Elegoo 3.5 inches Touch Screen

User Manual

Content

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

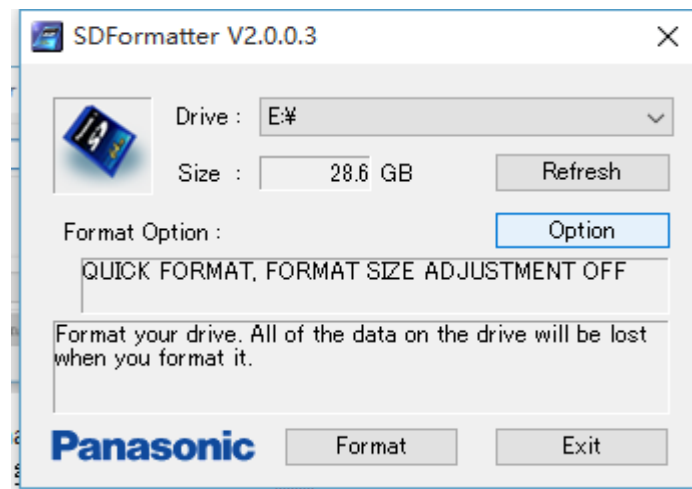（1）SDFormatter.exe，for formatting the SD card；

Figure 7. *SDFormatter.exe*

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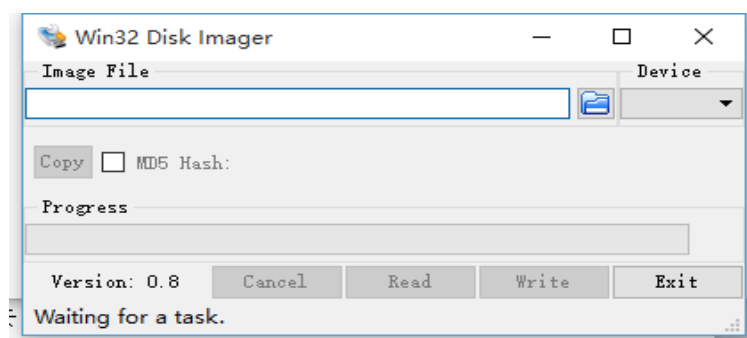

Figure 8. *Win32DiskImager.exe*

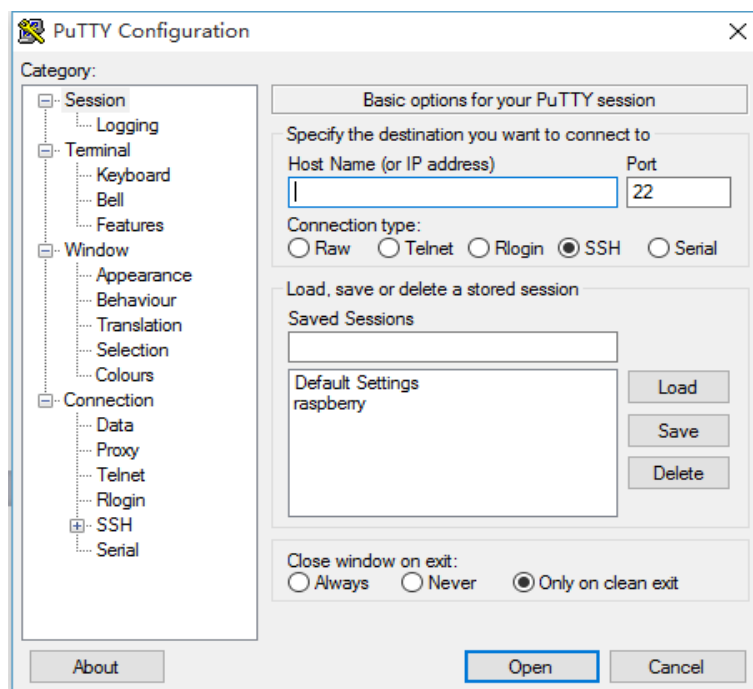（3）Putty.exe, for using the system's character interface remotely on PC.

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.
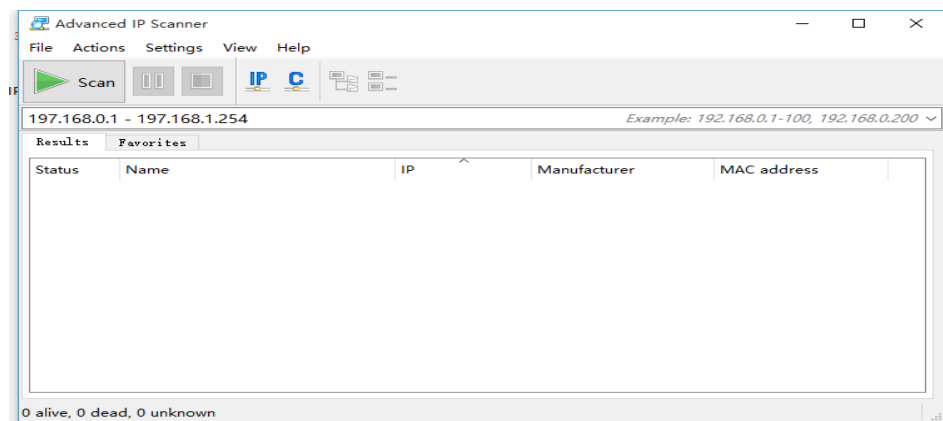

Figure 10. Advanced IP Scanner

1.2.2. Download the System Image Files

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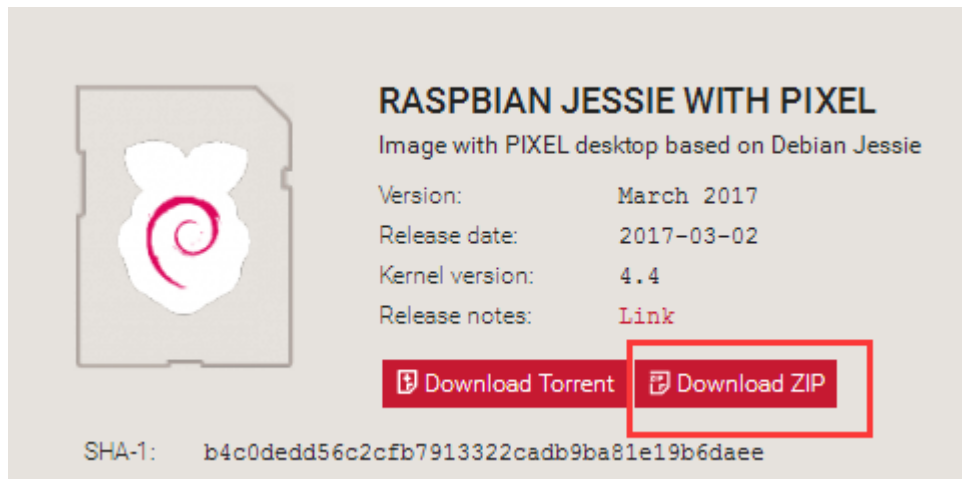Log onhttps://github.com/goodtft/LCD-show/wiki/Images-Download-address

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/）,

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.
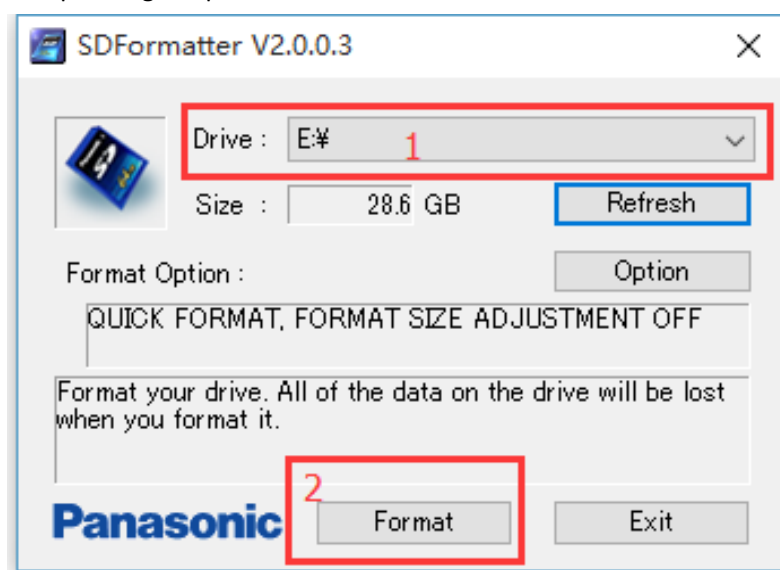

Figure 14

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

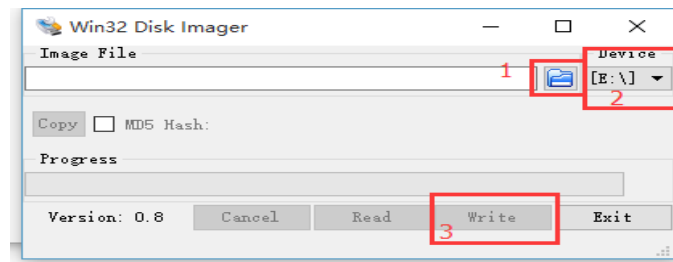select the device of the SD card, click "Write" until the writing finish and then shut down the program.

Figure 15

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

| SSH | 2017/3/13 14:26 | 文件 | 0 KB |

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).
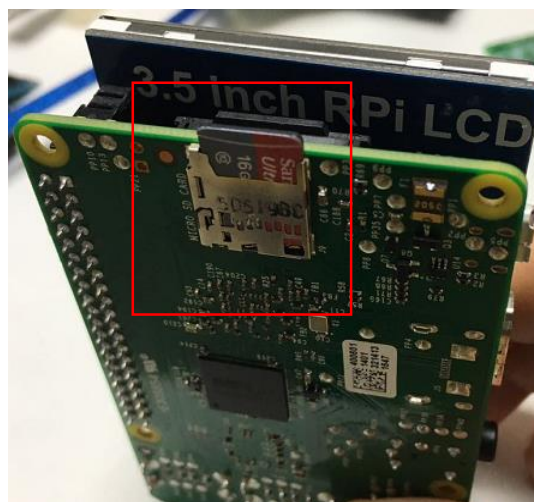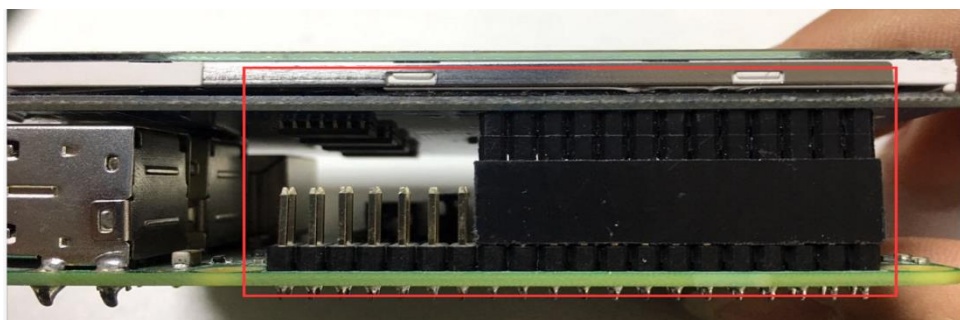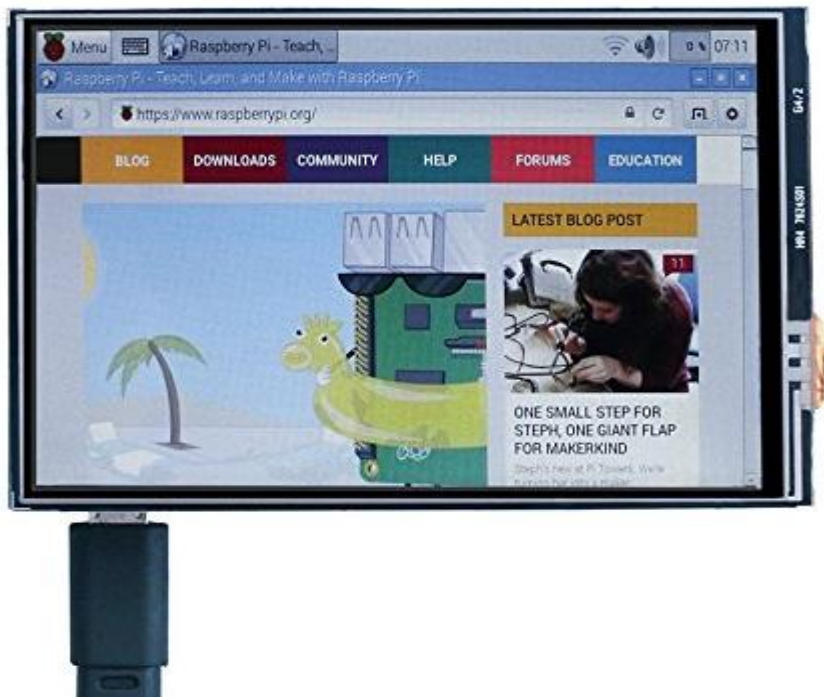

Figure17

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.
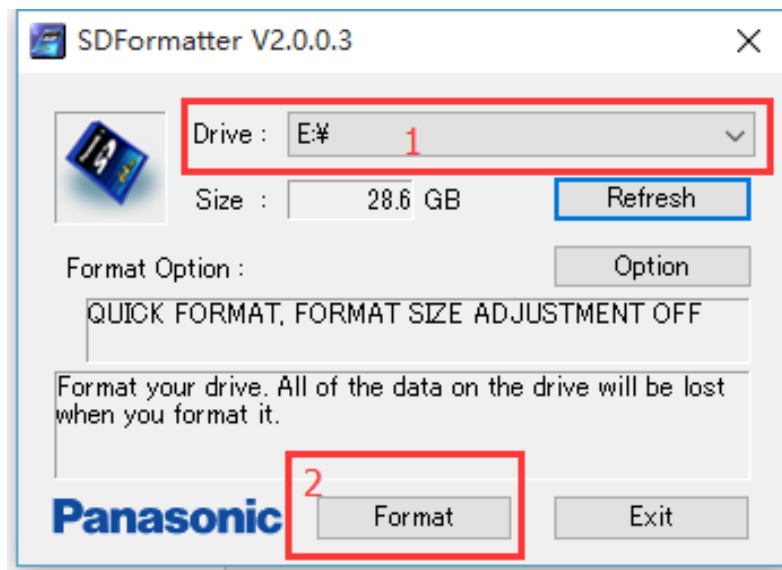
Figure 21

（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

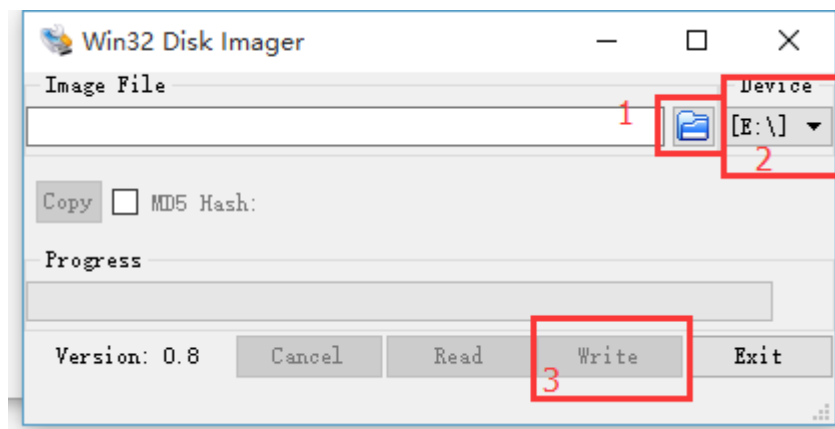（4）Copy the file "SSH" in the CD (see Figure 23), paste it in the SD card.

SSH   2017/3/13 14:26   文件   0 KB

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)
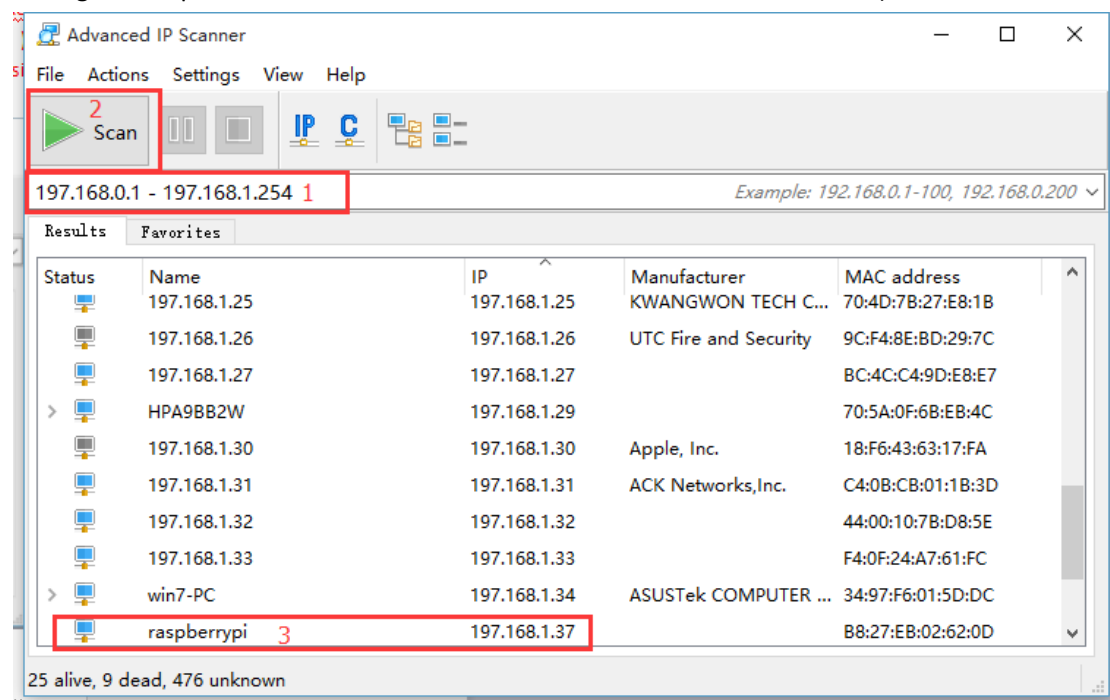
Figure 25

（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 "raspberry", and congratulations on your entry into
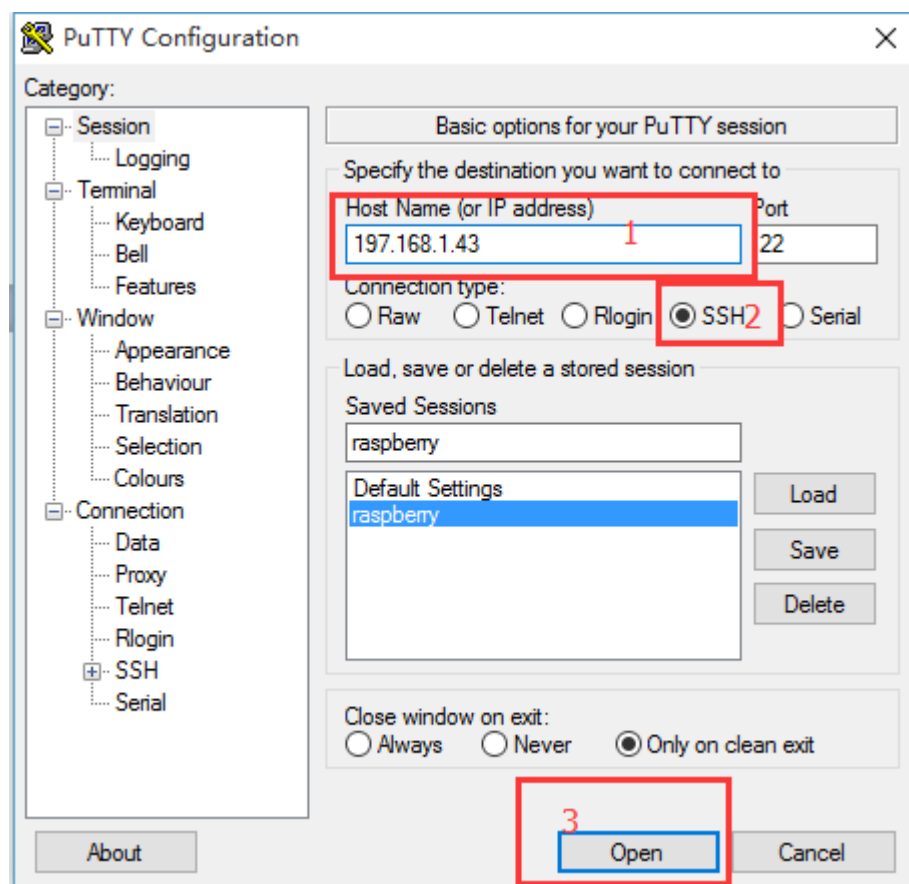
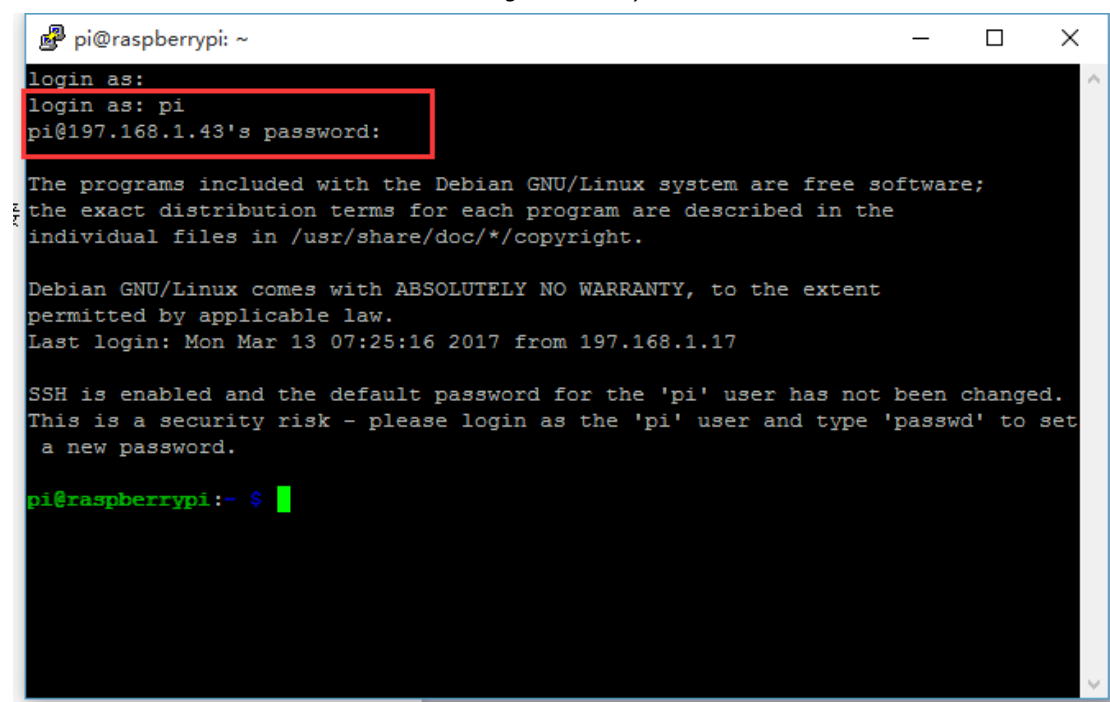rapbian's remote login character interface.

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.
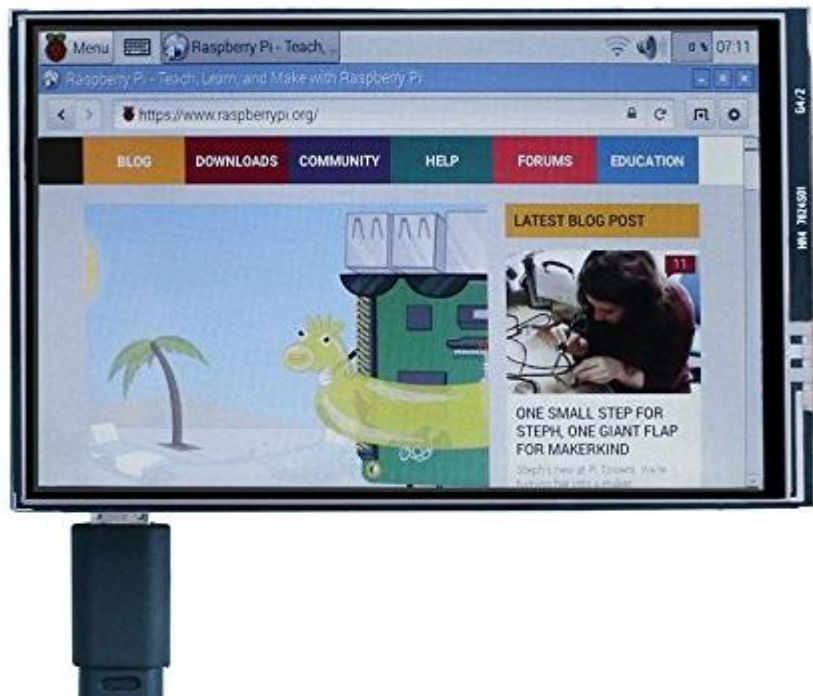

Figure 28

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.

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).

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.

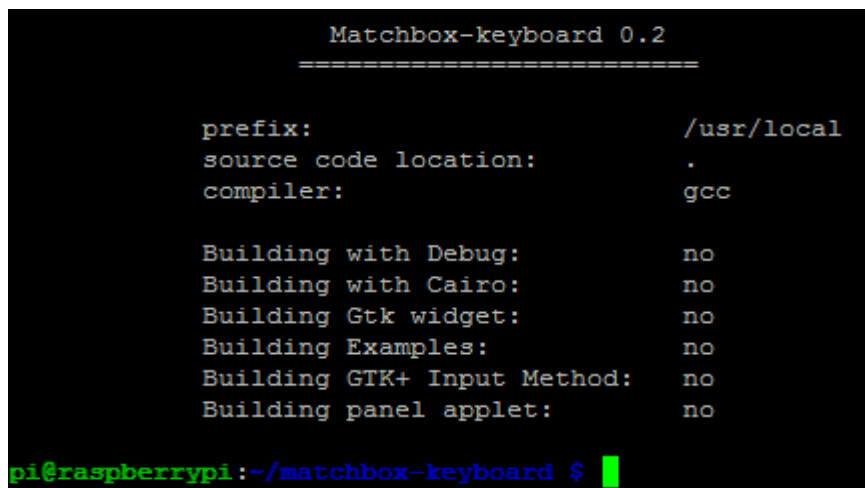*Figure 31.* Modifying Configuration File

（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.

Figure 32. *Compiling Result*

（2）Install the virtual keyboard:

> *sudo make*
> *sudo make install*

（3）Install shared libraries:

> *sudo apt-get install libmatchbox1*

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).
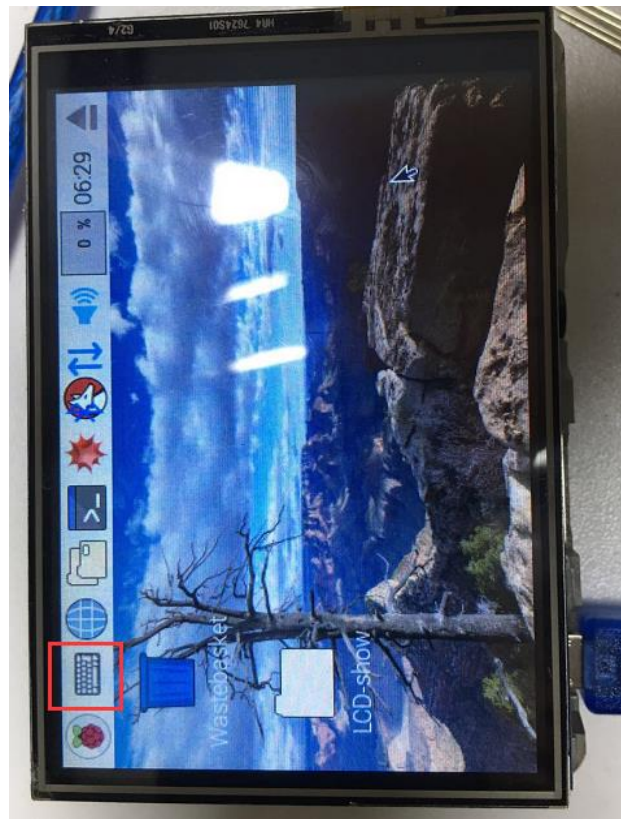

Figure 36. *Virtual Keyboard*

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.