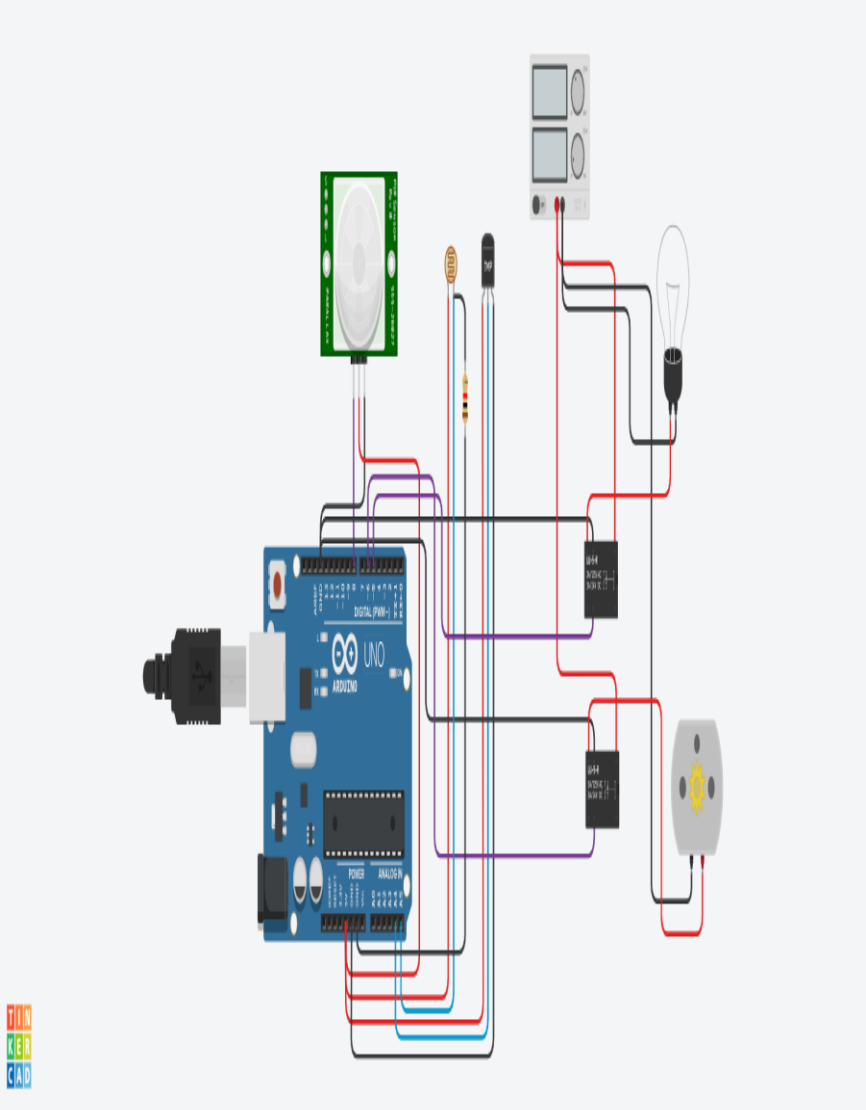
SMART HOME AUTOMATION:

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
}
```