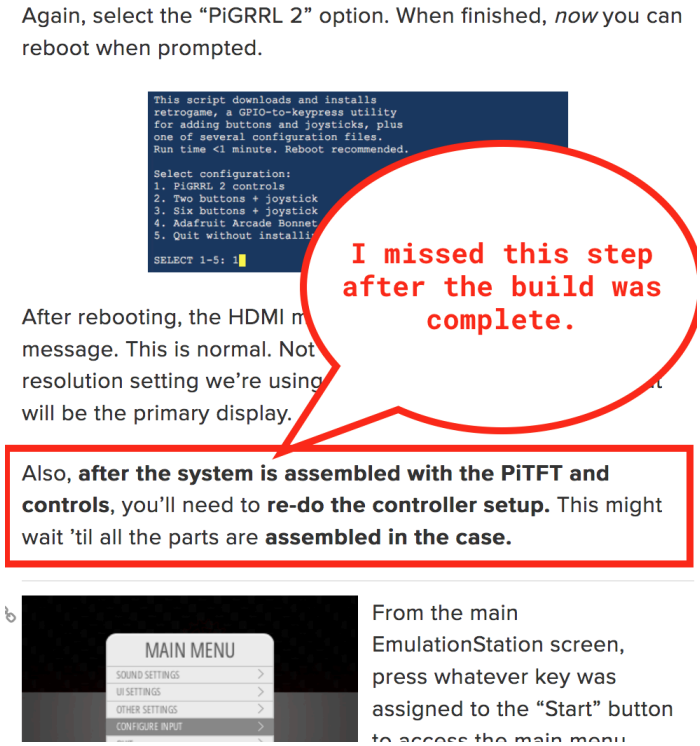
1. Download & Install Retropie
2. Turn On Wifi on Retropie
3. SSH Into Raspberry Pi
    a. Enable SSH in Retropie.
    b. Find your Raspberry Pi's ip address.
        a. To display all device ips: *nmap -n -sP 192.168.0.156/24*
    2. Type: *ssh pi@192.168.0.56* or *ssh pi@192.168.0.44* (or *ssh pi@<yourip>*)
        a. Password is *raspberry*
4. Follow Adafruit instructions for setup.
5. Copy roms to Raspberry Pi using SSH
    a. Use Cyberduck
        i. Username: pi
        ii. Password: raspberry
        iii. Hostname: retropie
        iv. Port: 22
6. IMPORTANT: AFTER the build was complete, I had to remap the Adafruit PCB gamepad using the "Configure Input" functionality in Emulation Station. I had to plug in the keyboard to press the "start" button. From there, I could configure the PCB gamepad the normal way.



From the main EmulationStation screen, press whatever key was assigned to the "Start" button to access the main menu

7. Custom Mods (sudo ~/RetroPie-Setup/retropie_setup.sh)
    a. Switch Theme
        i. *sudo ~/RetroPie-Setup/retropie_setup.sh* -> "configuration/tools" -> "esthemes" -> Activate the theme

ii. THEN you have to go the Retropie's gui on the tv/monitor and press "start" on the controller and switch the theme in the Retropie gui.
iii. Configuration(Tools)->ESThemes

b. Add custom loading/splash screen
c. Display game boxes instead of system text on game load screen
   i. *sudo ~/RetroPie-Setup/retropie_setup.sh* -> "runcommand" -> ...
d. Remove "Retropie Settings" menu from gui (for use in Kiosk modes, etc.)
   i. SSH into the Pi
   ii. *cd /etc/emulationstation/*
   iii. Copy the file into a backup: *sudo /etc/emulationstation/cp es_systems.cfg /etc/emulationstation/es_systems.cfg.toby.june16.2018.bak*
   iv. *sudo nano /etc/emulationstation/es_systems.cfg*
   v. Use html comments to comment out the Retropie menu: *<!-- blah blah blah -->*

```
  </system>
  <!--
  <system>
    <name>retropie</name>
    <fullname>RetroPie</fullname>
    <path>/home/pi/RetroPie/retropiemenu</path>
    <extension>.rp .sh</extension>
    <command>sudo /home/pi/RetroPie-Setup/retropie_packages.sh retropiemenu launch %ROM% &lt;/dev/tty &gt;/dev/tty</
    <platform/>
    <theme>retropie</theme>
  </system>
  -->
  <system>
```

e. Switch from full to kiosk to kid modes via command line:
   i. *sudo nano /home/pi/.emulationstation/es_settings.cfg*
   ii. edit the UI_mode value manually: <string name="UIMode" value="Full" />
f. Keep track of high scores
   i. sudo nano /opt/retropie/configs/all/retroarch.cfg
   cheevos_username = "toby@cryns.com"
   cheevos_password = "6YtppotdtrF)rQg"
   cheevos_enable = true
g. Fix screen resolution…
h. Define a fixed ip for the SD card
i. Use the PiTFT Buttons. [resource 1], [button mapping]
   Open "sudo nano /opt/retropie/configs/all/retroarch.cfg" and:
   i. Map the *volume up* to PiTFT button 1
      1. Uncomment "input_volume_up = kp_plus".
      2. Change it to: *input_volume_up = "escape" # PiTFT Button 1*
   ii. Map the *volume down* to the PiTFT button 2:
      1. Uncomment "input_volume_down = kp_minus".
      2. Change it to: *input_volume_down = "num1" # PiTFT Button 2*
   iii. Map the save button

1. Uncomment “input_save_state = …” and change it to:
   input_save_state = "num2" # PiTFT Button 3
2. Uncomment “input_load_state = f4” and change it to:
   input_load_state = "num3" # PiTFT Button 4

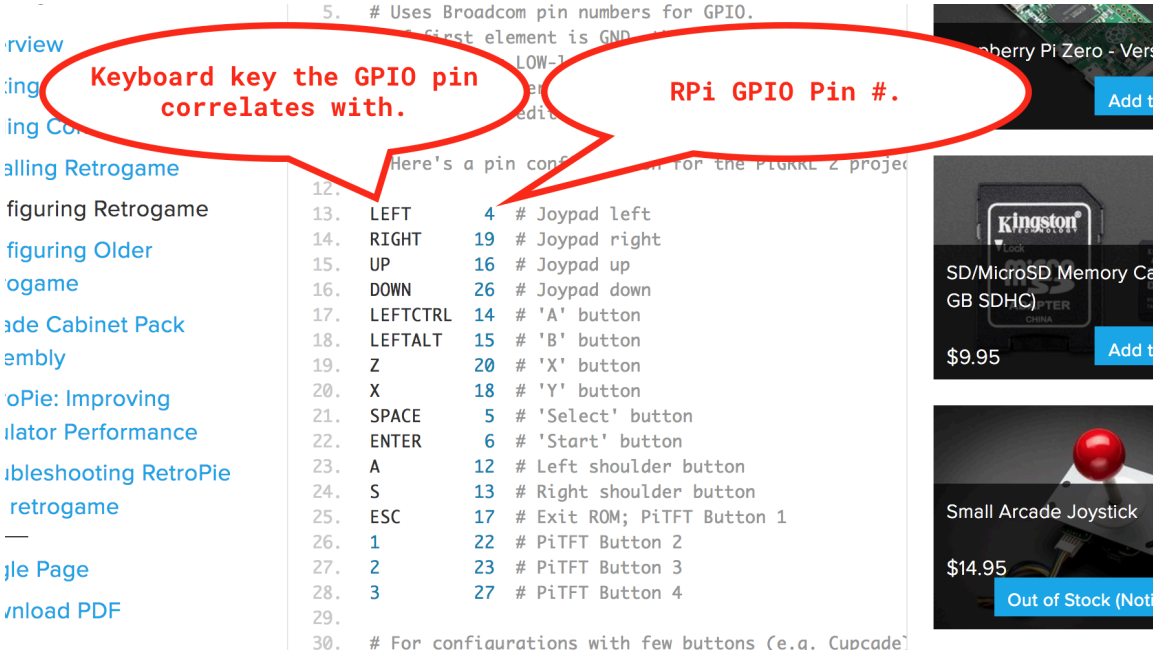
iv. Make it so that select doesn’t fast-forward.

1. Uncomment “input_hold_fast_forward = l” and change it to “input_hold_fast_forward = 999”
2. Uncomment “input_toggle_fast_forward = space” and change it to “input_toggle_fast_forward = 999”
   a. I.e. do nothing…

v. NOTE: Now you’ll press *SELECT + PiTFT#1* to save and *SELECT + PiTFT#2* to load.

vi. Available Keys:

```
#
#   left, right, up, down, enter, kp_enter, tab, insert, del, end, home,
#   rshift, shift, ctrl, alt, space, escape, add, subtract, kp_plus, kp_minus,
#   f1, f2, f3, f4, f5, f6, f7, f8, f9, f10, f11, f12,
#   num0, num1, num2, num3, num4, num5, num6, num7, num8, num9, pageup, pagedown,
#   keypad0, keypad1, keypad2, keypad3, keypad4, keypad5, keypad6, keypad7, keypad8, keypad9,
#   period, capslock, numlock, backspace, multiply, divide, print_screen, scroll_lock,
#   tilde, backquote, pause, quote, comma, minus, slash, semicolon, equals, leftbracket,
#   backslash, rightbracket, kp_period, kp_equals, rctrl, ralt
```



NOTES/RESOURCES:

- To check the controller config:
    - *sudo nano /boot/retrogame.cfg*
- Next time buy blue AND red wires
    - https://www.adafruit.com/product/1879
    - https://www.adafruit.com/product/2001
- My Adafruit Support Thread
- PiGRRL 2 How To on Adafruit.com
- If you accidentally set the "Select" button to "none" in Mame, we'll need to remove then reinstall mame4all or whatever Mame emulator we broke (source).
    - Delete this file: /opt/retropie/configs/mame-mame4all/cfg/default.cfg
    - Then after SSH'ing into the Pi and type:
      sudo ~/RetroPie-Setup/retropie_setup.sh
    - Then select: "Manage Packages"->"Main"->"mame4all"->"binaries"
    - https://github.com/RetroPie/RetroPie-Setup/wiki/First-Installation#installing-additional-emulators
- Use magnetic screwdrivers!
- The amp needs the small screws!
- Use Adafruit support.
- You've got to pull hard to disconnect the pitft screen from the Raspberry Pi.
- Note to self: Check out http://www.mrzeros.com/
- *SELECT + X* gets us to the RetroArch menu where we can hit "reset" on the NES. Booyah!
- *SELECT + PiTFT1* loads the saved game.
- *SELECT + PiTFT2* saves the game.
- *SELECT + LEFT/RIGHT* switches the save number (you can save unlimited states)
- Other mods
- Arcade Games
    - Retropie Arcade/Mame FAQ
    - Use "mame4all" emulator with ONLY MAME .37b5 roms on Raspberry Pi 0 & 1. [Compatibility list google doc]
    - Use "mame2003" emulator with ONLY MAME .78 roms on Raspberry Pi 2 & 3. [compatibility list google doc]
- N64 Roms [more info]