# Adaptive Button

## 3D Printing, Soldering, and Assembly Directions

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# Adaptive Button

## 3D Printing Instructions

1.) Download the device file from the virtual library.

2.) Open PrusaSlicer and click the “Add…” button (see Figure 1), then select all the device’s parts files from the downloads folder.

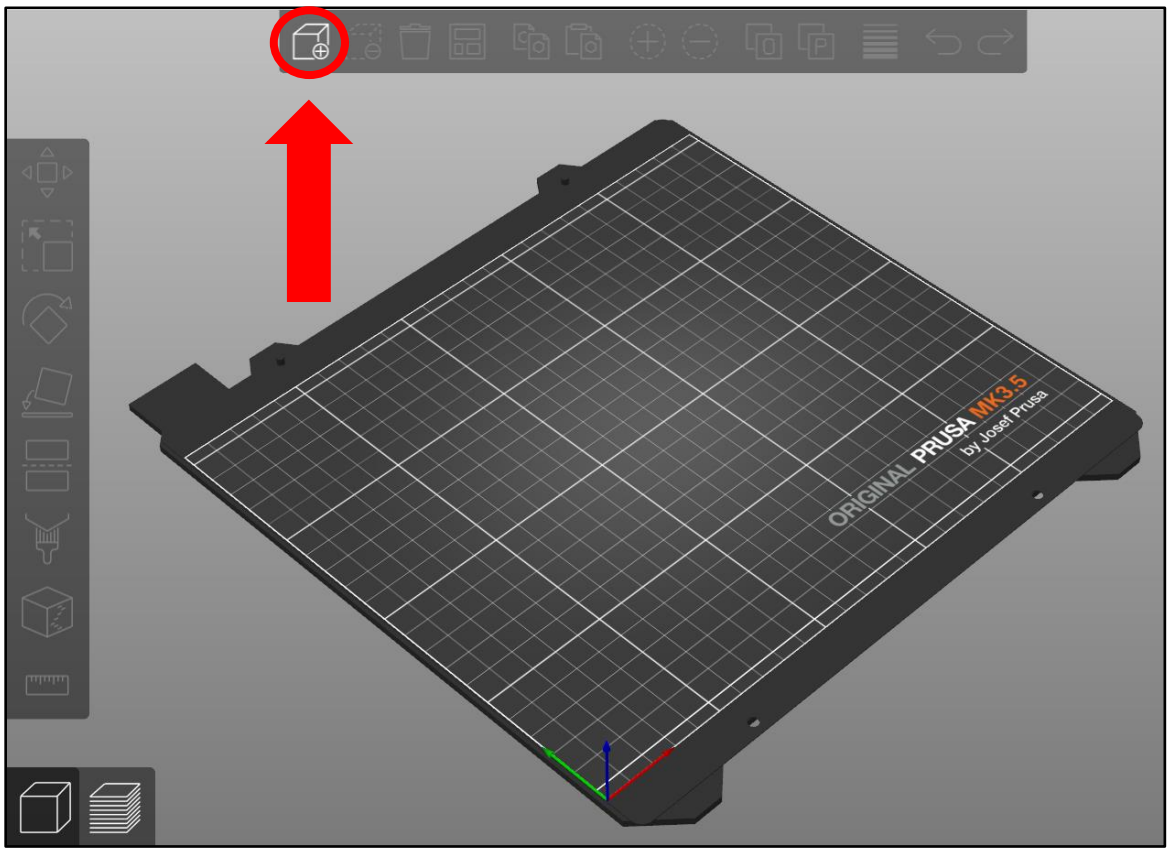


Figure 1. Button to Import Files into PrusaSlicer.

3.) Orient all the parts on the plate so that each part spaces away from each other with appropriate room for support and brims.

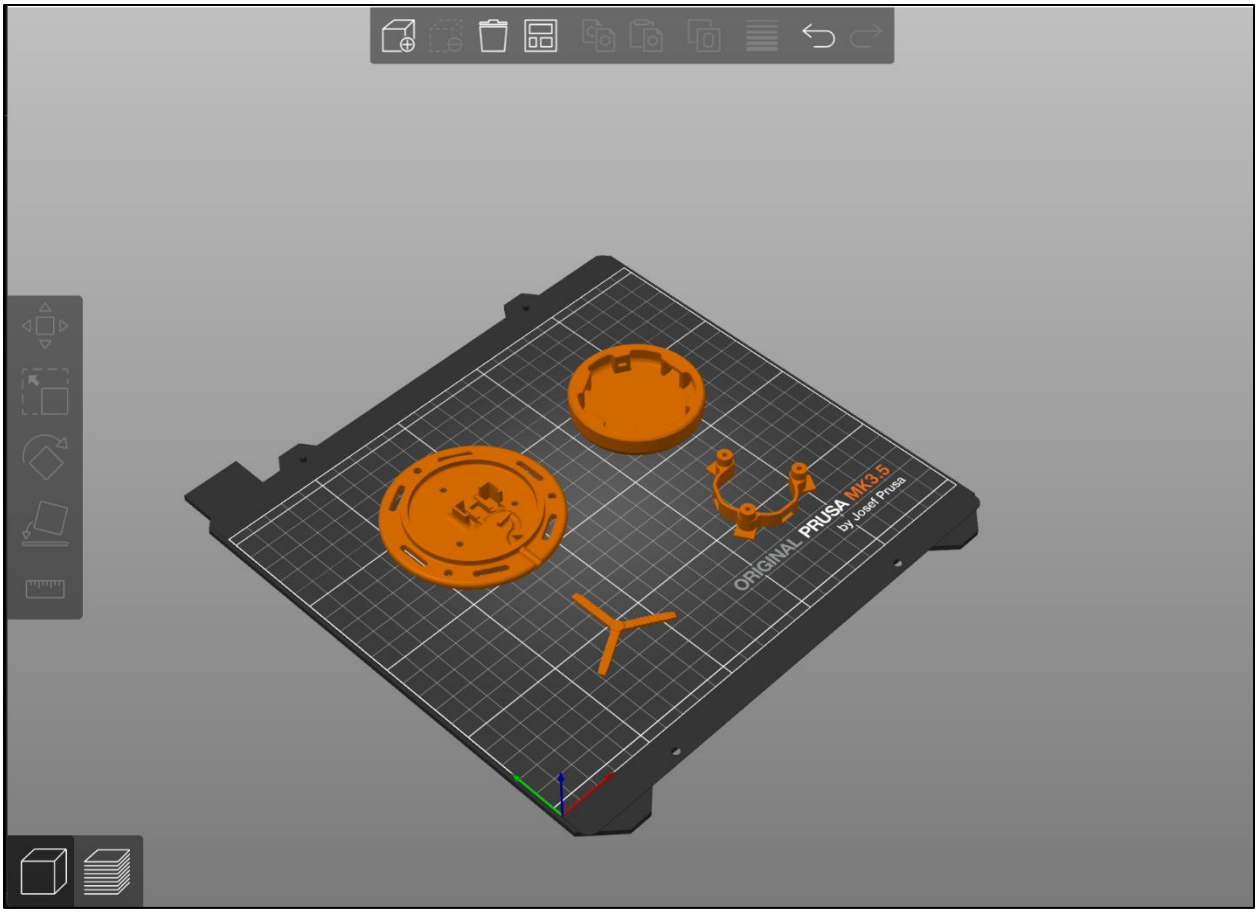


Figure 2: Suggested placement

4.) Go to the “Print Settings” tab in the top left corner of PrusaSlicer and change the number of perimeters to 4 (see red arrow in Figure 2). Then double-click on the “Infill” subtab (see blue arrow in Figure 2).

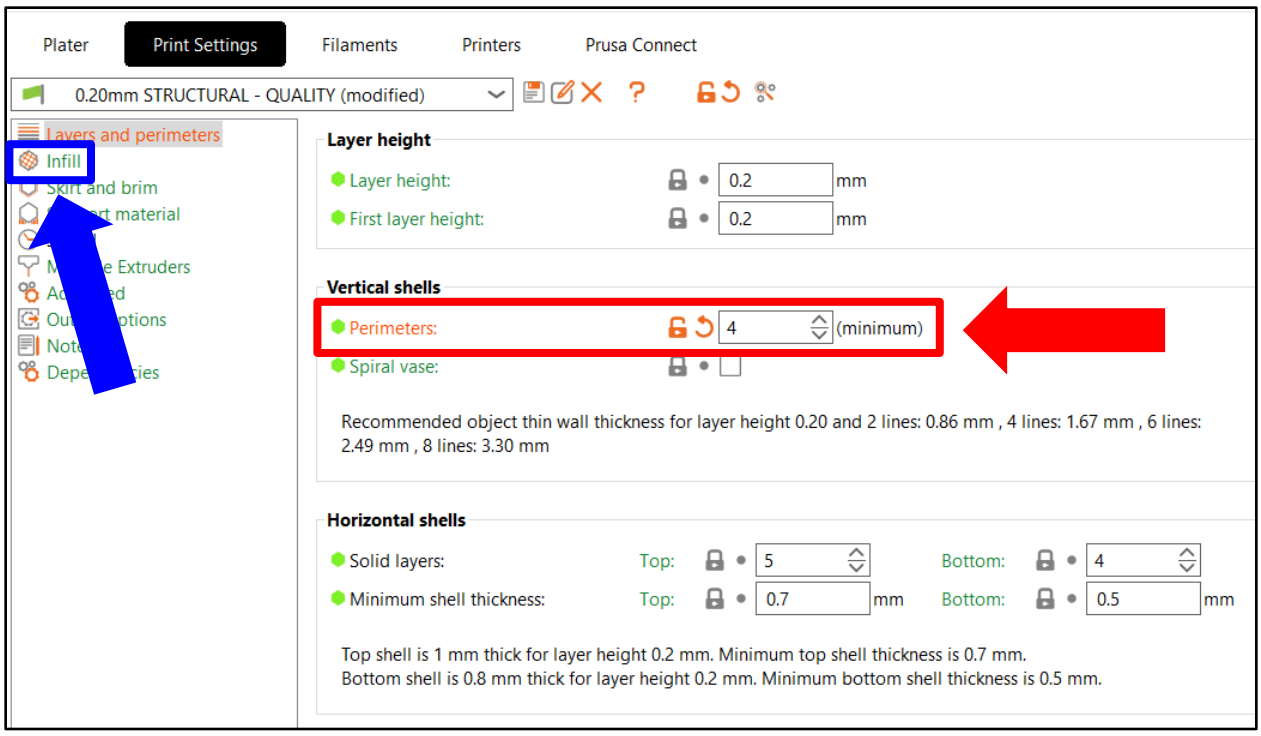


Figure 3. Adjusted Perimeter Settings.

5.) Change the fill density to % and the fill pattern to Gyroid (see red box in Figure 3).

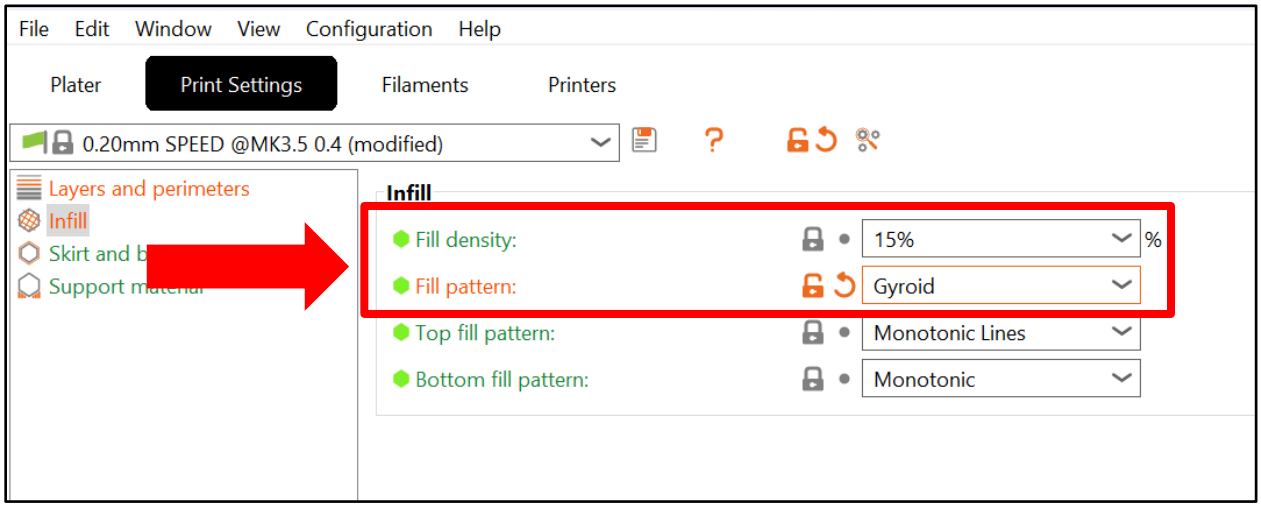


Figure 4. Adjusted Infill Settings.

6.) Go back to the “Plater” tab in the top left corner of PrusaSlicer. Then click the “Print settings” drop-down menu and select the 0.20mm SPEED (modified) option (see red arrow in Figur e 4).

a. *Note:* The titles of each print setting option will vary slightly between printer models, so there may not be an option matching this wording exactly – that's ok! What's important is that you select one of the 0.20mm options.

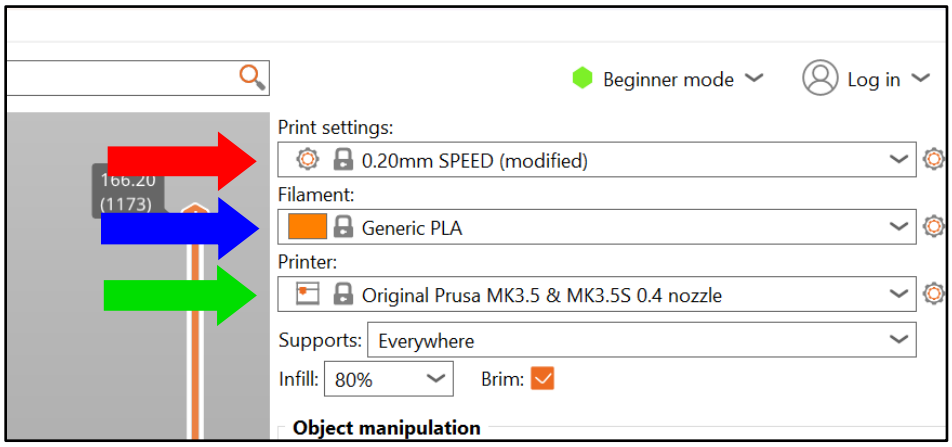


Figure 5. Main Plate Settings.

7.) Open the Filament drop-down menu (see blue arrow in Figure 4) and select the filament type you want to print in.

a. *Note:* The recommended material for this device is PLA, but PETG is also acceptable.

8.) Open the Printer drop-down menu (see green arrow in Figure 4) and select your printer make and model.

a. *Note:* If you don't see your specific printer in the drop-down menu, follow these instructions to add them: https://help.prusa3d.com/article/configuration-wizard_1754

9.) In Supports, choose everywhere to set up support for the parts and check in the Brim box to create brim profile.

10.) Click the "Slice now" button in the bottom right corner of PrusaSlicer and wait for the software to finish slicing the file.

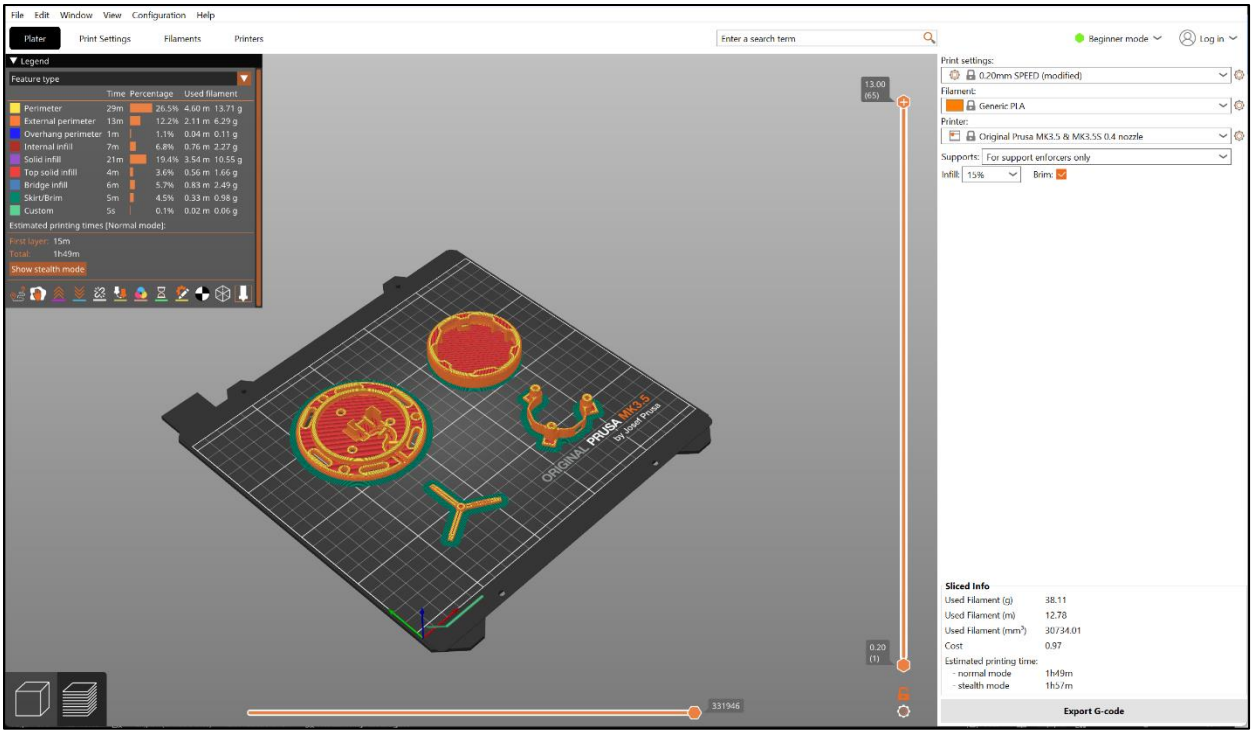


Figure 6. Slice plate

11.) Once the slicing is finished, click “Export G-code” (see Figure 5) and save the G-code to a flash drive.

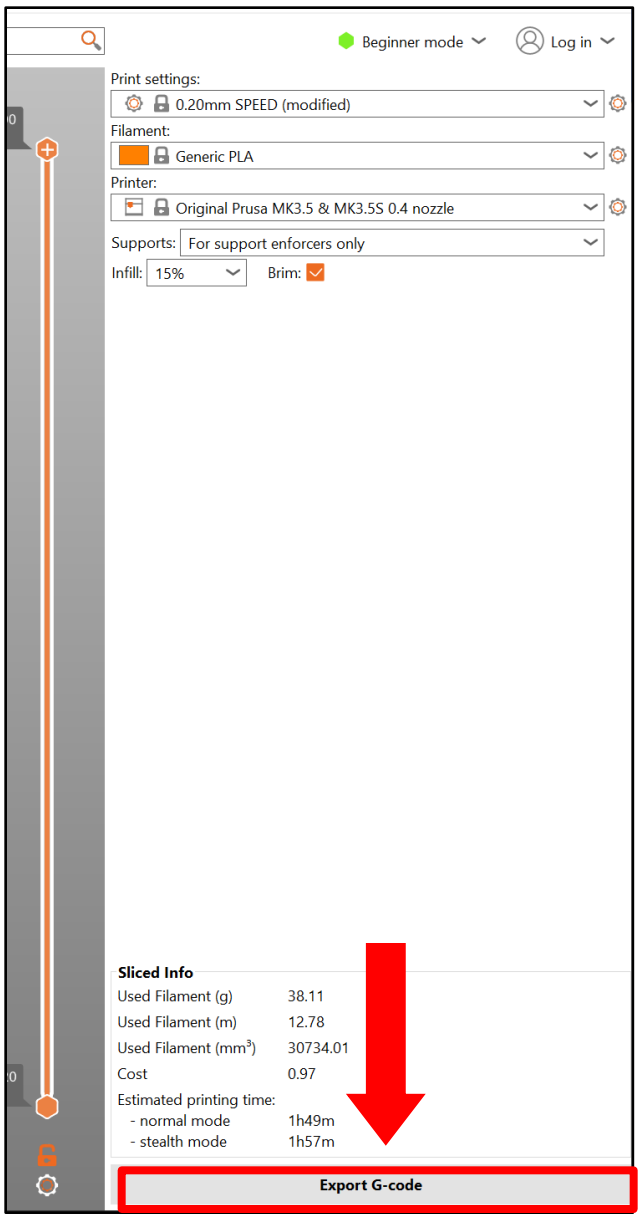


Figure 7. Export G-code Button.

12.) Insert the flash drive into your 3D printer, select the G-code and print!

# Adaptive Button

## Soldering Instructions

1.) No soldering is required for this device.

# Adaptive Button

## Assembly Instructions

**Materials Needed:**

- Mono audio cable
- 3D printed Adaptive Button parts:
    - Switch Base
    - Limit Switch
    - Button Cap
    - Button Cap Insert
    - Switch Cap Holder
- Screws
- Soldering iron and solder
- Wire strippers
- Scissors or wire cutters
- Screwdriver

**Assembly Procedure**

1. Prepare the audio cable: cut one end off your mono audio cable, leaving the other end intact. Strip approximately 15mm of insulation from the end of the cable.

    *Note:*

    - *If your cable has more than two wires, identify the two wires necessary for switch activation.*

- *If unsure which wires to use, strip all the wires, plug the other end into a switch-activated device, and test by touching the wires together. The two wires that activate the device when connected are the ones you will need to use.*

Figure 1. Audio cable being stripped at the end

2. Twist and prepare the wires: twist all the exposed copper wires into a single strand. Strip about 2mm of insulation from the remaining portion of the wire.

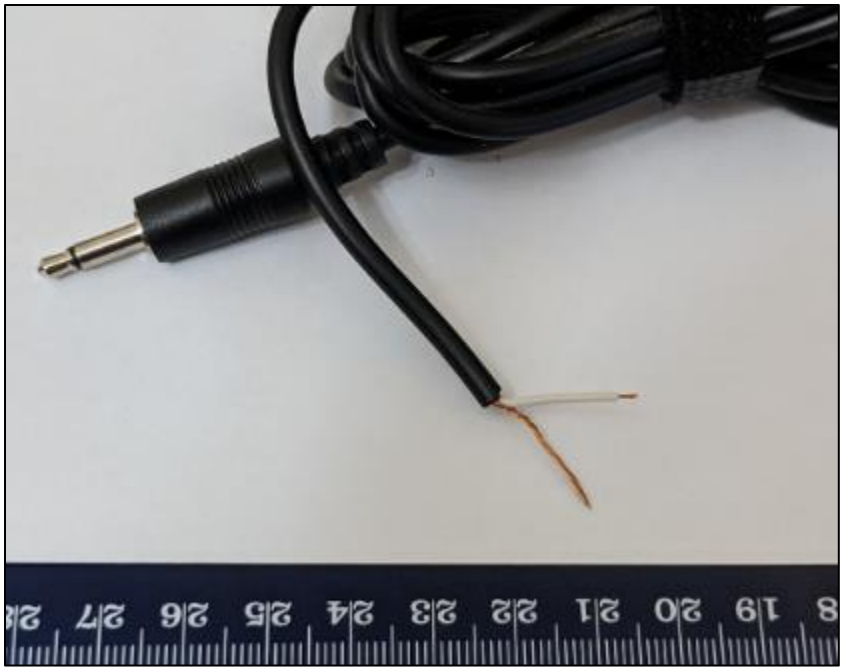

Figure 2. Wires are twisted

3. Thread the wire through the switch base: before soldering the limit switch to the wire, carefully thread the wire through the switch base. This is important because it will be difficult to thread the wire through after the limit switch is soldered.

Figure 3. Thread the wire through the switch base

4. Solder the wires to the limit switch: solder the twisted wires into the limit switch, following the orientation shown in the provided diagram.

*Important tips:*

- *If one of the wires is thicker (such as the twisted copper), insert it slightly farther than the thinner wire. This ensures that the thicker wire, being stronger, handles any stress or pull on the wires.*
- *Test the switch before proceeding by plugging the cable into a switch-activated device and pressing the limit switch to ensure it works properly*.

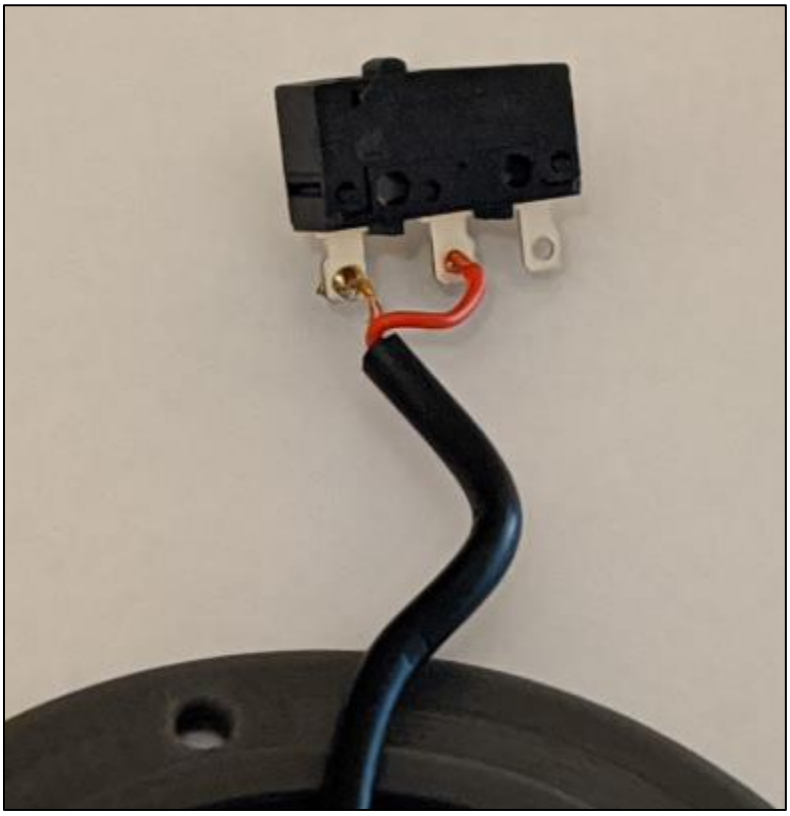

Figure 4. Solder

5. Secure the limit switch in the switch base: place the limit switch into the switch base and secure it. Ensure no wires are pinched underneath, which

would prevent the limit switch from being seated fully into the base. Tuck the wire into the provided slot in the base to keep it secure and tidy.

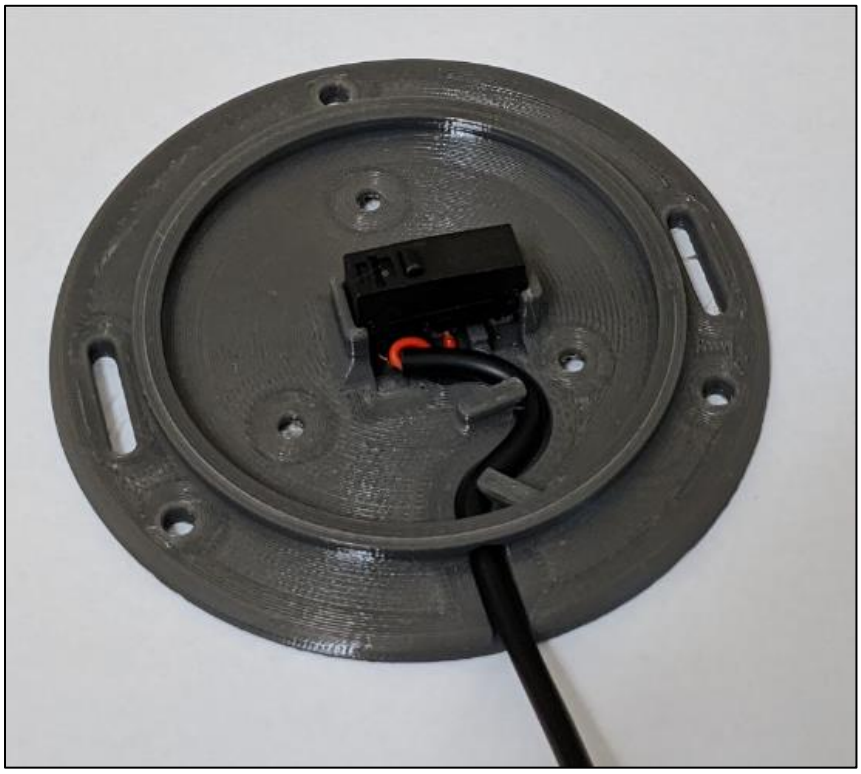

Figure 5. Secure the limit switch into the switch base

6. Prepare the button cap: turn the button cap over and insert the button cap Insert into the underside. If you're unsure which size insert to use, start with the 0.5mm size. After testing, you can swap it out for a different size that works best for your application.

Figure 6. Prepare the button cap

7. Install the switch cap holder: insert the switch cap holder onto the button cap. The orientation of the "open" side of the holder does not affect the function, so place it accordingly.

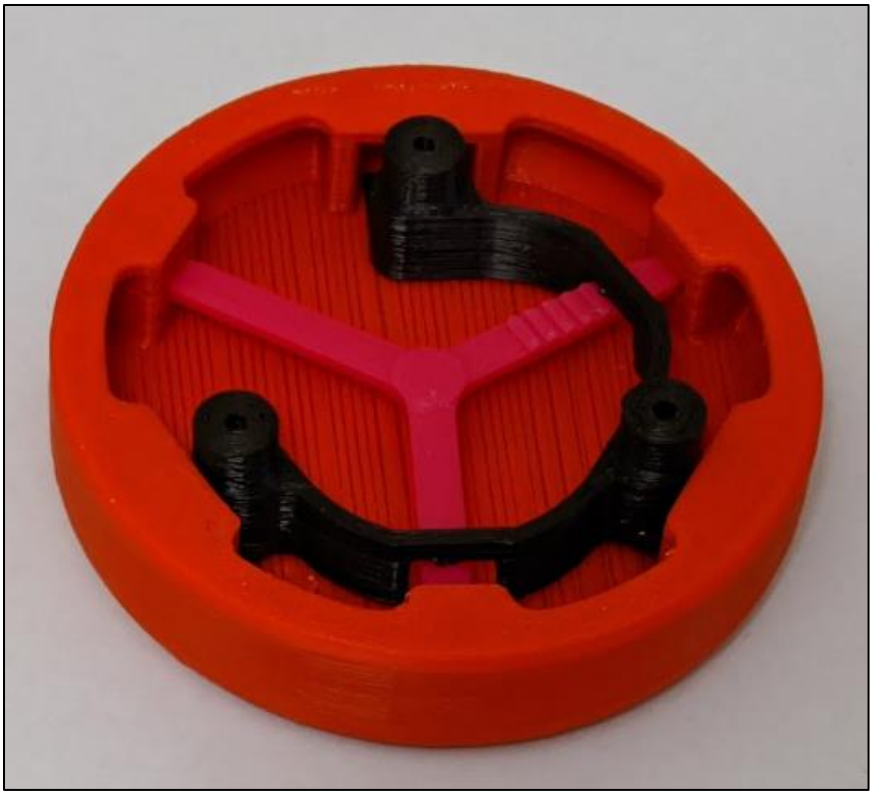

Figure 7. Install switch cap holder

8. Attach the button cap to the switch base: use three screws to secure the switch cap holder to the switch base.

*Important tips:*

*Do not overtighten the screws. Tighten until resistance is felt and the Switch Cap Holder is firmly against the base*.

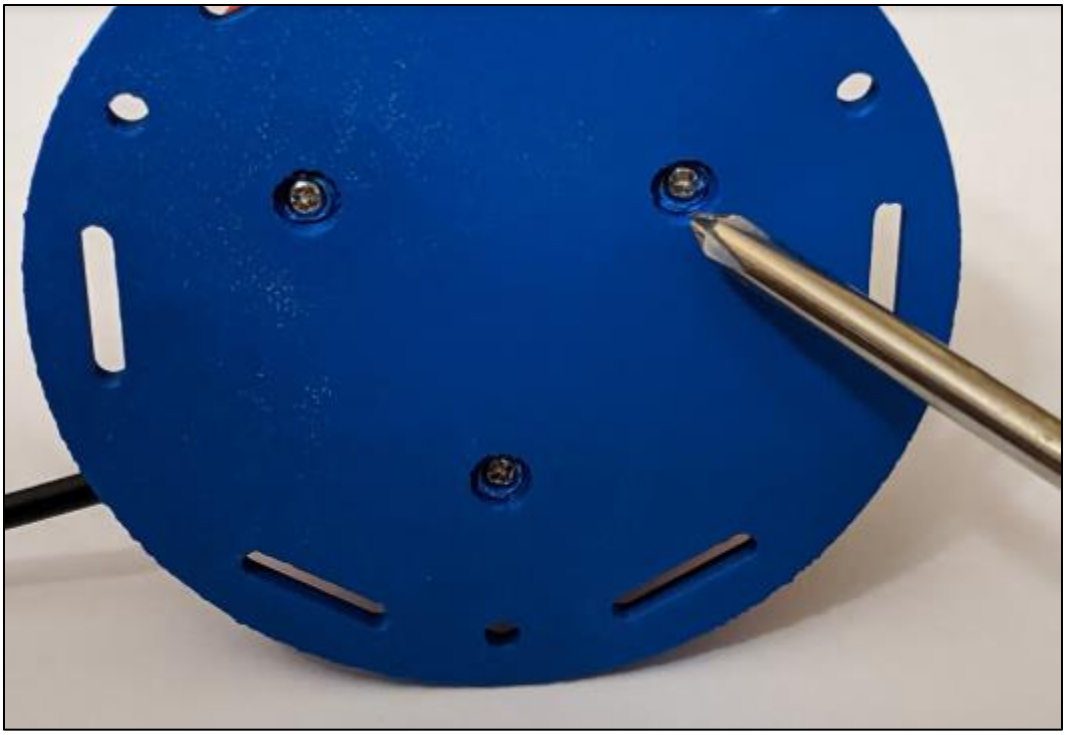

Figure 8. Secure the connection with screws

9. Final testing: test the assembly by pressing the button to ensure the limit switch functions as expected. If the switch does not activate properly, you may need to adjust the size of the Button Cap Insert or troubleshoot the soldering connections.