MICROCONTROLLER BASED AUTOMATIC ENGINE LOCKING SYSTEM FOR DRUNKEN DRIVERS

Project Report

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ABSTRACT:

Most of these days, we hear lot of accidents due to drunken driving. Drunken drivers will not be in stable condition and so the rash driving is the inconvenience for other road users and also question of life and death for the drunken driver and for others.

In this project, we are developing an Auto Lock System. The input for the system is from Detection Sensors either from Alcohol Breath or any other mechanism. The controller keeps looking for the output from these sensors. If there are any traces of Alcohol above the set limit, then the system will lock the Engine. As vehicle automobiles are beyond the scope of this project, we are simulating the process by activating the relay.

PROBLEM STATEMENT:

Most of these days, we hear lot of accidents due to drunken driving. Drunken drivers will not be in stable condition and so the rash driving is the inconvenience for other road users and also question of life and death for the drunken driver and for others too. So, by considering this situation we come up with a solution through this project.
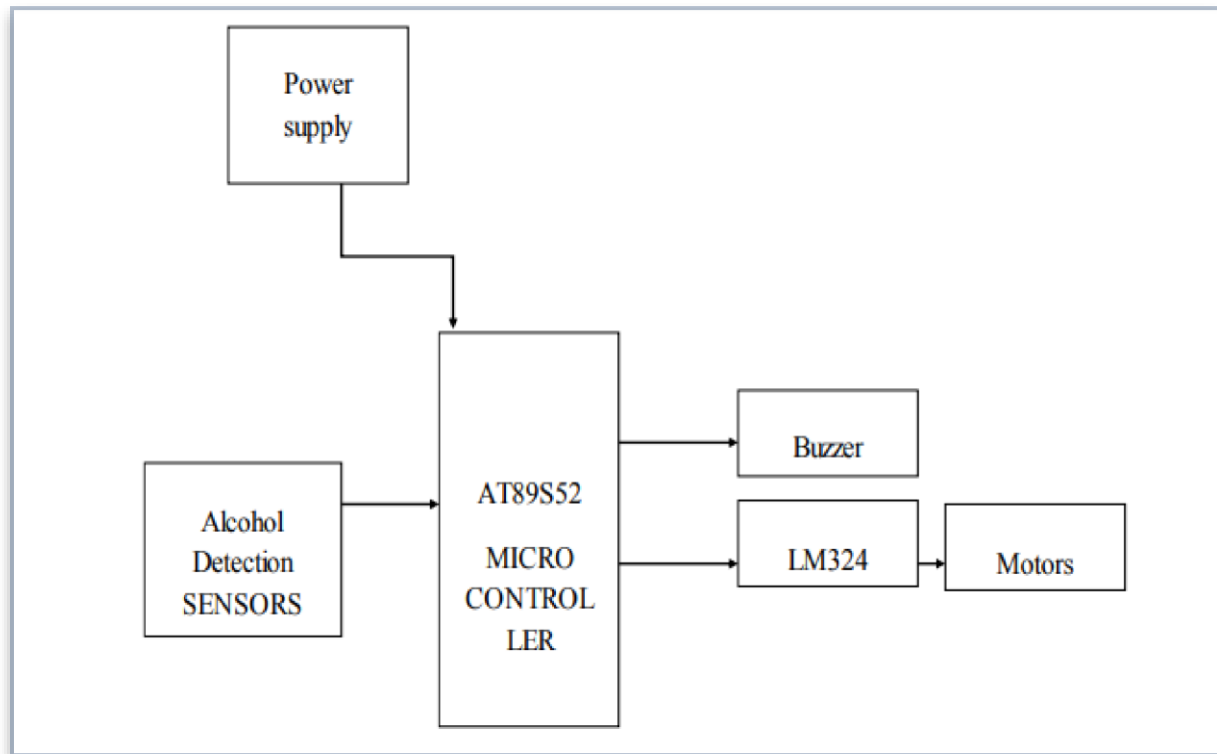
COMPONENTS

HARDWARE COMPONENTS:
1. Power supply.
2. Microcontroller AT89S52.
3. Alcohol detection sensor. (MQ-3)
4. Buzzer.
5. Buzzer Driver circuit.
6. LCD.
7. Engine/Motors.
8. LM324 op-amp.
9. Resistors.
10. Capacitors.

SOFTWARE COMPONENTS:

1. Keil software.
2. Keil software programming.

3.Proteus software for simulation

BLOCK DIAGRAM

WORKING:

- We are developing an Auto Lock System. The input for the system is from Detection Sensors either from Alcohol Breath or any other mechanism.

- The machine utilizes the vapours in your breath to calculate an estimation of the level of alcohol in a person's system. This simple approach is due to the fact that alcohol is not digested by the body and is merely absorbed through different parts. These include the mouth, stomach and intestines. As a result, traces of the material can still be identified minutes after drinking, making it possible for the Breath Analizser to calculate an accurate number.

- The controller keeps looking for the output from these sensors. If there are any traces of Alcohol above the set limit, then the system will lock the Engine.

Keil CODE

```c
#include<reg51.h>

#define  lcd_data   P2

sbit rs = P0^0; sbit rw=

P0^1; sbit en = P0^2;

sbit rel_pin=P1^3; sbit

sensor_pin= P1^0;

void lcd_init(); void

cmd(unsigned char a); void

dat(unsigned char b); void

show(unsigned char *s); void

lcd_delay();  void lcd_init()

{

   cmd(0x38);

cmd(0x0e);

cmd(0x01);

cmd(0x06);

cmd(0x0c);

cmd(0x80);

}

 void cmd(unsigned char a)

{

   lcd_data=a;

   rs=0;

rw=0;

en=1;
```

```c
    lcd_delay();

    en=0;

}

 void dat(unsigned char b)

{

   lcd_data=b;

rs=1;    rw=0;

en=1;

lcd_delay();

en=0;

}

 void show(unsigned char *s)

{

   while(*s) {

     dat(*s++);

   }

}

 void lcd_delay (unsigned int ms)

{   int i,

j;  for

(i = 0; i

< ms;

i++)

for (j =

0; j <

1275;

j++);

}

void main(void)

{
```

```c
 sensor_pin=1;
rel_pin=1;
 lcd_init();
 cmd (0x80);  show("
DRUNK DRIVE");
 cmd (0xc0);  show("
BASED");  lcd_delay
(50);  cmd (0x01);  cmd
(0x80);  show(" ENGINE
LOCK");  cmd (0xc0);
show(" SYSTEM ");
lcd_delay (50);  cmd
(0x01);   while(1)
 {
  if(sensor_pin==0)
  {
   rel_pin=0;//on
cmd (0x80);
   show("ALOCHOL DETECTED");
   cmd (0xc0);    show("
BUZZER ON ");
   lcd_delay (50);
cmd (0x01);

  }
   else
  {
   rel_pin = 1;//off
cmd (0x80);
   show(" NO ALOCHOL");
cmd (0xc0);    show ("
```

BUZZER OFF");

lcd_delay(50);
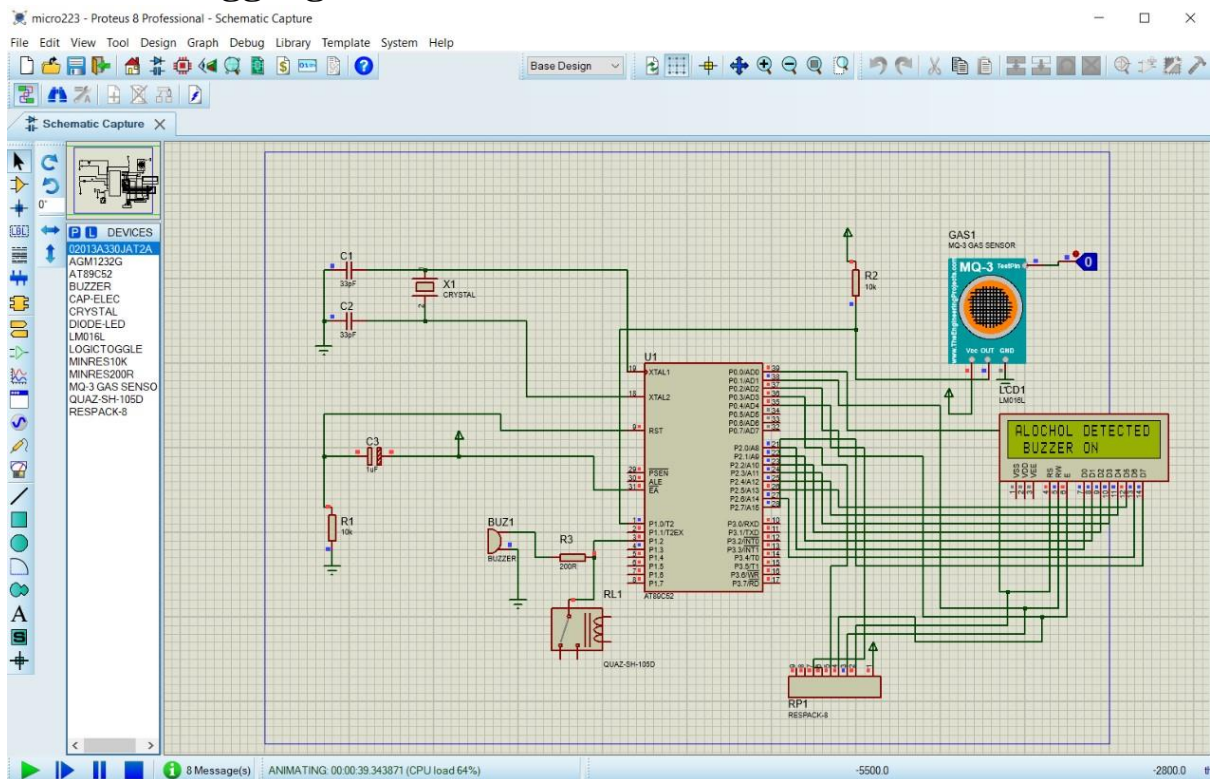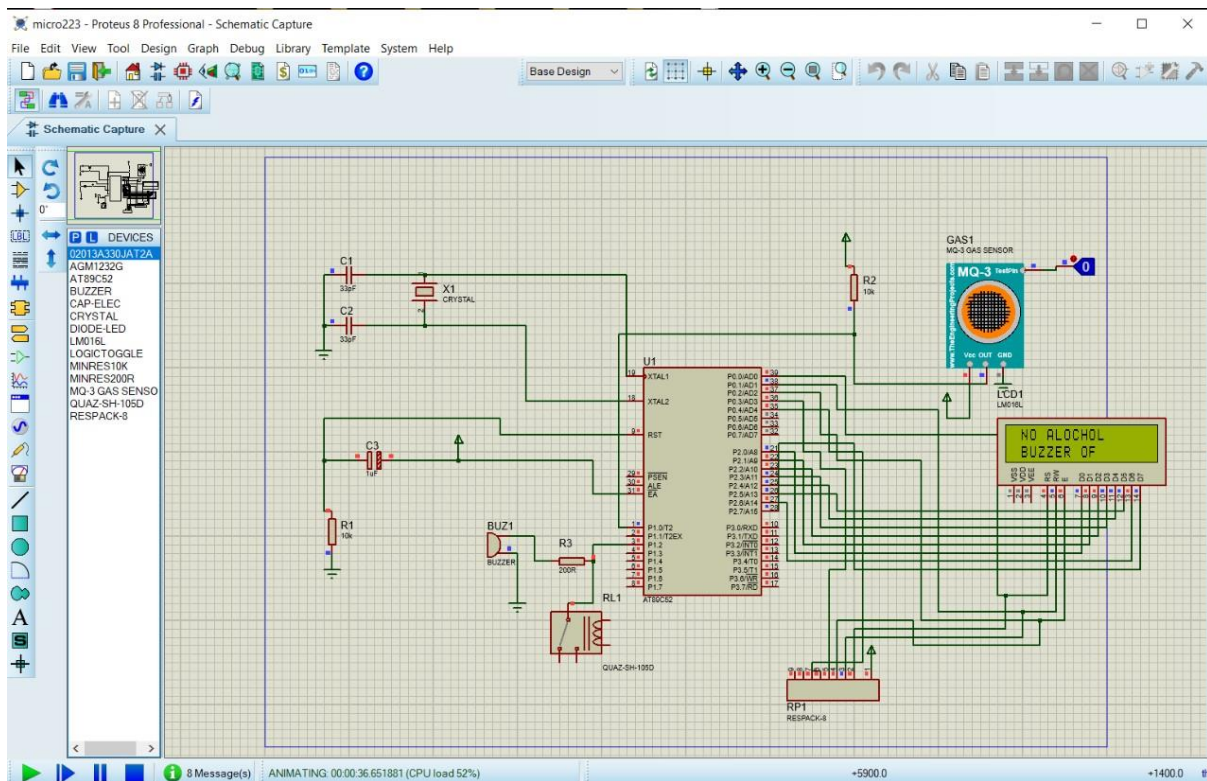
cmd(0x01);

  }

 }

}

OUTPUT in Proteus:

When we toggle gas sensor =0

When we toggle Gas sensor =1

ADVANTAGES

- Low cost.

- Automated operation.

- Low Power consumption.

- It provides an automatic safety system for cars and other vehicles as well.

DISADVANTAGES

Implementing in older cars might be hard

- Maintanance required

- Easily fool-able

- Can detect alcohol from other sources (hand sanitizer)

APPLICATIONS:

- 1) "Alcohol Detector project" can be used in the various vehicles for detecting whether the driver has consumed alcohol or not.

- 2) This project can also be used in various companies or organization to detect alcohol consumption of employees.

CONCLUSION:

In this project we have developed a prototype model that can automatically lock the engine when a drunken driver tries to drive a car. Nowadays car accidents are mostly seen. By fitting this alcohol sensor into the car, we can save guard the life of the driver and also the remaining passengers. It is very simple application.

The life time of the project is high. It has low or zero maintenance cost and of course low power consumption. This 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 preinstall such mechanisms while manufacturing the car itself.

If this is achieved the deaths due to drunken drivers can be brought to minimum level. In this type of system, future scope can be safely landing of car aside without disturbing other vehicles.