

Controlling of Vehicle with the Detection of Alcohol Using GSM

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Abstract - It is the progress in using an Alcohol Detector, a device that senses a change in the alcoholic gas content of the surrounding air. The sensor will then analyze the number of alcoholic vapors and offer the user some indication of the amount of alcohol present. This device is more commonly referred to as a breath analyzer; as it analyzes the alcohol content from a person's breath. The device is mostly used by law enforcement to determine whether an individual has been driving under the influence of alcohol. Police breathalyzers measures the Blood Alcohol Content, or BAC, of an individual. The unit designed for this project is a simpler version of the breath analyzer used by police.

Keywords - IC LM324, Breath Analyzer, Alcohol Detector, alcohol percent, GSM.

I. INTRODUCTION

It will not accurately determine the BAC level of a person. The microcontroller is interfaced with a MQ-3 alcohol gas sensor, which serves as the analog input signal to the controller. There is a LCD attached to six output pins that will function as a display. Depending on the amount of alcohol present, the MQ-3 sensor will analyze its contents and consequently the sensor output voltage will increase. If output voltage increases enough, input pins on the microcontroller will change from active low state to active high state. According to the output of the microcontroller the motor will be driven with the help of L293D as driver IC

BLOCK DIAGRAM AND WORKING OPERATION

In this project we are using alcohol sensor MQ-3 and air pressure sensor MQ- 13 to detect alcohol level with proper air pressure in vehicle, along with these a relay module is used for switching ON / OFF the vehicle ignition. When the driver seat in the vehicle first he will give the alcohol test if he passes the test the ignition will be on else a message will be sent from GSM modem to parent if the driver consumes the alcohol in between the driving the vehicle speed will be locked to half and parking lights will be blinking.

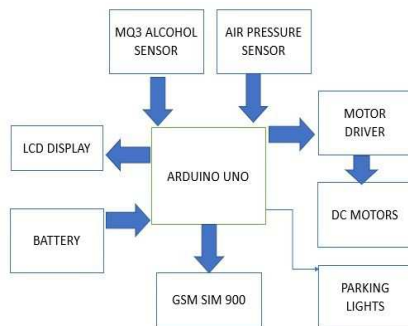


Fig. 1. Block diagram



Fig. 2 Arduino Software

If suppose the driver consumes the alcohol in starting of the vehicle the vehicle will not start and alert message will be sent to admin. An Id screen is used in this project to display the status of the system. A motor with L293D motor driver is used to for indication of vehicle movement. The entire project runs with 12V lead acid battery.

II. HARDWARE COMPONENTS

Arduino board

An Arduino microcontroller board can be thought of as a user-friendly, open- source input-output system. An input can range from anything from a finger pressing a button to a change in light intensity, and outputs can range from lighting up a simple LED light to sending out a Twitter message. EEPROM stands for Electrically Erasable Programmable Read-Only Memory. This is a type of computer chip that can be written and re-written with code

(instructions). Notice that it is electrically erasable. This means that an electric current can be used to erase it so that it can be used again. However, when it is erased, the entire chip must be erased. This is different from RAM, or Random-Access Memory, which can have just certain bytes erased. RAM is more like writing on sheet of paper with a pencil, where you can erase and rewrite just the parts you want. EEPROM is like a writing on a sheet of paper with a pen, where if you erase you need start with a fresh sheet of paper. The electrical erasure is the equivalent to providing a clean, empty sheet of paper. We all know what it means to be interrupted. An external interrupt means that something has occurred outside of the computer system or processor and needs attention. Flash memory is another type of memory. It retains data whether power is supplied to it or not. A good example is the typical flash drive: it still stores you files. A GSM modem is a device which can be either a mobile phone or a modem device which can be used to make a computer, or any other processor communication.

III. SOFTWARE

Arduino can sense the environment by receiving input from a variety of sensors and can affect its surroundings by controlling lights, motors, and other actuators. The microcontroller on the board is programmed using the Arduino programming language (based on Wiring) and the Arduino development environment (based on Processing). Arduino projects can be stand-alone, or they can communicate with software on running on a computer (e.g. Flash, Processing, Max MSP). Arduino is a cross-platform program. You'll have to follow different instructions for your personal OS. As you can see, downloads are available for Windows, Max OS X and both 32 and 64bit Linux. This example will download the software on a Windows system with admin rights. If you are installing the software and do not have administrator rights on your system, you will want to download the ZIP file instead of the Installer. Download the file (you may be asked for a donation, but that isn't necessary) and save it to your computer. Depending on your internet connection speed, it maytake a while. Once it downloads, run it. If asked if you want to allow it to make changes to your computer, say yes.

IV. RESULTS

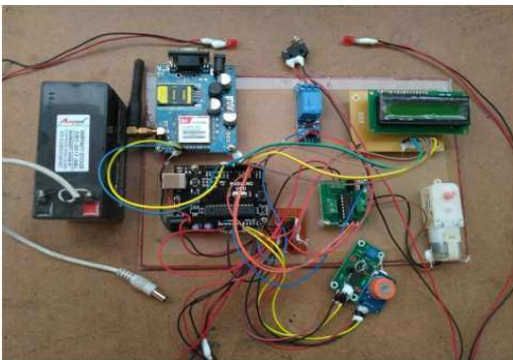


Fig. 3. When alcohol detected

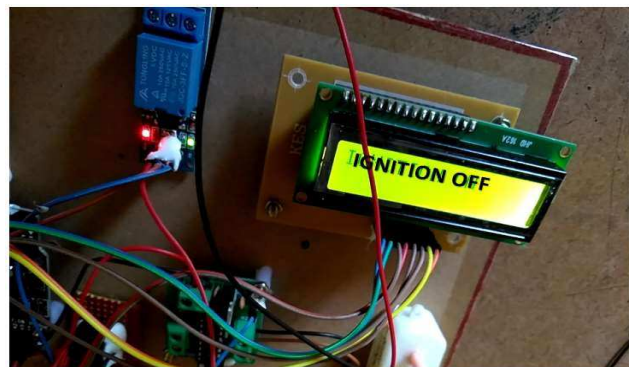


Fig. 4. Ignition OFF position

In first case when we blow the air into the air pressure sensor, then the sensor detects alcohol in the sampled air, currently the Arduino board get the OFF command. The OFF command given to the motor, the motor is in OFF position, then the display board shows the ignition OFF. And a message is sent to owner your driver in drunken position.

A. Without alcohol:

In second case when we blow the air into the air pressure sensor, then the sensor detects no alcohol in the sampled air, currently the Arduino board get the ON command. The ON command given to the motor, the motor runs with high speed, then the display board shows the ignition ON

B. When alcohol detected while driving:

In third case if the alcohol detected while running position by the air pressure sensor with the help of alcohol sensor, then speed of the motor is locked. Display shows alcohol is detected and speed is locked. Parking lights gets turned on.

C. When accident detected:

In fourth case when accident is detected air will open and ignition is in OFF position and motor gets turned OFF. Display shows accident is detected and air bags opened. Parking lights gets turned on.

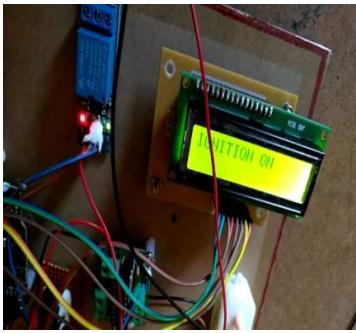


Fig. 5. Ignition ON position

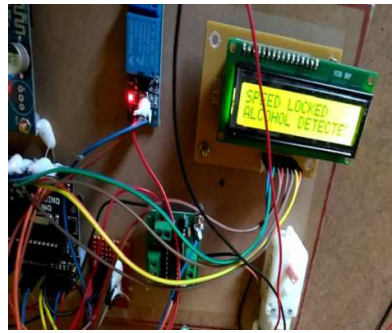


Fig. 6. Alcohol detected while driving

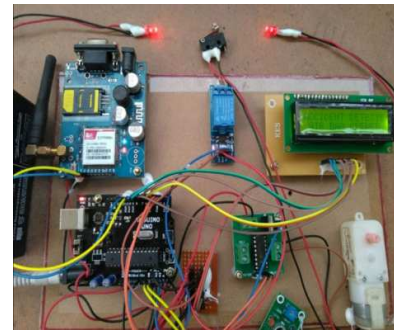


Fig. 7. accident detection

V. CONCLUSION

This project is very useful as compared to existing vehicle system. Our project alcohol detecting system was implemented successfully. This device provided much advanced facilities in now a day's life as it can be easily implemented in vehicles. Thus, we can reduce alcohol related road accidents and hence this kind of detector has a great relevance, it can also be used in schools, colleges, offices, and some public places such as hospitals, library and etc. through this project we present hardware programming of microcontroller to facilitate as alcohol sensor.

VI. FUTURE SCOPE

In the coming years, such a system is going to be mandatory in vehicles and is going to play a major role in making lives secure during driving. Drunk-driver detection in vehicles makes better fleet management with high potential to save lives. Such a system in a vehicle will help parents to avoid the kids to drink and drive. Apart from this, vehicle location tracking and alter system of this kind can be helpful both in case of personal as well as business purpose, improves safety and security of the person on road. In this paper the device prototype with preliminary experimental results depicting proof-of-the-concept was presented. To ascertain long-term working performance of the system more live tests with different level of drunken state of the driver can be conducted and analyzed. The system reliability can further be enhanced by the use of multi-sensor fusion using breath-based sensors at different locations in the vehicle, vision system to recognize facial/eyes expressions of the driver and/or use of touch sensor etc. There is possibility to incorporate others features such as different security mechanism in the vehicle such as theft, accident detection, fuel quality detection along with vehicle tracking system. Further, developing the system on the latest VANET technologies will help to share the information with others on the road effectively and effectively.

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