Dieter

Build Guide

www.printyourspeakers.com

DIETER BUILD GUIDE

Introduction:

Thank you for choosing Print Your Speakers! You're about to combine a modern speaker design with hands-on craftsmanship to create something uniquely yours. Take your time with each step—patience and attention to detail will reward you with impressive sound quality and the pride of your own work. Let's get started and bring your audio vision to life!

Toolkit Rundown: Everything You Need to Get Started

- Reliable FDM 3D Printer: With at least a H100xD250xW125mm build volume.
- Soldering Iron: With Solder
- Hot Glue Gun: With Glue Sticks
- Allen Key: 2.5mm
- Pair of Pliers: Needlenose
- 2+ Woodworking Clamps: >250mm length

Materials to Source: What You'll Need to Supply

- ~1100g of PLA Filament: You can try other materials, but this design was tested with PLA.
- 3 x 18650 Batteries:
  Stick to trusted brands like Panasonic, Sanyo, LG, Samsung, Sony/Murata, or Molicel.
  Buy from reputable sellers—avoid random eBay/AliExpress sellers.
  High-quality cells are 2,000–3,500 mAh; anything claiming over 3,600 mAh is fake.

INCLUDED IN THE KIT

Before you start, check you have everything!

QTY	COMPONENT	PRODUCT CODE
1	3-Inch Fullrange Driver	SB10PGC21-4 / Fiberglass
1	WONDOM JAB3+ Amplifier	AA-JA31213
1	WONDOM BCPB2 Battery Board	PS-BC12111
1	Functional Cables Kit for JAB3+	AA-JA11117
1	Functional Cables Kit for BCPB2	PS-BC12312
2	2.75-Inch Speaker Surround	•
2	Alcohol Wipe	•
1	Tube of E6000 Contact Glue	E6000
1	Epoxy Glue Kit	•
1	Ratcheting Power Button	•
1	USB Charging Port	•
6	Zip Ties	•
2	1.4x5mm Self-Tapping Screw	•
12	3x12mm Self-Tapping Screw	•
200x100mm	Dacron Sheet	•
1	USB Charging Cable	•
1	Square of Sandpaper	•

Something Missing?

No worries! Just shoot us an email at help@printyourspeakers.com, and we'll get you what you need.

3D PRINTING YOUR SPEAKER COMPONENTS

General Print Settings

Supports: None required - All printed parts are designed to print without slicer-generated supports.

Cooling Settings: For large prints, keep the part-cooling fan on low settings or turn it off completely. Excessive airflow causes rapid, uneven cooling that can lead to warping.

Passive Radiator Diaphragm:

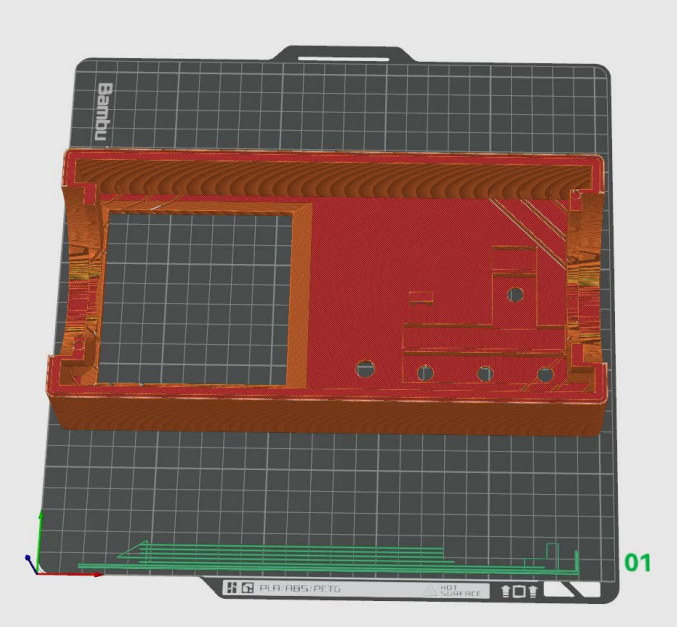
1. Configure filament density in your slicer (PLA typically: 1.24 g/cm^3)
2. Start with 75% infill density
3. Adjust infill until each diaphragm weighs close to 13.5g

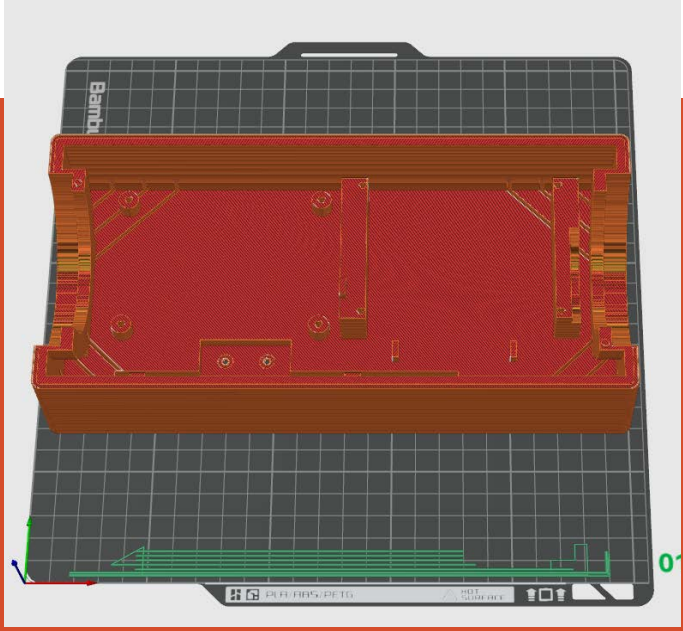
Critical: Incorrect mass will compromise bass performance

All Other Parts

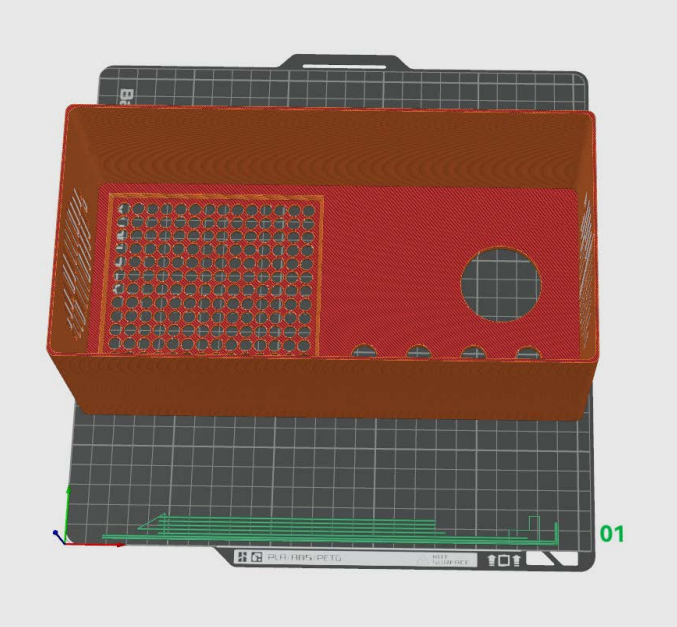
- Wall loops: 4
- Top/bottom shells: 5
- Infill: 30% gyroid pattern (minimum)
- Maximum infill: 60%

Important: Using less than the minimum settings may cause unwanted vibrations in your speaker. The infill pattern helps damp vibrations. You can increase wall loops or infill percentage for added rigidity, but don't

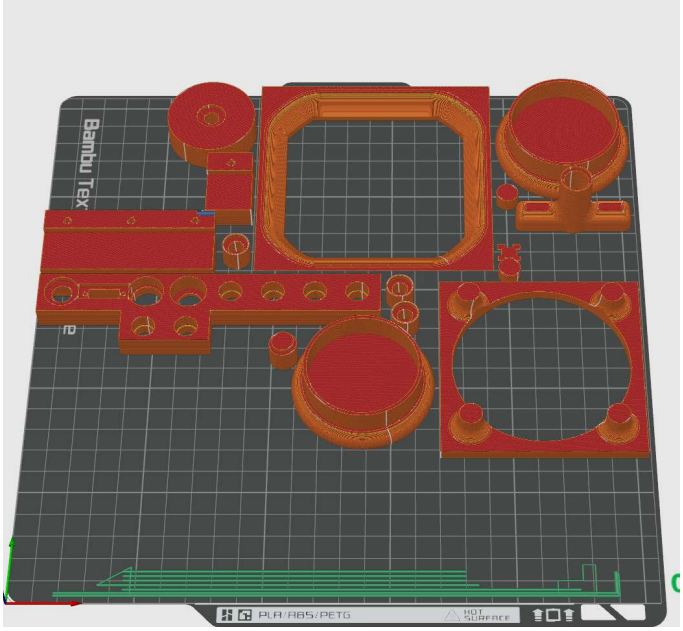




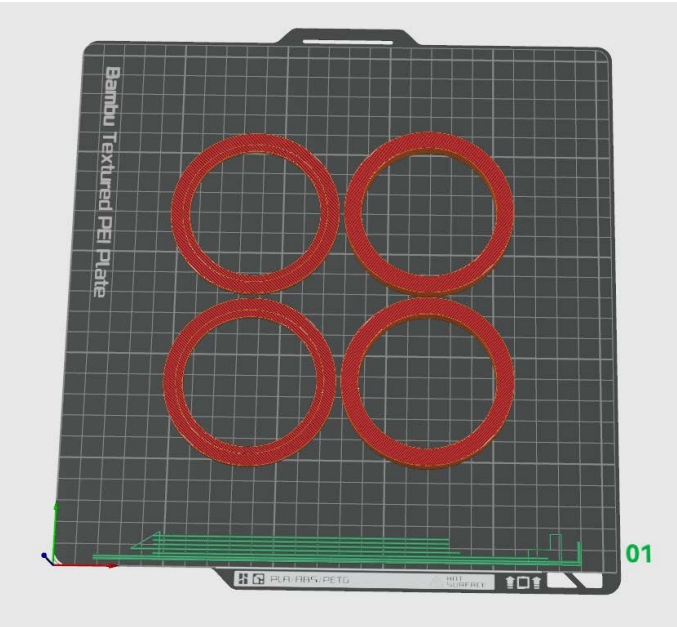
The images above shows how both enclosure halves should appear in your slicer.



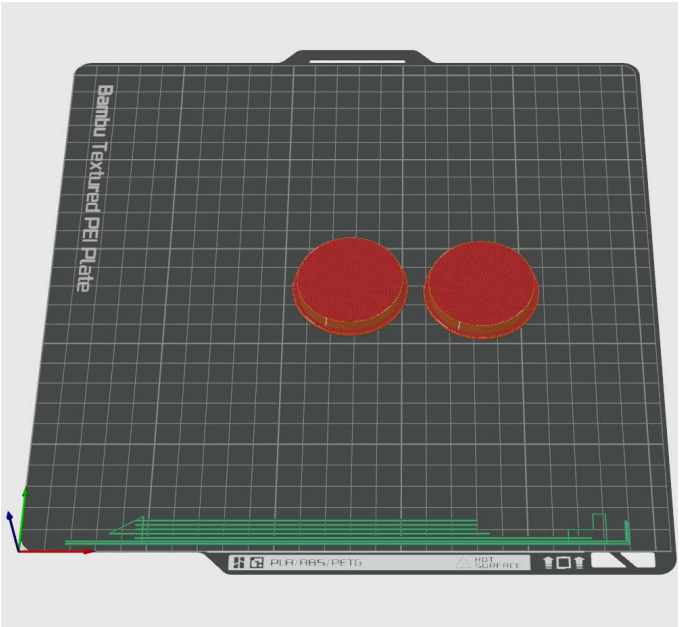
This is how the case should appear in your slicer.



You can print multiple small parts at once—use your slicer's 'auto arrange' button to fit more on the build plate.



Your passive radiator frames should look like this.

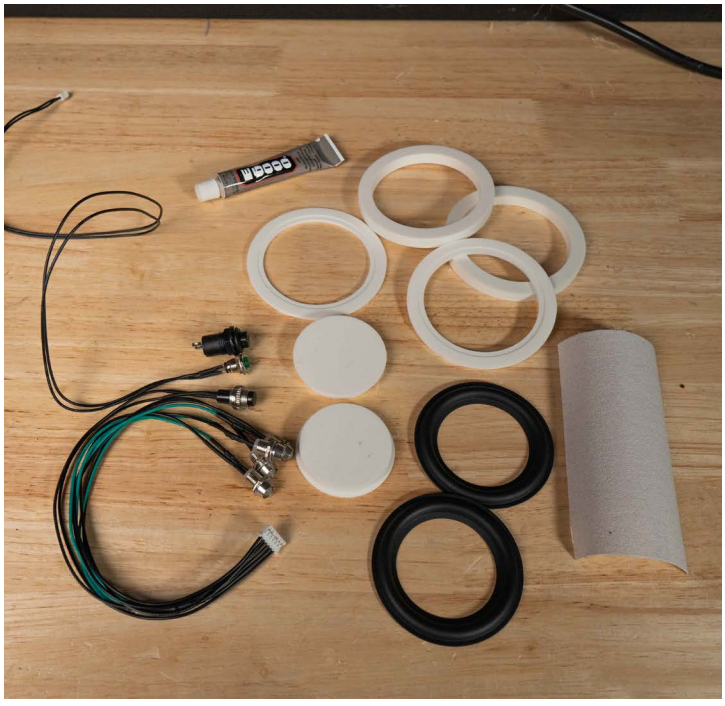


You can print both passive radiator diaphragms at once. The combined weight should be around 27 grams.

ASSEMBLY INSTRUCTIONS

Follow these step-by-step instructions to assemble your speaker:

- **Check Your Components:** Ensure you have all parts listed in the checklist before starting.

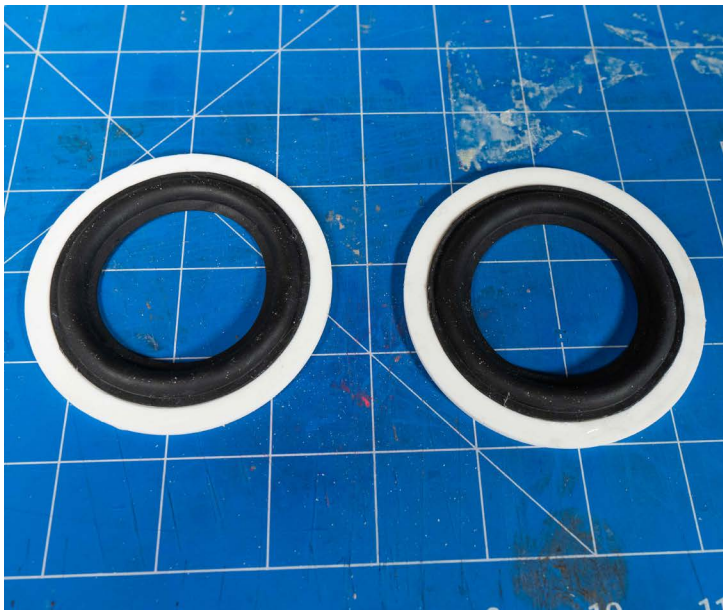


- **Rough up the gluing surfaces:** Use the provided sandpaper to rough up the surfaces of the power, battery indicator, and Bluetooth pairing buttons. Also rough up the mating surfaces of the passive radiator frames, diaphragms, and rubber surrounds.

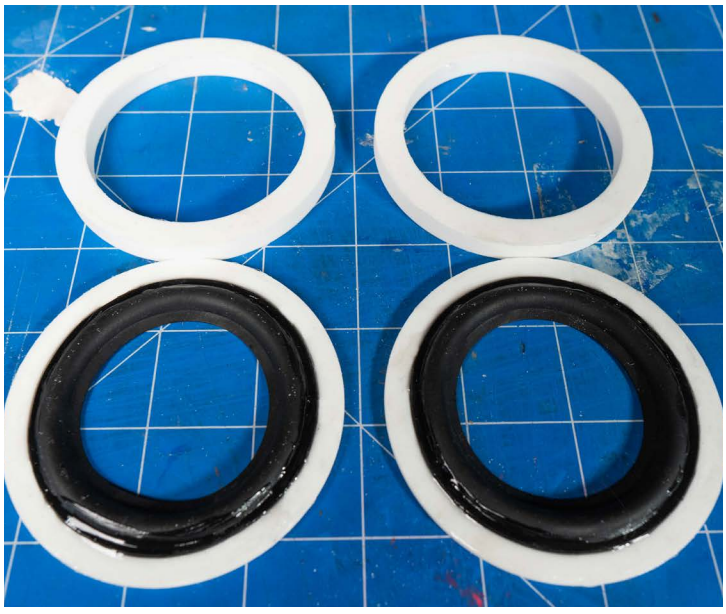
- **Clean the surrounds:** Clean the mating surfaces of the surrounds with the provided alcohol wipes. Once clean, avoid touching the mating surfaces to prevent dust or oils from affecting adhesion.

- **"Contact Glue:** To assemble the passive radiators, we'll use the provided E6000 glue. This is a **contact adhesive,** which means it's applied to **both** mating surfaces and allowed to **dry for 5-10 minutes before pressing them together**.

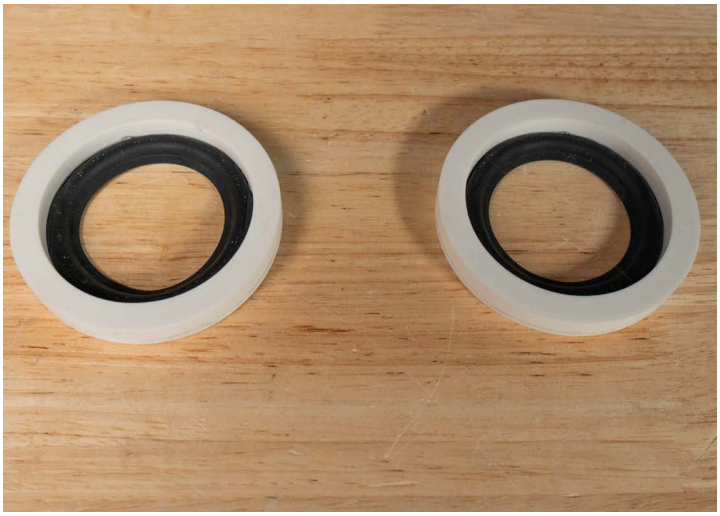
  Apply the glue to the underside of the surrounds' outer mating surface and to the lip of the frame sections. Allow to sit for 5-10 minutes.



- **Begin sticking:** Carefully attach the surrounds to the lip of the frame sections. Be careful–once the glued sections touch, they bond immediately. Removing them will pull off the glue and require reapplication.



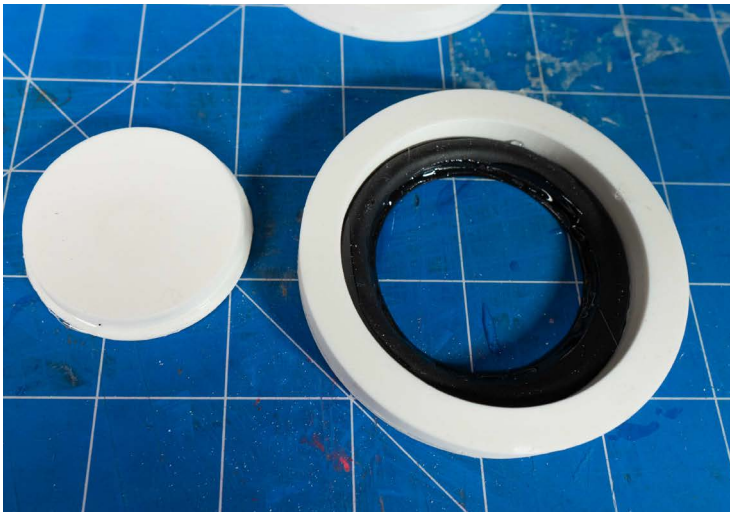
- **Glue the frames:** Apply E6000 to the mating surfaces of both frame sections and the previously assembled surround-frame unit. Allow to sit for 5-10 minutes.



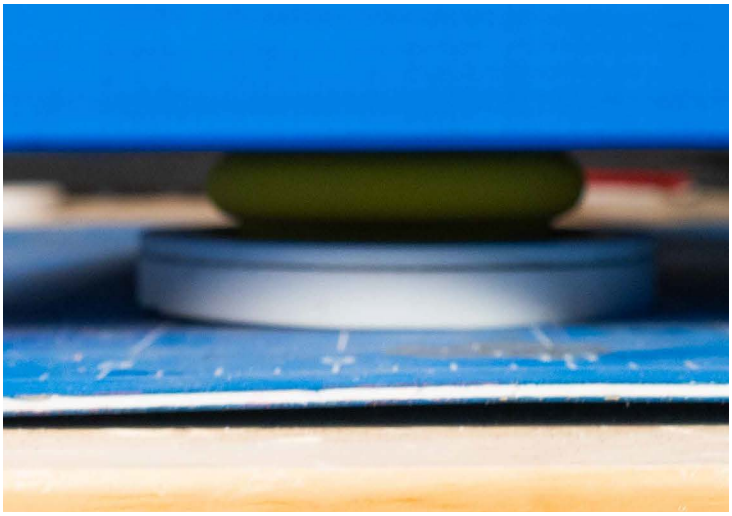
- Stick the frames: Press the frames together, sandwiching the surround's mating surface between them.

- **Leave to cure:** Place weight on top of the frames to clamp them together (I'm using some Illuminate 5s) and allow them to cure. The glue takes 24-48 hours to reach full strength, but it's safe to remove the weights after two hours.

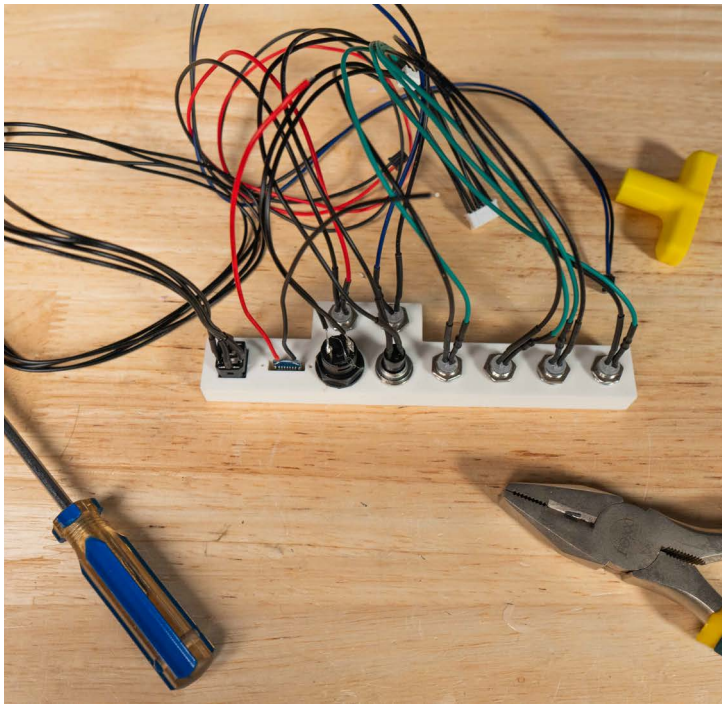
  While you wait, you can continue with the steps on page 8.



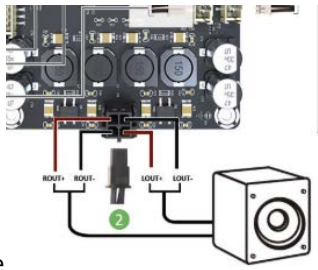
- **Glue the Diaphragm:** Apply E6000 to the lip of the diaphragm and the inner lip of the surround.



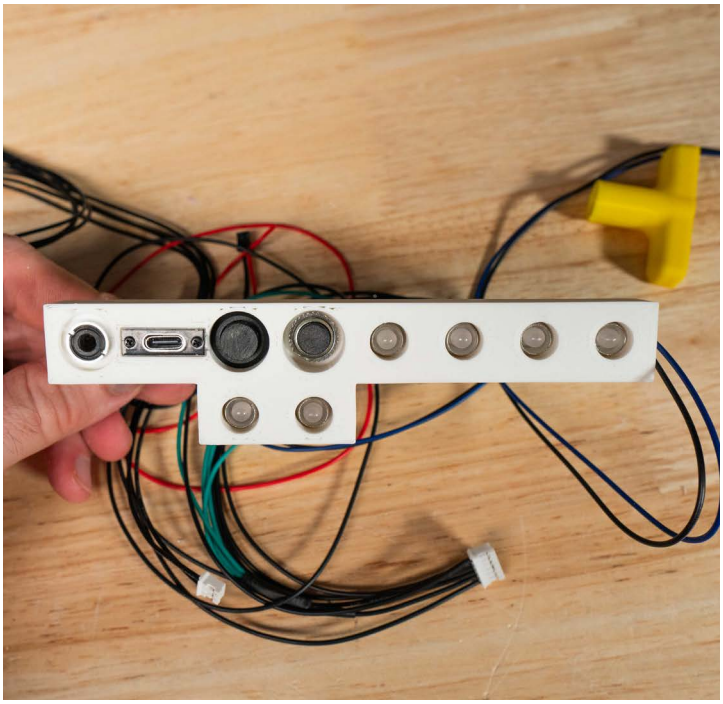
- **Stick the Diaphragm:** Using the diaphragm sticking tool, press the surround onto the diaphragm. Place weight on top to apply pressure while it cures for at least two hours. Having two tools allows you to work on both diaphragms simultaneously.



- **Power Button Wiring:** Take the unterminated 2-pin cable from the 'Functional Cables Kit for JAB3+,' cut it to 15cm length, and solder the wires to the power button.
  Speaker Wiring: Cut the speaker cable included with the JAB3+ amp board to 15cm length. Solder the left two wires to one driver contact and the right two wires to the other contact.

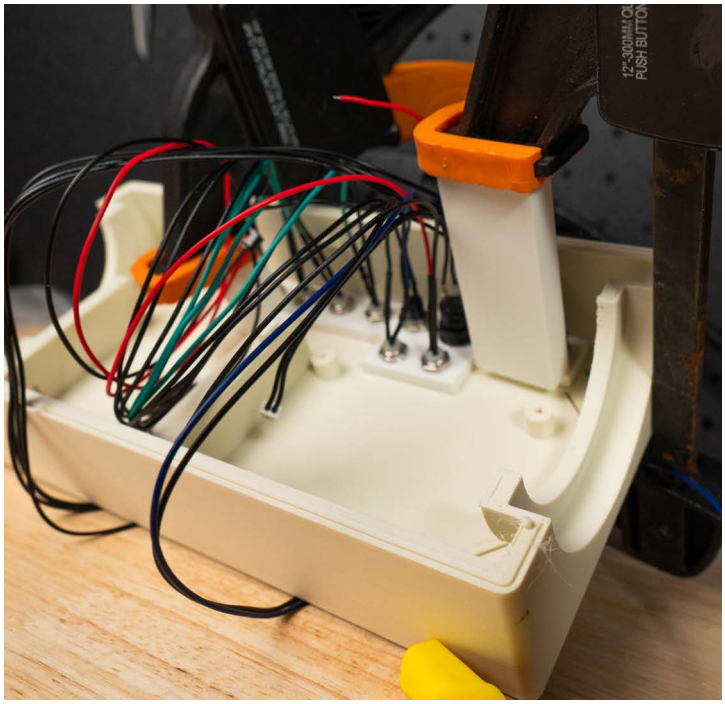


- **The Bracket:** Attach the buttons and LEDs to the bracket. You can choose any of the included red, blue, or green LEDs for the power and Bluetooth lights. The battery indicator LED order matters—it's labeled on the board. Test the LEDs by connecting them to the board before hot gluing them in place to ensure you're happy with the arrangement.

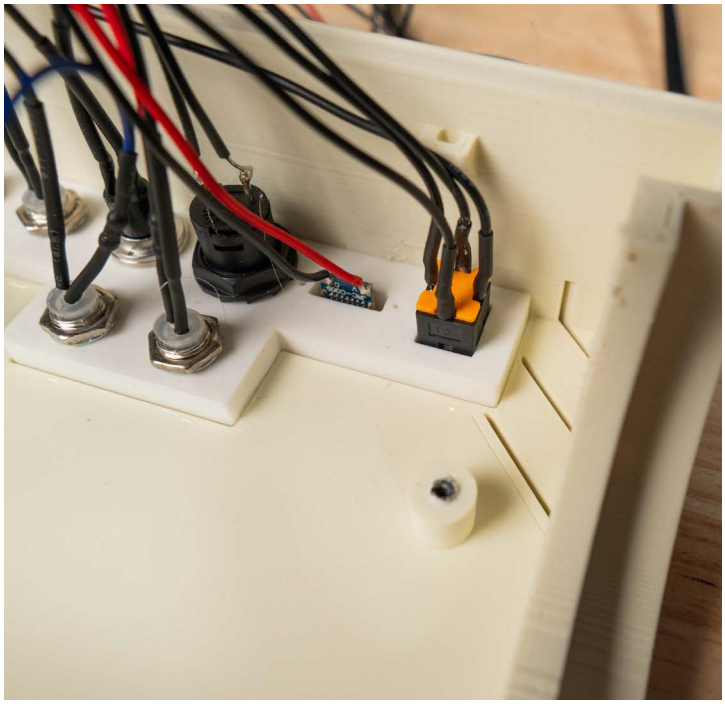


- **Tighten the battery button:** The battery button tightening tool (pictured in yellow) can be used to tighten the nut and securely hold it in place.

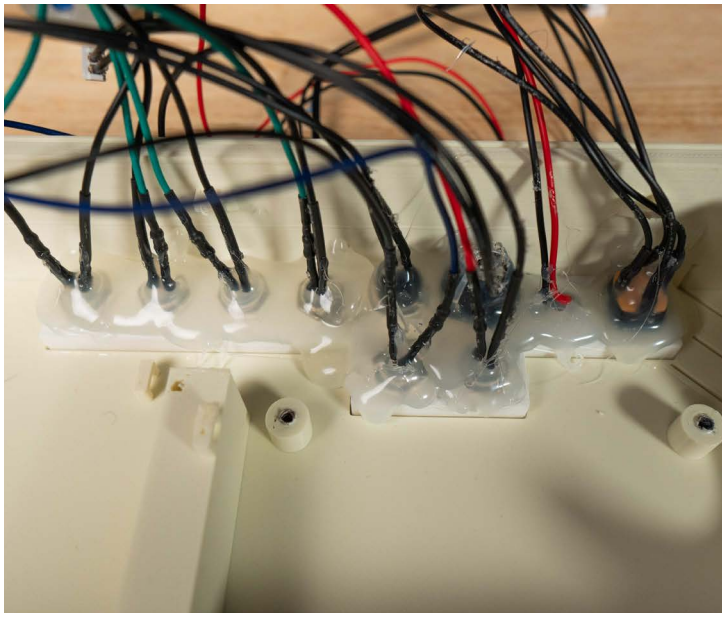
- **Epoxy Glue Pt 1:** Apply a generous amount of epoxy glue to the enclosure where the bracket attaches. Avoid getting glue in the grooves—these are designed to catch excess glue and prevent it from oozing out of the holes.



- **The Clamps:** Clamp the bracket in place, using the pot brackets as clamp extensions if needed.

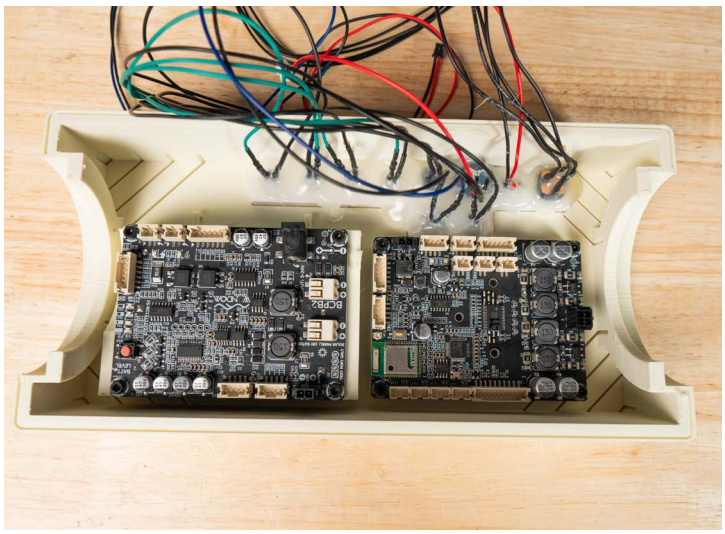


- **Glue Blocker:** Cover the rear side of the AUX port with the glue blocker.

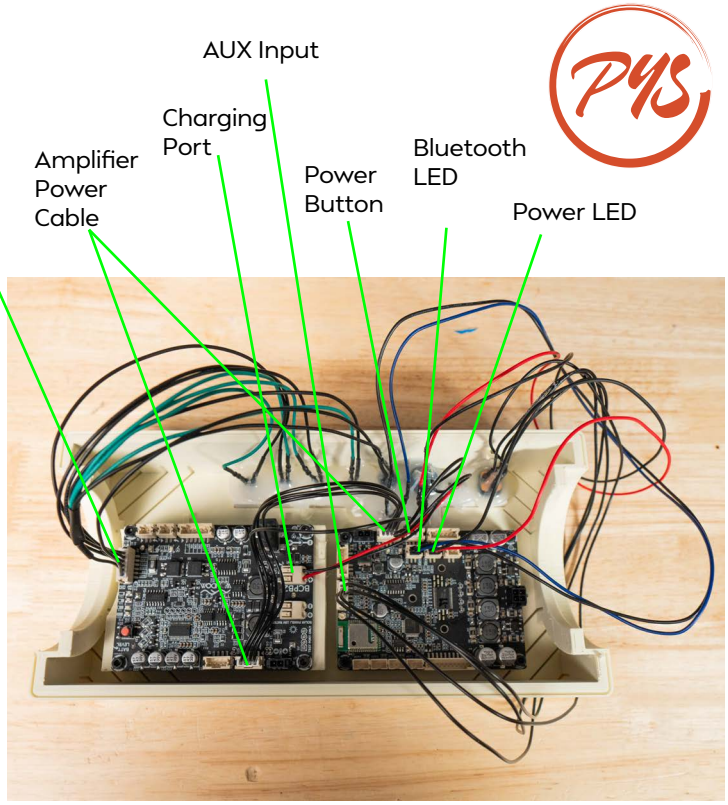


- **Hot Glue:** Once you're satisfied with the position and color of all LEDs, cover the back of the bracket with hot glue. Ensure you cover the back of every button, LED, and port. This is critical to prevent air leaks.

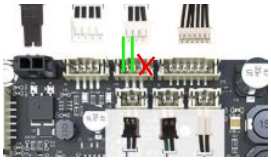
- **Batteries:** Insert the batteries into the battery board with correct polarity. They may be a tight fit and require some force.



- **The Boards:** Screw in the battery and amplifier boards in the orientations shown above.

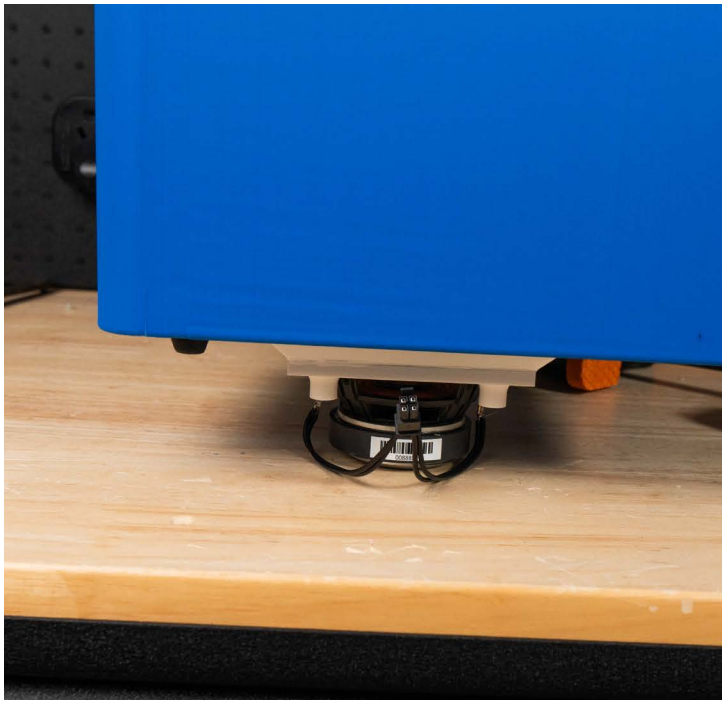


- **Begin Wiring:** Connect all wires as pictured above. The power button should connect to the pins closest to the amplifier power input, as shown below.

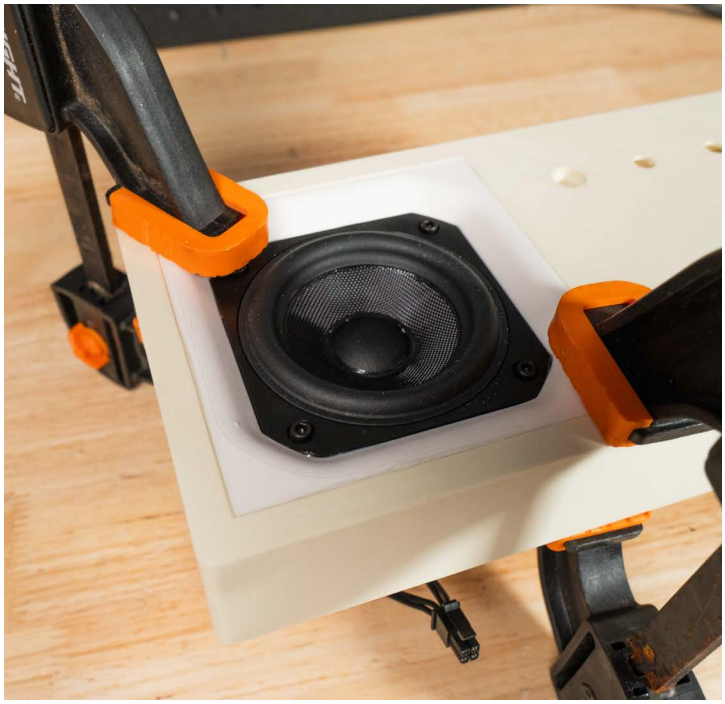


- **Screw in the Driver:** Screw the driver in place using the provided screws.

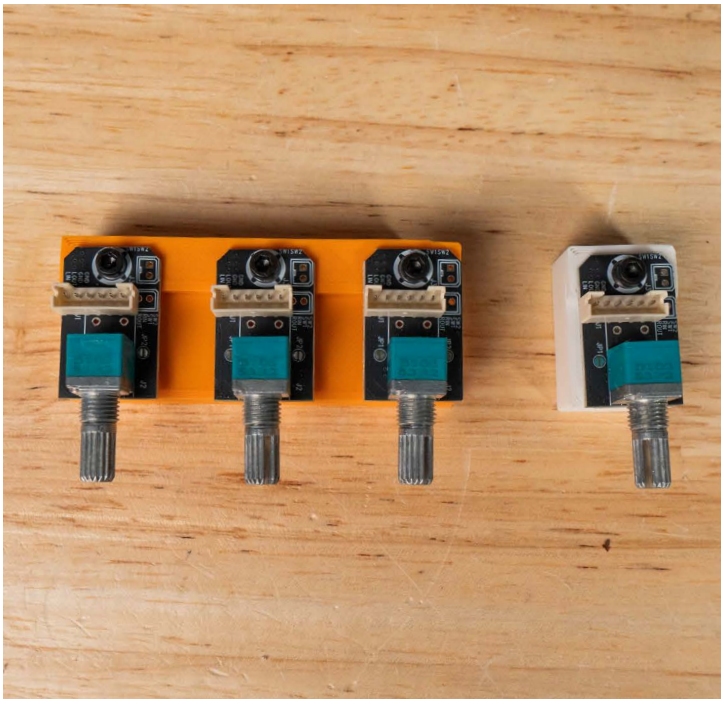
- **Glue the recess:** Using epoxy glue, glue the recess panel in place.



- **Weigh it down:** Using a weight under 5kg, clamp the two parts together while the glue cures. I'm using my trusty Illuminate 5 again.

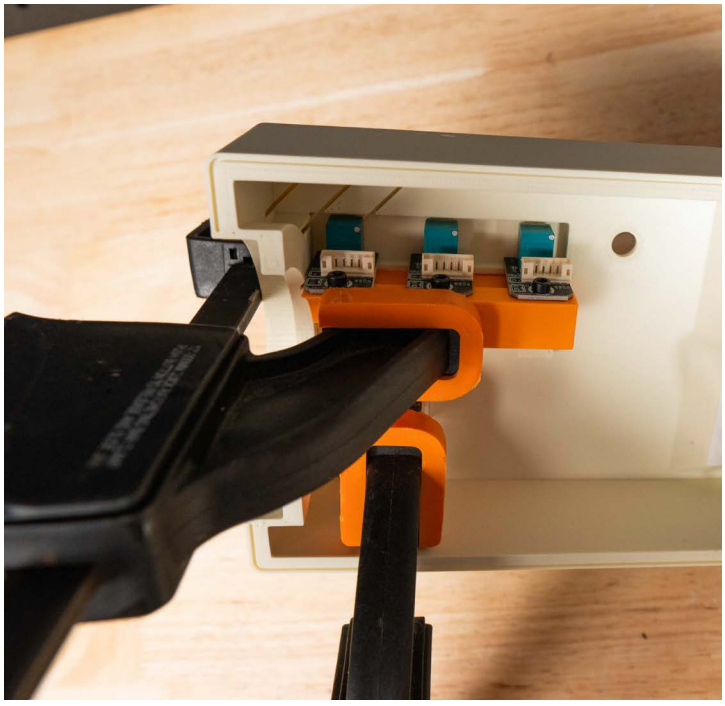


- **Mount the Driver:** Using epoxy glue, glue the assembled driver and recess into the enclosure. Use clamps to hold it in place while it cures.

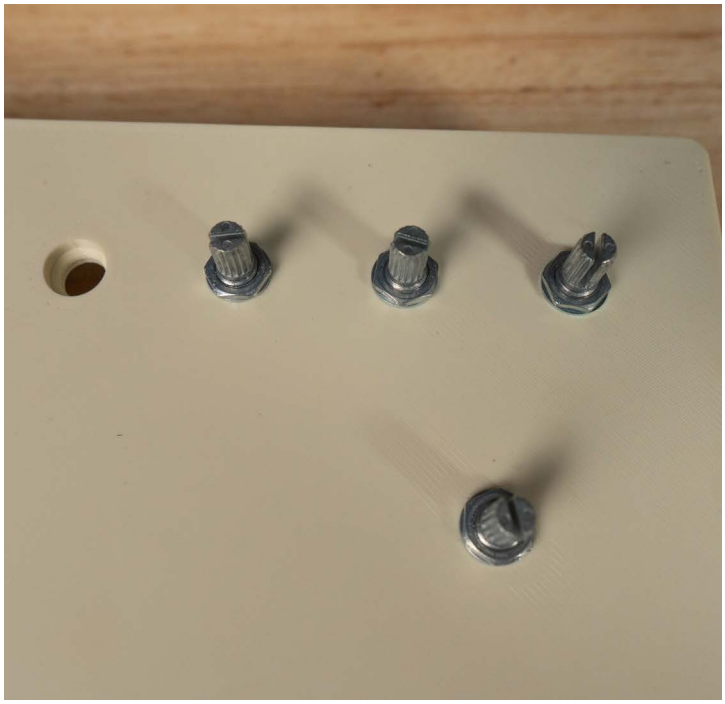


- **Screw the Pots:** Screw the pots firmly onto the pot brackets, ensuring they are aligned straight.

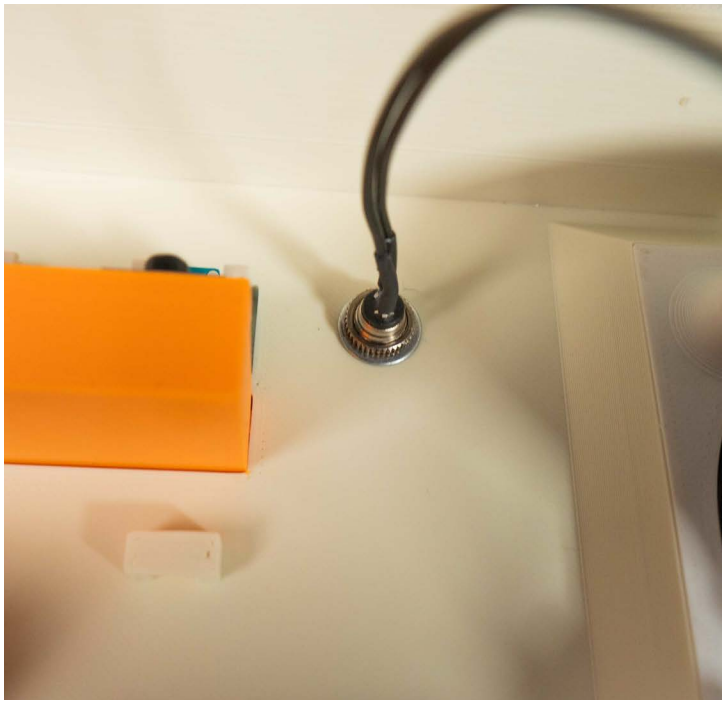
  All the pots are the same—don't worry about order yet.



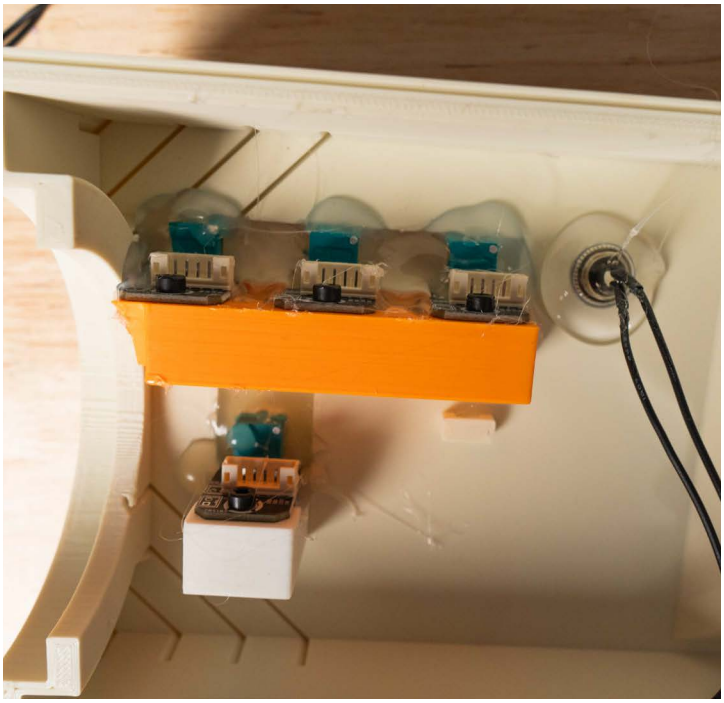
- **Glue the Pots:** Apply epoxy glue to the mating surface of the brackets and attach them to the enclosure with the pots extending through the holes.



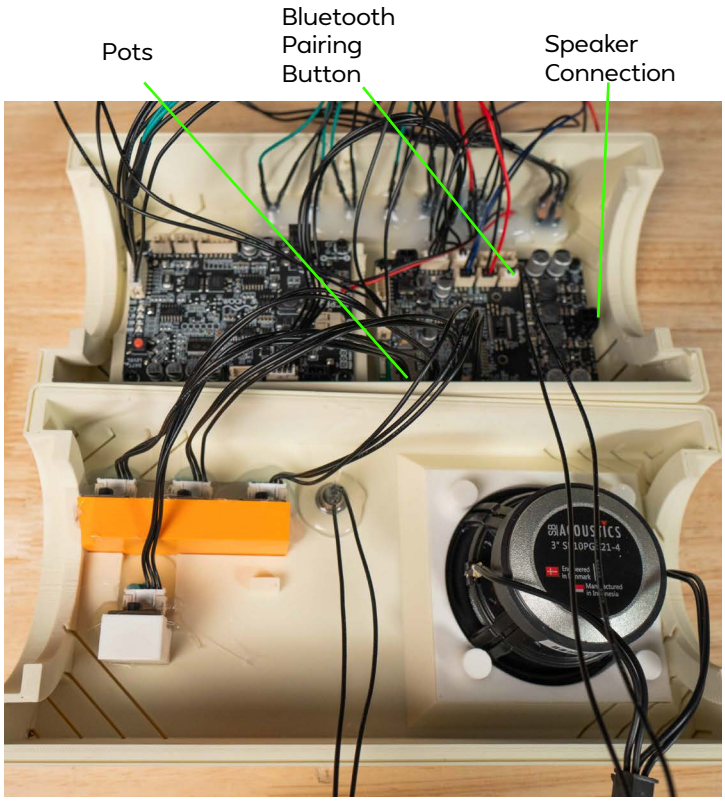
- **Nut the Pots:** Firmly attach the nuts over the washers to secure the pots in place. It's best to do this before the glue from the previous step cures.



- **Bluetooth Pairing:** Secure the Bluetooth pairing button.

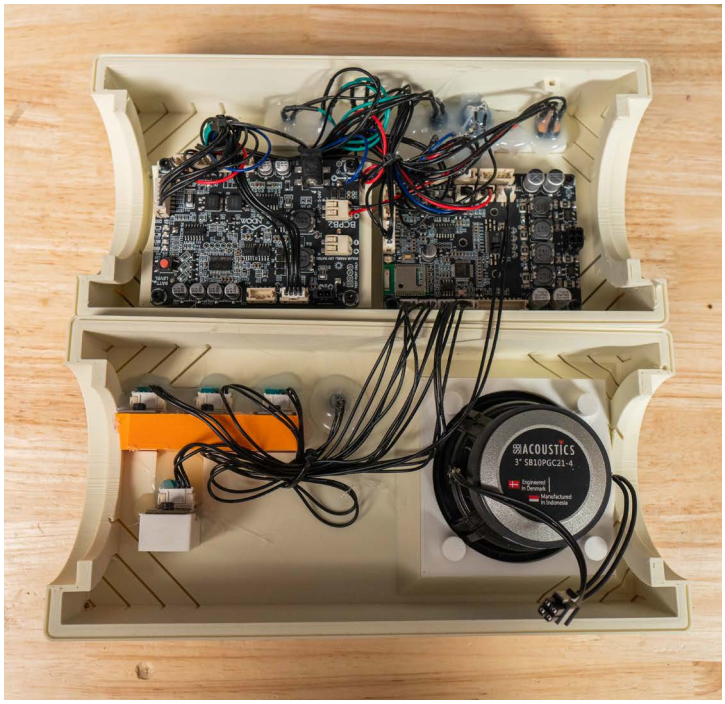


- **More Hot Glue:** Apply a generous amount of hot glue around all the pots and the Bluetooth pairing button.



- **Connect it all up:** Connect all the wires from the front enclosure half. The pots are labeled on the board.

  Pot1 = Superbass (simulated sub bass)
  Pot2 = Bass EQ
  Pot3 = Treble EQ
  Pot4 = Volume

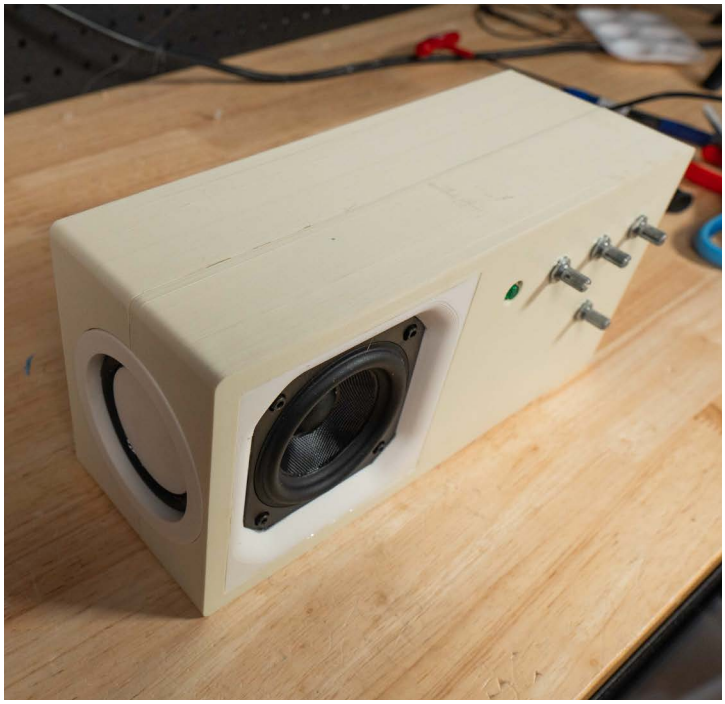


- **Tidy Up:** Use cable ties to tidy up and secure all cables. You'll find small loops scattered around the enclosure halves to help with cable management. Keep wires clear of the passive radiators and rear of the driver to prevent rattles.
  I strongly recommend powering on and testing the speaker before gluing the enclosure halves. Test all the pots and functions. This requires charging the battery—initial charging may take some time as the board balances the cells.

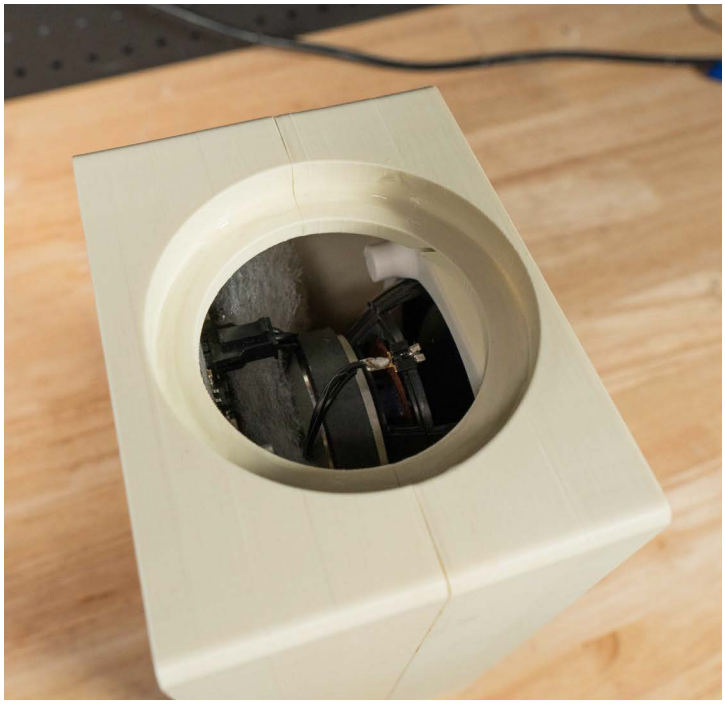
- **Dacron:** Use hot glue to attach a single layer of Dacron over the amp and battery boards. Keep it clear of the passive radiator cutouts.

- **Glue the halves:** Apply a generous amount of epoxy glue to one enclosure half. Keep the glue out of the groove—it's designed to prevent excess glue from oozing out.

- **Clamp the Halves:** Clamp the two enclosure halves together.



- **The Final Test:** Press fit (dont glue) the passive radiators and conduct a final test to ensure there are no leaks or rattles and everything works.

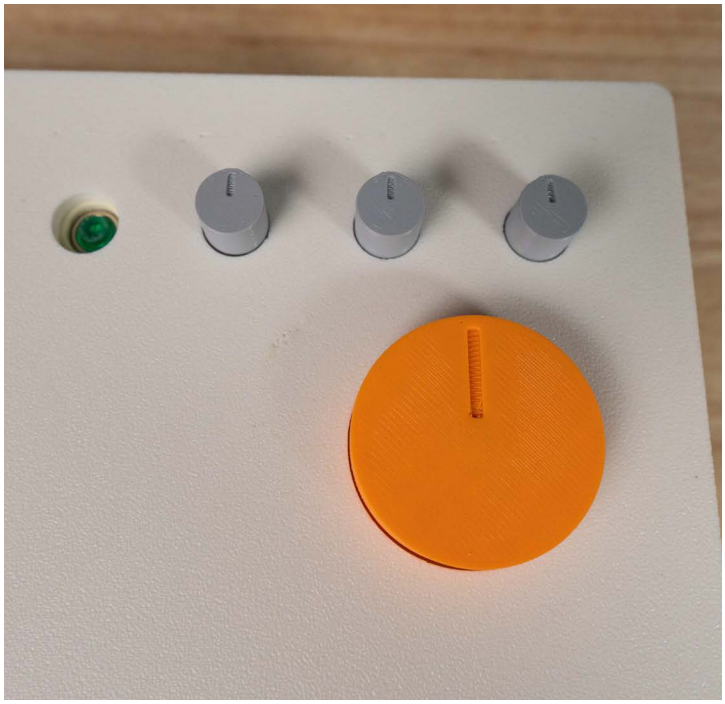


- **Seal it up:** Apply epoxy glue to the mating surface for the passive radiators.

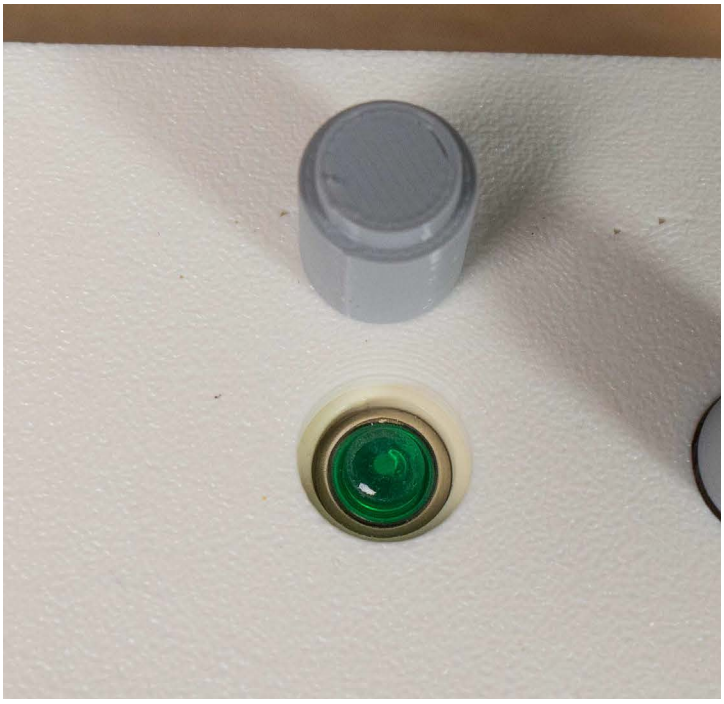
- **Seal it Up Pt 2:** Clamp the passive radiators in place, applying pressure to the frame, not the diaphragm.

- **Dress it Up:** Press fit the external cover in place. This can be glued later, but gluing isn't strictly necessary.

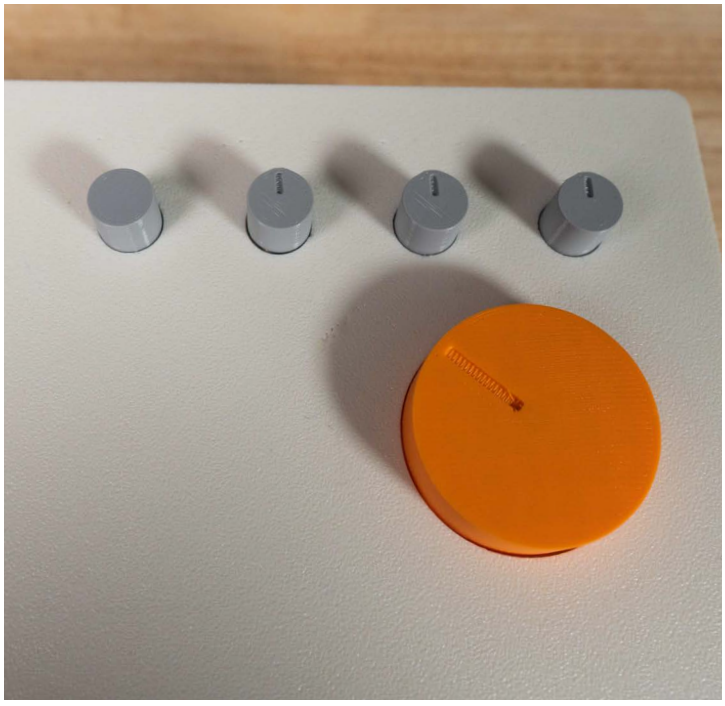
- **Pots to Neutral:** Set all the pots so the slot is perfectly horizontal as pictured above.



- **Attach the Knobs:** Press fit all the knobs with the pointers pointing upwards.

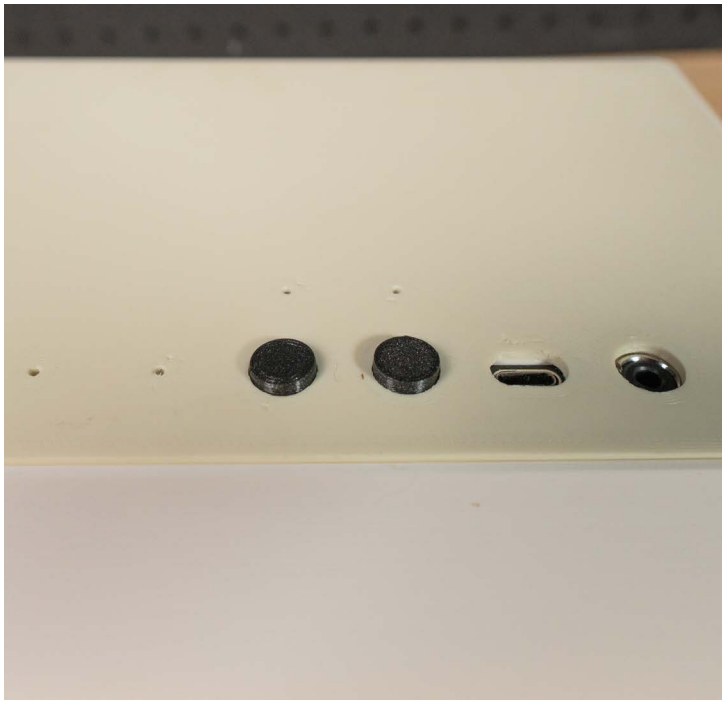


- **Glue the button:** Apply a small drop of epoxy glue to the Bluetooth pairing button. Too much glue will ooze out and jam the button.



- **Glue the button Pt 2:** Press the Bluetooth pairing button cap in place and leave to set.

- **Glue the Buttons:** Apply a small drop of epoxy glue to the battery indicator and power buttons.



- **Glue the Buttons Pt 2:** Press the button caps in place

- **Final Once-Over:** Take a good look at your masterpiece. Everything snug? Brilliant. Now kick back and enjoy the sweet sound of success.

TROUBLESHOOTING COMMON ISSUES

Encounter a hiccup? Here's how to solve common issues:

- **Silence:** Check the speaker is charged and the driver is connected to the amplifier.
- **Crackling Noises:** Tighten all connections and check for any loose solder joints.
- **Amplifier Powering Off:** Inspect for any shorts in the wiring.

For any persistent issues or if you need more guidance, don't hesitate to get in touch with our support team at help@printyourspeakers.com. We're committed to helping you achieve the best sound experience possible!

We Value Your Feedback!

Thanks for building with Print Your Speakers! We're always looking to improve, and your thoughts can help us do just that. If you have a moment, we'd love for you to fill out our quick survey: https://forms.gle/vGdJ8ECs8qqVMPcH6.

Have more to share? Feel free to email us directly at feedback@printyourspeakers.com. Your input is what helps us keep getting better!