

1. Learning target

In this course, we will earn how to use Raspberry Pi and laser ranging module to achieve ranging.

2. Preparation

2.1 The laser ranging module uses I2C communication, and connect the SDA and SCL of the module to the SDA and SCL pins of the Raspberry Pi board. VCC and GND are respectively connected to 5V and GND of the Raspberry Pi.

!Tip: Raspberry Pi needs to enable I2C service.



2.2 After the Raspberry Pi I2C is enabled, input command **Imusb** in the terminal to check whether the I2C is successfully started.



```
videobuf2_dma_contig
                          20480 1 bcm2835 codec
videobuf2_vmalloc
                         16384 1 bcm2835_v4l2
                         16384 2 videobuf2_dma_contig,videobuf2_vmal
24576 3 bcm2835_codec,bcm2835_v4l2,v4l2_mem
videobuf2_memops
videobuf2_v4l2
videobuf2_common
                         45056 4 bcm2835_codec, bcm2835_v4l2, v4l2_mem
videodev
                        200704 6 bcm2835_codec,v4l2_common,videobuf2
media
                         36864
                                2 videodev, v4l2 mem2mem
argon mem
                         16384
uio_pdrv_genirq
                         16384
                                 1 uio_pdrv_genirq
                         20480
                         16384
i2c dev
snd bcm2835
                         24576 2
                        102400 1 snd bcm2835
snd_pcm
snd_timer
                         32768
                                1 snd_pcm
                                 7 snd timer, snd bcm2835, snd pcm
snd
                          73728
ip tables
                         24576
                                 Θ
x tables
                         32768
                                 1 ip_tables
                        450560
ipv6
                                 26
pi@raspberrypi:~/speech $
```

2.3 Download i2c-tools, the software can monitor the usage and faults of hardware devices.

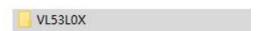
Input command: sudo apt-get install i2c-tools

Input command: **i2cdetect -y -a 1** in the terminal.

Check if there is an IIC device: 0x52 or 0x29

3. About code

3.1 Transfer this file into Raspberry Pi system



3.2 Input following command to enter VL53L0X folder.

cd VL53L0X

3.3 Input following command to compile this file.

make

3.4 Input following command to enter python folder.

cd python

3.5Input command to run program

python VL53L0X_example.py

4. Phenomenon

After the program is downloaded successfully, the program will be automatically initialized and calibrated according to the current environment.

Then, the module continuously tests and prints 100 test results through the serial port, the unit is mm and cm.