OLED display

1. Learning objectives

- Implement OLED display system information

Use OLED to display system information such as CPU usage, system time, and memory usage. This tutorial mainly learns how to run the oled.py file we wrote. The specific implementation principle and code are not analyzed.

2. Preparation before the experiment

Install the Raspberry Pi chassis according to the assembly video tutorial, and align the oled board with the 40pin pin of the Raspberry Pi.

3. Install dependent libraries

Adafruit_SSD1306 library

Note: If the Adafruit_SSD1306 library is installed in the "Install CubeNano driver library" tutorial, you can skip this step!

The Adafruit_SSD1306 library is a dependent library required in the oled.py file. Enter the following command in the terminal to install the Adafruit_SSD1306 library.

```
pip3 install Adafruit_SSD1306 --break-system-packages
```

The python Adafruit_SSD1306 library is used to control the data display of our OLED display.

Note: If the PIL library is missing in the OLED display tutorial, you can take the following solution. ** (generally not required to run)**

```
sudo apt-get install libjpeg-dev zlib1g-dev
pip3 install setuptools --break-system-packages
pip3 install Pillow --break-system-packages
```

4. OLED displays system information

1. OLED display

Function	Implementation function
OLED initialization	begin()
OLED clear display	clear()
OLED add characters	add_text(start_x, start_y, text, refresh)
OLED add lines	add_line(text, line, refresh)
OLED refresh display	refresh()

2. System information acquisition

Function	Implementation function
Read CPU usage	getCPULoadRate()
Read system time	getSystemTime()
Read memory usage and total memory	getUsagedRAM()
Read TF card space usage/TF card total space	getUsagedDisk()
Get local IP	getLocalIP()
Read free TF card space/TF card total space	getFreeDisk()

3. Run oled.py file

Copy the oled.py file in the data to the Jetson motherboard system, open the terminal in the directory where the oled.py file is located, and use the following command to run the oled.py file.

```
python3 oled.py
```

Note: You can press **Ctrl + C** twice in a row to terminate the operation

5. Experimental phenomenon

After running the oled.py file, you can see the display of system information related to the OLED display (to clear the OLED display, see the "Setting the boot-up auto-start" tutorial later and run the kill_oled.sh file).