



```
#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()
```

```
{  
  
    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);
```

```
}
```

```
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);
```

```
delay(3000);
```

```
digitalWrite(4, LOW);
```

```
digitalWrite(3, HIGH);
```

```
Serial.print("    || Motion Detected!    ");
```

```
}
```

```
delay(300);
```

```
int val = analogRead(gas_sensor);
```

```
Serial.print("|| Gas Sensor Value = ");
```

```
Serial.print(val);
```

```
//val = map(val, 300, 750, 0, 100);
```

```
if (val > limit)
```

```
{
```

```
tone(8, 650);
```

```
}
```

```
delay(300);
```

```
noTone(8);
```

```
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);
```

```
}
```