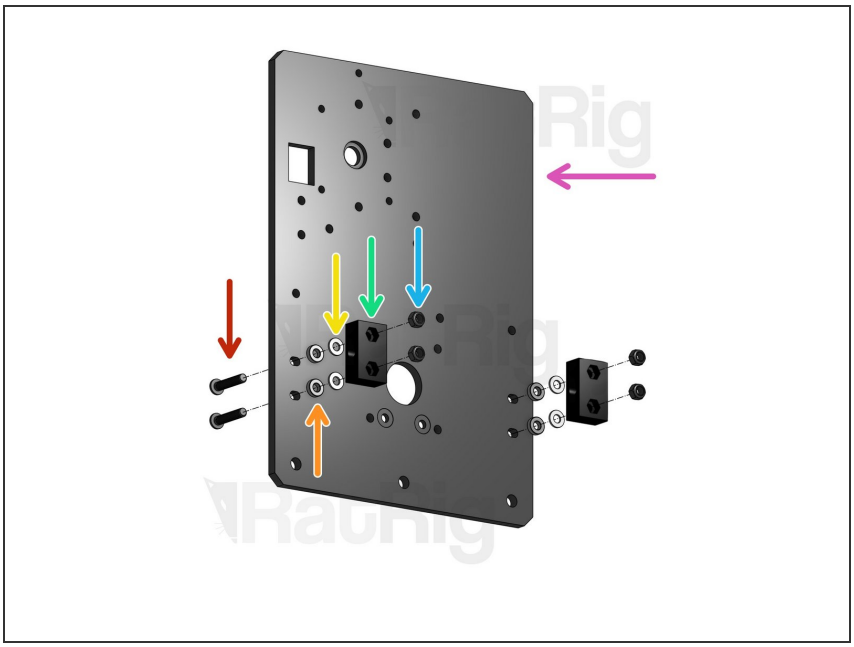
Rat Rig

02. Y-Plate Assembly

Written By: Rat Rig

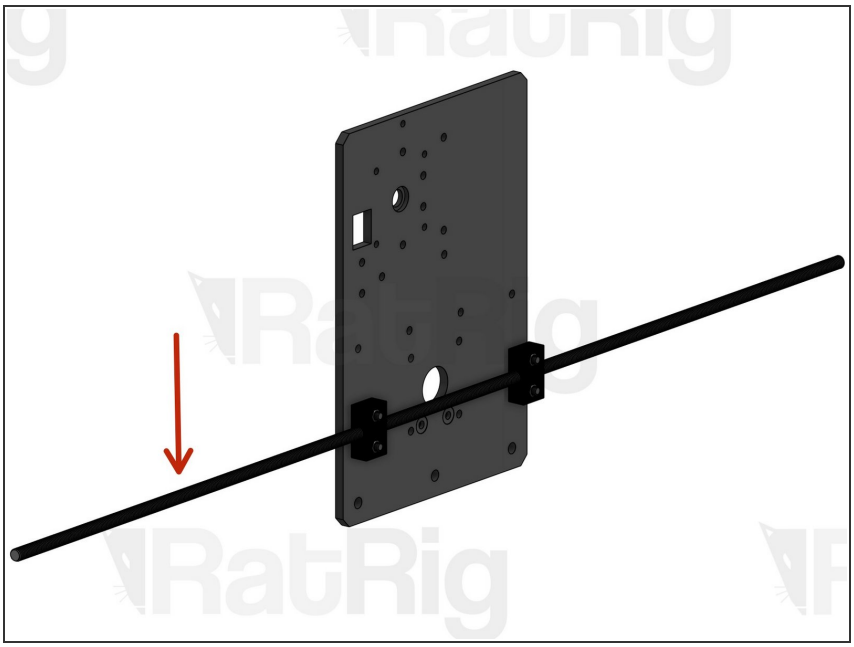
Step 1 — Attach Y Plate Nut Blocks



Tighten down the Nut Block on the left, but leave the one on the right slightly loose. You will need some play in a moment.

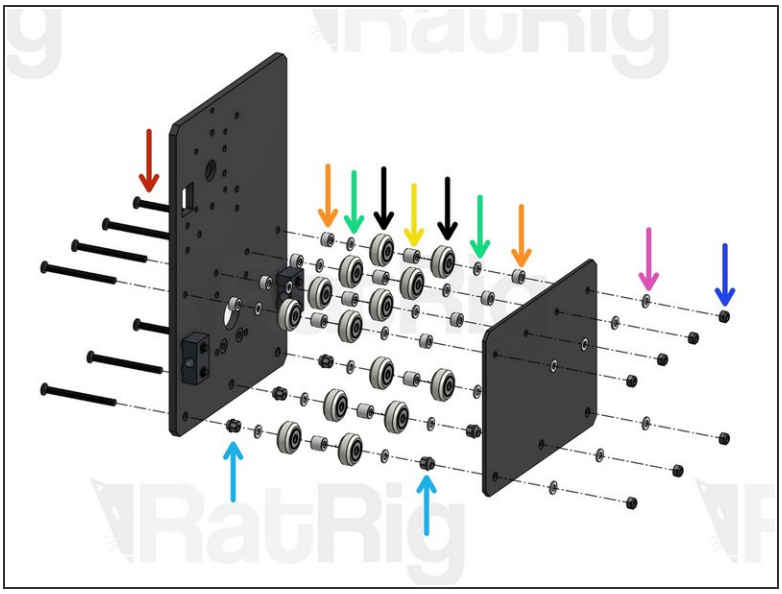
- Low Profile Screw M5x25mm
- Aluminium Spacer 3mm
- Precision Shim 10x5x1mm
- Nut Block
- Hex Locking Nut M5
- Y Plate Left

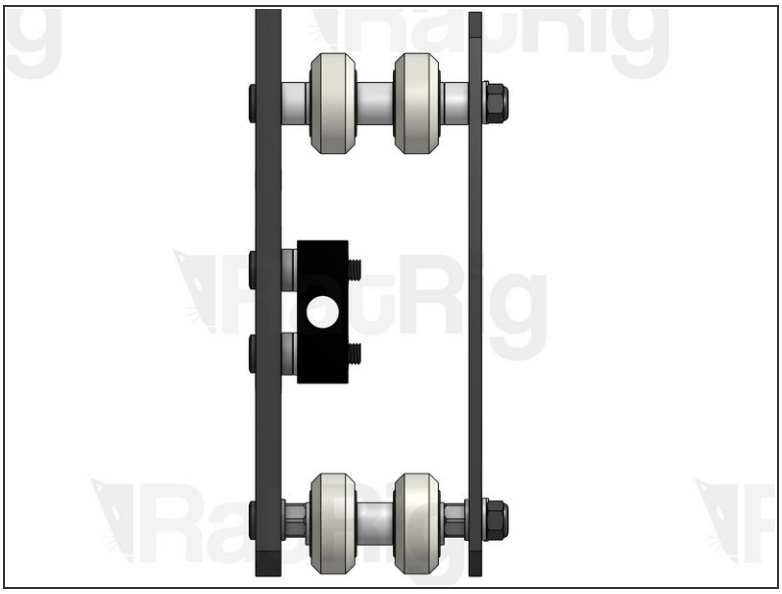
Step 2 — Calibrate position of Nut Blocks to remove Backlash



- Lead Screw
- Fasten a lead screw (at this point it doesn't matter which one) through both nut blocks.
- Tighten down the loose Nut Block on the right, while applying lateral pressure on it at the same time (towards the other Nut Block). Once both blocks are tightened, your lead screw should have zero backlash.
- To check if there's backlash, grab the plate with one hand and the lead screw with the other. Without turning the lead screw, try to move it back and forth. There should be no wiggle room for the lead screw to move at all. If there is, loosen one of the nut blocks and try adjusting its position again.
- Once all backlash is removed, unfasten your lead screw, you will add it to the build later on.

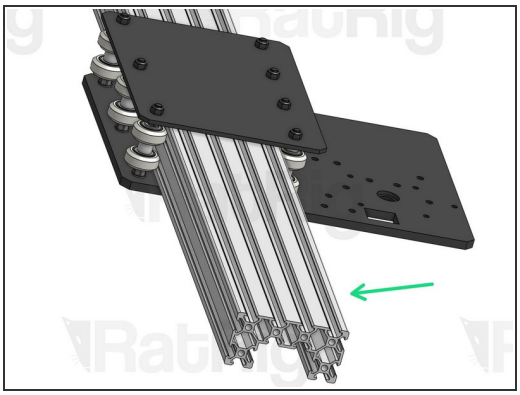
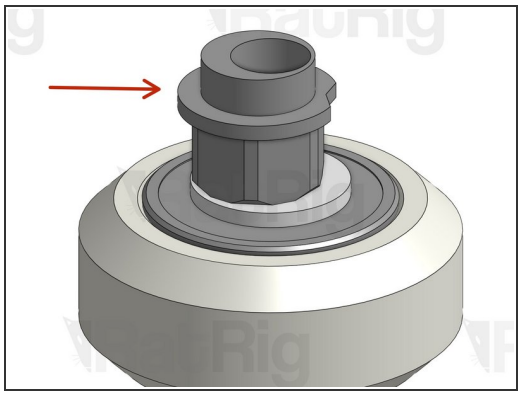
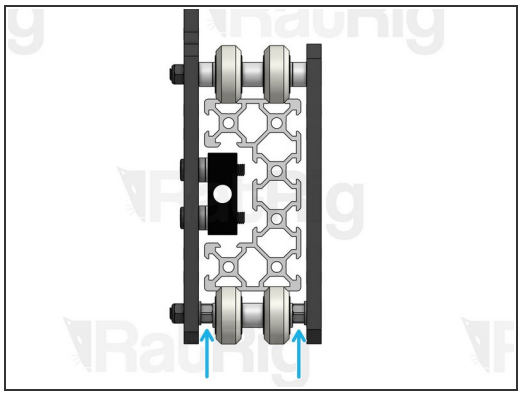
Step 3 — Assemble Y-Axis Wheel System





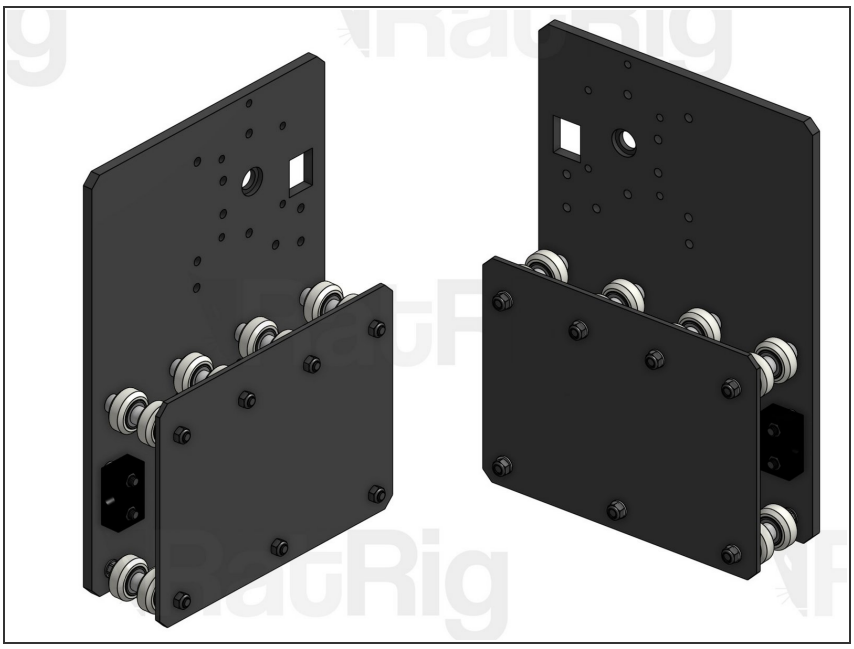
- Low Profile Screw M5x60mm
- Eccentric Spacer
- Aluminium Spacer 6mm
- Precision Shim 10x5x1mm
- Xtreme V-Wheel
- Aluminium Spacer 9mm
- Washer M5
- Hex Locking Nut M5

Step 4 — Tune the wheels

- Insert a C-Beam profile (doesn't matter which one at this point) through your gantry assembly.
- Eccentric Nuts have an off-center through-hole. Because of this, when you rotate them, your entire wheel axis moves laterally. This gives you the adjustment margin you will need to make sure your wheels are grabbing the profile with the correct amount of force.
- Use a spanner to subtly adjust the position of each eccentric spacer until every wheel is in contact with the profile. You want to find a sweet spot where your carriage is not wobbly and the motion is perfectly smooth, but where there isn't excessive force pressing the wheels against the rail, as this will increase wear on the wheels.

Step 5 — Repeat for the opposite Y Plate



- Repeat steps 1, 2 and 3 for the opposite Y Plate.

