# Fan drive

I. Learning Objectives

- Master the Jetson Nano series motherboard driver fan
- Control fans using the CubeNano driver library
- Control the fan via Jupyter lab

II. Pre-lab Preparation

Follow the assembly video tutorial to install the Jetson CUBE Nano chassis, or refer to the "Jetson CUBE Nano Chassis_Hardware Wiring" tutorial document for installation, here we show the chassis expansion board and RGB light bar and fan hardware connections.

灯条/风扇接线图
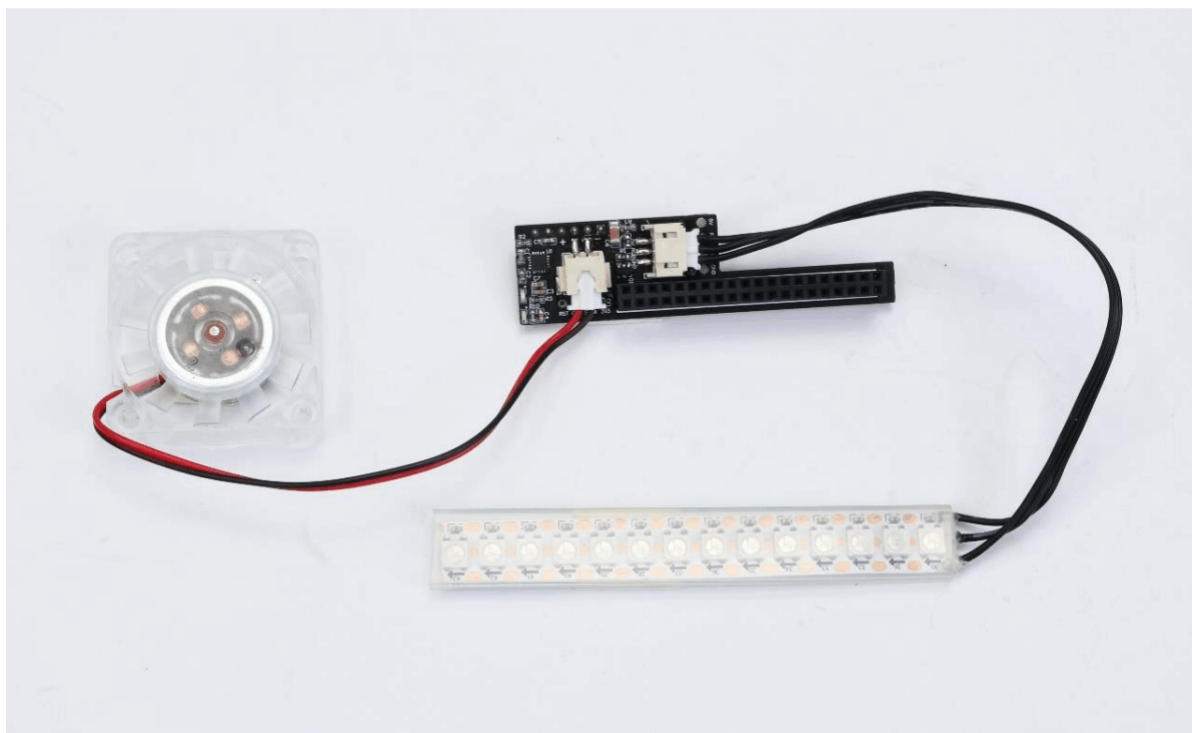
Chassis expansion board	3 Pin connector	2 Pin connector
	RGB light bar	Fan

III. Using the CubeNano driver library to control the fan

1. Import the CubeNano driver library and create the objects.

The name of CubeNano driver library is CubeNanoLib, use CubeNanoLib to import the library in the programme.

```
from CubeNanoLib import CubeNano
```

The CubeNanoLib library functions needed to control the fan:

```
set_Fan(state) # 设置风扇开关# Setting the fan switch
```

2. Setting the fan switch

set_Fan(state) : set fan switch

state value	Fan state
0	close
1	open

3. Code Demo

- Turning the fan on/off (python interactive interface: each statement needs to be run separately)

```
from CubeNanoLib import CubeNano
bot = CubeNano(i2c_bus=1)
bot.set_Fan(0)
bot.set_Fan(1)
del bot
```

```
jetson@jetson-yahboom: ~
jetson@jetson-yahboom:~$ python
Python 3.6.9 (default, Jan 26 2021, 15:33:00)
[GCC 8.4.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>>
>>>
>>> from CubeNanoLib import CubeNano
>>> bot = CubeNano(i2c_bus=1)
>>>
>>>
>>> bot.set_Fan(0)
>>>
>>>
>>> bot.set_Fan(1)
>>>
>>>
>>> del bot
CubeNano End!
>>>
[3]+  Stopped                 python3
```

Note: To terminate the run you can press Ctrl + Z

- **turn on the fan (Fan_start.py)**

```python
from CubeNanoLib import CubeNano

if __name__ == '__main__':
    bot = CubeNano(i2c_bus=1)
    bot.set_Fan(1)
```

- **Turn off the fan (Fan_stop.py)**

```python
from CubeNanoLib import CubeNano

if __name__ == '__main__':
    bot = CubeNano(i2c_bus=1)
    bot.set_Fan(0)
```

```
jetson@jetson-yahboom:~/Desktop$ python3 Fan_stop.py
CubeNano End!
jetson@jetson-yahboom:~/Desktop$ python3 Fan_start.py
CubeNano End!
```

Note: To terminate the run you can press Ctrl + Z

IV. Using Jupyter lab to control the fan

In the Jupyter lab interface create a new file and create the following code block, edit the following content (Fan_Test.ipynb) respectively:

1. Import the CubeNano driver library and create objects

```python
from CubeNanoLib import CubeNano

bot = CubeNano(i2c_bus=1)
```

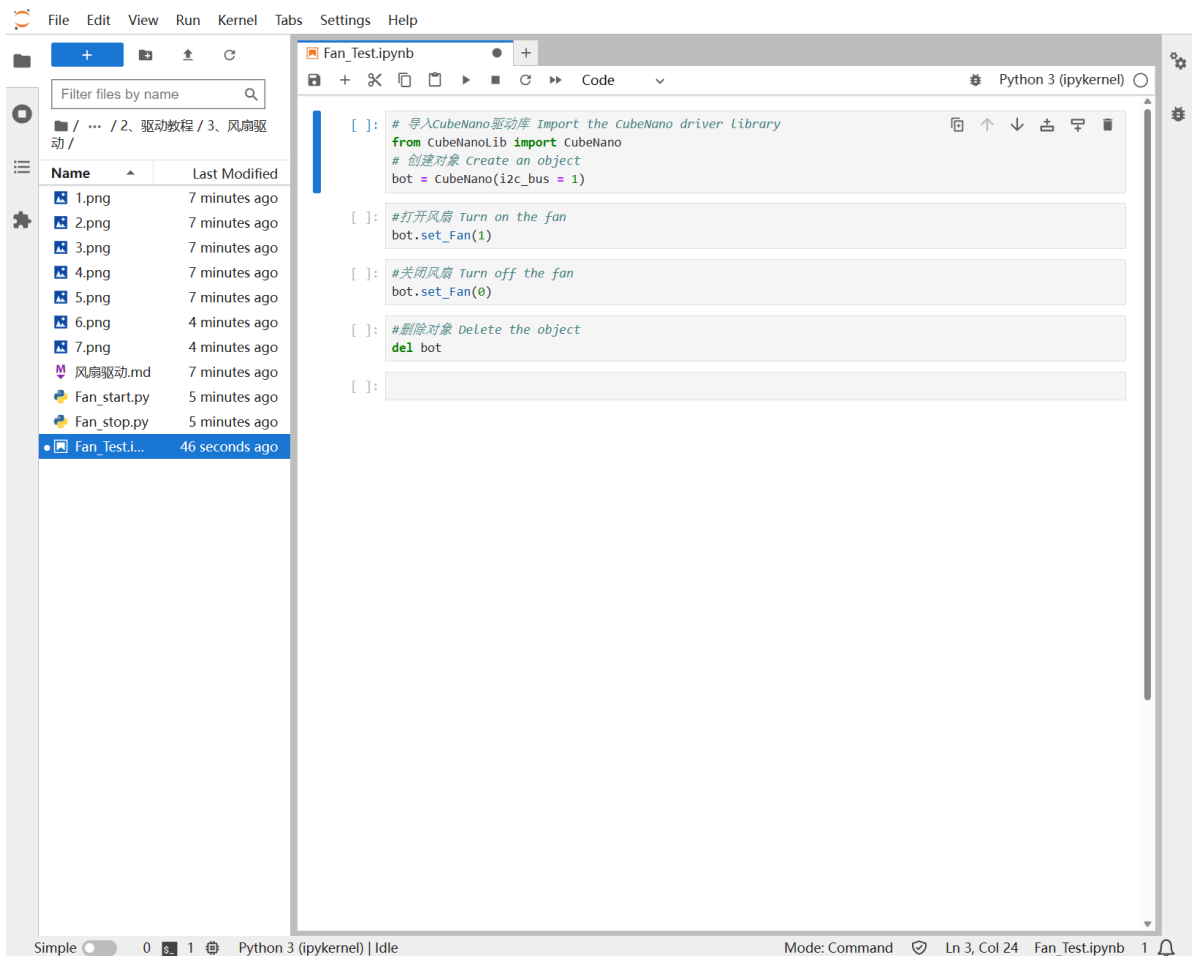## 2. Turn off the fan

```
bot.set_Fan(0)
```

3. Turn on the fan
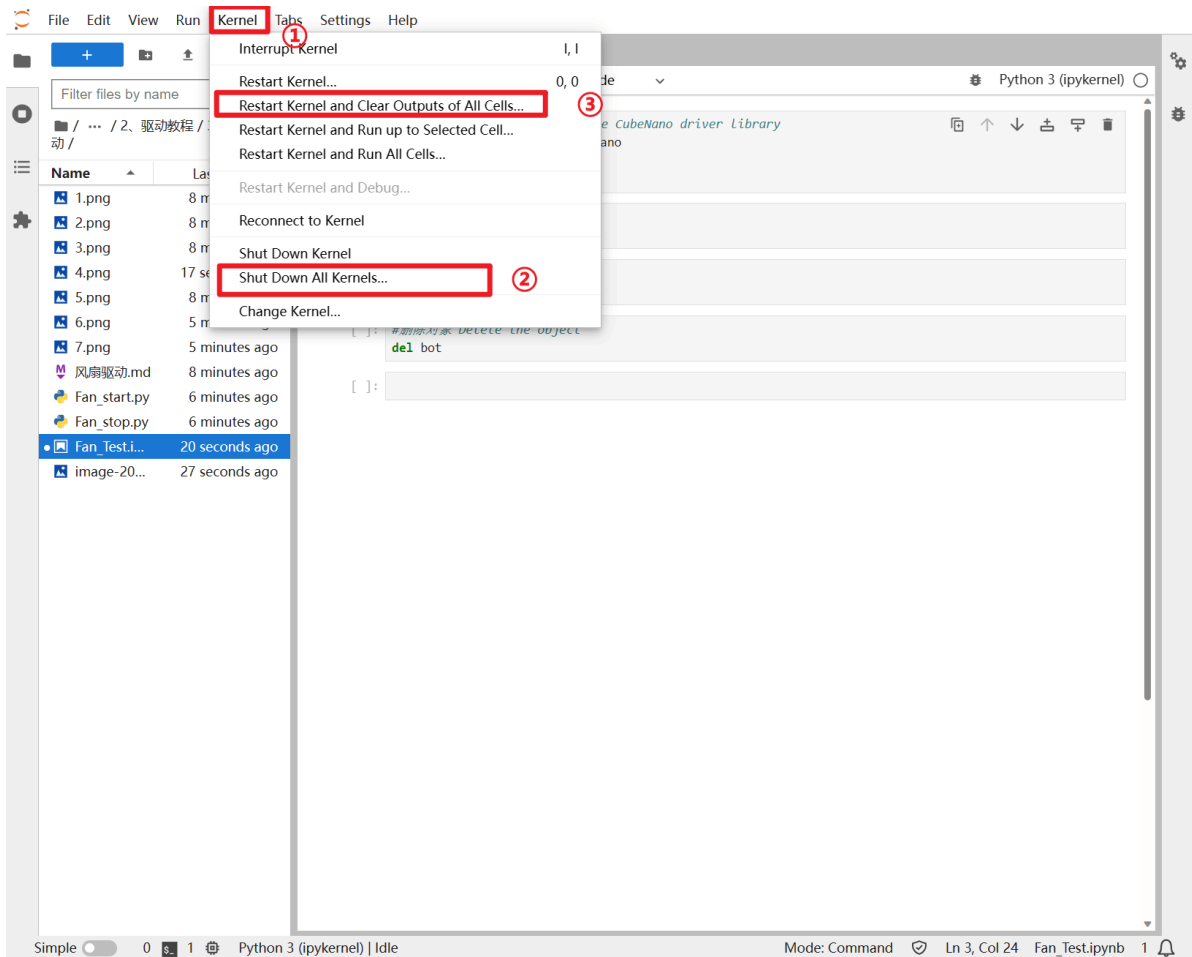
```
bot.set_Fan(1)
```

4. Deletion of objects
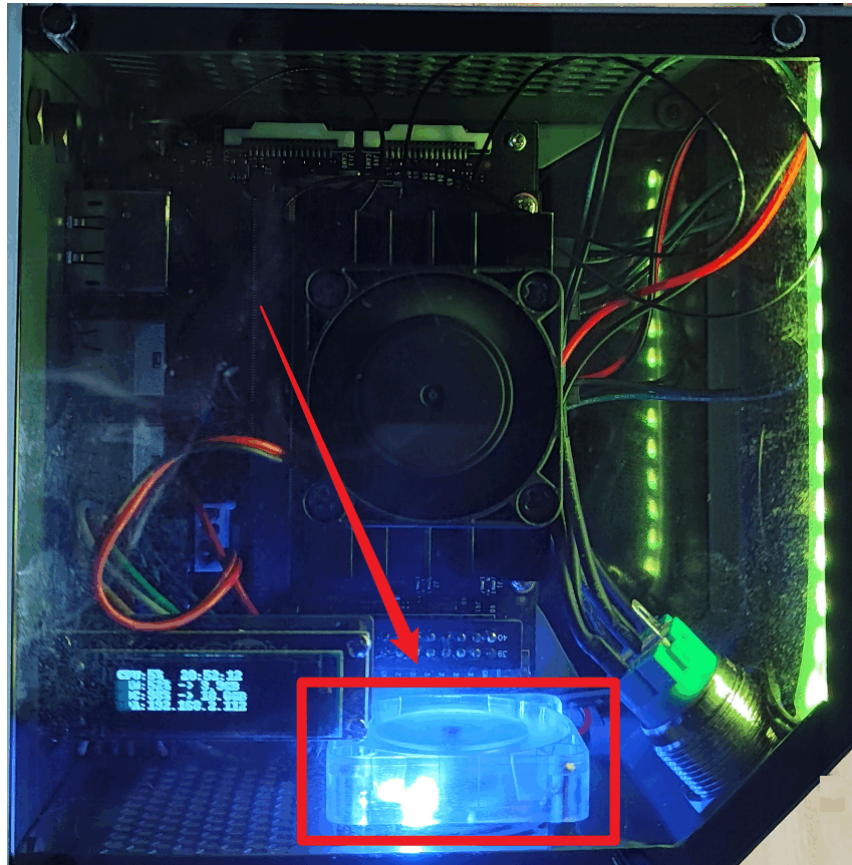
```
del bot
```


- **Jupyter lab basic operation**

If you find that the code runs abnormally, it is recommended that you follow the steps in the diagram once and then retest the code block.

V. Experimental phenomena

- Run the code or file related to opening the fan:

You can see the fan in the chassis box lights up blue and rotates

- Run the code or file related to shutting down the fan:

You can see that the blue light of the fan inside the chassis box goes out and stops spinning.