1、Environmental construction

1、Install Speech_ Lib library

First, set the name to 'py'_ Install_ Copy the V0.0.1 folder to the root directory of your own system, and then enter the folder

```
cd py_install
sudo python3 setup.py install
```

```
.running install
running bdist_egg
running egg_info
writing Speech_Lib.egg-info/PKG-INFO
writing dependency_links to Speech_Lib.egg-info/dependency_links.txt
writing top-level names to Speech_Lib.egg-info/top_level.txt
reading manifest file 'Speech_Lib.egg-info/SOURCES.txt'
writing manifest file 'Speech_Lib.egg-info/SOURCES.txt'
installing library code to build/bdist.linux-x86_64/egg
running install_lib
running build_py
creating build/bdist.linux-x86_64/egg
creating build/bdist.linux-x86_64/egg/Speech_Lib
copying build/lib/Speech_Lib/Speech_Lib.py -> build/bdist.linux-x86_64/egg/Speech_Lib
copying build/lib/Speech_Lib/__init__.py -> build/bdist.linux-x86_64/egg/Speech_Lib
byte-compiling build/bdist.linux-x86_64/egg/Speech_Lib/Speech_Lib.py to Speech_Lib.cpython-38.py
byte-compiling build/bdist.linux-x86_64/egg/Speech_Lib/__init__.py to __init__.cpython-38.pyc
creating build/bdist.linux-x86_64/egg/EGG-INFO
copying Speech_Lib.egg-info/PKG-INFO -> build/bdist.linux-x86_64/egg/EGG-INFO
copying Speech_Lib.egg-info/SOURCES.txt -> build/bdist.linux-x86_64/egg/EGG-INFO
copying Speech_Lib.egg-info/dependency_links.txt -> build/bdist.linux-x86_64/egg/EGG-INFO
copying Speech_Lib.egg-info/top_level.txt -> build/bdist.linux-x86_64/egg/EGG-INFO
zip_safe flag not set; analyzing archive contents...
creating 'dist/Speech_Lib-0.0.1-py3.8.egg' and adding 'build/bdist.linux-x86_64/egg' to it
removing 'build/bdist.linux-x86_64/egg' (and everything under it)
Processing Speech_Lib-0.0.1-py3.8.egg
Removing /usr/local/lib/python3.8/dist-packages/Speech_Lib-0.0.1-py3.8.egg
Copying Speech_Lib-0.0.1-py3.8.egg to /usr/local/lib/python3.8/dist-packages
Speech-Lib 0.0.1 is already the active version in easy-install.pth

Installed /usr/local/lib/python3.8/dist-packages/Speech_Lib-0.0.1-py3.8.egg
Processing dependencies for Speech-Lib==0.0.1
Finished processing dependencies for Speech-Lib==0.0.1
```

Use the following command to check if the installation was successful,

```
pip list
```

```
service-pkg                    0.0.0
setuptools                     45.2.0
simplejson                     3.16.0
sip                            4.19.21
six                            1.14.0
snowballstemmer                2.0.0
soupsieve                      1.9.5
Speech-Lib                     0.0.1
srdfdl                         0.9.3
systemd-python                 234
teleop-twist-keyboard          2.3.2
topic-monitor                  0.9.4
topic-pkg                      0.0.0
Twisted                        18.9.0
txaio                          2.10.0
```

2、Bind Port

Query USB device ID,

```
lsusb
```

```
yahboom@yahboom-virtual-machine:~$ lsusb
Bus 004 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 003 Device 004: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 003 Device 003: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 003 Device 007: ID 1a86:7523 QinHeng Electronics HL-340 USB-Serial adapter
Bus 003 Device 002: ID 0e0f:0003 VMware, Inc. Virtual Mouse
Bus 003 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 002: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
```

Create a new my_ Speech.rules file, terminal input,

```
sudo gedit /etc/udev/rules.d/my_speech.rules
```

Copy the following content into this file,

```
KERNEL=="ttyUSB*",ATTRS{idVendor}=="1a86",ATTRS{idProduct}=="7523",MODE:="0777",SYML
INK+="myspeech"
```

After saving, exit and enter the following command to refresh the port rule file,

```
sudo udevadm trigger
sudo service udev reload
sudo service udev restart
```

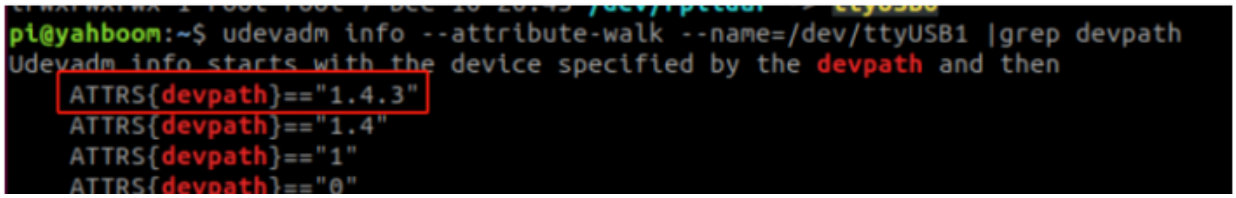
```
yahboom@yahboom-virtual-machine:~$ ll /dev/myspeech
lrwxrwxrwx 1 root root 7 May 30 17:14 /dev/myspeech -> ttyUSB0
```

The appearance of the above image indicates successful binding.

The above binding method is only applicable to a unique USB device ID. Sometimes, there may be the same device ID. For example, if there are two 1a86:7523 devices, then the ATTRS {devpath} parameter and ATTRS {devpath} parameter need to be added to the query method. For example, if I confirm that ttyUSB1 is a voice board, then input, ,

```
udevadm info --attribute-walk --name=/dev/ttyUSB1 |grep devpath
```

The terminal will print the following content, based on the actual situation ,



The red box represents the value of ATTRS {devpath}, so my_ The speech.rules file needs to be modified to the following content ,

```
KERNEL=="ttyUSB*",ATTRS{devpath}=="1.4.3",ATTRS{idVendor}=="1a86",ATTRS{idProduct}==
"7523",MODE:="0777",SYMLINK+="myspeech"
```

After saving, exit and enter the following command to refresh the port rule file ,

```
sudo udevadm trigger
sudo service udev reload
sudo service udev restart
```

Note that after binding, it cannot be inserted into the driver port, otherwise it will not be recognized.