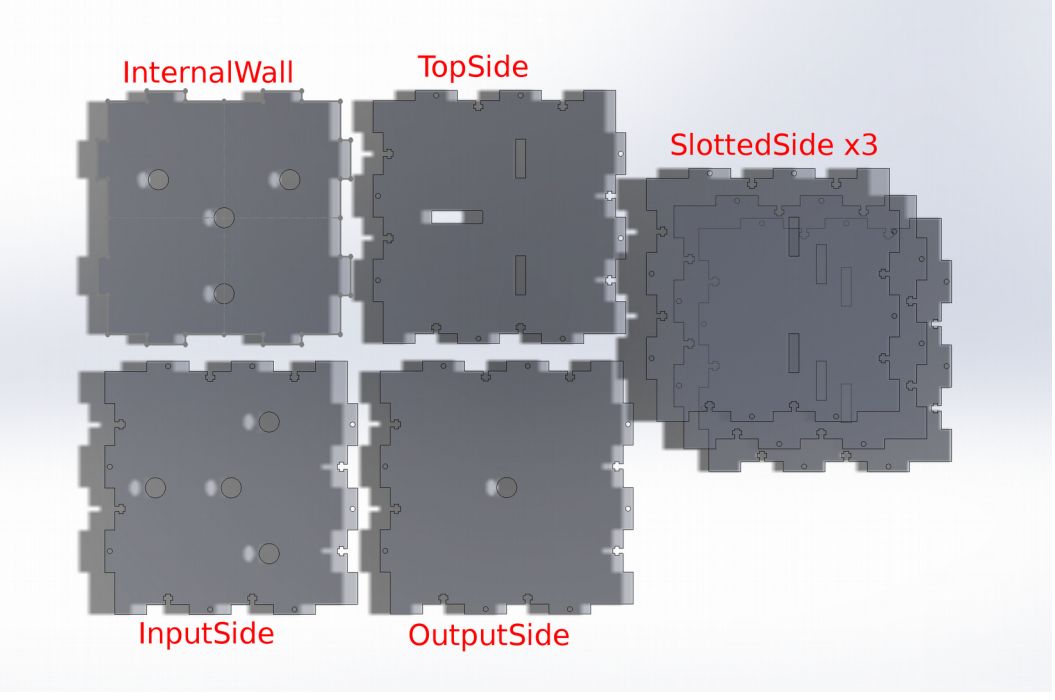
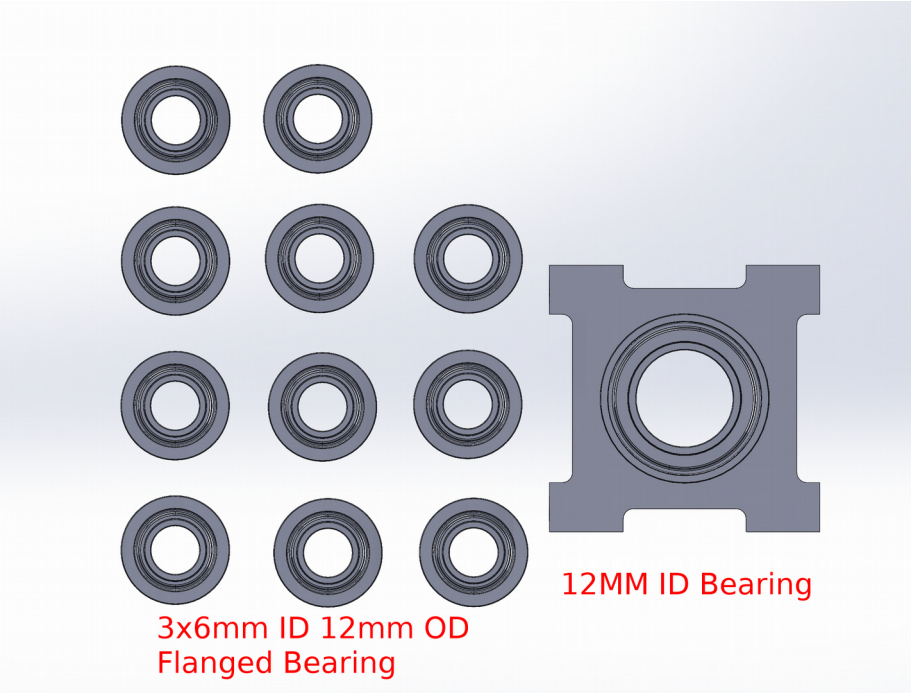
Planetary Gearbox Assembly Guide

Lay Out Components



Lay Out Components



12mm ID Bearing:
https://www.servocity.com/12mm-bore-side-tapped-pillow-block/

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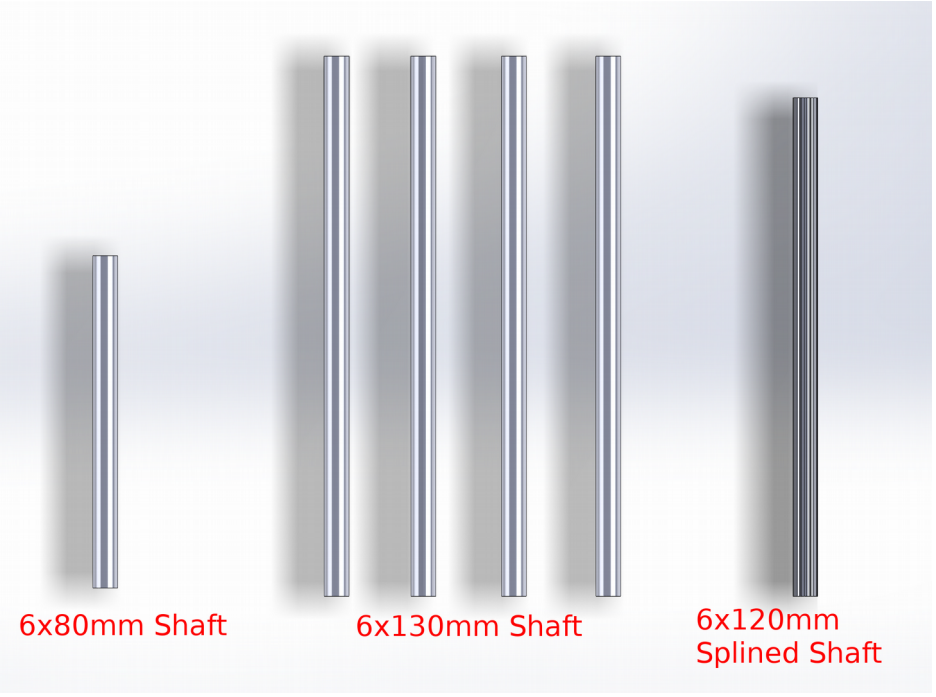
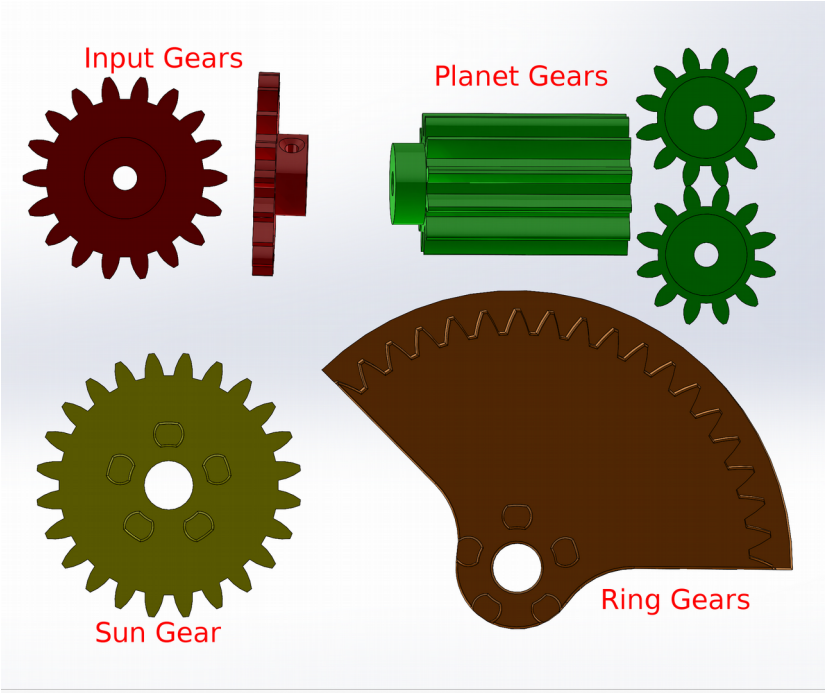


Total shaft needed: 720mm

Lay Out Components



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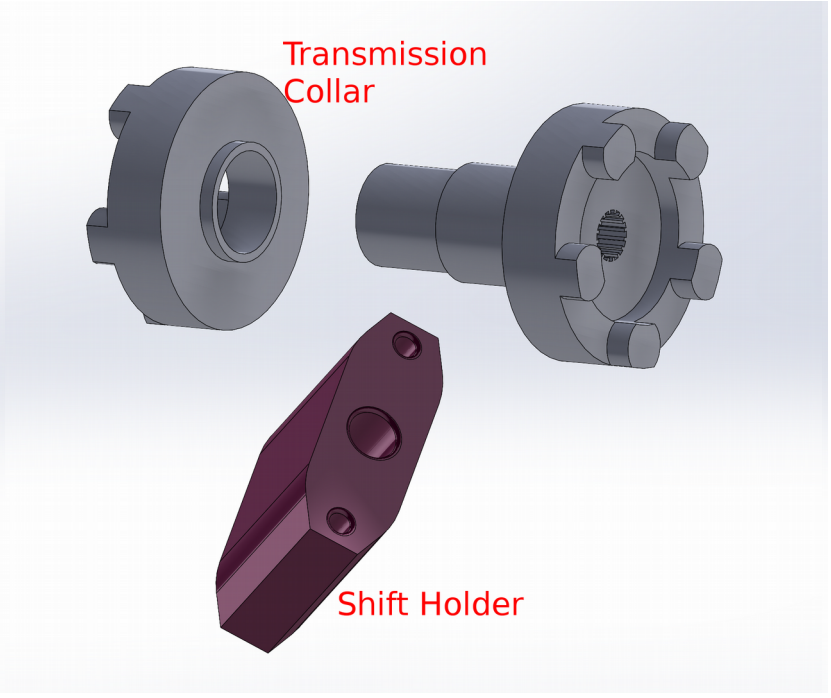
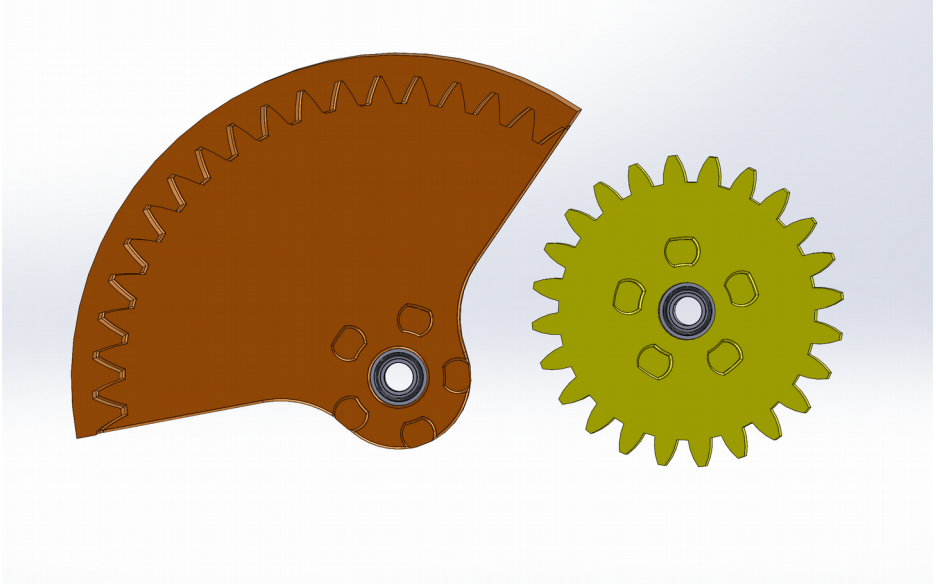


Lay Out Components

Lay Out Components

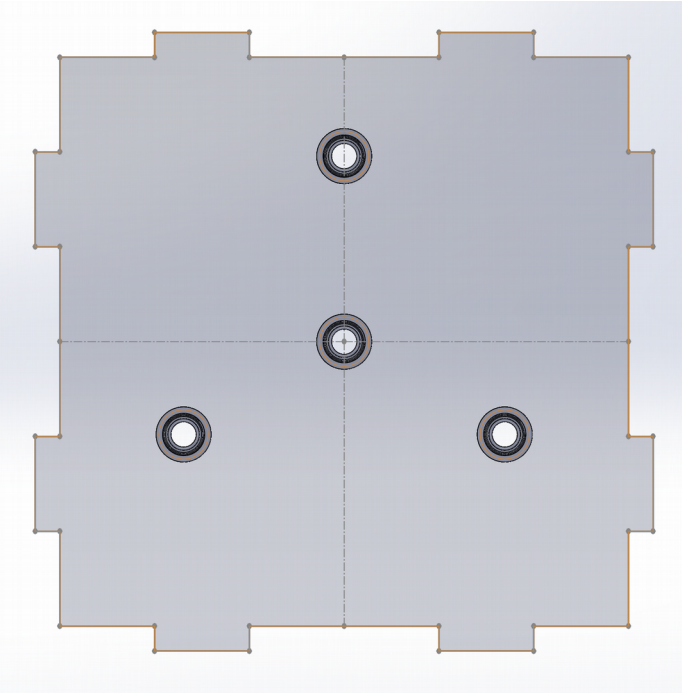
- 48x M3x12 screws
- 5x M3x16 screws
- 2x UNC 6-32 30mm screws (https://www.amazon.com/Phobya-UNC-6-32-30mm-Screws/dp/B004CLJLKI)
- 48 M3 nuts

Put Bearings in Gears



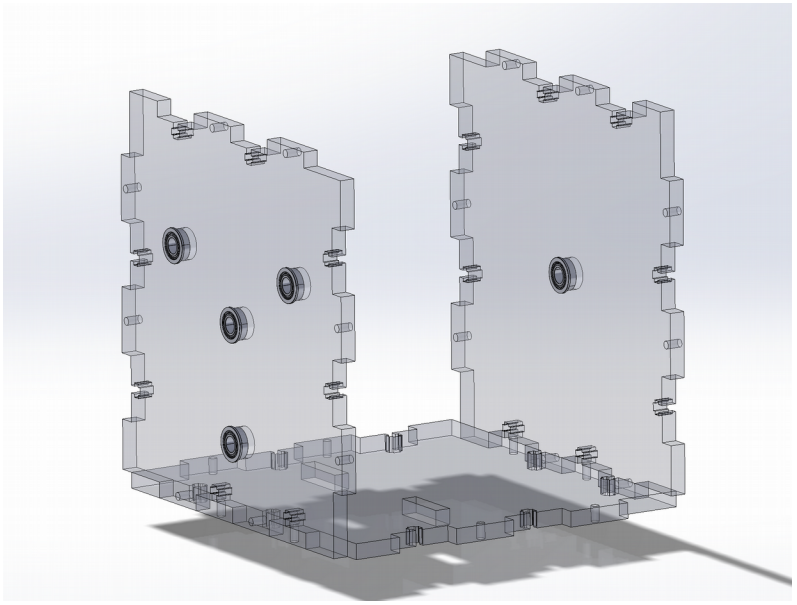
- Ensure the bearing flange is on the opposite side of the dog teeth as lateral forces push gear in that direction.

Put Bearings in Inner Wall



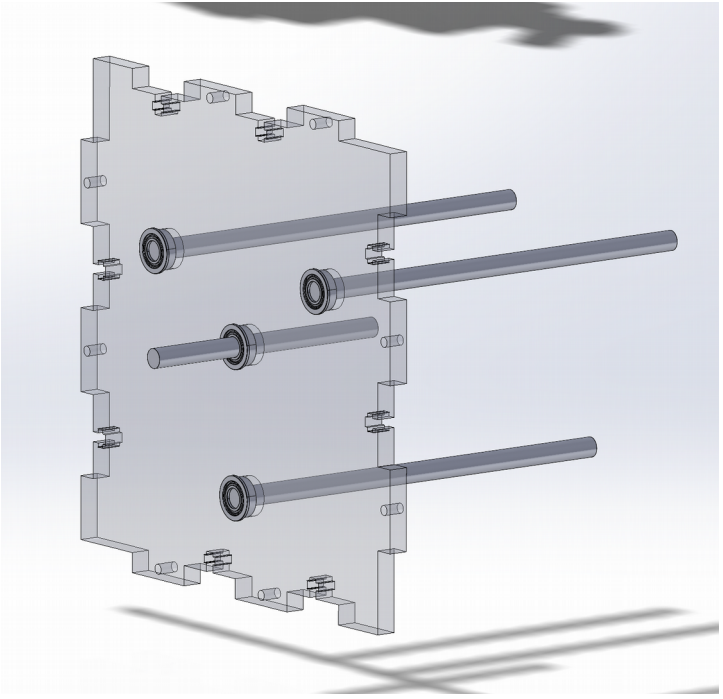
- Inner Wall is reversible, bearing orientation irrelevant

Put Bearings in Outer Walls



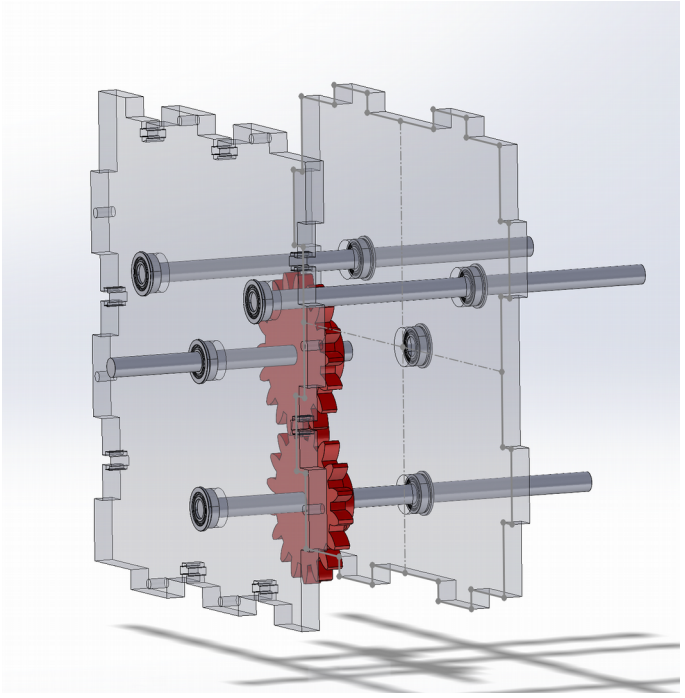
- Test fit the input side and output side together.
- Use slotted side as base, slots closer to input side.
- Put bearings in walls with flanges facing out on the input side. (Looks prettier)
- And the flange facing in on the output side. (Load Bearing)

Assemble Input



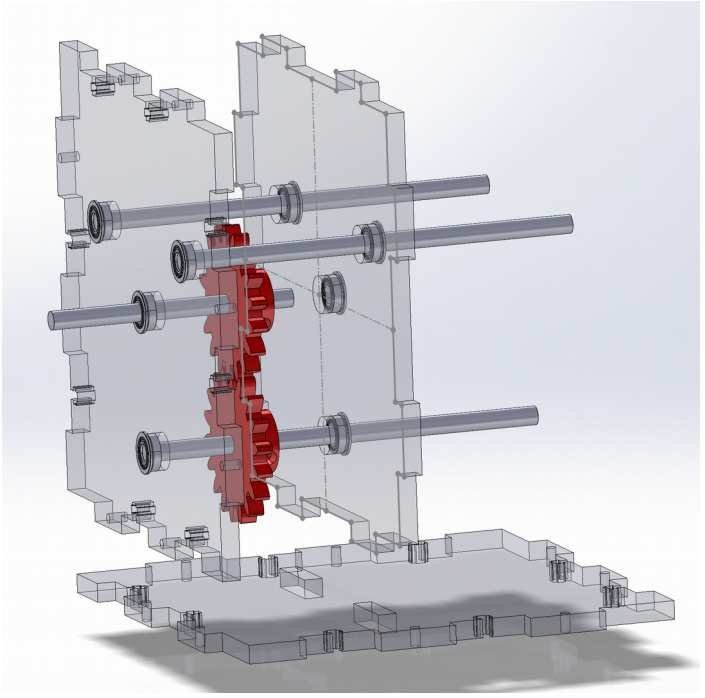
- Insert the 80mm shaft into the middle bearings. Sticking out 30mm.
- Insert 3 130mm shafts into other bearings. Flush with exterior surface.

Assemble Input



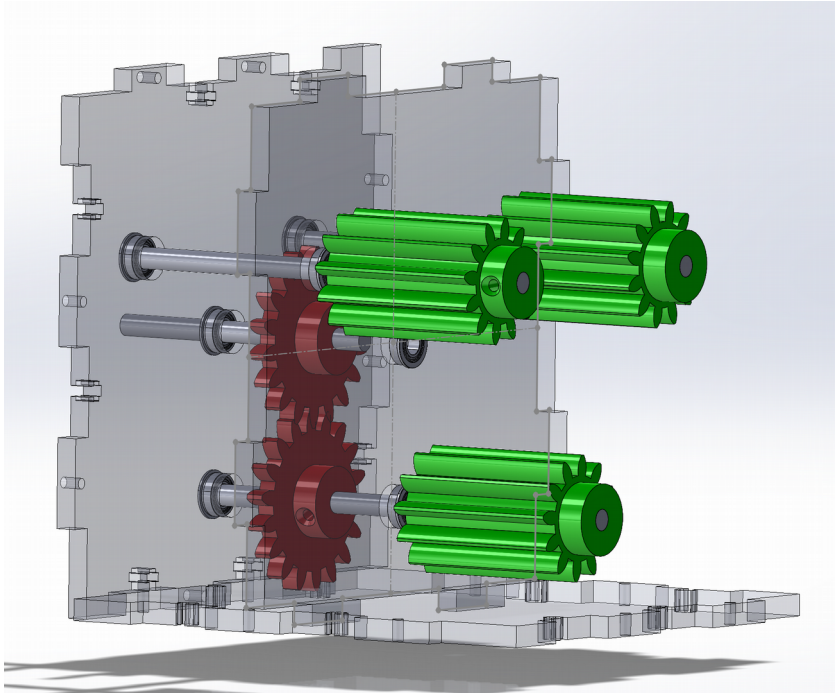
- Slide in Input Gears and Inner Wall.
- Don’t screw in gears yet.
- Inner Wall bearing flanges should face in the opposite direction as Input Walls

Assemble Input



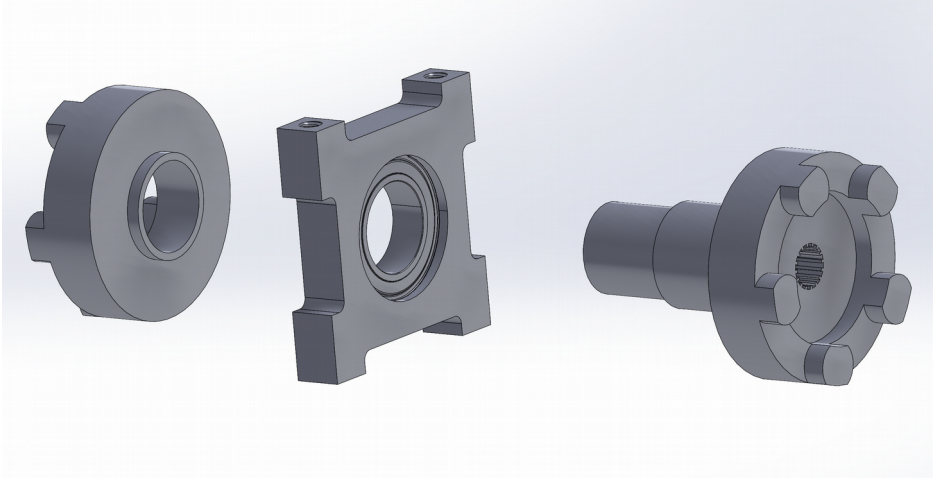
- Slot in input gear configuration from above.
- Fix input wall to base with M3x12 screws.
- Fix input gears to shaft in the middle of the walls with M3x16 screws.

Assemble Planet Gears



- Put planet gears on.
- Fix flush to end of shaft with M3x16 screws.

Assemble Transmission Collar

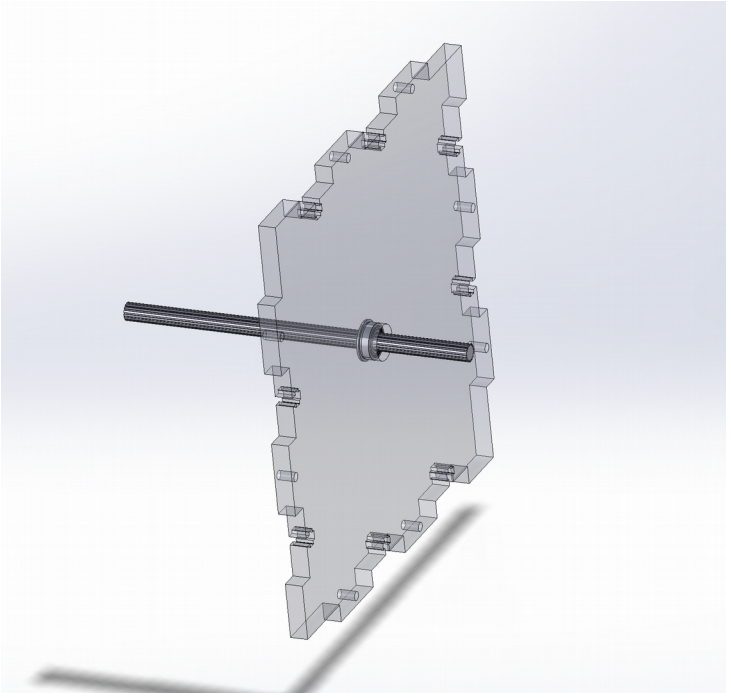


- Assemble transmission collar like so.
- Note the recessed side of 12mm ID bearing should face the shaft.
- Use plastic cement to glue dog tooth cap onto shaft once attached.
- No 12mm ID bearing? Just print out a linear bearing with a ~13mm ID and use that instead. Probably put a bunch of carbon dry lubricant in it. It wont be as good but it’ll probably be fine.

Assemble Transmission Collar

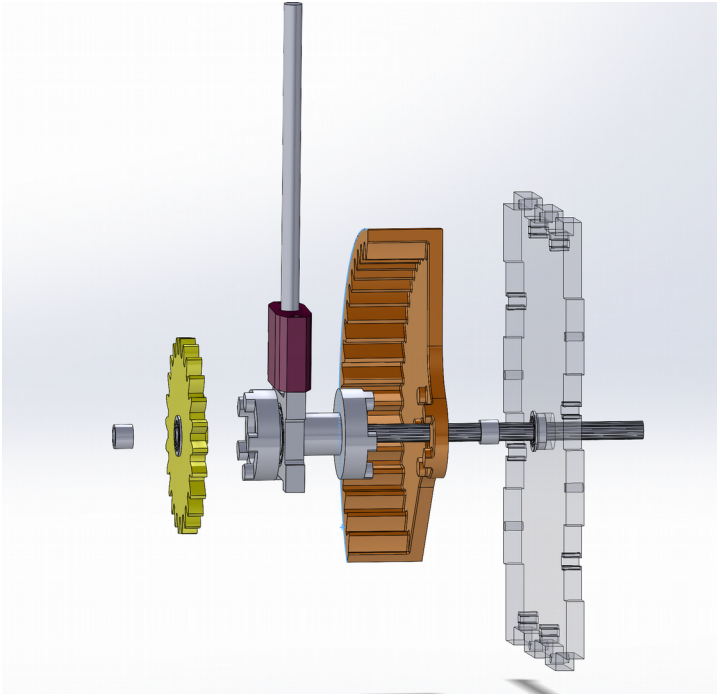
- Screw shift holder into bearing with UNC 6-32 30mm screws.
- Insert 6x130mm shaft into shift holder.

Assemble Main Gears



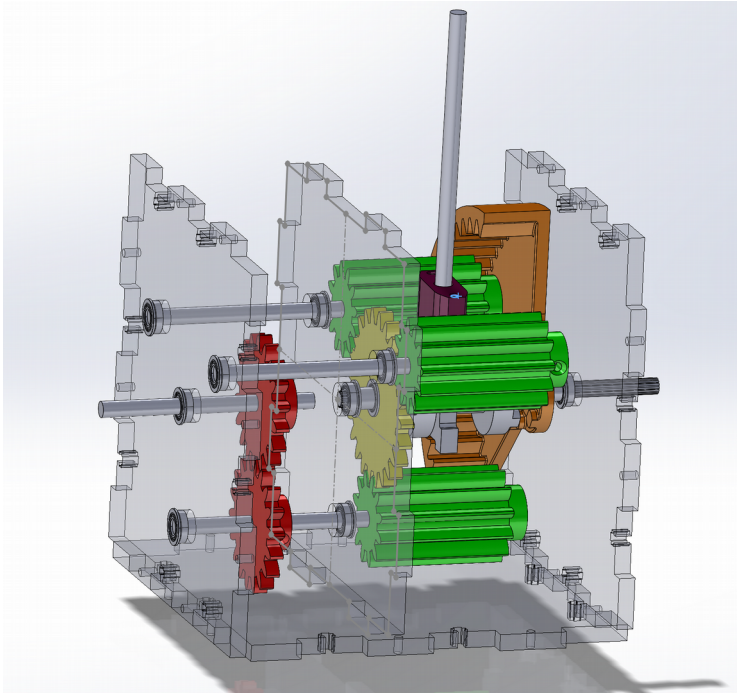
- Attach splined shaft to output side sticking out 30mm.

Assemble Main Gears



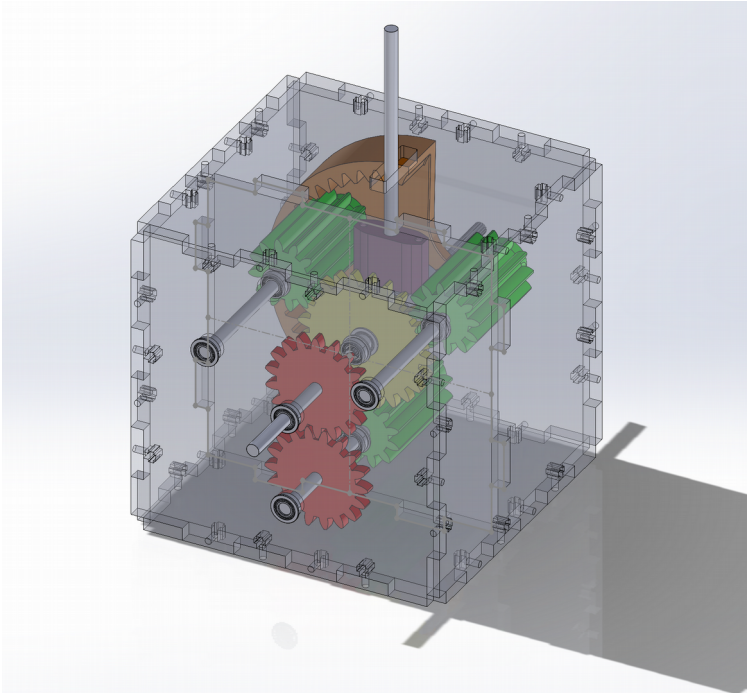
- Assemble from right to left:
- Spacing Washer
- Ring Gear
- Transmission Collar
- Sun Gear
- Spacing Washer

Assemble Main Gears



- Stick the whole assembly into the rest of the box.
- Fix Output Wall to base with M3x12 Screws

Assemble Box



- Screw the rest of the box together

Decorate

- https://www.amazon.com/SPACE-Self-adhesive-Reflective-Decorative-Scrapbook/dp/B076CWYRM2/ref=sr_1_3
- Stick at least a rocket ship sticker on the ring gear. That way it will look like a rocket ship going around the planets and will be sick
- Maybe an alien on the sun