Wavetable Build Instructions

for rev 13 tables

Parts

Use this spreadsheet to calculate what to order depending on how many Wavetables you would like to build. We recommend 3-4 students per table.
Many schools already own materials used in the Wavetable. If you want to use other components in your builds, consult the materials manual for guidance.

The bearing base, bearing hub, and stepper motor mount must be 3D printed before assembly begins. You can find the print files here. You will need one of each for every Wavetable.

The electronics and wiring (not shown in this guide) should be completed before assembly begins. See the wiring, software setup guides.

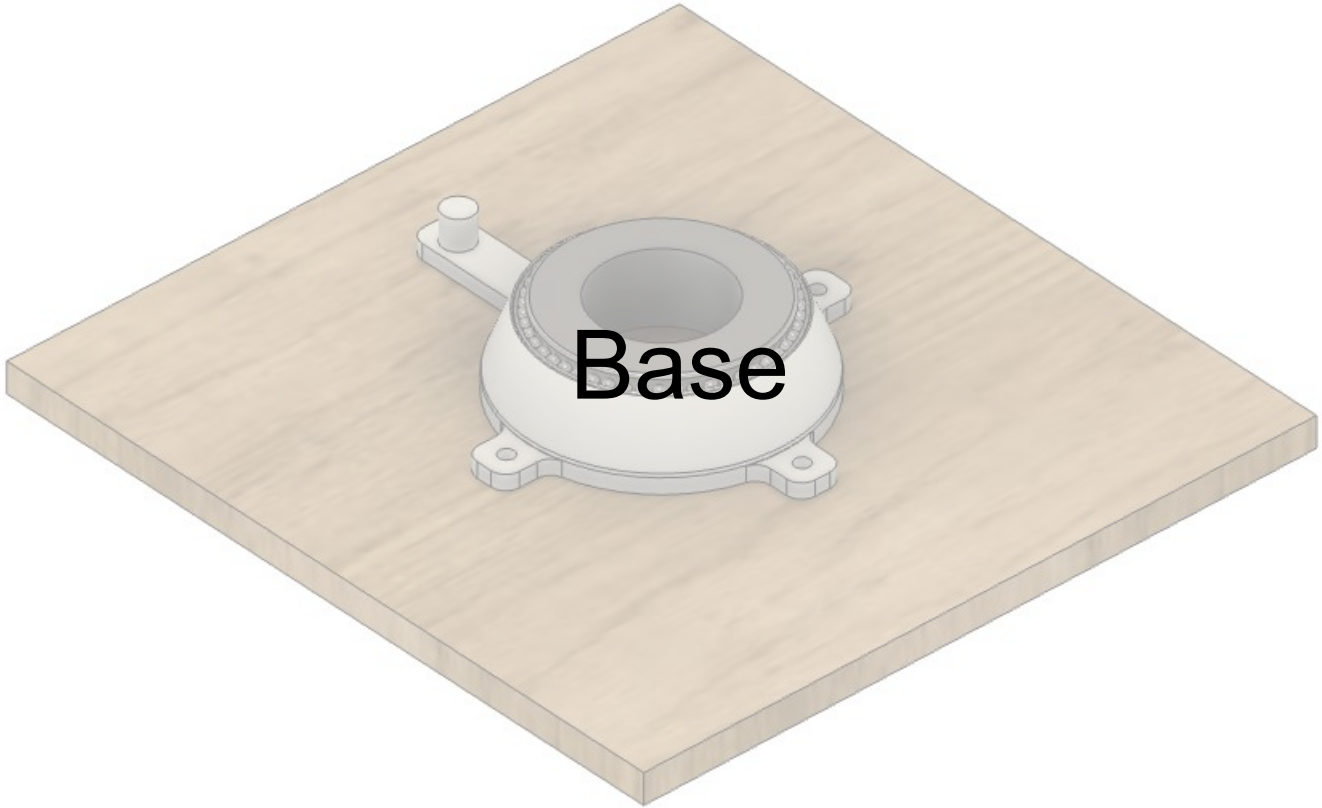
Tools

- Safety goggles
- Pen or pencil
- Tape measure or ruler
- Sand paper
- Screwdriver or screw gun
- Hex key
- Optional
  - Compass
  - Rubber mallet
  - Drill and drill bit (for pilot hole, may make mounting easier in plywood)
  - Carpenter’s square (helps make sure your lines are perpendicular)

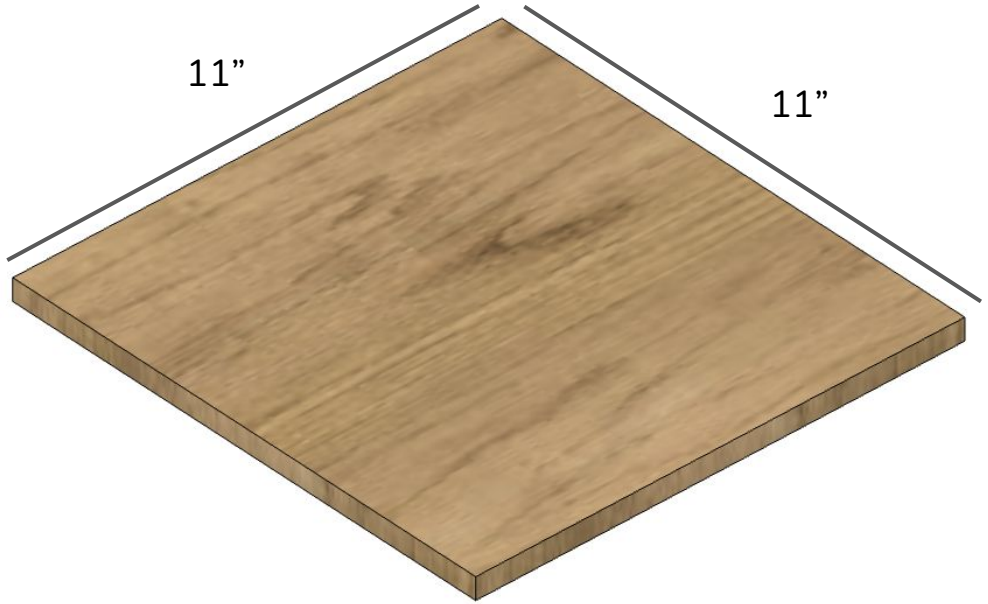
The following icons are used to indicate screws to be tightened at this step:

 Phillips head screw

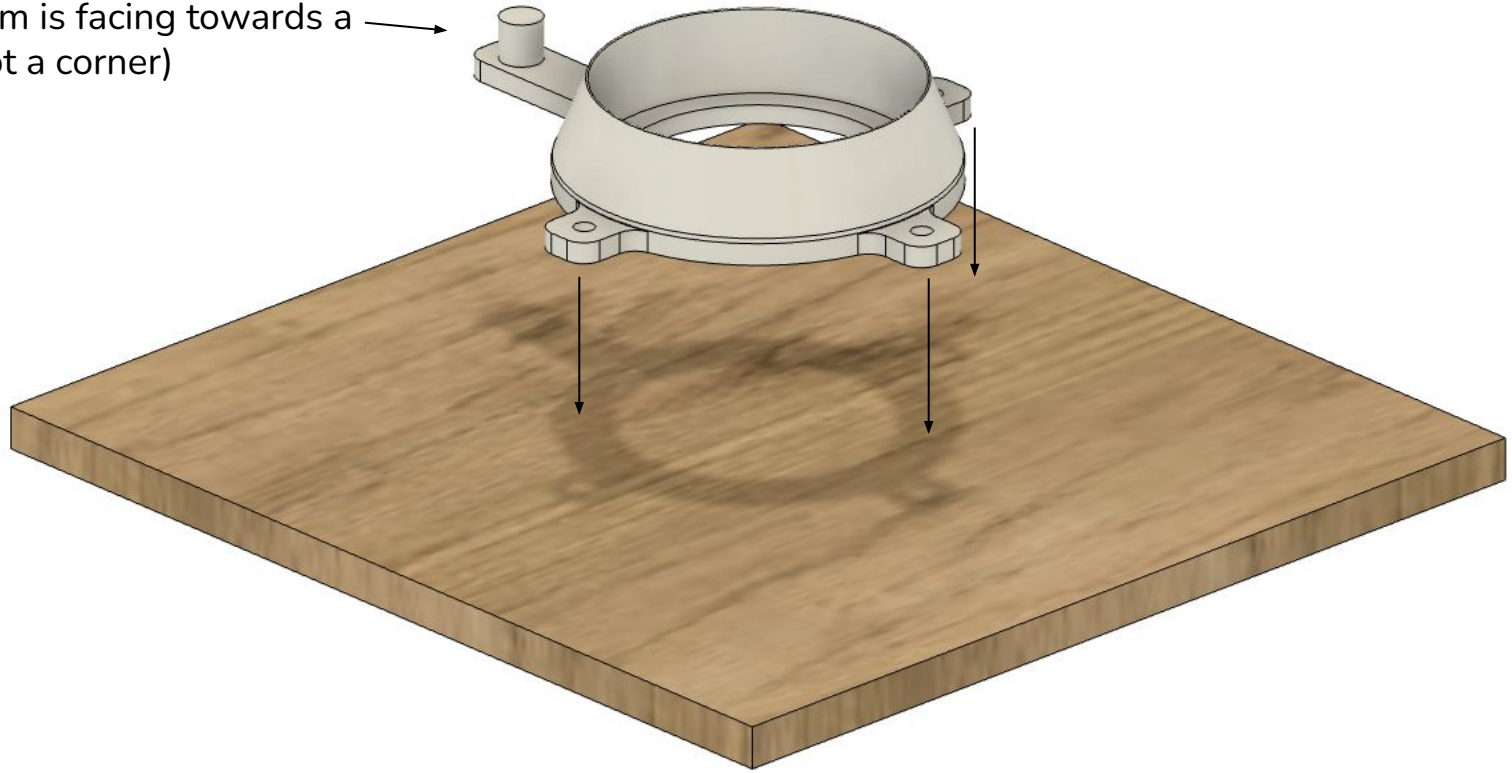
 Hexagonal set screw

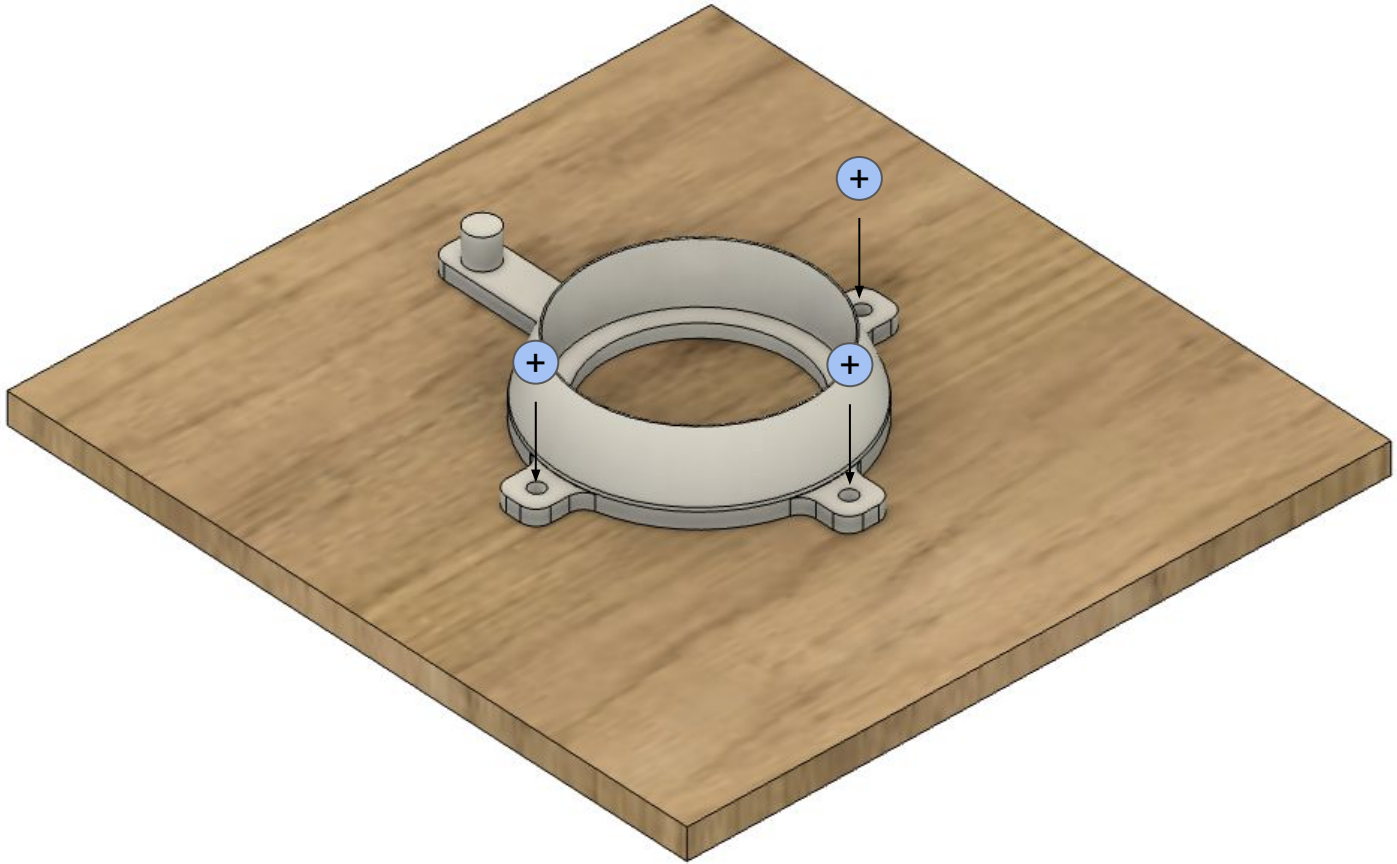

Base

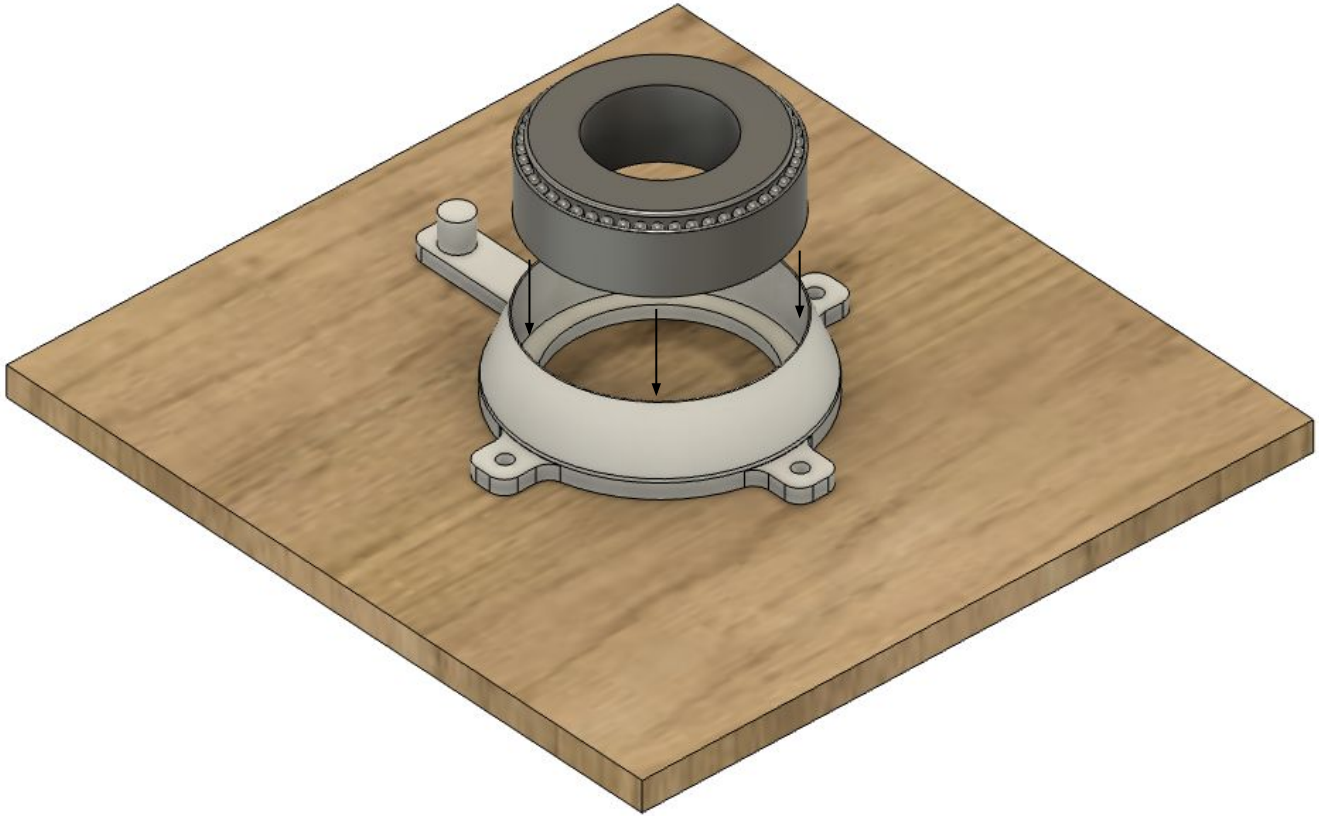
Start with an 11x11 inch panel
of ½ inch MDF for the base.

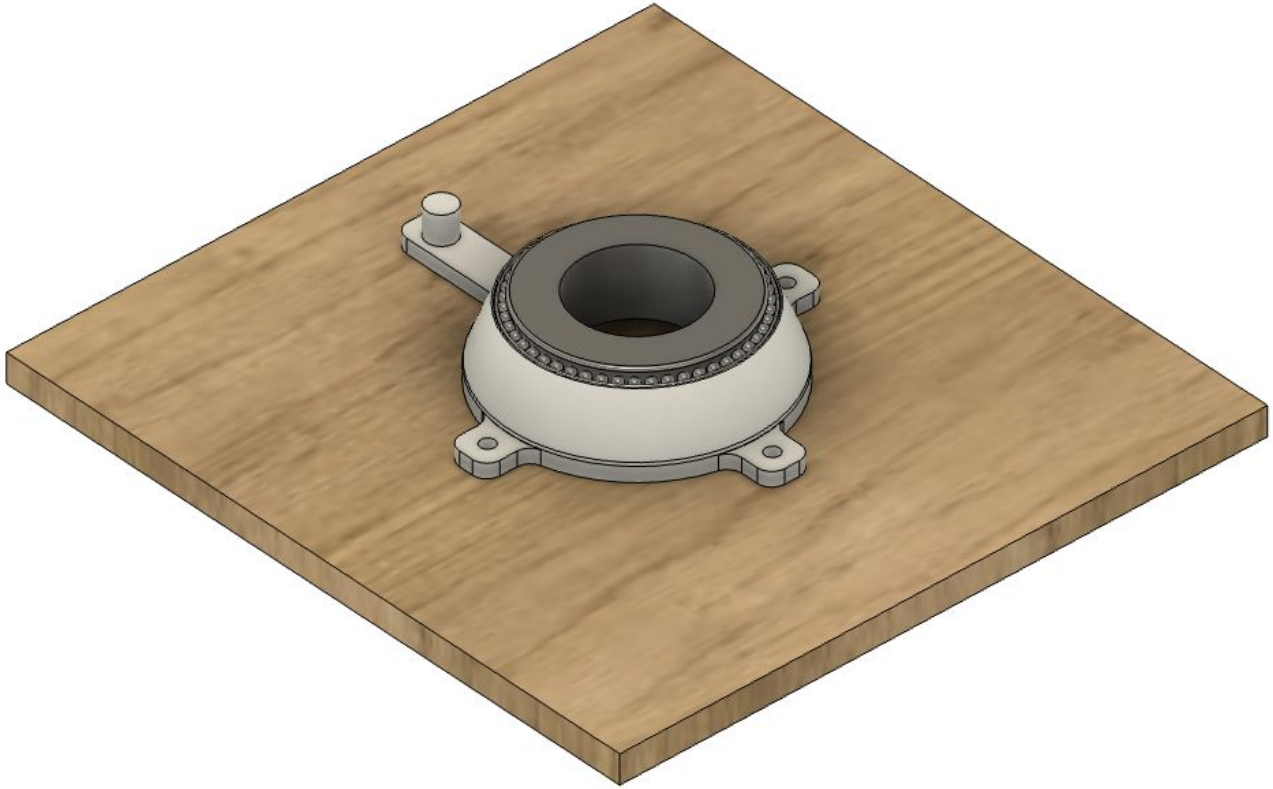


Center the bearing mount on the base. Make sure the pivot arm is facing towards a side (not a corner)

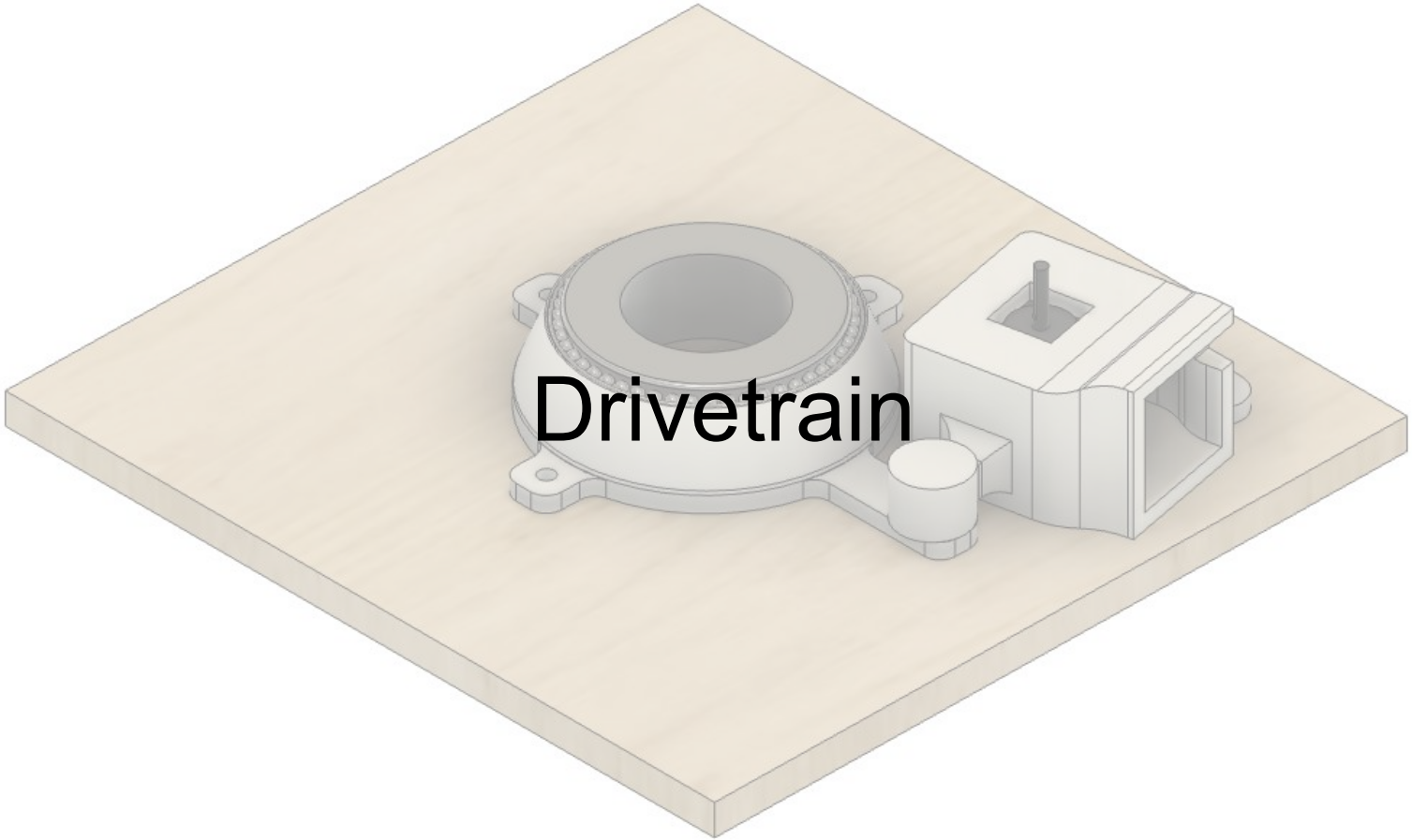




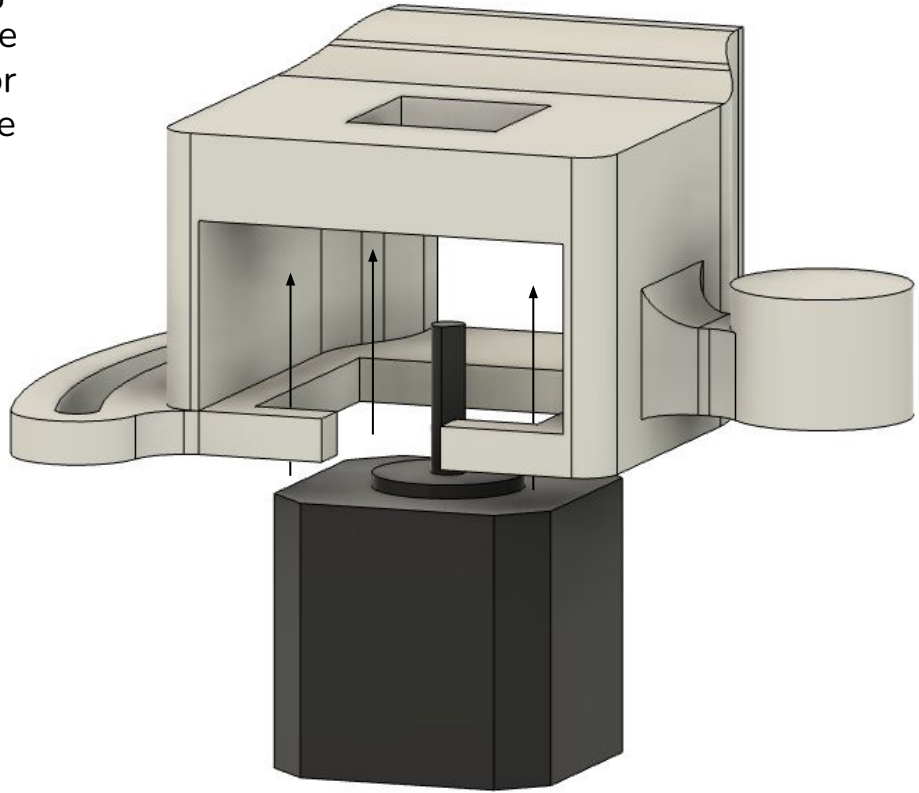


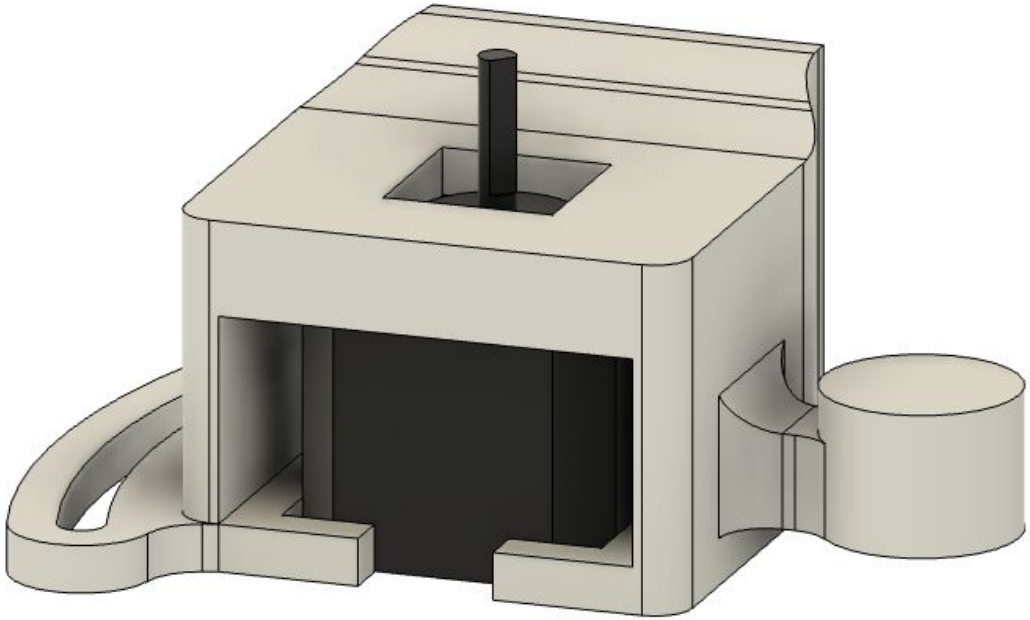


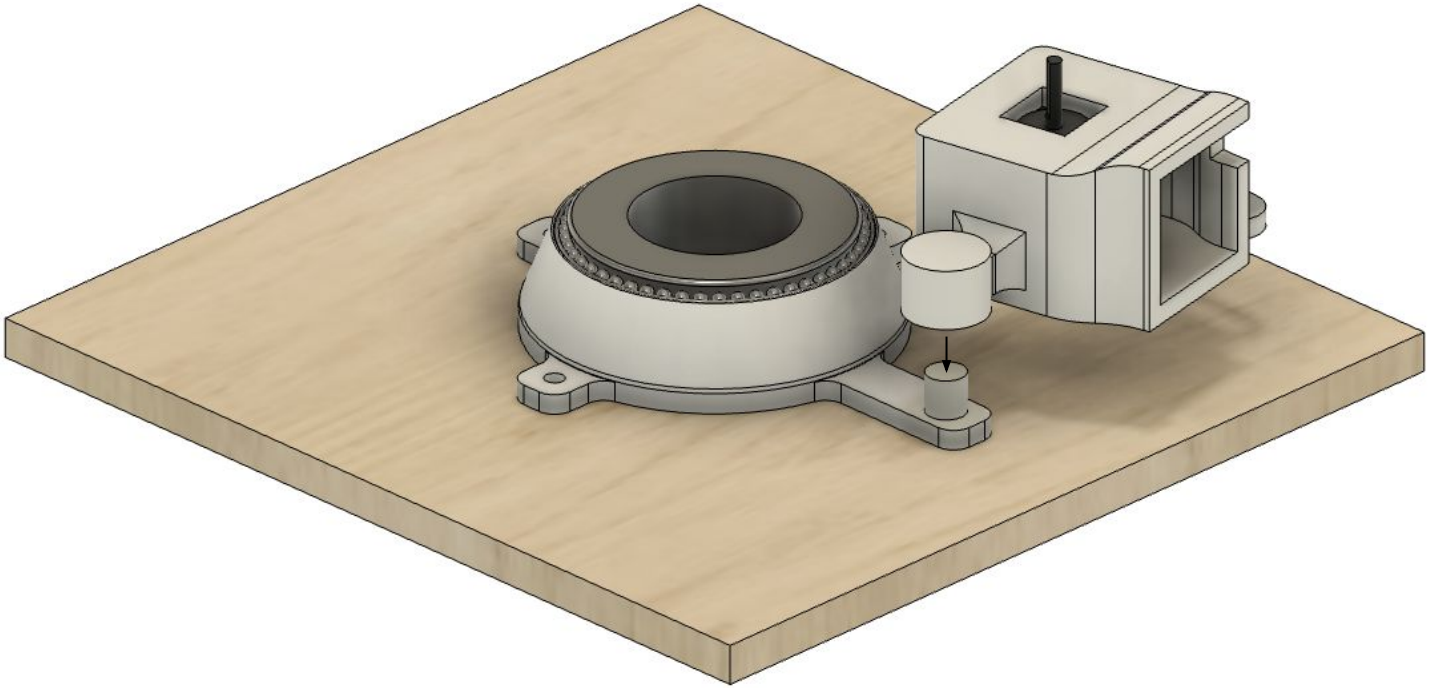
Drivetrain



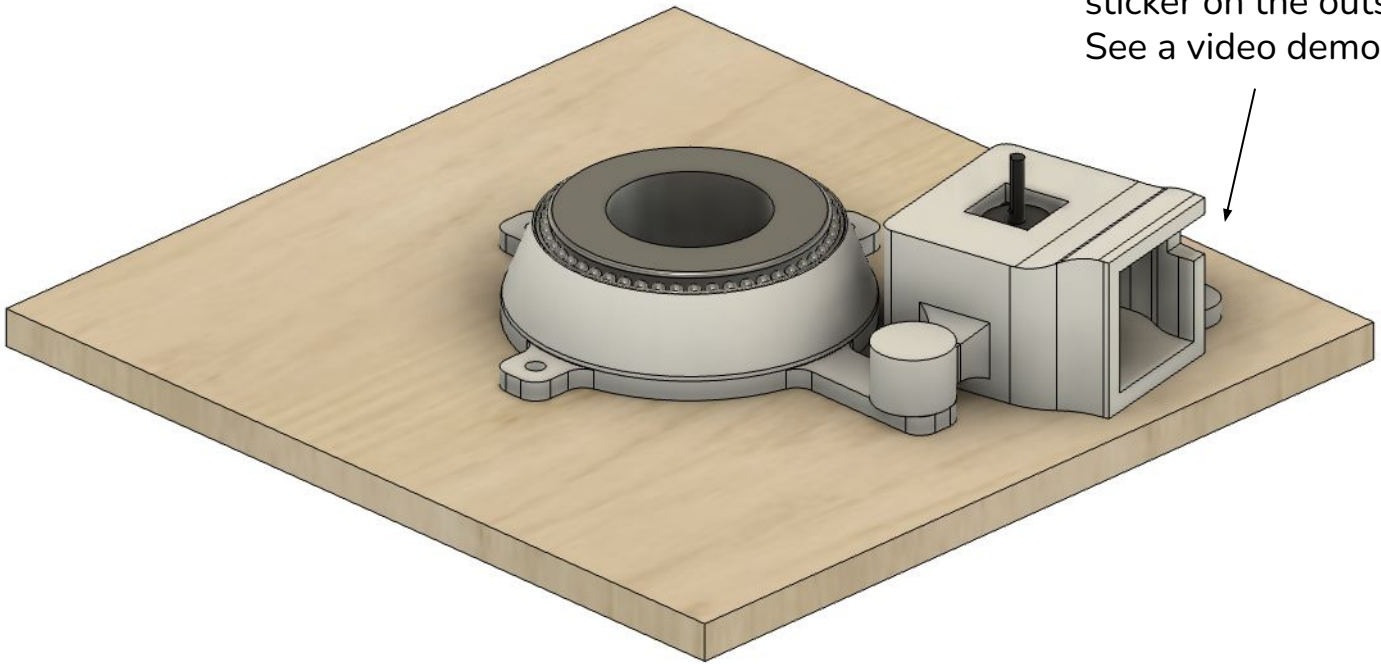
Insert the motor straight upwards. There are cooling ducts around the side of the stepper motor, so the motor will not sit flush against the wall.

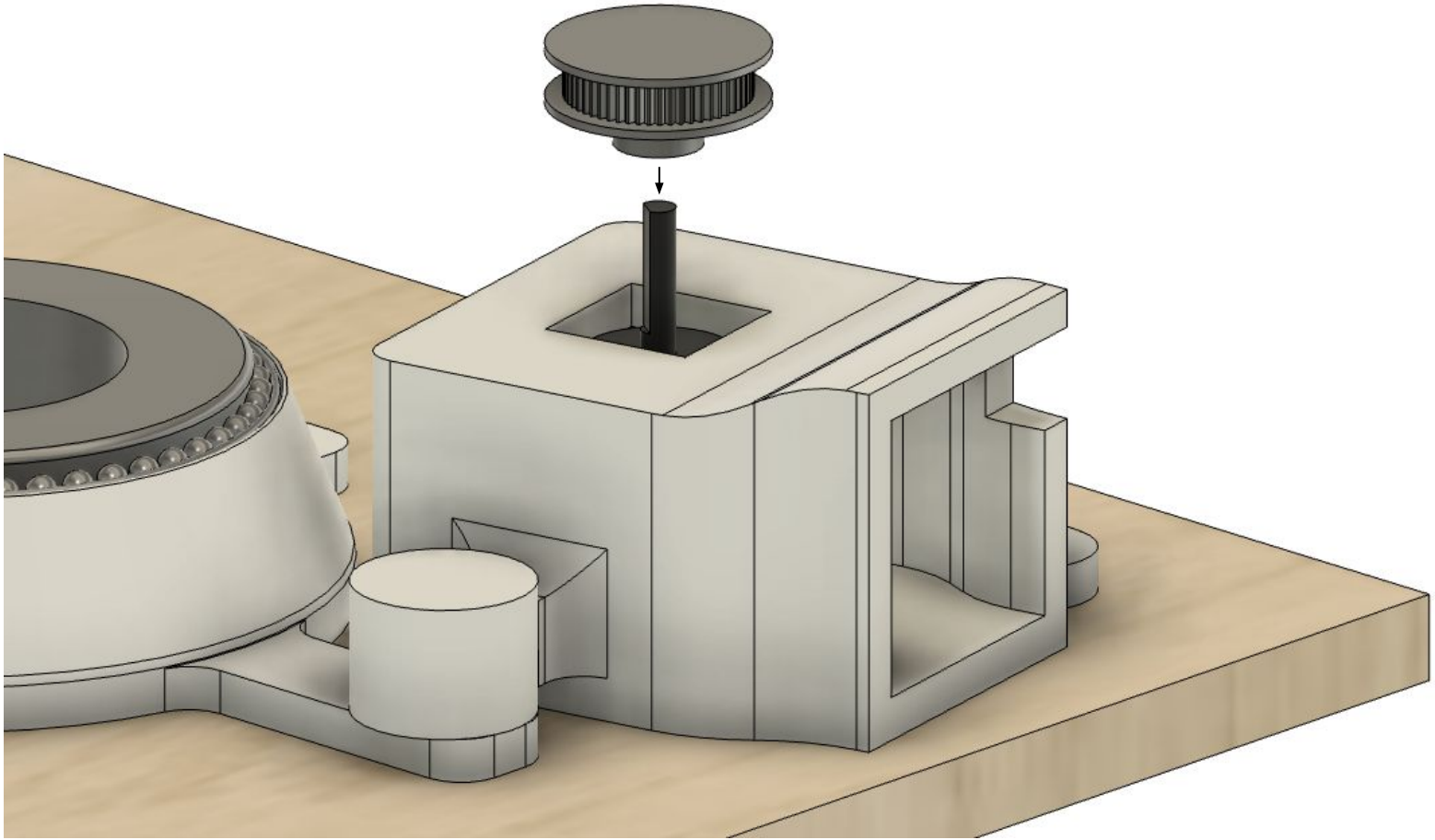




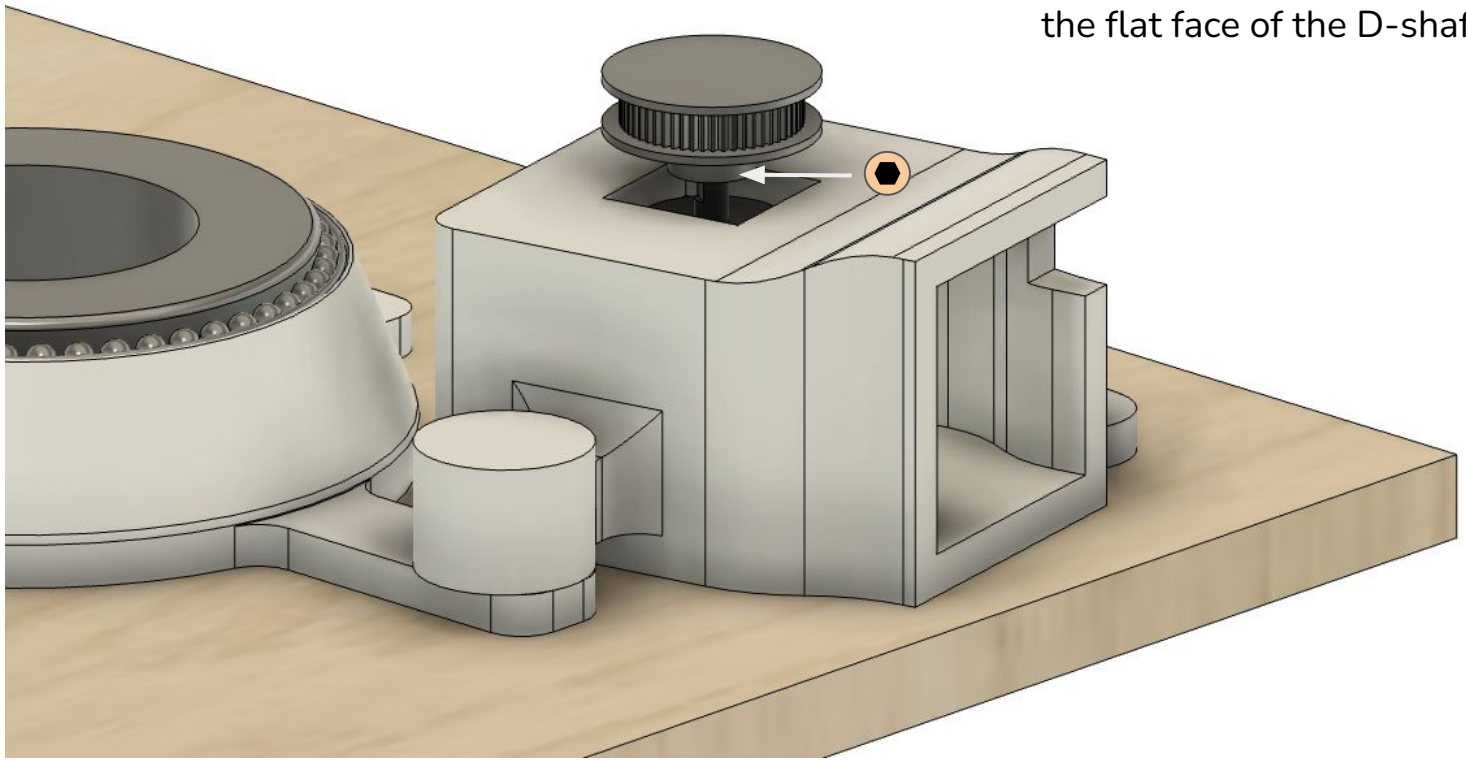


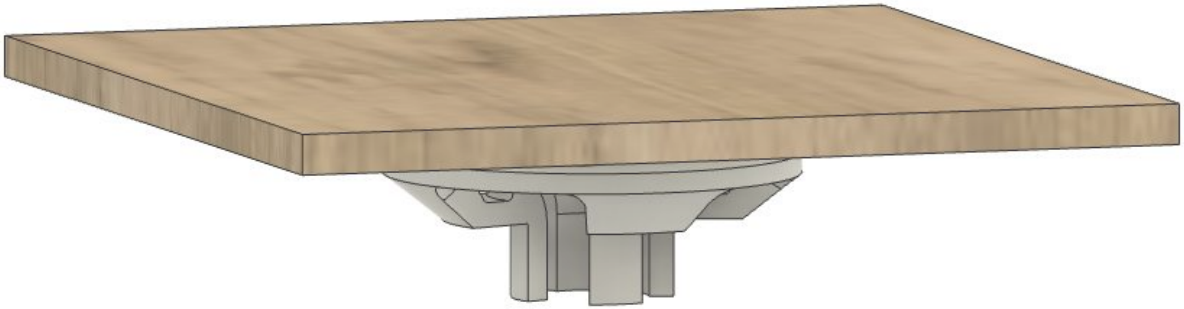
Insert the fan with the sticker on the outside. See a video demo here.





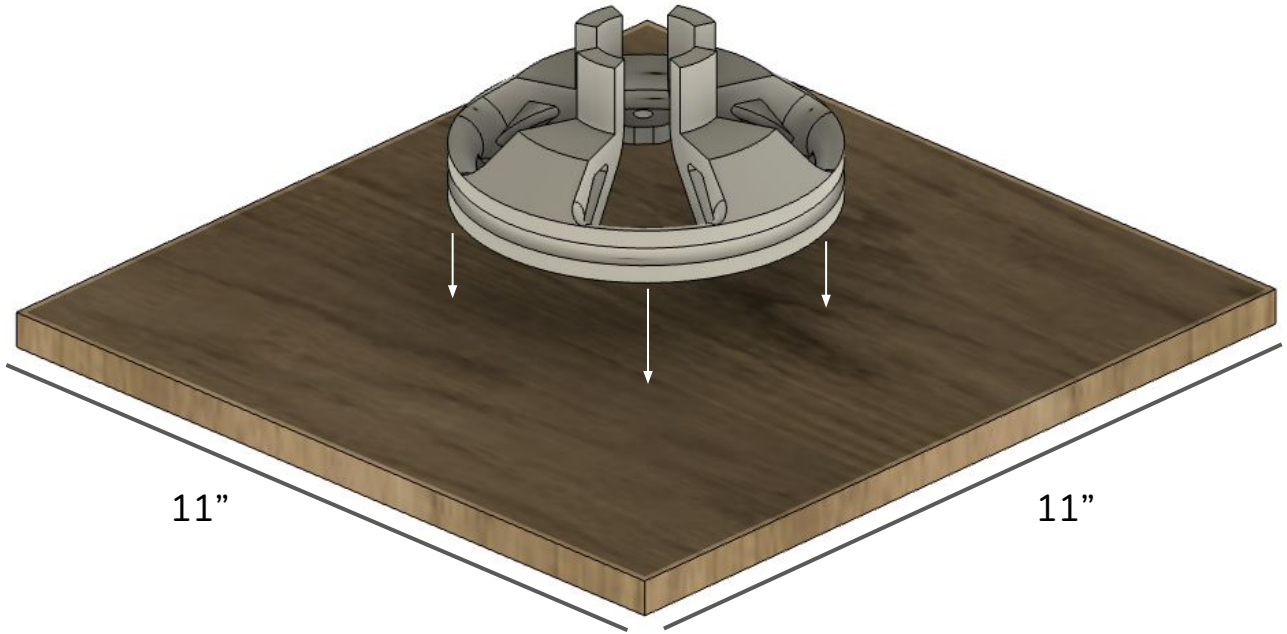
Tighten one of the set screws on the pulley onto the flat face of the D-shaft.



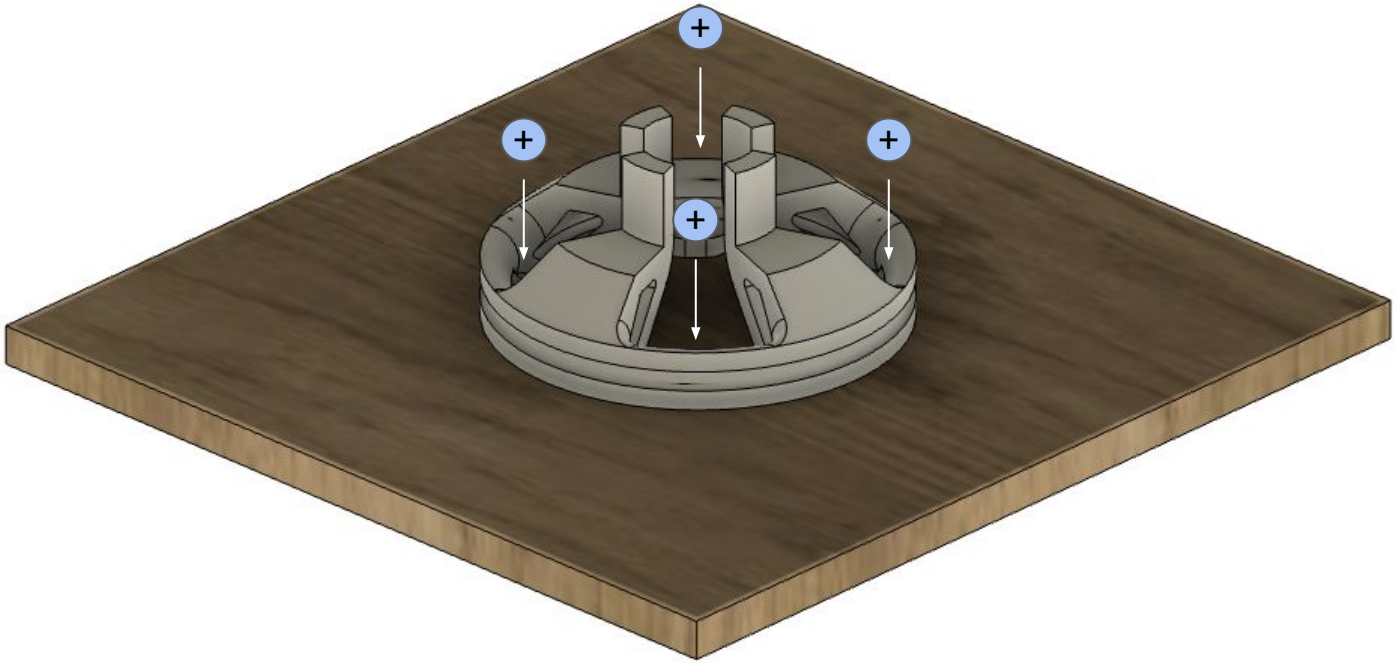


Upper Deck

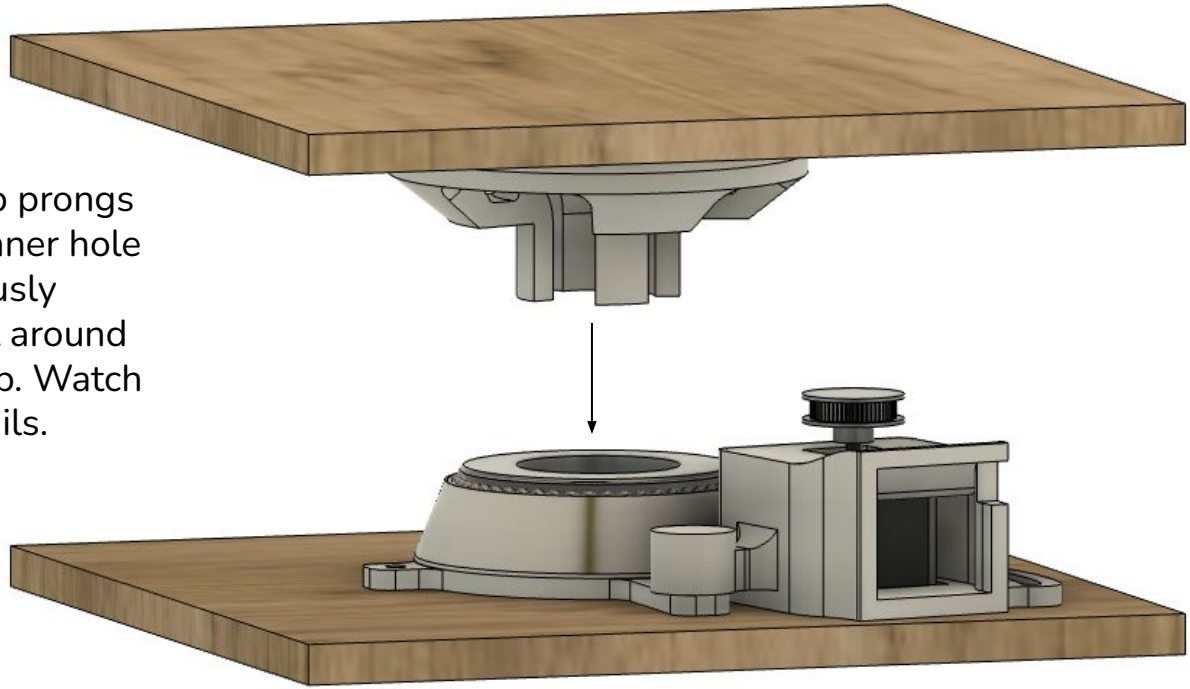
Center the upper bearing hub on the upper deck.



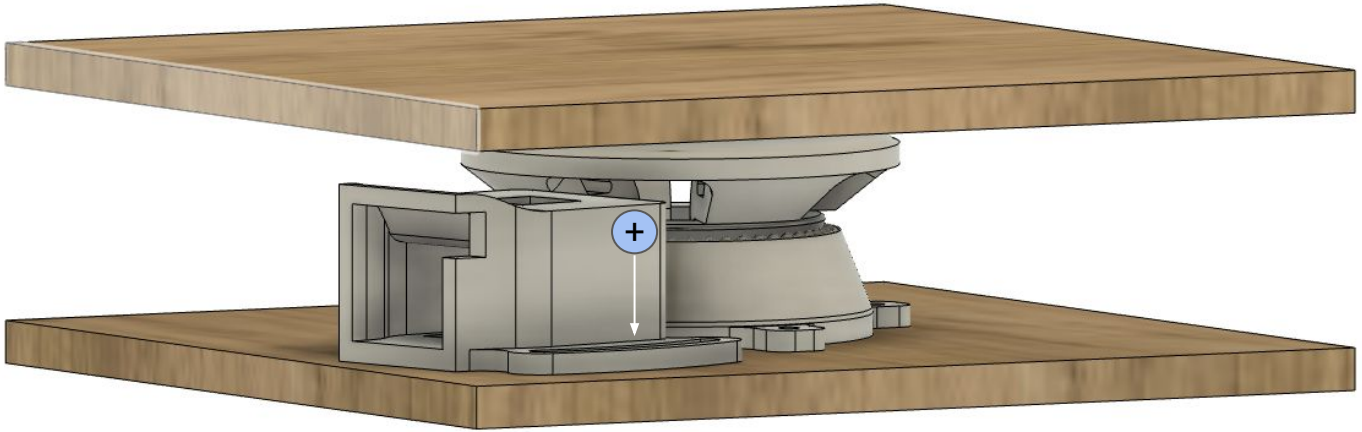
Drive screws through the four tabs extending inwards.



Press the four hub prongs into the bearing inner hole while simultaneously wrapping the belt around the pulley and hub. Watch this video for details.



Pivot the stepper out until the belt tension just lifts the bearing out of the race, then tighten a screw into the adjustment slot. This will lock the bearing position in place.



Next Steps

Congrats! You should now have a working wavetable! See the Troubleshooting Guide if you don't.

To use the table, make sure to plug in both the power supply and microcontroller, and that the green light is on. You can also send commands to the table.

To pack the table, dry out the tank. Then, place the entire assembly inside the tank, along with any other materials.

Try out some of the experiments here.