

# *Alcohol detection with vehicle controlling*



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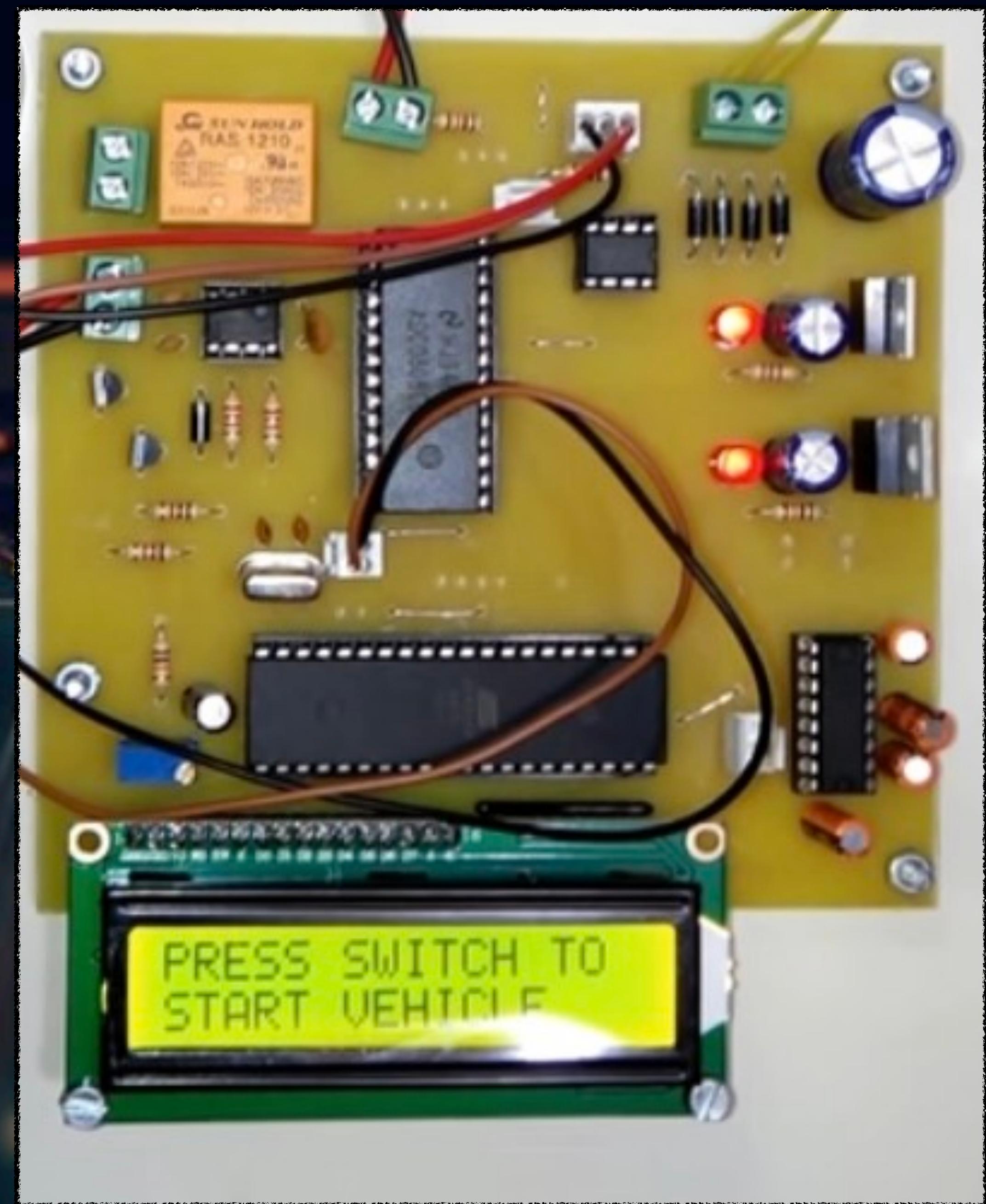
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# *INTRODUCTION*

The main purpose of this project is “Drunk driving detection”. Nowadays, many accidents happens because of the alcohol consumption of the driver .Thus Drunk driving is a major reason for accidents in almost all countries all over the world. An alcohol breath analyzer project should be fitted/ installed inside the vehicle.



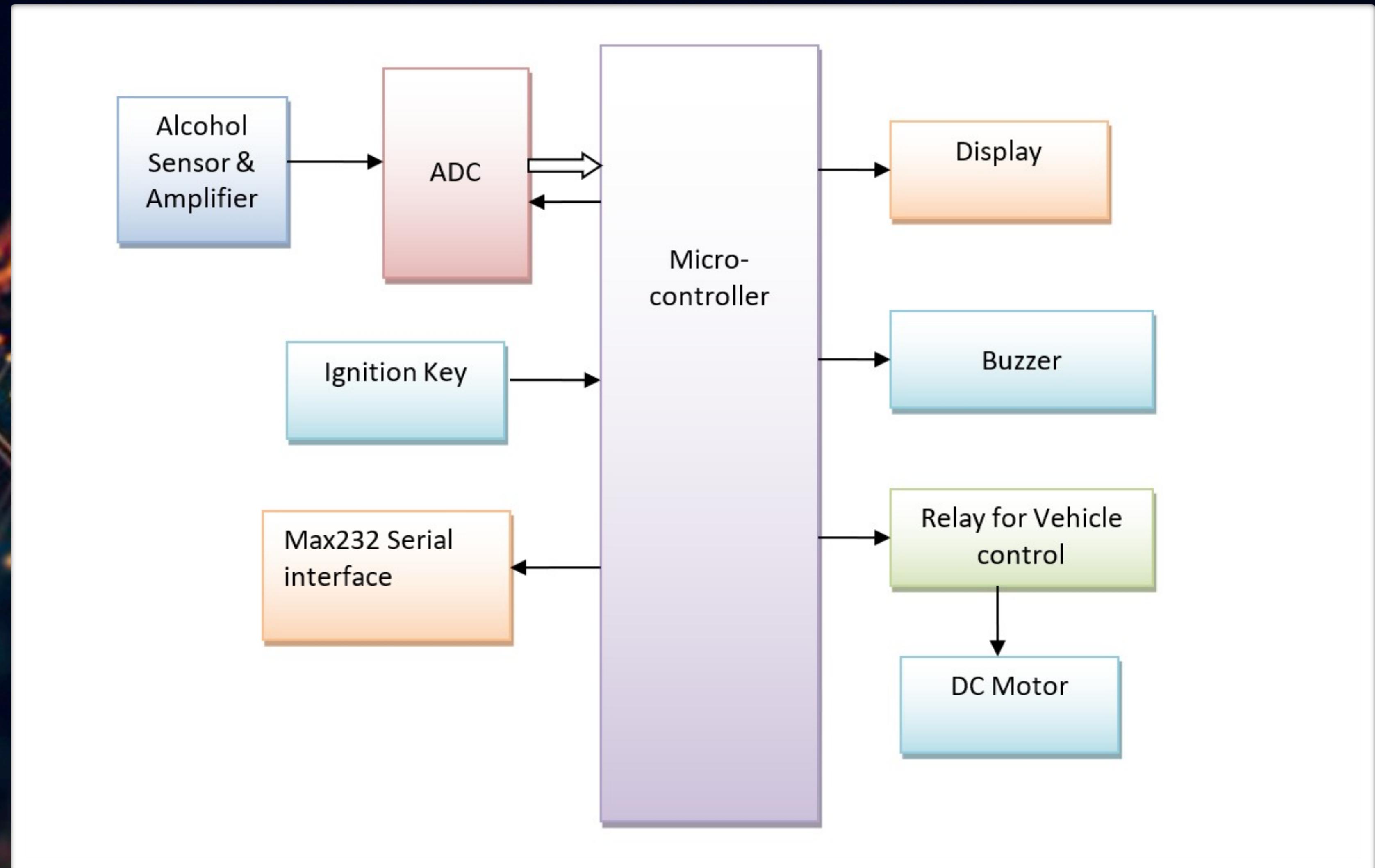
# The main components are:-

- 1.Alcohol sensor
- 2.Analog to digital converter(ADC)
- 3.Microcontroller
- 4.Relay
- 5.LCD - Display
- 6.DC motor
- 7.MAX 232 IC
- 8.Jumper wire

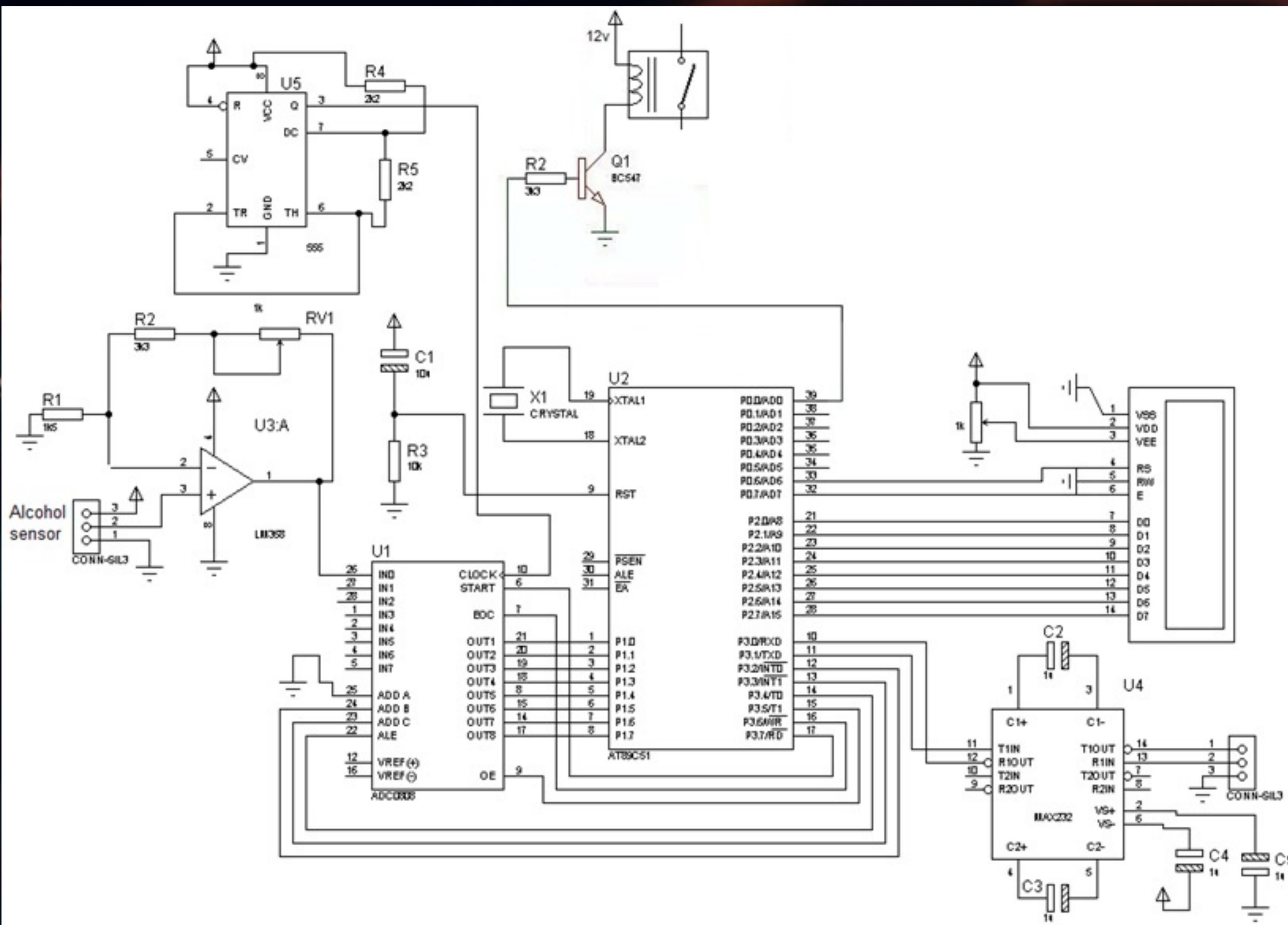
# Working principle

**The working of the circuit is as follows :  
When the ignition key is on, the circuit starts. And the dc motor starts rotating. When the alcohol sensor smells the alcohol in the vehicle, the signal is sent to the microcontroller and it turns the relay on which stops the dc motor. Then microcontroller sends signal to the buzzer and it starts beeping. The lcd shows the amount of alcohol the person has consumed.**

# *Block Diagram*



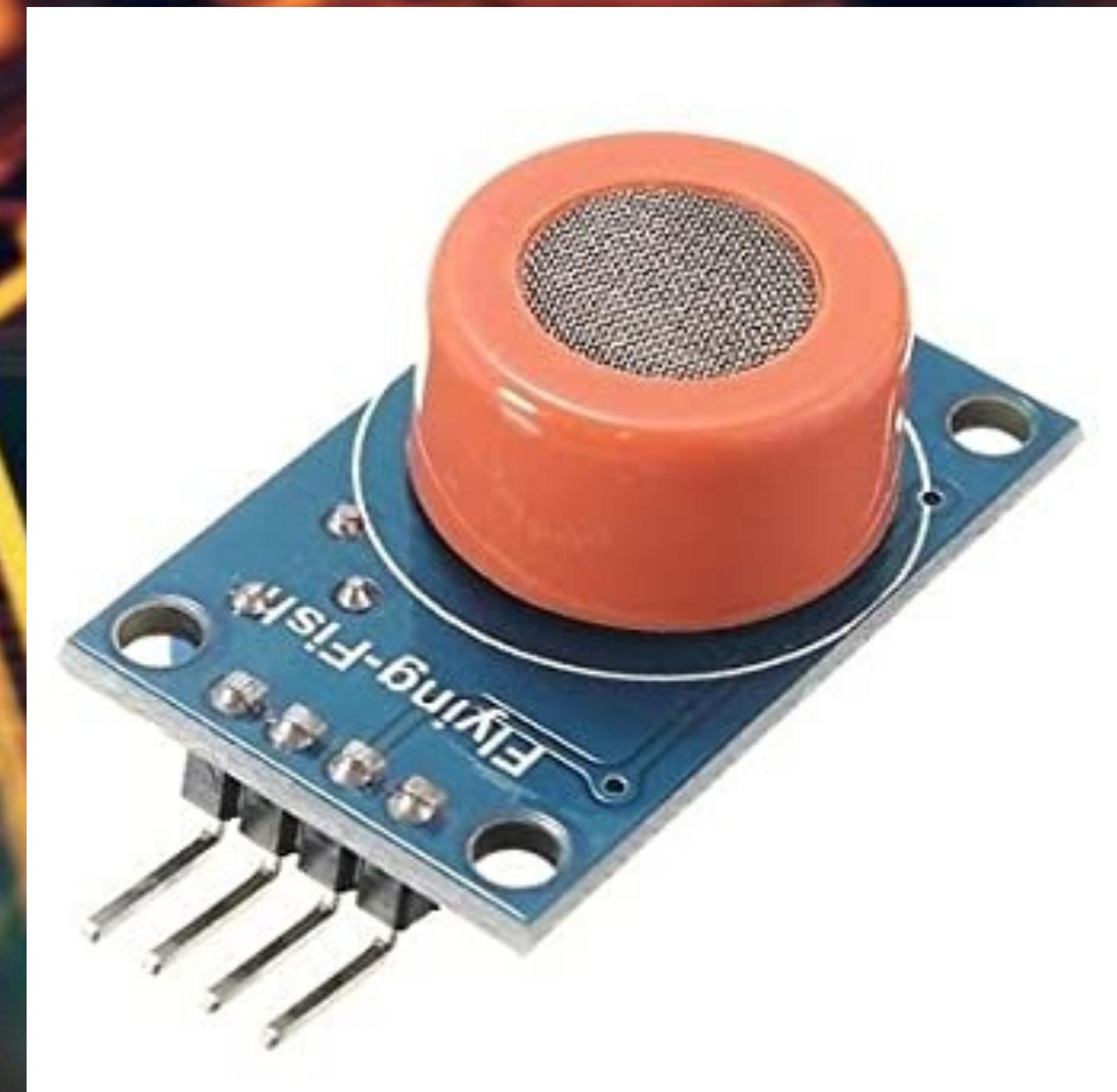
# Circuit diagram



# Block diagram Description

## ○1) Alcohol sensor:

It measures the amount of alcohol that is present in surrounding environment. As the output signal of sensor is smaller in amplitude the signal power is also low therefore amplifiers are used. The weak signals are amplified using amplifiers. The temperature range is -10 to 50 degree Celsius and power supply less than 5V.



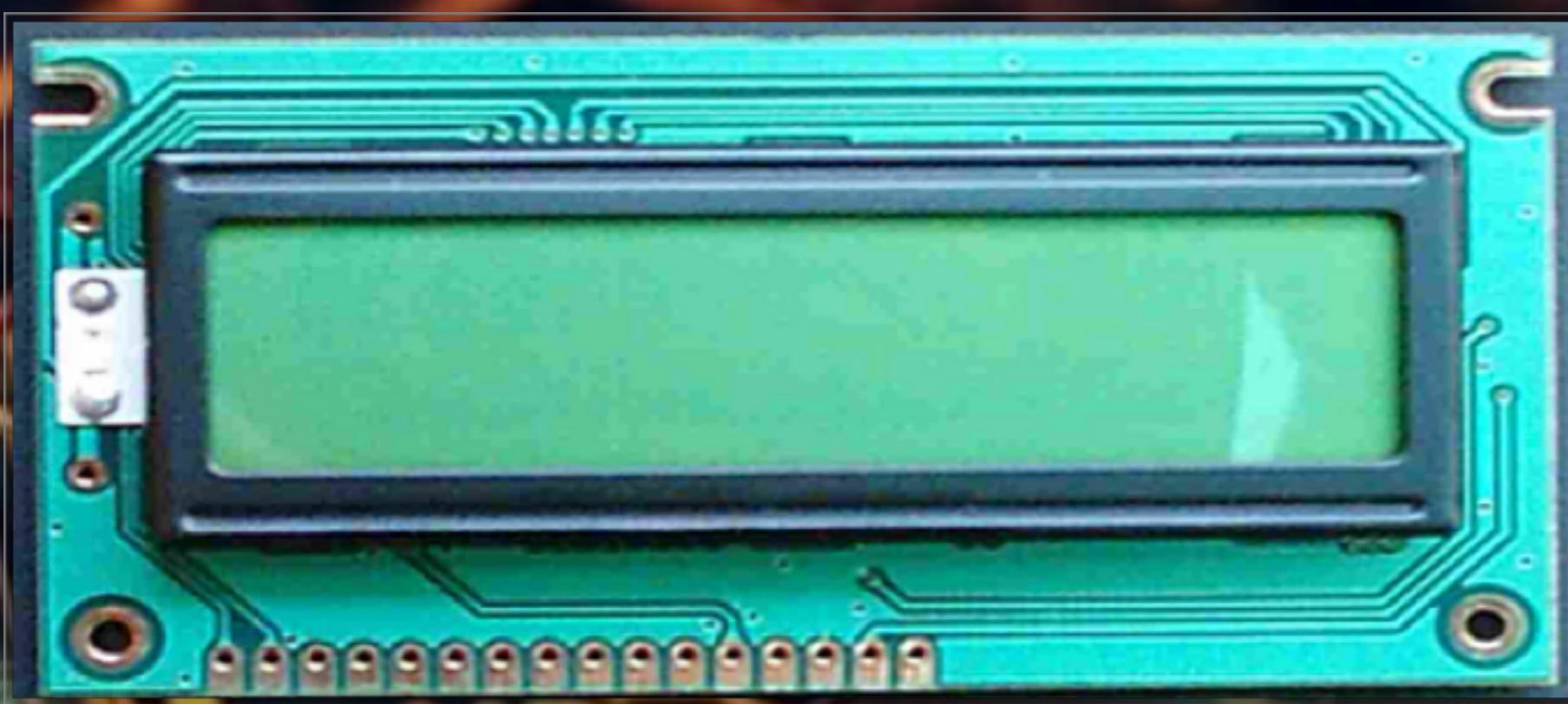
## 2) ANALOG TO DIGITAL CONVERTER (ADC):

It is used to convert Analog signal to Digital format, which is given as an input to the micro controller. Sensor output is available in analog form. However, for processing, transmission and storage purpose, it is often more convenient to express such signals in digital form. ADC used here is ADC0808CCN.



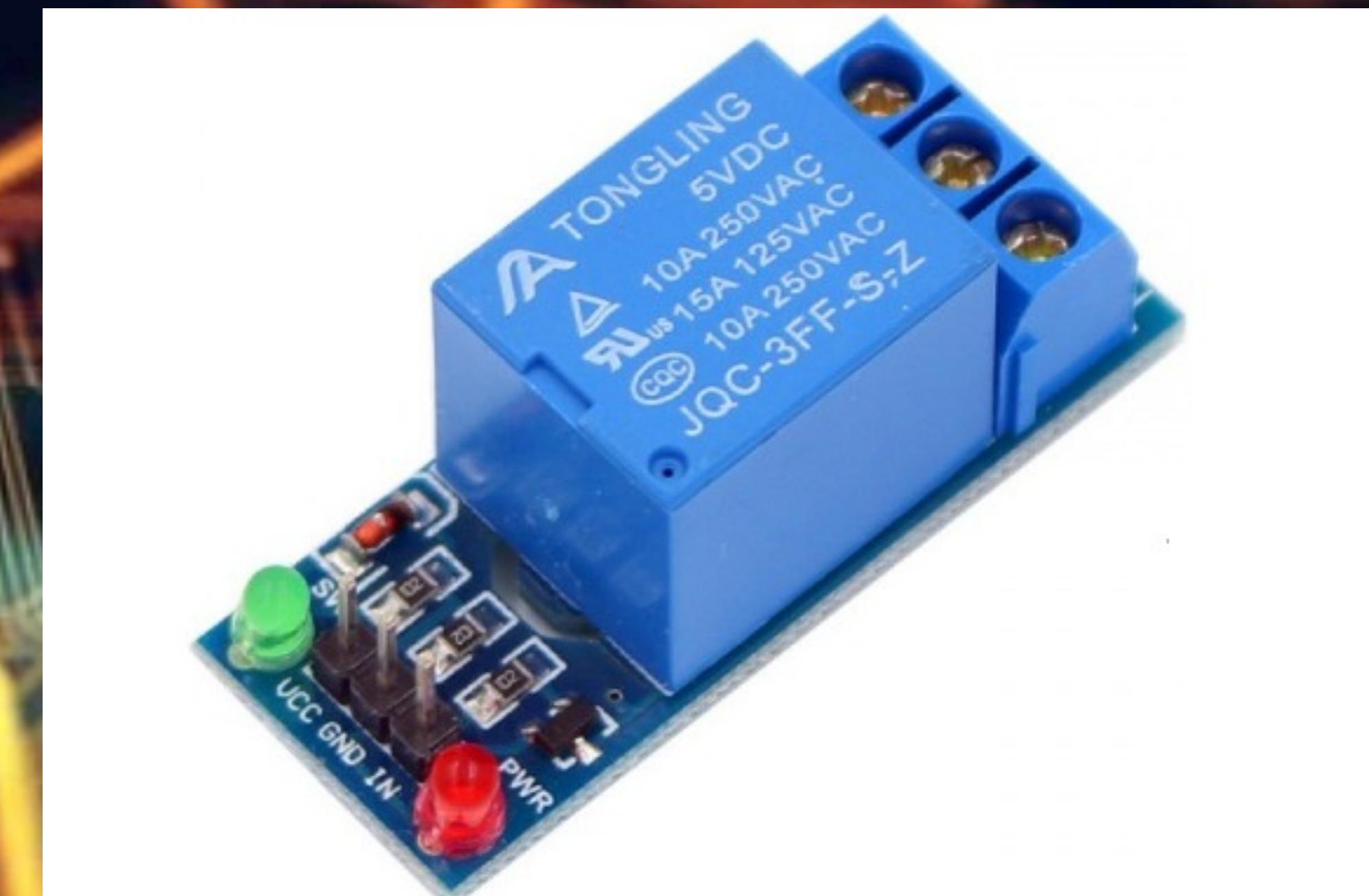
### ○3) Liquid Crystal Display :-

It is an Alphanumeric Display. Used for displaying various messages. We have used 16 x 2 Alphanumeric Display. It can display 16 character per line and there are two such lines.



## 4) Relay for CONTROLLER:-

It is mainly used to control a high powered circuit using a low power signal. Basically it is a switch which controls (open and close) circuits electromechanically. If alcohol percentage is more then the Relay will be turned off. It can be controlled directly with 3 .3 V or 5 V logic signals from a microcontroller.



- **5) DC Motor:** In DC motor, operation is based on simple electromagnetism. A current-carrying conductor generates a magnetic field; when this is then placed in an external magnetic field, it will experience a force proportional to the current in the conductor, and to the strength of the external magnetic field.



## 6) MAX232 serial interface

MAX232 IC is widely used for serial communication among Microcontrollers & PC. The main function of this integrated circuit is to change the logic levels of TTL/CMOS to RS232 throughout the serial communication process.



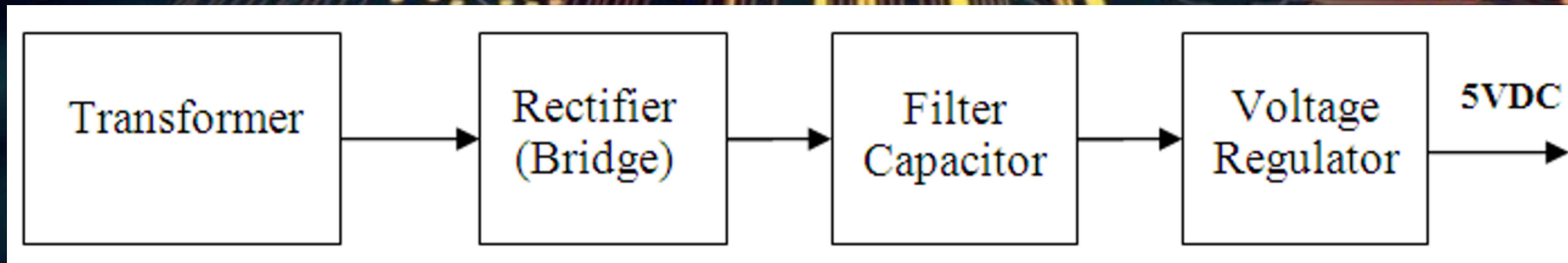
## 7) JUMPER WIRE

jumper wires are simply wires that have connector pins at each end, allowing them to be used to connect two points to each other without soldering. Jumper wires are typically used with breadboards and other prototyping tools in order to make it easy to change a circuit as needed. Fairly simple. In fact, it doesn't get much more basic than jumper wires.



# Power Supply Module

Power supply gives +5V supply to the circuit. It consists of four stages namely transformer, rectifier, filter, and regulator.



# SOFTWARE REQUIREMENT

\***EAGLE Software:** It is used for PCB design, it includes Schematic Capture, Board Layout and Autorouter.

**EAGLE has following 2 sections:**

1) **Schematic capture:** For designing circuit diagrams. Parts can be placed on many sheets and connected together through ports.

2) **PCB layout:** It allows auto-routing to automatically connect traces based on the connections defined in the schematic.

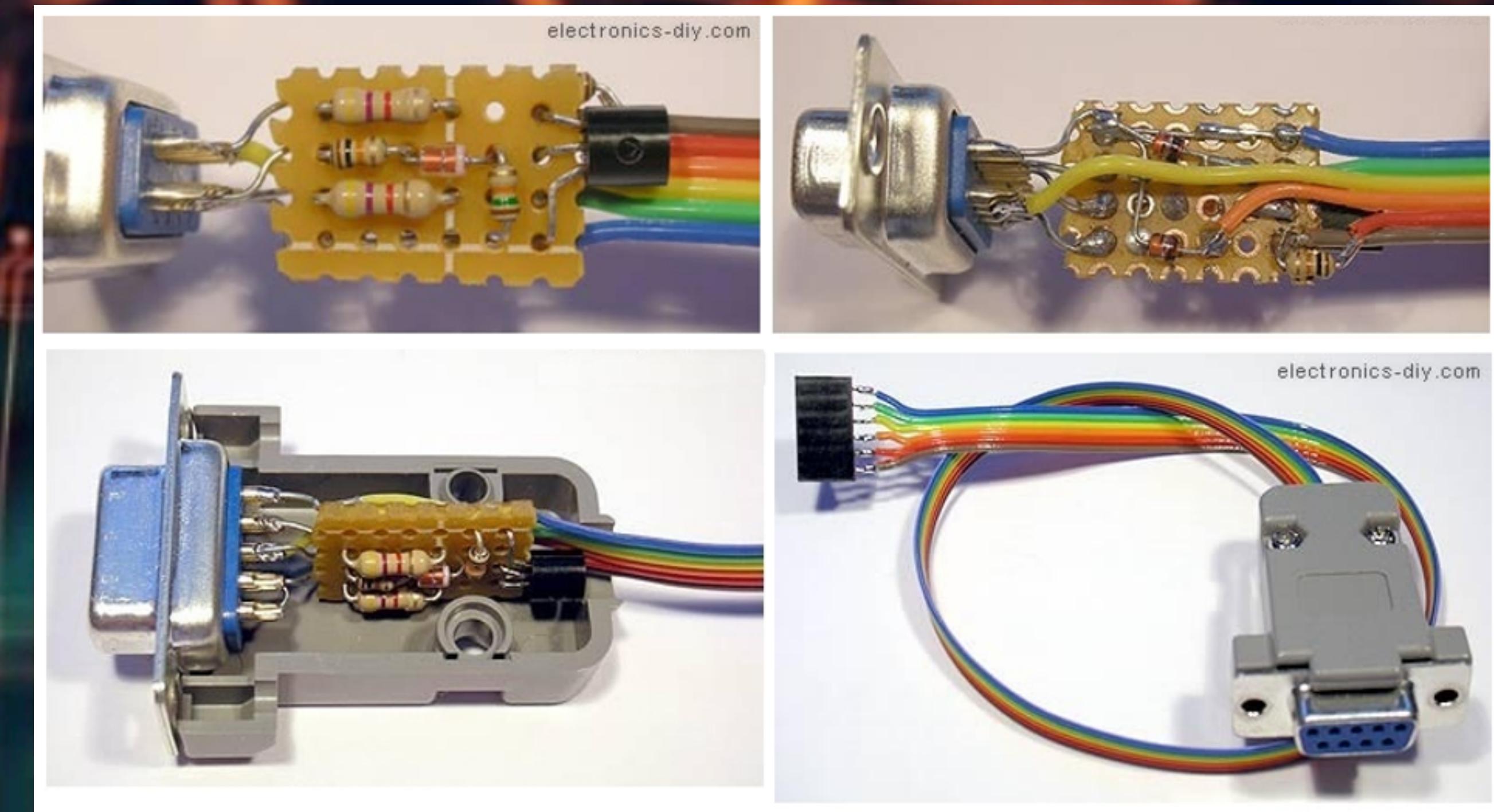


**KEIL software:** It used for Microcontroller Programming Software. It has compiler designed specifically for the 8051 microcontroller. It converts a High Level Language source code (written in assembly language or C language) into its object code. Then a linker is used to create an absolute object module suitable for your circuit.



# Microcontroller Programmer

It transfers hex programs to Microcontroller. It has in-circuit serial programmer & small PCB. You can connect it to microcontroller and program it. Programmer software shows progress status bar.

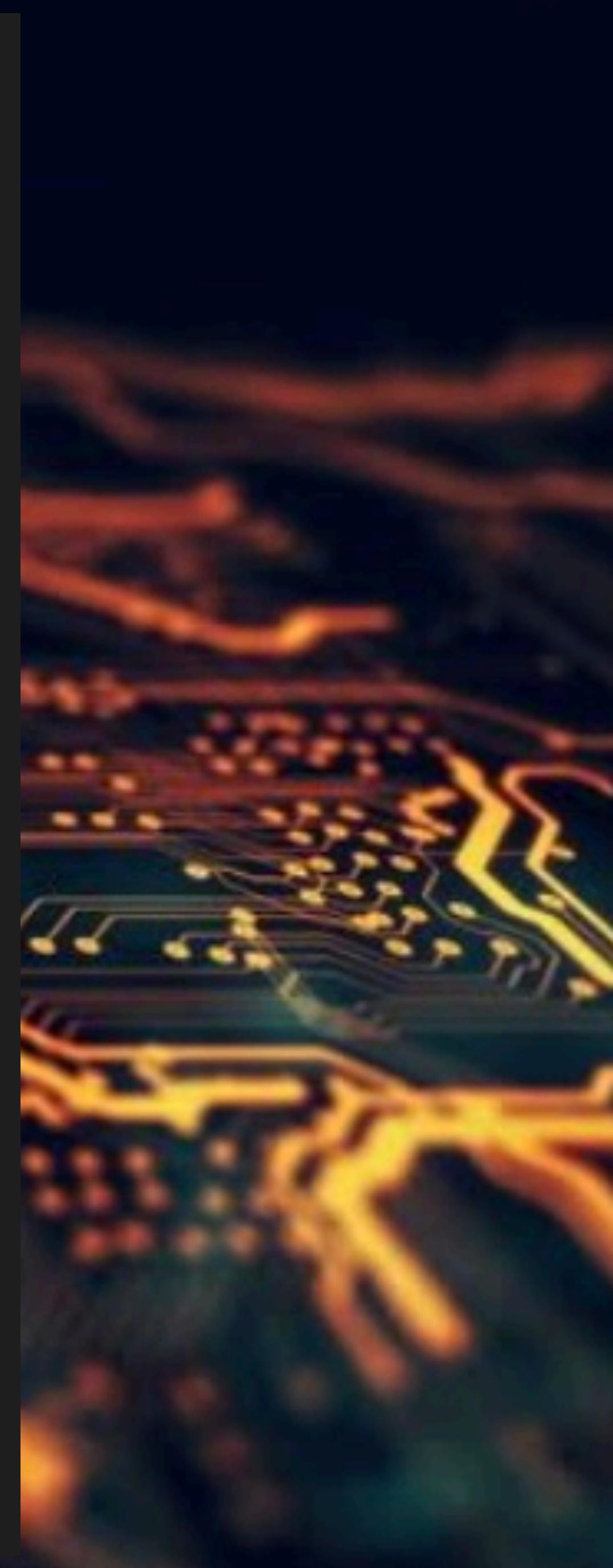


2008

```
1 org 0000h
2           mov 34h,#02h
3           call LCDcmd
4           mov 34h,#28h
5           call LCDcmd
6           mov 34h,#0Ch
7           call LCDcmd
8           mov 34h,#06h
9           call LCDcmd
10          mov 34h,#01h
11          call LCDcmd
12          mov dptr,#message1
13          call LCDdisp
14          call pc_int
15          mov dptr,#message2
16          call LCDdisp
17 loop:    call ADC_sensor1
18           call disp_values
19           call check_threshold1
20           jmp loop
21 check_threshold1:   mov a,50H
22           subb a,#50
23           jc chk_low_sensor1
24           setb P0.0
25           ret
26 chk_low_sensor1:  clr P0.0
27           ret
28
29 ADC_sensor1:      clr P3.2
30           clr P3.3
31           setb P3.4
32           clr P3.6
33           jb P3.6,$
34
35           setb P3.5
36           mov a,P1
```

```
37      mov 50H,a
38      clr P3.5
39      mov a,50H
40      mov b,#03
41      div ab
42      mov 50H,a
43      ret
44
45 disp_values:
46      mov scon,#50h
47      mov tmod,#21h
48      mov th1,#f4h
49      setb tr1
50      mov a,#'A'
51      mov sbuf,a
52      jnb ti,$
53      mov a,#'L'
54      mov sbuf,a
55      jnb ti,$
56      mov a,#'C'
57      mov sbuf,a
58      jnb ti,$
59      mov a,#'0'
60      mov sbuf,a
61      jnb ti,$
62      | mov a,#'='
63      mov sbuf,a
64      jnb ti,$
65      mov 5AH,#82h
66      mov 5BH,#83h
67      mov 5CH,#84h
68      mov 55H,50H
69      call displayroutine
70
```

```
71      mov a,#'%'  
72      mov sbuf,a  
73      jnb ti,$  
74  
75      ret  
76  
77 displayroutine:  mov a,55H  
78          mov b,#100  
79          div ab  
80          mov 56H,a  
81  
82          mov a,b  
83          mov b,#10  
84          div ab  
85          mov 57H,a  
86          mov a,b  
87          mov 58H,a  
88  
89          mov a,56H  
90          add a,#48  
91          mov 56H,a  
92  
93          mov a,57H  
94          add a,#48  
95          mov 57H,a  
96  
97          mov a,58H  
98          add a,#48  
99          mov 58H,a  
100  
101         mov 34h,5AH  
102         call LCDcmd  
103         mov 34h,56H  
104         call LCDdata  
105
```



```
106          mov 34h,5BH
107          call LCDcmd
108          mov 34h,57H
109          call LCDdata
110
111          mov 34h,5CH
112          call LCDcmd
113          mov 34h,58H
114          call LCDdata
115
116          mov a,56H
117          mov sbuf,a
118          jnb ti,$
119          mov a,57H
120          mov sbuf,a
121          jnb ti,$
122          mov a,58H
123          mov sbuf,a
124          jnb ti,$
125
126          ret
127
128 LCDcmd:
129          mov 35h,34h
130          mov 36h,35h
131          mov a,36h
132          mov P2,a
133          clr P0.6
134          setb P0.7
135          call LCDdelay
136          mov a,36h
137          swap a
138          mov P2,a
139          clr P0.6
140          setb P0.7
141          call LCDdelay
```

```
141         call LCDdelay
142         ret
143
144 LCDdata:
145         mov 35h,34h
146         mov 36h,35h
147         mov a,36h
148         mov P2,a
149         setb P0.6
150         setb P0.7
151         call LCDdelay
152         mov a,36h
153         swap a
154
155         mov P2,a
156         setb P0.6
157         setb P0.7
158         call LCDdelay
159         ret
160
161 delayhalf:    mov 30h,#05
162 delayhalf1:   mov 31h,#200
163 delayhalf2:   mov 32h,#250
164         djnz 30h,$
165         djnz 31h,delayhalf2
166         djnz 32h,delayhalf1
167         ret
168
169 LCDdelay      mov 30h,#08
170 LCDdelay1     mov 31h,#250
171             djnz 31h,$
172             djnz 30h,LCDdelay1
173             ret
174
```

```
175 LCDdisp      movc a,@a+dptra  
176           cjne a,#'@',LCDdisp1  
177           mov 34h,#c0h  
178           call LCDcmd  
179           jmp LCDdisp  
180 LCDdisp1     cjne a,#'$',LCDdisp3  
181           ret  
182 LCDdisp3     mov 34h,a  
183           call LCDdata  
184           jmp LCDdisp  
185  
186 delay1sec:   call delayhalf  
187           call delayhalf  
188           ret  
189  
190 delay2sec:   call delayhalf  
191           call delayhalf  
192           call delayhalf  
193           call delayhalf  
194           ret  
195 pc_int:      mov scon,#50h  
196           mov tmod,#21h  
197           mov th1,#f4h  
198           mov tl1,#f4h  
199           setb tr1  
200  
201 pc_int2     movc a,@a+dptra  
202           cjne a,#'@',pc_int1  
203           mov a,#' '  
204           mov sbuf,a  
205           jnb ti,$  
206           jmp pc_int2  
207  
208 pc_int1     cjne a,#'$',pc_int3  
209           mov a,#10  
210           mov sbuf,a
```

```
208    pc_int1          cjne a,#'$',pc_int3
209                                mov a,#10
210                                mov sbuf,a
211                                jnb ti,$
212
213                                mov a,#13
214                                mov sbuf,a
215                                jnb ti,$
216
217                                mov tmod,#11h
218                                ret
219
220    pc_int3          mov sbuf,a
221                                jnb ti,$
222                                ret
223
224                                jmp pc_int2
225    message1        DB "ALCOHOL MONITORING@&VEHICLE CONTRL$"
226    message2        DB "ALCOHOL =      %"
```

# APPLICATIONS

## Applications of Alcohol Detector in Car:

- 
- 1) “Alcohol Detector project” can be used in the various vehicles for heavy duty vehicles drivers and prevents most of the accidents by cutting of the ignition.
  - 2) Saves the families by saving the life of the person who’s drunk as well as the person who’s not at fault.
  - 3) “Alcohol Detection System in Cars” provides an automatic safety system for cars making the cars more feature friendly as well as advanced.

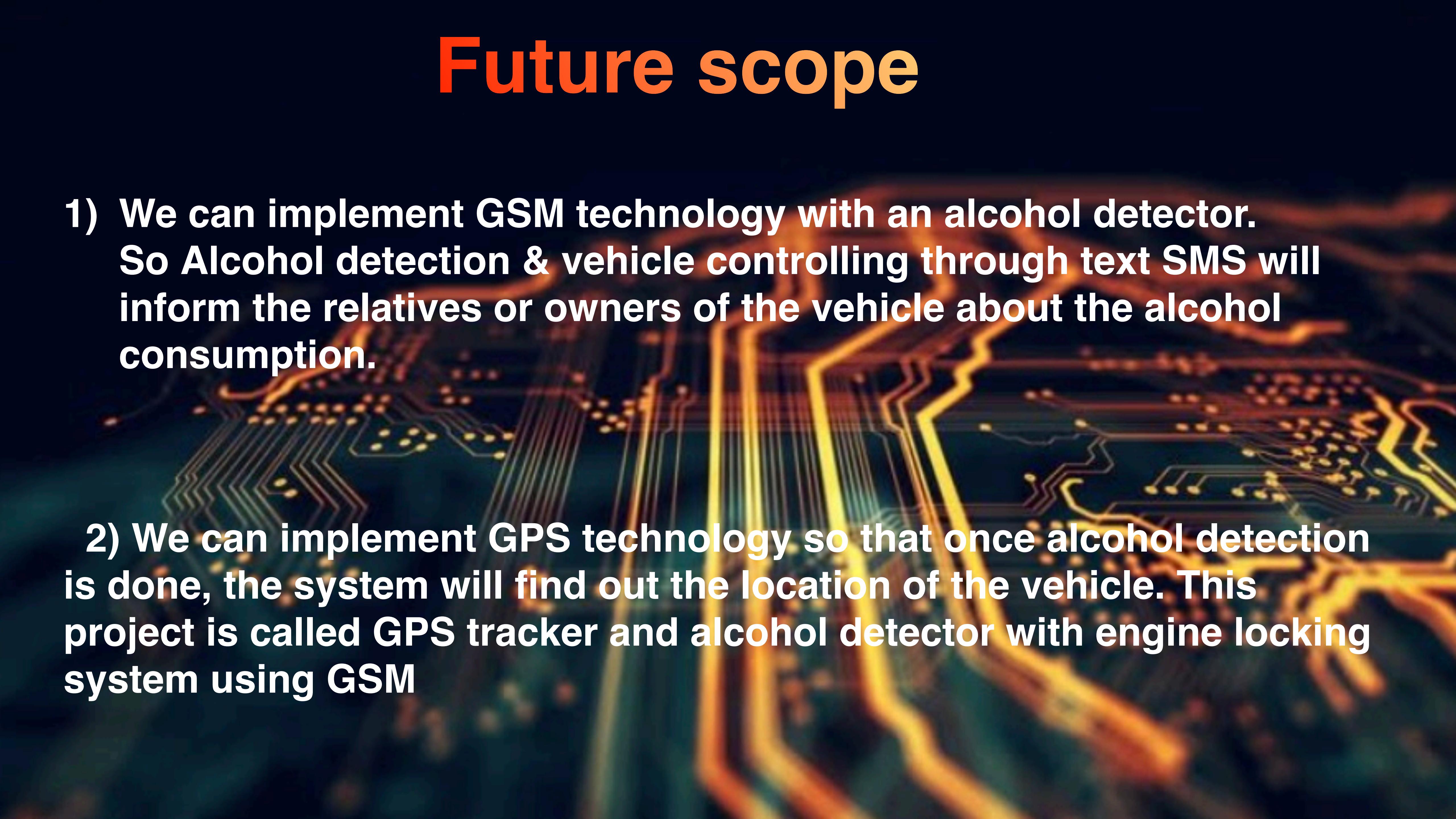
# Benefit of the society

- About 450,000 accidents take place in India annually, of which 150,000 people die. “India has the highest number of casualties in road accidents,” said the report. “There are 53 road accidents in the country every hour and one death every four minutes.”it
- According to NCRB latest report about 5% of total road accidents that happen in India due to drunk driving and 30112 casualties of death reported last year.
- This device ensure safety of people inside the vehicle by whether the driver is drunk or not and in case if driver got drunk the buzzers get turned on.

# NOVELTY

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1. The novelty in this project is that we can turn off the ignition of the car. The alcohol detectors used just detect the alcohol percentage but in this project if the alcohol level passes a certain level the ignition of the car is turned off.
  2. Also, this project doesn't require a third person to check if the driver is drunk. This project can be fitted inside the car and if the alcohol sensor detects alcohol the buzzer buzzes and the ignition is cutoff.

# Future scope

- 
- 1) We can implement GSM technology with an alcohol detector. So Alcohol detection & vehicle controlling through text SMS will inform the relatives or owners of the vehicle about the alcohol consumption.
  - 2) We can implement GPS technology so that once alcohol detection is done, the system will find out the location of the vehicle. This project is called GPS tracker and alcohol detector with engine locking system using GSM

# Conclusion

- With the knowledge of new techniques in ‘Electronics’ we are able to make our life more comfortable. One such application of electronics is used in “Alcohol detection with vehicle controlling”.
- We conclude that the alcohol consumption of driver have successfully monitored through sensor.
- We feel that our project are serve something good to this world and we like to present it before this prosperous world.

*Thank you*

