**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 :**

