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ALCOHOL DETECTION WITH VEHICLE CONTROLLING

Content :

1.Introduction

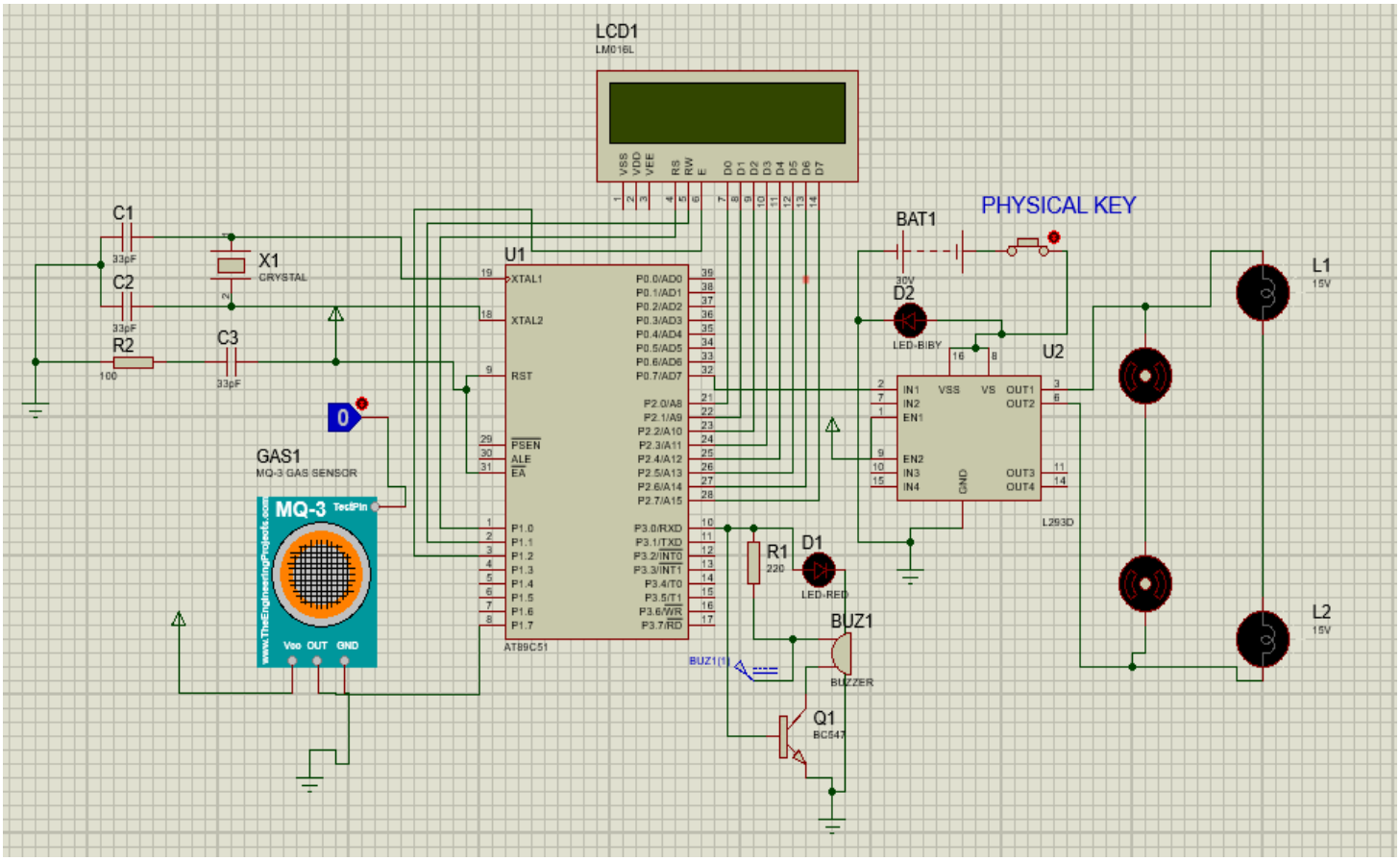
The main purpose behind this project is "Drunken driving detection". Now-a days, many accidents are happening because of the alcohol consumption of the driver or person who is driving the vehicle. Thus drunk driving is a major reason of accidents in almost all countries all over the world. Alcohol Detector in Car project is designed for the safety of the people seating inside the car. This project should be fitted / installed inside the vehicle.

*I am using a micro-controller (**AT89C51**) and making this project with the help of two softwares (i.e **keil and proteus**).*

2.Hardware components

A. AT89C51
B. Resistor
C. Capacitor
D. Crystal(11.0592)
E. MQ3 gas sensor (detects alcohol)
F. Toggle key
G. 16*2 lcd screen
H. Buzzer
I. BC547 transistor
J. LED(red and yellow)
K. L293D (motor driver)
L. Battery
M. Button
N. Dc motor
O. Bulb

3.Schematic diagram



4.Code

```
#include<reg51.h>


//for lcd screen

sbit rs=P1^0;

sbit rw=P1^1;

sbit en=P1^2;
```

```
//for gas sensor
sbit sensor=P1^7;

//for engine
sbit motor=P0^7;

//for buzzer
sbit buzzer=P3^0;

//function declaration for lcd screen
void lcdinit();
void lcdcmd(unsigned char);
void lcddat(unsigned char );
void lcddis(unsigned char *);
void delay();
void main()
{
        sensor=1;
        buzzer=0;
        motor=0x09;
        lcdinit();
```

```
lcddis("WELCOME BACK TO  ");
lcdcmd(0xc0);
lcddis("THE CAR SIR");
delay();

while(1)
{

      if(sensor==1)                          //alcohol detected
      {

            back3:lcdcmd(0x01);              //clearing the screen
            lcddis("ALCOHOL DETECTED");
            lcdcmd(0x01);
  lcddis("TURNING OFF THE");
            lcdcmd(0xc0);                    //cursor on next line
            lcddis("ENGINE!!!!");
            motor=0x09;                      //engine stopped
            buzzer=1;                       //buzzer turns on
            back:lcdcmd(0x01);
            lcddis("ENGINE TURNED");
```

```
            lcdcmd(0xc0);
        lcddis("OFF....");
        if(sensor==0)                    //no alcohol
        {
            buzzer=0;                    //buzzer off
            lcdcmd(0x01);
            lcddis("TURNING ON THE ");
            lcdcmd(0xc0);
            lcddis("ENGINE AGAIN..");

            goto back1;
        }
        goto back;




}
if(sensor==0)
```

```
    {
        back1:motor=0x00;
        buzzer=0;
        lcdcmd(0x01);
        lcddis("HAPPY JOURNEY");
        back2:lcdcmd(0x01);
        lcddis("NO ALCOHOL ");
        lcdcmd(0xC0);
lcddis("DETECTED...");
        lcdcmd(0x01);
        lcddis("KEEP GOING..");
        if(sensor==1)
        {
         goto back3;
        }
        goto back2;

    }
```

```
        }
}


//initialization of lcd
void lcdinit()
{
        lcdcmd(0x38);
        lcdcmd(0x01);
        lcdcmd(0x10);
        lcdcmd(0x0c);
        lcdcmd(0x80);

}

//command function for lcd
void lcdcmd(unsigned char val)
{
        P2=val;
```

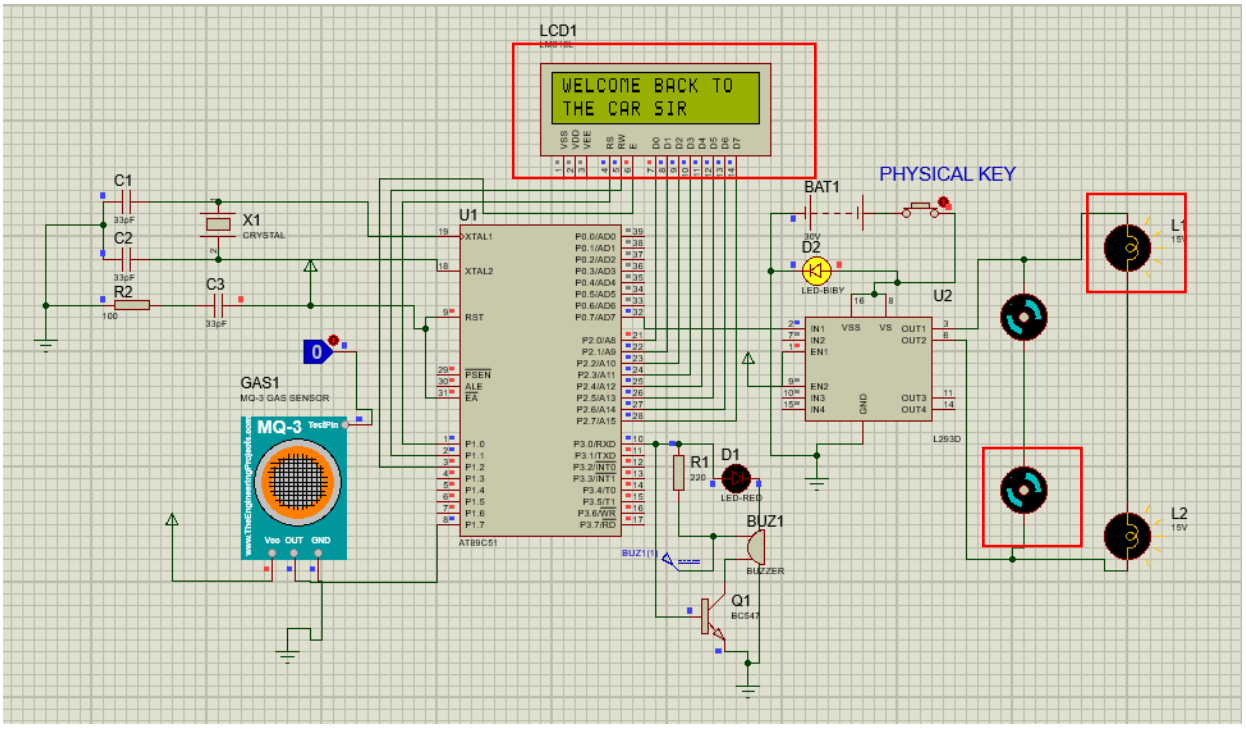
```
        rs=0;
        rw=0;
        en=1;
        delay();
        en=0;

}

// function for sending the data on lcd screen
void lcddat(unsigned char dat)
{
        P2=dat;
        rs=1;
        rw=0;
        en=1;
        delay();
        en=0;

}
```

```
// function for displaying the message on lcd screen
void lcddis(unsigned char *s)
{
	unsigned char w;
	for(w=0;s[w]!='\0';w++)
	{
		lcddat(s[w]);
	}
}

void delay()
{
	unsigned int i;
	for(i=0;i<8000;i++);

}
```

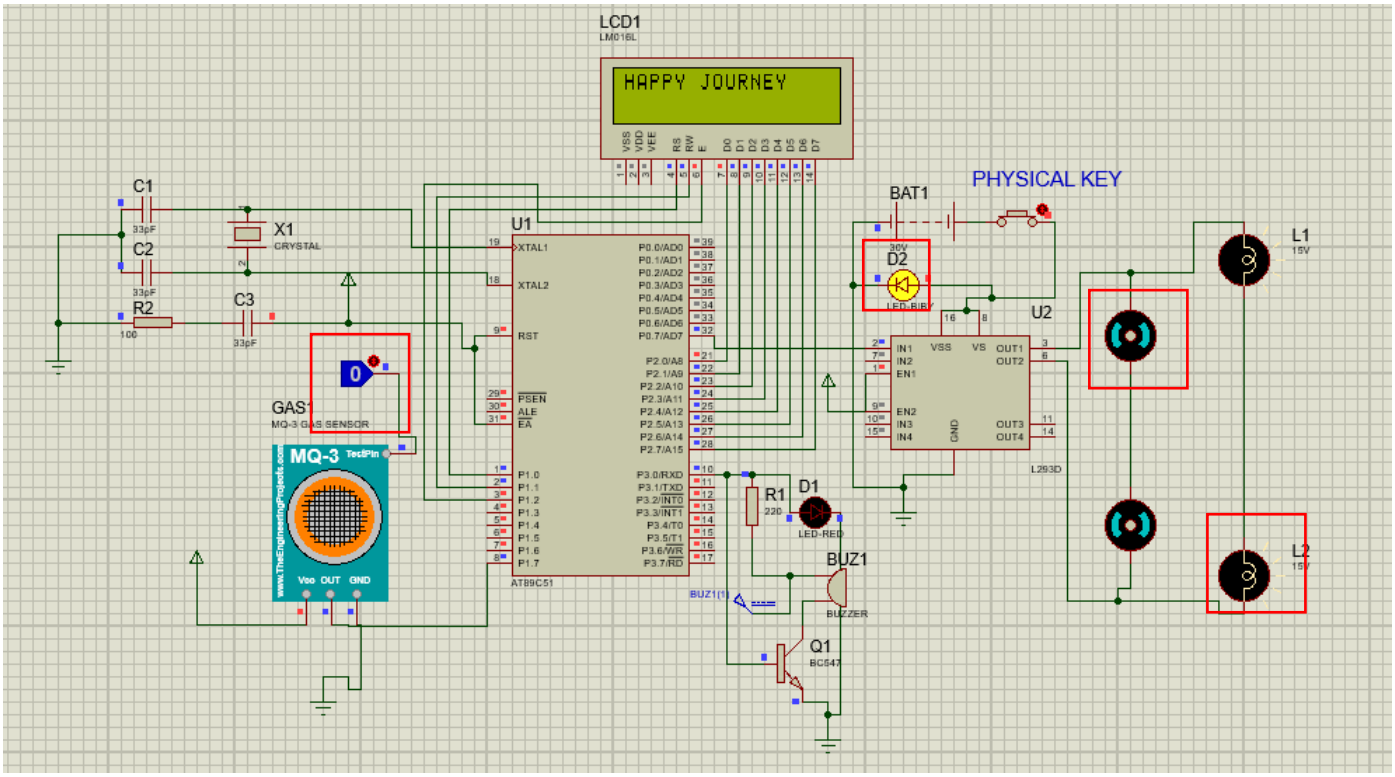
5.Working

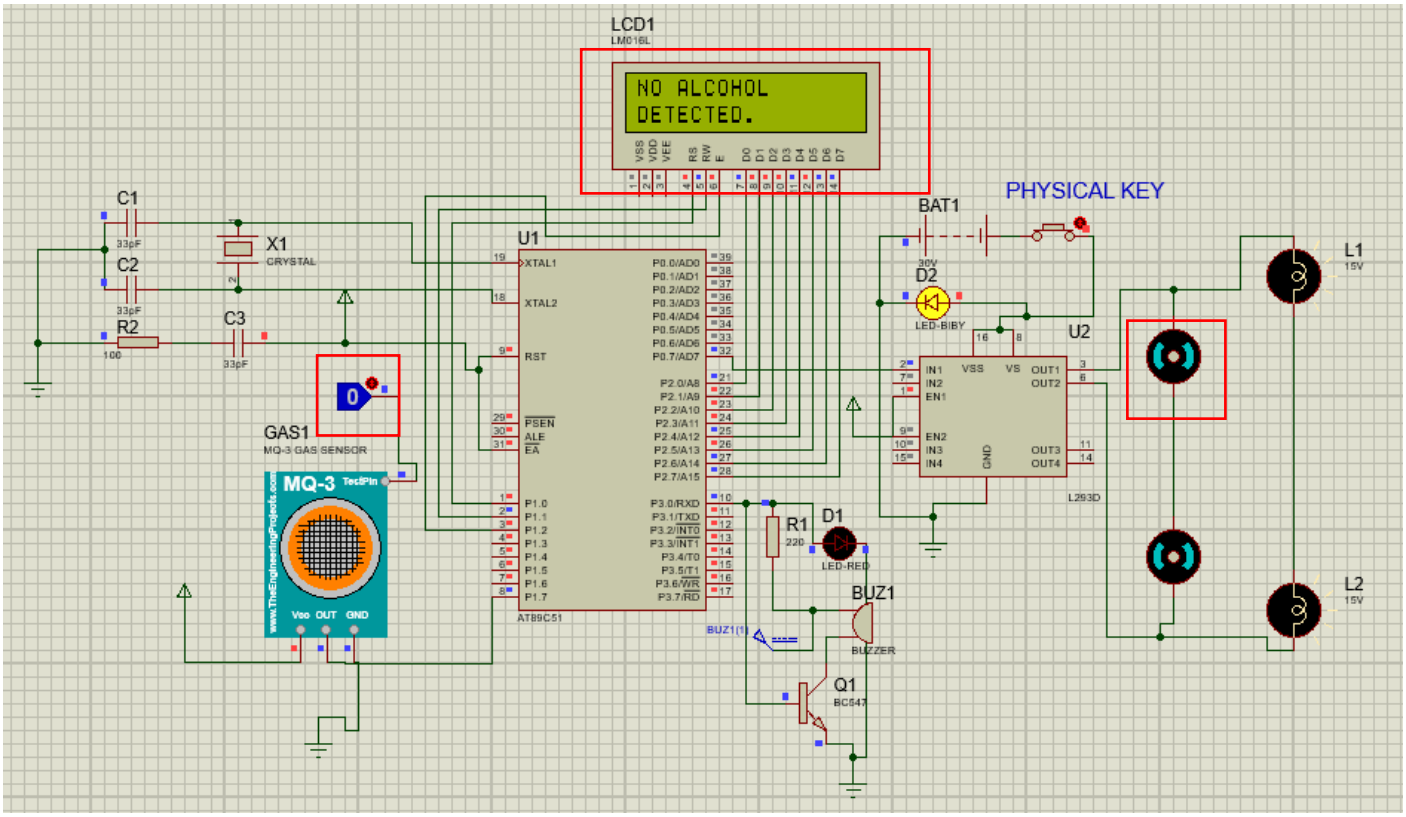
a) *Initially there is **button** (physical key) connected with the battery which gives power to the engine. If we press the button it gives power to the engine and the yellow led will glow same as we insert physical key in our vehicles otherwise the engine will not start.*

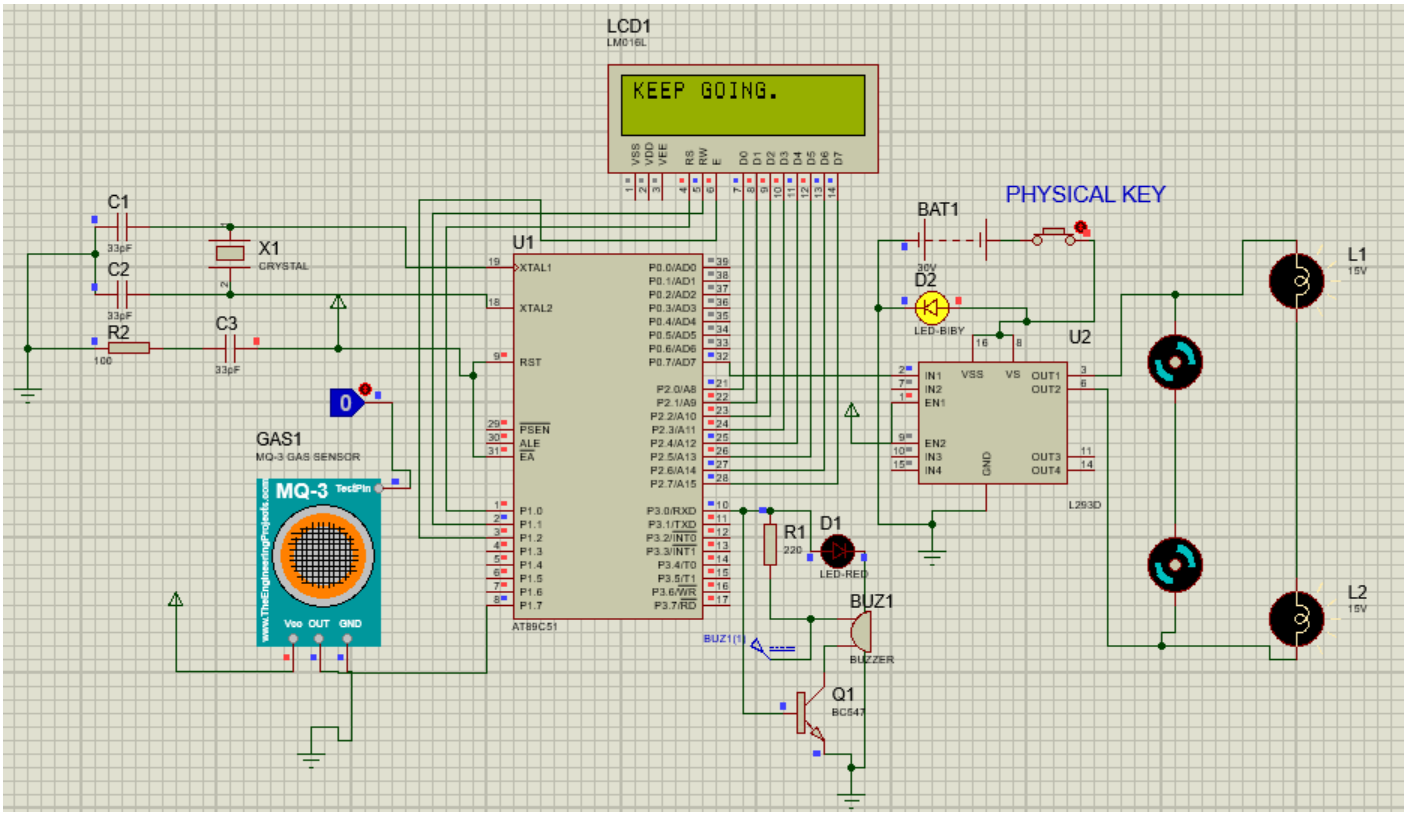
b) *Then the lcd screen welcomes you with the message i.e WELCOME BACK TO THE CAR SIR*



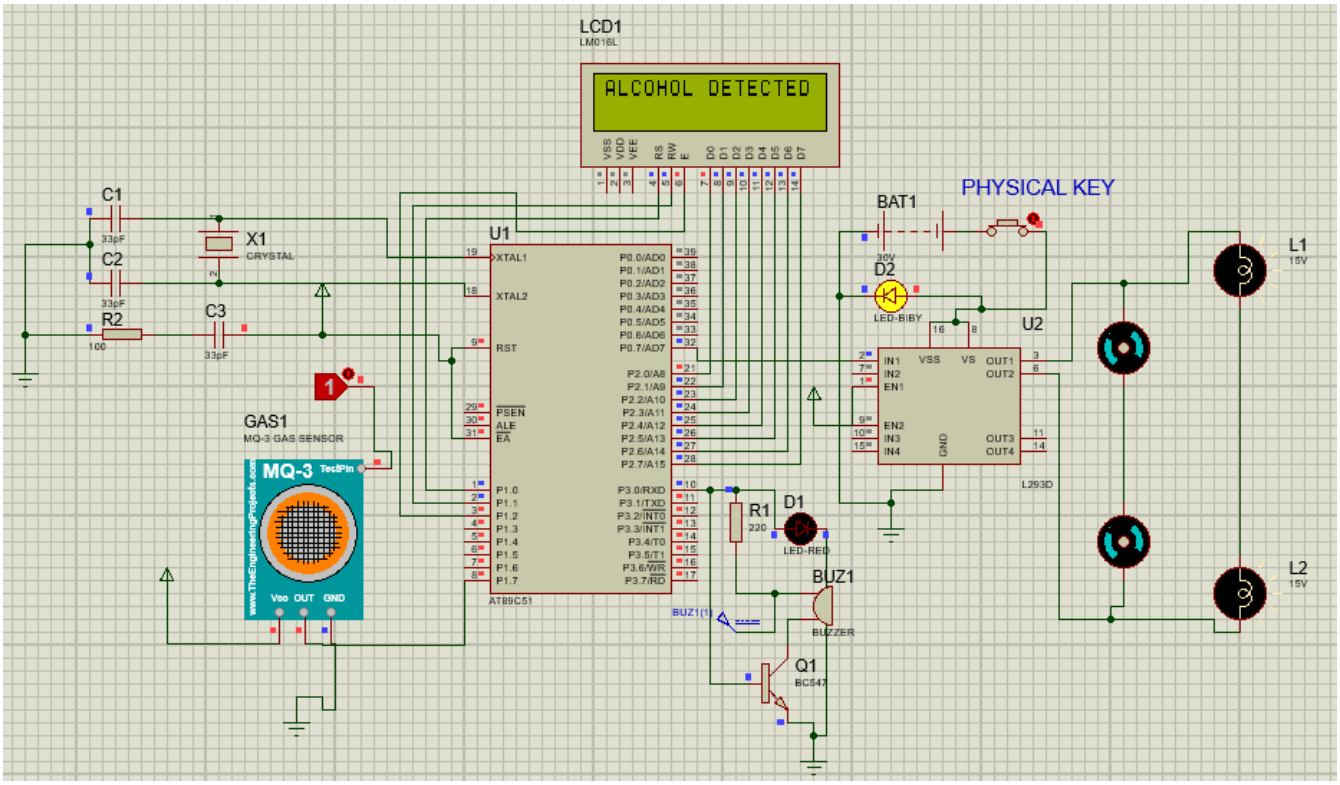
c) *Then the engine will start with the headlight if there is no alcohol (togglekey ==0) it says NO ALCOHOL DETECTED KEEP GOING...*

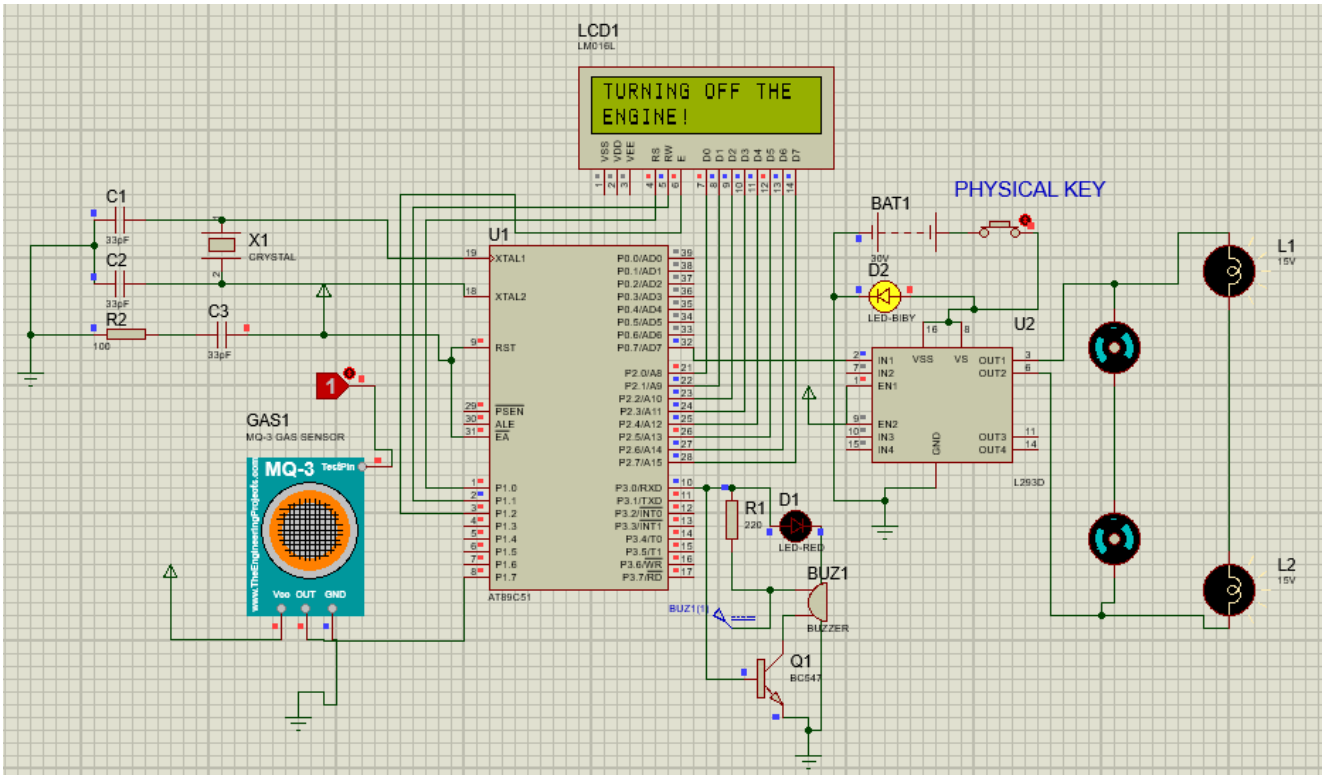

LCD1
LM016L
HAPPY JOURNEY
PHYSICAL KEY
BAT1
C1
33pF
C2
33pF
C3
33pF
R2
100
X1
CRYSTAL
U1
XTAL1
XTAL2
RST
PSEN
ALE
EA
P1.0
P1.1
P1.2
P1.3
P1.4
P1.5
P1.6
P1.7
P0.0/AD0
P0.1/AD1
P0.2/AD2
P0.3/AD3
P0.4/AD4
P0.5/AD5
P0.6/AD6
P0.7/AD7
P2.0/A8
P2.1/A9
P2.2/A10
P2.3/A11
P2.4/A12
P2.5/A13
P2.6/A14
P2.7/A15
P3.0/RXD
P3.1/TXD
P3.2/INT0
P3.3/INT1
P3.4/T0
P3.5/T1
P3.6/WR
P3.7/RD
AT89C51
GAS1
MQ-3 GAS SENSOR
MQ-3
TechPin
Vcc OUT GND
R1
220
D1
LED-RED
BUZ1
BUZZER
Q1
BC547
D2
LED-BIBY
U2
IN1
IN2
EN1
EN2
IN3
IN4
VSS
VS
GND
OUT1
OUT2
OUT3
OUT4
L293D
L1
15V
L2
15V


LCD1
LM016L
NO ALCOHOL
DETECTED.
PHYSICAL KEY
BAT1
C1
33pF
C2
33pF
C3
33pF
R2
100
X1
CRYSTAL
U1
XTAL1
XTAL2
RST
PSEN
ALE
EA
P1.0
P1.1
P1.2
P1.3
P1.4
P1.5
P1.6
P1.7
P0.0/AD0
P0.1/AD1
P0.2/AD2
P0.3/AD3
P0.4/AD4
P0.5/AD5
P0.6/AD6
P0.7/AD7
P2.0/A8
P2.1/A9
P2.2/A10
P2.3/A11
P2.4/A12
P2.5/A13
P2.6/A14
P2.7/A15
P3.0/RXD
P3.1/TXD
P3.2/INT0
P3.3/INT1
P3.4/T0
P3.5/T1
P3.6/WR
P3.7/RD
AT89C51
GAS1
MQ-3 GAS SENSOR
MQ-3
TechPin
Vcc OUT GND
R1
220
D1
LED-RED
BUZ1
BUZZER
Q1
BC547
D2
LED-BIBY
U2
IN1
IN2
EN1
EN2
IN3
IN4
VSS
VS
GND
OUT1
OUT2
OUT3
OUT4
L293D
L1
15V
L2
15V



d) *If there is alcohol (togglekey==1) the microcontroller will stops the whole engine with the bulb and it will create noise with the buzzer and red led will glow*




LCD1
LM016L
TURNING OFF THE ENGINE!
PHYSICAL KEY
BAT1
C1
33pF
C2
33pF
R2
100
X1
CRYSTAL
C3
33pF
U1
XTAL1
XTAL2
RST
PSEN
ALE
EA
P0.0/AD0
P0.1/AD1
P0.2/AD2
P0.3/AD3
P0.4/AD4
P0.5/AD5
P0.6/AD6
P0.7/AD7
P2.0/A8
P2.1/A9
P2.2/A10
P2.3/A11
P2.4/A12
P2.5/A13
P2.6/A14
P2.7/A15
P1.0
P1.1
P1.2
P1.3
P1.4
P1.5
P1.6
P1.7
P3.0/RXD
P3.1/TXD
P3.2/INT0
P3.3/INT1
P3.4/T0
P3.5/T1
P3.6/WR
P3.7/RD
ATB9C51
GAS1
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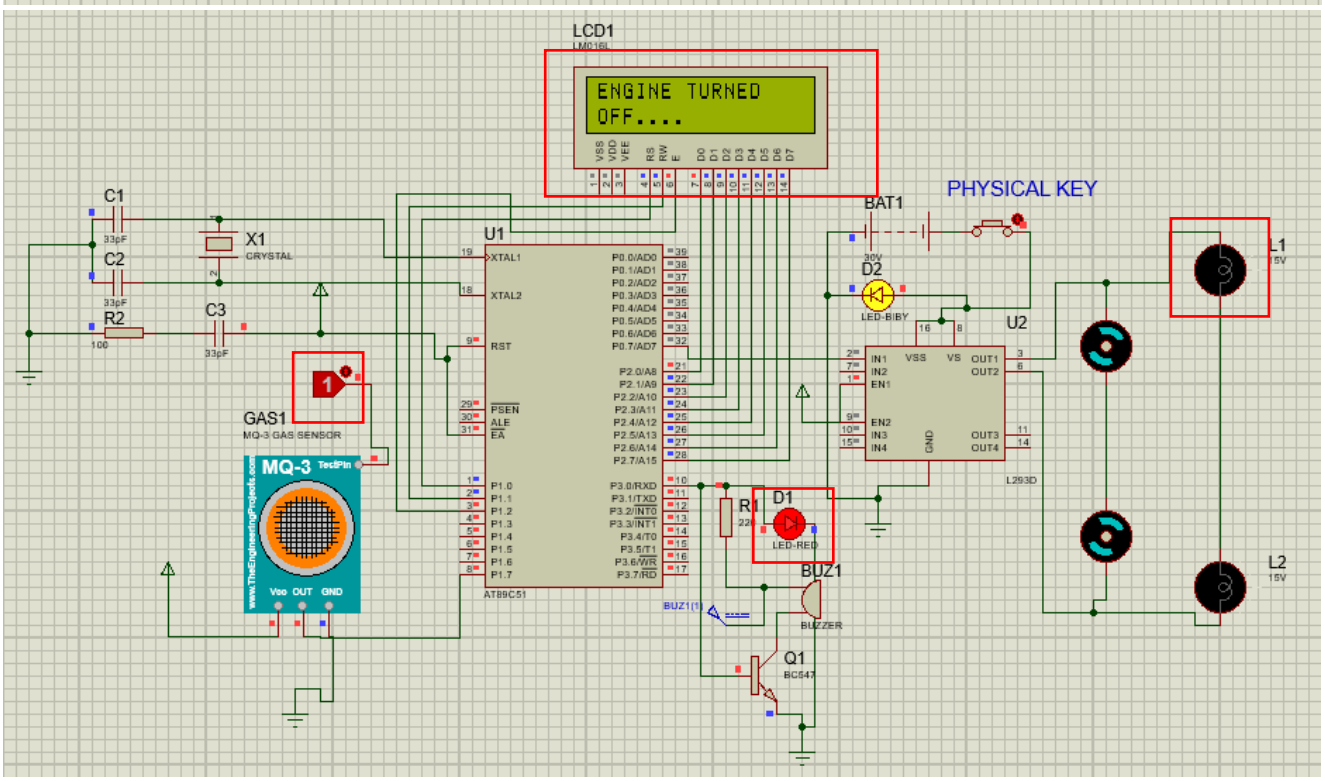
U2
IN1
IN2
EN1
EN2
IN3
IN4
VSS
VS
GND
OUT1
OUT2
OUT3
OUT4
L293D
L1
15V
L2
15V


LCD1
LM016L
ENGINE TURNED OFF....
PHYSICAL KEY
BAT1
C1
33pF
C2
33pF
R2
100
X1
CRYSTAL
C3
33pF
U1
XTAL1
XTAL2
RST
PSEN
ALE
EA
P0.0/AD0
P0.1/AD1
P0.2/AD2
P0.3/AD3
P0.4/AD4
P0.5/AD5
P0.6/AD6
P0.7/AD7
P2.0/A8
P2.1/A9
P2.2/A10
P2.3/A11
P2.4/A12
P2.5/A13
P2.6/A14
P2.7/A15
P1.0
P1.1
P1.2
P1.3
P1.4
P1.5
P1.6
P1.7
P3.0/RXD
P3.1/TXD
P3.2/INT0
P3.3/INT1
P3.4/T0
P3.5/T1
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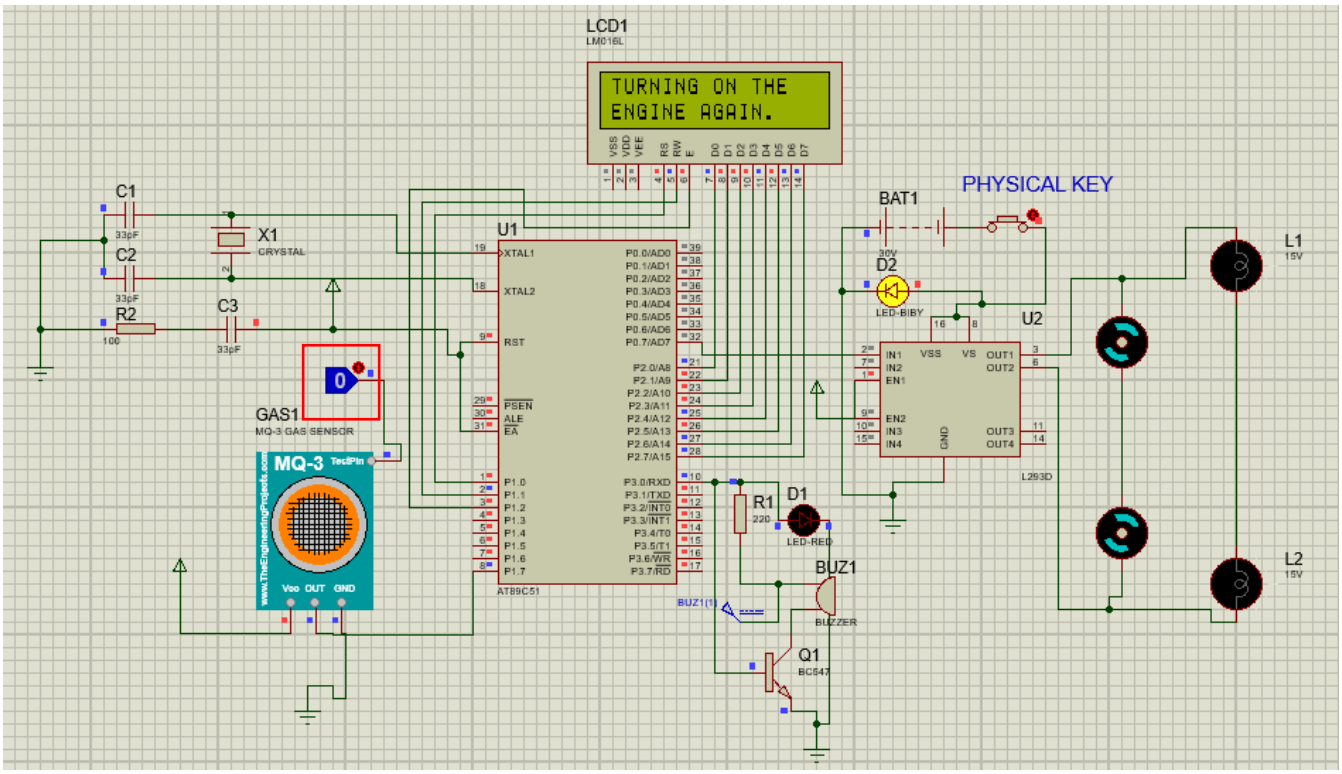
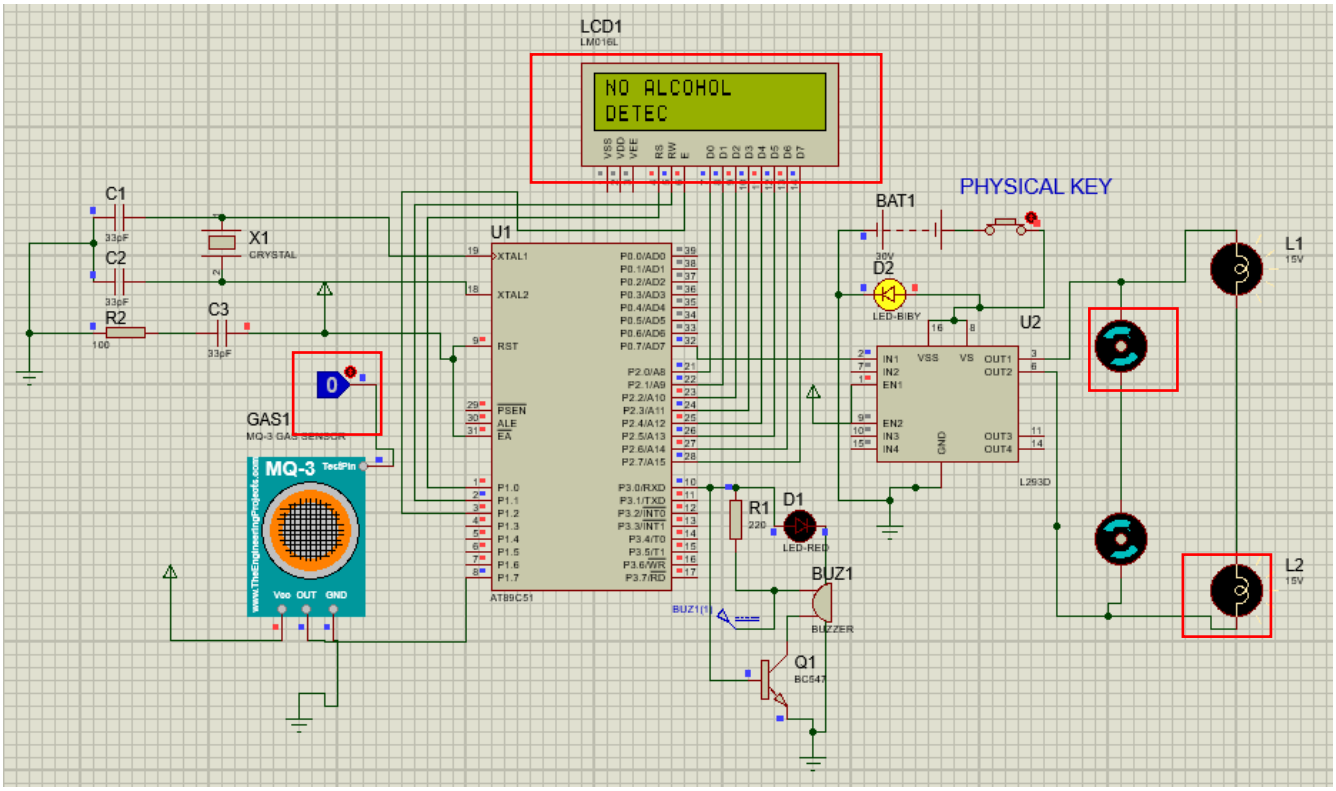
D1
LED-RED
BUZ1
BUZZER
Q1
BC547
D2
LED-BIBY
U2
IN1
IN2
EN1
EN2
IN3
IN4
VSS
VS
GND
OUT1
OUT2
OUT3
OUT4
L293D
L1
15V
L2
15V

e)If suddenly the gas sensor detects no alcohol it will start the engine again





6.Future enhancement

We can also use the gps and gsm module in this project so it will send the SMS and geo-location to the family and nearby friends if there is alcohol detection in the car.