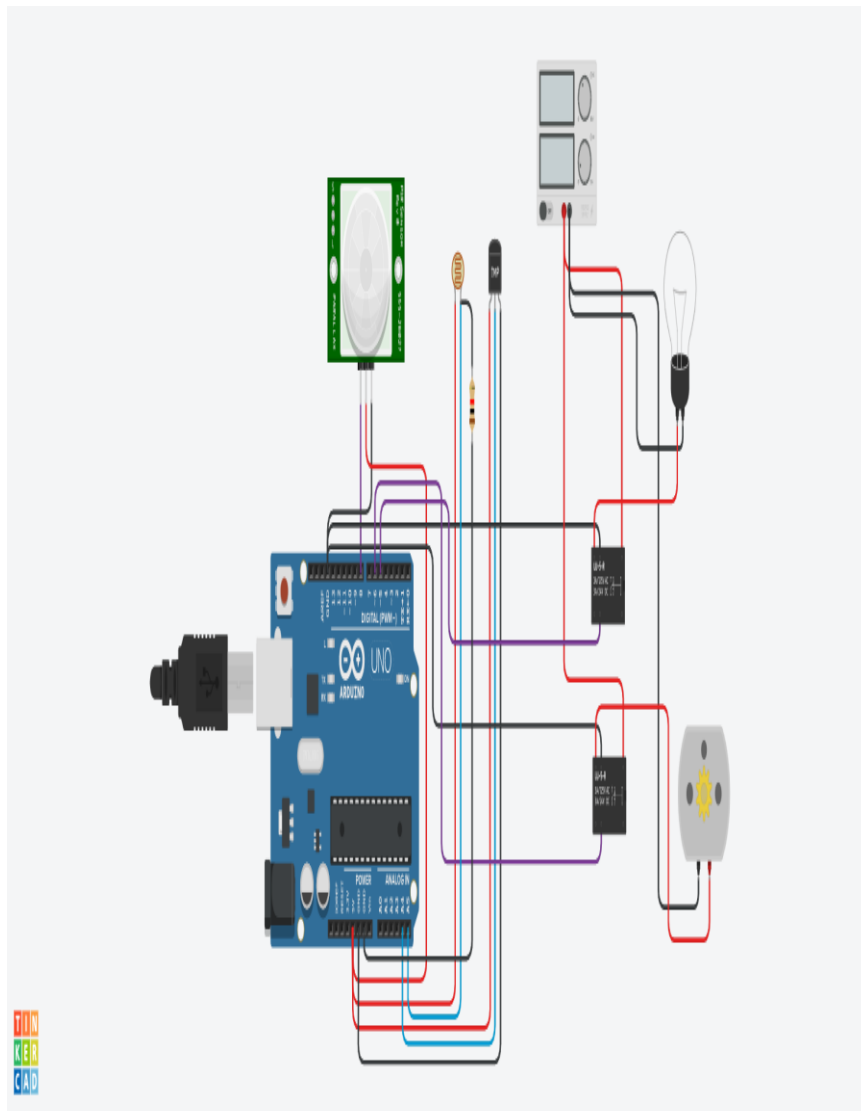


SMART HOME AUTOMATION:

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
}
```