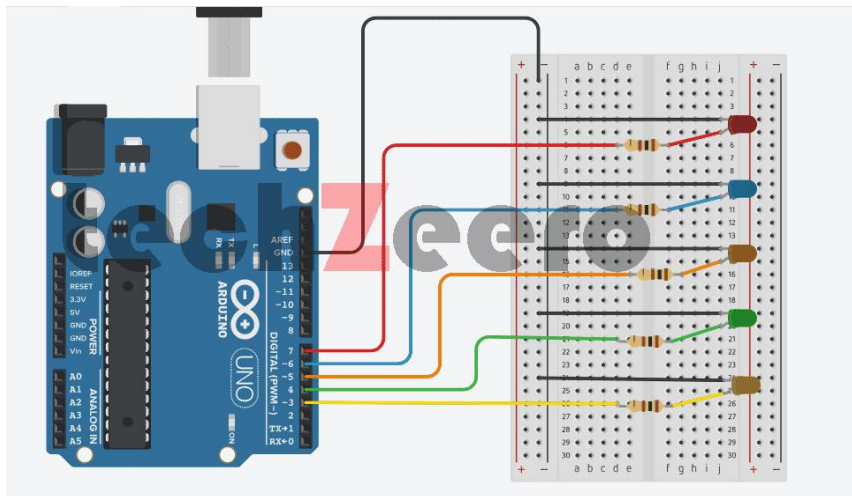


## 1. Write a program to control 3 LED using Arduino UNO



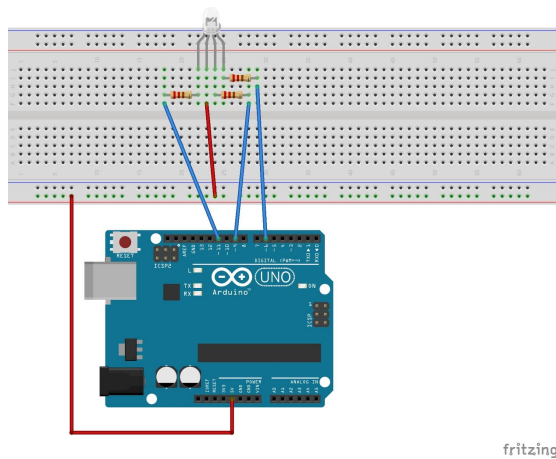
Void setup()

```
{  
    pinMode(7,OUTPUT);  
    pinMode(6,OUTPUT);  
    pinMode(5,OUTPUT);  
}
```

Void loop()

```
{  
    digitalWrite(7,HIGH);  
    delay(200);  
    digitalWrite(7,LOW);  
    delay(200);  
    digitalWrite(6,HIGH);  
    delay(200);  
    digitalWrite(6,LOW);  
    delay(200);  
    digitalWrite(5,HIGH);  
    delay(200);  
    digitalWrite(5,LOW);  
    delay(200);  
}
```

## 2. Write a program to control RGB - LED using Arduino UNO



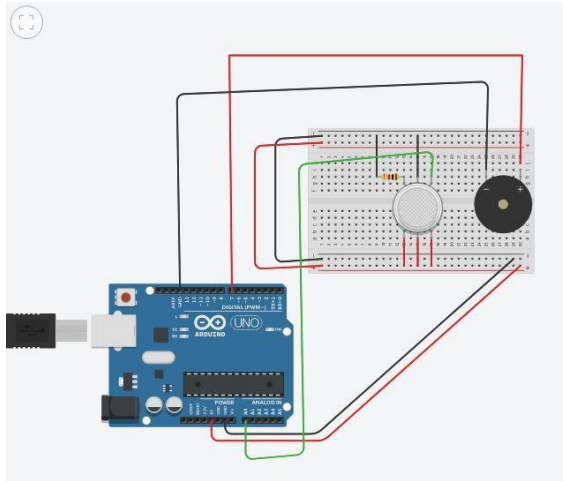
```
void setup()
{
  pinMode(11, OUTPUT);
  pinMode(10, OUTPUT);
  pinMode(9, OUTPUT);
}

void loop()
{
  digitalWrite(11,255);  // red
  digitalWrite(10,0);
  digitalWrite(9,0);
  delay(1000);

  digitalWrite(11,0);  // blue
  digitalWrite(10,255);
  digitalWrite(9,0);
  delay(1000);

  digitalWrite(11,0);  // green
  digitalWrite(10,0);
  digitalWrite(9,255);
  delay(1000);
}
```

### 3 . Write a program to give Alarm using Arduino UNO

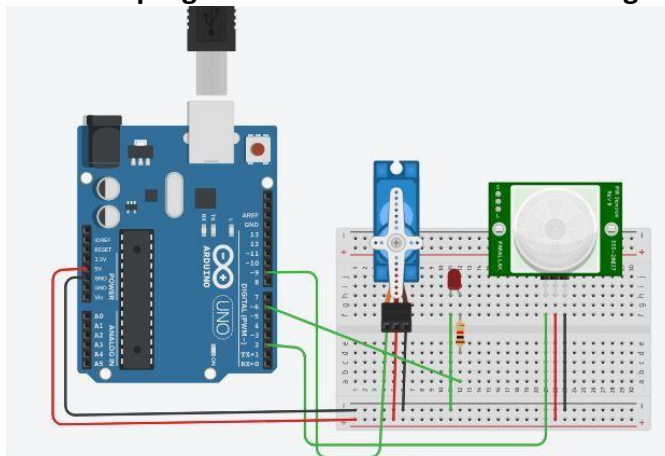


```

int V_Gassensor = 0;
void setup()
{
  pinMode(A0, INPUT);
  pinMode(7, OUTPUT);
}
void loop()
{
  V_Gassensor = analogRead(A0);
  if (V_Gassensor > 250) {
    tone(7, 523, 1000); // play tone 60 (C5 = 523 Hz) (pin , freq, delay)
  }
  delay(10);
}

```

#### 4. Write a program to control Servo motor using Arduino UNO



```

#include <Servo.h>
Servo myservo;
int led=6;
int pir=2;

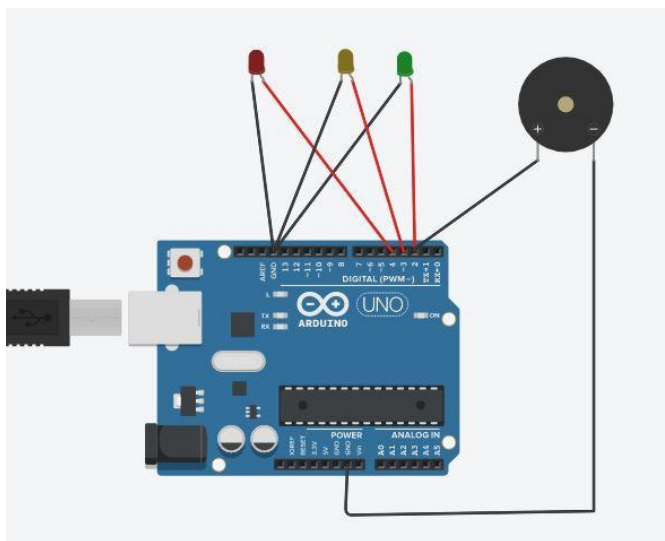
```

```

void setup()
{
  pinMode(pir,INPUT);
  pinMode(led,OUTPUT);
  myservo.attach(9);
  Serial.begin(9600);
}
void loop()
{
  int val = digitalRead(pir);
  Serial.println(val);
  if(val==HIGH){
    digitalWrite(led,HIGH);
    myservo.write(70); }
  else{
    digitalWrite(led,LOW);
    myservo.write(10);
  }
  delay(10);
}

```

## 5. Write a program to control LED & Alarm using Arduino UNO



```

void setup()
{
  pinMode(2, OUTPUT);
  pinMode(3, OUTPUT);
  pinMode(4, OUTPUT);
}
void loop()
{
  digitalWrite(2, HIGH);

```

```

tone(10,1055,1000);
digitalWrite(3, LOW);
digitalWrite(4, LOW);
delay(1000);
digitalWrite(3, HIGH);
digitalWrite(2, LOW);
digitalWrite(4, LOW);
delay(1000);
digitalWrite(4, HIGH);
digitalWrite(3, LOW);
digitalWrite(2, LOW);
delay(1000);
}

```

#### **6. Write a program to control 3 LED using Resberry PI**

```

int red=1;
int yellow=5;
int green=9;
void setup()
{
  pinMode(red,OUTPUT);
  pinMode(yellow,OUTPUT);
  pinMode(green,OUTPUT);
}
void loop()
{
  digitalWrite(red,HIGH);
  delay(3000);
  digitalWrite(red,LOW);
  digitalWrite(yellow,HIGH);
  delay(3000);
  digitalWrite(yellow,LOW);
  digitalWrite(green,HIGH);
  delay(3000);
  digitalWrite(green,LOW);
}

```

**7. Write** a program to give Alarm using Arduino UNO

**8. Write** a program to control RGB - LED using Arduino UNO

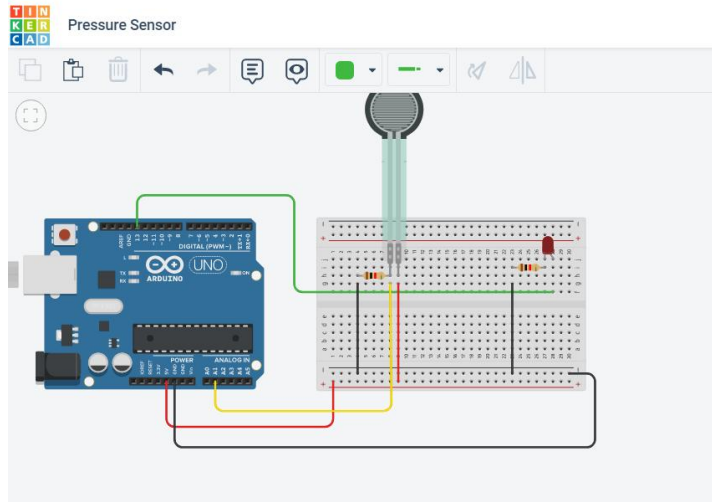
**9. Write** a program to control Servo motor using Arduino UNO

**10. Write** a program to give Alarm using Arduino UNO

**11. Write** a program to control RGB - LED using Arduino UNO

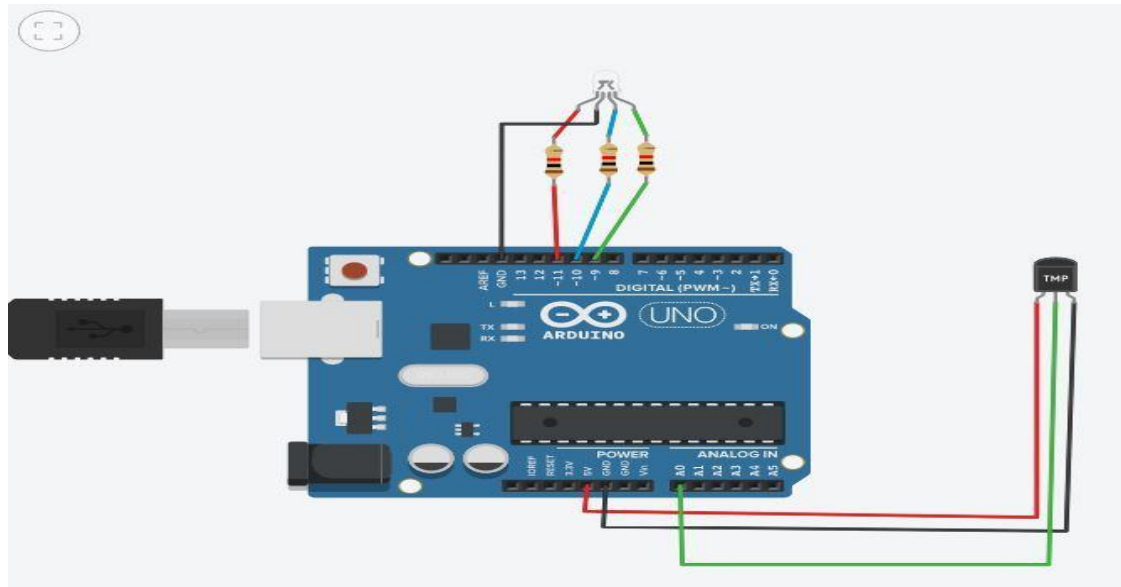
## Part-B

1. Write a program to control the IR Sensor & Accuator using - Arudino UNO  
Up
2. Write a program to control the Pressure Sensor using - Arudino UNO



```
int LED = 13;
int ForcePin = A1;
int ForceValue = 0;
void setup(void) {
  Serial.begin(9600);
  pinMode(ForcePin, INPUT);
  pinMode(LED, OUTPUT);
}
void loop(void) {
  ForceValue = analogRead(ForcePin);
  Serial.println(ForceValue);
  analogWrite(LED, ForceValue/2);
  delay(100);
}
```

3. Write a program to control the Gas Sensor using - Arudino UNO  
Up
4. Write a program to control the Temperature Sensor using Arudino UNO

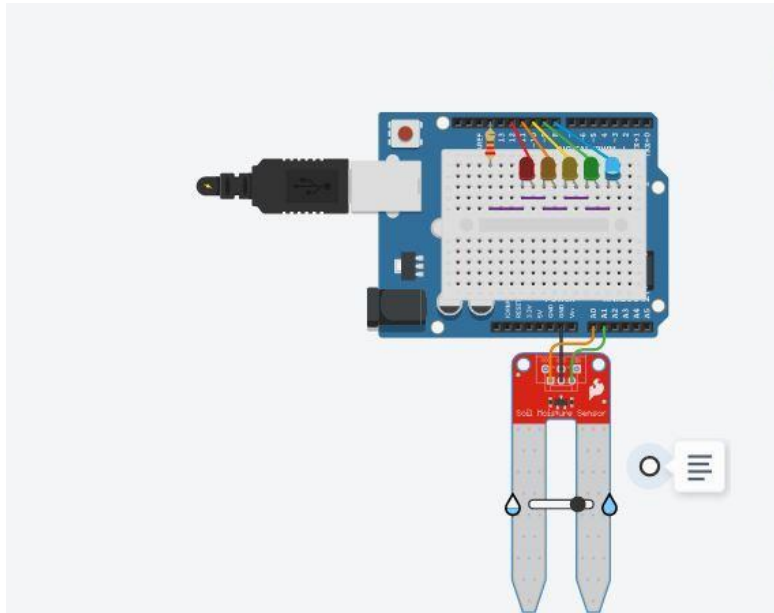


```

int V_tempsensor = 0;
void setup()
{
  pinMode(11, OUTPUT);
  pinMode(10, OUTPUT);
  pinMode(9, OUTPUT);
  pinMode(A0, INPUT);
}
void loop()
{
  analogWrite(11, 51);
  analogWrite(10, 204);
  analogWrite(9, 0);
  V_tempsensor = (-40 + 0.488155 * (analogRead(A0) - 20));
  if (V_tempsensor >= 50) {
    analogWrite(11, 255);
    analogWrite(10, 0);
    analogWrite(9, 0);
  }
  if (V_tempsensor >= 30) {
    analogWrite(11, 51);
    analogWrite(10, 51);
    analogWrite(9, 255);
  }
  if (V_tempsensor <= 10) {
    analogWrite(11, 0); analogWrite(10, 102);
    analogWrite(9, 0);
  }
  delay(10); // Delay a little bit to improve simulation performance
}

```

## 5. Write a program to control the Soil moisture Sensor using Arudino UNO



```
// C++ code
//
int moisture = 0;

void setup()
{
  pinMode(A0, OUTPUT);
  pinMode(A1, INPUT);
  Serial.begin(9600);
  pinMode(8, OUTPUT);
  pinMode(9, OUTPUT);
  pinMode(10, OUTPUT);
  pinMode(11, OUTPUT);
  pinMode(12, OUTPUT);
}

void loop()
{
  // Apply power to the soil moisture sensor
  digitalWrite(A0, HIGH);
  delay(10); // Wait for 10 millisecond(s)
  moisture = analogRead(A1);
  // Turn off the sensor to reduce metal corrosion
  // over time
  digitalWrite(A0, LOW);
  Serial.println(moisture);
}
```

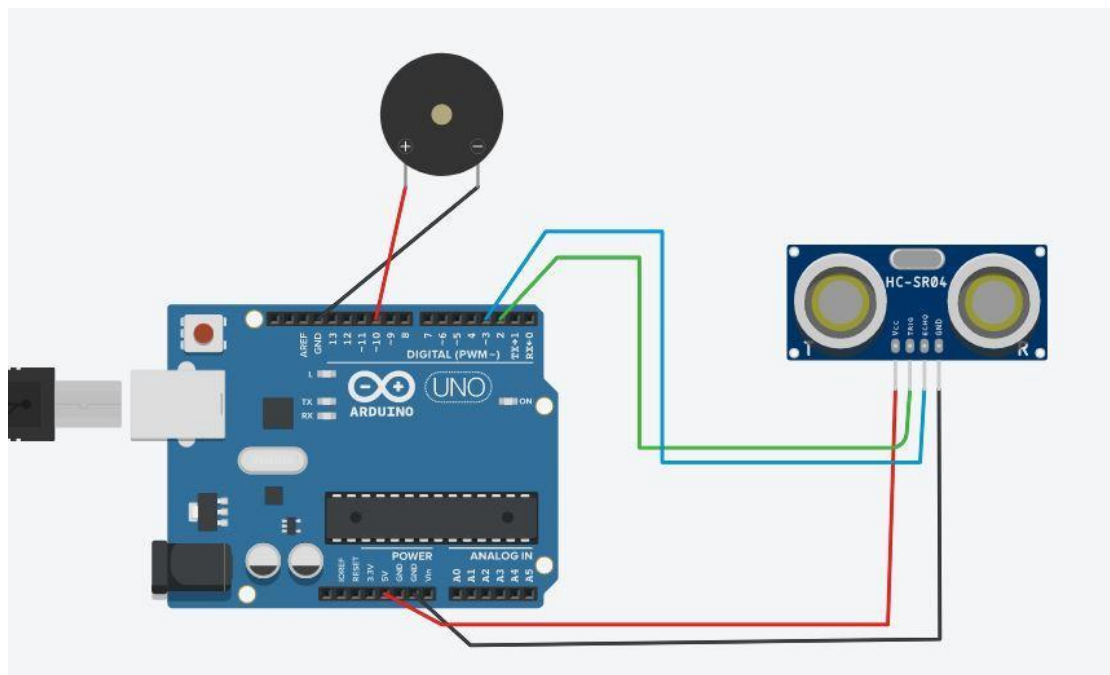


```

digitalWrite(8, LOW);
digitalWrite(9, LOW);
digitalWrite(10, LOW);
digitalWrite(11, LOW);
digitalWrite(12, LOW);
if (moisture < 200) {
  digitalWrite(12, HIGH);
} else {
  if (moisture < 400) {
    digitalWrite(11, HIGH);
  } else {
    if (moisture < 600) {
      digitalWrite(10, HIGH);
    } else {
      if (moisture < 800) {
        digitalWrite(9, HIGH);
      } else {
        digitalWrite(8, HIGH);
      }
    }
  }
}
delay(100); // Wait for 100 millisecond(s)
}

```

## 6. Write a program to control the Ultra sonic Sensor using Arudino UNO



```

int trigger_pin = 2;
int echo_pin = 3;

```

```

int buzzer_pin = 10;
int time;
int distance;
void setup()
{
  Serial.begin (9600);
  pinMode (trigger_pin, OUTPUT);
  pinMode (echo_pin, INPUT);
  pinMode (buzzer_pin, OUTPUT);
}
void loop()
{
  digitalWrite (trigger_pin, HIGH);
  delayMicroseconds (10);
  digitalWrite (trigger_pin, LOW);
  time = pulseIn (echo_pin, HIGH);
  distance = (time * 0.034) / 2;
  if (distance <= 10)
  {
    Serial.println (" Door Open ");
    Serial.print (" Distance= ");
    Serial.println (distance);
    digitalWrite (buzzer_pin, HIGH);
    delay (500);
  }
  else {
    Serial.println (" Door closed ");
    Serial.print (" Distance= ");
    Serial.println (distance);
    digitalWrite (buzzer_pin, LOW);
    delay (500);
  }
}

```

**10. Write a program to control Displaying Text Msg on Serial Monitor using Resberry PI**

```

#include <LiquidCrystal.h>

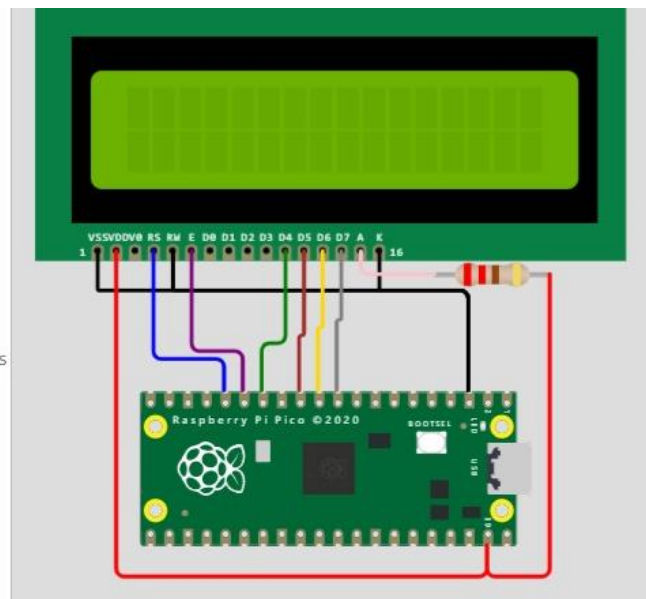
LiquidCrystal lcd(12, 11, 10, 9, 8, 7);

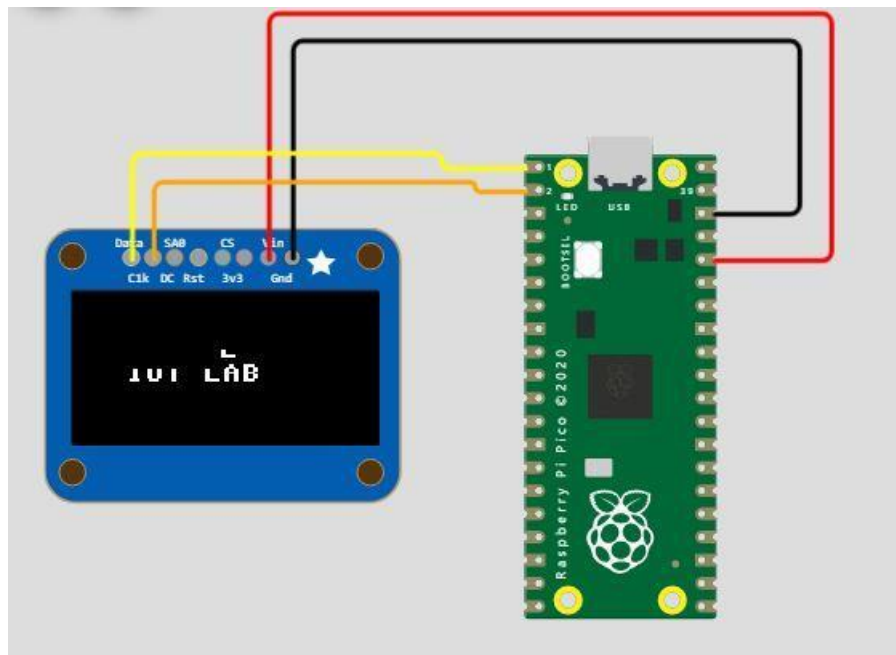
void setup() {
  lcd.begin(16, 2);
  lcd.print("Hello World!");

  lcd.setCursor(2, 1);
  lcd.print("> Pi Pico <");
}

void loop() {
  delay(1); // Adding a delay() here speeds
}

```

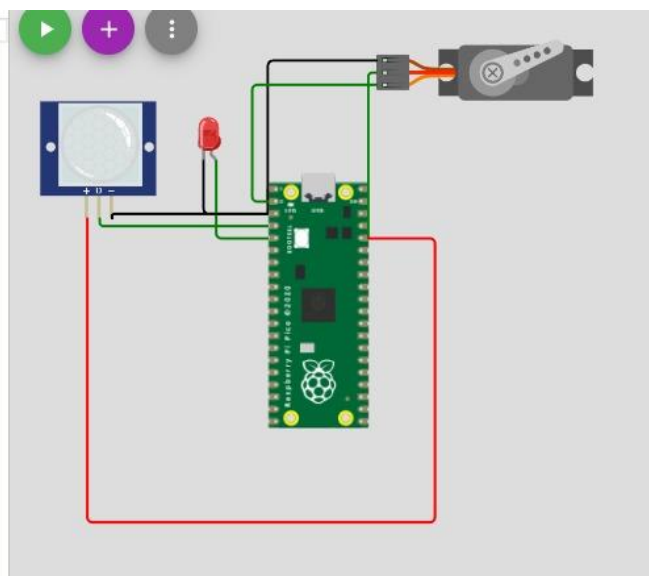




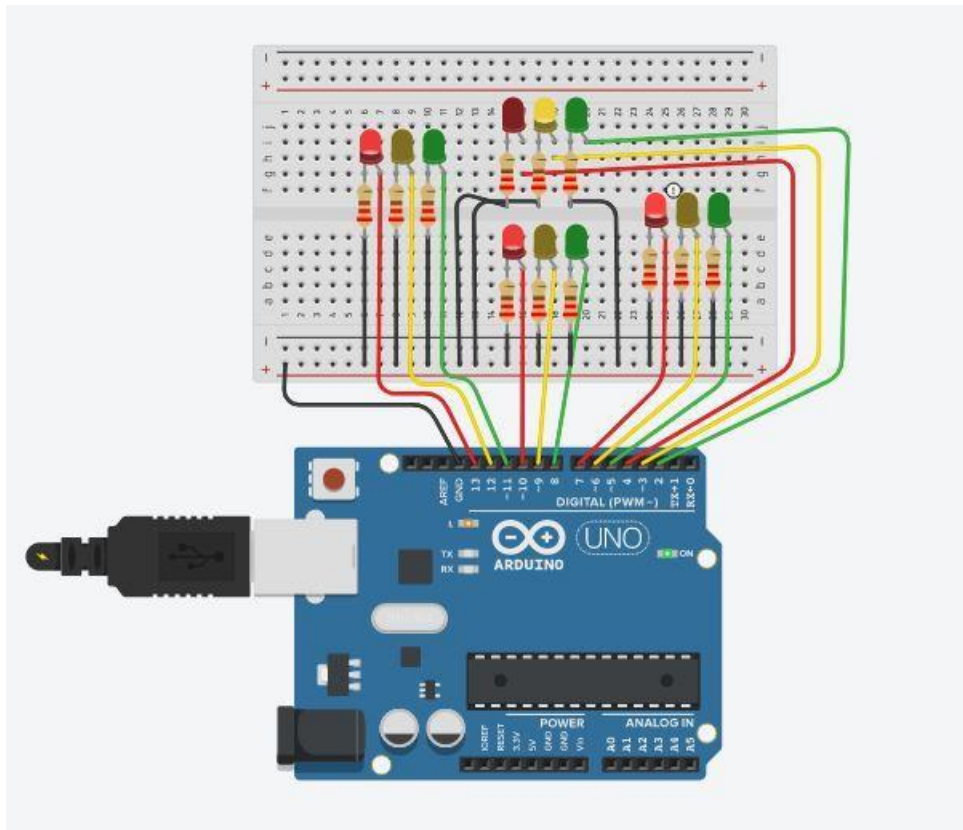
```
print("Hello, Pi Pico!")
from machine import Pin, I2C
from ssd1306 import SSD1306_I2C
i2c=I2C(0,sda=Pin(0), scl=Pin(1), freq=400000)
oled = SSD1306_I2C(128, 64, i2c)
oled.text("Welcome To", 0, 0)
oled.text("MITS ", 7, 10)
oled.text("DEPT CSE ", 5, 20)
oled.text("IOT LAB", 22, 30)
oled.show()
oled.show()
```

# 11. Write a program to control Automatic Door Close/Open using Resberry PI

```
#define pir 2
#define led 3
#include <Servo.h>
Servo myservo;
void setup(){
  pinMode(pir, INPUT);
  pinMode(led, OUTPUT);
  myservo.attach(1);
}
void loop(){
  int val=digitalRead(pir);
  Serial.println(val);
  if(val==HIGH){
    digitalWrite(led,HIGH);
    myservo.write(70);
  }
  else{
    digitalWrite(led,LOW);
    myservo.write(10);
  }
  delay(10);
}
```



## 9. Design & develop traffic light management system



```
int red1=13;  
int yellow1=12;  
int green1=11;
```

```
int red2=10;  
int yellow2=9;  
int green2=8;
```

```
int red3=7;  
int yellow3=6;  
int green3=5;
```

```
int red4=4;  
int yellow4=3;  
int green4=2;
```

```
void setup()  
{  
  for(int i=2;i<=13;i++)  
  {  
    pinMode(i, OUTPUT);  
  }  
}
```

```
void loop()
{
    direction(red1, yellow1, green1, red2, yellow2, green2, red3, yellow3, green3, red4,
yellow4, green4);
    direction(red2, yellow2, green2, red1, yellow1, green1, red3, yellow3, green3, red4,
yellow4, green4);
    direction(red3, yellow3, green3, red1, yellow1, green1, red2, yellow2, green2, red4,
yellow4, green4);
    direction(red4, yellow4, green4, red1, yellow1, green1, red2, yellow2, green2, red3,
yellow3, green3);
}
```

```
void direction(int a, int b, int c, int d, int e, int f, int g, int h, int i, int j, int k, int l)
{
    digitalWrite(a,LOW);
    digitalWrite(b,LOW);
    digitalWrite(c,HIGH);

    digitalWrite(d,HIGH);
    digitalWrite(e,LOW);
    digitalWrite(f,LOW);

    digitalWrite(g,HIGH);
    digitalWrite(h,LOW);
    digitalWrite(i,LOW);

    digitalWrite(j,HIGH);
    digitalWrite(k,LOW);
    digitalWrite(l,LOW);

    delay(5000);
    digitalWrite(c, LOW);
    digitalWrite(b, HIGH);
    delay(3000);
}
```