Bryce Tondryk
Pirate Strike
User Guide

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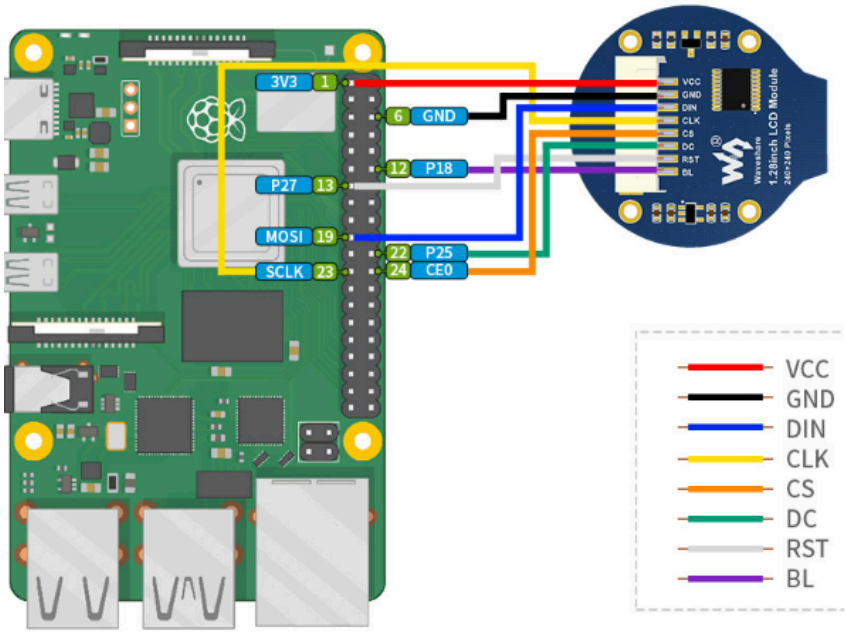
1. Installation

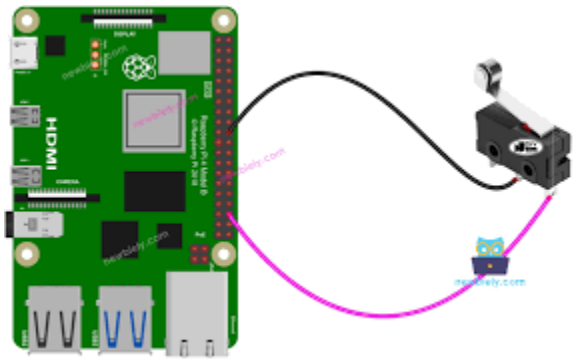
Pirate Strike will sell its gun completely assembled. This means that the 1.28 inch circular LCD screen is mounted in its position on the gun, the limit switch is in its correct position next to the trigger, and the Raspberry Pi is programmed with the correct script ready to run. This is designed to make it easier on the user, as it is much more complex if everything was sold separately. The only thing that the user needs to be able to do is remove the battery to charge it. Once the battery is charged, place it in its correct spot and plug it into the Raspberry Pi. When this image is displayed on the LCD screen, everything is working and ready to go!

2. Hardware Dependencies

There are two components of hardware that allow the gun to function properly. The first component is the circular 1.28 inch LCD display. The LCD display is wired as follows:



The second component is the limit switch. The limit switch detects changes in state and when the trigger is pulled, the limit switch is pressed, signaling that the Raspberry Pi should display an image on the LCD screen. Here is the limit switch wiring diagram:



The middle wire can go to any ground pin while the third wire must go to GPIO pin 16, as indicated in the model.
These components must be properly connected to the Pi in their designated spots for the gun to work as intended. Although these come wired properly, if the gun is mishandled, the wires could disconnect leading to malfunctions in use.

3. Running Software

The software runs automatically via a cron job. Ensure that the Raspberry Pi is connected to the battery supplied by pirate strike, and the software will run without user interaction. When the battery dies or the Raspberry Pi is disconnected from power the Raspberry Pi will power off. With the Raspberry Pi powered off, the software will not run.

4. Troubleshooting

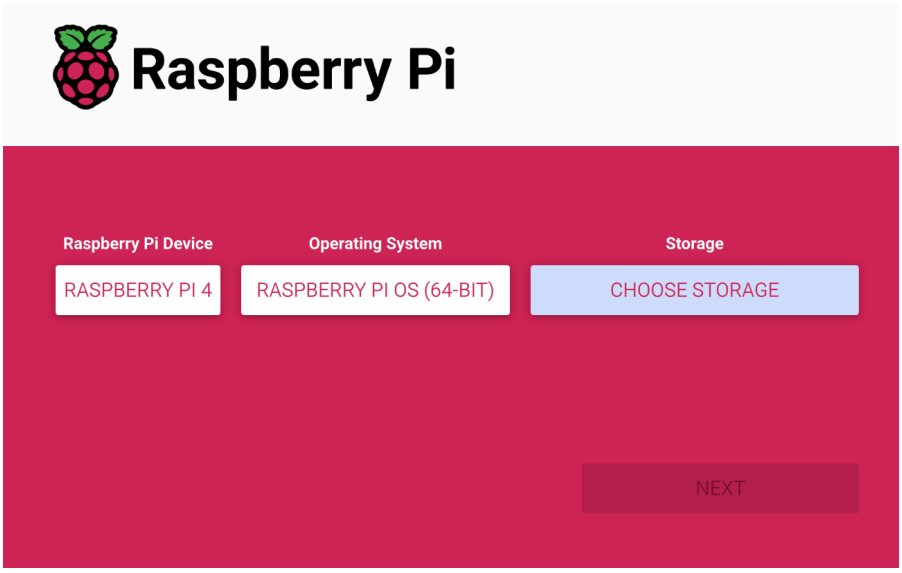
If the gun stops working, here are the first places to check that might be causing malfunctions.

1. Wiring: Take apart the gun carefully. Upon extracting the Raspberry Pi and its components make sure that the wiring matches the diagrams in section 2.
2. SD Card: Referring to the diagram in section 2, the SD card is located at the top of the Raspberry Pi. First pull the SD card out and place it back in properly. Then try powering the Raspberry Pi back on. If this resolves the problem you can stop reading here.
3. Raspberry Pi problem: If the problems persist please use the HDMI cord that came with the Raspberry Pi and plug the smaller end into the second or third port from the power supply. Connect the larger end to a monitor. The screen should look something like this upon boot up and at the end ask for a username and password.The username and password are both piratestrike. If you do not get to this point, skip to option 4. If you get to this point enter:

cd /home/piratestrike/LCD_Module_RPI_code/RaspberryPi/python/example/
Then enter: **nano piratestrike.py**
Compare this to the code on https://github.com/btondryk/CSC322_Final_Proj/blob/main/final.py
If the code is different you can either fix it manually or enter:
wget https://github.com/btondryk/CSC322_Final_Proj/blob/main/final.py

4. If the username and password is not displayed, there is generally some issue with the Raspberry Pi or SD card. If you have an SD card reader that can hook into your laptop, try looking at the three text files that will be on the SD card.
    a. Cmd.text
    b. Config.txt
    c. Issue.txt

    If those documents are filled with unusual characters it is probably a sign that the sd card is corrupted. Please contact piratestrike and we will send new parts or direct you on how to fix this problem.
5. The last thing you can do is to start from scratch. Take a new SD card and SD card reader and place it into your usb port on your computer.
    a. Download Raspberry Pi imager: https://www.raspberrypi.com/software/

b. 

The storage will be your sd card reader.
c. Enter settings
d. Let it download
e. Eject
f. Place SD card into Raspberry Pi
g. Enter username and password
h. Follow these instructions: https://www.waveshare.com/wiki/1.28inch_LCD_Module
i. Anything in the directions that requires pip install needs a virtualenv: use this article if confused: https://michaelriedl.com/2022/08/06/rpi-virtualenv.html
j. Once everything is done, navigate to this directory: cd /home/piratestrike(whateverusernameis)/LCD_Module_RPI_code/RaspberryPi/python/example
k. Then run: python3 1inch28.py
l. If this works then **wget https://github.com/btondryk/CSC322_Final_Proj/blob/main/final.py**
m. cd ..
n. cd pic
o. wget (all the pictures - will add to github in future)