

```

#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);
    digitalWrite(triggerPin, LOW);
    delayMicroseconds(2);
    digitalWrite(triggerPin, HIGH);
    delayMicroseconds(10);
    digitalWrite(triggerPin, LOW);
    pinMode(echoPin, INPUT);

    return pulseIn(echoPin, HIGH);
}
Servo servo_7;
void setup()
{
    Serial.begin(9600);
    pinMode(A0, INPUT);
    pinMode(A1, INPUT);
    pinMode(13, OUTPUT);
    servo_7.attach(7, 500, 2500);
    pinMode(8, OUTPUT);
    pinMode(9, INPUT);
    pinMode(10, OUTPUT);
    pinMode(4, OUTPUT);
    pinMode(3, OUTPUT);
}
void loop()
{
    //-----light intensity control-----//
    int val1 = analogRead(LDR);
    if (val1 > 500)
    {
        digitalWrite(13, LOW);
    }
}

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    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);
        digitalWrite(4, HIGH);
        digitalWrite(3, LOW);
        Serial.print("    || NO Motion Detected    ");
    }

    if (sen2Value == 1)
    {
        digitalWrite(10, HIGH); //npn as switch ON
        delay(5000);
        digitalWrite(4, LOW); // RED LED OFF
        digitalWrite(3, HIGH); //GREEN LED ON , indicating motion detected
        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 monitor
    //val = map(val, 300, 750, 0, 100);
    if (val > limit)
    {
        tone(8, 650);
    }
    delay(300);
    noTone(8);

    //----- servo motor -----//

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```
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);
}
```