PWM pin

1. Learning purpose

1.1 Learn how to use buzzer and Raspberry Pi Pico board.

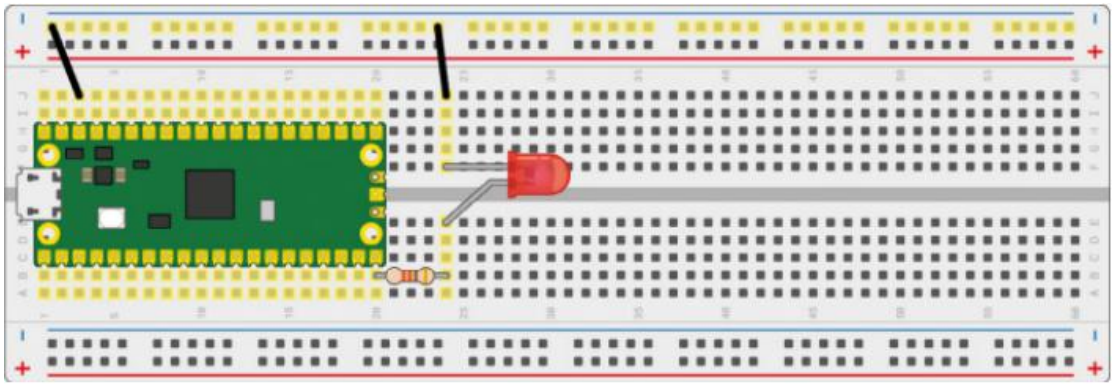
1.2 Learn how to control LED by PWM.

2. Hardware construction

List:

LED light brightness*1

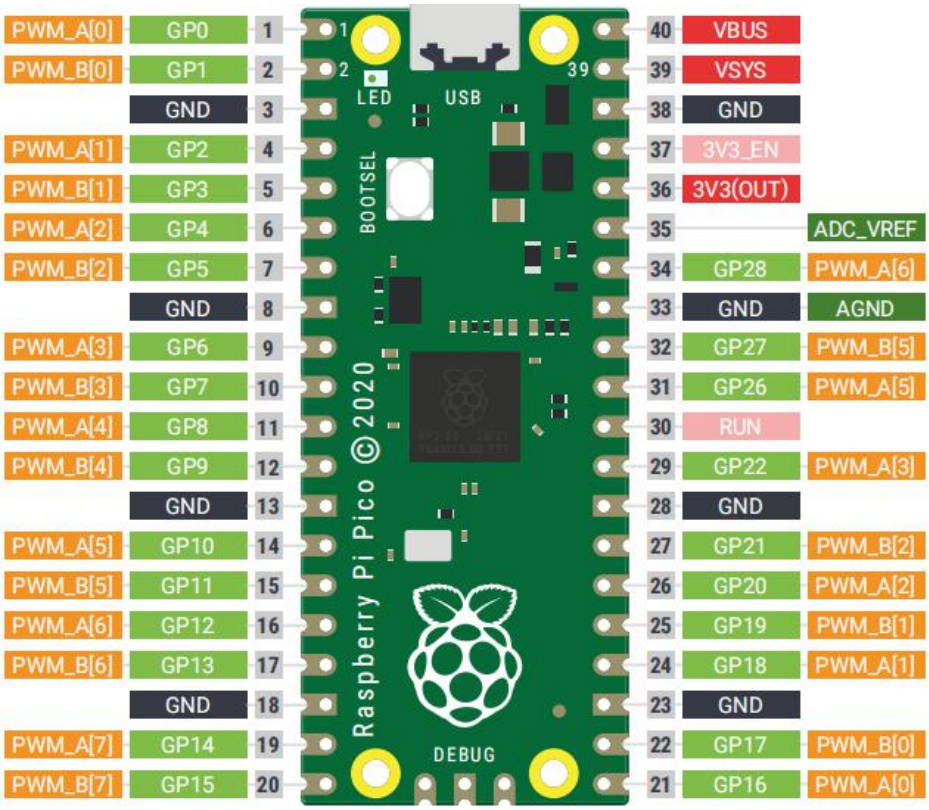
220Ωresistor *1



3. About code

Thonny programming

Every GPIO pin on Pico can be pulse width modulated.



Thonny programming

```
import machine
import utime

led = machine.PWM(machine.Pin(15))
led.freq(1000)

while True:
    for i in range(65535):
        led.duty_u16(i)
        utime.sleep(0.0005)
```

Program explanation:

import machine

This machine library contains the instructions needed by MicroPython to communicate with Pico and other devices.

import utime

This library handles all things related to time.

led = machine.PWM(machine.Pin(15))

Set IO15 to PWM output, that is, use the B output terminal of the No. 7 PWM slice.

led.freq(1000)

Set the frequency of 1000 Hz.

led.duty_u16(i)

Set the duty cycle.

Modify the PWM duty cycle value through the for loop.

4. Experimental phenomenon

After the program is downloaded, we can see that the LED lights gradually turn on from off.