

Fixperts

Daniel's Arcana

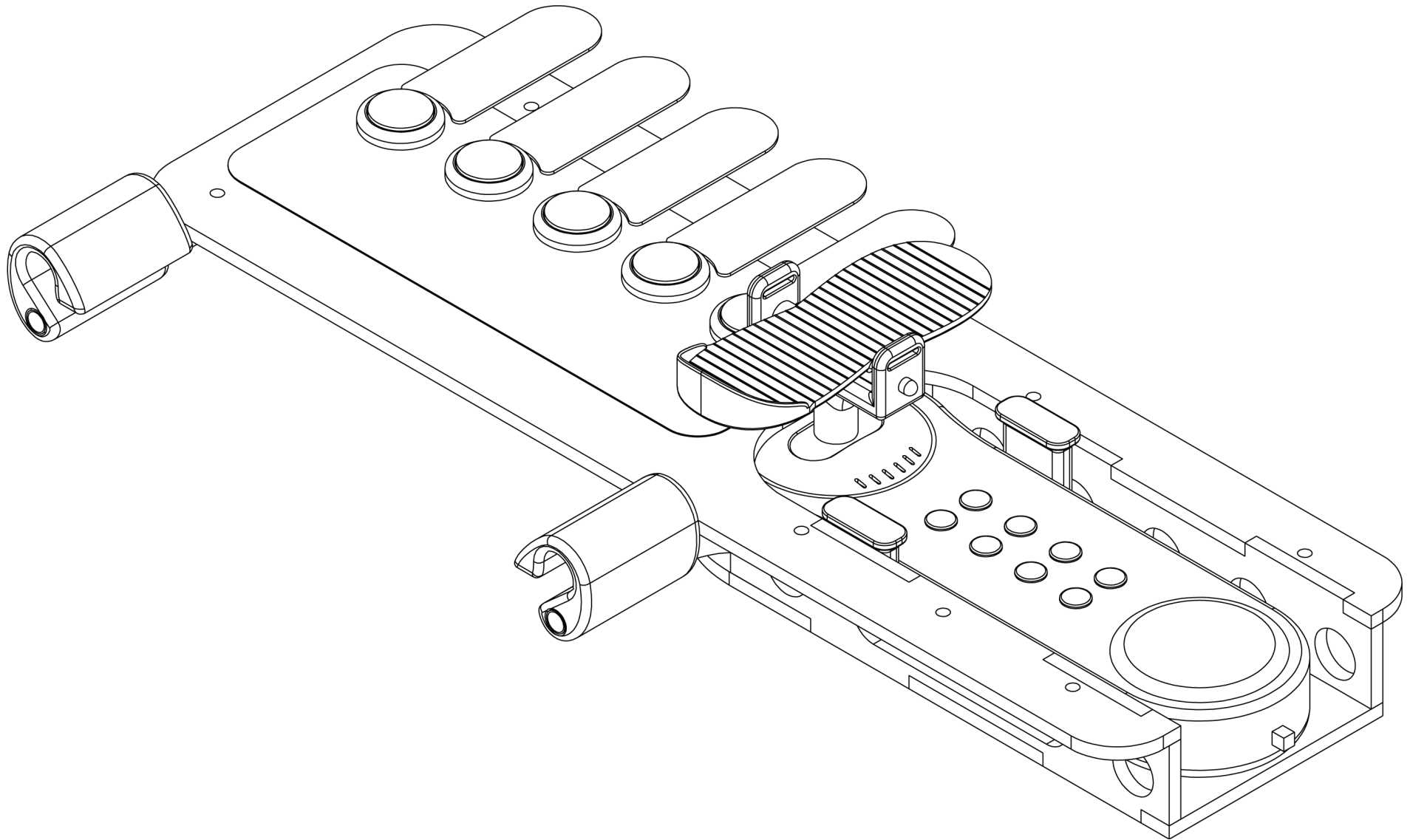
Manufacturing instructions

Liel Meir, Mai Binyamin, Shahar Beja

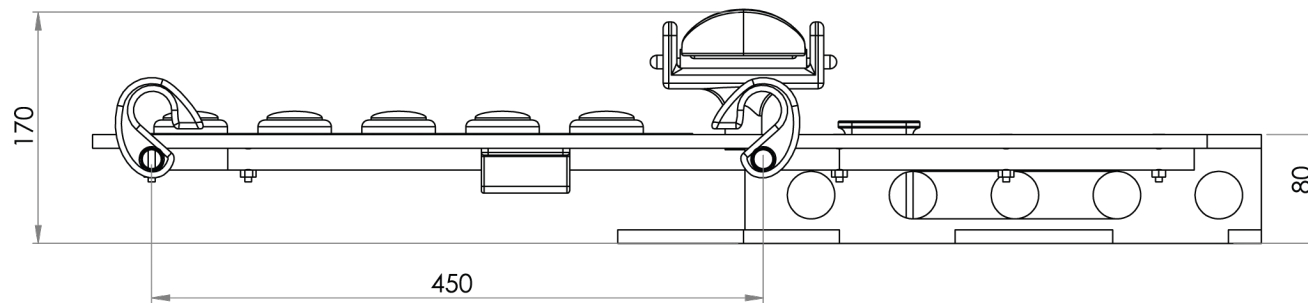
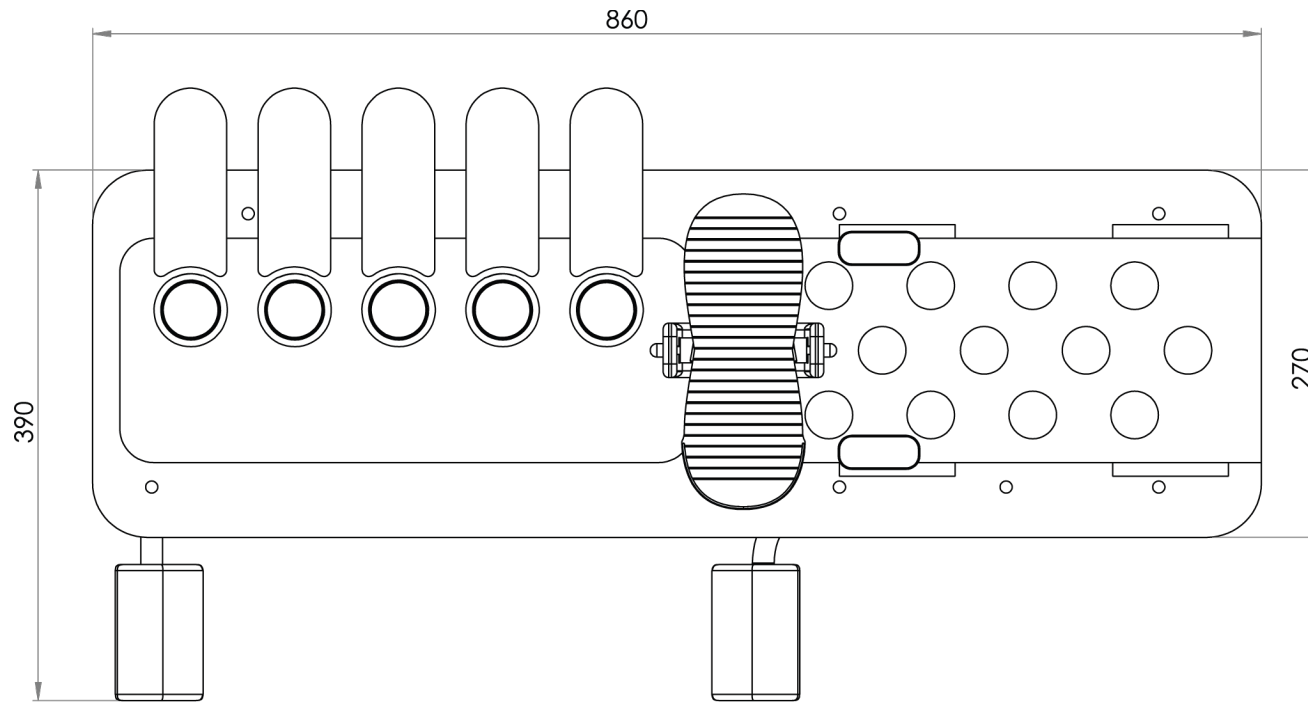




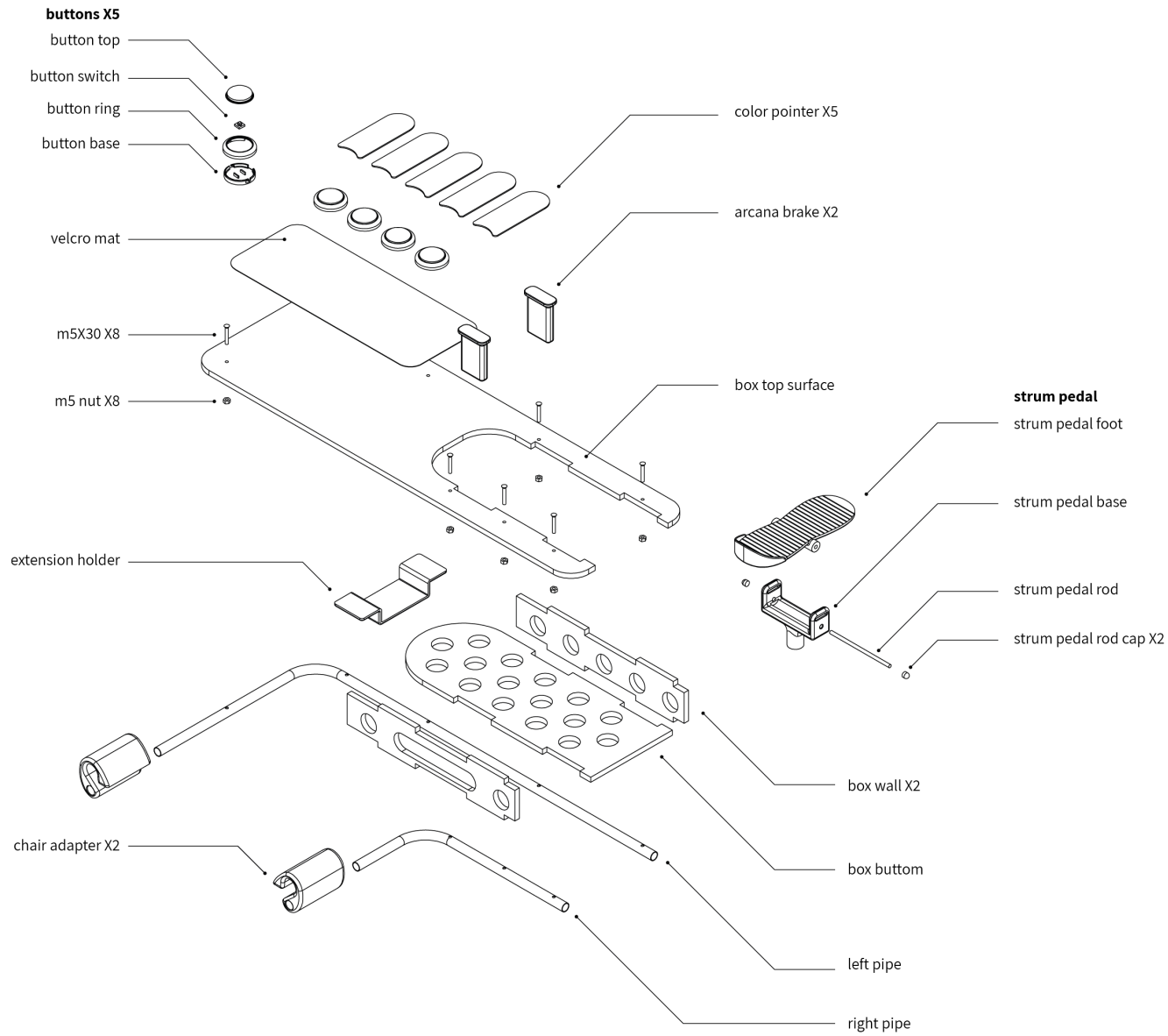
GENERAL VIEW



TOP VIEW



BACK VIEW



	Part name	QTY.
buttons	button top	5
	button switch	5
	button ring	5
	button base	5
box	box top surface	1
	box wall	2
	box bottom	1
strum pedal	strum pedal foot	1
	strum pedal base	1
	strum pedal rod	1
	strum pedal rod cap	2
pipes	left pipe	1
	right pipe	1
screws	m5X30	8
	m5 nut	8
	arcana brake	2
	velcro mat	1
	extension holder	1
	color pointer	5
	chair adapter	2

Step 1 / **Equipment and Materials**

HERE IS EVERYTHING YOU NEED:

Technologies:

Access to a 3D printer
Access to a laser cutting machine
Access to a pipe bender
Access to drill post

Materials:

Plywood - 10 mm
PVC Foam- 3 mm
PLA filament
PETG filament
Loom fabric
Hook sticky tape
Metal pipe - Ø 16

Equipment:

Staple gun
Staples for a staple gun
Soldering iron
White marker for fabric
Carpentry glue
Epoxy glue
Zip tie
Spray paint - Yellow, Blue, Green, Red, and Black
Colored stickers - Yellow, Blue, Green, Red, and Black
Adhesive Spray
Flat head screw and nut - m5 X 30
3.5 mm connector
2 core cable
5 electronic button component
Pneumatic sander
5 millimeter drill bit

Step 2 / **3D Printing**

WHAT DO WE NEED?

Technologies:

Access to a 3D printer

Materials:

PLA filament

PETG filament

PLA Print

1 Download the files:

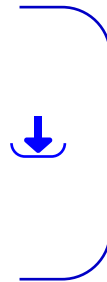
- button top X5

- button ring X5

- button base X5

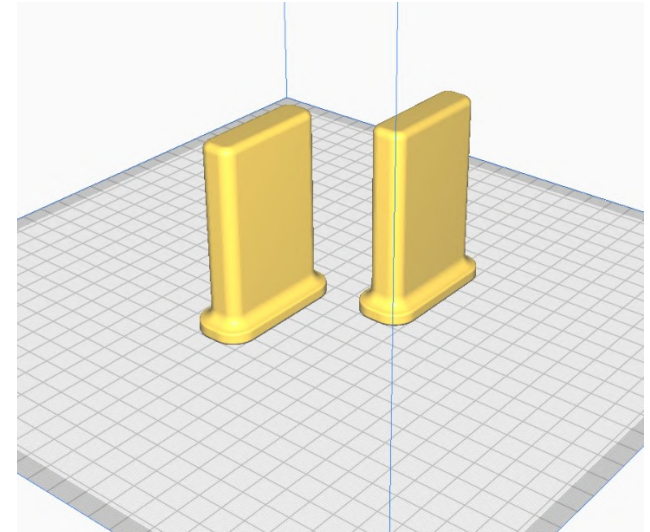
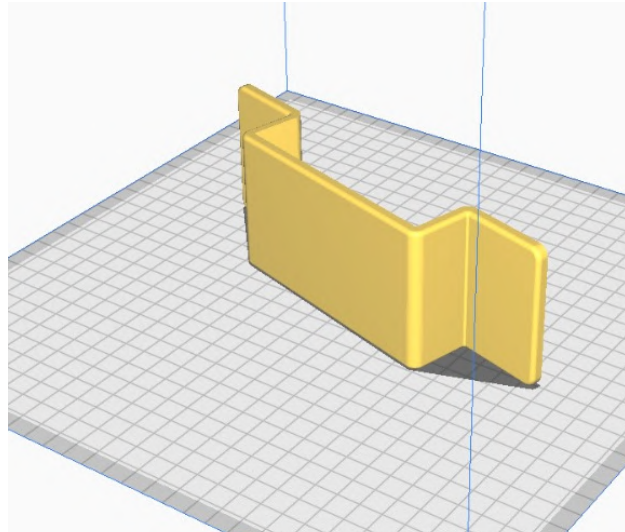
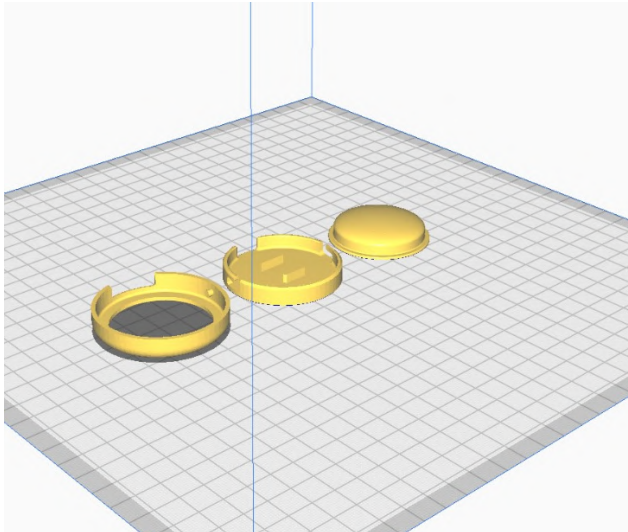
- Arcana Brake X2

- Extension Holder



[Link to purchase PLA filament](#)

② PRINTING NESTING:



③ PRINTER SETTINGS:

Infill: 40%

Resolution: 0.15mm

PETG Print

1 Download the files:

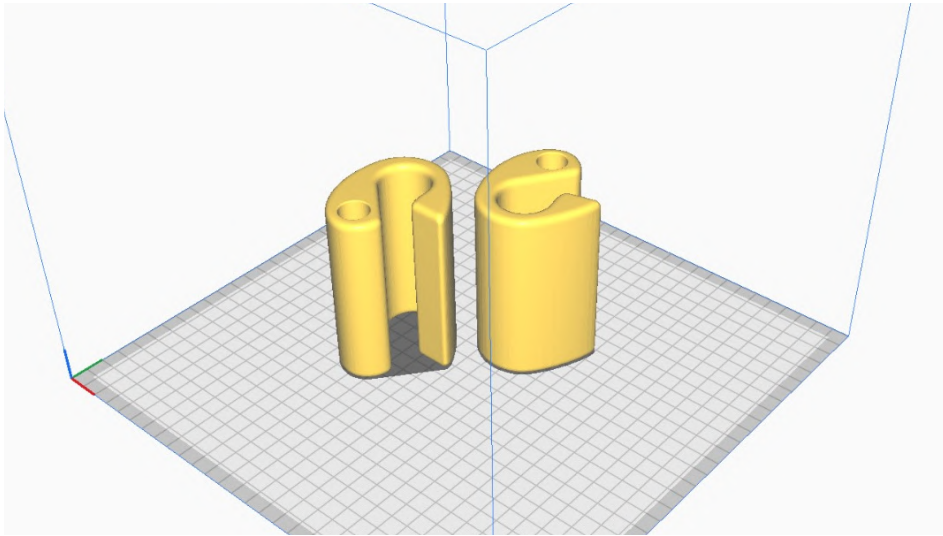
- Strum pedal foot
- Strum pedal base
- strum pedal cap X2
- Chair adapter X2



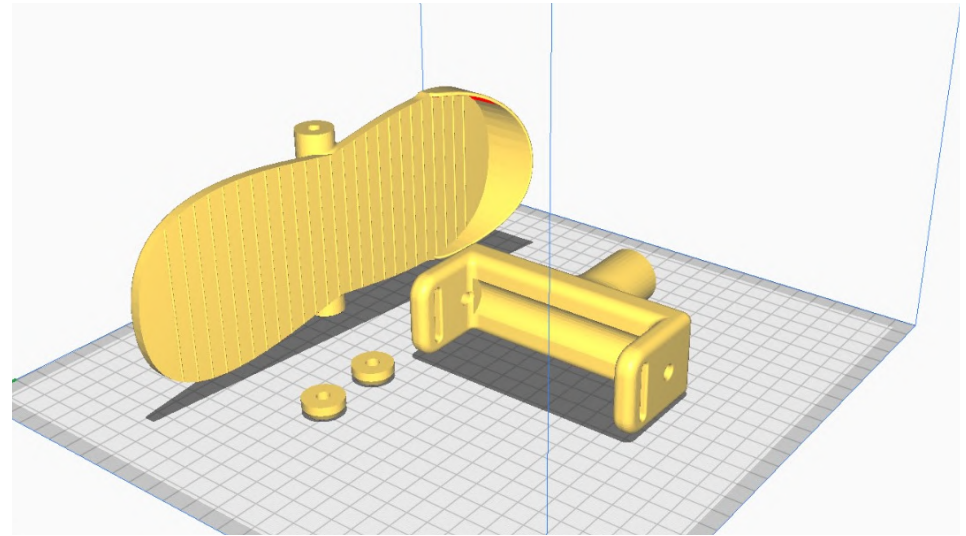
[Link to purchase PETG filament](#)

② PRINTING NESTING:

a



b



③ PRINTER SETTINGS:

Infill: 40%

Resolution: 0.15mm

Step 3 / **Laser Cutting**

WHAT DO WE NEED?

Technologies:

Access to a laser cutting machine

Materials:

Plywood - 10 mm

PVC foam - 3 mm

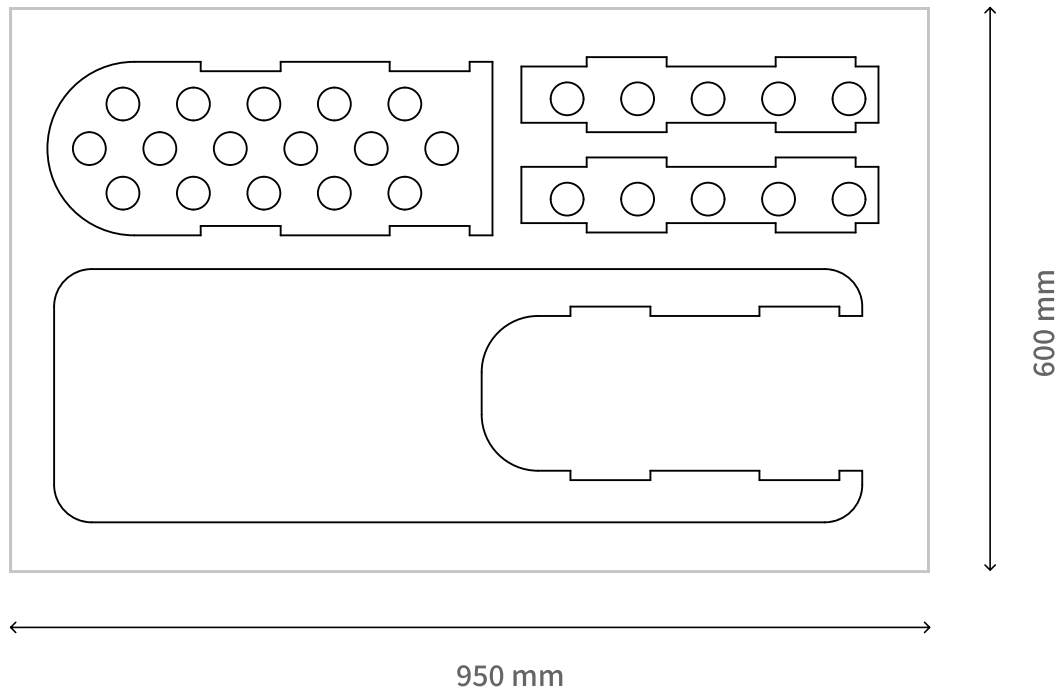
Plywood Laser Cutting

1 Download the files:

- Plywood Laser Cutting [↓](#)

2 Cutting Nesting:

Thickness - 10 mm



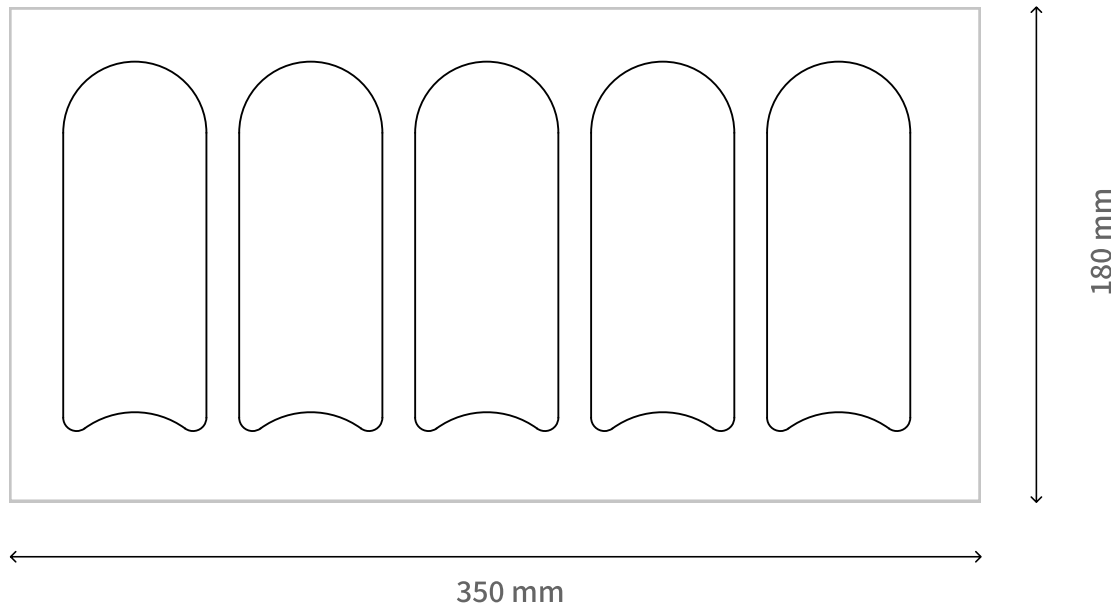
PVC foam Laser Cutting

1 Download the files:

- PVC foam Laser Cutting [↓](#)

2 Cutting Nesting:

Thickness - 3 mm



Step 4 / **Box Assembly**

WHAT DO WE NEED?

Parts:

Plywood parts from the laser cut

'Extension Holder' part from the PLA printing

Equipment:

Staple gun

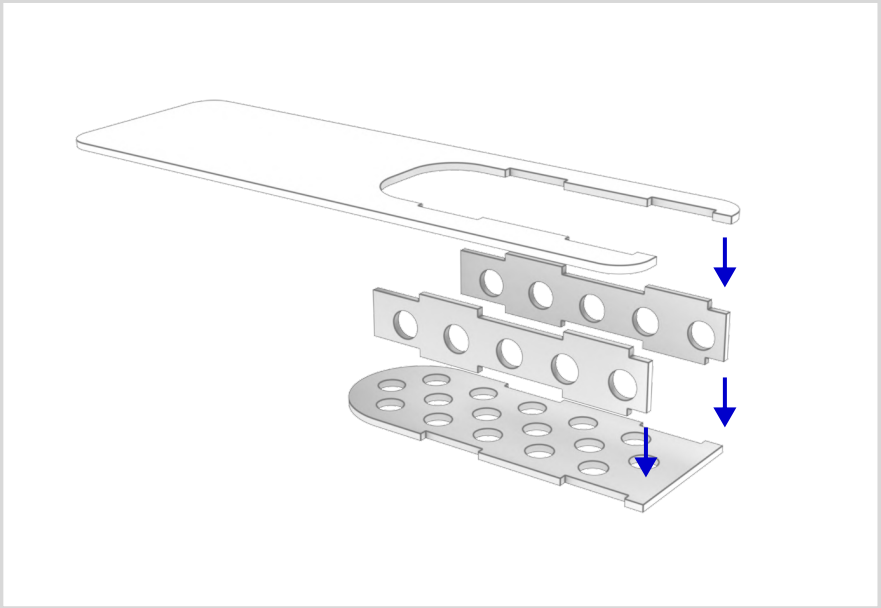
Staples for a staple gun

Carpentry glue

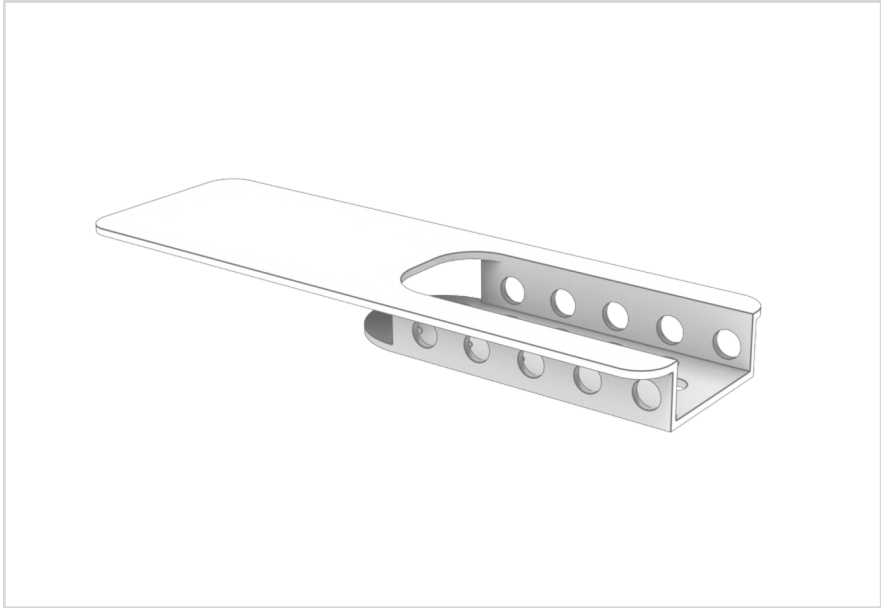
Epoxy glue

Connect all the wooden parts in the order shown.
Use carpenter's glue and staples.

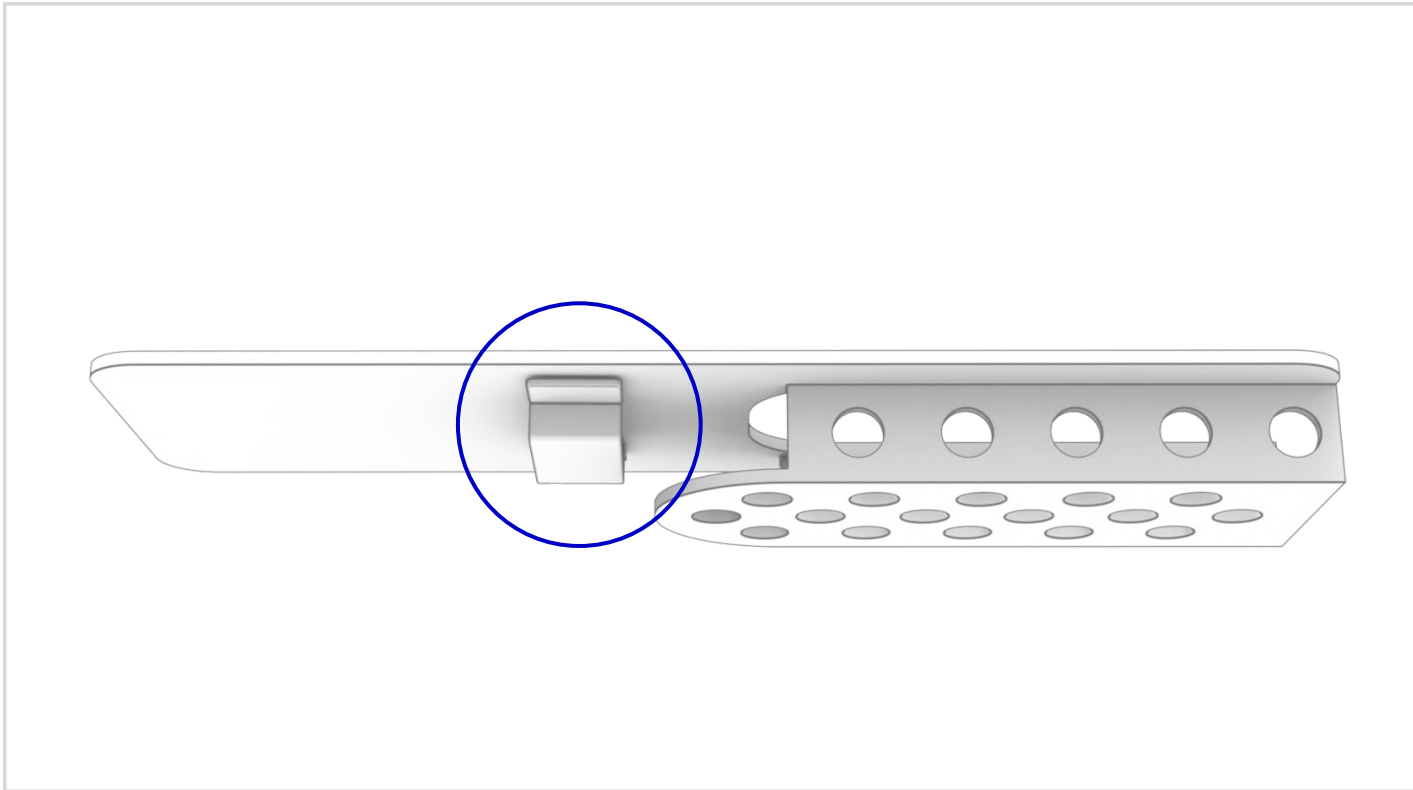
1



2



3



Glue the 'extension holder' to the bottom of the box, using epoxy glue

Step 5 / **Pipe preparation**

WHAT DO WE NEED?

Technologies:

Access to a pipe bender

Access to drill post

Equipment:

5 mm drill bit

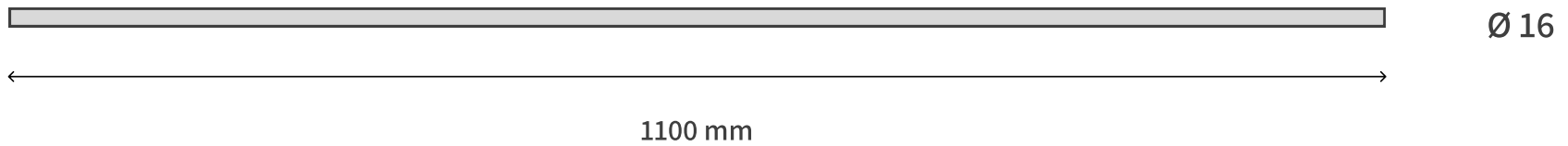
Materials:

Metal pipe - Ø 16

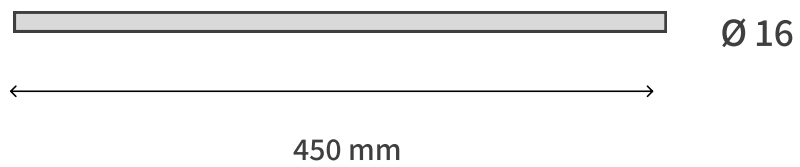
① Cutting the metal pipe in 2 sizes:

- A - 1100 mm
- B - 450 mm

A

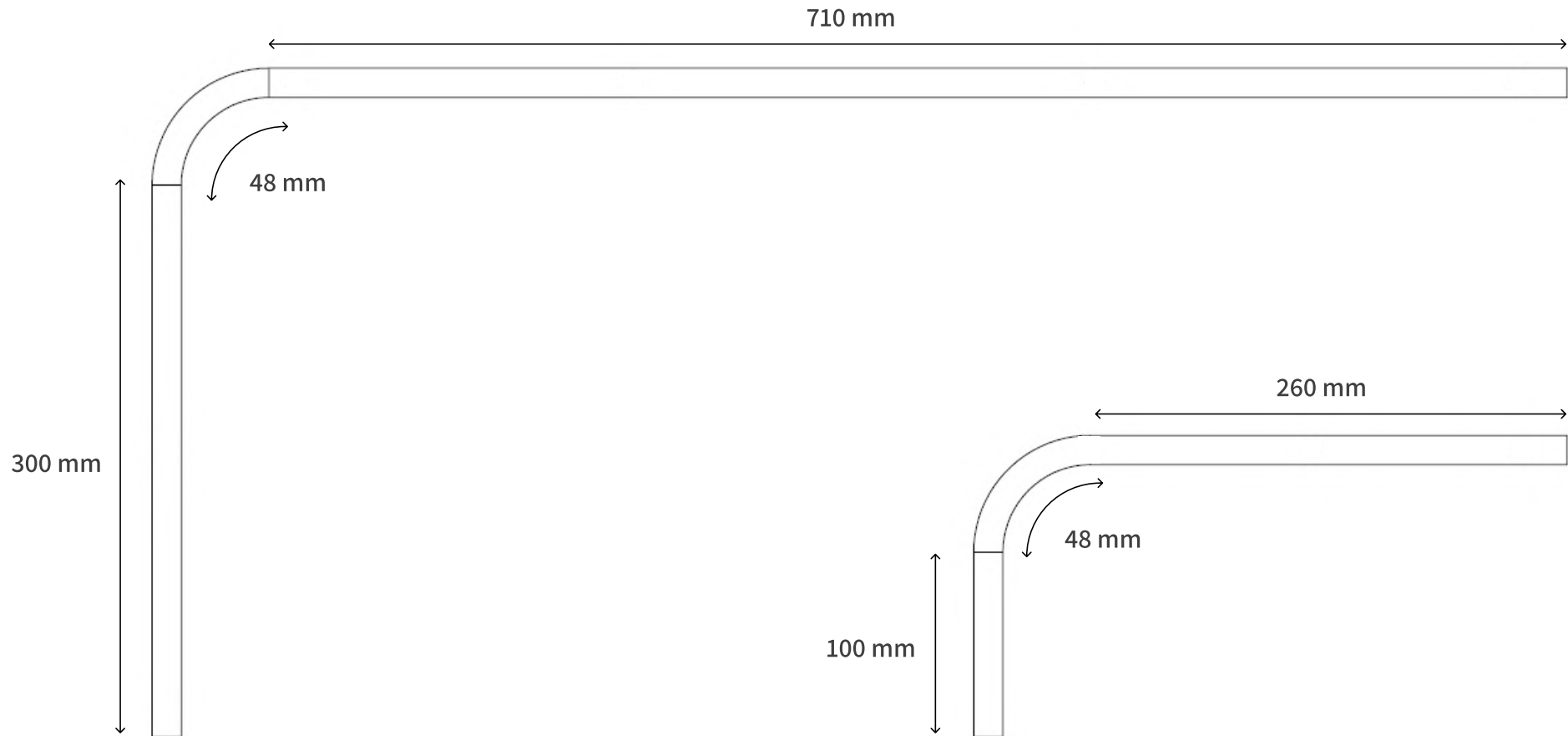


B

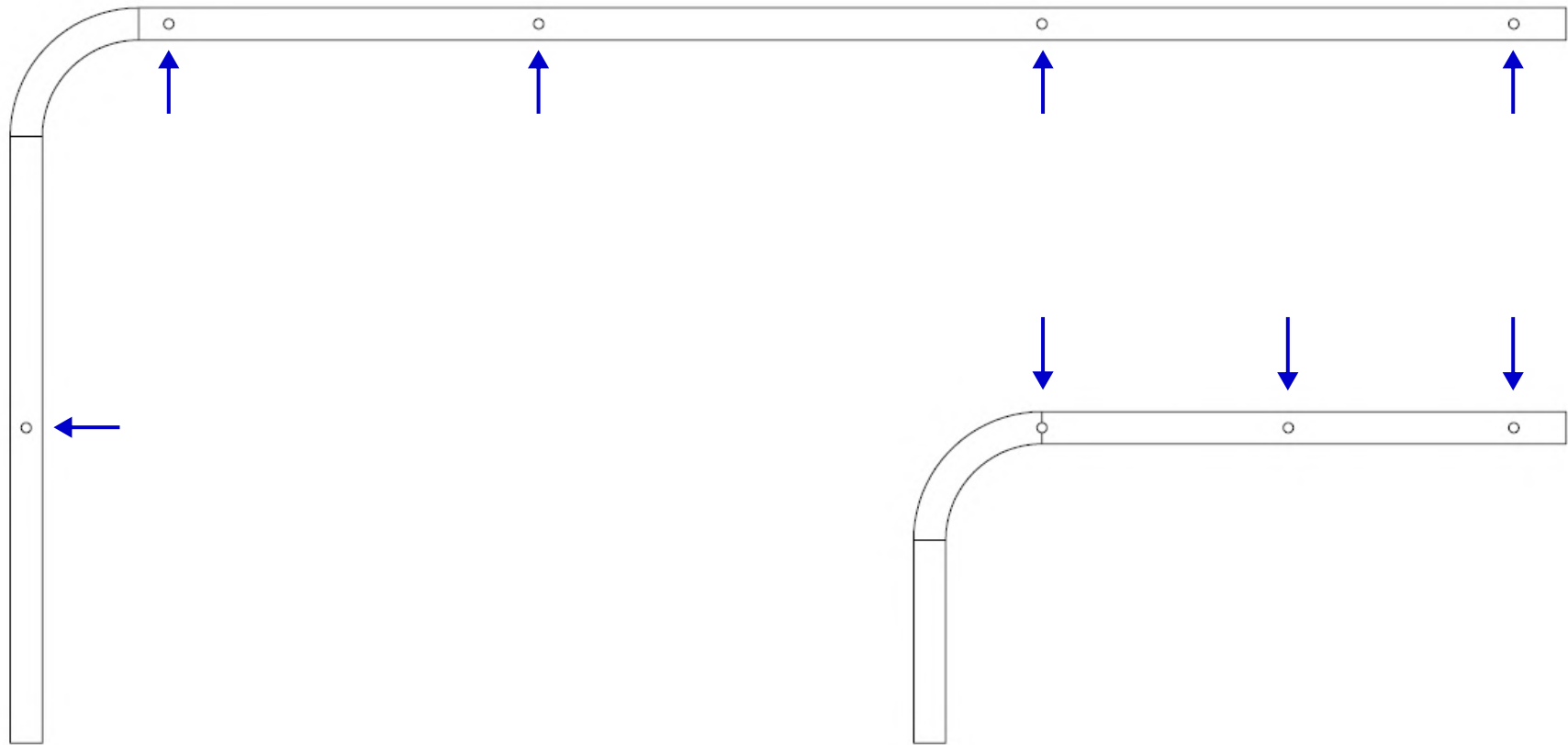


Bend the pipes according to the following drawings:

2



3 Drill the pipes with a 5 mm drill bit. Drill according to the markings shown in the drawing:



Step 6 / **Color**

WHAT DO WE NEED?

Parts:

'button ring' part from the PLA printing

Assembled wood box

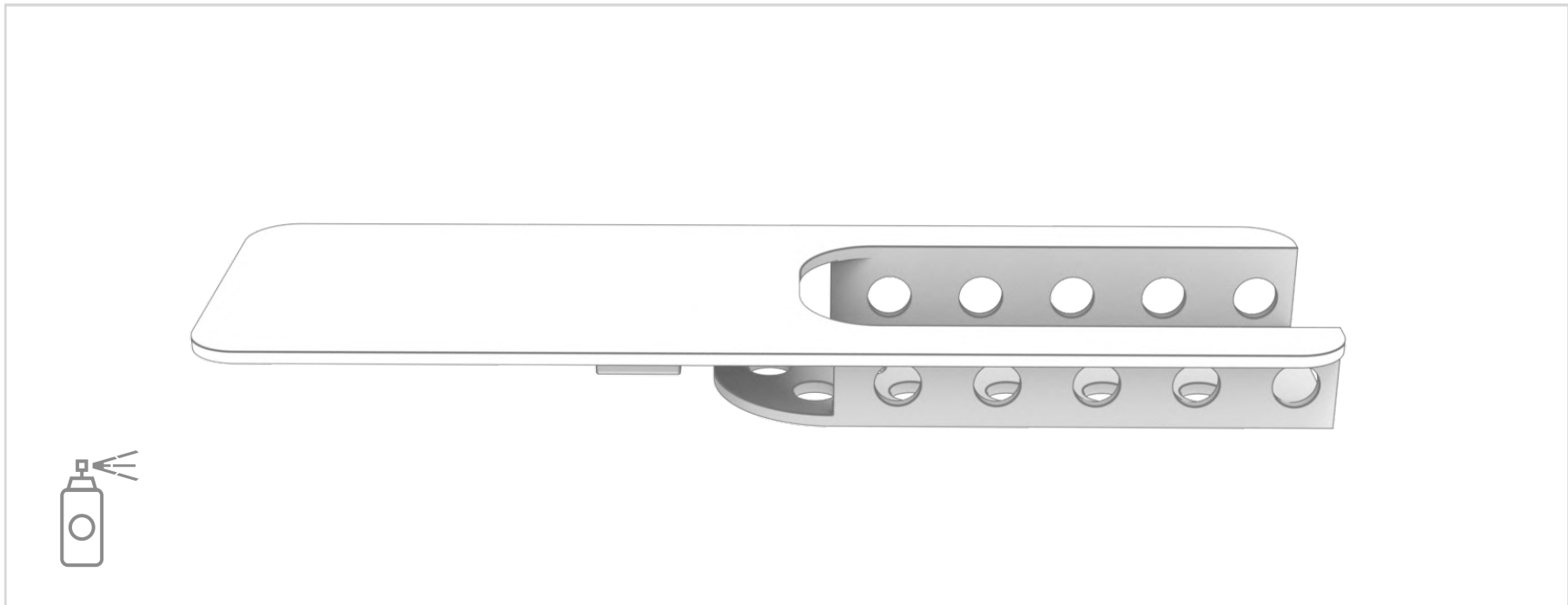
Parts from the PVC laser cut

Equipment:

Spray paint - Yellow, Blue, Green, Red, and Black

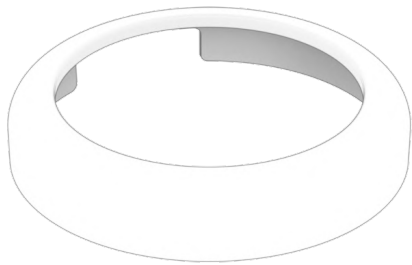
1 Paint the box the color you like.

We chose white, in order to match the visibility of the Arcana.

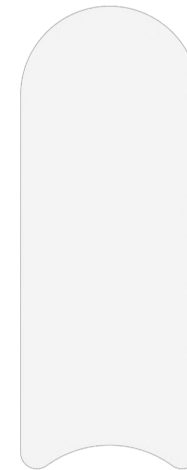


- ② We will need the 5 PLA '**button ring**' parts, and the 5 PVC foam laser cutting, in five colors: Yellow, Red, Green, Blue and Black.

Button ring X 5



PVC foam X 5



Step 7 / **Electronics**

WHAT DO WE NEED?

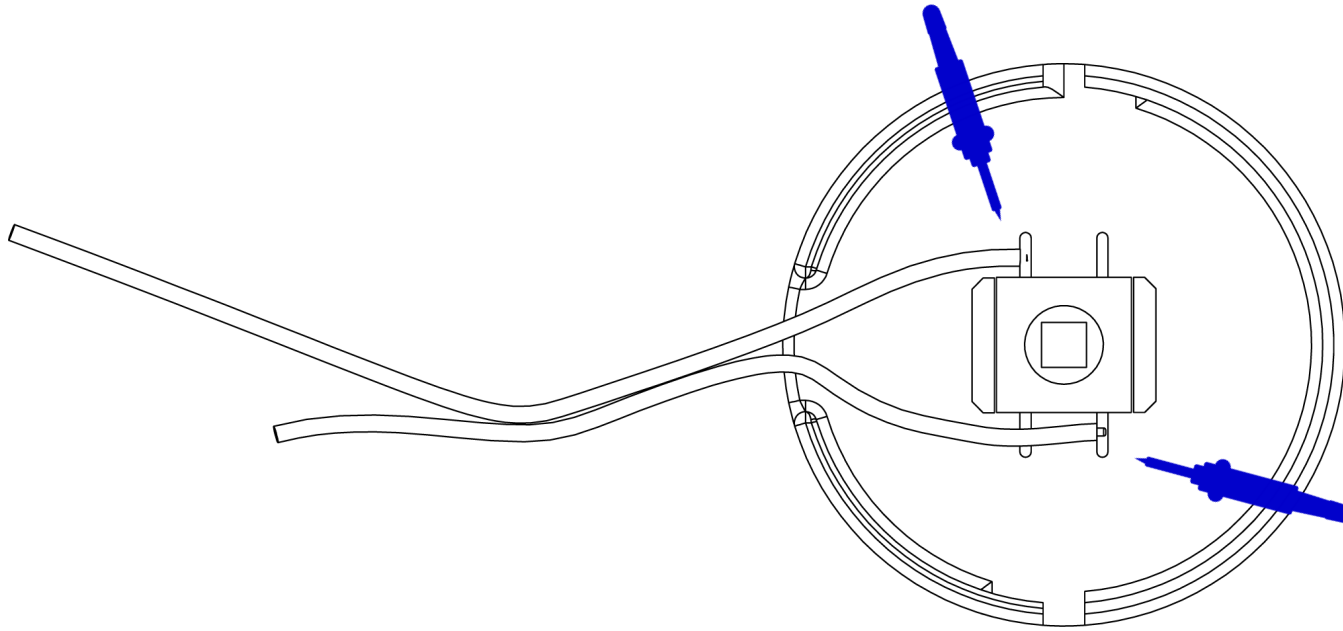
Equipment:

Soldering iron

3.5 mm cable

5 electronic button component

- 1 Solder the cable to the button switch.



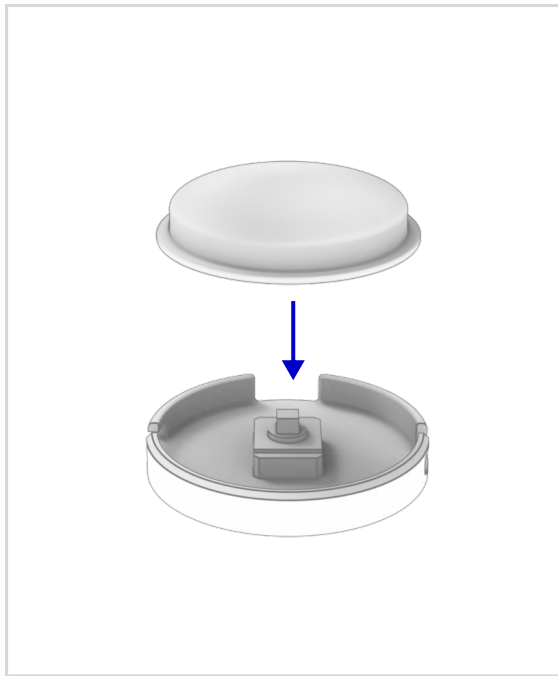
Step 8 / **Buttons Assembly**

WHAT DO WE NEED?

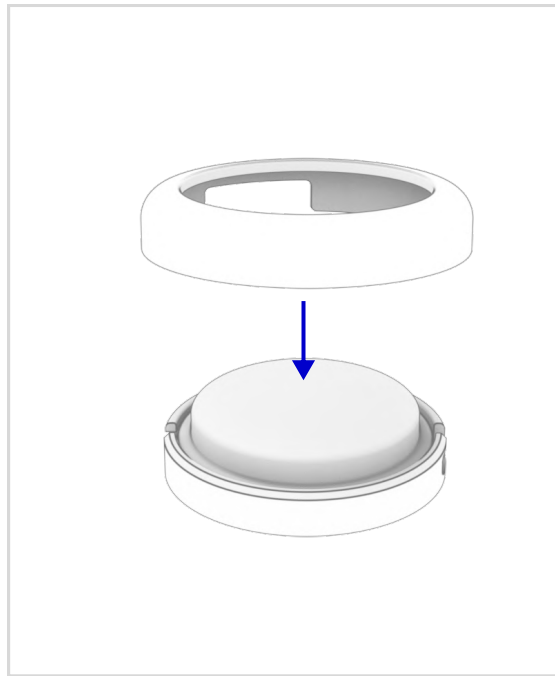
Parts:

- 'Button top' part from the PLA printing
- 'Button ring' part from the PLA printing
- 'Button base' part from the PLA printing
- The soldered Electronics

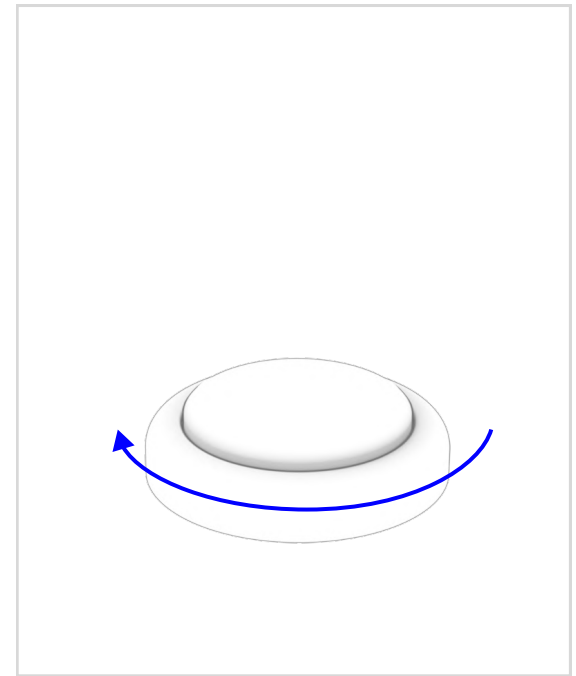
1



2



3



Step 9 / **Scotch adhesives and markings**

WHAT DO WE NEED?

Parts:

PVC foam parts

Assembled buttons

Materials:

Loom fabric

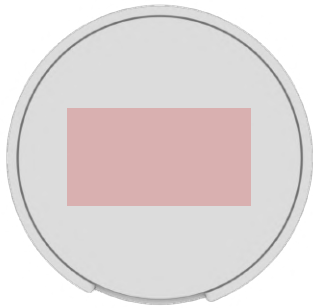
Hook sticky tape

Equipment:

White marker for fabric

- 1 Stick Hook tape on the buttons and signs in the marked places.

Buttons Assembly X 5



BOTTOM VIEW

PVC parts X 5



BOTTOM VIEW

② Download the files:

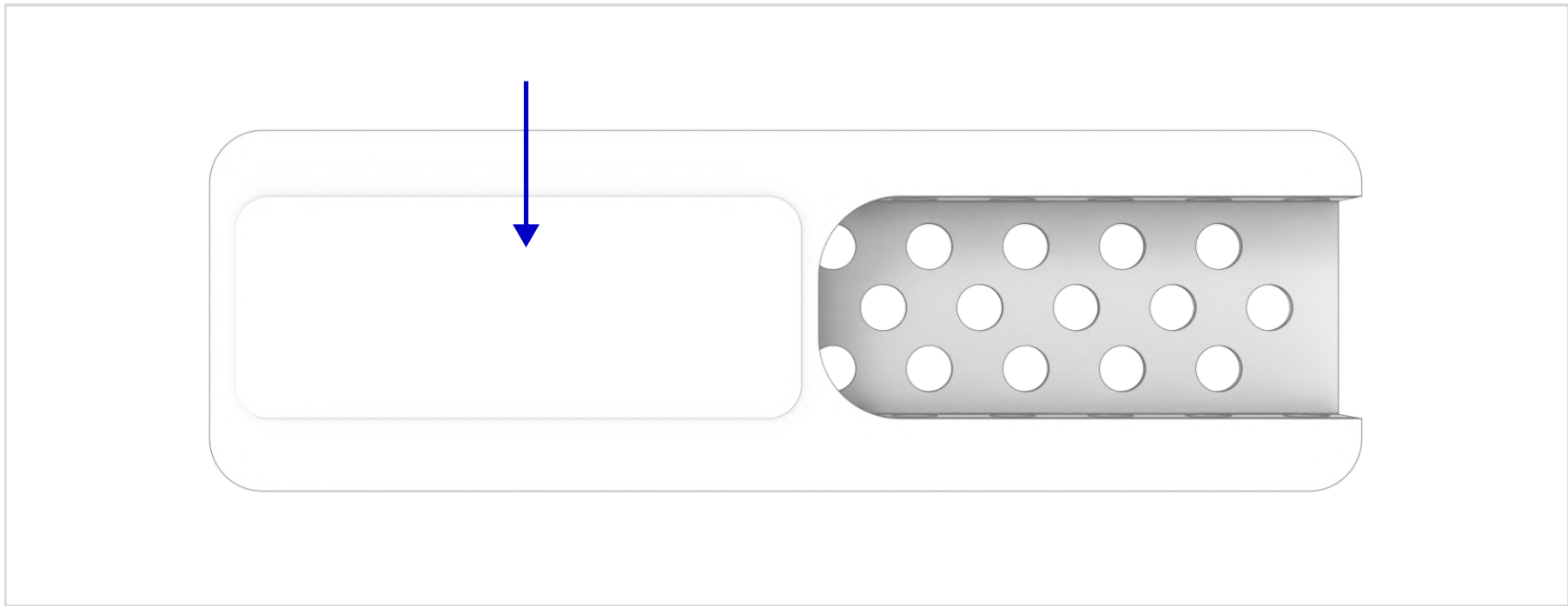
- Velcro marking 

③ • Print the file on A3 paper

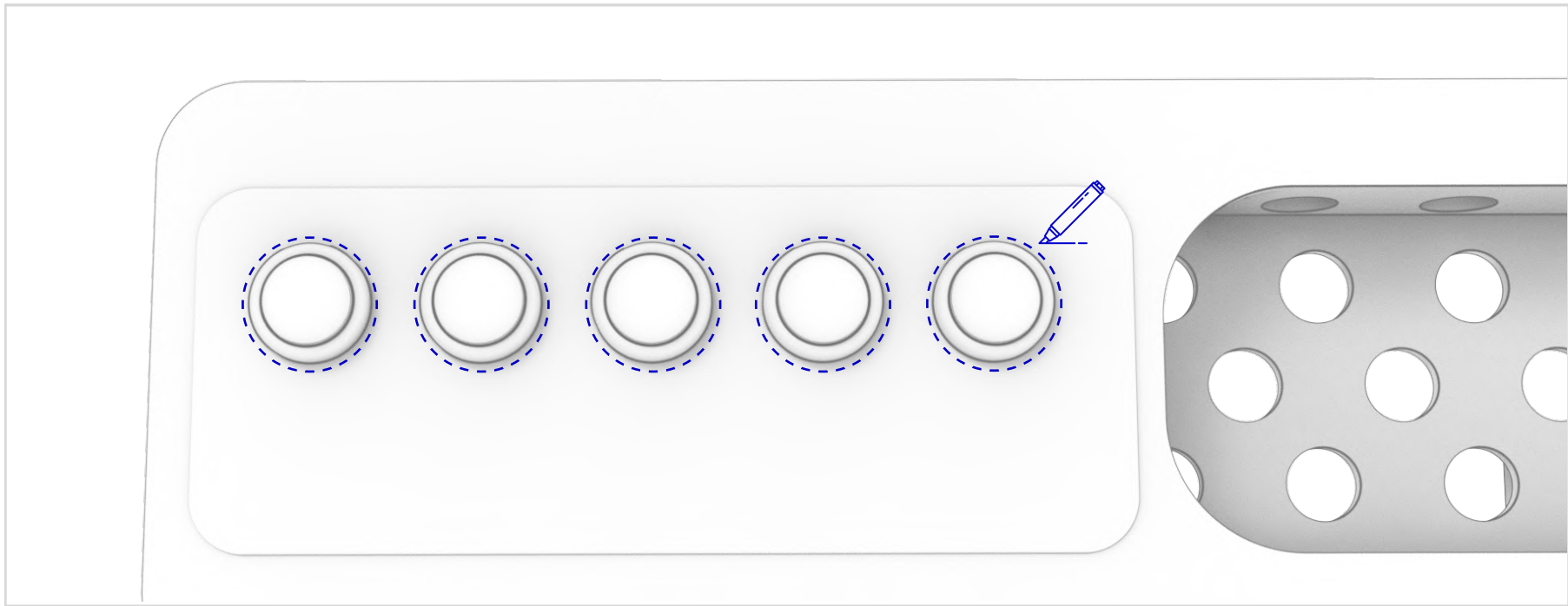
- Cut the paper according to the marking. Use the paper as a tamplate, and cut the Loop fabric according to it.



- ④ Stick the Loop fabric on the arcana according to the marking in the drawing, using adhesive spray.



- 5 Place the buttons on the surface according to the range of motion that is convenient for the user.
Mark around the buttons with a white marker, in order to keep their position for future times.



Step 10 / **Strum Pedal Assembly**

WHAT DO WE NEED?

Parts:

- 'Strum pedal foot' part from the PTG printing
- 'Strum pedal base' part from the PTG printing
- 'Strum pedal cap' parts from the PLA printing

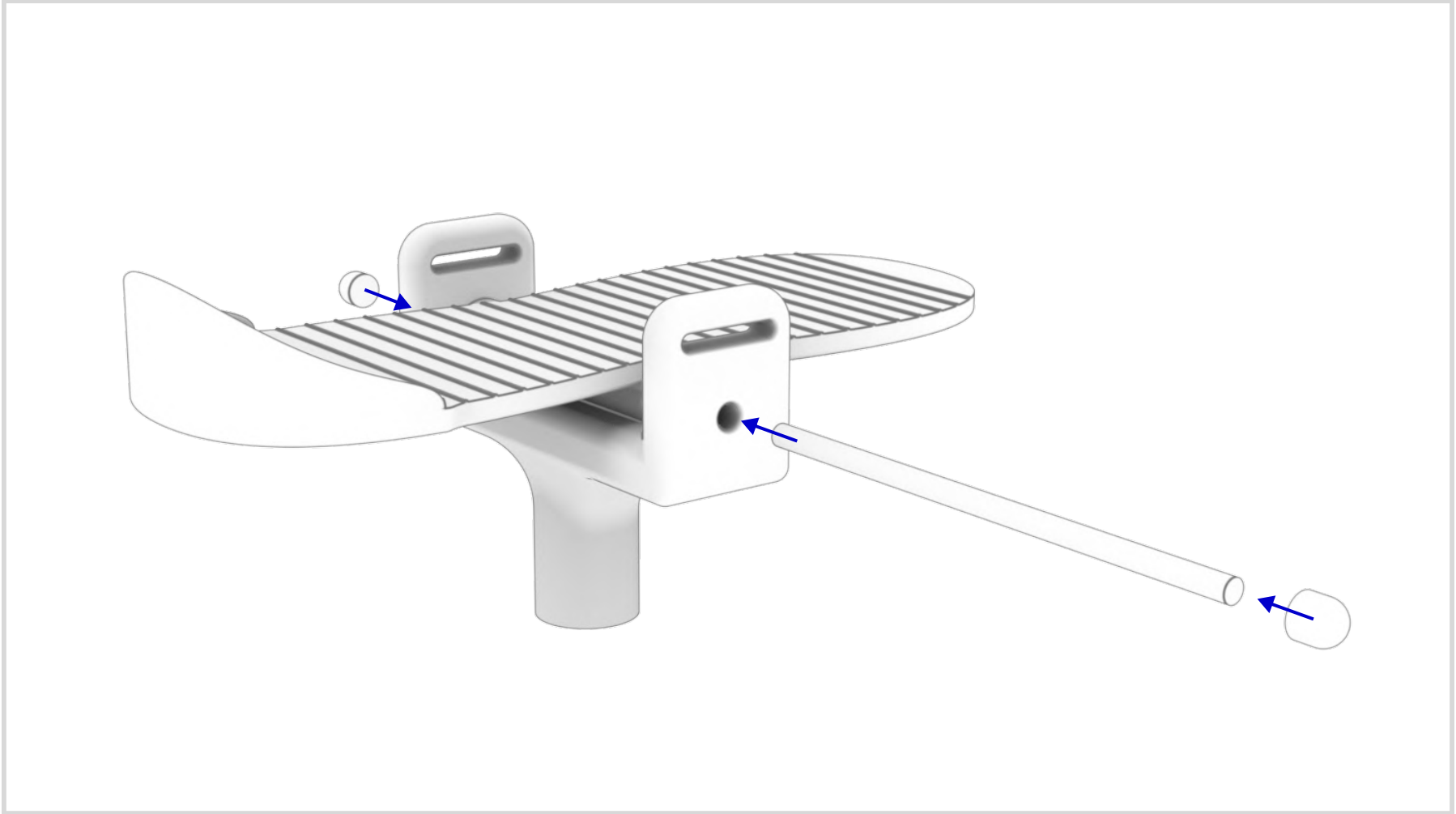
Materials:

6 mm rod

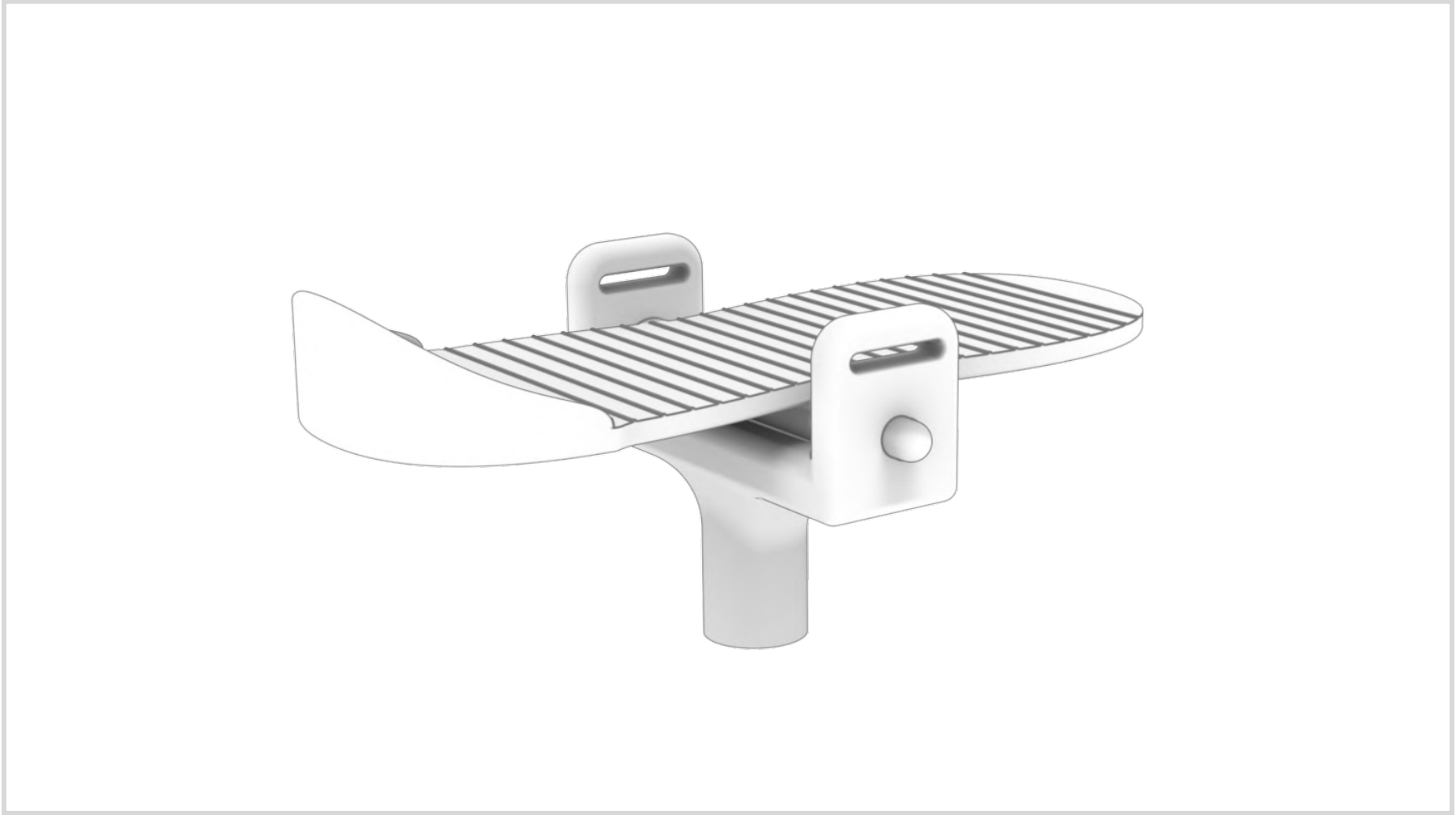
Equipment:

Epoxy glue

1

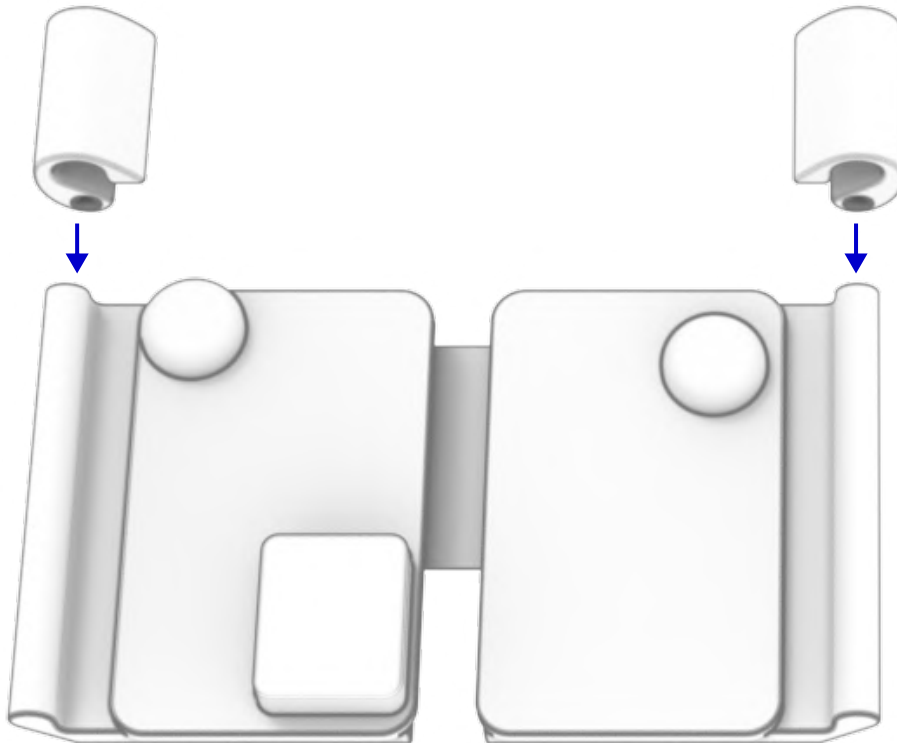


2

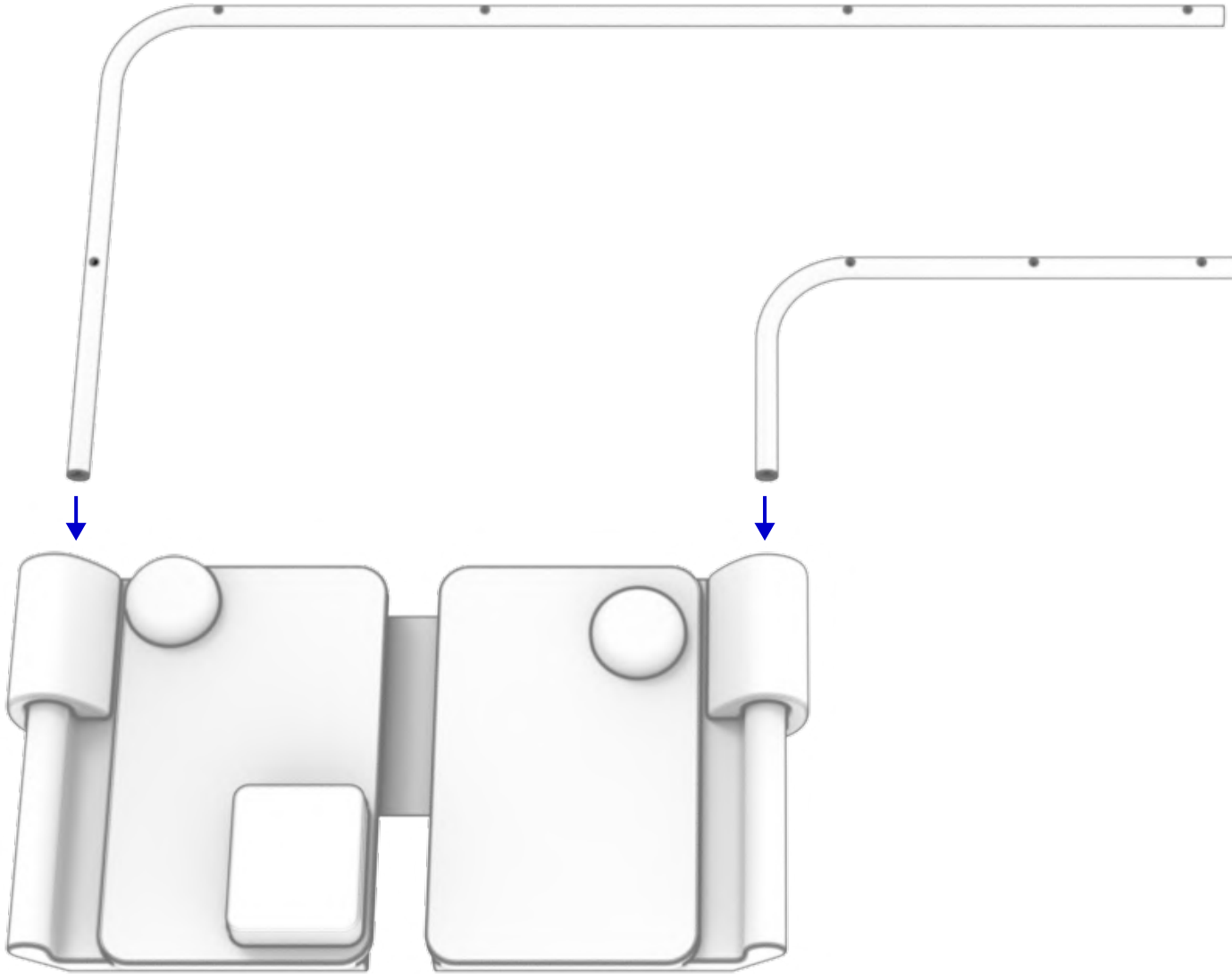


Step 11 / **Final assembly! :)**

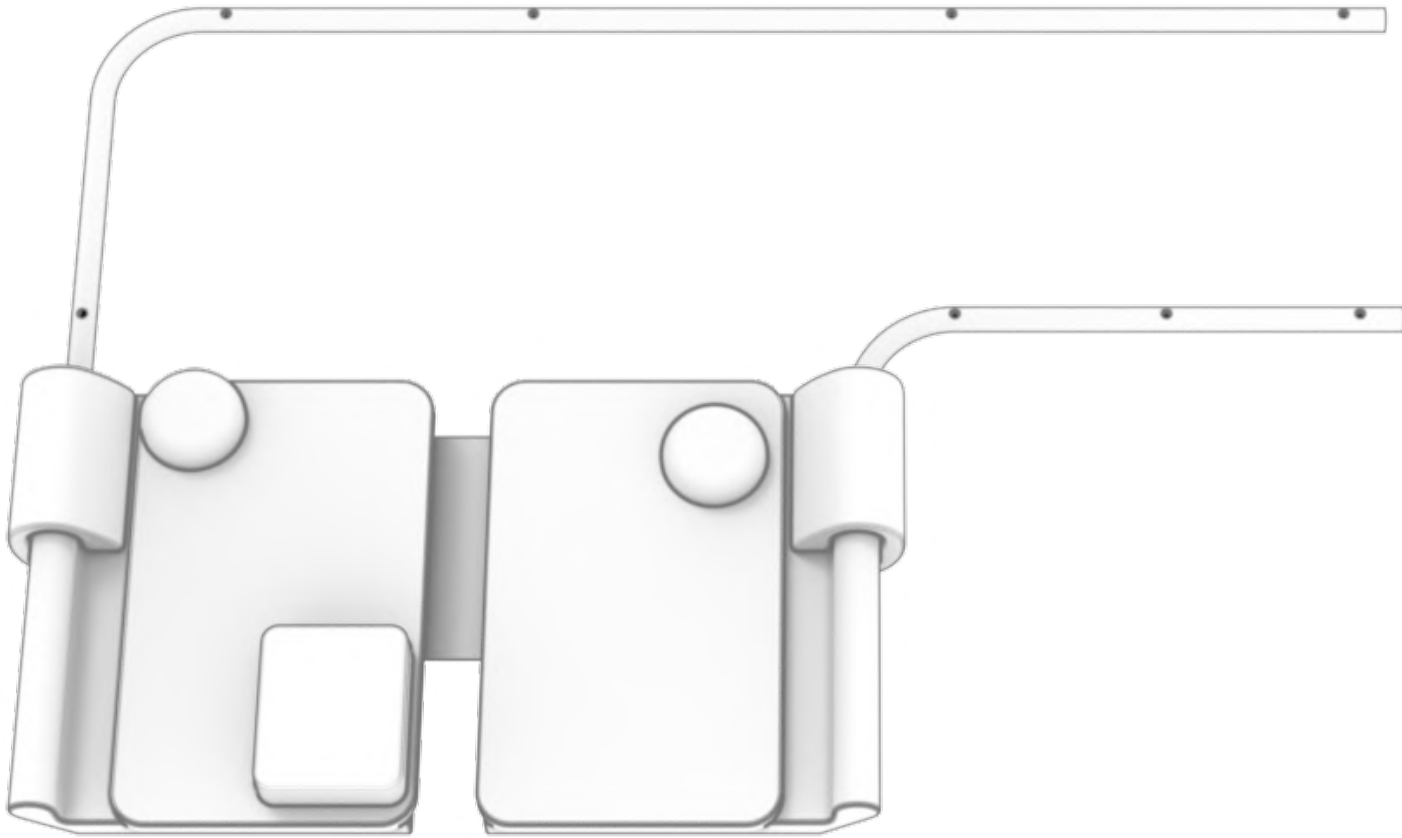
- 1 Slide the 'Chair adapters' onto the foot board of the wheelchair.



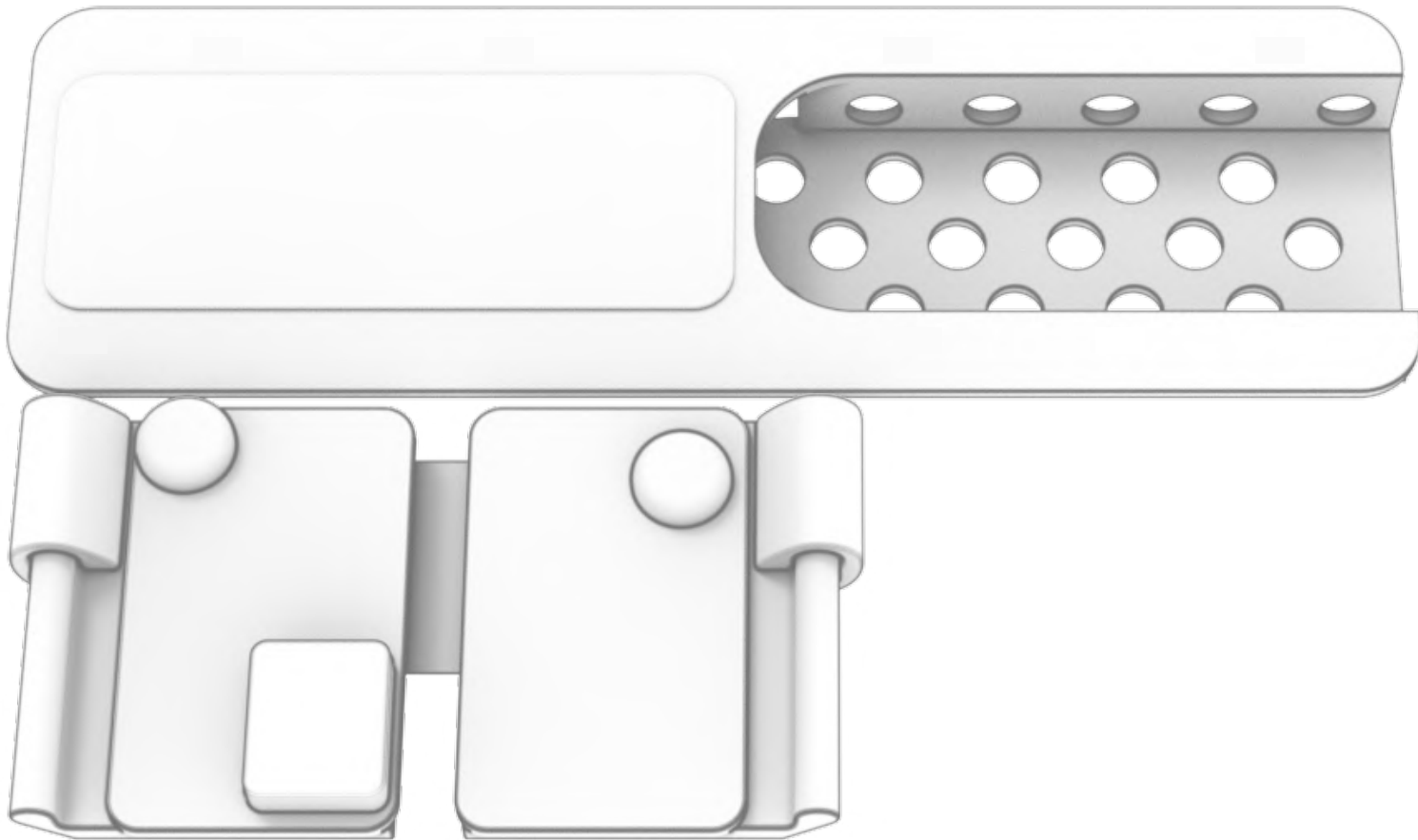
- ② Slide the bent pipes into the designated hole.



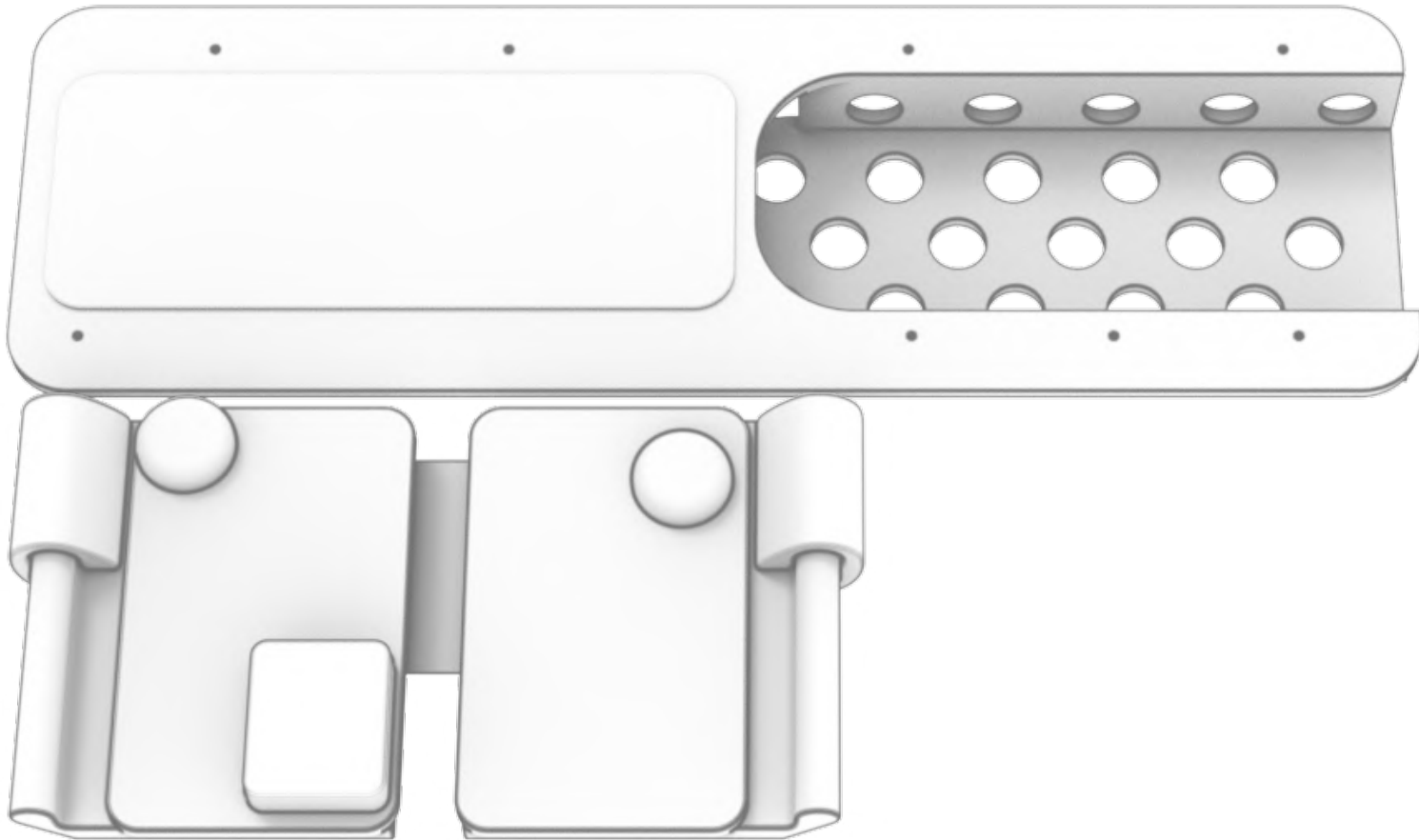
2



- ③ Place the assembled box on top of the pipes.



- ④ Drill holes according to the holes on top of the pipes.
Connect using the screw and nut.



Fixperts
Thanks!

