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ASSIGNMENT 1

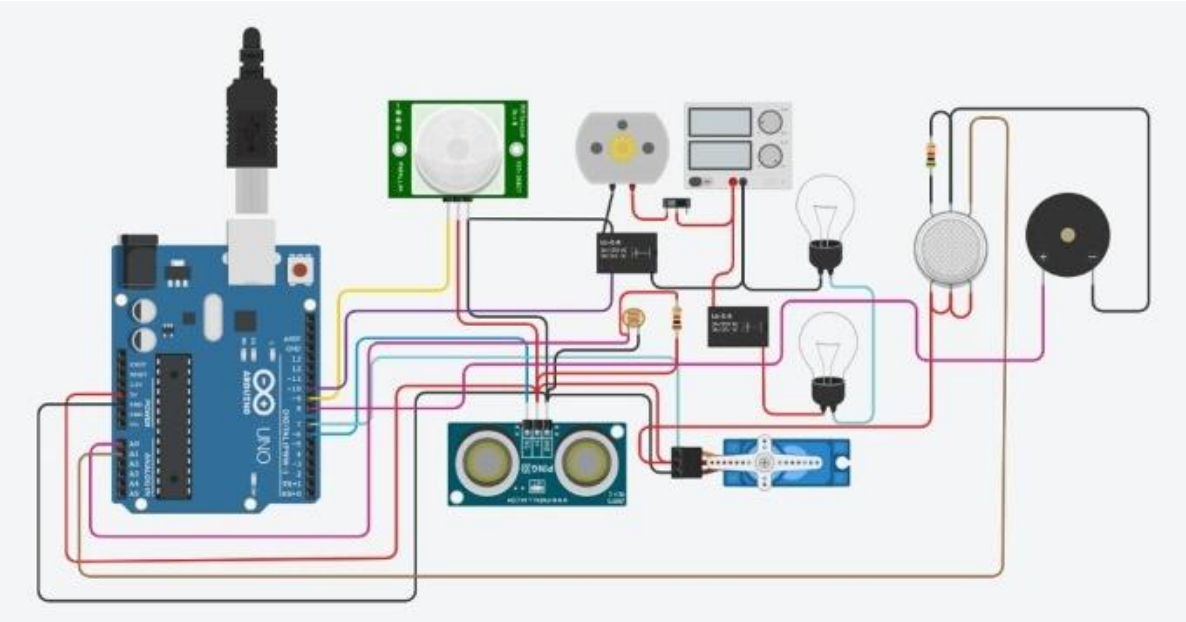
SOURCE CODE:

```
#include <Servo.h>

int output1Value = 0;
int sen1Value = 0;
int sen2Value = 0;
int constgas_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
}
```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