figure:Relay

D: MOTOR

The DC motor shown in figure converts direct current electrical energy into mechanical energy. Change current produces magnetic energy which in turn produces rotation. In the project when the alcohol is sensed the DC motor starts running showing the engine is ON.

Figure:Dc Motor

E. BUZZER

Figure:Buzzer

The audio communicating equipment or the buzzer is shown in this above Figure . It may be piezoelectric electromechanical, or mechanical. It is used for confirmation of user input such as a mouse click or keystroke and as alarm devices, timers.

Working Principle

In each case if the motive force isn't under the impact of alcohol even as he begins off evolved the car and engine is began out however he/she beverages even as riding the sensor nonetheless detects alcohol in his breath and forestalls the engine in order that the auto could now no longer boost up any similarly and driving force can steer it to roadside. In this gadget we use an own circle of relatives Arduino Nano interfaced with an alcohol sensor together with an LCD display and a dc motor to illustrate the concept. So right here the alcohol sensor is used to screen customers breath and continuously sends alerts to the Arduino Nano.

The Arduino Nano on undergoes unbounded alcohol indication from the alcohol sensor realizes alcohol detection notice on LCD display and additionally stops the dc motor to illustrate as engine locking. The gadget wishes a push button to begin the engine. If alcohol is detected on the time of beginning the engine the engine does now no longer begin at all. If alcohol is detected after engine beginning, the gadget locks the engine at that time.

ADVANTAGES

- Low cost
- Automated operation
- Low power consumption
- Quick and accurate results.

APPLICATIONS

• 1.Alcohol Detector Project may be used within the diverse cars for detecting whether or not the motive force has fed on alcohol or not .

• 2. This Project also can be operate in different organizations or Organization to detected in addition of Employees.

RESULTS

If alcoholic character attempts command on car the alcoholic sensor determines the prevailing of alcohol and close down the car engine and sound alarm via way of means of which the close to via way of means of human beings trade the seat. When the drunken driver enters within the car alcohol sensor senses the alcohol, consequently buzzer earrings and LCD presentations that alcohol is detected as proven and ignition of car routinely turns off along way of method of relay. So, via way of means of this the motive of our task succeeds.
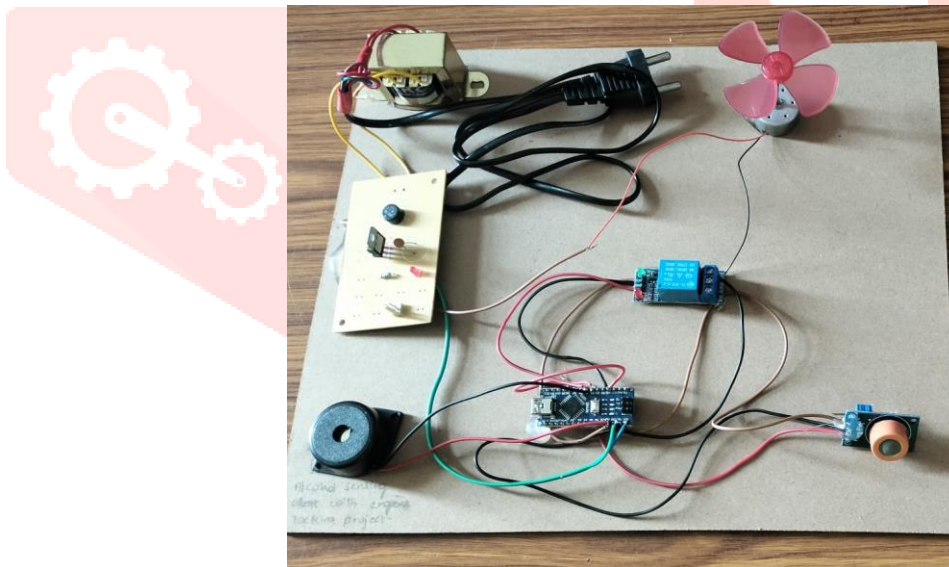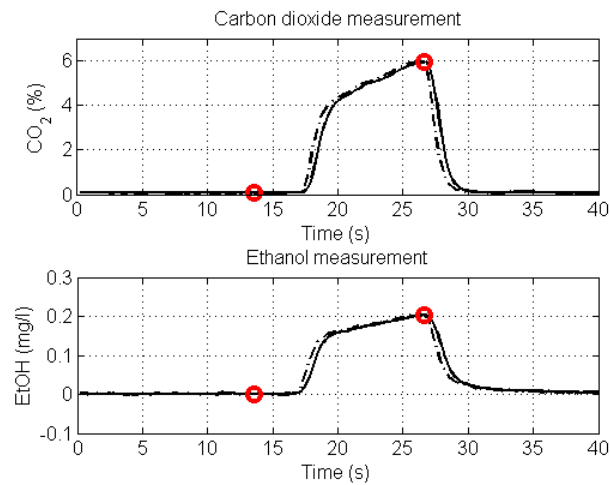
If alcoholic character attempts command on car the alcoholic sensor determines the prevailing of alcohol and close down the car engine and sound alarm via way of means of which the close by human beings will trade the seat. Peoples are privy to scenario via way of means of the assist of LCD display gift withinside the cars and for this reason take required action. We can prevented any type of lack of behavior via way of mode of the use of this system. All instruments are absolutely examined and linked as required thereby giving us the tons wished end result as proven withinside the photo below

CONCLUSIONS

We have given an extremely successful manner to deal and to broaden a clever gadget for motors to decrease quantity of screw ups triggered in mild of alcoholic driving. As the developing perception amongst human beings is that car safety is dynamically critical. Future diploma of this shape is to govern the setbacks triggered because of alcohol use. This gadget improves the safety of person and on this way giving the convincing development within the car enterprise concerning lower setbacks triggered in mild of driving.

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