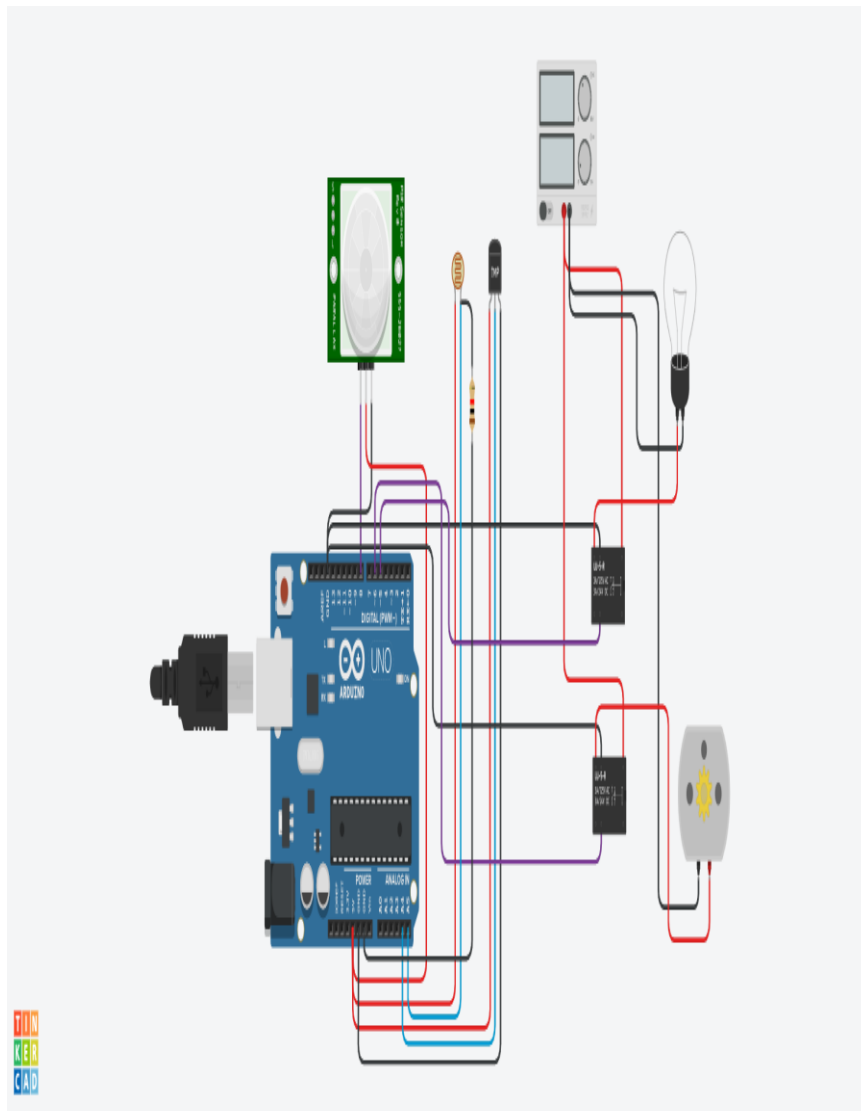


SMART HOME AUTOMATION:

CIRCUIT DIAGRAM:



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(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 -----//

//-----

    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  
}
```