



Content

1. Preparation.....	1
1.1. Hardware Preparation.....	1
1.2. Software Preparation	3
1.2.1. Get the tool Software.....	3
1.2.2. Download The System Image Files.....	4
2. Installation.....	6
2.1. Install The Configured System	6
2.2. Use raspberry official system	8
3. Advanced Feature	12
3.1. Touch Screen Calibrating.....	12
3.2. Install The Virtual Keyboard	14
3.3. Change Display Mode.....	18

Preface

This manual is only applied to the 3.5 inches raspberry pi touch screen sold by our company. This manual is applied to raspberry Pi of all series, and the raspbian OS. This manual is only a reference for Linux and other platform. Not applied to non-Linux OS.

1. Preparation

1.1. Hardware Preparation

- (1) A PC (recommended) or a laptop
- (2) A Raspberry Pi Board of Pi 1, Pi 2 or Pi 3. (Pi 3 is recommended and used for following demonstration)



Figure 1. Raspberry Pi 3 B

- (3) A 3.5 inches touch screen, 480X320 resolution.



Figure 2. 3.5 Inch RPi LCD V3.0

- (4) A micro SD card with at least 4GB capacity, higher capacity is recommended.



Figure 3. 32GB SD Card

(5) A micro USB cable.



Figure 4. Micro USB Cable

(6) A SD card reader.



Figure 5. SD Card Reader

(7) A Ethernet cable.



Figure 6. Ethernet Cable

1.2. Software Preparation

1.2.1. Get the tool Software

- (1) SDFormatter.exe, for formatting the SD card;

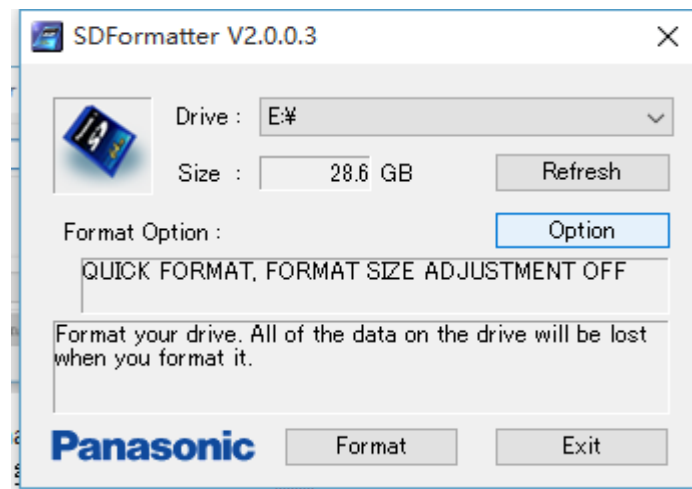


Figure 7. SDFormatter.exe

- (2) Win32DiskImager.exe, for writing the system files into the SD card.

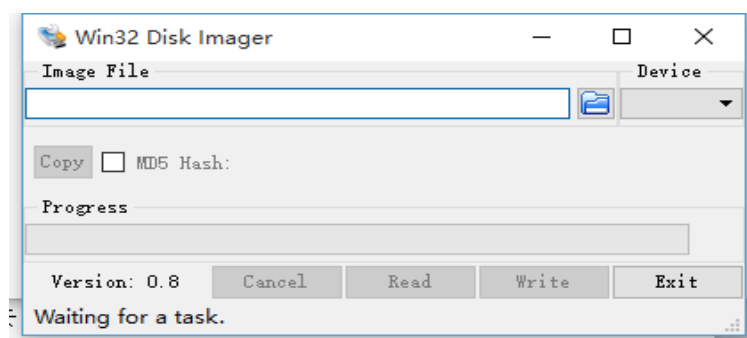


Figure 8. Win32DiskImager.exe

(3) Putty.exe, for using the system's character interface remotely on PC.

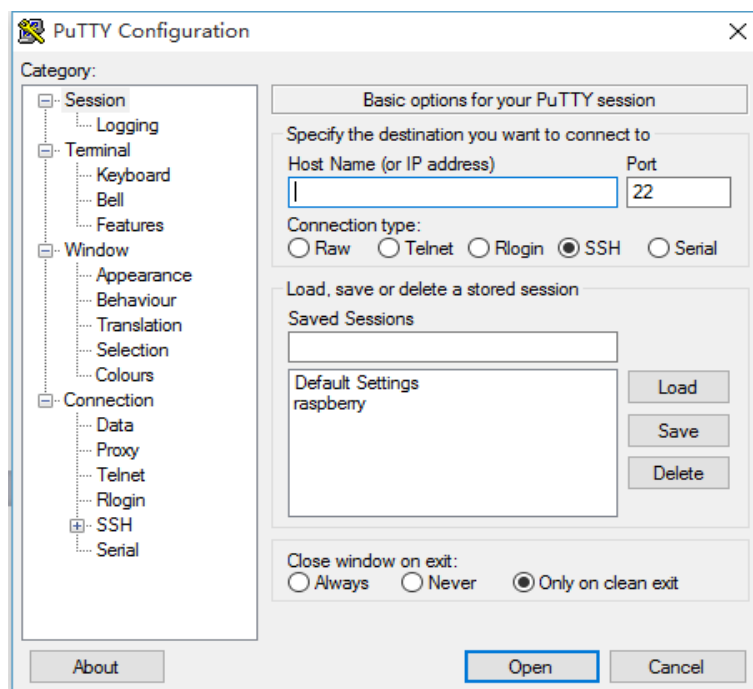


Figure 9. Putty.exe

Attention: We have all 3 software in our CD in the folder "software".

(4) Advanced IP Scanner, log on http://download.cnet.com/Advanced-IP-Scanner/3000-18508_4-10115592.html, download the LAN IP scanning software. You can either install or not install when you use the software.

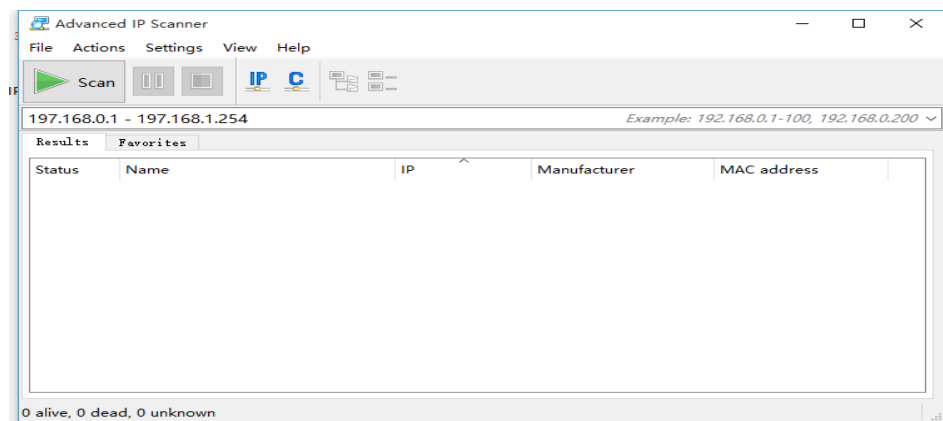


Figure 10. Advanced IP Scanner

1.2.2. Download the System Image Files

(1) After we finished downloading the configured system image ,
Log on <https://github.com/goodtft/LCD-show/wiki/Images-Download-address>

Images Download address: X +

<https://github.com/goodtft/LCD-show/wiki/Images-Download-address>

需要翻译? 使用有道翻译 使用谷歌翻译

drivers.

[raspbian IMAGE for 3.2inch piTFT]

File Name:3.2inch-raspbian jessie with pixel_2017-01-11.7z

size:1.22GB

MEGA Download Address:

https://mega.nz/#!QBViLpa!W8czRNkzbKZHEtb6pUv95L87s1KzlyK6Pyjl_XkBPuQ

Baidu pan Download Address:

<http://pan.baidu.com/s/1c3U1el>

[raspbian IMAGE for 3.5inch piTFT]

File Name:3.5inch-raspbian jessie with pixel_2017-01-11.7z

size:1.22GB

MEGA Download Address:

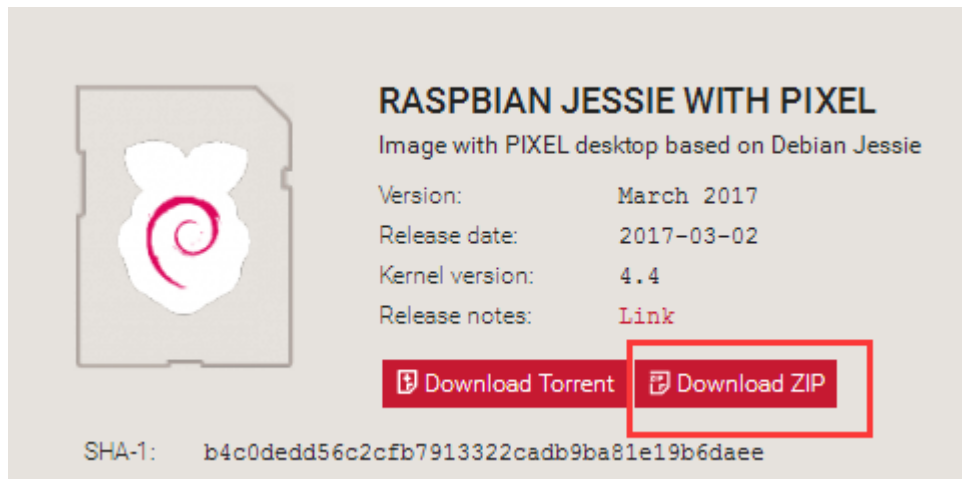
<https://mega.nz/#!cM4miYAL!gvE2Ninu67OhQaqWWaAN03V5nlEg1zVAcCv3SllAzgQ>

Baidu pan Download Address:

<http://pan.baidu.com/s/115xBfxV>

Figure 11. Download Link

(2) Download the zip file of the system files which contain the PIXEL from the official site of Raspberry Pi (<https://www.raspberrypi.org/downloads/raspbian/>) ,



RASPBIAN JESSIE WITH PIXEL

Image with PIXEL desktop based on Debian Jessie

Version: March 2017

Release date: 2017-03-02

Kernel version: 4.4

Release notes: [Link](#)

[Download Torrent](#) [Download ZIP](#)

SHA-1: b4c0dedd56c2cfb7913322cadb9ba81e19b6dae

Figure 12. Official Raspbian System

Instruction: Just need one of the system files.

2. Installation

2.1. Install The Configured System

- (1) Put the SD card into the card reader (see Figure 13) and connect the card reader to computer.



Figure 13

- (2) Open SDFormatter.exe, select the device of the SD card and click "Format". Always click "Yes" if warning shows up during the process, and click "finish" in the end.

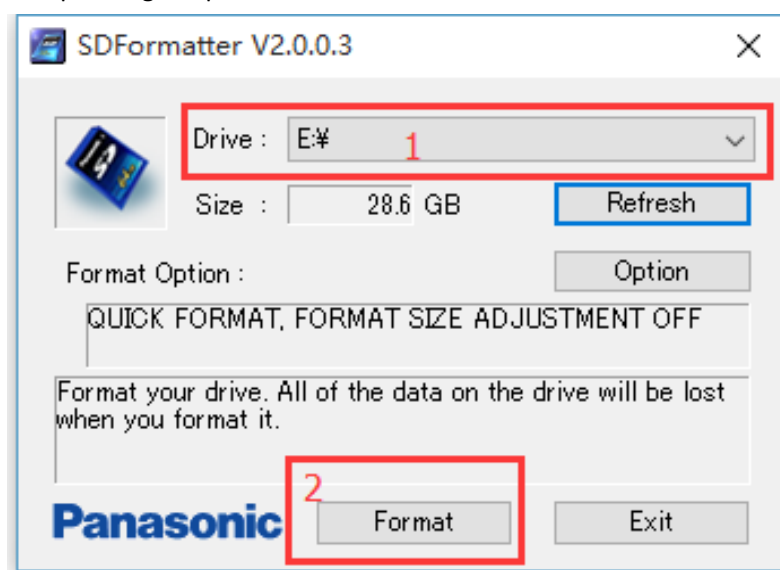


Figure 14

- (3) Unzip the system files after downloading , open Win32DiskImager.exe, select the file *.img,

select the device of the SD card, click “Write” until the writing finish and then shut down the program.

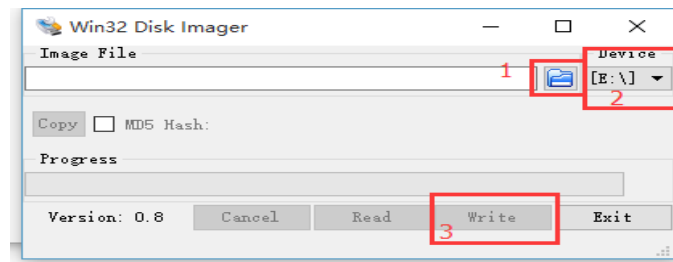


Figure 15

(4) Copy the file “SSH” in the CD (see Figure 16), paste it in the SD card.



Figure 16

(5) Take out the SD card and put it into the Raspberry Pi (see Figure 17), connect the Raspberry Pi with the 3.5 inches touch screen (see Figure 18), connect them to the computer with a micro USB cable (see Figure 19). You will find that the system start successfully in a few minutes (see Figure 20).

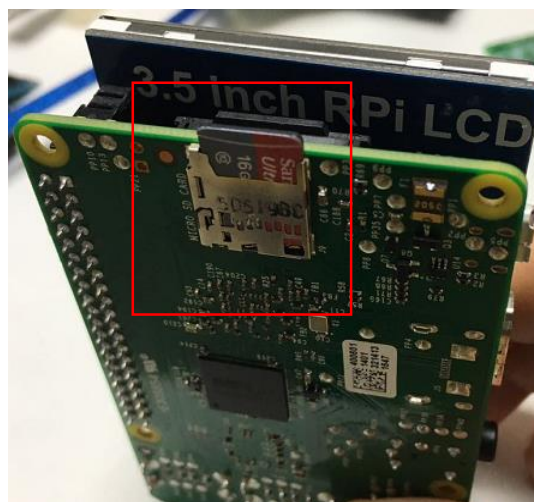


Figure17

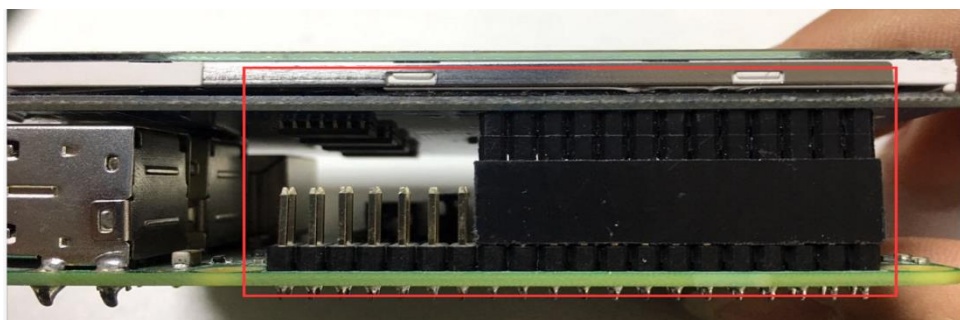


Figure 18

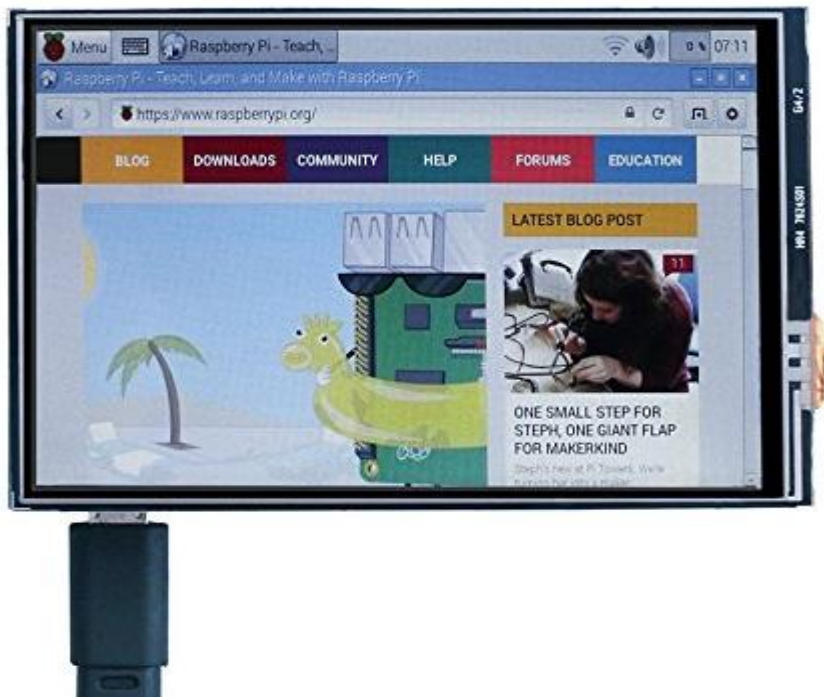


Figure 19

2.2. Use raspberry official system

- (1) Put the SD card into the card reader (see Figure 20) and connect the card reader to computer.



Figure 20

- (2) Open SDFormatter.exe, select the device of the SD card and click "Format". Always click "Yes" if warning shows up during the process, and click "finish" in the end.

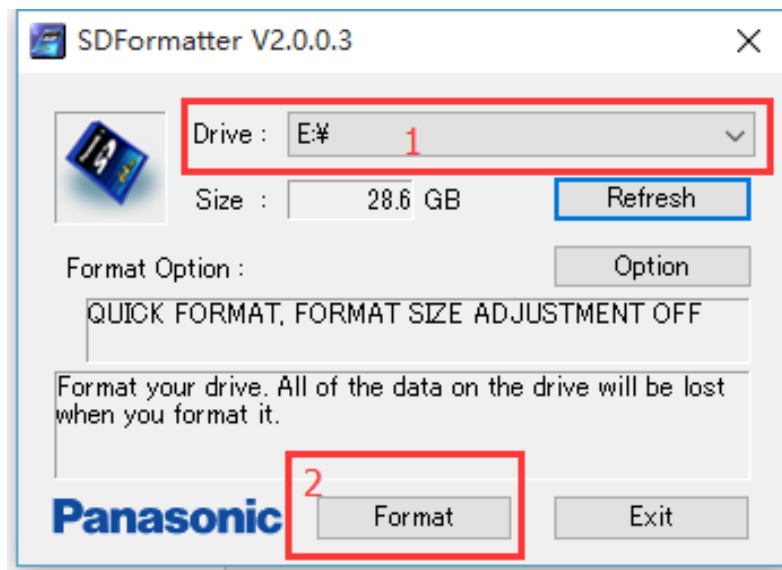


Figure 21

(3) Unzip the system files after downloading, open Win32DiskImager.exe, select the file *.img, select the device of the SD card, click “Write” until the writing finish and then shut down the program.

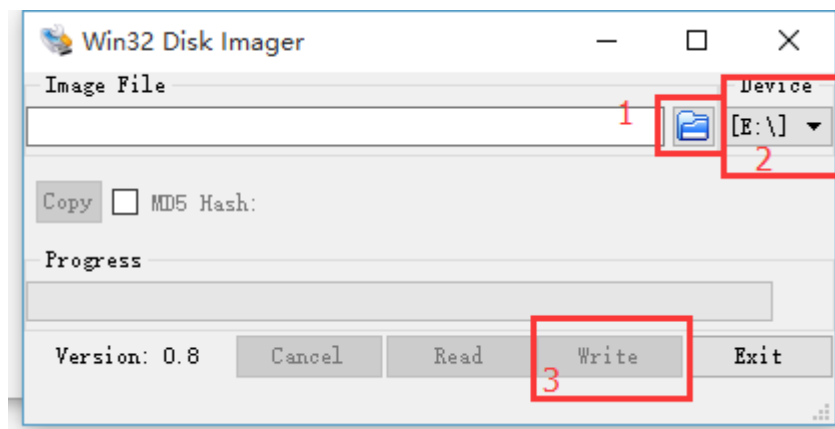


Figure 22

(4) Copy the file “SSH” in the CD (see Figure 23), paste it in the SD card.



Figure 23

(5) Check the IP of the computer, click the internet icon to the bottom right corner, click “internet setting” (see Figure 26).

Attribut

IPv4 address : 197.168.1.17

IPv4 DNS server : 114.114.114.114
114.114.115.115

Manufacturer : Realtek

Description : Realtek PCIe GBE Family Controller

Driver version : 10.12.1007.2016

Physical address: 4C-CC-6A-2F-C5-34

Figure 24

(5) Take out the SD card and put it into the Raspberry Pi. Connect the Raspberry Pi with the 3.5 inches touch screen. Connect them to the computer with a micro USB cable. Connect the Raspberry Pi to router with the Ethernet cable. Wait for a few minutes and run ipscan24.exe. Enter the LAN numeric string where the computer and Raspberry Pi locate in (see Figure 27). And you will get the IP of the Raspberry Pi. (Another way to get the IP of the Raspberry Pi: Visit the router through the explorer. General router IP format: xxx.xxx.xxx.0 or xxx.xxx.xxx.1)

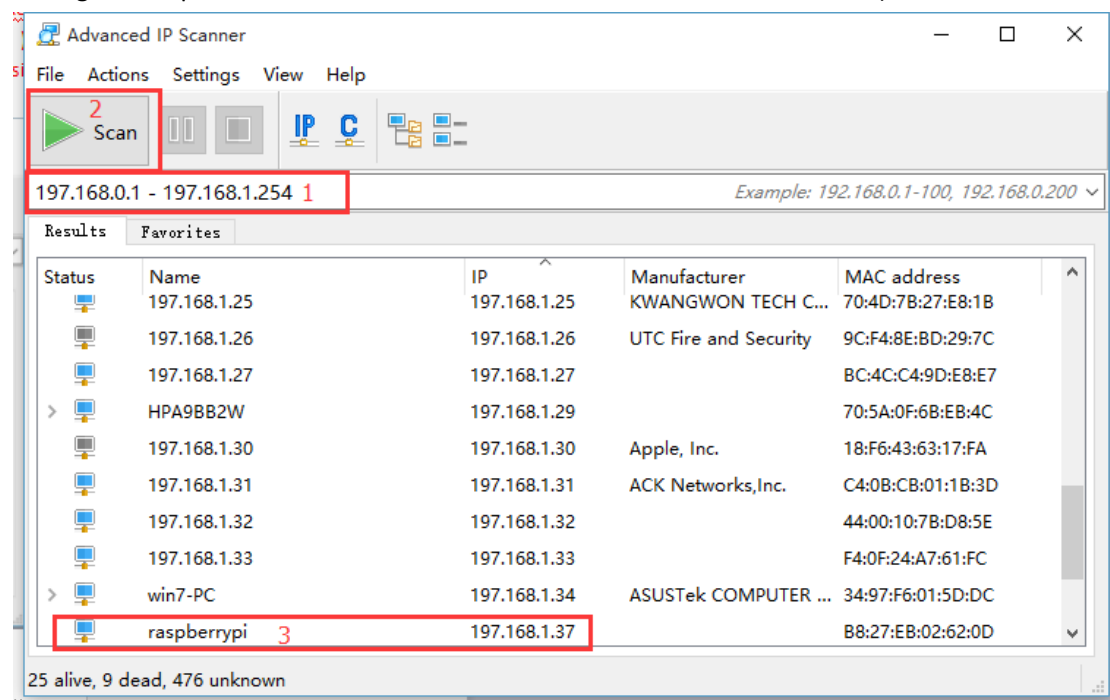


Figure 25

(6) Enter the IP we get into the putty, and select the "SSH", and click "Open" (see Figure 28), the warning will show up when connect for the first time, just click "Yes". Then enter "pi" in the interface of Figure 29, enter the password "raspberrypi", and congratulations on your entry into

rapbian's remote login character interface.

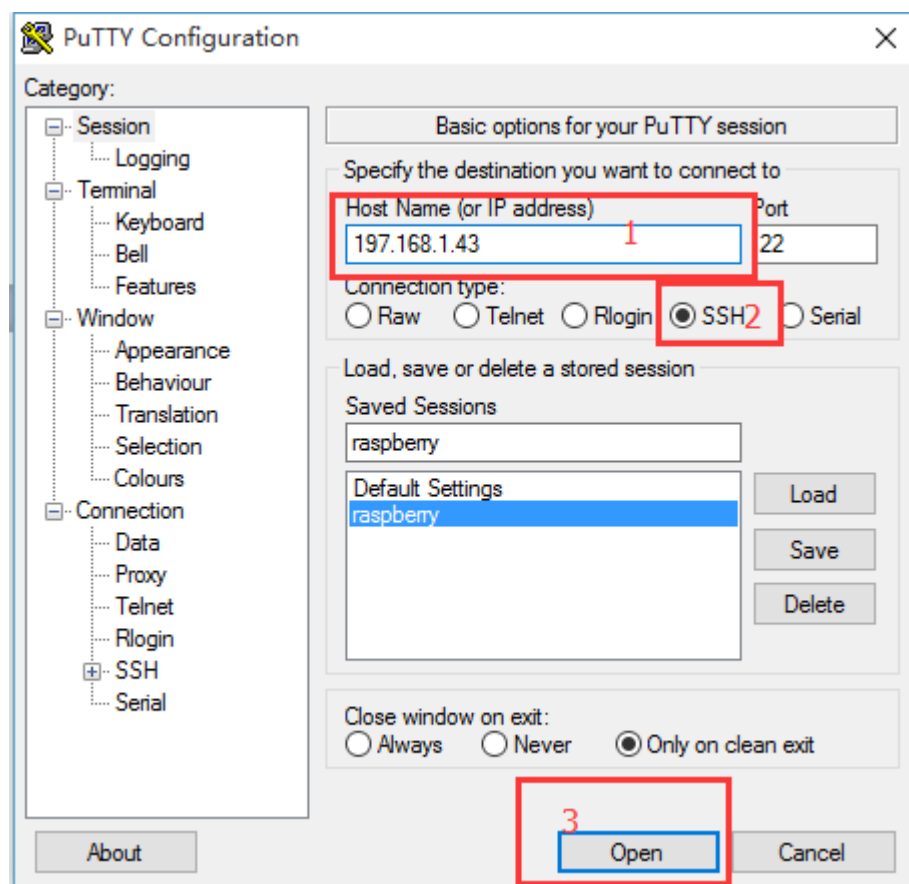


Figure 26. Putty

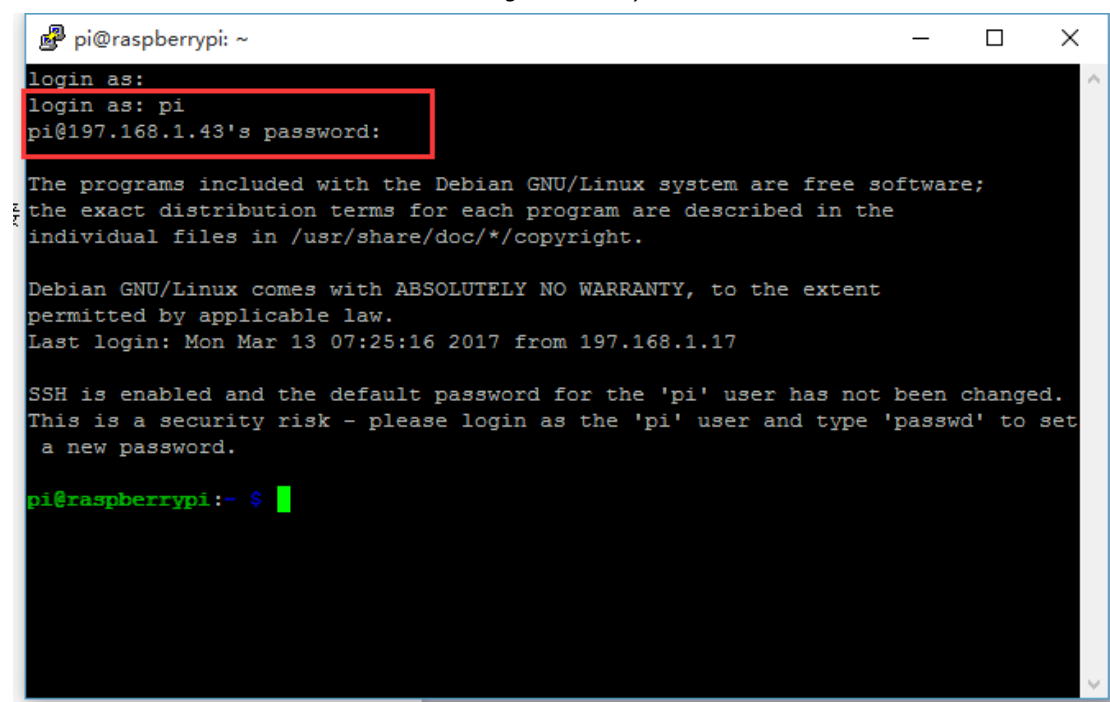


Figure 27

(9) Input the command one after another:

```
sudo apt-mark hold raspberrypi-bootloader
sudo apt-get update
sudo apt-get upgrade
git clone https://github.com/goodtft/LCD-show.git
chmod -R 755 LCD-show
cd LCD-show/
sudo ./LCD35-show
```

It may take a little longer in the update and upgrade process, always choose “Y” when choosing from [Y/N]. After you input the last command, the Raspberry Pi will restart, and then both the Raspberry Pi and the touch screen can work.

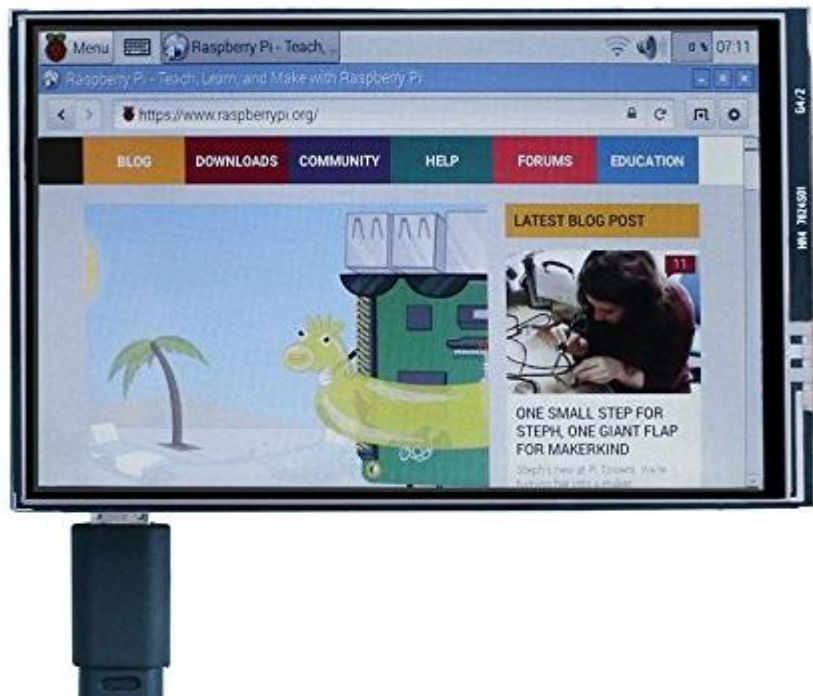


Figure 28

3. Advanced Feature

3.1. Touch Screen Calibrating

(1) open the file folder where the driver located and install “Xinput”, input the following commands:

```
cd LCD-show
sudo dpkg -i -B xinput-calibrator_0.7.5-1_armhf.deb
```


Figure 29 is the result.

```
pi@raspberrypi:~ $ cd /boot
pi@raspberrypi:/boot $ cd LCD-show
pi@raspberrypi:/boot/LCD-show $ sudo dpkg -i -B xinput-calibrator_0.7.5-1_armhf.deb
Selecting previously unselected package xinput-calibrator.
(Reading database ... 120289 files and directories currently installed.)
Preparing to unpack xinput-calibrator_0.7.5-1_armhf.deb ...
Unpacking xinput-calibrator (0.7.5-1) ...
Setting up xinput-calibrator (0.7.5-1) ...
Processing triggers for gnome-menus (3.13.3-6) ...
Processing triggers for desktop-file-utils (0.22-1) ...
Processing triggers for mime-support (3.58) ...
Processing triggers for man-db (2.7.0.2-5) ...
```

Figure29. Xinput Installation

(2) Calibrate the touch screen. Input:

`DISPLAY=:0.0 xinput_calibrator`

then click the red cross on the touch screen with the touch pen, getting the calibrating data (see Figure 30).

```
pi@raspberrypi:~ $ DISPLAY=:0.0 xinput_calibrator
Calibrating EVDEV driver for "ADS7846 Touchscreen" id=6
    current calibration values (from XInput): min_x=3936, max_x=856 and min_y=838, max_y=3880

Doing dynamic recalibration:
    Setting new calibration data: 3901, 428, 407, 3859

--> Making the calibration permanent <--
    copy the snippet below into '/etc/X11/xorg.conf.d/99-calibration.conf'
Section "InputClass"
    Identifier      "calibration"
    MatchProduct    "ADS7846 Touchscreen"
    Option "Calibration"    "3901 428 407 3859"
EndSection
```

Figure 30. Getting Calibrating Data

(3) Note down the data, and open the touch screen data configuration file

`sudo nano /etc/X11/xorg.conf.d/99-calibration.conf`

Replace the “ ” next to “Calibration” with the data.(see Figure 31) Press “ ctrl+x “ and “ y “ and “ enter “ one after another, save and quit.

```
pi@raspberrypi: ~
GNU nano 2.2.6 File: /etc/X11/xorg.conf.d/99-calibration.conf

Section "InputClass"
    Identifier      "calibration"
    MatchProduct    "ADS7846 Touchscreen"
    Option "Calibration"    "3901 428 407 3859"
    Option "SwapAxes"      "1"
EndSection
```

Figure 31. Modifying Configuration File

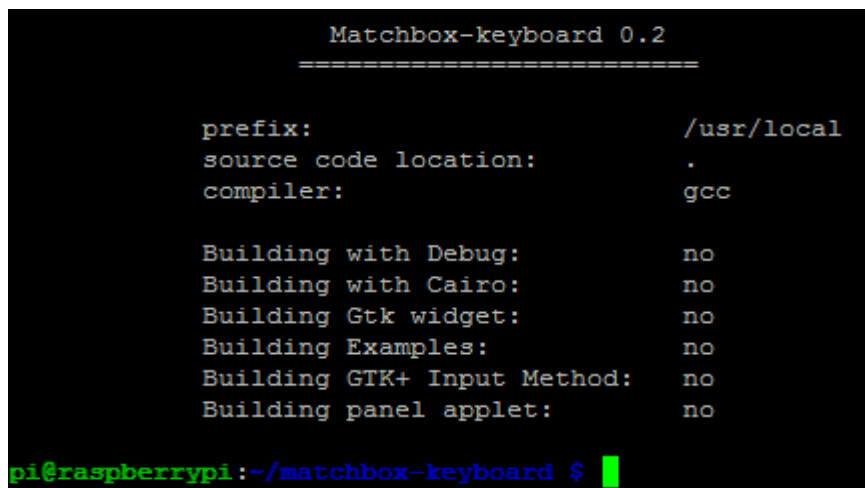
(4) Restart the Raspberry Pi. And now, your touch screen can be touch accurately with the touch pen.

3.2. Install Virtual Keyboard

(1) Install the necessary file, download and compile the code of the virtual keyboard.

```
sudo apt-get update
sudo apt-get install libfakekey-dev libpng-dev autoconf libxft-dev libtool automake -y
git clone https://github.com/mwilliams03/matchbox-keyboard.git
cd matchbox-keyboard
sudo ./autogen.sh
```

Attention: It may take about several minutes when running the “./autogen.sh”, the correct result after finish running is like the Figure 32. If it fail to show the right result, you need to check if there is error warning.



```
Matchbox-keyboard 0.2
=====
prefix:                               /usr/local
source code location:                 .
compiler:                             gcc

Building with Debug:                  no
Building with Cairo:                  no
Building Gtk widget:                  no
Building Examples:                    no
Building GTK+ Input Method:          no
Building panel applet:                no

pi@raspberrypi:~/matchbox-keyboard $
```

Figure 32. Compiling Result

(2) Install the virtual keyboard:

```
sudo make
sudo make install
```

(3) Install shared libraries:

```
sudo apt-get install libmatchbox1
```

```

pi@raspberrypi:~/matchbox-keyboard $ sudo apt-get install libmatchbox1
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  libxsettings-client0
The following NEW packages will be installed:
  libmatchbox1 libxsettings-client0
0 upgraded, 2 newly installed, 0 to remove and 147 not upgraded.
Need to get 57.6 kB of archives.
After this operation, 126 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://mirrordirector.raspbian.org/raspbian/ jessie/main libxsettings-clie
nt0 armhf 0.17-6 [8,724 B]
Get:2 http://mirrordirector.raspbian.org/raspbian/ jessie/main libmatchbox1 armh
f 1.9-osso8-3.1 [48.9 kB]

```

Figure 33. Install Shared Libraries.

- (4) Create virtual keyboard startup scripts:

```
sudo nano /usr/bin/toggle-matchbox-keyboard.sh
```

Then copy the following code and paste, press “ctrl+x” and “y” and “enter” one after another, save and quit.

```

#!/bin/bash
#This script toggle the virtual keyboard
PID=`pidof matchbox-keyboard`
if [ ! -e $PID ]; then
killall matchbox-keyboard
else
matchbox-keyboard -s 50 extended&
Fi

```

Add authority to the script “oggle-matchbox-keyboard.sh”:

```
sudo chmod +x /usr/bin/toggle-matchbox-keyboard.sh
```

- (5) Add the scripts in (4) to the start menu:

```
sudo nano /usr/share/applications/toggle-matchbox-keyboard.desktop
```

Then copy the code follow and paste, press “ ctrl+x “ and “ y “ and “ enter “ one after another, save and quit.

```
[Desktop Entry]
Name=Toggle Matchbox Keyboard
Comment=Toggle Matchbox Keyboard
Exec=toggle-matchbox-keyboard.sh
Type=Application
Icon=matchbox-keyboard.png
Categories=Panel;Utility;MB
X-MB-INPUT-MECHANSIM=True
```

(6) Create a icon in taskbar (Attention: have to use the user authority of “pi”, that is not adding “sudo” in the front of the command. If you use the administrator authority, the file will not be found), input the command:

```
nano ~/.config/lxpanel/LXDE-pi/panels/panel
```

Find codes like below in the file:

```
Plugin {
  type=launchbar
  Config {
    Button {
      id=/usr/share/applications/lxde-x-www-browser.desktop
    }
    Button {
      id=/usr/share/raspi-ui-overrides/applications/pcmanfm.desktop
    }
    Button {
      id=/usr/share/raspi-ui-overrides/applications/lxterminal.desktop
    }
    Button {
      id=/usr/share/applications/wolfram-mathematica.desktop
    }
    Button {
      id=/usr/share/applications/wolfram-language.desktop
    }
  }
}
```

Insert the following code in front of the first “ button ”:

```
Button {  
    id=toggle-matchbox-keyboard.desktop  
}
```

Press “ ctrl+x “ and “ y “ and “ enter “ one after another, save and quit. Input:

```
sudo reboot
```

Restart the Raspberry Pi and the installation will be finished. Click the icon in the red rectangle and you can use the virtual keyboard (see Figure 36).

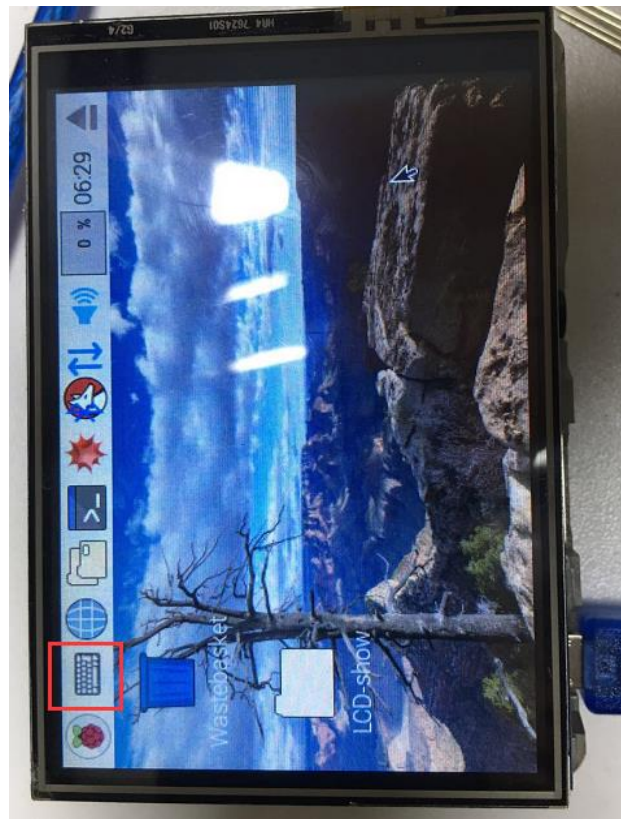


Figure 36. Virtual Keyboard

Additional Skill: Log on by SSH and enter the follower command, you can change the size of the virtual keyboard. Change the number behind “-s” to change the size of the virtual keyboard

```
DISPLAY=:0.0 matchbox-keyboard -s 50 extended
```

3.3. Change Display Mode

- (1) Open the System configuration file "config.txt", and enter:

```
sudo nano /boot/config.txt
```

- (2) Find "dtoverlay=tft35a" in the file "config.txt", add rotate data like the following format:

```
dtoverlay=tft35a:rotate=value;
```

value = 0, means rotate 0 degree, vertical screen display.

value = 90, means rotate 90 degrees, horizontal screen display.

value = 180, means rotate 180 degrees, vertical screen display.

value = 270, means rotate 270 degrees, horizontal screen display.

- (3) Press "ctrl+x" and "y" one after another, save and quit. It will take effect after the system restarted.