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#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
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    }

    void loop()
    {

        //-----light intensity control-----//
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        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 -----//
        //-----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

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        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");
    }

```

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    delay(10); // Delay a little bit to improve simulation performance  
}
```