



PREVENTION OF ACCIDENT ON ALCOHOL CONSUMPTION AND MESSAGE PASSED TO CONTROL ROOM

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Abstract-The main aim of our project is to design an embedded system for implementing a efficient alcohol detection system that will be useful to avoid accident. In our project we design a system to detect the alcohol in breathing and make the engine stop. If it is conformed the message is sending to the nearby control room using GSM.

KEYWORDS:

ATmega16 microcontroller, MQ-3 alcohol sensor, GSM.

I. INTRODUCTION:

Drunken drive is the major problem in every part of the nation. Many accidents happen due to the carelessness on the part of the driver. To avoid accident we designing a system which will assist the traffic police

officers to determine whether he/she is fit to drive or not. This system is basically a embedded system which can perform some specific function using microcontroller AVR- ATmega16. The alcohol sensor detect the alcohol concentration will give the analog resistive output to the microcontroller. Microcontroller controls the dc motor using L293D driver circuit. Thus vehicle will be stopped on detecting alcohol concentration and related information will be pass to the nearby control room using GSM.

II. RELATED WORKS:

Hardware mainly consists of MQ3, microcontroller AVR-ATmega16, L293D motor driver, 16*2 LCD display, DC motor. The software is basically an embedded C programming.

A) HARDWARE SYSTEM

1. Alcohol sensor MQ-3:

It is suitable for detecting alcohol concentration just like common breathalyzer. It has a high sensitivity and fast response time. The sensor is shown in figure:1.0

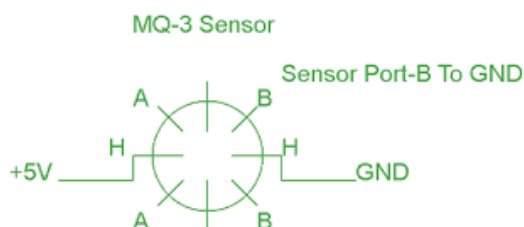


Fig: 1.0 MQ3 alcohol sensor

2. ATmega16 microcontroller:

It is an 8-bit high performance microcontroller of atmel's mega AVR family with low power consumption. The output of power supply is given to the vcc pin of microcontroller. ATmega16 has an inbuilt 10-bit,8 channel ADC system as mentioned in figure: 1.1

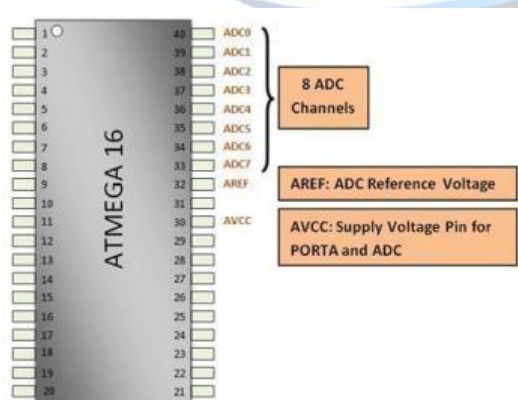


Fig: 1.1 pin diagram of ATmega16

3. L293D motor driver:

This will generate a signal to the converter of the circuit and thus controls the operation of the motor. we cannot connect motor directly with the microcontroller, so that the operation of DC motor takes place smoothly.

4. GSM SIM 300 module:

This modem can accept any GSM operator SIM card and act just like a mobile phone with its own unique phone number. Advantage of this modem will be that you can use its RS232 port to communicate and develop embedded application. This modem can either be connected to pc serial port directly or to any microcontroller. It can be used to send and receive SMS or make /receive voice calls. The GSM modem is shown in figure: 1.2

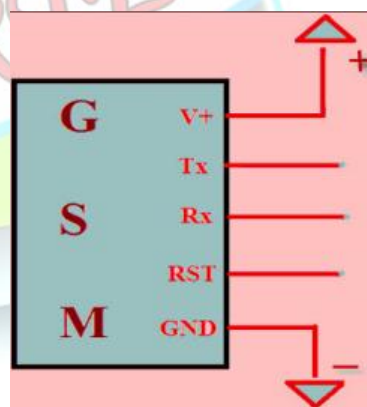


Fig: 1.2 GSM SIM 300 module

B) SOFTWARE SYSTEM:



Embedded software deals with language like ALP, C, etc.. here we have used embedded C programming. Its characteristics are

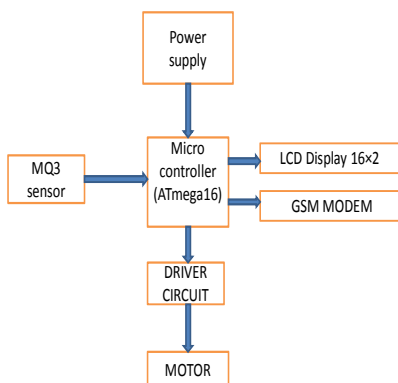
i) simple to learn, understand, program, debug.

ii) C compiler are available to almost all embedded devices. It carry management of large embedded projects.

III. BLOCK DIAGRAM

The power supply is given to the VCC pin of the microcontroller AVR- ATmega16, the alcohol sensor MQ3 will detect the alcohol concentration & provides an analog resistive output which is given to the inbuilt ADC of microcontroller. The inbuilt ADC of the microcontroller will convert this analog resistive output into digital output that will in the form of LCD message display that "ALCOHOL DETECTED".

Block diagram



If alcohol is detected then microcontroller will give the signal to the L293D driver which will generate a signal to the converter of the circuit. Also L293D motor driver will control the operation of the DC motor. Thus if alcohol is detected then bike will never get start. Further using the GSM modem, message will be passed to the nearby control room or any unique number.

IV. BASIC FEATURES OF HARDWARE COMPONENTS

A) Basic features of microcontroller ATmega16:-

- High performance, low powers and Advanced risc architecture with in The system programmable program Memory.
- 131 powerful instructions –most single Clock cycle execution.
- 10 bit ADC and 10 bit DAC.
- Operating voltage: 2.7v-5.5v.

B) Basic features of ATmega16 ADC are:-

- 8 channels.
- 10 bit resolution.
- Input voltage range of 0 to vcc.
- Selectable 2.56v of internal reference voltage source.
- AREF PIN for external reference voltage.
- ADC conversion complete interrupt.

C) Some of the basic features of alcohol sensor Mq3 are:-

- High sensitivity to alcohol and small Sensitivity to benzene.
- Long life and low cost with simple



Drive circuit.

d) some of the basic features of GSM SIM 300 module are:-

- High reliable for 24x7 operation with Antenna.
- Status of the modem indicated by led.
- Quad band modem supports all GSM operator SIM CARDS .

V.CONCLUSION:-

The is a developed design to efficiently check drunken driving .By implementing this design a safe car journey is possible decreasing.

The accident rate due to drinking .by implementing this design ,drunken drivers can be controlled so are the accidents due to drunken driving . government must enforce laws to install such circuit in every car and must regulate all car companies to pre-install such mechanisms while manufacturing the car itself.

If this is achieved the deaths due to drunken drivers can be safely landing of car aside without disturbing other vehicles.

• Applications like SMS based remote control & alerts . also in GPRS mode data logging.

E)Some basic features of L293D driver circuit are:-

- voltage range is 4.5 v to 36v.
- separate input logic circuit.
- High noise immunity.
- All inputs are ttl logic.