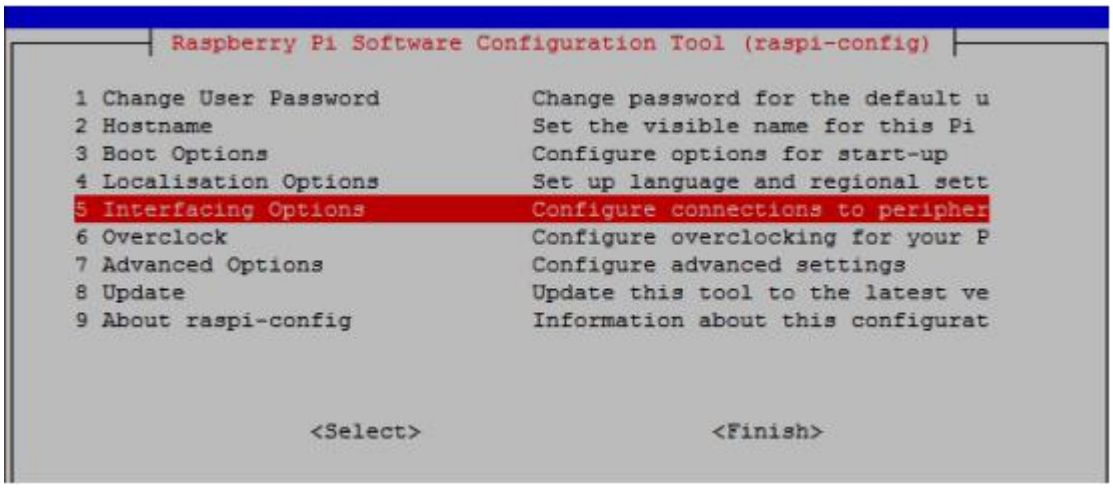
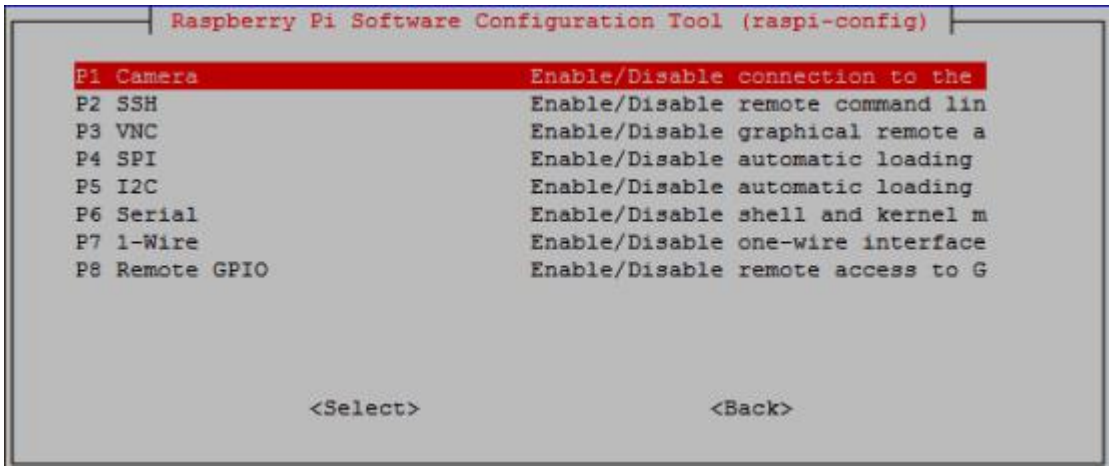
Camera test tutorial

Part 1-Open the camera service of Raspberry Pi

1. If you use Raspberry Pi official system image, you need to open the camera service. Input sudo raspi-config command to enter following interface.
2. Choose fifth option **[Interfacing Options]** and click **[Enter]** key to enter next interface.



3. ChoOse **[Camera]** to enable camera.



4. Finally, we need to reboot Raspberry Pi.
Input sudo reboot command.

Part 2-- Testing camera

1. User must ensure that the camera is properly inserted into the Raspberry Pi board before supplying power to the Raspberry Pi board.

2. There are two kinds of commands that the Raspberry Pi terminal can use to detect external camera devices: ls/dev/video*. (In some cases, you may be able to use the camera without seeing video0 service)
After we input following command, we can detect camera service.
As shown below.

```
pi@raspberrypi:~ $ ls /dev/video*
/dev/video0  /dev/video10  /dev/video12  /dev/video14  /dev/video16
/dev/video1  /dev/video11  /dev/video13  /dev/video15
pi@raspberrypi:~ $
```

3. Input following command to install mplayer player.

sudo apt-get install mplayer -y

Wait patiently, after the installation is complete, you can see the interface shown below.

```
Selecting previously unselected package libvorbisidec1.
Preparing to unpack .../3-libvorbisidec1_1.2.1+git20180316-3_armhf.deb ...
Unpacking libvorbisidec1 (1.2.1+git20180316-3) ...
Selecting previously unselected package libxvmc1:armhf.
Preparing to unpack .../4-libxvmc1_2%3a1.0.10-1_armhf.deb ...
Unpacking libxvmc1:armhf (2:1.0.10-1) ...
Selecting previously unselected package mplayer.
Preparing to unpack .../5-mplayer_2%3a1.3.0-8+b5_armhf.deb ...
Unpacking mplayer (2:1.3.0-8+b5) ...
Setting up libvorbisidec1 (1.2.1+git20180316-3) ...
Setting up libenca0:armhf (1.19-1) ...
Setting up libxvmc1:armhf (2:1.0.10-1) ...
Setting up libaudio2:armhf (1.9.4-6) ...
Setting up libdirectfb-1.7-7:armhf (1.7.7-9) ...
Setting up mplayer (2:1.3.0-8+b5) ...
Processing triggers for libc-bin (2.28-10+rpi1) ...
Processing triggers for man-db (2.8.5-2) ...
Processing triggers for mime-support (3.62) ...
pi@raspberrypi:~ $
```

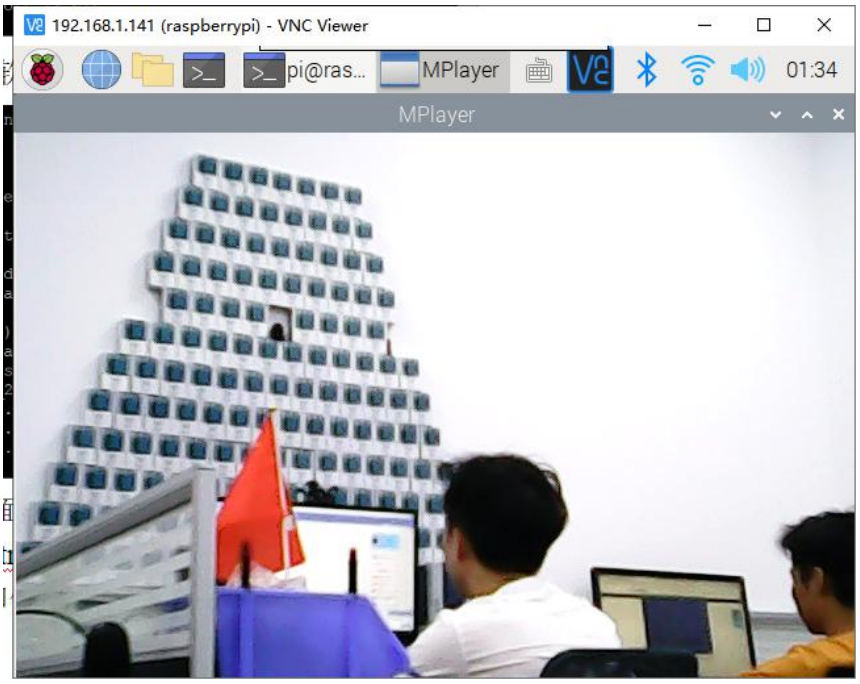
4. Input following command to install fswebcam video software.

sudo apt-get install fswebcam -y

```
pi@raspberrypi:~ $ sudo apt-get install fswebcam -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  fswebcam
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 43.5 kB of archives.
After this operation, 116 kB of additional disk space will be used.
Get:1 http://mirrors.zju.edu.cn/raspbian/raspbian buster/main armhf fswebcam arm
hf 20140113-2 [43.5 kB]
Fetched 43.5 kB in 10s (4,434 B/s)
Selecting previously unselected package fswebcam.
(Reading database ... 156506 files and directories currently installed.)
Preparing to unpack .../fswebcam_20140113-2_armhf.deb ...
Unpacking fswebcam (20140113-2) ...
Setting up fswebcam (20140113-2) ...
Processing triggers for man-db (2.8.5-2) ...
pi@raspberrypi:~ $
```

Input following command to view USB camera picture.

sudo mplayer tv://



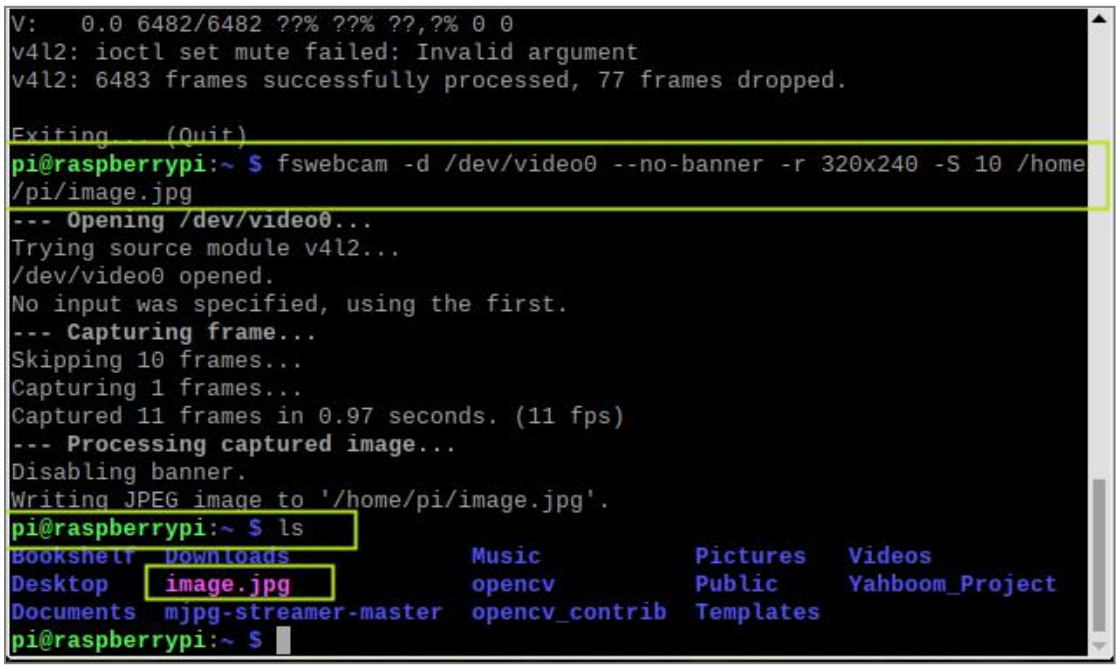
5. After confirming the screen, you need to exit through “ctrl+c” before proceeding to the next operation.

If you run mplayer and use the fswebcam command at the same time, the system will prompt an error that the camera is busy. As shown below.

```
pi@raspberrypi:~ $ fswebcam -d /dev/video0 --no-banner -r 320x240 -S 10 /home/pi
/image.jpg
--- Opening /dev/video0...
Trying source module v412...
/dev/video0 opened.
No input was specified, using the first.
Error selecting input 0
VIDIOC_S_INPUT: Device or resource busy
pi@raspberrypi:~ $
```

6. Input following command to generate a real-time photo taken by the current camera in the /home/pi directory

fswebcam -d /dev/video0 --no-banner -r 320x240 -S 10 /home/pi/image.jpg



Parameter explanation:

-d -- configure which camera device to use

--no-banner --- There is no watermark in the photos taken. If this parameter is not used, the system may prompt a wrong font

-r -- Size of picture

-S -- Visibility, the range is from 1 to 10. If this parameter is not set or this parameter is set to 0, the photo will be black.

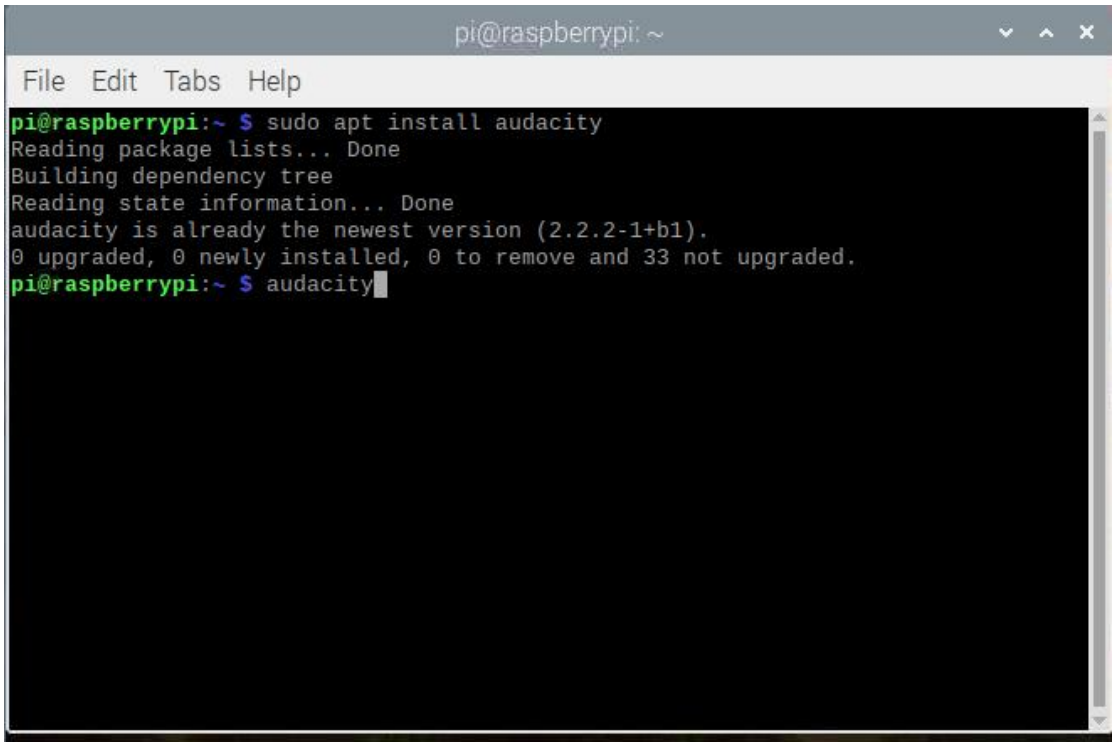
/home/pi/image.jpg -- Save the image path (if you do not add the path, picture will be saved in the current directory /home/pi/ by default).\

Part 3-- Recording test

Enter the sudo apt install audacity command on the terminal to install the recording software, and then enter audacity to open this software.

sudo apt install audacity

audacity



Perform recording playback test in the recording software.