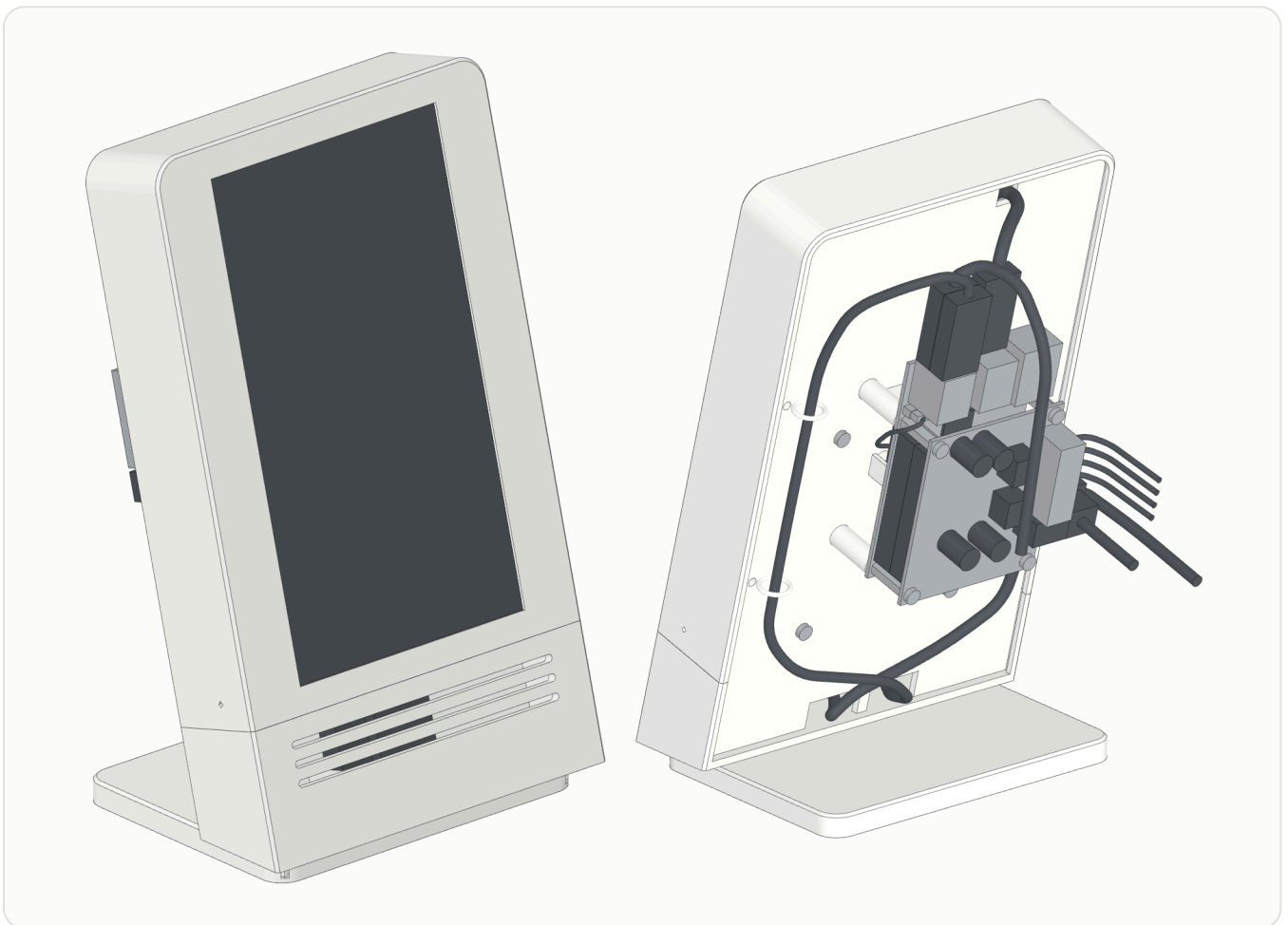


SPEAKERDECK

Slate

A compact slab for the Speakerdeck: Raspberry Pi 5, HiFiBerry Amp2, the 7 inch touch display in portrait, and the drive. The slab leans back 15° on a gray foot. The Pi is open on the orange back plate at the rear, as a backpack: every port has free space, so you plug the power, the printer, and the speakers straight into it. The front and the sides stay clean. All the cables show only on the rear. The case parts snap together.



■ Navy (blue) PLA

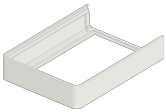
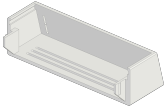
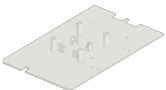
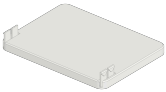
■ Orange PLA

■ Gray PLA

4 printed parts • 274 g

No supports

Printed parts

	File	Colour	Size on the bed (mm)	Filament	Length	Cost
	stl/slab.stl	 Navy	132 × 177 × 35	81 g	10.3 m	\$1.86
	stl/chin.stl	 Orange	132 × 56 × 35	44 g	5.6 m	\$1.01
	stl/back.stl	 Orange	128 × 208 × 22	89 g	11.2 m	\$2.05
	stl/foot.stl	 Gray	120 × 90 × 16	60 g	7.6 m	\$1.38
Total				274 g	35 m	\$6.30

Filament from slices with the Cura profiles of this case (CuraEngine 5.13), with the skirt. Cost at \$22.99/kg. By colour: Navy 81 g (\$1.86) · Orange 133 g (\$3.06) · Gray 60 g (\$1.38).

Hardware

4×	M3 heat-set insert, for a 4.0 mm hole, 4 mm long (display)
4×	M3 heat-set insert, for a 4.0 mm hole, max. 5.5 mm long (Pi)
4×	M3 × 6 screw (display)
4×	M3 × 5 screw (drive)
4×	M3 × 16 screw, pan head (fan). It cuts its thread in the printed boss.
3×	Twist tie, 15 cm, max. 3 mm wide (orange looks best)

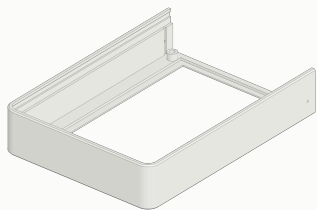
The case parts hold with snap hooks. The screws hold only the display and the drive; the Pi stack goes on its own standoffs.

Electronics

1×	Raspberry Pi 5 + HiFiBerry Amp2, as one stack on four M3 × 16 male-female standoffs
1×	Heatsink for the Pi 5 SoC, max. 16 × 16 × 8 mm, with thermal tape
1×	Adafruit 7 inch HDMI display with touch
1×	2.5 inch SATA drive with a USB adapter board
1×	30 mm fan, 10 mm thick, with a Pi 5 fan plug
1×	HDMI ribbon cable kit: HDMI A plug, micro HDMI plug, flat ribbon 40 to 50 cm (the route is 24 cm). A round HDMI cable cannot bend in the 10 mm under the display.
1×	USB-A to micro USB cable, thin (max. 3.5 mm), 50 to 60 cm (the route is 36 cm). Straight plugs, max. 30 mm long.
1×	USB 3 cable for the drive: micro-B SuperSpeed to USB-A, 15 to 20 cm (the route is 11 cm). Straight micro-B plug, max. 22 mm long from the socket. Cable max. 4.5 mm diameter.
1×	Raspberry Pi 27 W USB-C power supply
1×	12 to 20 V power supply for the Amp2, with a right-angle 5.5 × 2.1 mm plug

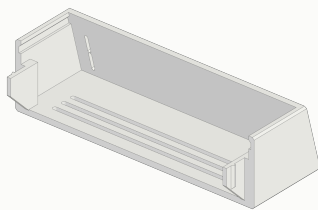
Print

The STL files are in their print orientation. Load them, do not turn them.



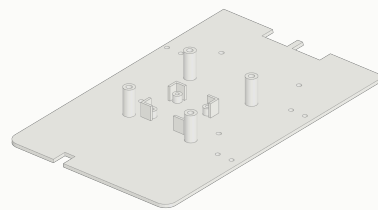
slab

■ Navy · support check 0 g
Front face down. The screen opening is in the first layers: use a smooth sheet for a clean face.



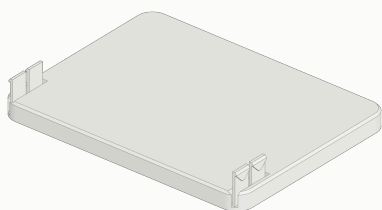
chin

■ Orange · support check 0 g
Front face down. The tongues stand up at the two sides.



back

■ Orange · support check 0 g
Front face (the drive side) down. The bosses and the fan posts point up.



foot

■ Gray · support check 0 g
Flat, the four hooks up.

Settings (LulzBot TAZ Workhorse)

Profiles	One Cura profile for each part: <code>run python3 cura/make_profiles.py --install</code> with Cura closed, then pick “Speakerdeck - Slate ...”.
Material	PLA, 2.85 mm, 0.5 mm nozzle
Slab, chin	0.3 mm layers, 1.5 mm walls, 1.2 mm top and bottom, 20 % grid infill, skirt
Chassis	0.3 mm layers, 30 % grid infill, skirt
Back plate	0.3 mm layers, 40 % grid infill, skirt
Foot	0.3 mm layers, 20 % grid infill, skirt
Supports	Off for all parts. Every hook, pocket, and slot has 45° faces. A slice of each part with supports on (60°, everywhere) adds 0 g of support.

Fit. The snap joints have 0.3 mm of clearance. Print the chin first and push it onto the slab. If it is too tight, set the horizontal expansion in your slicer to -0.1 mm for the chin and the back plate.

1

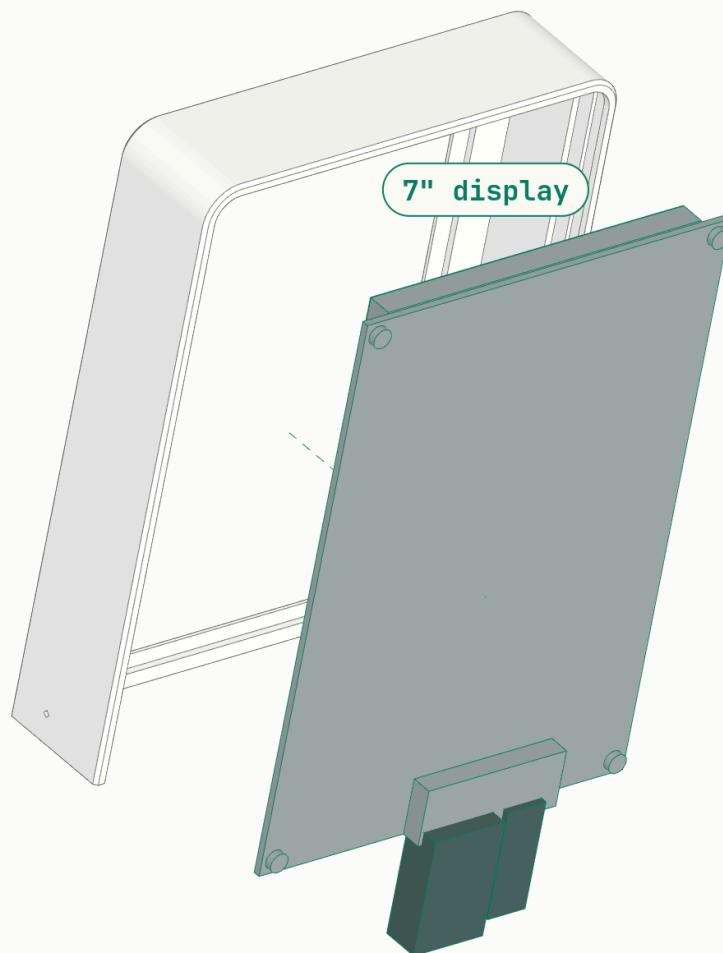
Display

slab

display

4 × insert (4 mm)

4 × M3 × 6



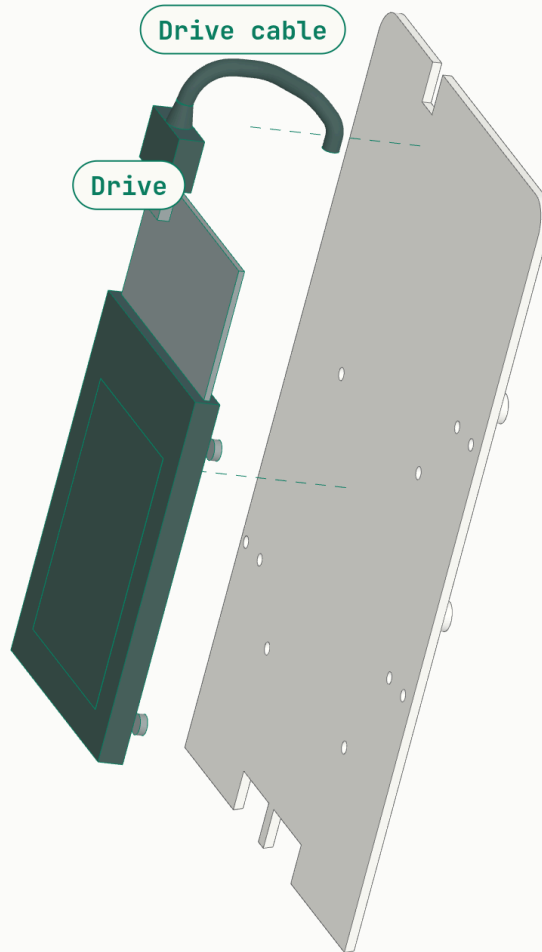
1. Press four 4 mm M3 heat-set inserts into the four bosses in the slab. Use a soldering iron at 220 °C. Stop when the insert is flush: the face is only 3.85 mm away.
2. Put the slab face down on a soft cloth.
3. Connect the HDMI ribbon cable and the USB cable to the display.
4. Put the display into the slab: glass to the front, sockets at the bottom. The cables come out of the open bottom of the slab.
5. Attach the display with four M3 × 6 screws.

2 Drive

back plate

drive

4 × M3 × 5



1. Put the drive on the flat front of the back plate: adapter up, the M3 holes against the plate. Attach it with four M3 × 5 screws from the rear.
2. Connect the drive cable to the micro-B socket of the drive adapter. Bend the cable to the rear through the notch in the top edge of the plate.

3

Fan and Pi

back plate (step 2)

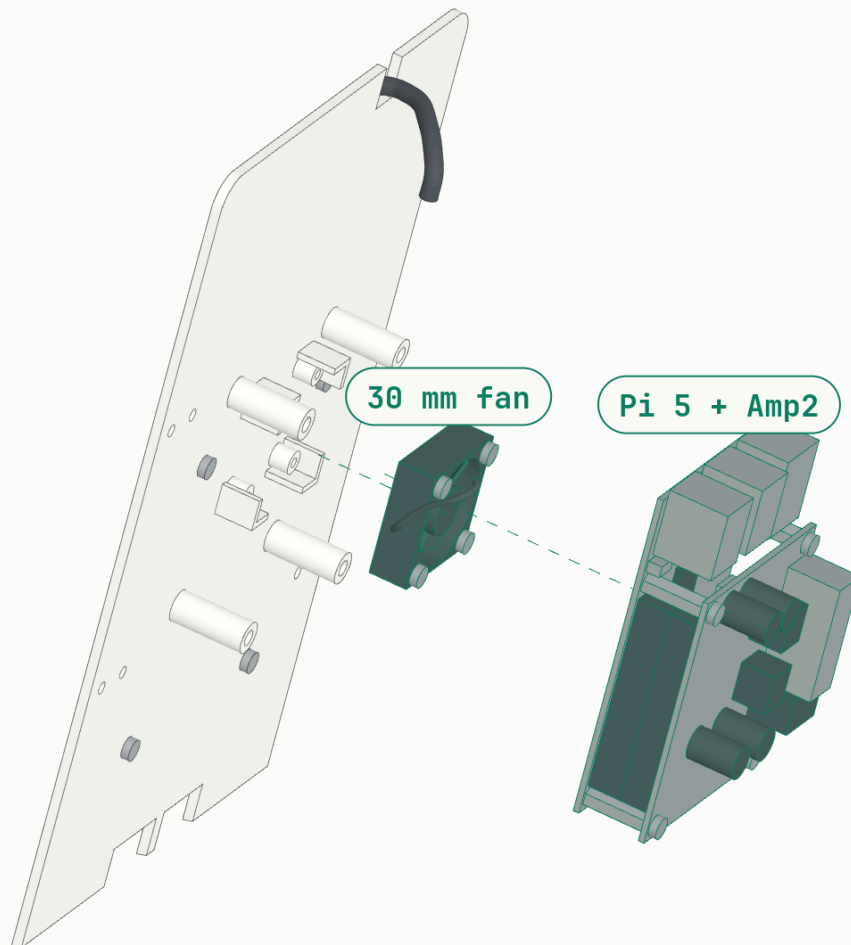
fan

Pi 5 + Amp2

heatsink

4 × insert

4 × M3 × 16



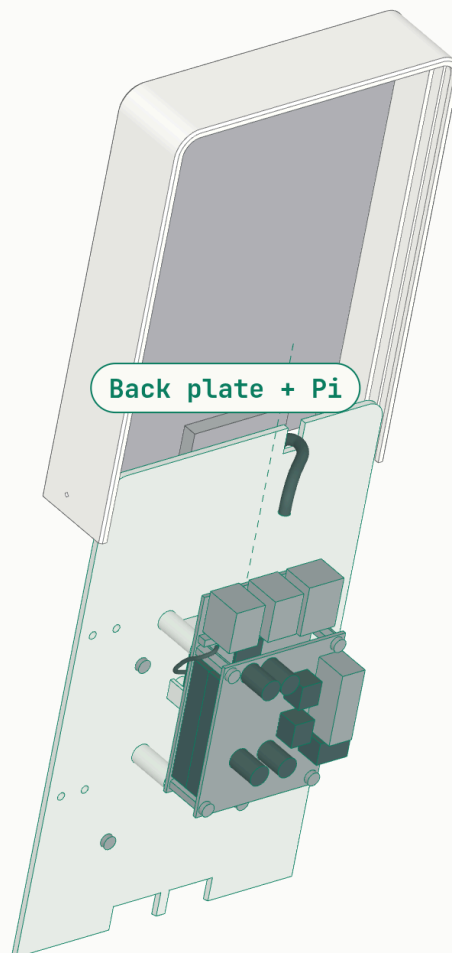
1. Press four M3 heat-set inserts into the four tall bosses on the rear of the back plate.
2. Put the fan in between the four corner guides on the rear, with the cable toward the right of the case. The label side goes away from the plate: the fan blows onto the Pi.
3. Attach the fan with four M3 × 16 screws through its corner holes into the four bosses. Turn each screw until the fan touches the boss. Do not tighten more: the thread is in plastic.
4. Put the heatsink on the SoC of the Pi.
5. Put the Pi stack on the four bosses: the USB ports up, the USB-C and HDMI ports toward the left of the case. Turn the male ends of the standoffs through the Pi into the inserts.
6. Lead the fan cable around the right edge of the Pi, above the end of the GPIO header. Connect it to the fan connector of the Pi.

4

Back plate into the slab

slab (step 1)

back plate (step 3)

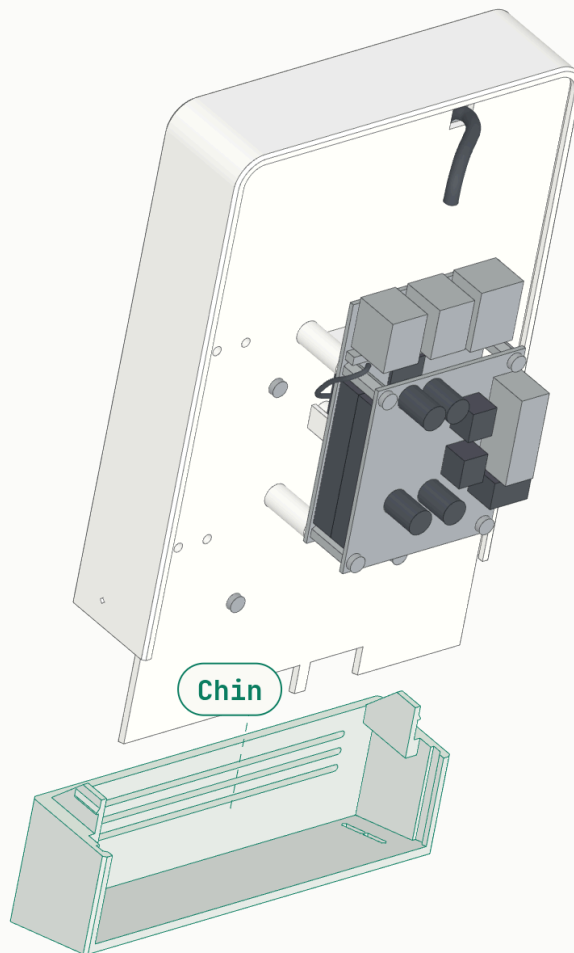


1. Keep the slab face down. Lead the two display cables through the two notches in the bottom edge of the back plate: the USB cable at the left, the ribbon at the right.
2. Put the edges of the back plate into the grooves of the slab, at the open bottom. Slide the plate up until it stops at the top wall.

Note. The drive is behind the display plugs. If the plate does not slide, look at the plugs first.

5 Chin

chin

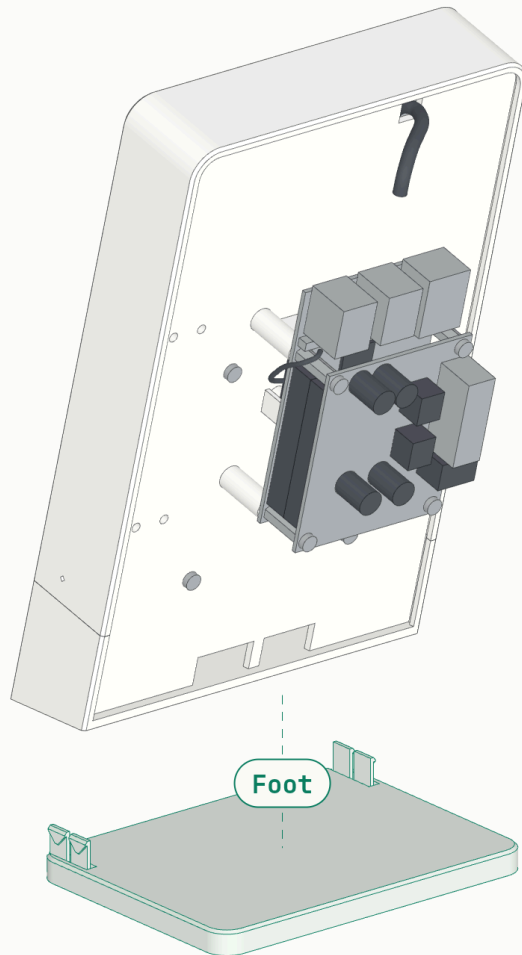


1. Put the extra length of the display cables into the chin.
2. Push the chin up onto the slab: its grooves take the bottom of the back plate. Push until the two tongues click.

Note. The chin holds the back plate. The case is now closed.

6 Foot

foot

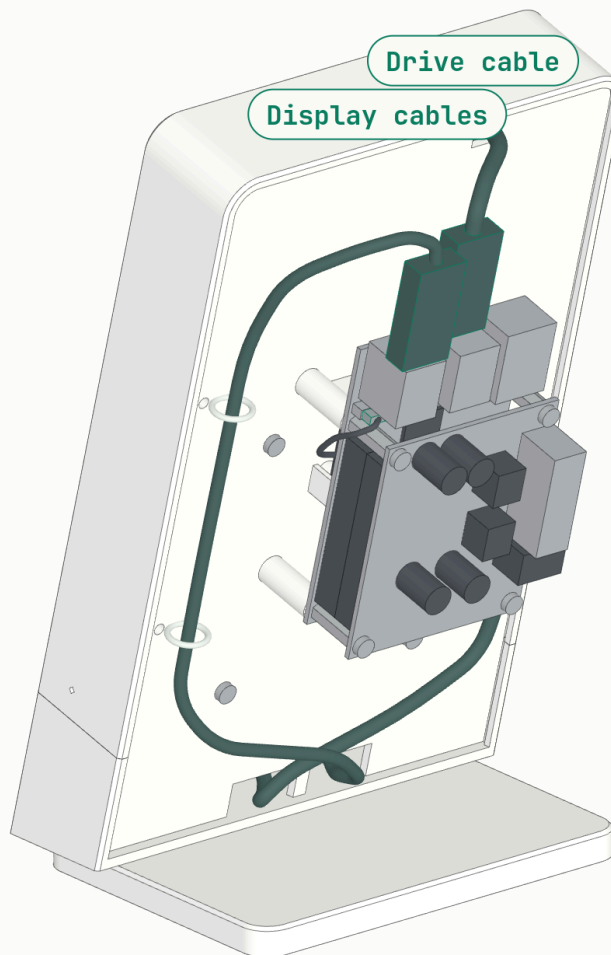


1. Put the case on the foot. The foot is 6 mm in from the front and the sides, and it reaches far to the rear.
2. Push down until the four hooks click into the floor of the chin.

7

Cables on the rear

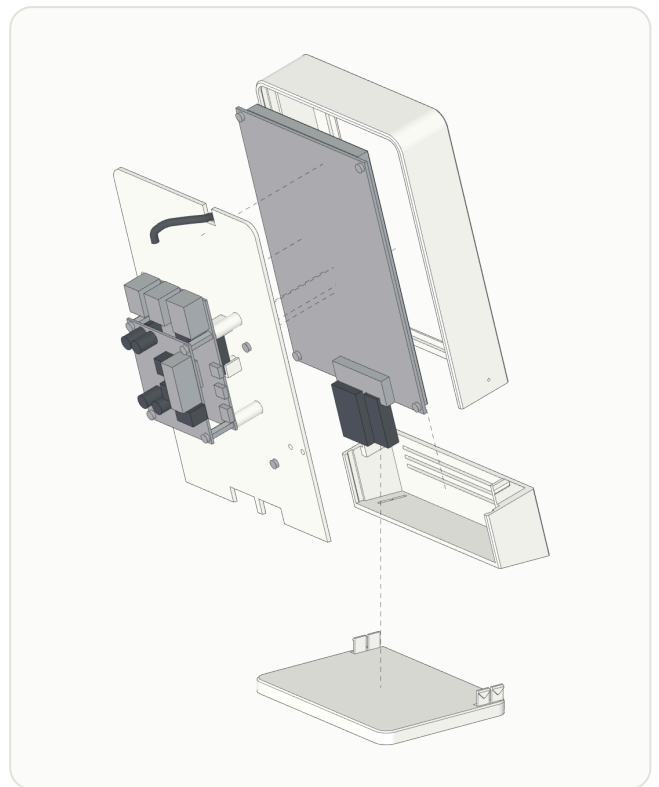
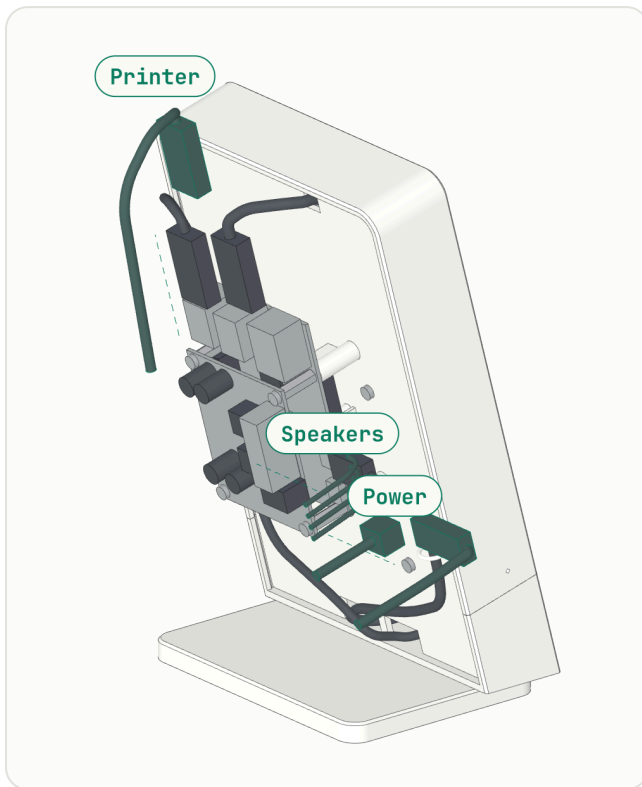
3 × twist tie



1. Lead the drive cable over the top of the Pi. Connect it to the blue USB 3 port next to the board, from above.
2. Lead the HDMI ribbon to the left, then up the left side of the back plate. Tie it at the pair of holes at the left. Connect it to the micro HDMI port next to the USB-C port.
3. Lead the USB cable to the right, then up the right side of the back plate. Tie it at the two pairs of holes at the right. Bend it over the top and connect it to the black USB 2 port away from the board, from above.
4. Connect the printer to the black USB 2 port next to the board. The USB ports point up, so you connect them from the top of the case.
5. For each tie: put it in through one hole and out through the other, around the cable. Twist it closed on the rear.

Note. No cable shows on the front or the sides. On the rear the cables are part of the look: keep them tight, with no loops.

Connect



1. Connect the USB-C power supply to the Pi. The port is on the left edge of the Pi. Turn the cable to the rear.
2. Connect the 3D printer to the black USB 2 port next to the board, from above.
3. Put the right-angle plug of the Amp2 power supply into the jack on the left edge of the Amp2. Turn the cable to the rear.
4. Connect the speaker wires to the screw terminals on the left edge of the Amp2.

To open the case

1. Disconnect the cables on the rear. Pull the foot off. Its hooks let go when you pull hard.
2. Push a pin or a paper clip into the small hole in each side wall, just above the chin. Each pin pushes the ridge of one chin tongue out of its groove. Pull the chin down.
3. Slide the back plate down and out of the grooves. The drive and the Pi come out with it.