IBM

ASSIGNMENT 1

TEAM ID : PNT2022TMID08320

TEAM MEMBER 1 : AAHIN K (810419104001)

Source code :

```
#include<Servo.h>
int output1value= 0;
int sen1value= 0;
int sen2value= 0;
int const gas_sensor= A1;
int const LDR= A0;
int limit= 400;
long readU1trasonicDistance(int triggerpin, int echopin)\
{
 pinMode(triggerpin, OUTPUT); // clear the trigger
 digitalWrite(triggerpin, LOW);
 delayMicroseconds(2);
//sets the trigger pin to high state for 10 microseconds
 digitalWrite(triggerpin, HIGH);
 delayMicroseconds(10);
 pinMode(echopin, INPUT);
// reads the echo pin, and return the sound wave travel time
  return pulseIn(echopin, HIGH);
}
Servo servo_7;
```

```
void setup()
{
  Serial.begin(9600);     //initialiize serial communication
  pinMode (A7, INPUT);      //LDR
  pinMode (A1, INPUT);       //gas sensor
  pinMode(13, OUTPUT);       //connected to relay
  servo_7.attach(7, 500, 2500);  //Green LED
  pinMode(8, OUTPUT);      //signal to piezo burger
  pinMode(9, INPUT);      //signal to PIR
  pinMode(10, OUTPUT);     //signal to nPn as switch
  pinMode(4, OUTPUT);      //Red LED
  pinMode(3, OUTPUT);      //Green LED
}
void loop()
{
//-------light intensity control--------//
//----------------------------------------------------------------------------
  int vall= analogRead(LDR);
  if (vall > 500)
  {
    digitalWrite(13, LOW);
 Serial.print("Bulb ON = ");
 Serial.print(vall);
  }
else
{
    digitalWrite(13, HIGH);
 Serial.print("Bulb OFF= ");
 Serial.print(vall);
  }
```

```
//----------------------------------------------------------------------
        //--------Light & fan control-------------//
//-----------------------------------------------------------------------

   sen2value = digitalRead(9);
   if (sen2value==0)
   {
     digitalWrite(10, LOW); //nPn as switch OFF
     digitalWrite(4, HIGH); //Red lED ON, indicating no motion
     digitalWrite(3, HIGH); //Green LED OFF, since no motion
   Serial.print("   || NO Motion Detected     ");
   }
if (sen2value== 1)
 {
     digitalWrite(10,    HIGH); // npn as swtich ON
   delay(5000);
       digitalWrite(4,LOW);  //RED LED OFF
       digitalWrite(3,HIGH); //GREEN LED ON , indicatimg motion
   Serial.print("      ||Motion Detected!      ");
 }
 //-----------------------------------------------------------------------------------------------
        //-------------Gas Sensor -----//
//--------------------------------------------------------------------------------
 int val= analogRead(gas_sensor);      //read sensor value
   Serial.print(" || Gas Sensor Value =");
   Serial.print(val);                // printing in serial motion
//val =map(val, 300, 750, 0, 100);
 if(val > limit)
  {
      tone(8, 650);
  }
```
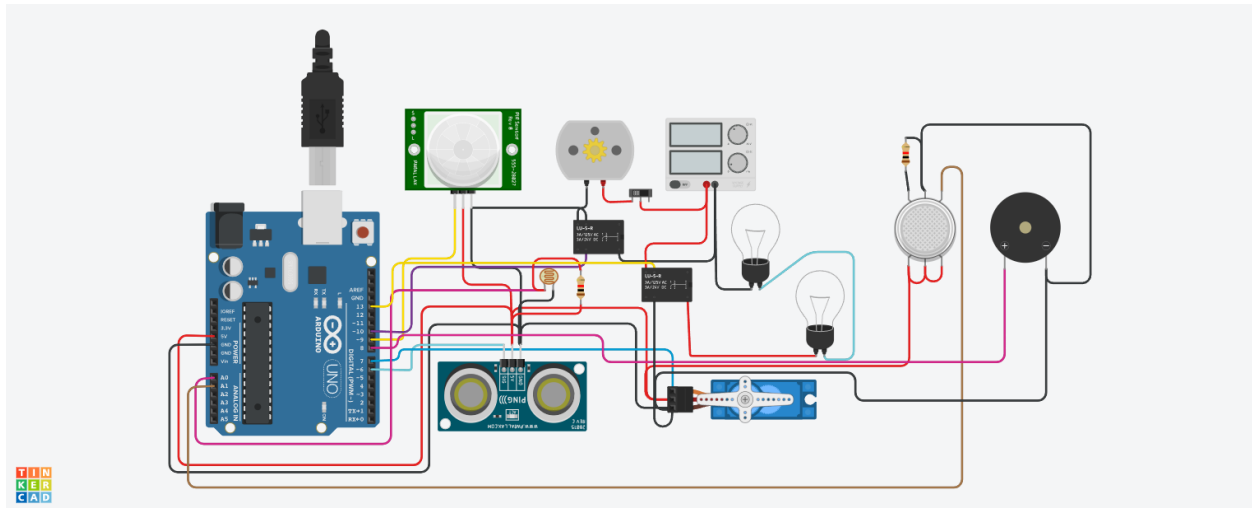
```
    delay(300);

    noTone(8);

//---------------------------------------------------------------------------

        //--------servo motor -----//

//------------------------------------------------------------------------------

  sen1value = 0.01723 * readU1trasonicDistance(6, 6);

  if  (sen1value < 100)

    {

      servo_7.write(90);

    Serial.print("    || Door Open!  ; Distance = ");

    Serial.print(sen1value);

    Serial.print("\n");

}

 else

{

    servo_7.write(0);

    Serial.print("    || Door Closed!  ; Distance = ");

    Serial.print(sen1value);

    Serial.print("\n");

}

delay(10);

}
```

CIRCUIT DIAGRAM :