MAKERLAB ELECTRONICS x

# USER MANUAL

## 3.5" 480x320 TFT Display with Touch Screen for Raspberry Pi

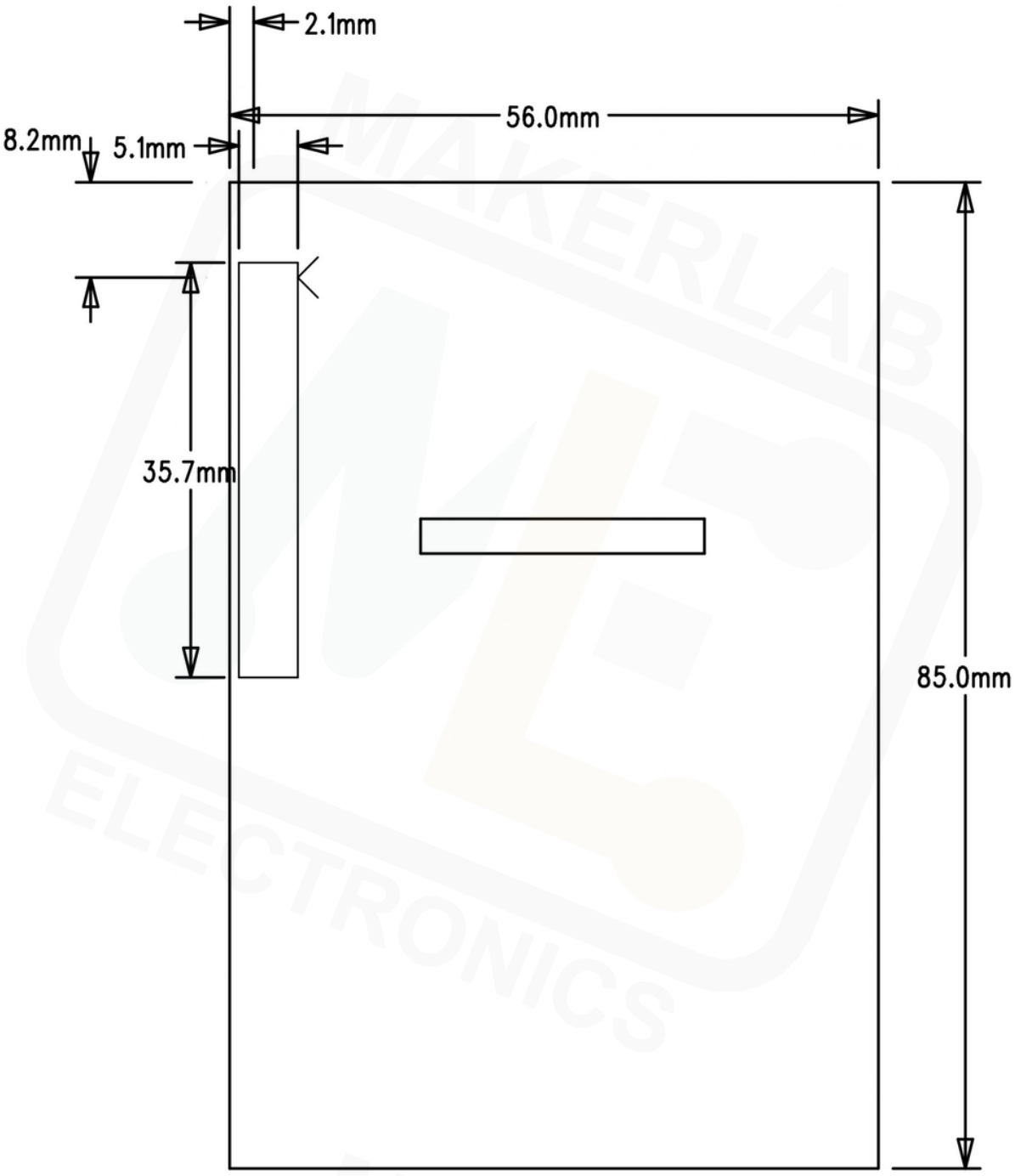
## Parameters

**Size:** 3.5"
**SKU:** MLE00111
**Resolution:** 480x320
**Aspect Ratio:** 8:5
**Dimensions:** 85.42mm x 55.60mm
**Touch:** 4-wire resistive touch
**Weight:** Net Weight 51g, Gross Weight 78g
Compatible with Raspberry Pi A, B, A+, B+, Pi2, 4, and 4B

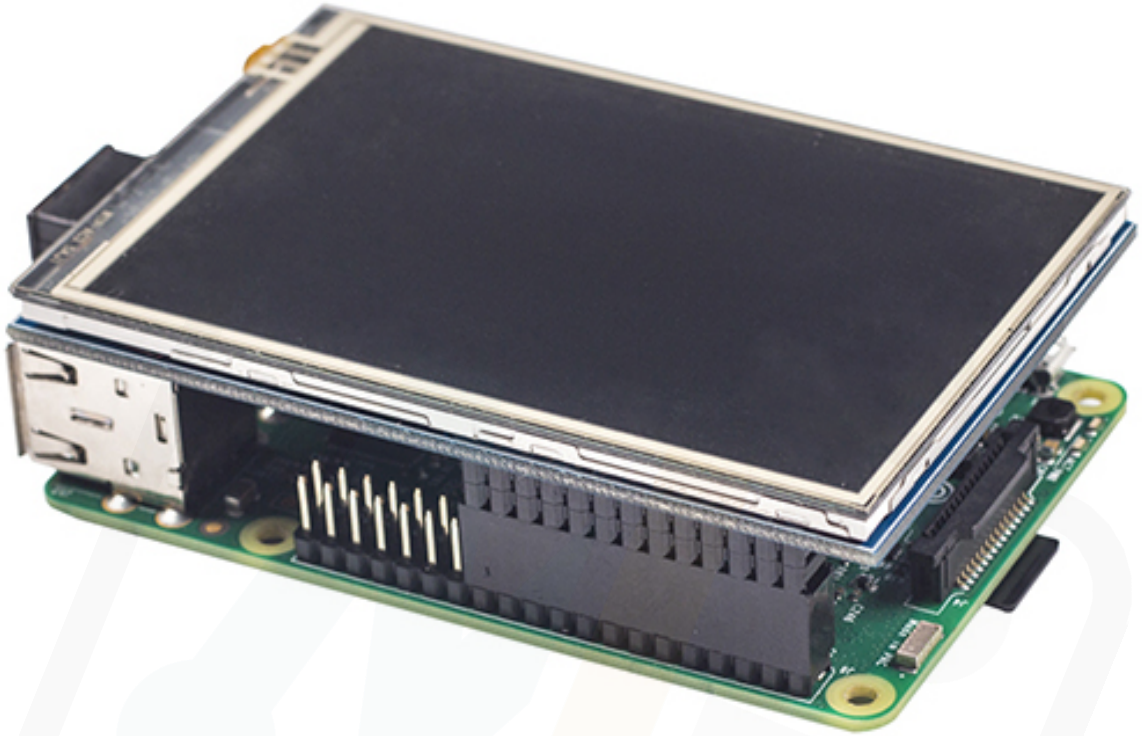
## Pinout

| Pin | Symbol | Description |
|---|---|---|
| 1, 17 | 3.3V | Power positive (3.3V power input) |
| 2, 4 | 5V | Power positive (5V power input) |
| 3, 5, 7, 8, 10, 12, 13, 15, 16 | NC | NC |
| 6, 9, 14, 20, 25 | GND | Ground |
| 11 | TP_IRQ | Touch Panel interrupt, low level while the Touch Panel detects touching |
| 18 | LCD_RS | Instruction/Data Register selection |
| 19 | LCD_SI / TP_SI | SPI data input of LCD/Touch Panel |
| 21 | TP_SO | SPI data output of Touch Panel |
| 22 | RST | Reset |
| 23 | LCD_SCK / TP_SCK | SPI clock of LCD/Touch Panel |
| 24 | LCD_CS | LCD chip selection, low active |
| 26 | TP_CS | Touch Panel chip selection, low active |

## Dimensions



## Dimensions

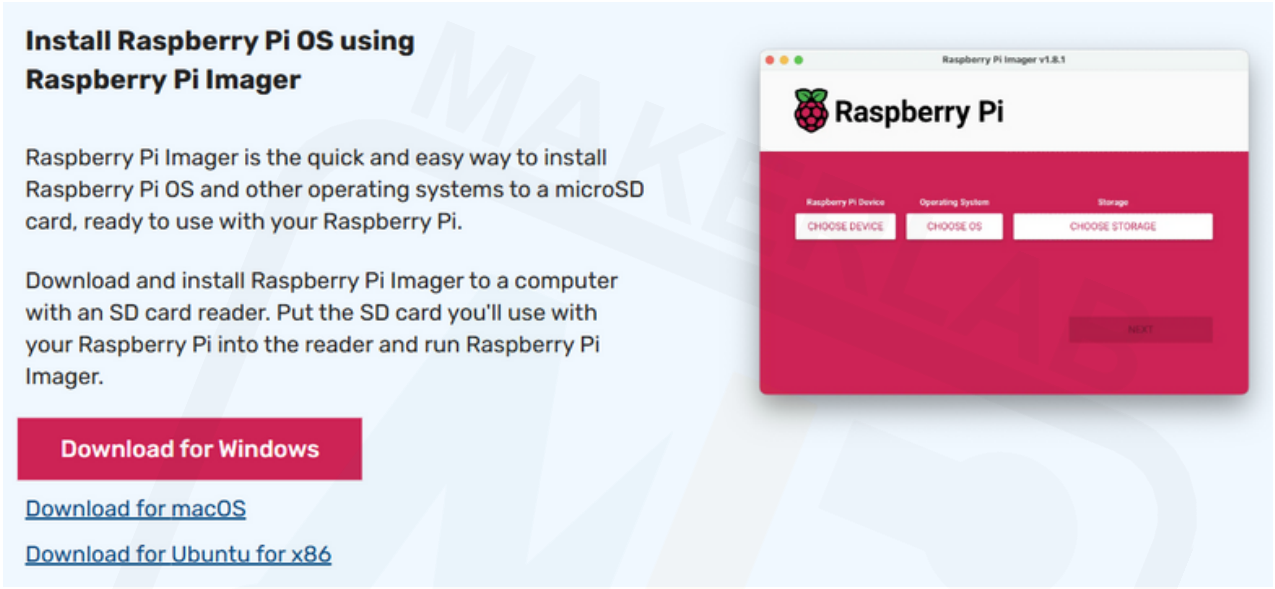


Interface the 3.5" Display to your Raspberry Pi this way to avoid short circuiting the TFT Display

*Make sure to follow this placement orientation as it is very easy to misplace the display!*

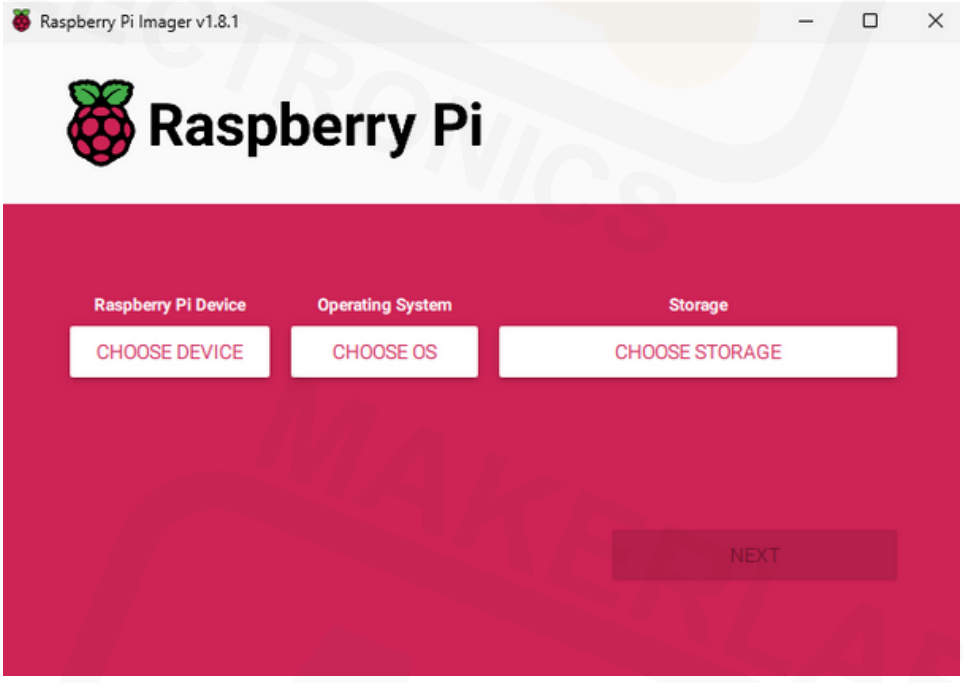
# Utilizing the TFT Display

Before we start, make to **download** the Raspberry Pi Imager



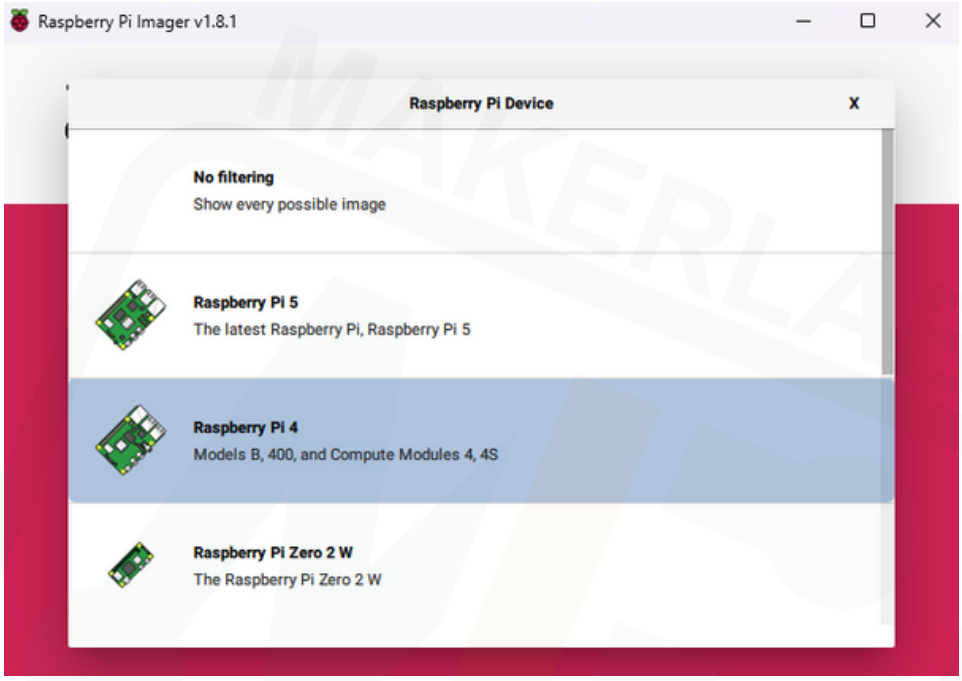

*Download the suitable installer to your machine's operating system!*

After downloading and installing the imaging software. Launch it and you should be presented with this:



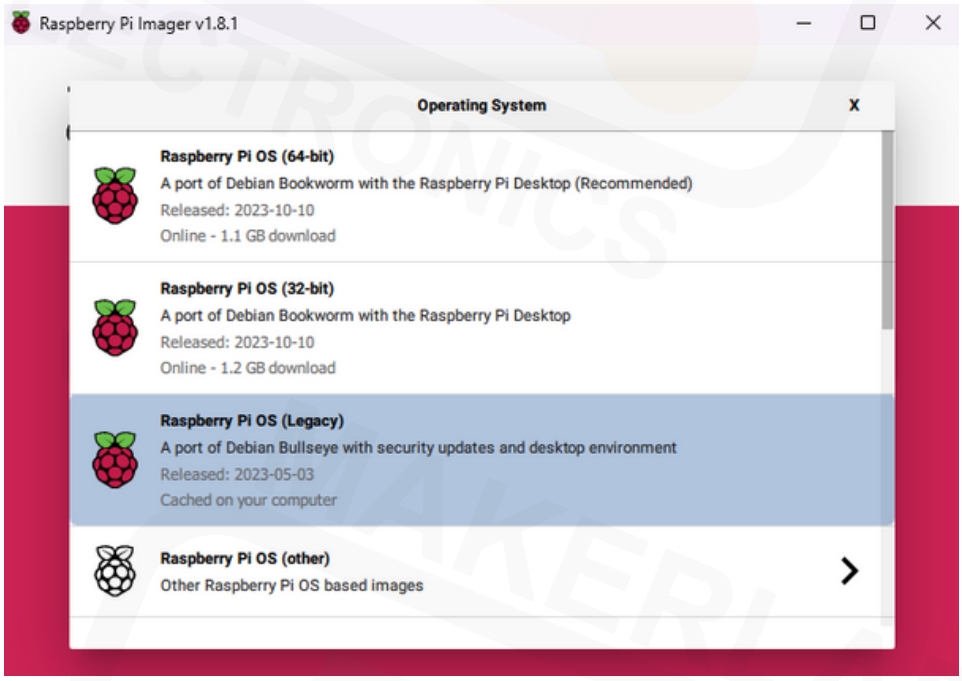
# Image Flashing

You'll be needing a **microSD Card** and a **Card Reader** in order to flash an **Operating System** for your Raspberry Pi. In this case we will use a **Raspberry Pi 4B.**




*Select the device according to the one you're using!*

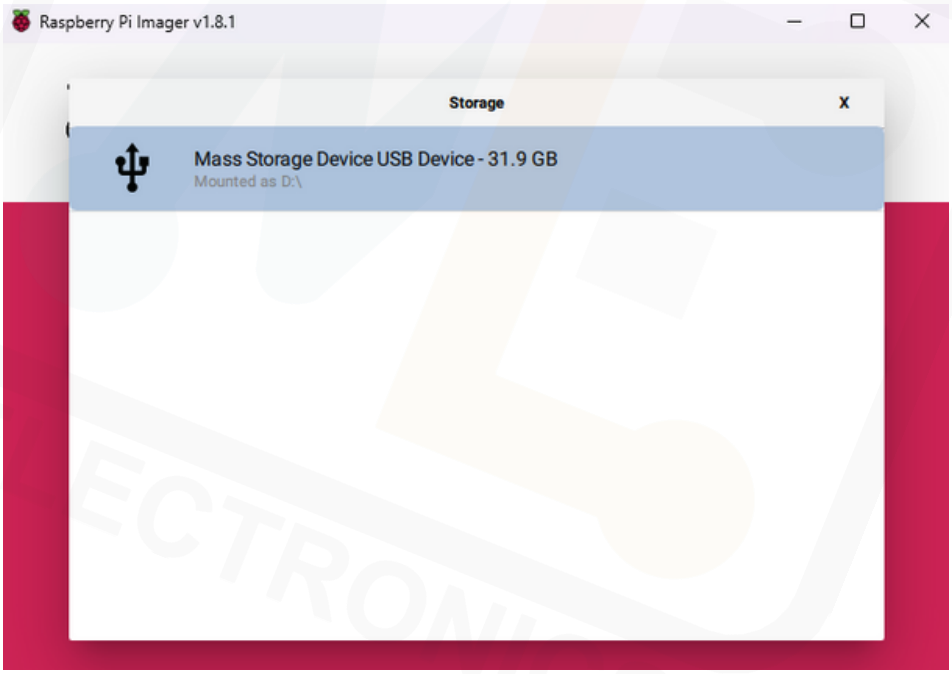
Now select the Operating System for your Raspberry Pi



***Note**: Apparently, the 3.5-inch TFT Display does not work with the newest Raspberry Pi OS, according to our research. However, the Legacy OS is the operating system that will work with the TFT Display.*

*It is also worth noting that if you ever flash the latest OS and attempt the instructions stated next in this manual, you will brick your OS, and you will need to flash a new one to your microSD card.*

Next, select the **Storage Device** where the Imager will flash the OS you chose.




*Select the storage device according to the one you're using!*

Once the Imager is done with the flashing, eject the card reader from your computer and insert the microSD card into your **Raspberry Pi**

## Interfacing the TFT Display

In this part, you will need the following:

- 📌 Monitor
- 📌 HDMI cable
- 📌 Mouse and Keyboard
- 📌 Raspberry Pi Power Supply

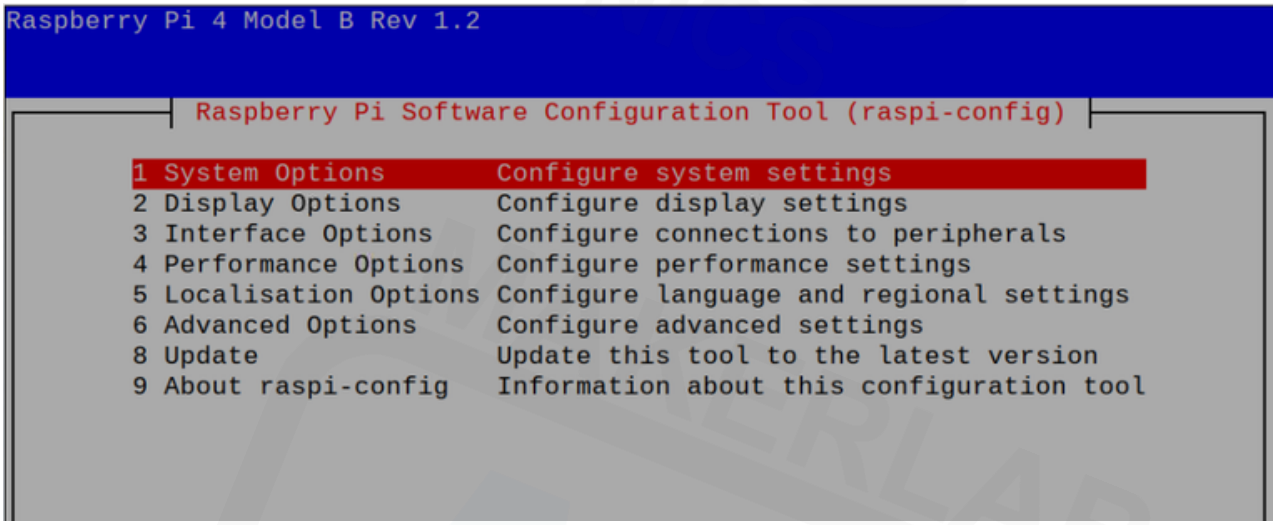
First, connect an external display/monitor to your Raspberry Pi as this will act as your main monitor for the meantime until we finally utilize the TFT Display.

*Make sure to do the necessary setup process upon powering your Raspberry Pi using a fresh OS.*

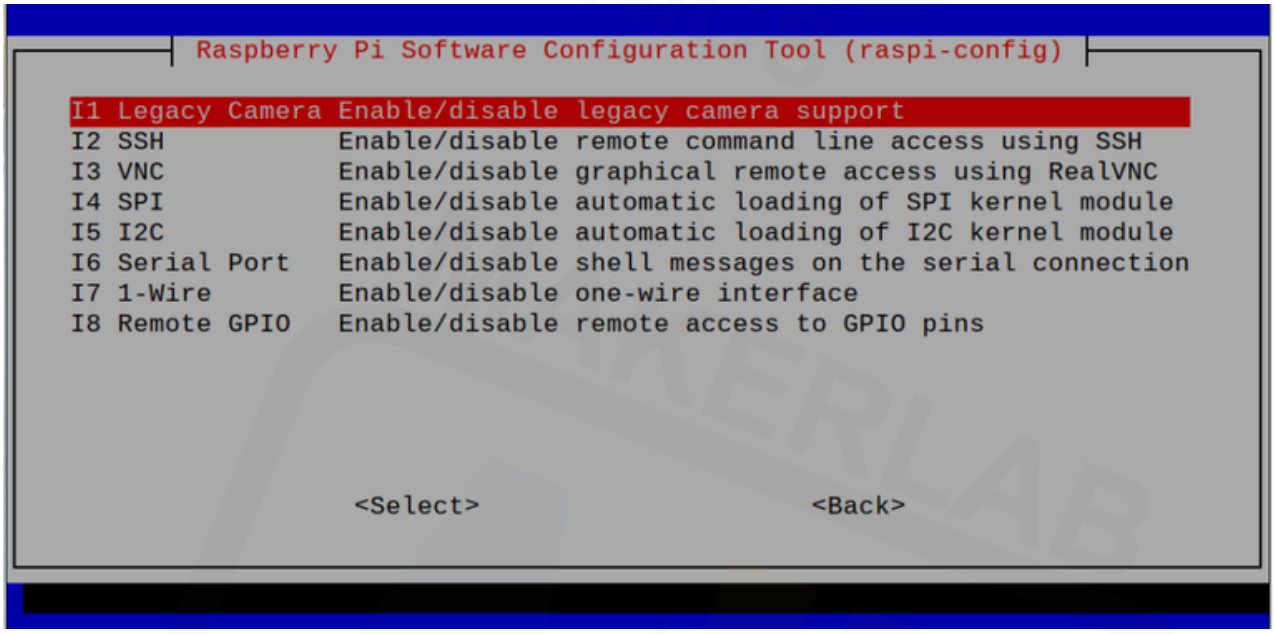
Once you're done setting up your Raspberry Pi, open the **Terminal** which is located on top of the display right next to the folder icon.

Now, type the following to the **terminal**:

```
sudo raspi-config
```



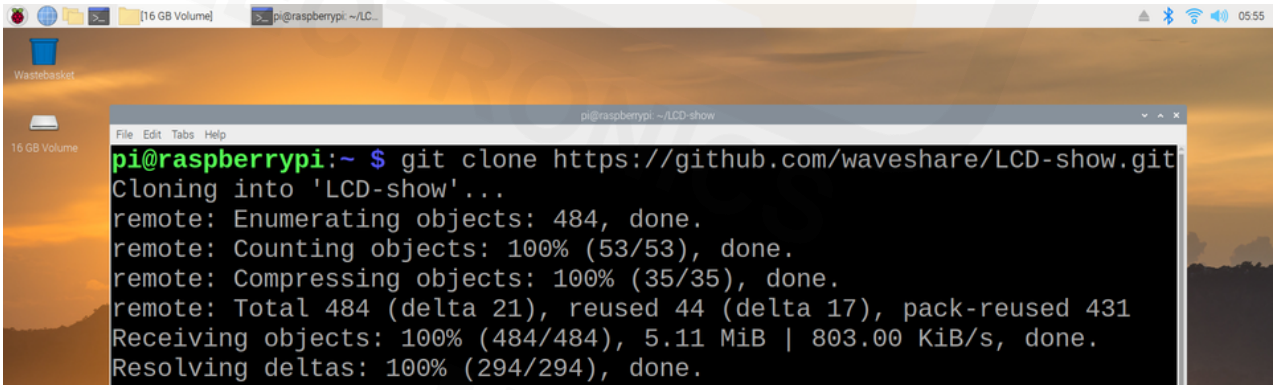
You'll be presented with this menu. In here, select **Interface Options** and select **SPI**.




*Enabling **SPI** ensures that the TFT Display will work on your **Raspberry Pi***

Once you're done, select finish and open the **terminal** again and type the following:

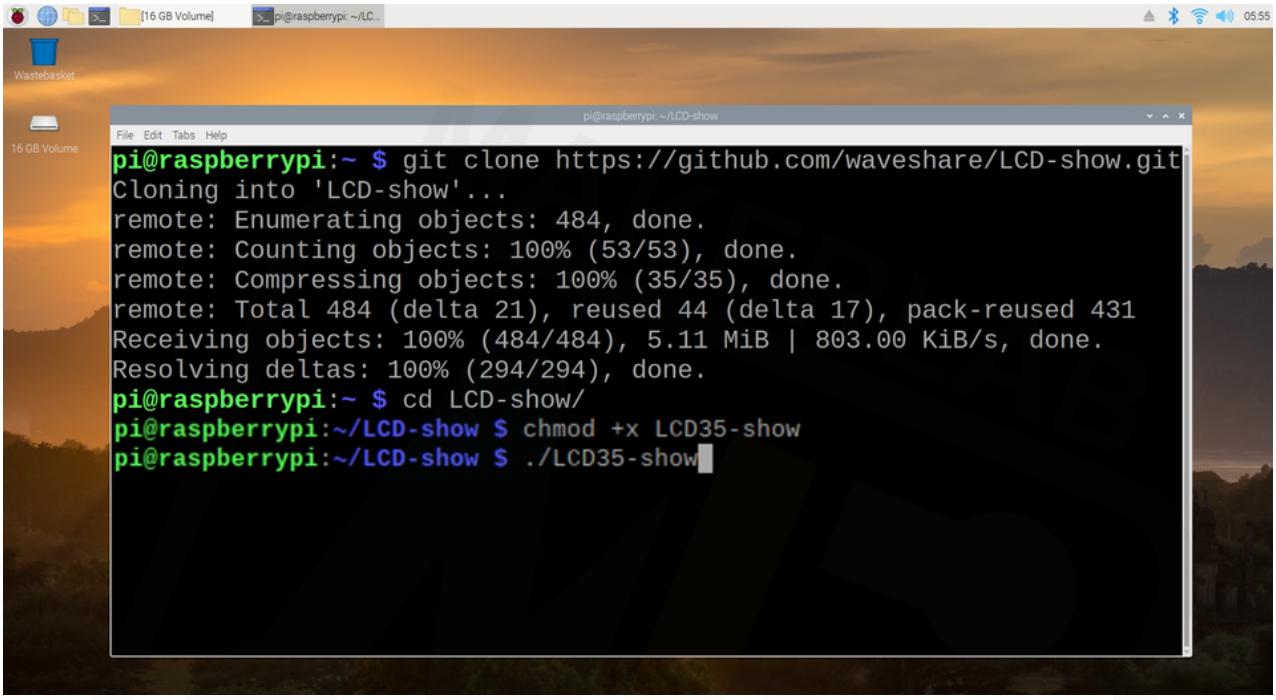
```
git clone https://github.com/waveshare/LCD-show.git
```




*This basically allows you to access the repository of the 3.5inch TFT Display you're using enabling you to use it later!*

Next, type the following to the **terminal**:

```
cd LCD-show/
chmod +x LCD35-show
./LCD35-show
```




After typing the last command, your Raspberry Pi will restart to make the changes take effect. Don't worry! 😆

Once your **Raspberry Pi** boots up, the 3.5" TFT Display should lit up and you're good to go!

MAKERLAB ELECTRONICS