NOTE:

1. **If the Raspberry Pi can connect to the Internet, it is recommended to download the latest driver or library for installation.**

2. **If the Raspberry Pi cannot connect to the Internet, install it directly using the driver or library provided in the sample directory.**

1. Bcm2835 library installation

A. download the latest library (2 methods)

1) Download on a PC, URL:http://www.airspayce.com/mikem/bcm2835/

2) Download the following commands on the Raspberry Pi terminal:

   wget http://www.airspayce.com/mikem/bcm2835/bcm2835-X.XX.tar.gz

   X.XX is the bcm2835 library version number, which needs to be viewed on the PC through the above URL, and then downloaded according to the actual version. For example, if the version number of bcm2835 is 1.60 through the URL, download it by the following command:

   wget http://www.airspayce.com/mikem/bcm2835/bcm2835-1.60.tar.gz

Or directly use the bcm2835 library provided in the sample directory.

B. If you are downloading on a PC, you need to copy the library to the Raspberry Pi system

C. Enter the following command at the Raspberry Pi terminal to decompress, compile, and install:

```
tar -zxvf bcm2835-1.xxx.tar.gz
cd bcm2835-1.xxx
./configure
make
sudo make check
sudo make install
```

X.XX is the version number of the bcm2835 library, which needs to be filled in according to the actual situation, for example, 1.60

2. wiringPi library installation

A. download the latest library

In the Raspberry Pi terminal, enter the following command to install the latest library:

sudo apt-get install wiringpi

Or directly use the wiringPi library provided in the sample directory.

B. If the stock is on a PC, you will need to copy the library to the Raspberry Pi system.

C. If you use the library provided by the sample example directly, you need to enter the following commands in the Raspberry Pi terminal to extract, compile, and install:

tar xfz wiringPi-xxx.tar.gz
cd wiringPi-xxx
./build

Where **xxx** is the version number of the wiringPi library, which needs to be filled in according to the actual situation, for example 8d188fa

D. Enter the following command to check if the library is successfully installed:

gpio –v
gpio readall

As shown below,The version number of the wiringPi library and the GPIO code number are displayed in the red box.

```
pi@raspberrypi:~ $ gpio -v
gpio version: 2.46
Copyright (c) 2012-2018 Gordon Henderson
This is free software with ABSOLUTELY NO WARRANTY.
For details type: gpio -warranty

Raspberry Pi Details:
  Type: Pi 3, Revision: 02, Memory: 1024MB, Maker: Embest
  * Device tree is enabled.
  *--> Raspberry Pi 3 Model B Rev 1.2
  * This Raspberry Pi supports user-level GPIO access.
pi@raspberrypi:~ $ gpio readall
```

BCM	wPi	Name	Mode	V	Physical	V	Mode	Name	wPi	BCM
		3.3v			1 || 2			5v		
2	8	SDA.1	ALT0	1	3 || 4			5v		
3	9	SCL.1	ALT0	1	5 || 6			0v		
4	7	GPIO. 7	IN	1	7 || 8	1	ALT5	TxD	15	14
		0v			9 || 10	1	ALT5	RxD	16	15
17	0	GPIO. 0	IN	0	11 || 12	0	IN	GPIO. 1	1	18
27	2	GPIO. 2	IN	0	13 || 14			0v		
22	3	GPIO. 3	IN	0	15 || 16	0	IN	GPIO. 4	4	23
		3.3v			17 || 18	0	IN	GPIO. 5	5	24
10	12	MOSI	ALT0	0	19 || 20			0v		
9	13	MISO	ALT0	0	21 || 22	0	IN	GPIO. 6	6	25
11	14	SCLK	ALT0	0	23 || 24	1	OUT	CE0	10	8
		0v			25 || 26	1	OUT	CE1	11	7
0	30	SDA.0	IN	1	27 || 28	1	IN	SCL.0	31	1
5	21	GPIO.21	IN	1	29 || 30			0v		
6	22	GPIO.22	IN	1	31 || 32	0	IN	GPIO.26	26	12
13	23	GPIO.23	IN	0	33 || 34			0v		
19	24	GPIO.24	IN	0	35 || 36	0	IN	GPIO.27	27	16
26	25	GPIO.25	IN	0	37 || 38	0	IN	GPIO.28	28	20
		0v			39 || 40	0	IN	GPIO.29	29	21
BCM	wPi	Name	Mode	V	Physical	V	Mode	Name	wPi	BCM

3. python library installation

A. Install python-dev (2 methods)

1) In the Raspberry Pi terminal, enter the following command to install:

    sudo apt-get install python-dev

2) Directly use the software installation package provided in the sample directory, and enter the following command to install at the Raspberry Pi terminal:

    sudo dpkg -i -B python-dev_X.X.XX-X_armhf.deb

    X.X.XX-X is the version number of the python-dev package, which needs to be filled in according to the actual situation, for example, 2.7.13-2

B. Install RPi.GPIO (2 methods):

1) Enter the following command to install at the Raspberry Pi terminal:

    sudo pip install RPi.GPIO==X.X.X

    X.X.X is the version number of RPi.GPIO, which needs to be viewed and filled in on the PC through the following URL, for example 0.7.0

2) Download the latest RPi.GPIO installation package on a PC

    URL:https://pypi.python.org/pypi/RPi.GPIO

    Or directly use the RPi.GPIO package provided in the sample directory

    Copy the RPi.GPIO installation package to the Raspberry Pi system

    In the Raspberry Pi terminal, enter the following command to decompress, compile, and install:

    tar xvzf RPi.GPIO-xxx.tar.gz

    cd RPi.GPIO-xxx

    sudo python setup.py install

    Where **x.x.x** is the version number of RPi.GPIO, which needs to be filled in according to the actual situation, for example 0.7.0

C. Install the data transfer library

    If using the spi bus transfer, install it as follows(2 methods):

1) Enter the following command to install at the Raspberry Pi terminal:

    sudo pip install spidev==X.X

    X.X is the version number of spidev, which needs to be viewed and filled in on

the PC through the following URL, for example 3.2

2) Download the latest spidev installation package on your PC,URL:

https://pypi.python.org/pypi/spidev

Or directly use the spidev package provided in the sample directory

Copy the spidev installation package to the Raspberry Pi system

In the Raspberry Pi terminal, enter the following command to decompress,

compile, and install:

tar xvzf spidev-xxx.tar.gz
cd spidev-xxx
sudo python setup.py install

X.X is the version number of spidev, which needs to be filled in according to

the actual situation, for example 3.2

If using the IIC bus transfer, install it as follows(2 methods):

1) Enter the following command to install at the Raspberry Pi terminal:

sudo pip install smbus2==X.X.X

X.X.X is the version number of smbus2, which needs to be viewed and filled in

on the PC through the following URL, for example 0.2.3

2) Download the latest smbus2 installation package on your PC,URL:

https://pypi.python.org/pypi/smbus2

Or directly use the smbus2 package provided in the sample directory

Copy the smbus2 installation package to the Raspberry Pi system

In the Raspberry Pi terminal, enter the following command to decompress,

compile, and install:

tar xvzf smbus2-X.X.X.tar.gz

cd smbus2-X.X.X

sudo python setup.py install

X.X.X is the version number of smbus2, which needs to be filled in according

to the actual situation, for example 0.2.3