IBM

ASSIGNMENT 1

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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 :