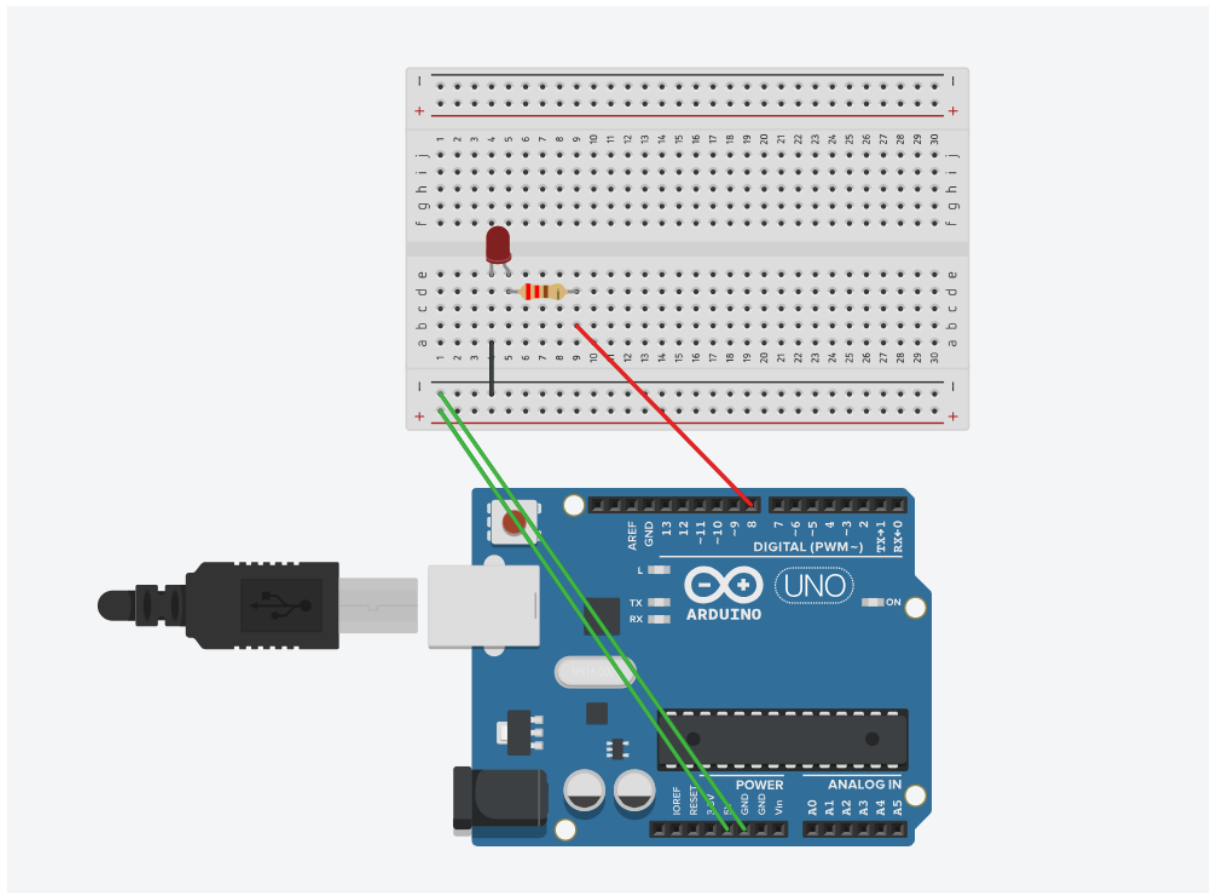


P2) Write a program to enable switching effect in LED using Arduino



Code:

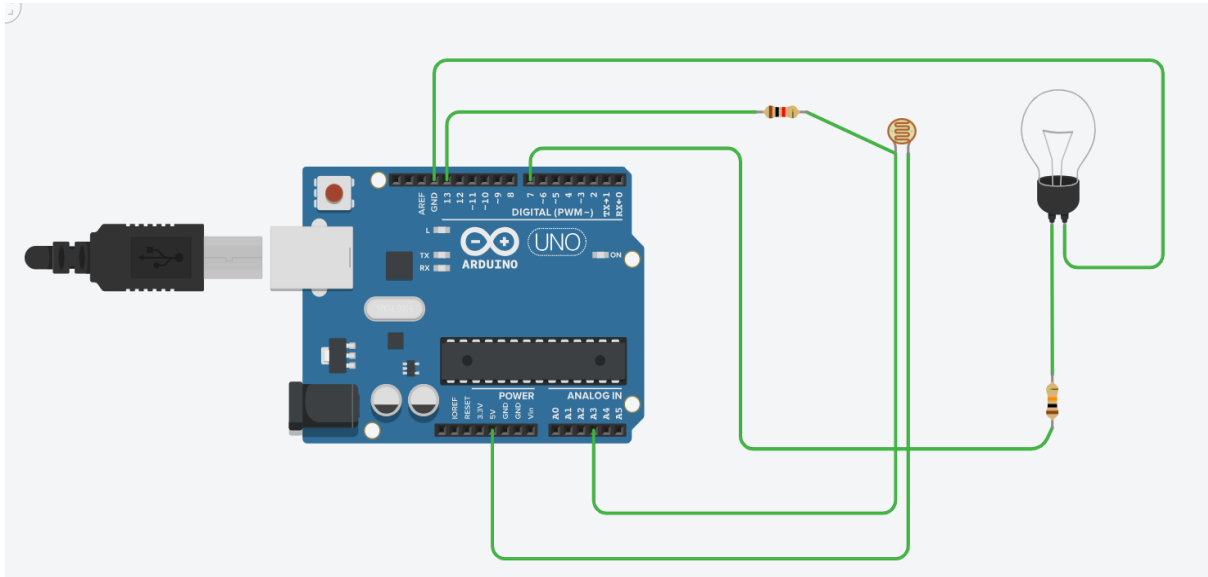
```
int animationSpeed=0;

void setup()
{
  pinMode(8, OUTPUT);
}

void loop()
{
  animationSpeed=400;
  digitalWrite(8, HIGH);
  delay(animationSpeed);
  digitalWrite(8, LOW);
```

```
delay(animationSpeed);  
}
```

P3) Write a program to interface light sensitivity resistor with arduino

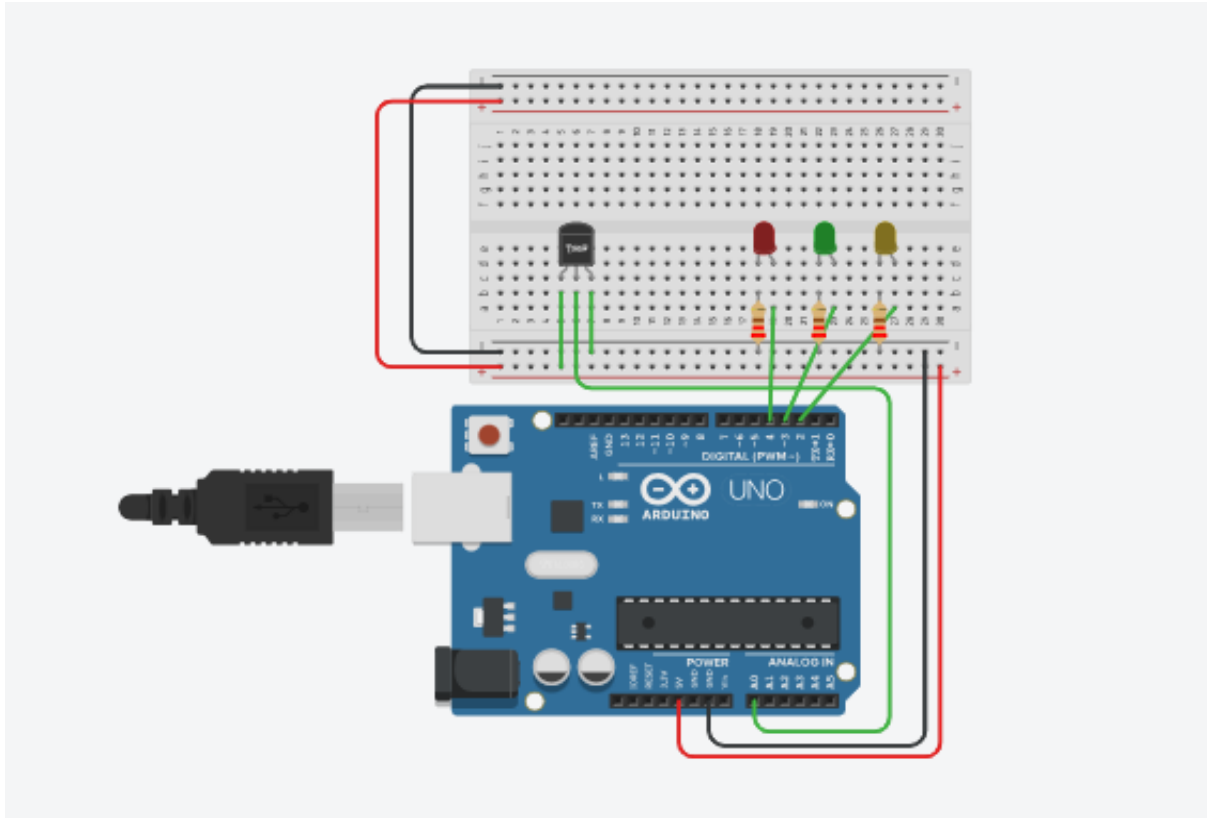


Code:

```
int ldr=A3;  
  
int bulb=7;  
  
void setup()  
{  
  pinMode(bulb,OUTPUT);  
  pinMode(ldr,INPUT);  
}  
  
void loop()  
{  
  if(analogRead(ldr)>500)  
    digitalWrite(bulb,0);  
  else  
    digitalWrite(bulb,1);  
}
```

}

P4) Write a program to interface temperature sensor with arduino



Code :

```
int baselineTemp=0;

int celsius=0;

int fahrenheit=0;

void setup()

{

  pinMode(A0, INPUT);

  Serial.begin(3600);

  pinMode (2, OUTPUT);

  pinMode (3, OUTPUT);

  pinMode (4, OUTPUT);

}
```

```
void loop()
{
    baselineTemp=40;

    celsius=map(((analogRead(A0)-20)*3.04),0,1023,-40,125);

    fahrenheit=((celsius*9)/5+32);

    Serial.print(celsius);

    Serial.print("C");

    Serial.print(fahrenheit);

    Serial.print("F");

    if(celsius<baselineTemp)
    {
        digitalWrite(2,LOW);

        digitalWrite(3,LOW);

        digitalWrite(4,LOW);
    }

    if (celsius>=baselineTemp&&celsius<baselineTemp+10)
    {
        digitalWrite(2,HIGH);

        digitalWrite(3,LOW);

        digitalWrite(4,LOW);
    }

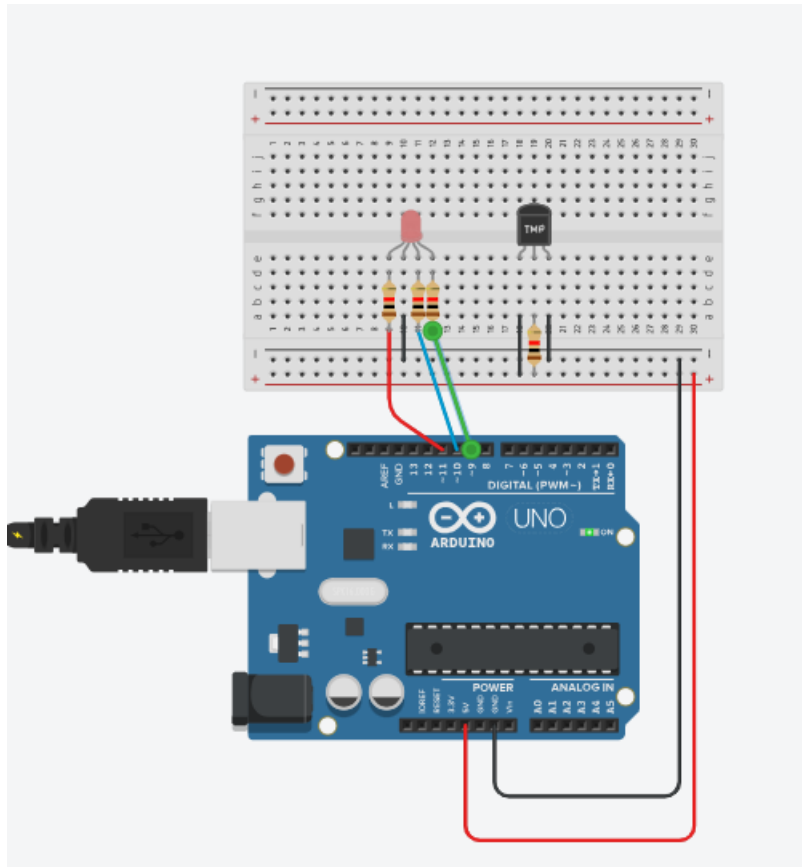
    if(celsius>=baselineTemp+10&&celsius<baselineTemp+20)
    {
        digitalWrite(2,HIGH);

        digitalWrite(3,HIGH);

        digitalWrite(4,LOW);
    }
}
```

```
if(celsius>=baselineTemp+20&&celcius<baselineTemp+30)
{
    digitalWrite(2,HIGH);
    digitalWrite(3,HIGH);
    digitalWrite(4,LOW);
}
if(celsius>=baselineTemp+30)
{
    digitalWrite(2,HIGH);
    digitalWrite(3,HIGH);
    digitalWrite(4,HIGH);
}
delay(1000);
}
```

P5) write a program to interface Arduino with humidity sensor



Code :

```
#define DHTPIN7
```

```
int ledR=11;
```

```
int ledG=9;
```

```
int ledB=10;
```

```
void setup()
```

```
{
```

```
  Serial.begin(9600);
```

```
  pinMode(ledR,OUTPUT);
```

```
  pinMode(ledG,OUTPUT);
```

```
  pinMode(ledB,OUTPUT);
```

```
}
```

```
void loop()
```

```
{
```

```
float humidity,temperature;

if (readDHTData(humidity,temperature))
{
    Serial.print("Humidity:");
    Serial.print(humidity);
    Serial.print("%");
    Serial.print("Temperature");

        Serial.print(temperature);

        Serial.println("C");

        if(humidity>0&&humidity<=20)
        {
            analogWrite(ledR,100);
            analogWrite(ledG,0);
            analogWrite(ledB,0);
        }
        else if(humidity>20&&humidity<=30)
        {
            analogWrite(ledR,0);
            analogWrite(ledG,100);
            analogWrite(ledB,0);
        }
        else if(humidity>30&&humidity<=40)
        {
            analogWrite(ledR,0);
            analogWrite(ledG,0);
            analogWrite(ledB,100);
        }
}
```

```

}

delay(2000);

}

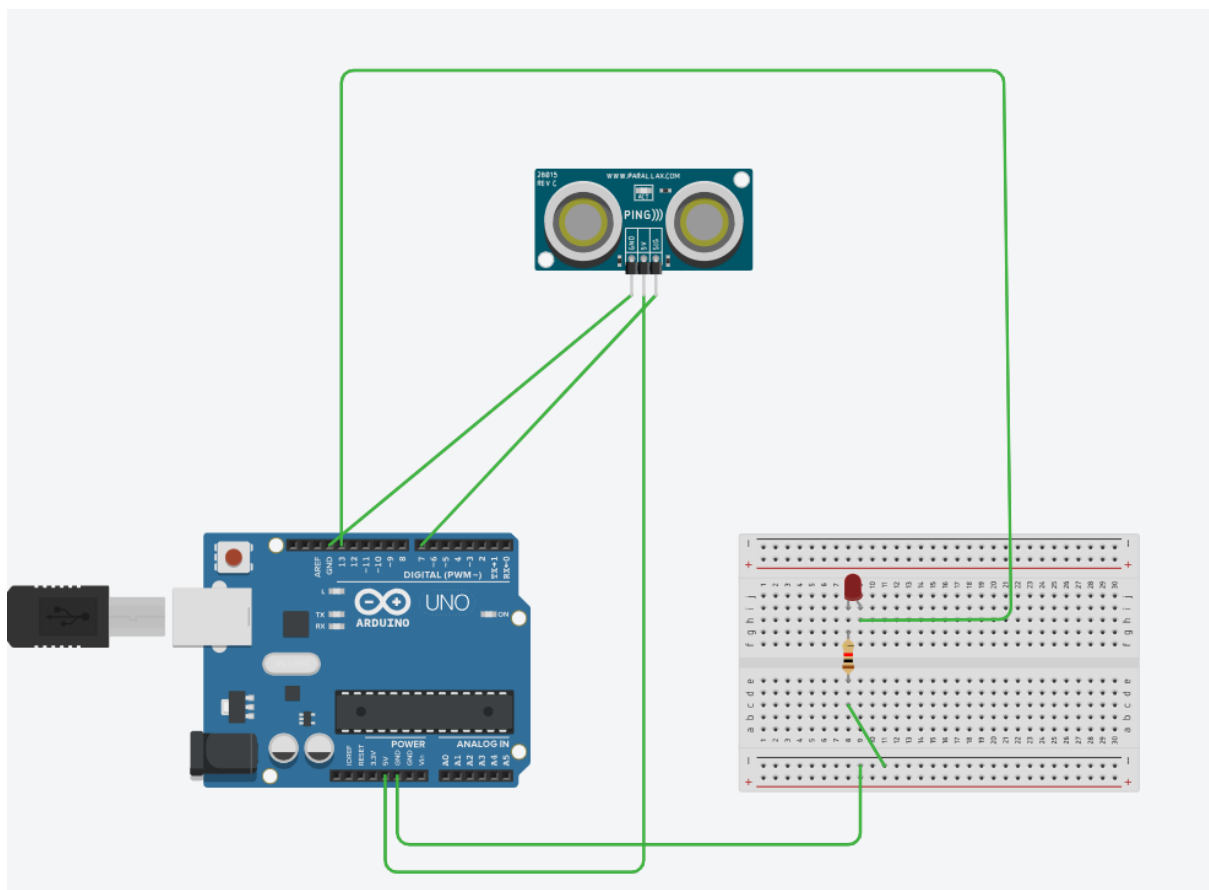
bool readDHTData (float &humidity, float &temperature)
{
    humidity= random (0,50);

    temperature= random (20,30);

    return true;
}

```

P6) write a program to interface Arduino with an ultrasonic sensor



Code :

```

const int pingPin=7;

const int ledPin=13;

```



```
long duration;

int cm;

void setup()

{

    Serial.begin(9600);

    pinMode(ledPin,OUTPUT);

}

void loop()

{

    pinMode(pingPin,OUTPUT);

    digitalWrite(pingPin,LOW);

    delayMicroseconds(2);

    digitalWrite(pingPin,HIGH);

    delayMicroseconds(5);

    digitalWrite(pingPin,LOW);

    pinMode(pingPin,INPUT);

    duration=pulseIn(pingPin,HIGH);

    cm=MicrosecondsToCentimeters(duration);

    Serial.print("Distance:");

    Serial.print(cm);

    Serial.print("cm");

    Serial.println();

    if(cm<100)

    {

        digitalWrite(ledPin,HIGH);

    }

    else
```

```

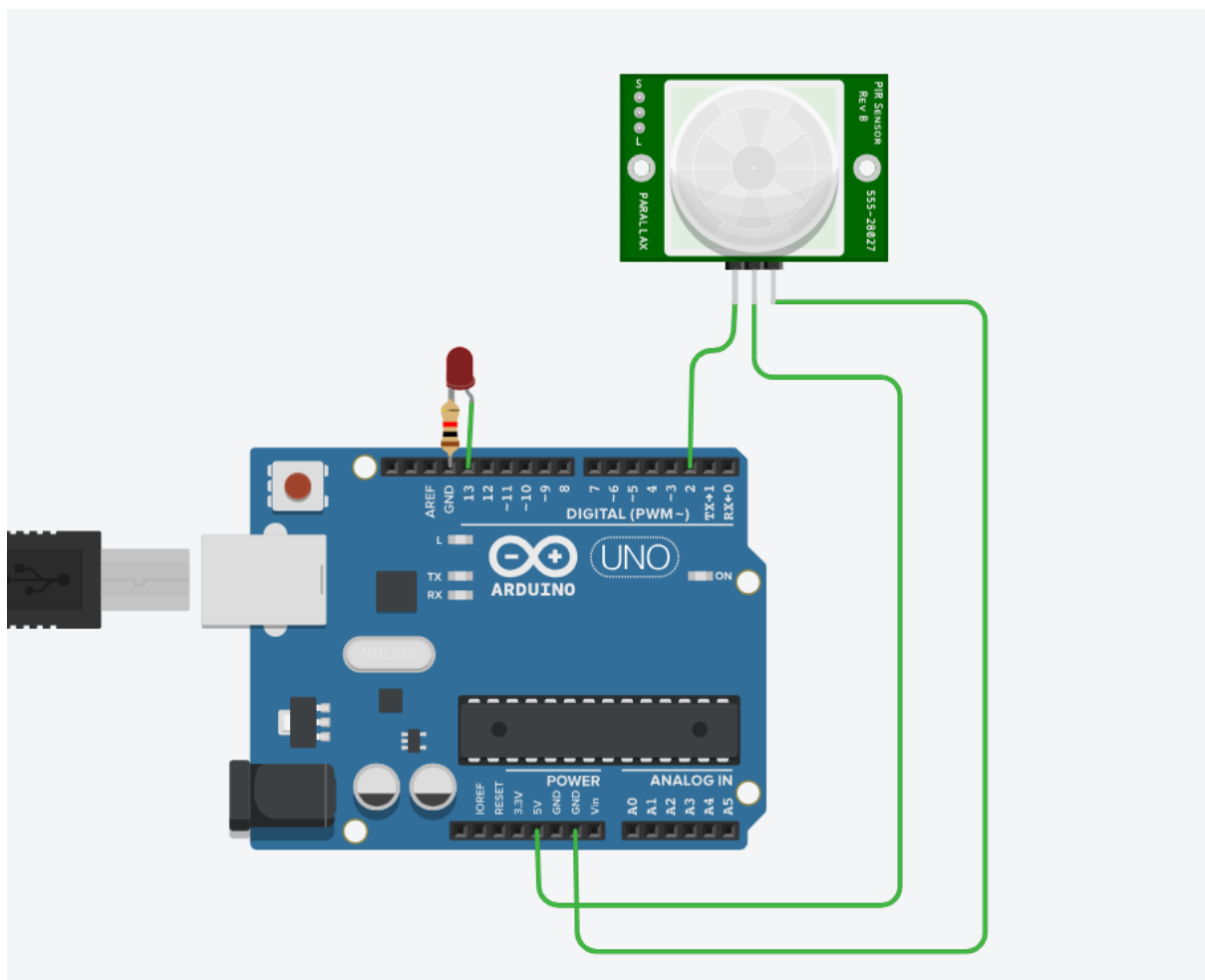
{
    digitalWrite(ledPin,LOW);
}

delay(100);
}

long MicrosecondsToCentimeters(long microseconds)
{
    return microseconds/29/2;
}

```

P7) write a program to interface passive infrared sensor (PIR)



Code :

```
int buttonState=0;
```

```
void setup()

{

  pinMode(2,INPUT);

  pinMode(LED_BUILTIN, OUTPUT);

}
```

```
void loop()

{

  buttonState=digitalRead(2);

  if(buttonState==HIGH)

  {

    digitalWrite(LED_BUILTIN, HIGH);

  }

  else

  {

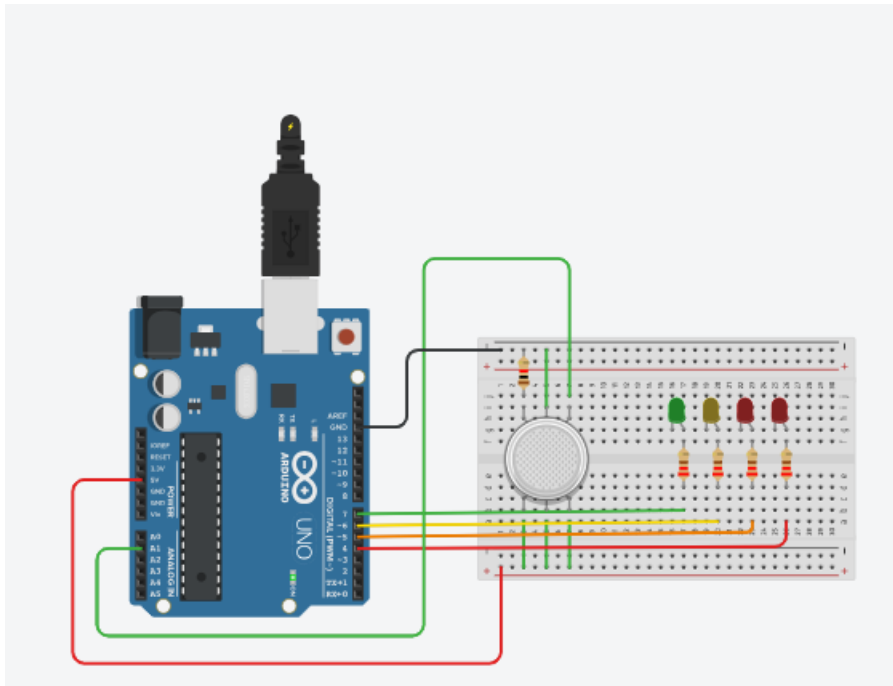
    digitalWrite(LED_BUILTIN, LOW);

  }

  delay(10);

}
```

P8) write a program to interface Arduino with gas sensor



Code :

```
int const GAS_PIN=A1;

int LED_GREEN=7;

int LED_YELLOW=6;

int LED_RED1=5;

int LED_RED2=4;

void setup()
{
    pinMode(LED_GREEN, OUTPUT);
    pinMode(LED_YELLOW, OUTPUT);
    pinMode(LED_RED1, OUTPUT);
    pinMode(LED_RED2, OUTPUT);
}

void loop()
{
    int value=analogRead(GAS_PIN);
```

```
value=map(value,300,750,0,100);
```

```
digitalWrite(LED_GREEN, HIGH);
```

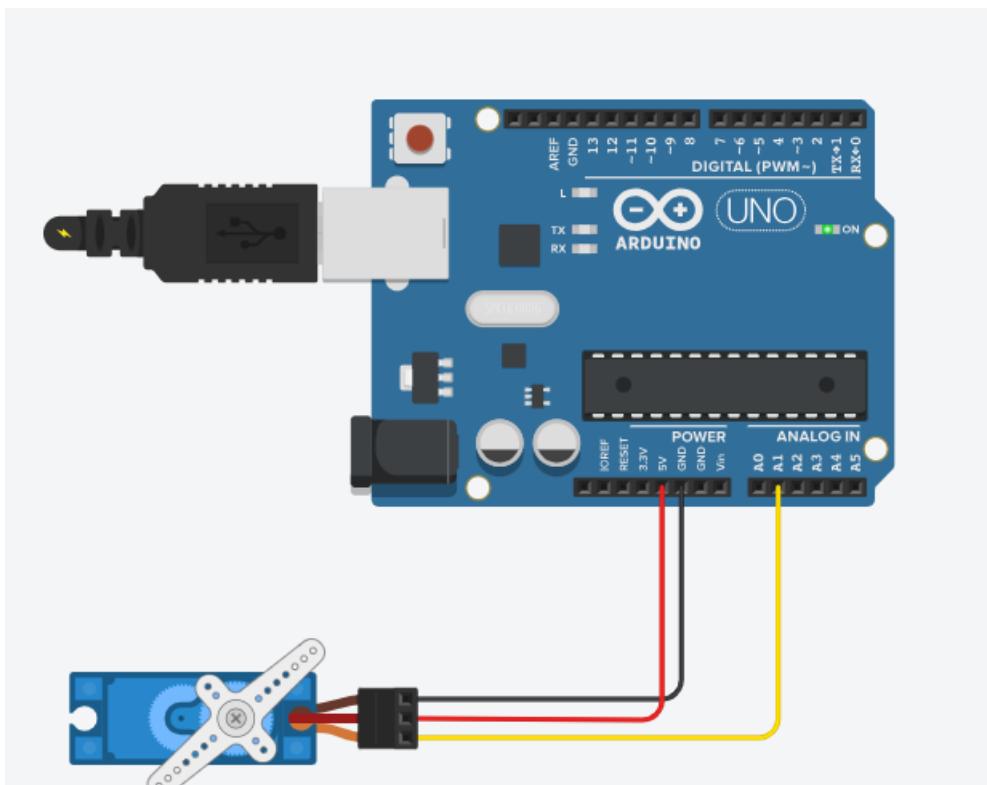
```
digitalWrite(LED_RED1,value>=50?HIGH:LOW);
```

```
digitalWrite(LED_YELLOW,value>=30?HIGH:LOW);
```

```
digitalWrite(LED_RED2,value>=80?HIGH:LOW);
```

```
}
```

P9) write a program to interface an Arduino with servo motor



Code :

```
#include<Servo.h>
```

```
Servo servoBase;
```

```
void setup()
```

```
{
```

```
servoBase.attach(A1);
```

```
servoBase.write(0);  
}  
  
void loop()  
{  
  for(int i=0;i<=180;i=i+10)  
  {  
    servoBase.write(i);  
    delay(2000);  
  }  
}
```