

# piRover Builds with K2

## Yahboom Operating System Update

Rev 1.0

### Overview:

Your student kit contains a microSD card with the Yahboom image loaded, however this contains an earlier version of the Raspian operating system (OS). While it is possible to update this at the command line, an update/upgrade action will break the Bluetooth connectivity and prevent the mobile phone application from functioning. For now, It is more efficient and effect to just replace the manufacturer's software with an updated version.

In this procedure you will download and extract the Yahboom image from the manufacturer's site. You'll then prepare your microSD card and write the image to the card.

### Performance Outcomes:

1. Download Yahboom operating system (OS)
2. Extract RAR archive on Windows or Mac
3. Format a microSD card using SDFormatter.exe
4. Install OS on microSD card

### Resources:

1. [Yahboom: Remote Control Operation and APK](#)
2. [Yahboom: Development environment construction instructions](#)
3. [Yahboom G1 Tank Image](#)
4. [7-Zip](#)
5. [SD Memory Card Formatter for Windows Download](#)
6. [SD Memory Card Formatter for Mac Download](#)
7. [Win32 Disk Imager](#)

### Materials:

1. microSD card – minimum 8GB class 4
2. USB card reader
3. piRover – build and wiring completed

### Directions:

Note 1: This download and install of the Yahboom OS is typically not required. The Yahboom kit provided contains a microSD card with the required software preinstalled. Insert the card provided into the Raspberry Pi on your piRover and continue to the User Experience (UX) Evaluation activity. These instructions are provided if you do need to reimage the memory card or want to create a new copy.

## piRover Builds with K2

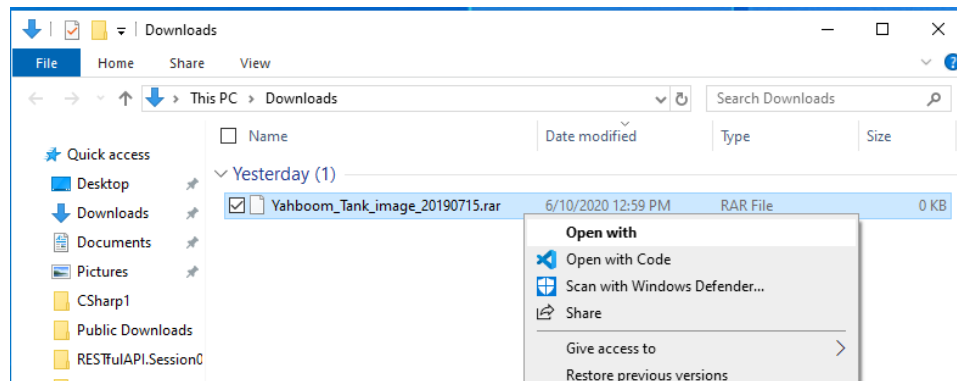
Note 2: If you do not have a mobile phone capable of downloading Yahboom mobile app, please contact the instructor immediately. A mobile device is required to complete the following User Experience (UX) Evaluation. If a mobile device is not available, an alternative experience will be provided.

### Step 1 – Download the Yahboom Operating System

1. Access the Yahboom resources on the Web and download the current version of the Yahboom tank operating system. The current link is provided below.

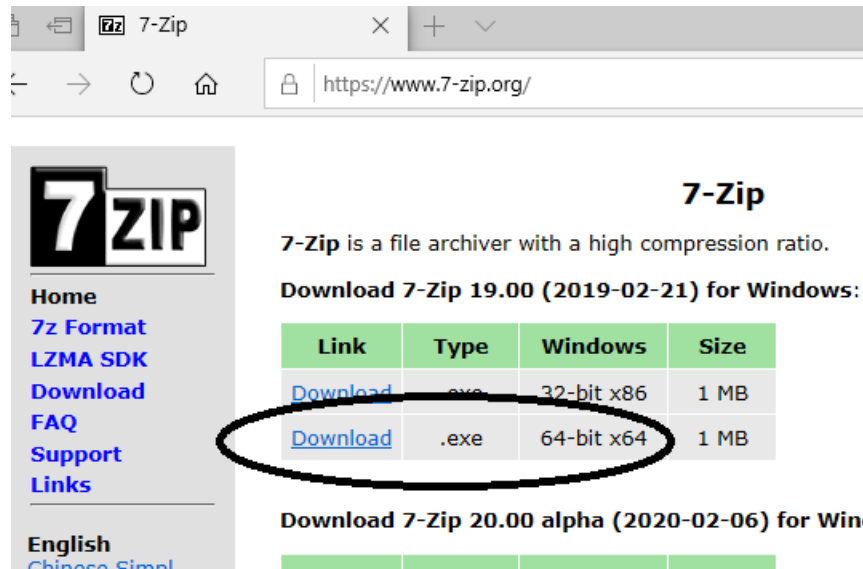
[https://drive.google.com/drive/folders/1fcNM\\_aSQBRkVB2BHwZSx1Nugu\\_dsmxqs](https://drive.google.com/drive/folders/1fcNM_aSQBRkVB2BHwZSx1Nugu_dsmxqs)

2. Note: This is a very large file (>2GB). Be sure you have sufficient disk space and plan for a long download time.
3. When the download is complete, locate the file in your download folder. The image below shows the image file located in the Windows Downloads folder. A Downloads folder is also available on a Mac – look for the folder in Finder.

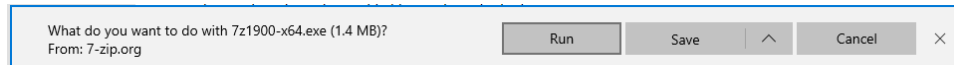


4. Note that on this Windows workstation, there is not a program or utility installed that can unpack this RAR archive. To extract an RAR file on your Mac, right click on the file and move your mouse on to “Open With” option. Choose “Extractor” tool from the list and all the files inside the .rar file will be extracted into a folder. It is usually located on the desktop.
5. On a Windows workstation, you’ll likely need to install a utility program to unpack this archive. 7-zip is a good option. Open a browser and navigate to [www.7-zip.org](http://www.7-zip.org) and download the installer. You are likely on a 64-bit version of Windows. See the image on the next page.

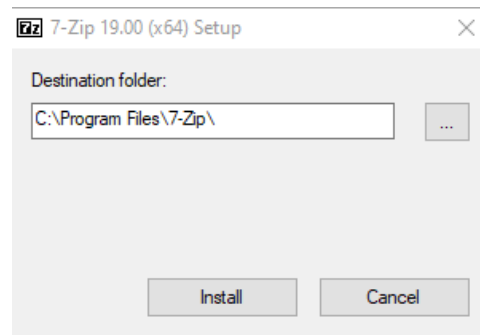
## piRover Builds with K2



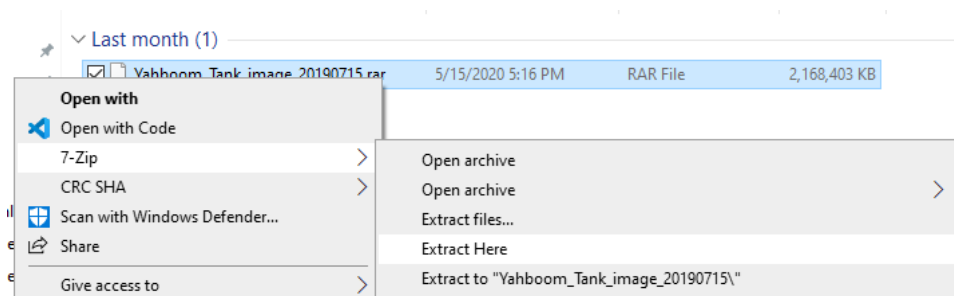
6. To install, click on Run.



7. Install 7-Zip in the default location by clicking the Install button.

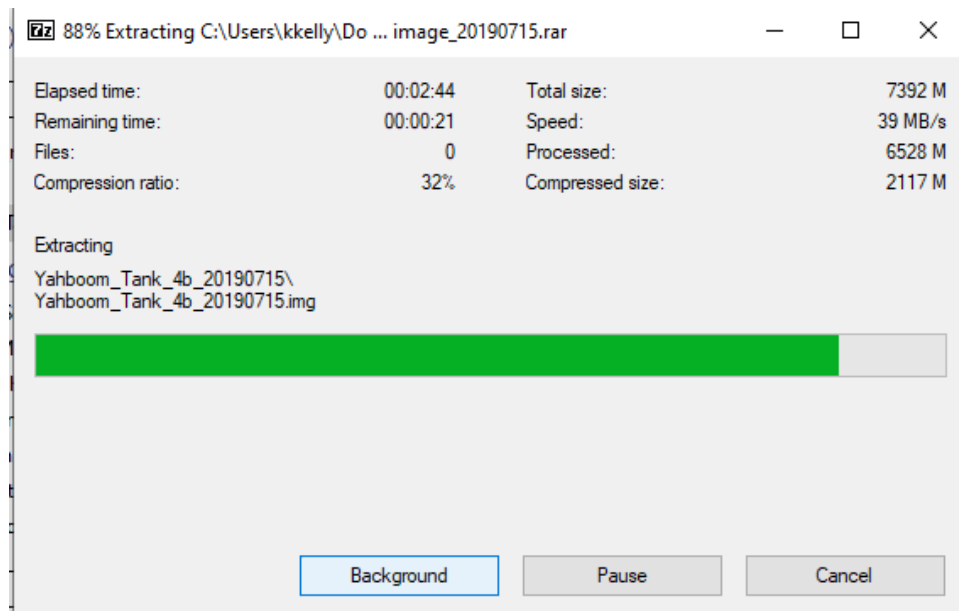


8. Once the 7-Zip installation is complete, return to the Downloads folder. Right click on the Yahboom RAR file. The option to "Extract Here" is now available.

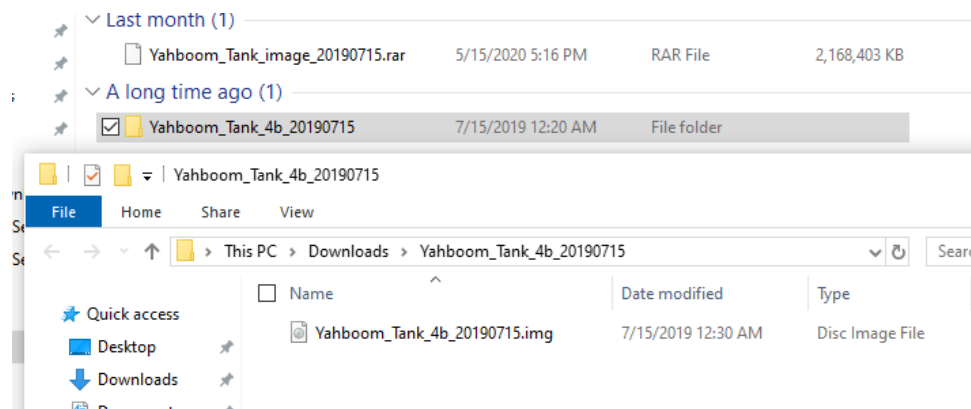


## piRover Builds with K2

9. Extract the RAR archive.



10. A new Yahboom folder is created in Downloads. Open the folder to locate the image (.img) file.



### Step 2 – Write the Yahboom image to the microSD card

11. If you are reusing an SD card, you'll want to format to erase prior contents and prepare it for the Yahboom image. If this is a new card, you can skip these formatting steps and continue at step \_\_\_\_.

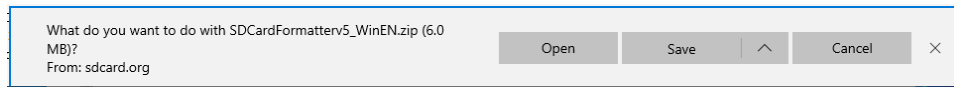
12. Download and install the SD Memory Card Formatter utility (SDFormatter.exe) using one of the links below.

- [SD Memory Card Formatter for Windows Download](#)
- [SD Memory Card Formatter for Mac Download](#)

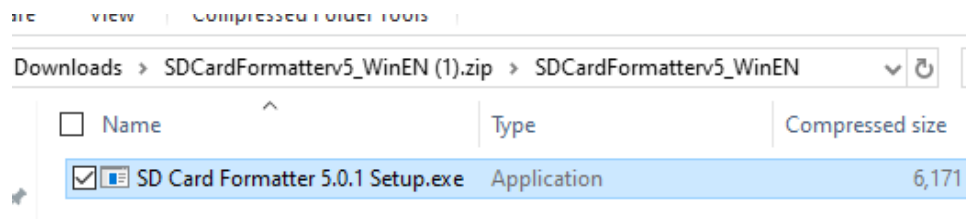
13. Accept the EULA agreement to download the zip file.

## piRover Builds with K2

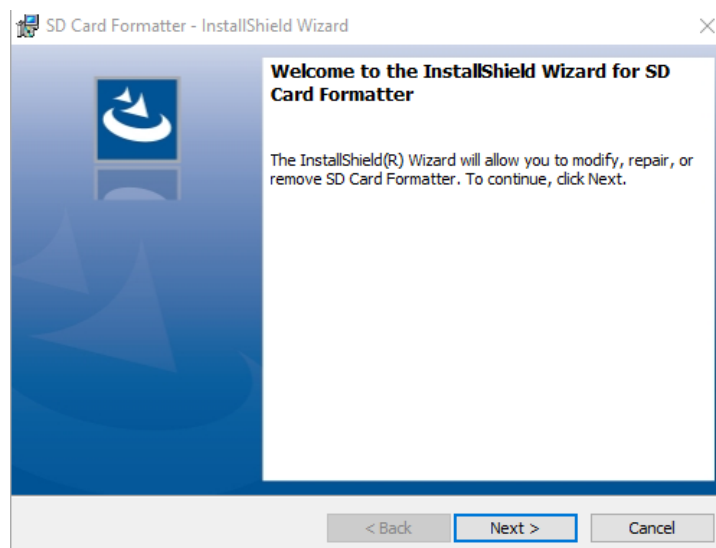
14. Open the zip file downloaded from the [sdcard.org](http://sdcard.org) site.



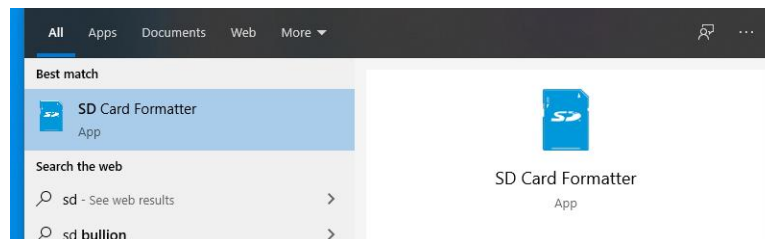
15. Access the SD Card Formatter Setup and double-click to Extract All.



16. The installer file is now available. Double-click to run and complete the install using the default values presented during the installation process.



17. The SD Card Formatter program will launch after the final installation step. It is also available using the Windows Search tool.

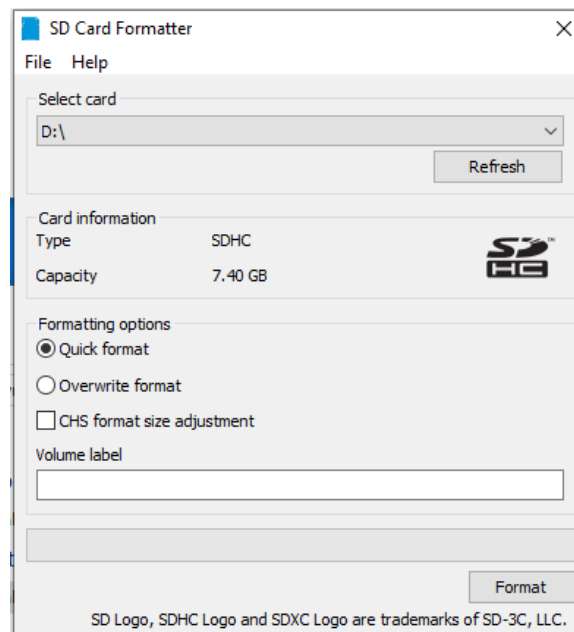


18. Insert your microSD card into the USB card reader as shown below. Insert the reader into a USB port on your workstation.

## piRover Builds with K2

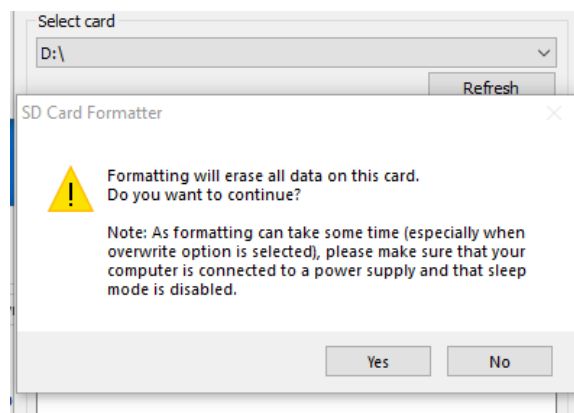


19. Below the “SD Card” is entered into the Windows search tool. The SD Card Formatter app is displayed. It has located on the microSD card as drive D:\



20. Click the Format button. Note the “Quick format” option is selected.

21. A warning is displayed. You are about to erase all data on this drive. Double-check to be sure you have the correct drive selected and click Yes to continue.



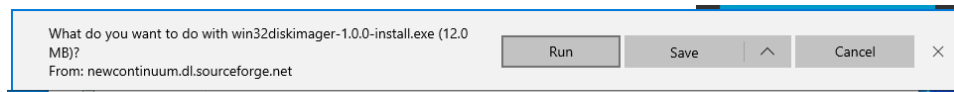
## piRover Builds with K2

22. Entering a volume label is the preferred action but this will be overwritten when the Yahboom image is copied during the next steps.

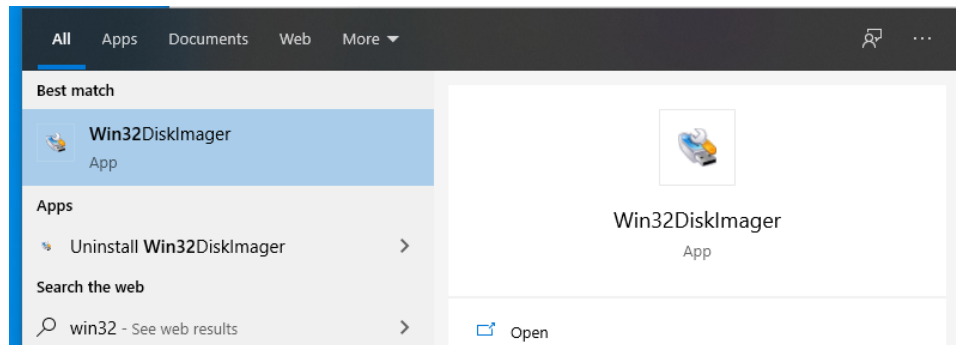
23. Download and install the Win32 Disk Imager using the link below. This is the go-to tool for managing disk images for the Raspberry Pi.

<https://sourceforge.net/projects/win32diskimager/>

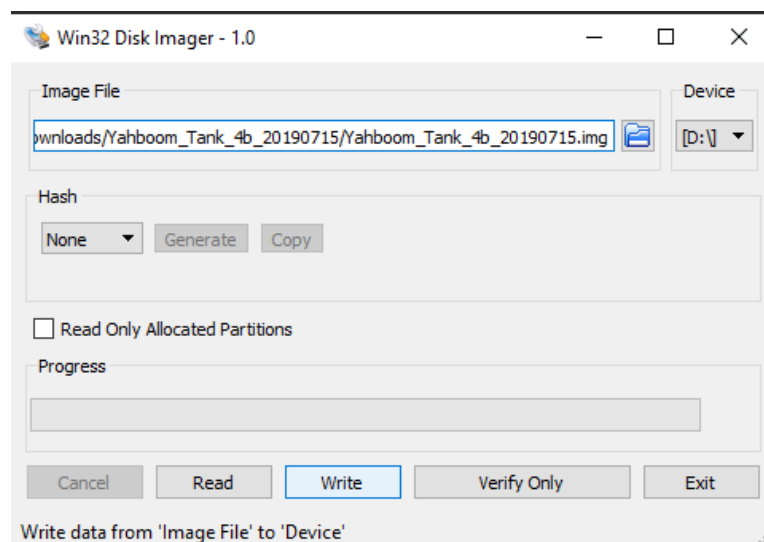
24. To install, click Run for the download.



25. Accept the default values to complete the installation. The imager will launch at the final step of the installation. You can always launch using the Windows Search.

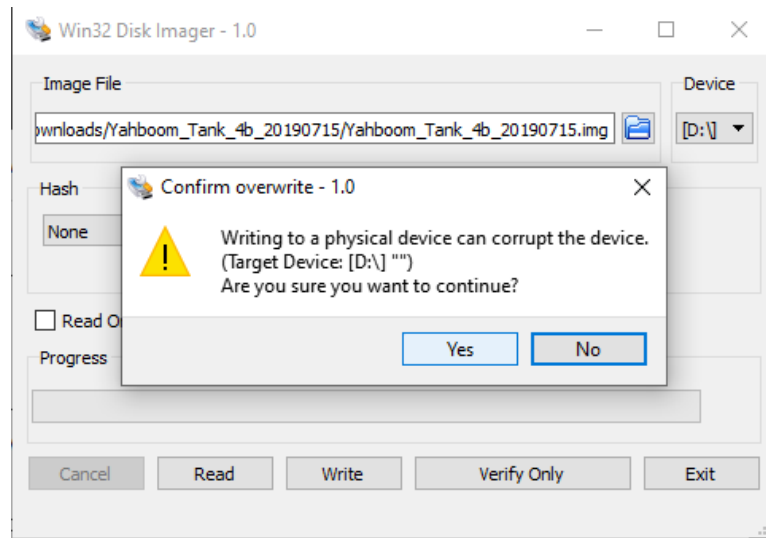


26. Use the folder icon provided next to the Image File text box to locate the Yahboom image downloaded in step 1.

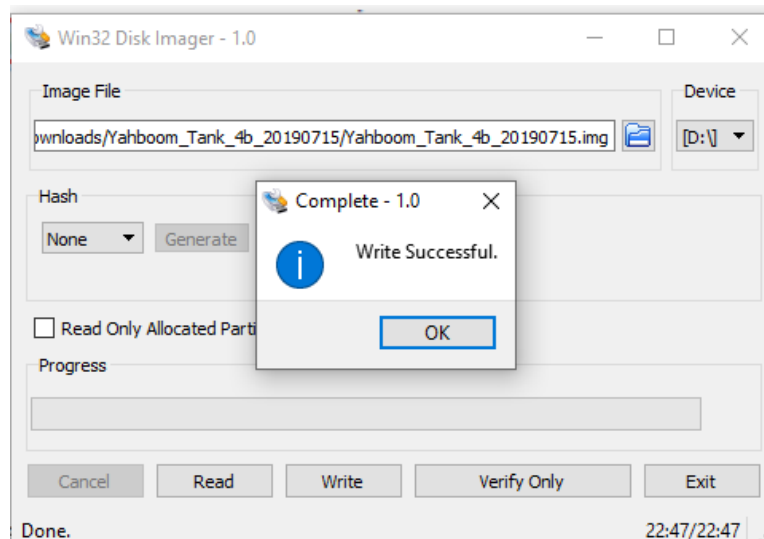


27. Click the Write button to write the image to your microSD card. Again, note the confirmation message. Be sure you are writing to the correct device before you continue!

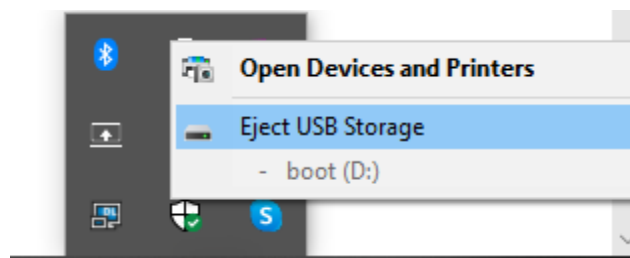
## piRover Builds with K2



28. The installation of the Yahboom operating system onto the SD card is complete.



29. Safely remove the USB card reader and MicroSD card from your system by ejecting.



30. The microSD card can now be inserted into the Raspberry Pi on the piRover. Boot your system with the new OS and connect using VNC.

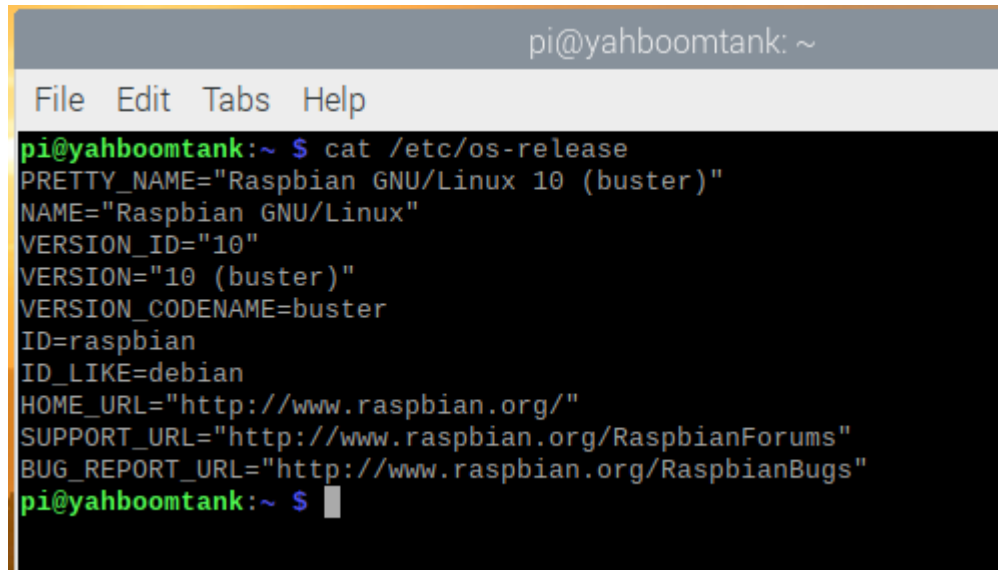
31. Open a terminal prompt and enter the following command to view the version of Raspian that is installed.



## piRover Builds with K2

**cat /etc/os-release**

32. You should see "Raspbian GNU/Linux 10 (buster)" as shown below.

A screenshot of a terminal window titled 'pi@yahboomtank: ~'. The terminal has a menu bar with 'File', 'Edit', 'Tabs', and 'Help'. The command 'cat /etc/os-release' has been executed, displaying the following output: PRETTY\_NAME="Raspbian GNU/Linux 10 (buster)", NAME="Raspbian GNU/Linux", VERSION\_ID="10", VERSION="10 (buster)", VERSION\_CODENAME=buster, ID=raspbian, ID\_LIKE=debian, HOME\_URL="http://www.raspbian.org/", SUPPORT\_URL="http://www.raspbian.org/RaspbianForums", and BUG\_REPORT\_URL="http://www.raspbian.org/RaspbianBugs". The prompt 'pi@yahboomtank:~ \$' is visible at the bottom.

```
pi@yahboomtank:~ $ cat /etc/os-release
PRETTY_NAME="Raspbian GNU/Linux 10 (buster)"
NAME="Raspbian GNU/Linux"
VERSION_ID="10"
VERSION="10 (buster)"
VERSION_CODENAME=buster
ID=raspbian
ID_LIKE=debian
HOME_URL="http://www.raspbian.org/"
SUPPORT_URL="http://www.raspbian.org/RaspbianForums"
BUG_REPORT_URL="http://www.raspbian.org/RaspbianBugs"
pi@yahboomtank:~ $
```

### Assessments:

Capture an image of your terminal window shown the Buster version of the OS installed. Save the file as **os-release.jpg**

Submit your screen capture with other required files in your weekly submission at the bottom of this week's Moodle section.