```
#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);
  digitalWrite(triggerPin, LOW);
  pinMode(echoPin, INPUT);
  // Reads the echo pin, and returns the sound wave travel time in microseconds
  Return pulseIn(echoPin, HIGH);
}

Servo servo_7;

Void setup()
{
   Serial.begin(9600);                //initialize serial communication
  pinMode(A0, INPUT);                 //LDR
```

```
 pinMode(A1,INPUT);              //gas sensor
 pinMode(13, OUTPUT);                    //connected to relay
 servo_7.attach(7, 500, 2500); //servo motor

 pinMode(8,OUTPUT);              //signal to piezo buzzer
 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 val1 = analogRead(LDR);
 If (val1 > 500)
          {
          digitalWrite(13, LOW);
   Serial.print("Bulb ON = ");
   Serial.print(val1);
          }
 Else
          {
          digitalWrite(13, HIGH);
    Serial.print("Bulb OFF = ");
   Serial.print(val1);
```

```
            }

//-------------------------------------------------------------
      //------ 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, LOW); //Green LED OFF, since no Motion detected
  Serial.print("     || NO Motion Detected    " );
            }

 If (sen2Value == 1)
            {
            digitalWrite(10, HIGH);//npn as switch ON
  delay(3000);
            digitalWrite(4, LOW); // RED LED OFF
            digitalWrite(3, HIGH);//GREEN LED ON , indicating motion detected
   Serial.print("    || Motion Detected!      " );
            }
 Delay(300);

//-------------------------------------------------------------
     // ------- Gas Sensor --------//
//-------------------------------------------------------------
Int val = analogRead(gas_sensor);      //read sensor value
 Serial.print("|| Gas Sensor Value = ");
```

```
 Serial.print(val);                                    //Printing in serial monitor
//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); // Delay a little bit to improve simulation performance

- }