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ASSIGNMENT 1

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);   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
}
```