0. Introduction of the Raspberry Pi 3B+ GPIO

The Raspberry Pi 3B+ possess forty pins, including twenty-eight configurable GPIO pins, eight GND pins, two +5V pins and two 3.3V pins.

The officially recommended programming languages for controlling Raspberry Pi GPIO are C, Python, and scratch. Download the official image to use the GPIO library files WiringPi (C language) and RPi.GPIO (Python) directly. At the same time, the Raspberry Pi GPIO can also be controlled by PWM, SPI, I2C or serial.

In this project we use the Python language for programming, the basic operations of the module below:

1: Import module
Import RPi.GPIO as GPIO
2: Specified number format
GPIO.setmode (number format)

3: GPIO.setup(channel, working status)
Set the working state of the pins, parameter can be set to GPIO.OUT or GPIO.IN

4: GPIO.input(channel, state)/GPIO.output(channel,state)
Start the pin. If the pin is connected to the input device, use GPIO.input. If the output device is connected, use GPIO.output. The value of the parameter state can be set to 0/1, LOW/HIGHT or False/True.

5: GPIO.cleanup(channel)
After the port is used, the working state of the pin needs to be released to avoid affecting the next operation.