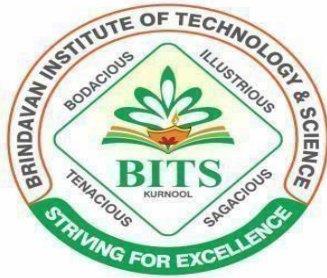A Social Relevant Project Report

On

INTELLIGENT ALCOHOL DETECTION SYSTEM FOR CAR

Submitted

By

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ABSTRACT

Driving a car after the consumption of alcohol is one of most the dangerous things can do. Several surveys show the reaction of a person during driving, that are seriously affected by alcohol. Concentrating on the safety of the people, driving a car, we propose a safety system for safe driving. We are implementing an Intelligent Alcohol Detection System with some other features to avoid accidents. The Alcohol Gas Sensor is used to sense the consumption of alcohol by the driver and this data is also given to ADC (Analog-to-Digital Converter). The ADC is used in this module to convert the analog signal to digital output. If the driver is tired and feeling sleepy, the eye blink sensor shall sense his condition and turn on the buzzer. We also used a tilt sensor to detect whether the vehicle is going in a normal condition or not. GSM (Global System for Mobile communication) and the GPS module is used to detect vehicle location. In this device we have implemented an alarm system if the alcohol level is above the normal permitted level, then the system will send car location to the nearest police station or the relatives of the driver and the ignition system of the car will go off after the detection.

LIST OF FIGURES

CHAPTER-1

1. INTRODUCTION

1.1 Alcohol Detection System:

The main purpose behind this project is "Alcohol Detection System". Now a days, many accidents are happening because of the alcohol consumption of the driver or the person who is driving the vehicle. Thus drunk driving is a major reason of accidents in almost all countries all over the world. Alcohol Detector in Car project is designed for the safety of the people seating inside the car. This project should be fitted / installed inside the vehicle. Now-a-days we hear about lot of accidents due to drunken driving. Drunken drivers will not be in stable condition and so the rash driving is the inconvenience for other road users and also question of life and death for the drunken drivers, also for others. The input for the system is from Detection Sensors either from Alcohol Breath or any other mechanism. The controller keeps looking for the output from these sensors. If there are any traces of Alcohol above the set limit, then the system will lock the Engine. Here a simulating process is activated using a DC motor through the relay and the complete process is under the supervision of an intelligent microcontroller. Most of the traditional systems are likely to be more dependent on the operator and it may fail due to various factors like the battery life, power consumption as well as the unavoidable external disturbances. Alcohol Detector in Car project is designed for the safety of the people seating inside the car. This project should be fitted / installed inside the vehicle. Alcohol sensor will be attached with our microcontroller. While alcohol wafers smelled by the sensor. Sensor sends the input voltage to microcontroller.

1.2 Working of Alcohol Detection System:

The alcohol sensor is technically referred to as a MQ3 sensor which detects ethanol in the air. When a drunk person breathes near the alcohol sensor it detects the ethanol in his breathe and provides an output based on alcohol concentration. If there is more alcohol concentration more buzzer would lit. Hence you can get to know about the concentration and thus detect alcohol.

The Alcohol Detection system works on a simple principle, if a driver has been drinking, the alcohol breath analyzer sensor will detect the level of alcohol in the driver's breath and if it crosses a set threshold of 0.08, an alert will come and the vehicle engine will stop immediately. This project is designed for the safety of the people seating inside/outside the vehicle.

CHAPTER-2

2. THEME OF ALCOHOL DETECTION SYSTEM

Many people lose their lives in accidents by taking alcohol. We cannot stop accidents statistics but if we can take some measures we can stop it to certain extinct. Alcohol Detection System for car is used to verify whether the driver is drunk or not. By verifying, it makes a report and then engine starts otherwise it won't start. Life is more precious than anything.

CHAPTER-3

AIM

      The main aim of this alcohol detection system is to reduce road accidents. Now-a-days accidents occur due to alcohol consumption of the driver.

OBJECTIVES

- Decrease in death rate.
- High sensitivity and fast response time.
- Long life and low cost.
- Simple drive circuit.

CHAPTER-4

4. CONCEPT OF ALCOHOL DETECTION SYSTEM

The system draws the driver's exhaled breath into a sensor, which measures the concentrations of alcohol and carbon dioxide present. The known quantity of carbon dioxide in human breath serves as an indicator of the degree of dilution of the alcohol concentration in exhaled air.

The Alcohol Detection system works on a simple principle, if a driver has been drinking, the alcohol breath analyzer sensor will detect the level of alcohol in the driver's breath and if it crosses a set threshold of 0.08, an alert is given and the vehicle engine will stop immediately. This project is designed for the safety of the driver and the passengers in the vehicle.

4.1 Technology Used In Alcohol Detection System:

• Based on Breath sensor, the system uses the driver breath and starts the vehicle.

• The technology also features the human heart -beat, as well as emergency and their seriousness of that driver.

4.2 Features of Alcohol Detection System:

• The system have the feature of the single touch sensor to give information of the driver to the owner or the relative or family members.

• It also provides automatic location of the driver.

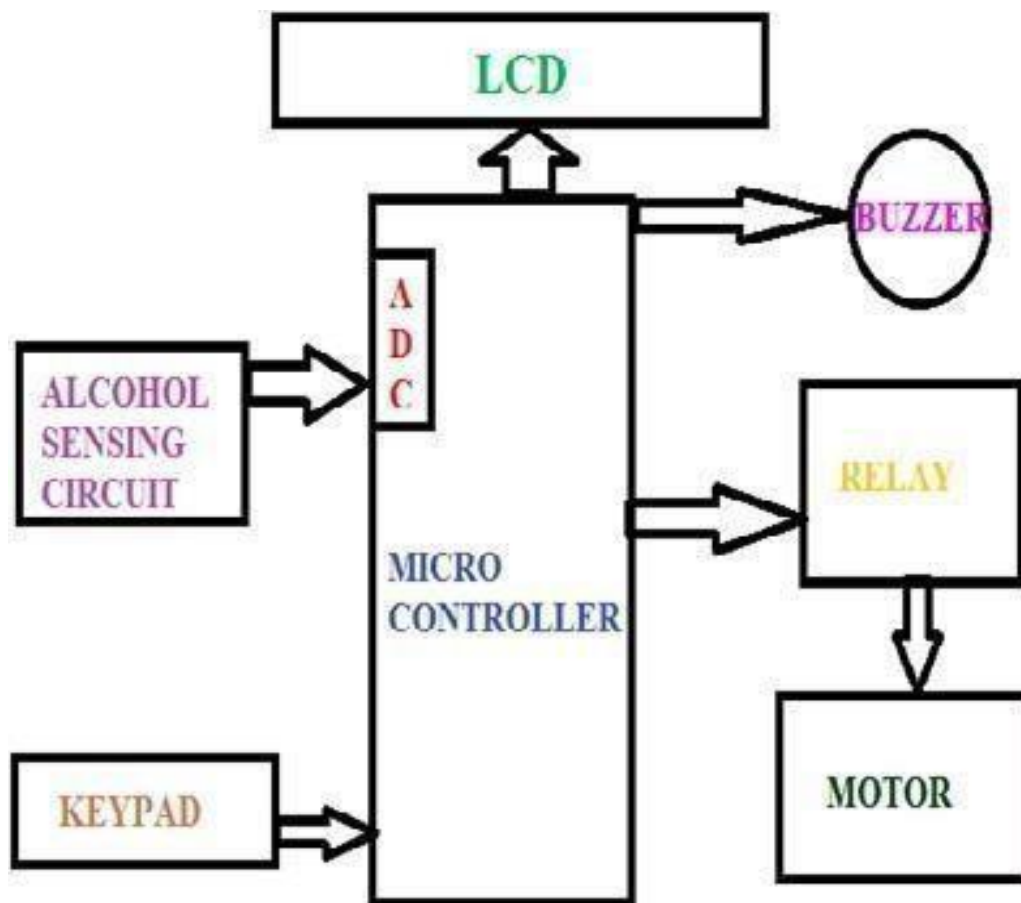## CHAPTER-5

5. BLOCK DIAGRAM OF ALCOHOL DETECTION SYSTEM

FIG.   BLOCK DIAGRAM OF ALCOHOL DETECTION SYSTEM

The typical architecture of alcohol detection system comprises the follow

5.1 Alcohol Sensor: Alcohol Gas Sensor is a low-cost semiconductor sensor which, used to detect the presence of alcohol vapour gas at concentrations from 0.05 mg/L to 10 mg/L. It has high sensitivity to alcohol and has a good resistance to disturbances due to smoke, vapour and gasoline. The sensitive material used for this sensor is SnO2, whose conductivity is lower in clean air. Its conductivity increases as the concentration of alcohol vapour gas increases. This module provides both digital and analog outputs.

5.2 LCD Display: LCD (Liquid Crystal Display) is a type of flat panel display which uses liquid crystals in its primary form of operation. LEDs have a large and varying set of use cases for consumers and businesses, as they can be commonly found in smartphones, televisions, computer monitors and instrument panels.
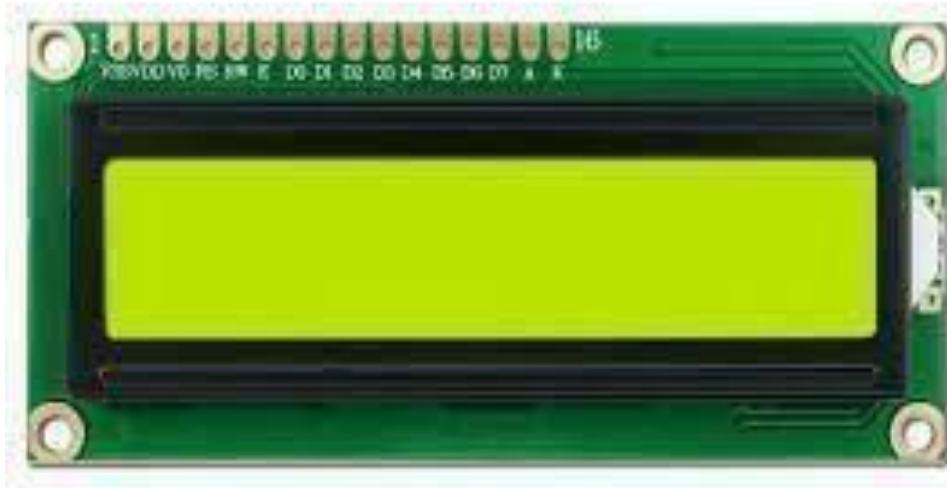
5.3Microcontroller: A microcontroller is a small and low- cost microcomputer, which is designed to perform the specific tasks like displaying microwave's information, receiving remote signals etc.

5.4 Buzzer: A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical, or piezoelectric. It is a sounding device that can convert audio signals into sound signals. It is usually powered by DC voltage.

5.5 Relays: Relay is an electrical switch that opens and closes under control of another electrical circuit. When electricity is applied to the wire, the rod becomes magnetic. A movable contact arm above the rod is then pulled towards the rod until it closes a switch contact.

5.6 Motor: A motor is any of a class of electrical machines that converts direct current electric power into mechanical power. The most common types rely on the forces produced by magnetic fields.

CHAPTER-6

6.1 ADVANTAGES

- Low cost

- Automated operation.

- Low power consumption.

- It provides automatic safety for cars and other vehicles as well.

- To prevent accidents due to drunk and driving

- Easy and efficient to test the alcohol content in the body.

6.2 APPLICATIONS

- It is used in breath analyzer.

- Blood alcohol concentration tester.

- Alcohol gas sensor.

- Alcohol Detector project" can be used in the various vehicles for detecting whether the driver has consumed alcohol or not.

- This project can also be used in various companies or organization to detect alcohol consumption of employees.

CHAPTER-7

7. NEED OF ALCOHOL DETECTION SYSTEM

The newly transformed technology from alcohol tester to alcohol sensor in the car. The car activates the sensor within 0.08 seconds to identify the alcohol consumption of the driver. As soon as the driver is drunken it makes a buzzer sound in it. By this technology we see the future without accidents on the roads, highways etc. Compelling need for the innovation "Alcohol Detection with vehicular system" provides an automatic safety system for cars and other vehicles as well. Frequent and highly publicized enforcement can be effective in reducing drinking and driving if people perceive there is a credible threat of being caught –but it will not eliminate it 800 million drink driving trips annually (NHTSA, 2003) 0.02% of all trips. 1.5 million drivers were arrested for DWI annually ƒ . Less than 1% of drunk drivers 130,000 alcohol ignition interlocks in use in U.S. ƒ. Approximately 10% of those convicted of DWI.

CHAPTER-8

## 8. FEATURES OF ALCOHOL DETECTION SYSTEM:

8.1 Breath Analyzer:

When it comes to measuring a person's blood alcohol concentration, most Americans are familiar with breath analyzers that require drivers to provide a deep-lung sample by blowing into a tube or other sensor.

The system draws the driver's exhaled breath into sensor, which measures the concentrations of alcohol and carbon dioxide present. The known quantity of carbon dioxide in human breath serves as an indicator of the degree of dilution of the alcohol concentration in exhaled air.
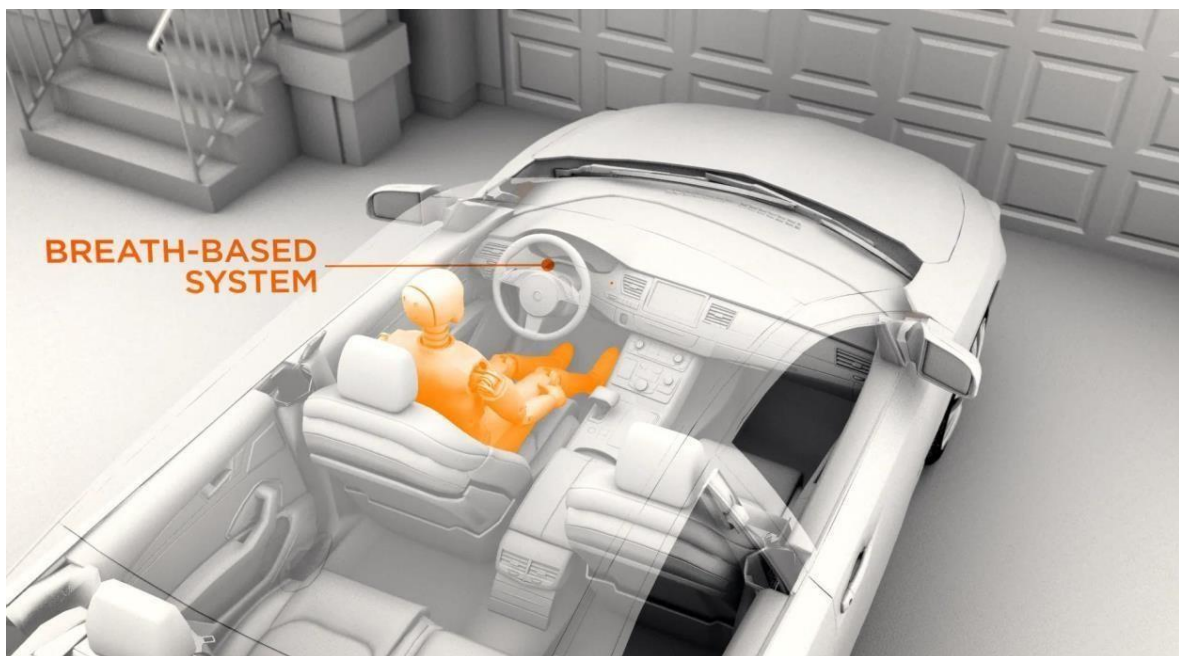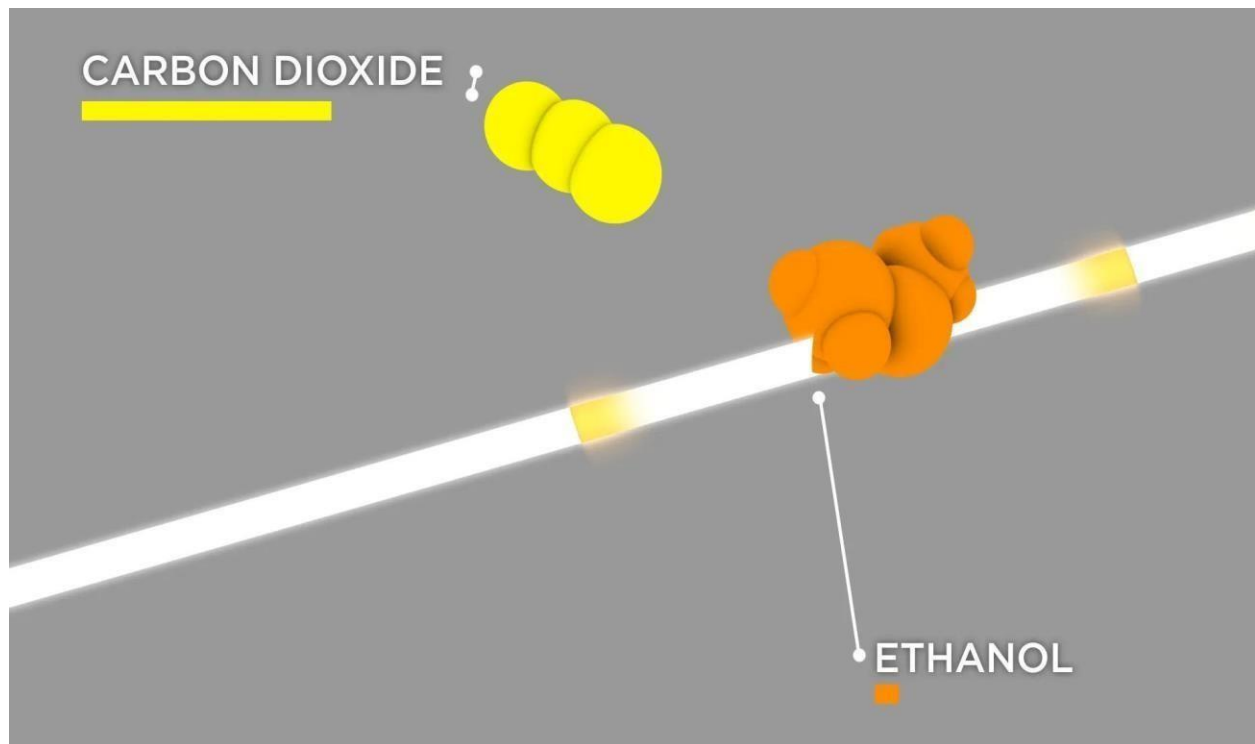
8.2 Touch Analyzer:

A new approach to measuring blood alcohol concentration: a touch system that uses spectroscopy to measure alcohol in the driver's tissue. This technology broadens the options for an integrated system that can reliably prevent drunk driving while remaining invisible to any driver under the legal limit.

The touch sensor analyzes alcohol found beneath the driver's skin surface (or more specifically, the blood alcohol content detected in the capillaries). Measurement begins by shining an infrared light on the driver's skin, similar to a low power flashlight, which moves into the tissue.
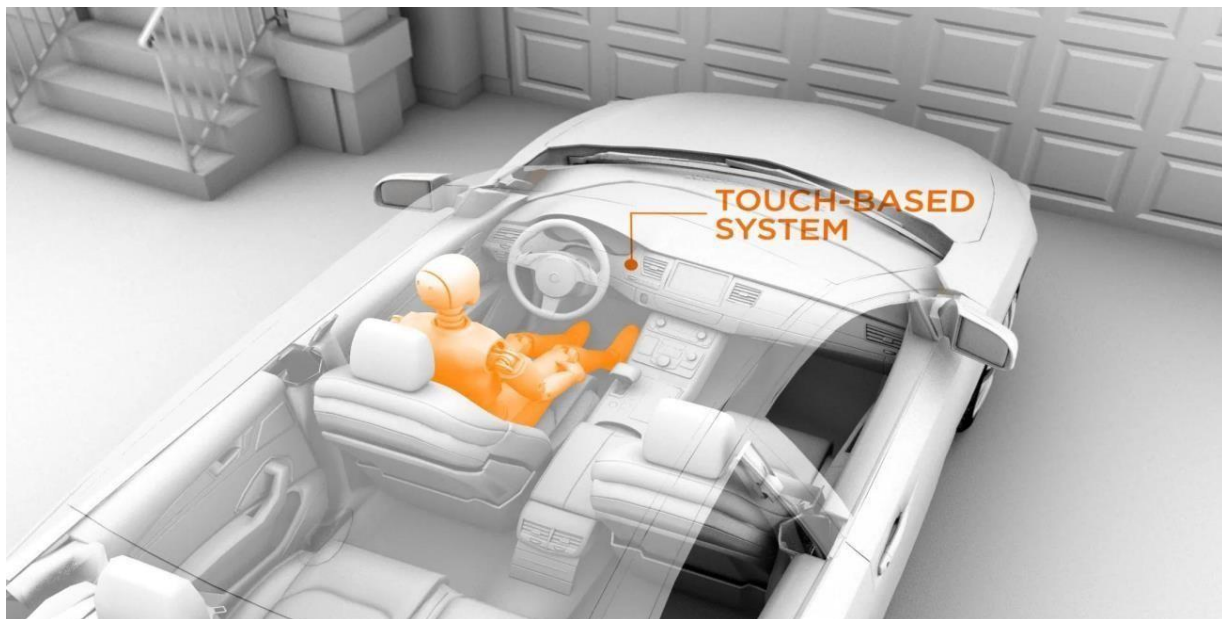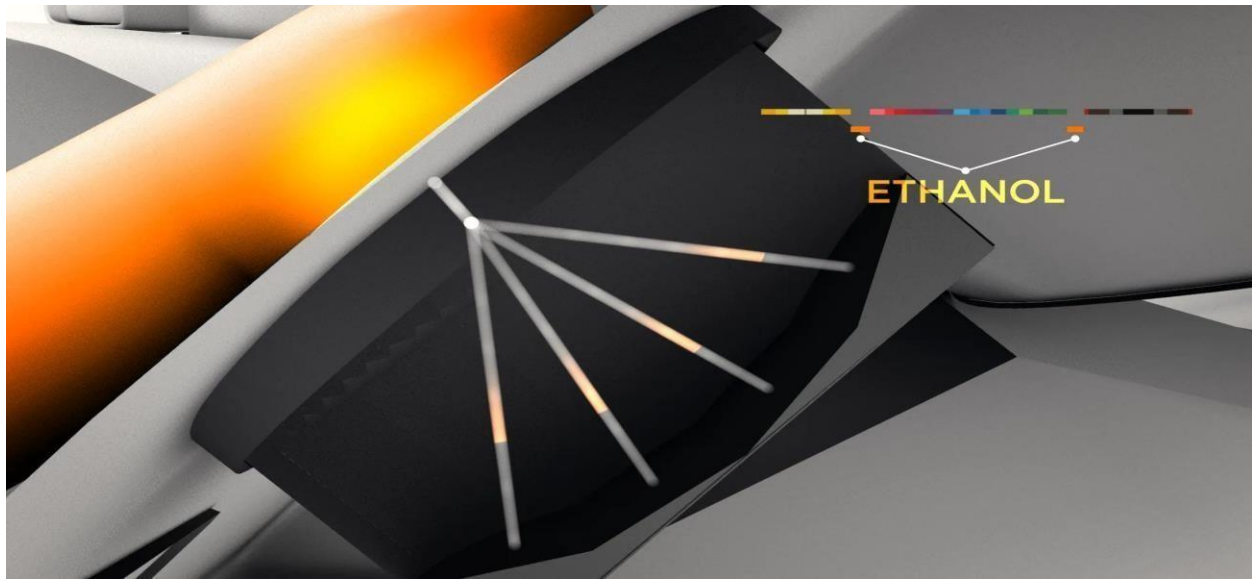
CHAPTER-9

9. RESULT

- Safe driving is possible when the alcohol detection is installed in the car. When alcohol sensor and buzzer is installed meanwhile a drunken driver tries to drive and can't drive because of consuming alcohol. By having this future technology we can save our lives and the passengers in the car.

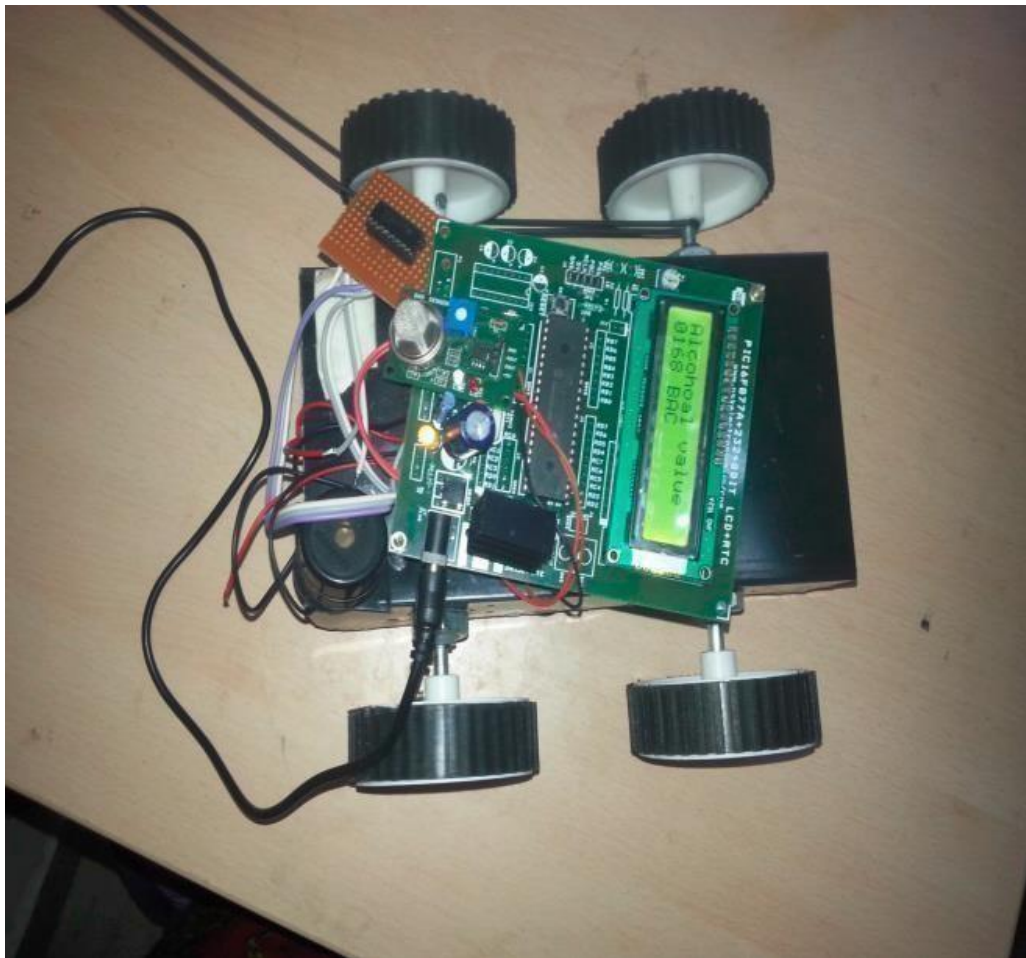**FIG: ALCOHOL DETECTION SYSTEM FOR CAR**

CHAPTER-10

10. FUTURE ENHANCEMENT

- We can implement GSM Technology to inform relatives or owners of vehicle about alcohol consumption.

- We can implement GPS Technology to find out the location of the vehicle.

CHAPTER-11

11. CONCLUSION

In this project alcohol detection system automatically won't start the engine when drunken driver tries to drive a car. Most of the accidents that we are facing in our daily life is due to consumption of alcohol. Due to alcohol sensor and buzzer in the car, the driver can't able to start the car when he is consumed by alcohol. By installing this alcohol sensor and buzzer in the car, we can safeguard the life of the driver and the remaining passengers in the car.

In this study, we have empirically demonstrated that Starting with a requirement to develop a non-invasive technology that will quickly and accurately measure a driver's BAC, the project team has established a Program Plan, developed Performance Specifications, solicited industry interest, and begun the process of identifying technological approaches that show promise. The goal at the end of the 5-year program is the practical demonstration of an alcohol detection subsystem which is suitable for subsequent installation in a vehicle. The adoption of non-regulatory, voluntary approaches to the implementation of advanced vehicle technology makes it critical that policy and public acceptance issues be addressed concurrent with the technology development. This is particularly important when it comes to the widespread implementation of technologies to prevent alcohol-impaired drivers from getting behind the wheel. The majority of the driving public in the United States either does not drink, or does not drink and drive. It is therefore necessary that advanced technologies to assess BACs must be seamless with the operation of the vehicle and not impede the sober driver. The general public fully understands the dangers of drinking and driving. In a survey on drinking and driving attitudes and behavior (NHTSA, 2003), ninety-seven percent of respondents indicated that drinking and driving is a threat to their personal safety. With the growing public perception that vehicle safety is an important factor in the vehicle purchase decision, advances in safety technology are gaining public acceptance more readily than in the past. Communicating with the public regarding the DADSS program, the potential technologies that are being developed might implement important component of this effort.

CHAPTER-12

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THANK YOU

STAY HOME, STAY SAFE