<div align="center">**Smart Home Automation**</div>

Assignment -1   **Team ID**
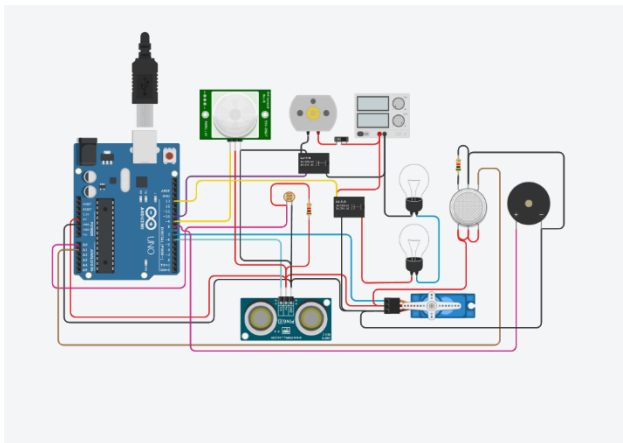
Team leader

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Components

1. Arduino uno R3
2. Led
3. Resistor
4. Pir sensor
5. Buzzer
6. Relay
7. Gas sensor
8. Dc motor
9. Micro servo
10. Photo resistor

Smart Home- Circuit Connection:

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
}
```

Tinkercad Link:

https://www.tinkercad.com/things/ef08ppHh6U4-glorious-bigery-luulia/editel