

1-1 Temperature control switch version

The Raspberry Pi RGB_Cooling_HAT needs to be properly plugged into the GPIO port of the Raspberry Pi and open the Raspberry Pi system **I2C** function.

This experimental phenomenon shows that the OLED displays the CPU usage, CPU temperature, running memory usage, disk usage and IP address of the Raspberry Pi. The RGB light turns on the special effect. When the CPU temperature of the Raspberry Pi reaches a certain level, the fan will automatically turn on, cooling the Raspberry Pi. When the temperature drops, the fan will automatically turn off.

1. File transfer

1.1 Install **WinSCP** tool on the computer side, connect the Raspberry Pi and transfer the **temp control.zip** package to the pi directory of the Raspberry Pi.

Path of WinSCP:[Raspberry Pi RGB_Cooling_HAT]---[Tools]---[winscp556_setup.1416364912.exe] Local Mark Files Commands Session Options Remote Help 🚻 🔀 🍃 Synchronize 🔳 🧬 📳 🏟 🎒 Queue 🕶 🛮 Transfer Settings Default - 100 pi X 🙀 New Session · 🚰 · 🔻 · → · 🛍 🐚 🏠 🗞 • 🚰 • 🔻 • → • • 💼 📶 🍙 🎜 🗓 Find Files 🟪 🙀 Upload 🔻 🃝 Edit 🕶 🗶 🚮 🕞 Properties New 🕶 🛨 🖃 🔻 Download + Z Edit + X A Properties Mew + H - V G:\RaspberryPi\Heat_Sink\temp_control /home/pi/ Name Name Size Type unanged Size Changed Rights Owner Parent directory 9/18/2019 2:27:36 PM 7/10/2019 8:07:47 AM rwxr-xr-x temp_control File folder 9/18/2019 2:27:17 PM Desktop 9/16/2019 4:59:08 PM rwxr-xr-x 174 KB Microsoft Word 2... 9/18/2019 2:21:46 PM Documents 9/16/2019 7:37:19 PM rwxr-xr-x temp_control.zip 文件 9/18/2019 2:27:36 PM Downloads 7/10/2019 8:27:59 AM rwxr-xr-x Music 8/27/2019 9:40:28 AM rwxr-xr-x **Edit** Pictures 7/10/2019 8:27:59 AM rwxr-xr-x Upload... 7/10/2019 8:27:59 AM Upload Public rwxr-xr-x F8 7/10/2019 8:27:59 AM X Delete Templates rwxr-xr-x 7/10/2019 8:27:59 AM Rename F2 Videos rwxr-xr-x 20 KB 9/18/2019 2:27:36 PM temp_control.zip rw-r--r--File Custom Commands File Names Properties System Menu

1.2 Extract file

Open the Raspberry Pi terminal and input command Is to find the RGB_Cooling_HAT.zip file. As shown below:



Input command to extract file:

unzip RGB_Cooling_HAT.zip



```
pi@raspberrypi:~ $ unzip RGB_Cooling_HAT.zip
Archive: RGB_Cooling_HAT.zip
    creating: RGB_Cooling_HAT/
    inflating: RGB_Cooling_HAT/RGB_Cooling_HAT.py
    inflating: RGB_Cooling_HAT/fan.py
    inflating: RGB_Cooling_HAT/fan_temp.py
    inflating: RGB_Cooling_HAT/install.sh
    inflating: RGB_Cooling_HAT/oled.py
    inflating: RGB_Cooling_HAT/rgb.py
    inflating: RGB_Cooling_HAT/rgb_effect.py
    inflating: RGB_Cooling_HAT/rgb_temp.py
    extracting: RGB_Cooling_HAT/start.desktop
    inflating: RGB_Cooling_HAT/start.sh
```

2. Compiling and running program

2.1 Input command to enter temp control find file:

```
cd RGB_Cooling_HAT/
```

ls

```
pi@raspberrypi:~/RGB_Cooling_HAT $ ls fan.py fan_temp.py oled.py RGB_Cooling_HAT.py rgb_effect.py rgb.py rgb_temp.py start.desktop start.sh pi@raspberrypi:~/RGB_Cooling_HAT $
```

2.2 Input command to run program

```
python RGB Cooling HAT.py
```

```
pi@raspberrypi:~/RGB_Cooling_HAT $ python RGB_Cooling_HAT.py
idle:400 total:401
```

After the program is running, the RGB light will display special effects.

At the same time, the OLED screen displays the CPU usage, CPU temperature, operating memory usage, disk usage, and IP address of the Raspberry Pi.

When the CPU temperature reaches 55 $^{\circ}$ C , the fan will automatically turn on to cool the Raspberry Pi.

When the temperature drops to 48°C, the fan will be automatically turned off.

Press Ctrl+C to exit the program.







3. Add boot self-starting

3.1 Input command to enter relate folder cd /home/pi/RGB_Cooling_HAT

3.2 Input command t view script file

3.3 Run script command to install sudo sh install.sh



Finally, system will prompt "install ok!" As shown below.

```
pi@raspberrypi:~/temp_control $ sudo sh install.sh
ssdl306_i2c.c: In function 'ssdl306_fillRect':
ssdl306_i2c.c:724:3: warning: implicit declaration of function 'swap_values' [-Wimplicit-function-declaration]
    swap_values(x, y);
install ok!
pi@raspberrypi:~/temp_control $
```

! Note: If you already have the autostart folder, it will be prompt can not create the autostart folder, which will not affect our use.

4.Restart Raspberry pi

Input command to restart Raspberry Pi: sudo reboot