IDENTIFICATION OF INTOXICATED DRIVERS USING GSM

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ABSTRACT:

This paper is proposed to identify intoxicated drivers to prevent accident as well as crime using GSM. Alcohol sensor is used to detect the ppm level of alcohol and if this value is increased beyond a certain value, the vehicle will stop automatically and a message will be sent to the authorized number along with its location using GSM and GPS systems respectively.

KEY WORDS: Alcohol Sensor, PPM value, Interlocking System, GSM, AVR, GPS.

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1. INTRODUCTION

Every Vehicle consists of a key cylinder to insert key and under normal conditions if key is removed engine will stop automatically. By simple modifications this arrangement can be altered in such a way that they will continue in running state even if key is removed. This arrangement may provide security from theft but this system does not provide any solution for the drivers in drunken state which may be very dangerous. So here we are proposing a system which includes a first safety check system which prevents ignition of engine if one or more persons in car is under the influence of alcohol beyond a critical stage. We have used an Alcohol sensor which is started automatically to measure a PPM value before & After engine start and compare with a predetermined level and if the value goes beyond this level,at any of the instant, engine will stop automatically and a message will be sent.

The method used to carry out this project is the principle of serial communication in GSM technology along with embedded systems. This project has GSM & Alcohol Sensor, which is the latest technology used for Surveillance & monitoring. When Alcohol sensor will found greater PPM than a desired value between ignitions or at the start of ignition a message will drop to registered number through GSM technology

1.1BLOCK DIAGRAM

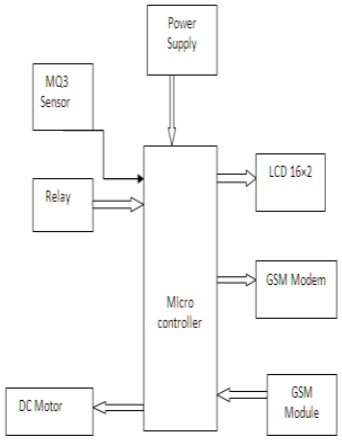


Fig 1- block diagram

This project have 4 sections,

1) GSM modem which contains sim inserting section and sends message to authorized number after alcohol detection
2) GSM module which joins all the sections together and is main circuit
3) DC Motor section which runs only in the absence of alcohol and stops automatically after detection of alcohol,
4) Sensor section which have MQ3 sensor and is responsible for detection of alcohol.

2. Project hardware description

In this project we have used following components:

1.Microcontroller Atmega-8

2.Alphanumeric LCD(16*2)

3.GSM(SIM-900 A),Alcohol sensor(MQ-3)

4.Regulator(7805/LM317)

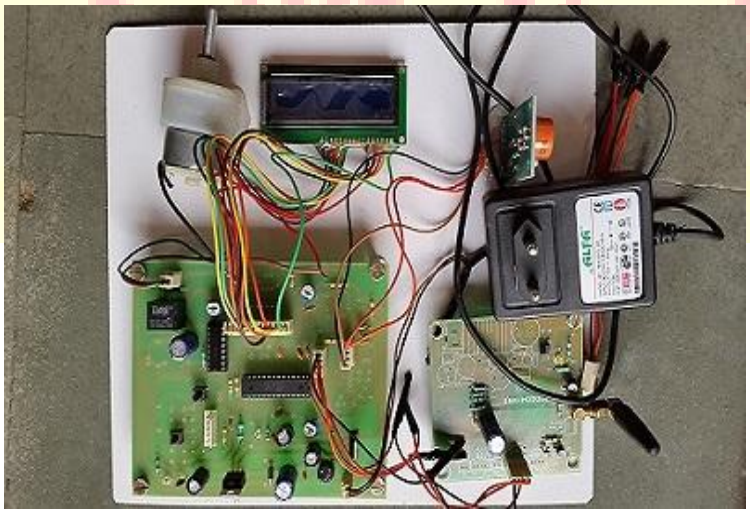
5.Capacitor(1000/100/10/1µf),

6.Ceramic capacitor(33/0.1 pf),

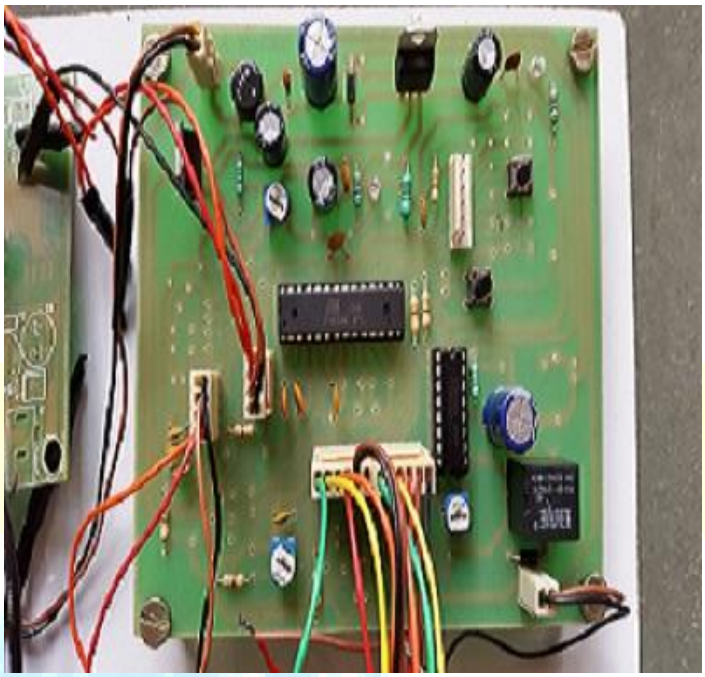
7.W04m bridge, Oscillator(11.0592 Mhz)

8.Resistance (10k/1k/470/100 ohm)

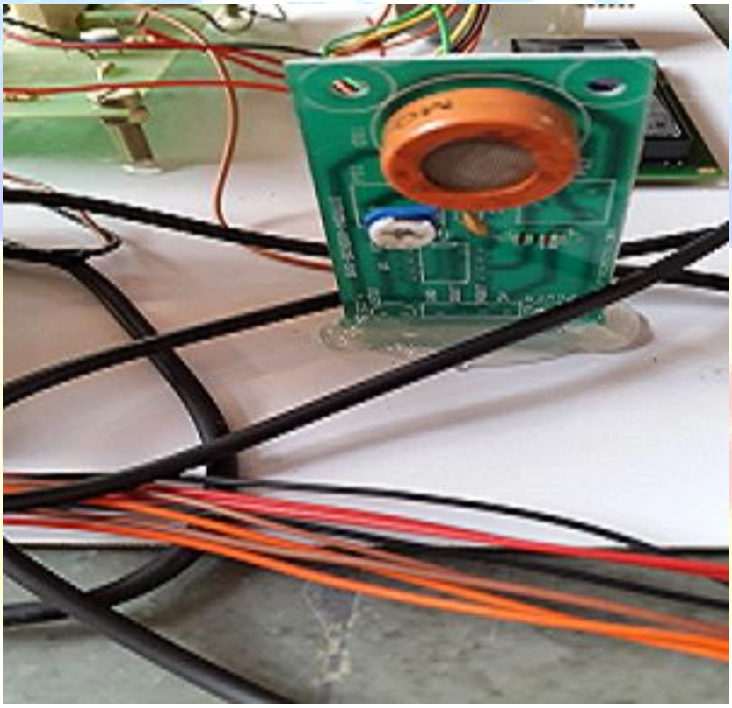
9.Adopter(12V/1A)[6]



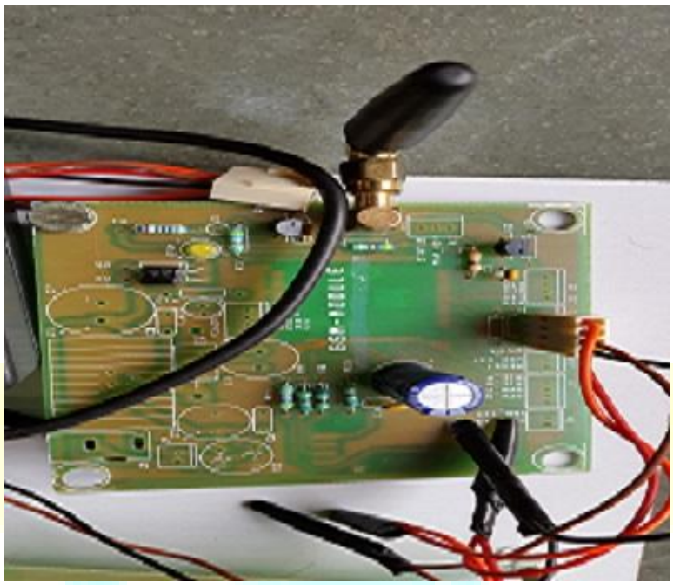
1.project



(gsm modem)



2. Alcohol sensor



4.gsm module

(Images of live project)

2 WORKING

2.1 MQ3 sensor:

It consists of a little tube made up of tin dioxide and aluminum tri oxide.there are heater coils inside MQ3 alcohal sensor. an alumina tube is covered by tin dioxide, between alumina tube and tin dioxide,there is an arum electrode. alumina tube and coils are used for heating the system, if the coil is heated, tin dioxide ceramic starts behaving like semiconductor,as a resule,more electrons can flow,thus there are more movable electrons which means that it can make more current to flow.now,we know that when alcohol molecules in air meet this electrode, ethanol changes into acetic acid as a result of chemical reaction with oxygen,in the presence of alcohol,the heating coils becomes hotter due to this chemical reaction,if alcohol is less,then less current will flow as a result of which,PPM value is lesser,but on increasing the amount of alcohol, more current will produce more molecules, thus more current will increase ppm value of sensor, thus alcohol will be detected.[4]

2.2 GSM: GSM stands for global system for mobile communication.GSM is most available and world wide network, so we are using GSM instead of CDMA. We can insert a sim in GSM modem which is mainly responsible for sending message. we have used embedded system to

connect alcohol sensor with GSM module, thus after detection of alcohol, this section starts working and message will be delivered by the device to authorized number.[2],[3]

2.3 Microcontroller Atmega 08:

A microcontroller is a single chip that contains the processor (the CPU), non-volatile memory for the program (ROM or flash), volatile memory for input and output (RAM), a clock and an I/O control unit. Also called a "computer on a chip," billions of microcontroller units (MCUs) are embedded each year in a myriad of products from toys to appliances to automobiles. For example, a single vehicle can use 70 or more microcontrollers.[1]

3. RESULT AND DISCUSSION

When key is inserted in the key cylinder, then the motor in the motor section starts running, it will run normally if the ppm value of alcohol sensor in sensor section is below specified value, but if the PPM value of alcohol increases beyond a specific value, the motor will stop automatically leaving a message to the authorized person using GSM modem, and also position of vehicle can be detected by using a GPS(global positioning system) system.

The use of passive alcohol sensors at checkpoints should allow motorists to be processed very quickly with minimal inconvenience. At the same time detection of legally intoxicated motorists will probably be substantially increased and the general deterrent value of per alcohol-impaired driving laws will be enhanced.[5]

Future Scope:on all newly manufactured vehicles. In order to ensure compliance and public acceptance of these proposed features, the devices must be small, fast, accurate, and reliable and cannot impede or interfere with starting the vehicle if the driver is not alcohol impaired. These potential future technologies include infrared spectroscopy and vehicle-based impairment detection. While technological advances are being made, it is unlikely that alcohol interlocks as a standard device on all vehicles will occur during the next decade.

In addition to current features, various types of alcohol interlock technology are being considered for future use with intention that these devices themselves may be installed as a standard feature

REFRENCES

[1] M. A. Mazidi, "The 8051 Microcontroller & Embedded Systems", Pearson Education India, 2nd edition, 2008

[2] Guifen Gu,Guili Pen,"The survey of GSM wireless communication system"computer and information application(ICCIA),2010,international conference on 2010

[3] Hillebrand, "The creation of standards for global mobile communication GSM and UMTS standardization from 1982 to 2000", f. wireless communication,ieee,2013-14

[4] Alcohal gas sensor-mq3- https://www.sparkfun.com/products/8880

[5] Gregory Webster, Hampton C. Gabler, "Assessment of dermal ethanol emission sensors: experimental design", Virginia Tech – Wake Forest Center for Injury Biomechanics

[6] Yue Cheng Wu, Yunqing Xia & Zhegiang, "Multichannel reflective PPG earpiece sensor with passive motion cancellation Biomedical Circuits &System", IEEE, 2007, PP 235-241.