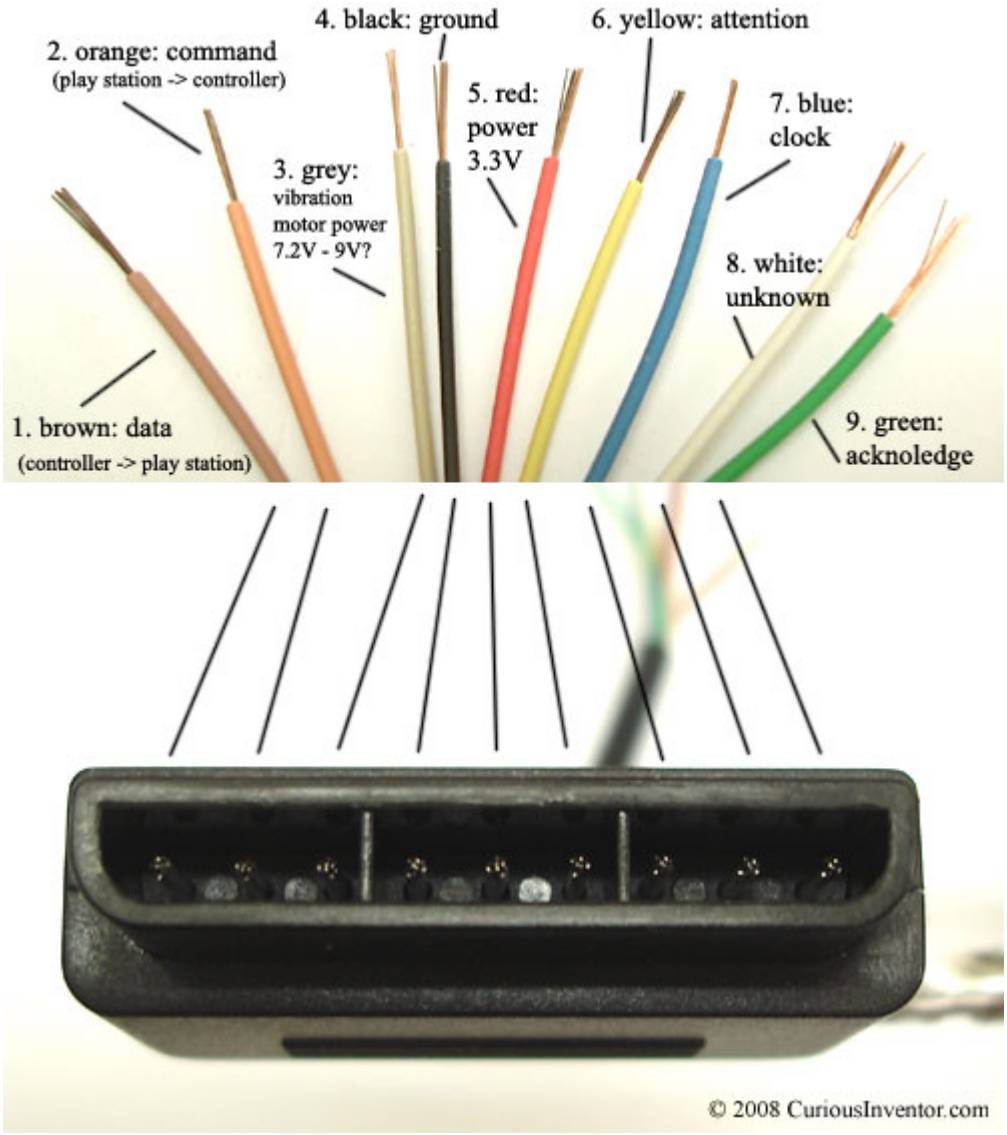
Setup Guide

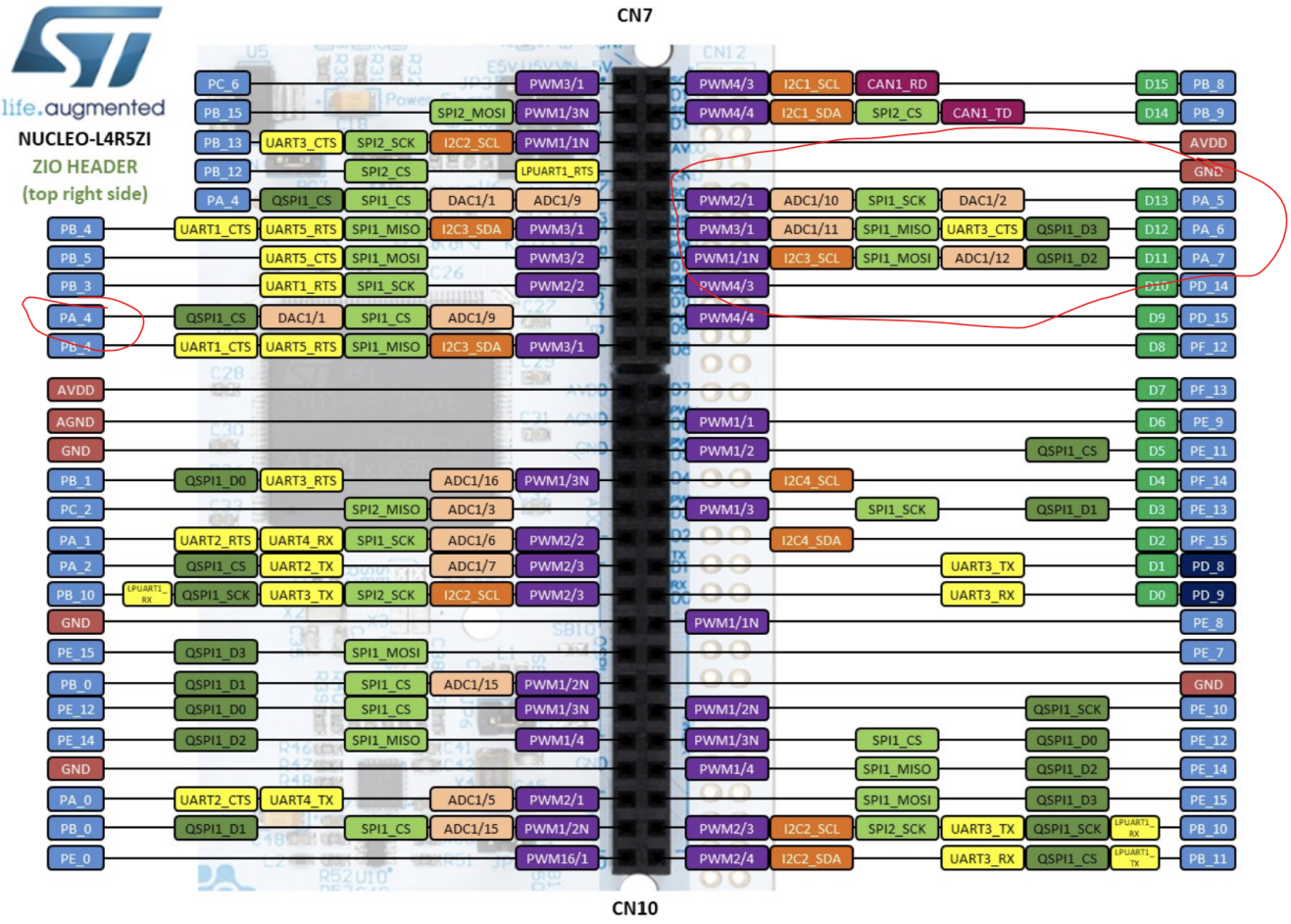
Wiring setup:



From left to right, wires should be connected to:

1. Brown -> A6, CN7 (MISO)
2. Orange -> A7, CN7 (MOSI)
3. Grey -> Not used (Motor controller? Might be interesting to explore later)
4. Black -> Ground
5. Red -> Says 3.3V, I found more success with the 5V supply
6. Yellow -> A4, CN7 (CS)
7. Blue -> A5, CN7 (SCLK)
8. Green -> Not used

NOTE: When I say A6, A7, etc., I mean ports (Like PA6, PA7, etc.), not analog pins. Use this diagram for reference:



Setting up the IOC:

1. Create a new project
    - Board selector -> Nucleo-L4R5ZI-P
    - Click continue
    - Do NOT initialize pins to defaults
    - Side panel -> Connectivity -> SPI1 -> Mode = Full Duplex Master, Hardware NSS Signal Disable
        - Parameter settings:
            - Data Size: 8 Bits
            - First Bit: LSB First
            - Prescaler: 64 (Could decrease, haven't tested)
            - CPOL: High
            - Clock Phase: 2 Edge
        - GPIO Settings:
            - Ensure you see PA5 for SPI1_SCK

- Ensure you see PA6 for SPI_MISO, **set to GPIO pull-up**
- Ensure you see PA7 for SPI_MOSI

2. OPTIONAL: Set up printf functionality (Good for debugging or visualizing values)
    1. Side panel -> Connectivity -> LPUART1
        - Mode: Asynchronous
        - Parameter Settings
            - Baud Rate: 115200 Bits/s
            - Word Length: 8 bits
    2. Right click on project name in the project explorer tab ALL the way on the left -> Properties
        - Go into C/C++ Build -> MCU Settings
        - Enable first checkbox on the bottom (Use float with printf from newlib-nano)
    3. Open Arduino IDE (Putty also usable, I just have arduino)
        1. File -> New Sketch
        2. Select Board -> Select whichever one the STM board appears on
            - If it doesn't appear, go to Device Manager from the windows settings, look under "Ports (COM & LPT)", figure out which one has the label STMicroelectronics STlink Virtual COM Port (COM4), and whatever's in the parentheses (mine is COM4), select that in arduino
        3. Tools -> Serial monitor
            - Ensure baud rate at the bottom right is set to 115200
    - If these steps don't work or you don't want to use arduino, see this link for alternatives:
        - https://docs.google.com/document/d/1wHqY2mj5vSRLN-8riEKG_4z_IsbV6kCAaLI3gJkkE8w/edit?usp=sharing