

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 readUltrasonicDistance(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 * readUltrasonicDistance(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 :

