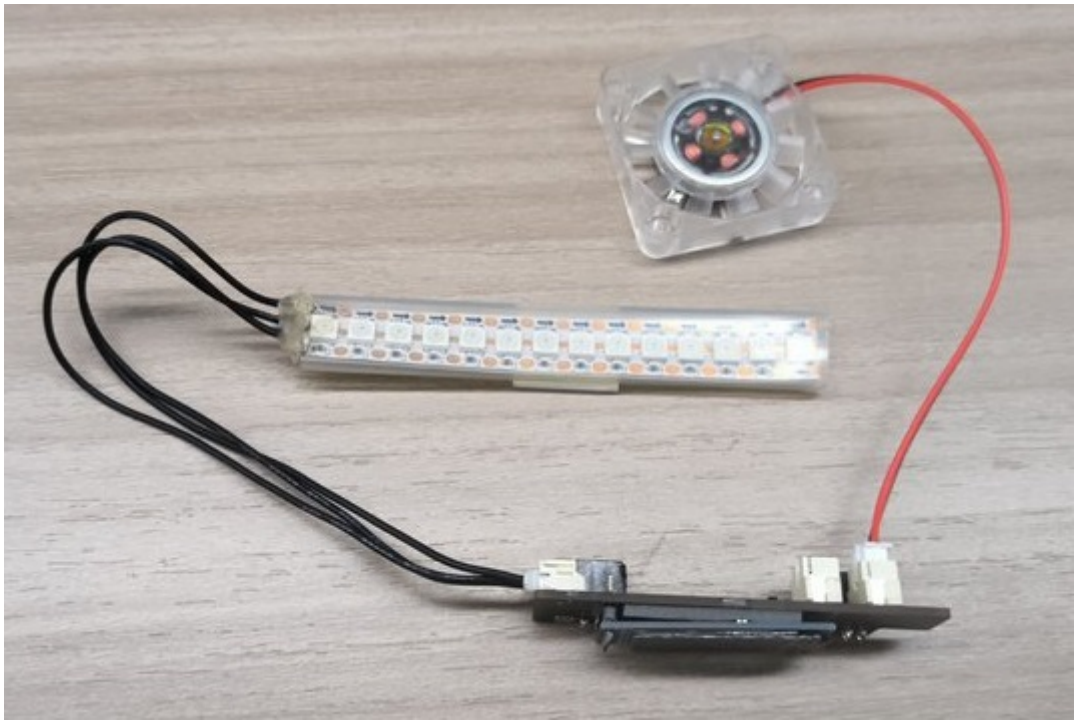
Fan drive

1. Learning objectives

- Master the Raspberry Pi fan driver
- Use the CubeRaspberry driver library to control the fan
- Control the fan through Jupyter lab

2. Preparation before the experiment

Install the Raspberry Pi chassis according to the assembly video tutorial. You can also refer to the "Raspberry Pi chassis_hardware wiring" tutorial document for installation. Here, the chassis expansion board and RGB light strip and fan hardware connections are shown.



Chassis expansion board	3Pin interface	2Pin interface
	RGB light strip	Fan

3. Use the CubeRaspberry driver library to control the fan

1. Import the CubeRaspberry driver library and create an object

The name of the CubeRaspberry driver library is CubeRaspberryLib. Use CubeRaspberryLib to import the library in the program.

```
from CubeRaspberryLib import CubeRaspberry
```

CubeRaspberryLib library functions needed to control the fan:

```
set_Fan(state) # Set the fan switch
```

2. Set the fan switch

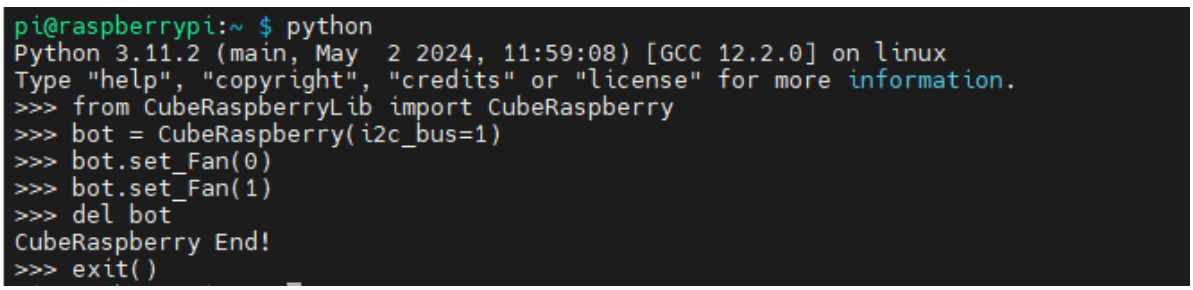
set_Fan(state)： Set the fan switch

state value	Fan state
0	Off
1	On

3. Code demonstration

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

```
from CubeRaspberryLib import CubeRaspberry
bot = CubeRaspberry(i2c_bus=1)
bot.set_Fan(0)
bot.set_Fan(1)
del bot
exit()
```



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

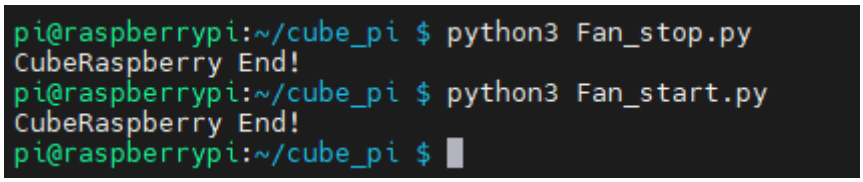
```
from CubeRaspberryLib import CubeRaspberry

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

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

```
from CubeRaspberryLib import CubeRaspberry

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



Note: Press Ctrl + C to terminate the run

4. Using Jupyter lab control fan

Create a new file in the Jupyter lab interface and create the following code blocks, edit the following contents respectively (Fan_Test.ipynb):

1. Import CubeRaspberry driver library and create objects

```
from CubeRaspberryLib import CubeRaspberry

bot = CubeRaspberry(i2c_bus=1)
```

2. Turn off the fan

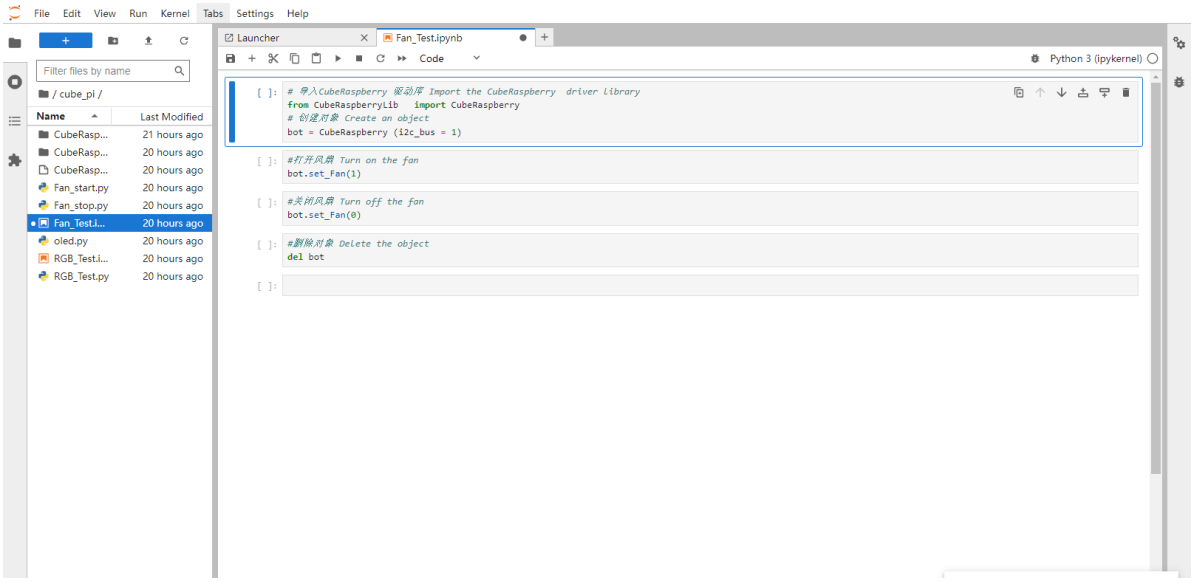
```
bot.set_Fan(0)
```

3. Turn on the fan

```
bot.set_Fan(1)
```

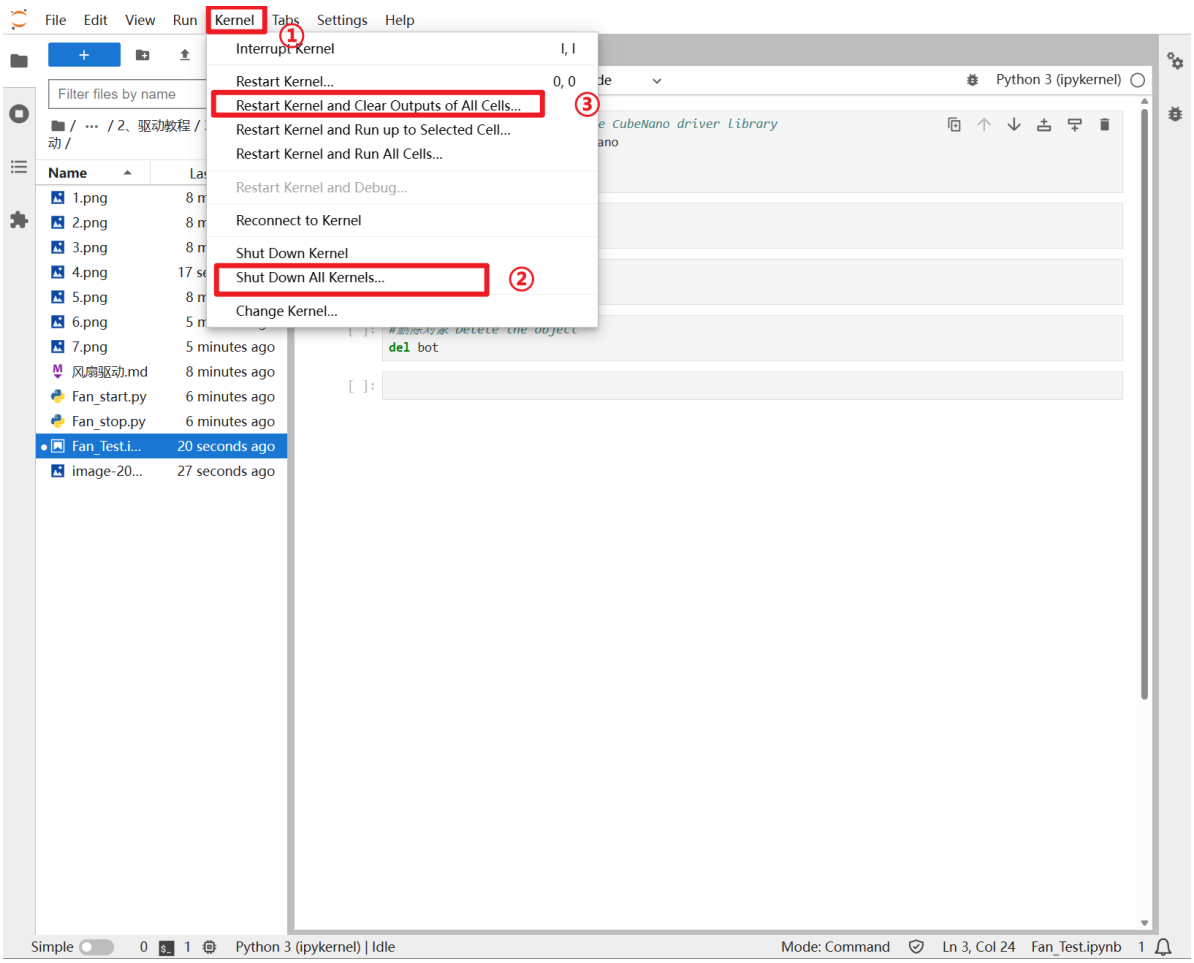
4. Delete the object

```
del bot
```



- **Jupyter lab basic operations**

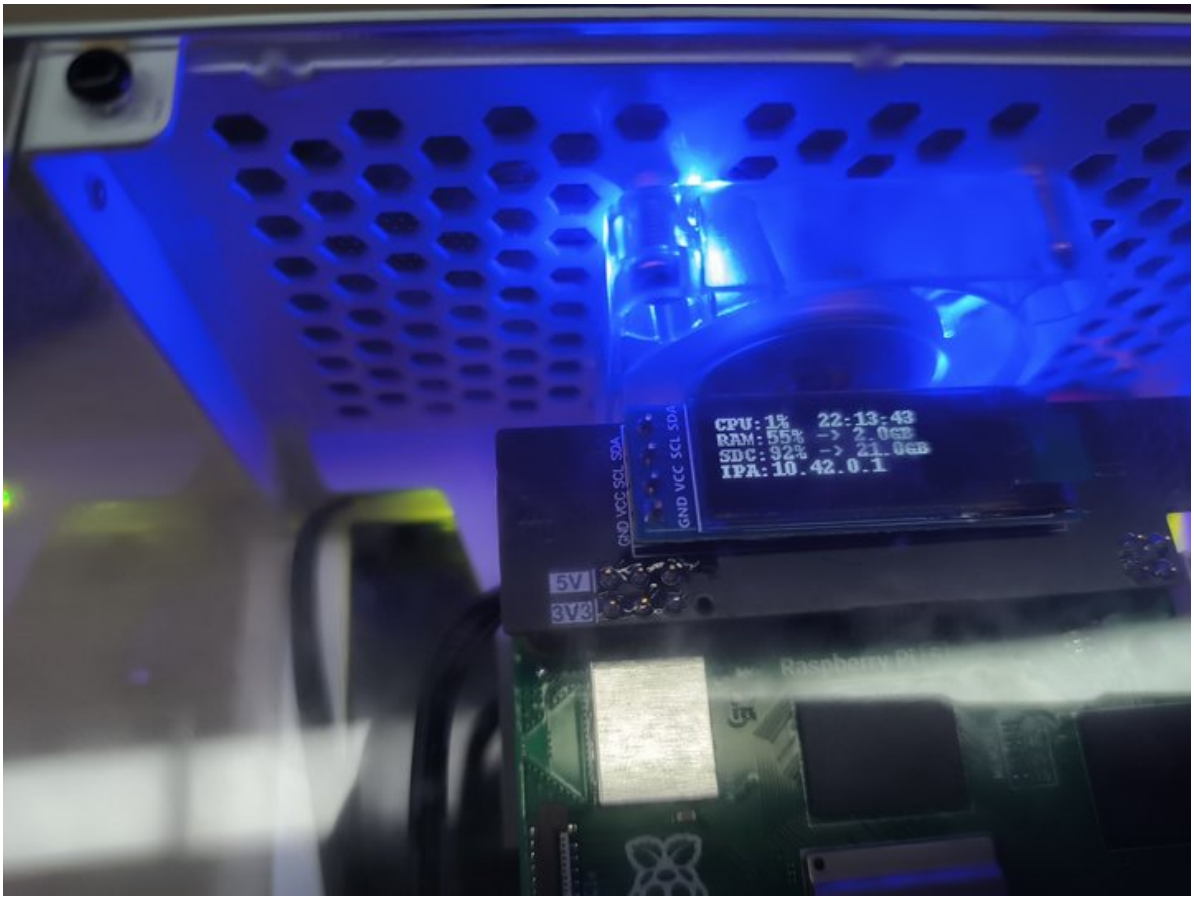
If you find that the code runs abnormally, it is recommended to follow the steps in the figure and then retest the code block.



5. Experimental Phenomenon

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

You can see that the fan in the chassis turns on the blue light and rotates



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

You can see that the blue light of the fan in the chassis turns off and stops rotating