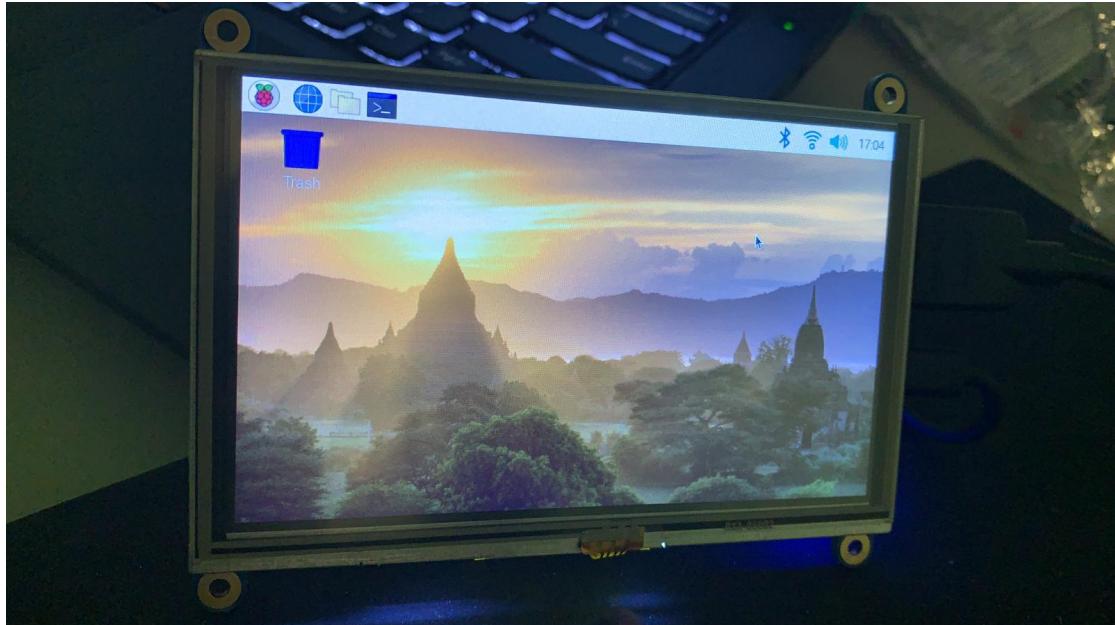


Raspberry Pi

Raspberry Pi OS Installation

<https://www.raspberrypi.org/documentation/installation/installing-images/>



Establishing SSH

<https://www.raspberrypi.org/documentation/remote-access/ssh/>

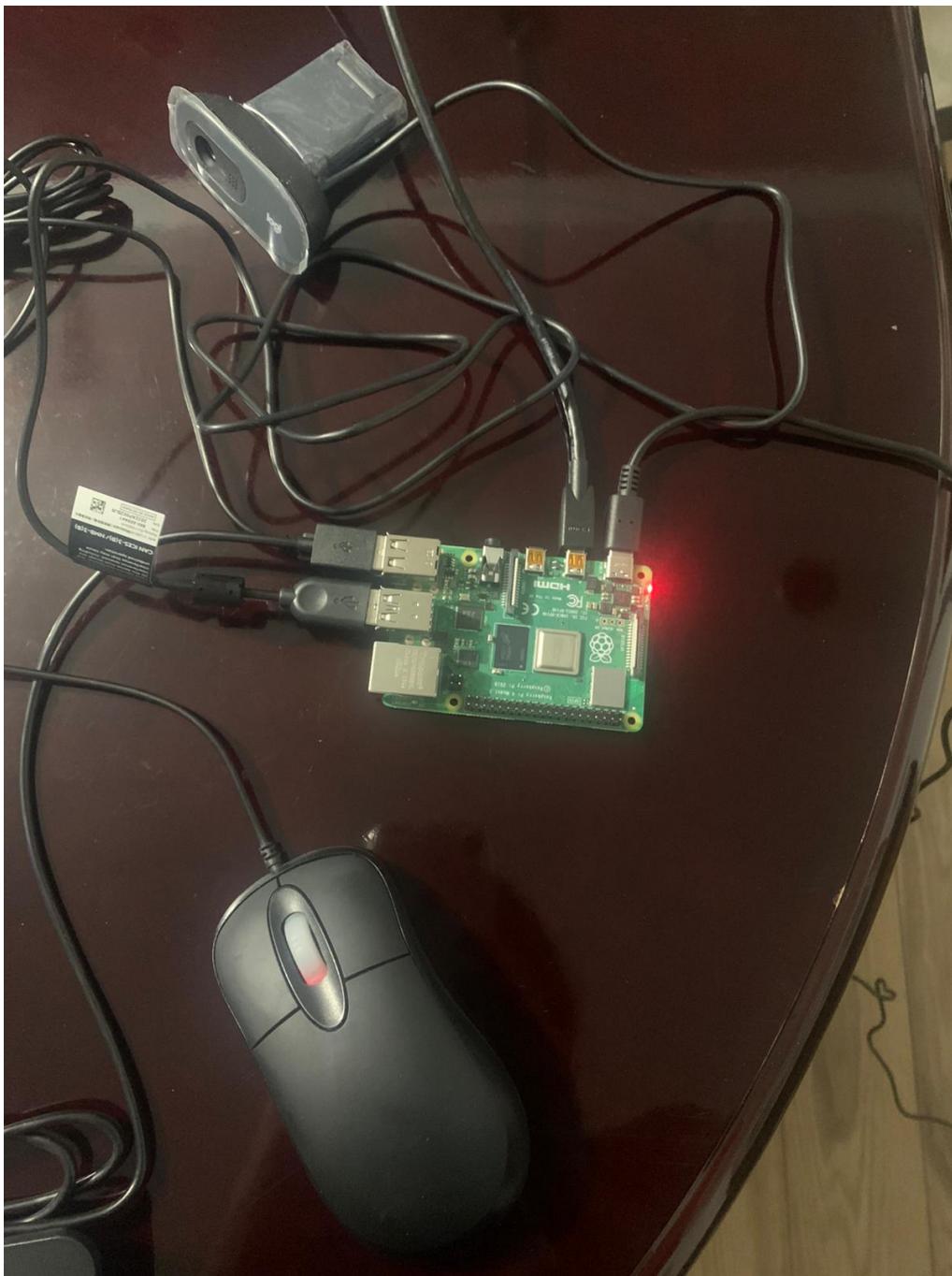
A screenshot of a Linux desktop environment, likely Raspbian, showing a terminal window. The terminal window title is "pi@raspberrypi: ~". The terminal content shows a series of ping commands from a ThinkPad T450 to a Raspberry Pi, followed by an SSH session attempt and a password prompt. The terminal also displays standard Debian system information and a copyright notice.

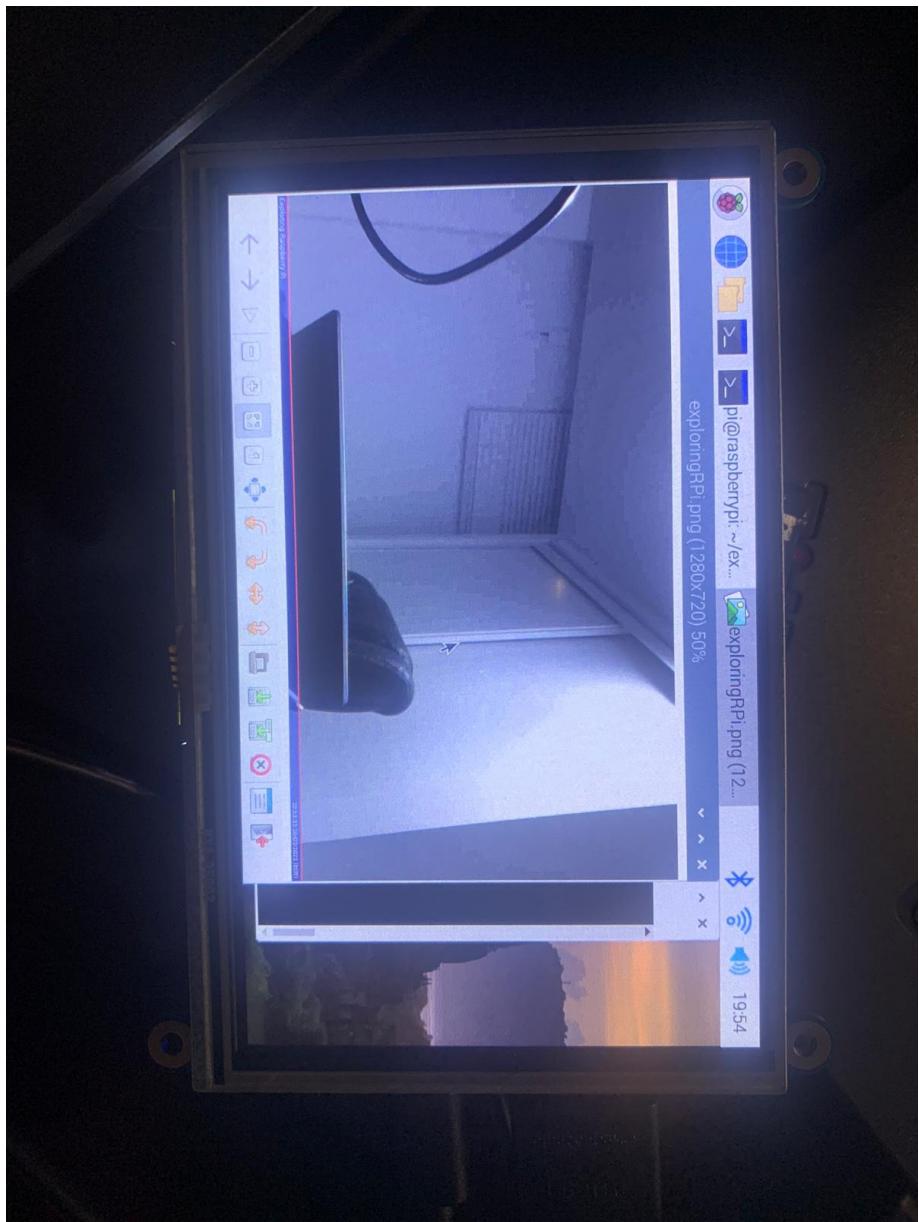
```
Activities Terminal Mar 16 19:09 • pi@raspberrypi: ~
archana@archana-ThinkPad-T450:~$ ping raspberrypi.local
ping: raspberrypi.local: Name or service not known
archana@archana-ThinkPad-T450:~$ ^C
archana@archana-ThinkPad-T450:~$ ping raspberrypi.local
PING raspberrypi.local (192.168.2.49) 56(84) bytes of data.
64 bytes from 192.168.2.49 (192.168.2.49): icmp_seq=1 ttl=64 time=9.92 ms
64 bytes from 192.168.2.49 (192.168.2.49): icmp_seq=2 ttl=64 time=5.71 ms
64 bytes from 192.168.2.49 (192.168.2.49): icmp_seq=3 ttl=64 time=5.93 ms
64 bytes from 192.168.2.49 (192.168.2.49): icmp_seq=4 ttl=64 time=4.98 ms
64 bytes from 192.168.2.49 (192.168.2.49): icmp_seq=5 ttl=64 time=4.91 ms
64 bytes from 192.168.2.49 (192.168.2.49): icmp_seq=6 ttl=64 time=4.88 ms
64 bytes from 192.168.2.49 (192.168.2.49): icmp_seq=7 ttl=64 time=4.90 ms
64 bytes from 192.168.2.49 (192.168.2.49): icmp_seq=8 ttl=64 time=5.25 ms
64 bytes from 192.168.2.49 (192.168.2.49): icmp_seq=9 ttl=64 time=4.75 ms
64 bytes from 192.168.2.49 (192.168.2.49): icmp_seq=10 ttl=64 time=4.93 ms
64 bytes from 192.168.2.49 (192.168.2.49): icmp_seq=11 ttl=64 time=5.42 ms
^C
--- raspberrypi.local ping statistics ---
11 packets transmitted, 11 received, 0% packet loss, time 10013ms
rtt min/avg/max/mdev = 4.748/5.598/9.922/1.414 ms
archana@archana-ThinkPad-T450:~$ ssh pi@192.168.2.49
The authenticity of host '192.168.2.49 (192.168.2.49)' can't be established.
ECDSA key fingerprint is SHA256:VzFTK8b0LvcWnKbuech2AKZ0SOfelAjaa3DNaeYlgBA.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.2.49' (ECDSA) to the list of known hosts.
pi@192.168.2.49's password:
Permission denied, please try again.
pi@192.168.2.49's password:
Permission denied, please try again.
pi@192.168.2.49's password:
Linux raspberrypi 5.4.83-v7l+ #1379 SMP Mon Dec 14 13:11:54 GMT 2020 armv7l

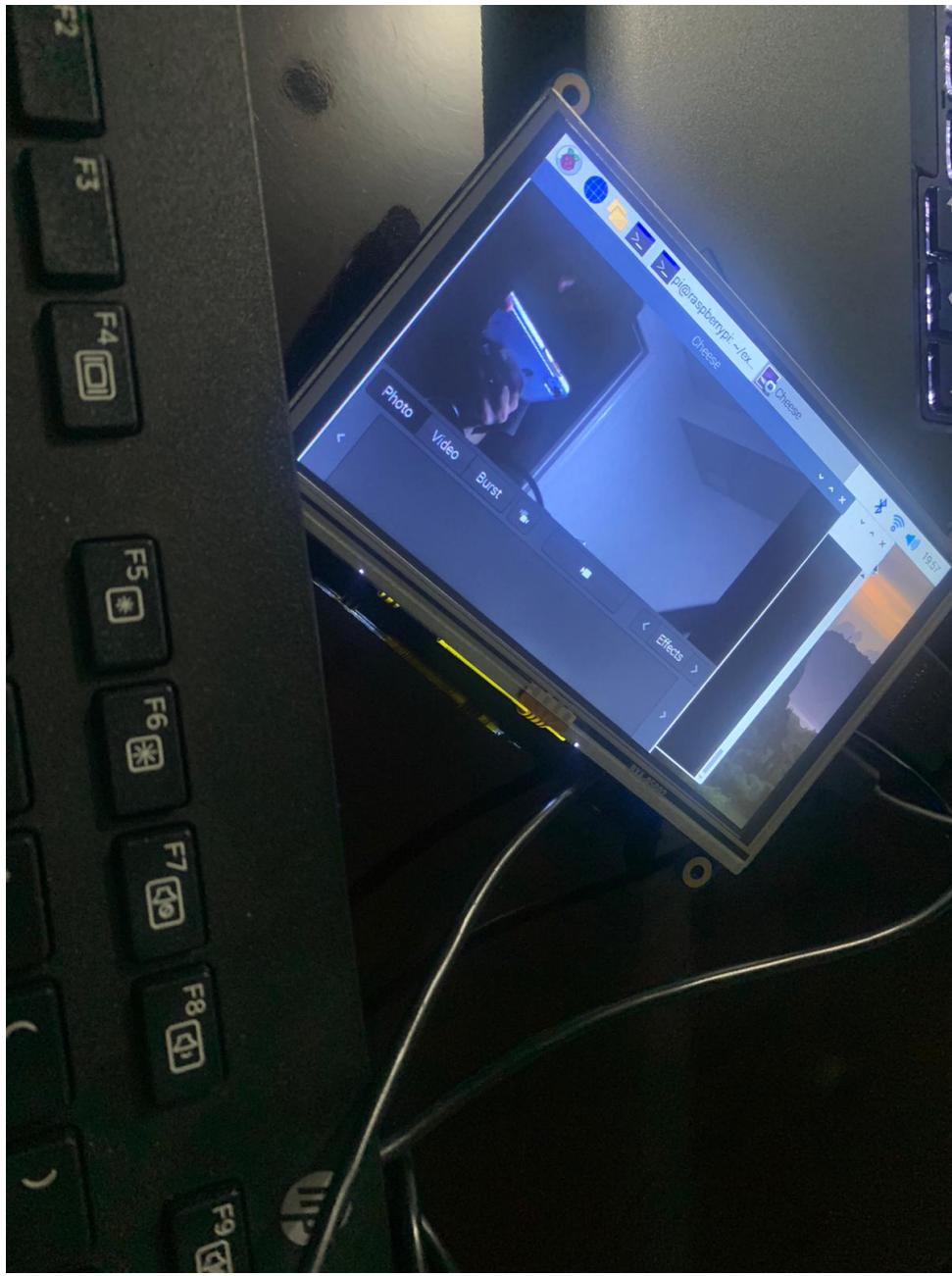
The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Tue Mar 16 19:00:58 2021
pi@raspberrypi:~ $
```

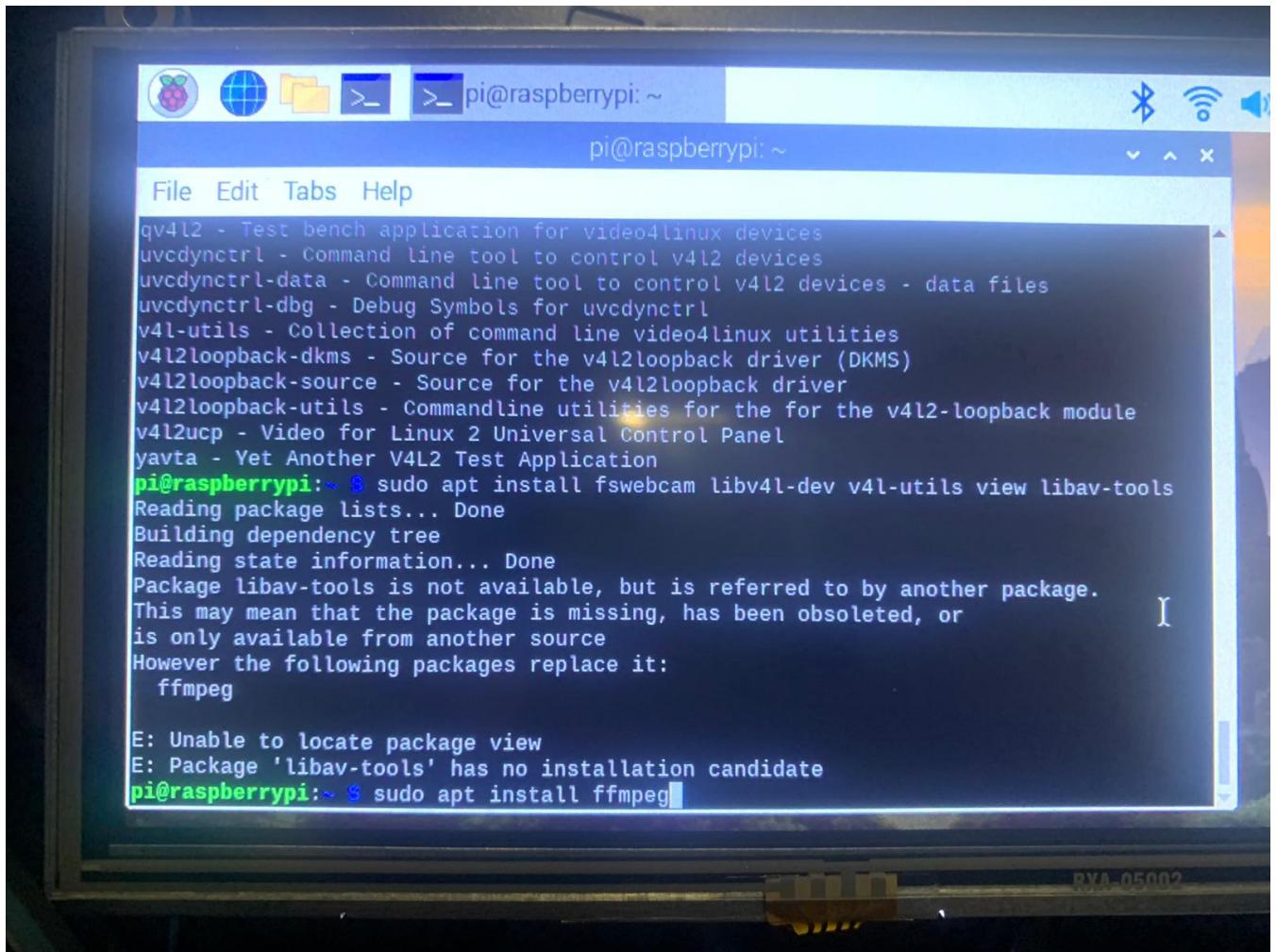
USB camera interfacing with Pi







Issues during installation of some packages :



A screenshot of a terminal window on a Raspberry Pi. The window title is "pi@raspberrypi: ~". The terminal shows the user attempting to install several packages via apt. It lists packages like qv4l2, uvcdynctrl, v4l-utils, v4l2loopback-dkms, v4l2loopback-source, v4l2loopback-utils, v4l2ucp, and yavta. The user then runs "sudo apt install fswebcam libv4l-dev v4l-utils view libav-tools". The terminal outputs that "libav-tools" is not available, but "view" is. It then shows "However the following packages replace it: ffmpeg". Finally, the user runs "sudo apt install ffmpeg", which completes successfully.

```
qv4l2 - Test bench application for video4linux devices
uvcdynctrl - Command line tool to control v4l2 devices
uvcdynctrl-data - Command line tool to control v4l2 devices - data files
uvcdynctrl-dbg - Debug Symbols for uvcdynctrl
v4l-utils - Collection of command line video4linux utilities
v4l2loopback-dkms - Source for the v4l2loopback driver (DKMS)
v4l2loopback-source - Source for the v4l2loopback driver
v4l2loopback-utils - Commandline utilities for the for the v4l2-loopback module
v4l2ucp - Video for Linux 2 Universal Control Panel
yavta - Yet Another V4L2 Test Application
pi@raspberrypi:~ $ sudo apt install fswebcam libv4l-dev v4l-utils view libav-tools
Reading package lists... Done
Building dependency tree
Reading state information... Done
Package libav-tools is not available, but is referred to by another package.
This may mean that the package is missing, has been obsoleted, or
is only available from another source
However the following packages replace it:
  ffmpeg

E: Unable to locate package view
E: Package 'libav-tools' has no installation candidate
pi@raspberrypi:~ $ sudo apt install ffmpeg
```

References to instal openCV on Pi

<https://www.raspberrypi.org/forums/viewtopic.php?t=262144>

Bash script used to install openCV :

<https://raspberrypi.stackexchange.com/questions/116592/install-opencv-in-a-raspberry-pi-3-with-c>

To learn on web server :

<https://www.youtube.com/watch?v=knrrTxDYtdM&list=PLcd1Q0-YkB1d5bpD06c9Zrop0nleeglwD>