Reach Robot NANO
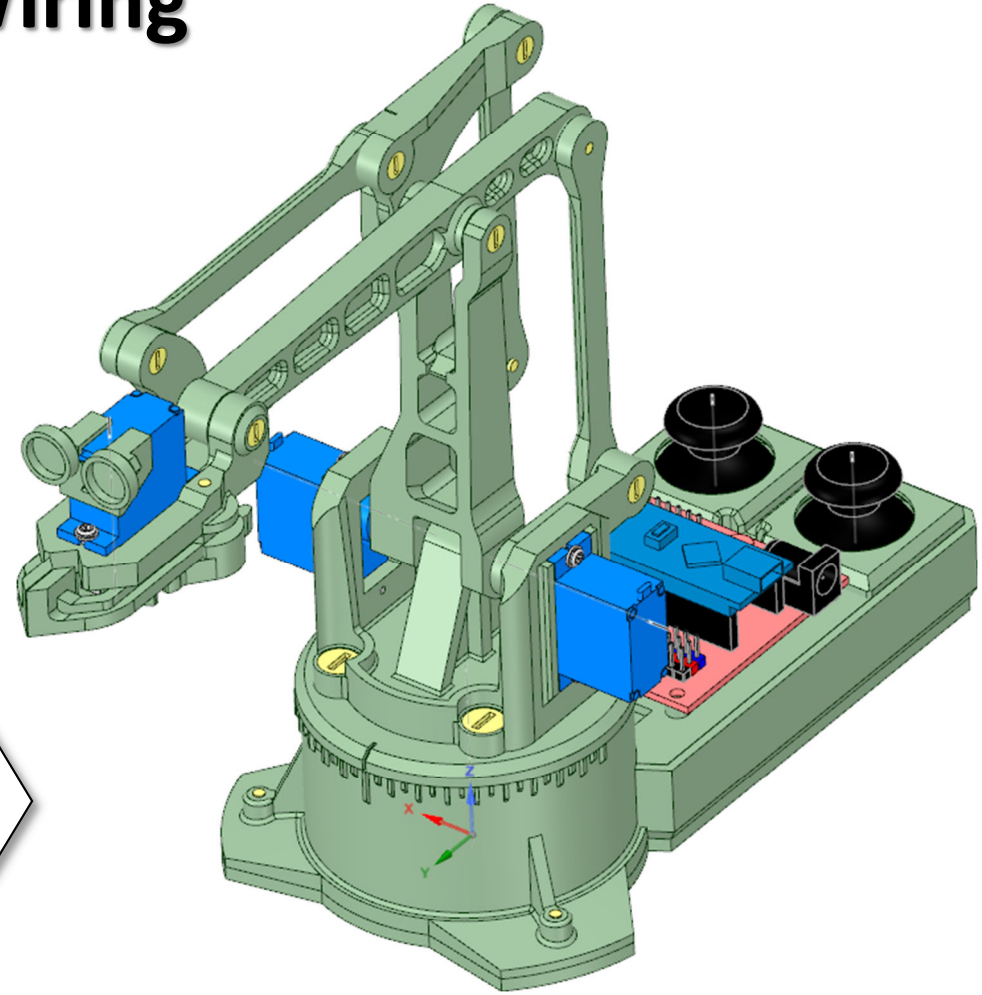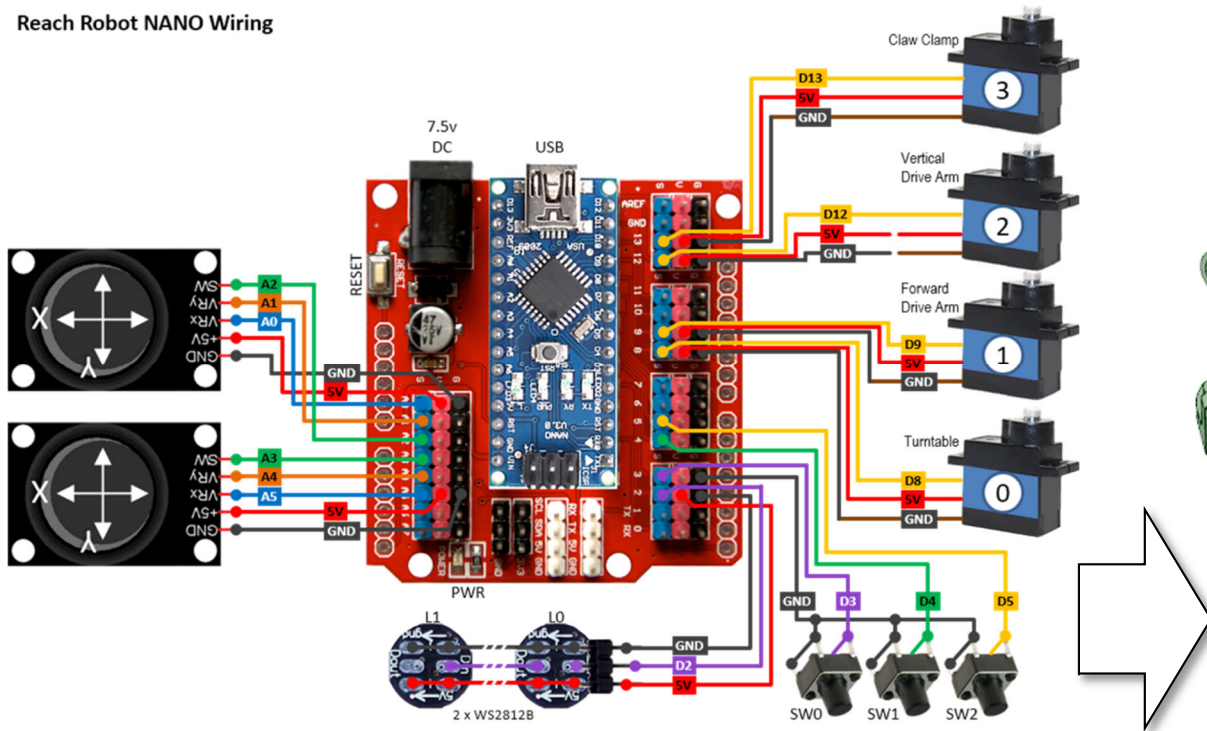## Circuits & Wiring

Reach Robot NANO Wiring

Hand Tools:

Recommended:
    Fine Nosed Pliers
    Side Cutters
    1.5 mm Drill
    2.0 mm Drill
    4.0 mm Drill
    Needle Files
    Screwdrivers
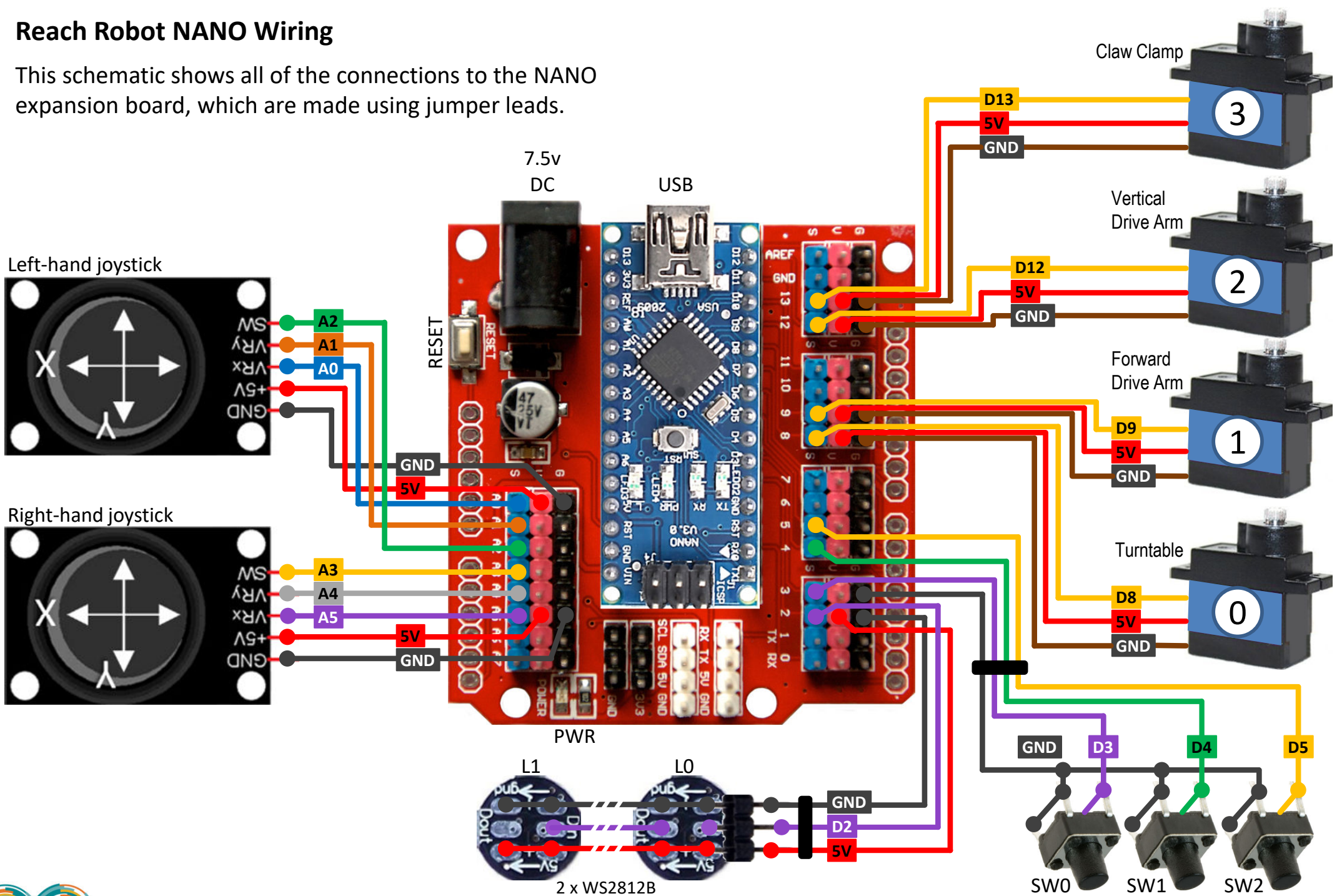   Craft Knife

Note: Not all items needed are shown here.

Tools & Materials:

Temperature controlled iron
Solder flux
Resin cored solder
Hot melt glue gun
2-part epoxy resin glue
Screw drivers
Wire wrapping tool
Wire wrapping wire 30 AWG
24 AWG stranded wire (red & black)

Reach Robot NANO Wiring

This schematic shows all of the connections to the NANO expansion board, which are made using jumper leads.

Claw Clamp — 3 — D13, 5V, GND

Vertical Drive Arm — 2 — D12, 5V, GND

Forward Drive Arm — 1 — D9, 5V, GND

Turntable — 0 — D8, 5V, GND

Left-hand joystick — SW: A2, VRy: A1, VRx: A0, +5V, GND

Right-hand joystick — SW: A3, VRy: A4, VRx: A5, +5V, GND

7.5v DC

USB

RESET

PWR

L1   L0   2 x WS2812B — GND, D2, 5V

GND, D3, D4, D5

SW0   SW1   SW2

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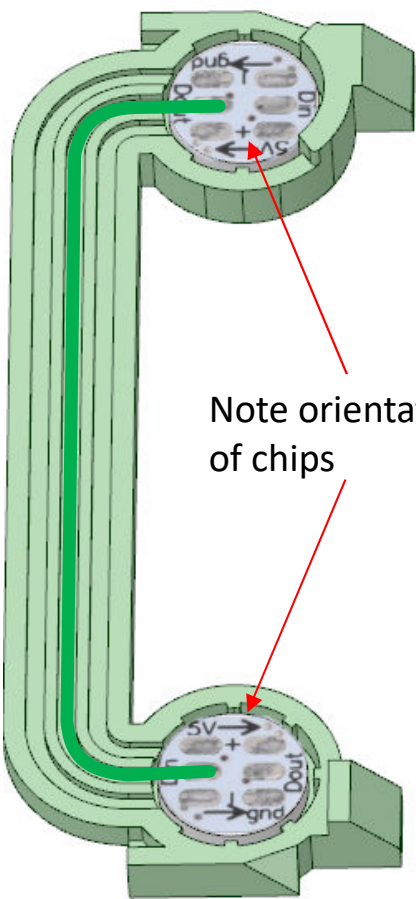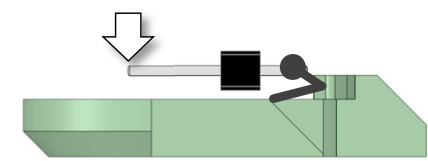
Base Wiring

The three button switches are wired to a 6-pin strip (end pins removed). Jumper wires can then be used to connect to the NANO expansion board.

Button switch connections are like two staples, so they are wired like this.

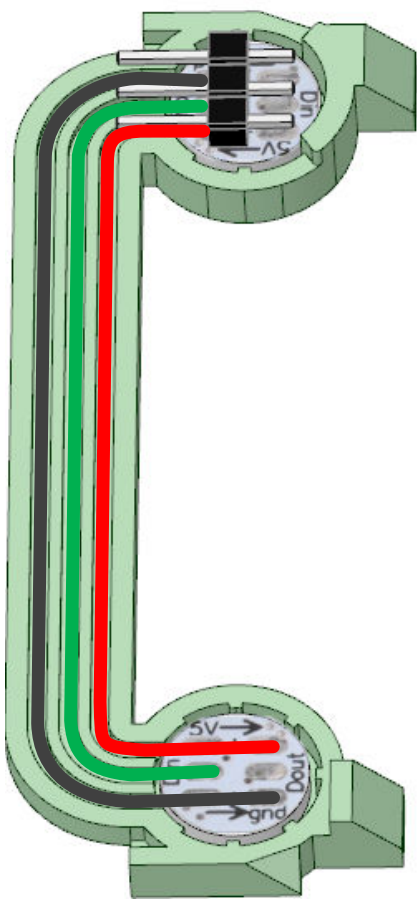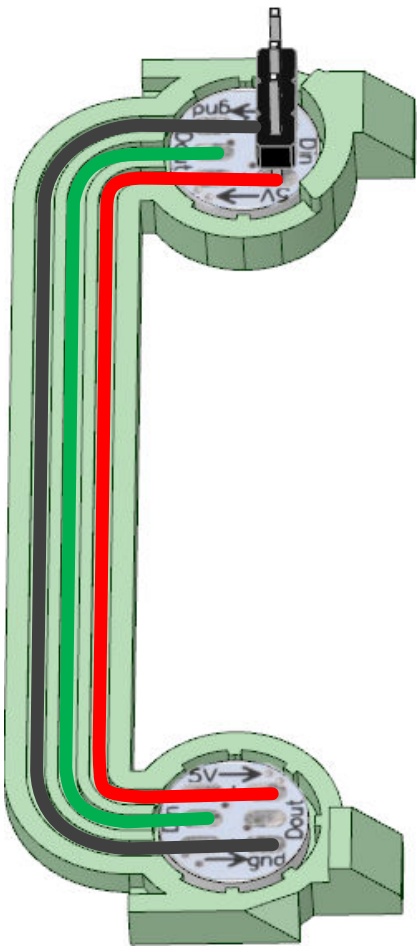Issue: 1.0   Released: 20/09/2022   **TechKnowTone**
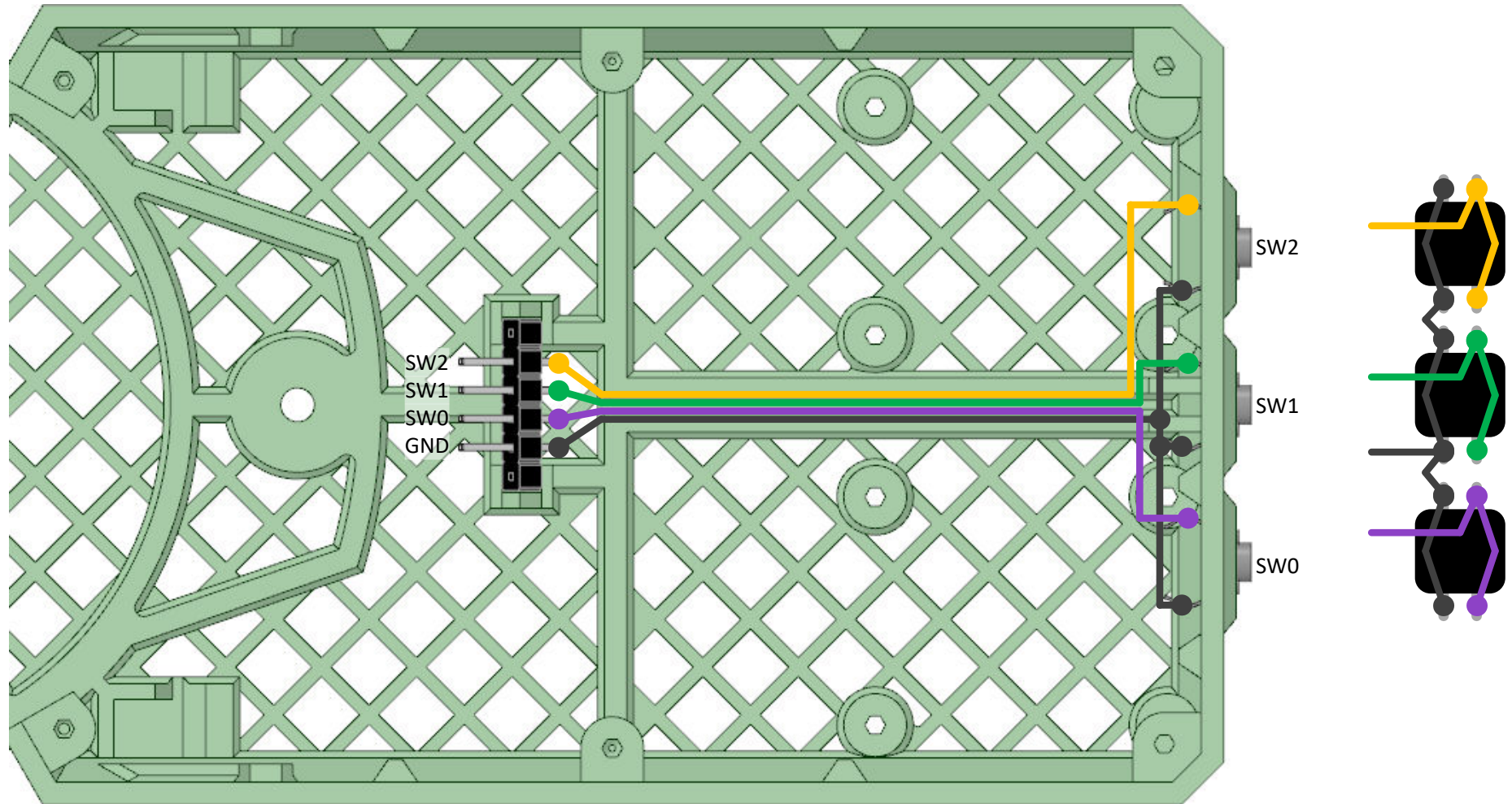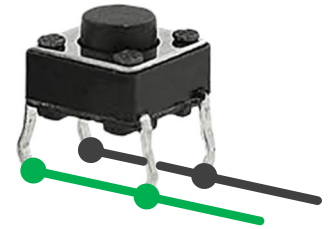
WS2812B Wiring

Follow this sequence to complete the WS2812B mount:

Note orientation of chips

Attach two wires to the outer pins of the 3-pin strip. They don't need to be insulated.

Connect the centre data wire, by soldering it onto the pads. It runs from D_{out} to D_{in}, and fits into the centre of the printed guide rail.

Attach the 3-pin strip and wires as shown, by soldering the wires onto the pads, not the pins onto the pads. See why in next step.

This allows the wires to be bent, as the pin strip is pushed down towards the chip. Once tested apply glue to the 3-pin strip and wires.

Expansion Board Wiring

The colour of jumper wires used to connect to NANO expansion board do not need
to match this diagram. Use the wiring diagram to determine the connection points.
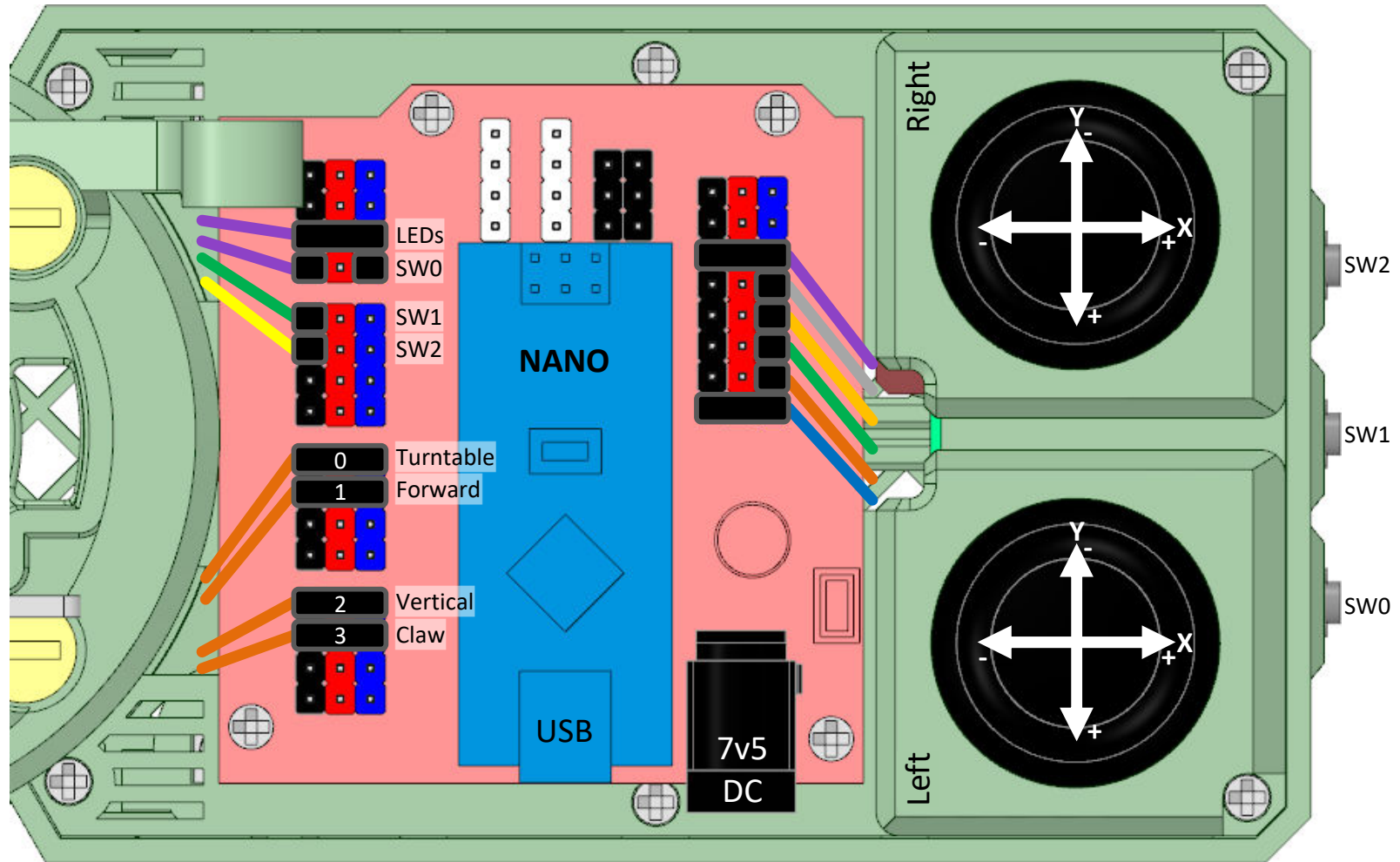
Note that, due to their orientation, the joystick values are effectively reverse, and one would think of Y direction
being X, and vice versa. Your code will need to correct for this.
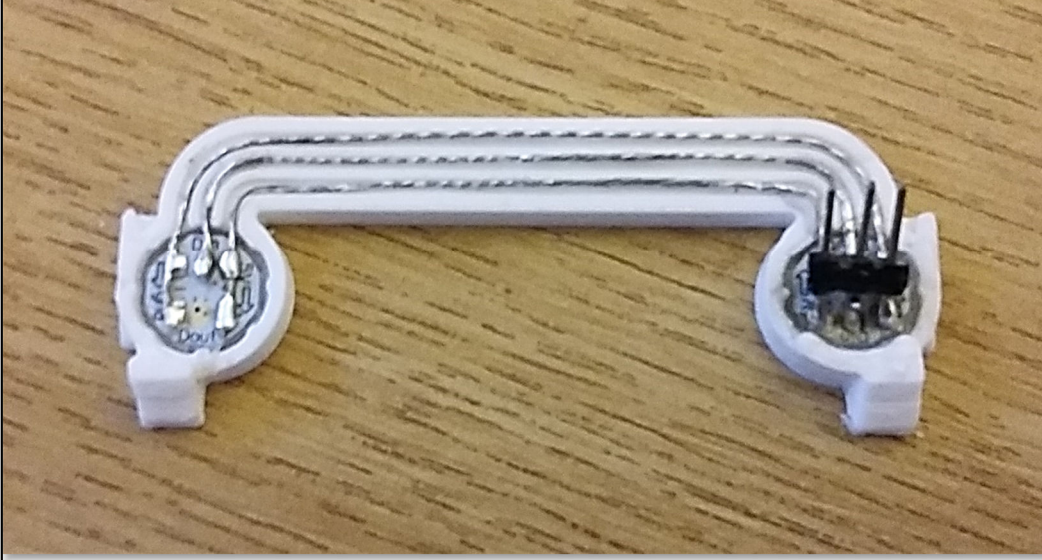
Photos From Wiring Sequence
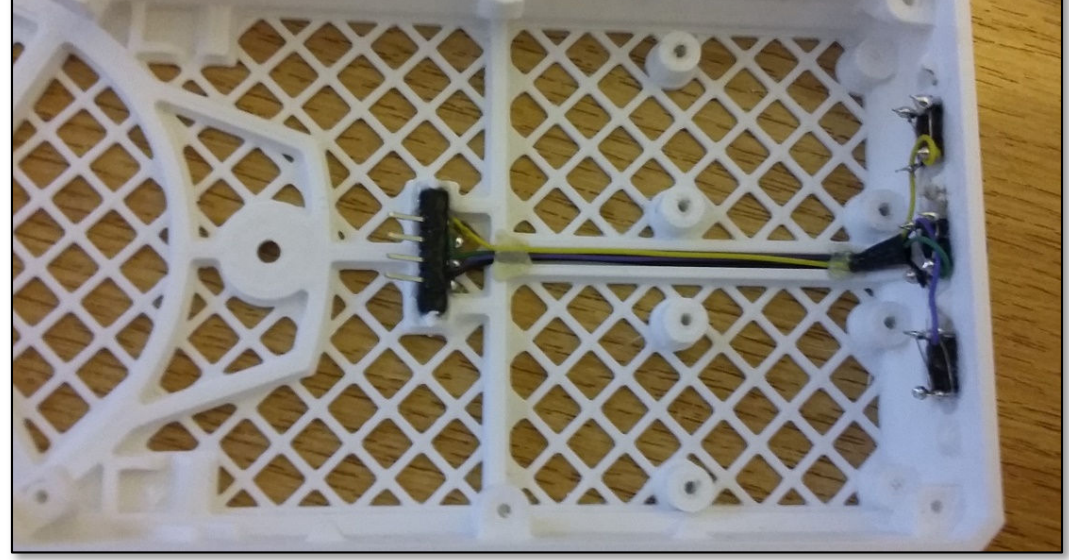
01 Button switches pressed into case before gluing
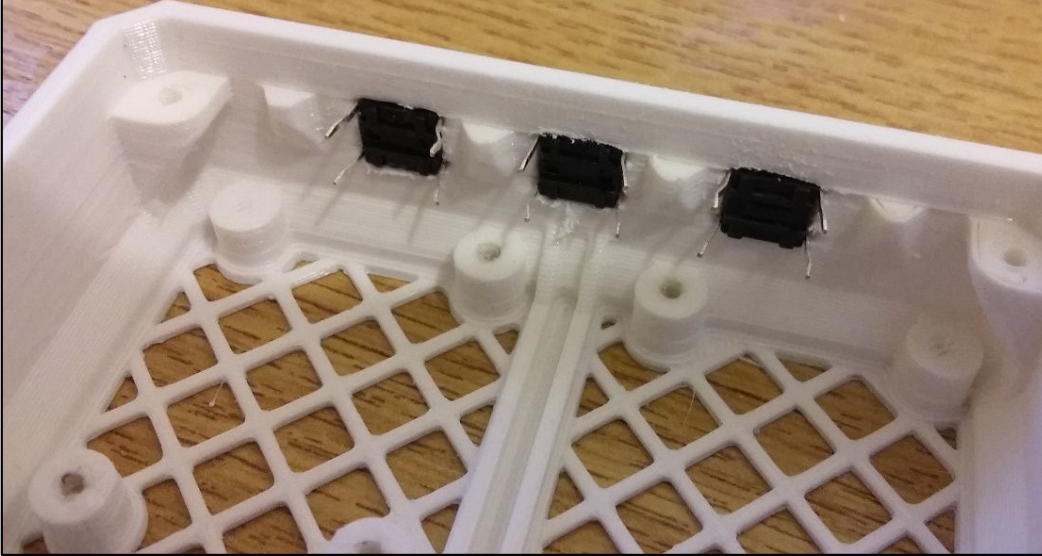
02 RGB LEDs glued into position and data wire attached

03 RGB LEDs wired to 3-pin plug

04 Button switches wired to 3-pin plug in base

Wiring Sequence

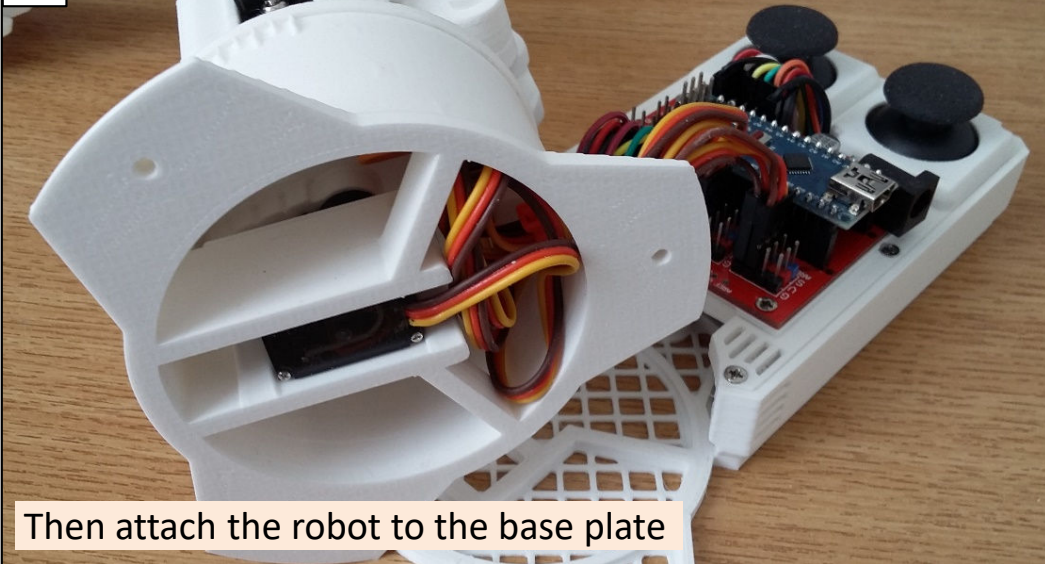**05** Jumper wires are looped and tied

07

06 Gather servo wire excess at rear of robot

Then attach the robot to the base plate