

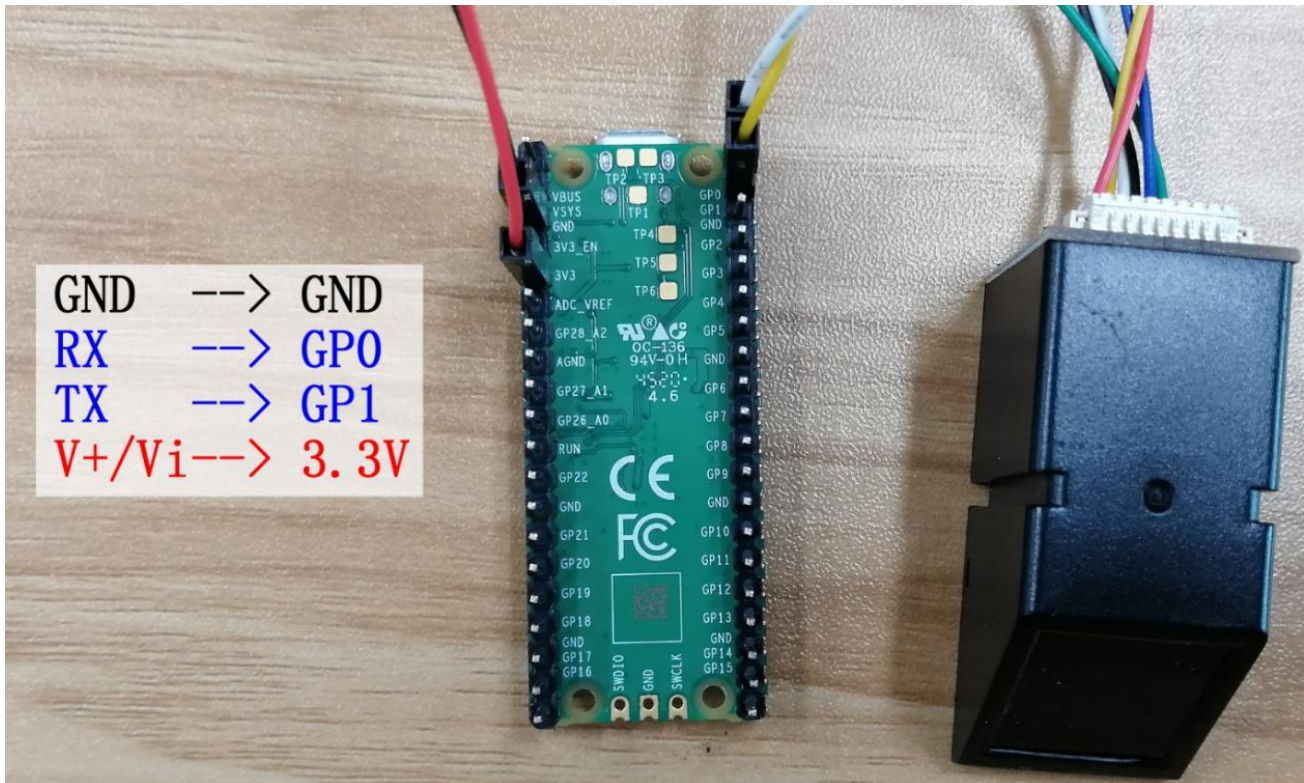
Fingerprint entry

1. Learning target

In this course, we will learn how to use Pico and fingerprint recognition module to achieve fingerprint entry function.

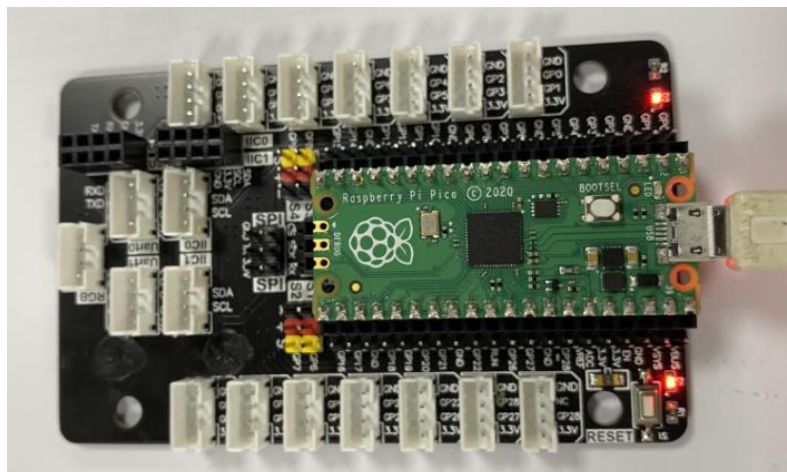
2. Preparation

The fingerprint recognition module uses UART communication, and the program uses a virtual serial port. Connect the TX and RX of the module to the D2 and D3 pins of the Pico board. V+/Vi and GND are connected to 3.3V and GND of Pico respectively.

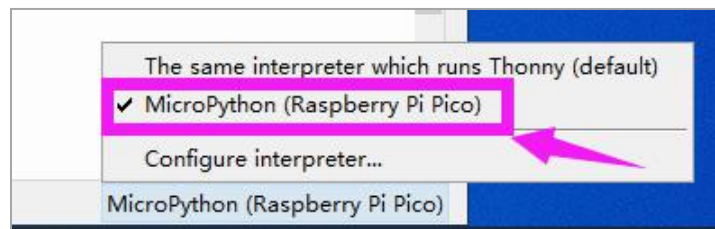


3. Import library file

3.1 Connect Pico to your computer, as shown below.



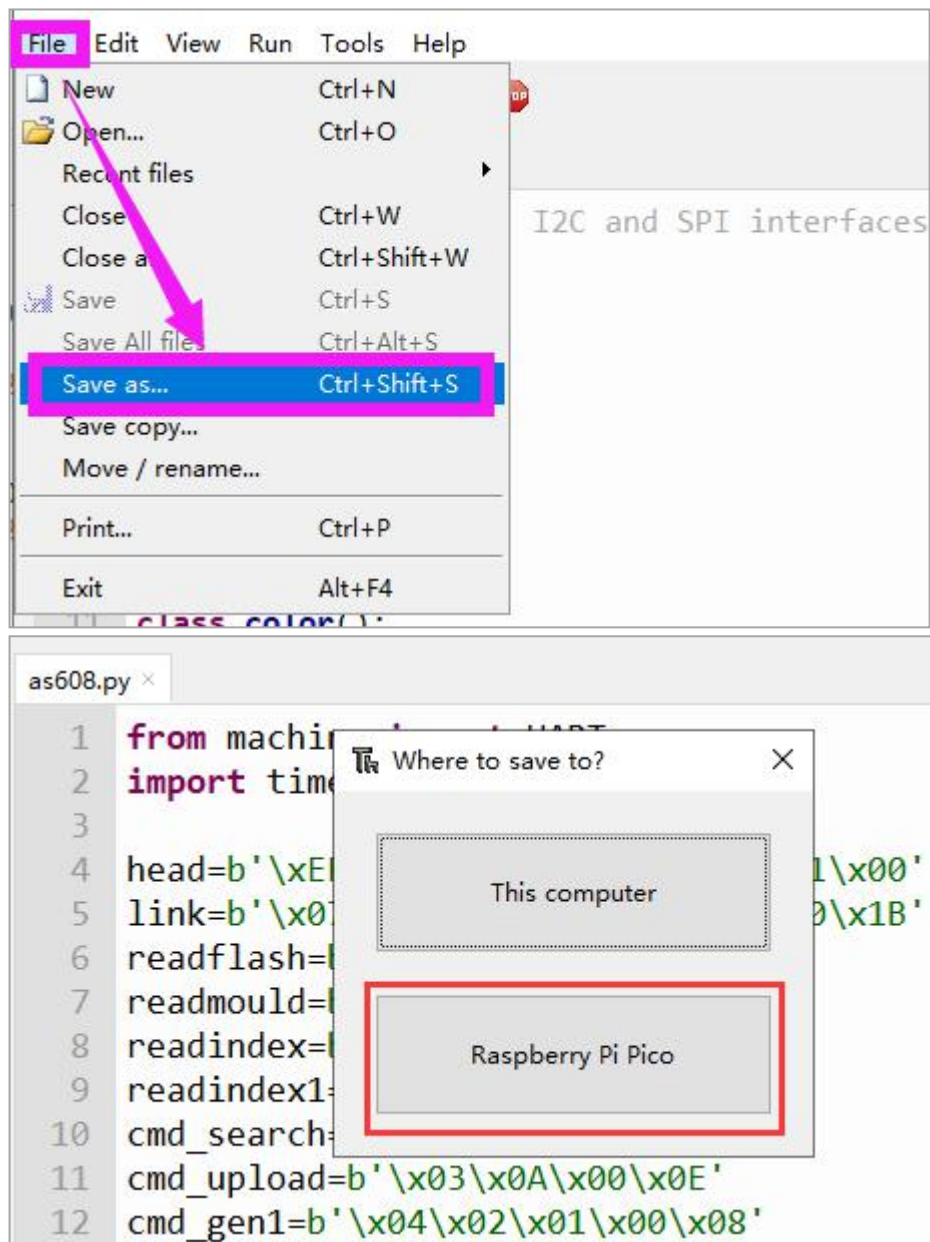
3.2 Open the Thonny software, click the lower right corner to connect the Pico board.



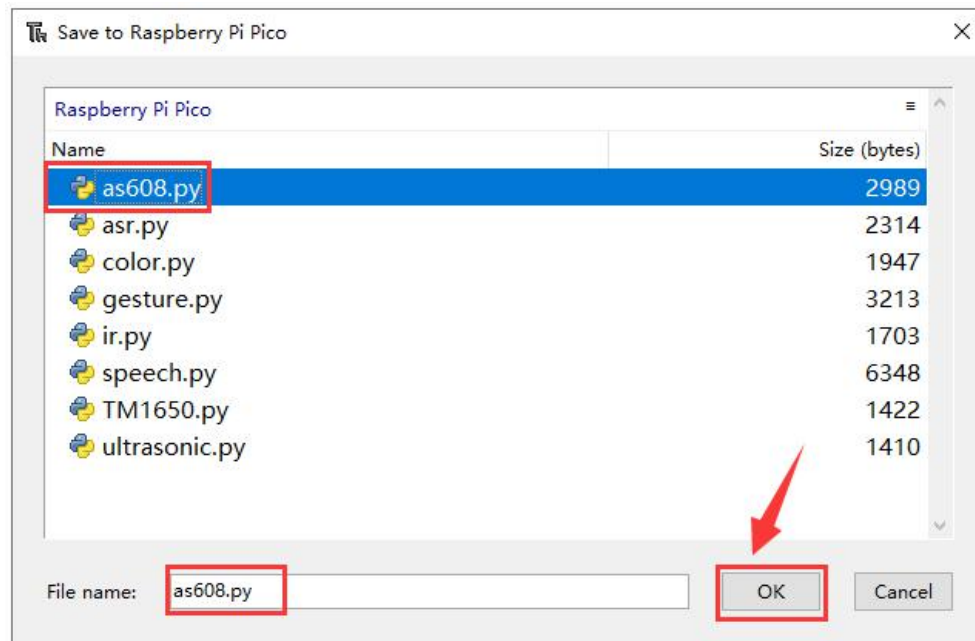
3.3 Open the as608.py in library folder by Thonny software.

```
File Edit View Run Tools Help
as608.py x
1 from machine import UART
2 import time
3
4 head=b'\xEF\x01\xFF\xFF\xFF\xFF\x01\x00'
5 link=b'\x07\x13\x00\x00\x00\x00\x00\x1B'
6 readflash=b'\x03\x16\x00\x1A'
7 readmould=b'\x03\x1D\x00\x21'
8 readindex=b'\x04\x1F\x00\x00\x24'
9 readindex1=b'\x04\x1F\x01\x00\x25'
10 cmd_search=b'\x03\x01\x00\x05'
11 cmd_upload=b'\x03\x0A\x00\x0E'
12 cmd_gen1=b'\x04\x02\x01\x00\x08'
13 cmd_gen2=b'\x04\x02\x02\x00\x09'
14 cmd_reg=b'\x03\x05\x00\x09'
15 cmd_save=b'\x06\x06\x01\x00'
16 cmd_dis=b'\x08\x04\x01\x00\x00\x01\x2C\x00\x3B'
17 cmd_deletchar=b'\x07\x0c\x00'
18
```

3.4 Save as this .py library file into Pico.



3.5 Enter the same file name as the library file. Then, click “OK”.



4. About code

Please view **finger_save.py** we provided.

5. Compiling and running code

5.1 We can open the .py file by Thonny software.

```

File Edit View Run Tools Help
[Icons]
finger_save.py x
1 from machine import Pin, UART
2 from as608 import as608
3 import time
4
5 uart = UART(0, 57600, bits=8, parity=None, stop=1, tx=Pin(0), rx=Pin(1))
6
7 time.sleep(1)
8 #Initialize the fingerprint recognition module
9 fig=as608(uart)
10 print('Initialized successfully')
11 time.sleep(0.1)
12 #Enter fingerprint and store as ID 3
13 fig.savefig(3)
14
15
16

```

5.2 In Thonny menu bar, we need to click run button to run this program.

"%Run -c \$EDITOR_CONTENT" will be displayed. As shown below.


```
MicroPython v1.13-290-g556ae7914 on 2021-01-21; Raspberry Pi Pico with RP2040
Type "help()" for more information.
>>> %Run -c $EDITOR CONTENT
>>>
```

6. Phenomenon

After the program is run successfully. System will start to initialize the fingerprint recognition module.

If the initialize is successfully, it will display "Initialized successfully". Otherwise, please check the baud rate or wiring of the module.

When the Shell window prints "Press your finger", please put your finger on the fingerprint recognition module. When the Shell window prints "Press your finger again", release your finger and put your finger on the fingerprint recognition module again.

The system will automatically compare the previous and next fingerprints. If they are the same, the Shell window will print "Saved successfully" and automatically set the fingerprint ID to 3.

After we run the fingerprint recognition program, when we put our finger on the fingerprint recognition module, the Shell window will print the ID of the fingerprint.