Getting Started

We start off with making the circuit connections between the various components in accordance with the **'1MotorWiring'** in 'Circuit Diagrams' directory.

Almost all connections can be made using 22-gauge wires. I used solid instead of stranded because I didn't want any fraying issues. I chose to use jumper wires for connections between the stepper motor driver and the RPi as using a standard 22-gauge wire would have connection issues on the RPi side.

Before starting with any connections, we need to find appropriate connector between the ports on the stepper motor driver and the motor itself. The motor we are working with comes with a wire attached to it and the connector type is 'Conxall/Switchcraft 3382-4SG-315'.

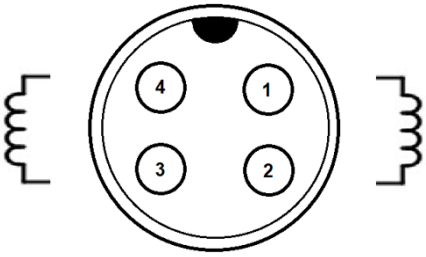
So, we bought 'Conxall/Switchcraft 3382-4SG-521' male connector and soldered 4 separate 22-gauge wires on it.

I chose to find out which pins were connected to the same motor winding and use different colour wires for each winding (Yellow for winding A, and White for B) so that I won't get confused later on when making connections on the motor driver.

To figure out which pins are connected to the same motor winding (to find A+, A-, B+, B-):

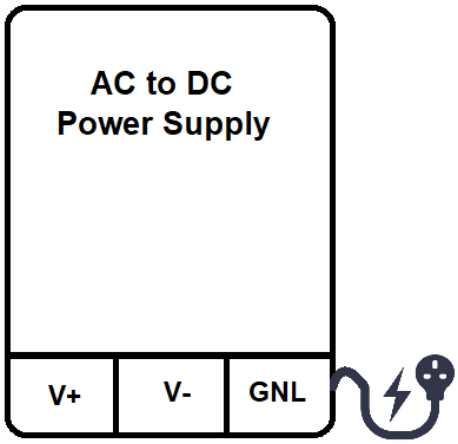
1. Take a simple multimeter and set it to resistor mode
2. Put one probe on one of the pins and the other on any other
3. If you see resistance value, then those pins are connected to same motor winding i.e. they are (A+ and A-) or (B+ and B-)
4. If there is no value displayed, the pins belong to different windings

Following the steps above, this is how the motor windings are on the pins



After the wires have been soldered on the connector, it's time to make the connections.

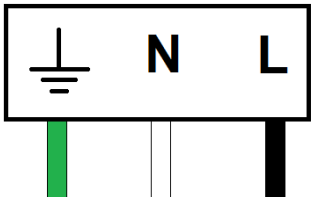
1. Firstly, we connect a cable to PSU so that it can be plugged into the AC power supply.



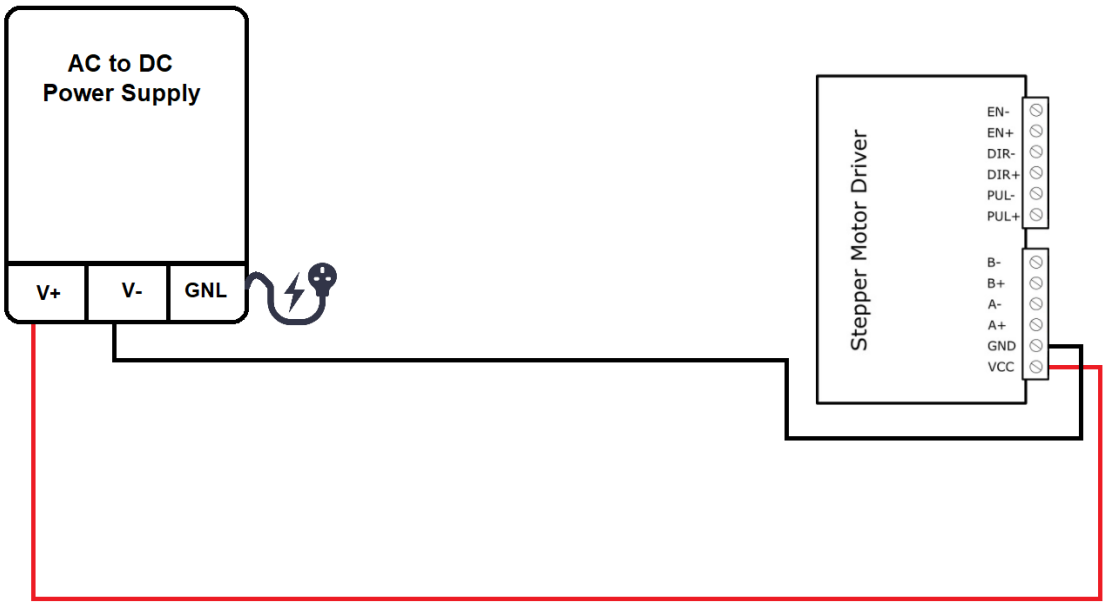
There is no cable already connected so we take a power cable and cut the cable to expose wires on the end opposite to the one with the plug (one crossed out in the image).

Strip the cables and use the connectors like shown below to have a safe and reliable connection between the PSU and the wires in the cable.

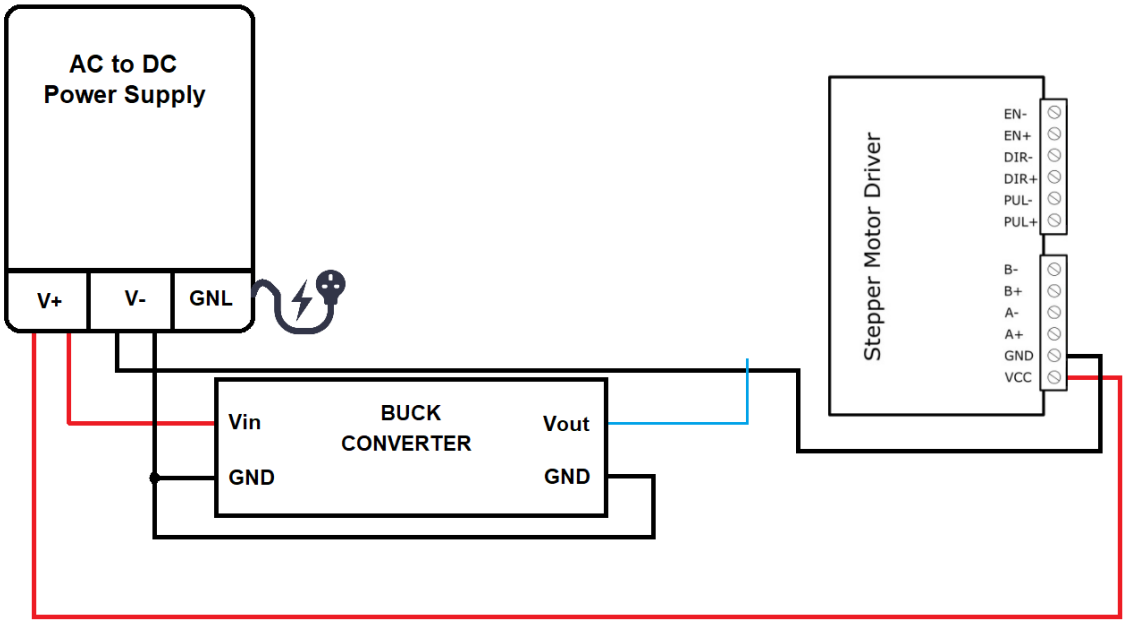
The cable will have 3 wires, Black, White, and Green. The connections are as follows:



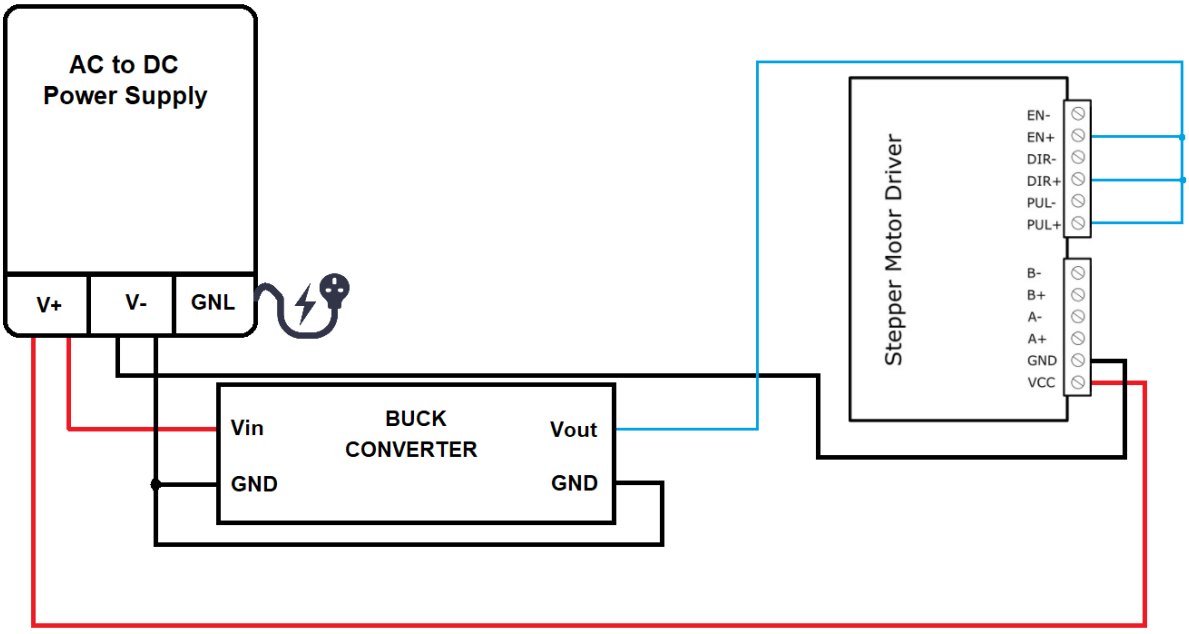
2. Next, make the connection between PSU and the stepper motor driver (AC+ and the AC-).



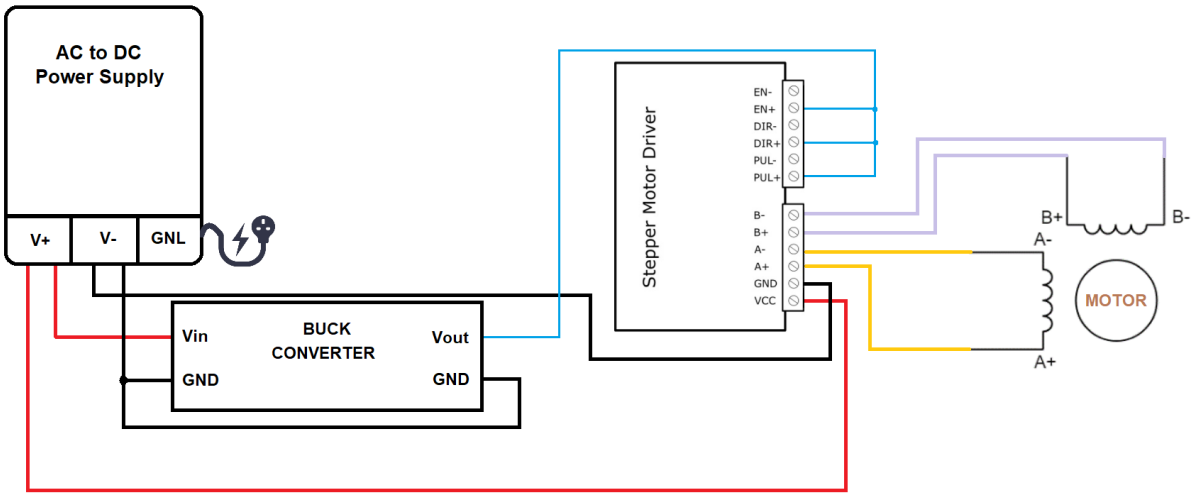
3. Then connect the Buck converter to the PSU



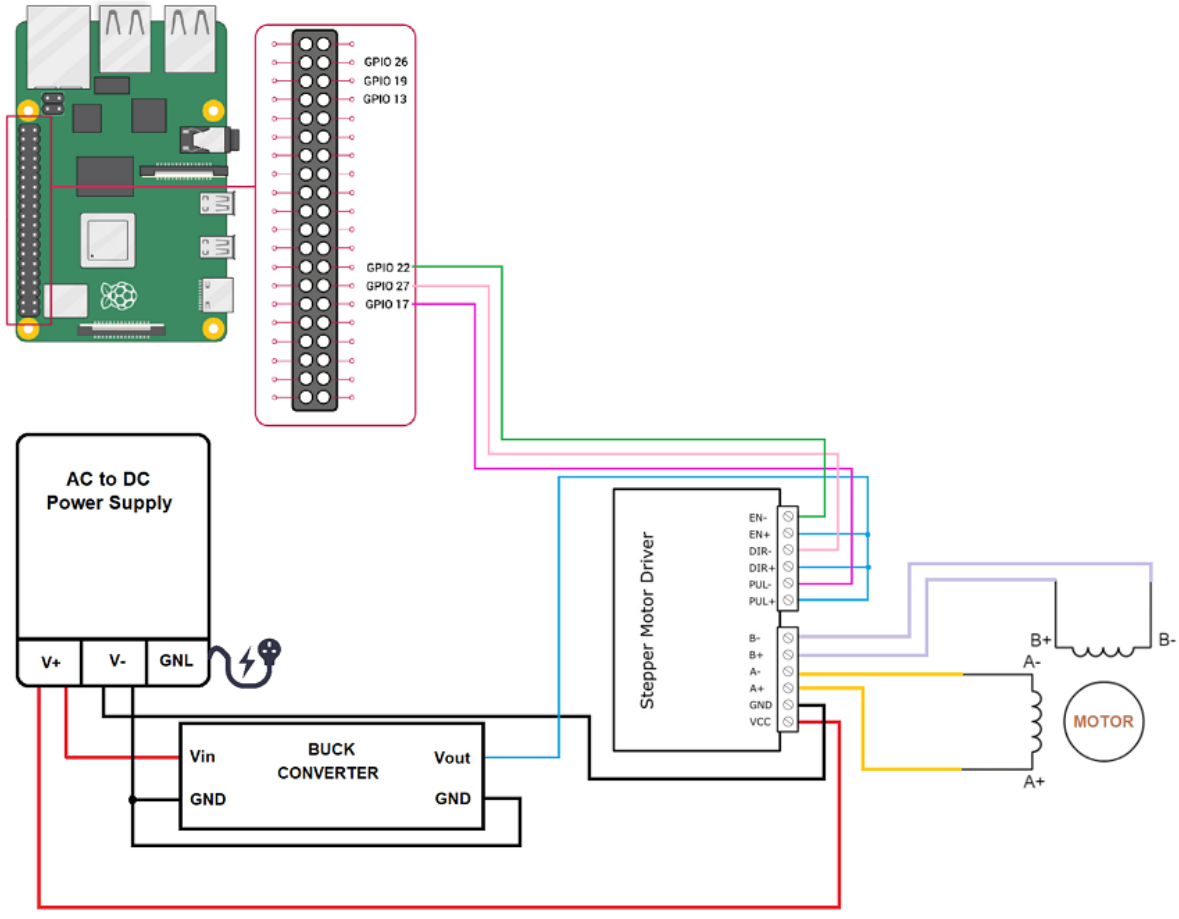
4. Next step is to connect the ENA+, PUL+ and DIR+ of the stepper motor driver to the 3V output of the buck converter.



5. Then I connected the 4 motor wires on the stepper motor driver. Since I had connected same colour wired to 2 ends of same motor windings, I can choose to connect 1 winding to either A set or B. Also, it doesn't matter which is connected to which one because the connection is only going to affect which direction your motor rotates in.



6. Finally, we use jumper wires to make connections between stepper motor driver (ENA-, PUL- and DIR-) and the RPi.



And that's it, the setup is complete, now the RPi can be powered up, the code from the 'Codes' directory can be used to move the motor accordingly. I recommend using 'Simple Forward Motion.py' for the first time.