

YETCH*

Materials

- Printing filament of choice (e.g., PLA, PETG, etc.) in black.
- 0.02in thick Black Polystyrene Flexible Plastic Board Sheet. I ordered two packages of [these](#).
- Gray & white vinyl for the moon stickers (see [Flap Instructions](#) below for caveats)

Tools

- 3D printer
- Laser cutter (optional)
- Vinyl cutter (optional - see [Flap Instructions](#) below for caveats)

Printing Instructions and Preparation

- Print all of the provided files.
 - For the D-shaft, use 0.2mm layer height and print with the long flat face on the bed.
 - For the wheels, use your preferred method to ensure very good bed adhesion and print at 0.2mm layer height.
 - For the frame, set the face with the triangular flap stopper on the bed. Use supports to ensure the hole for the D-shaft does not end up distorted at the top.
 - For the frame and handles, optionally print at a larger layer height for speed.

Flap Instructions

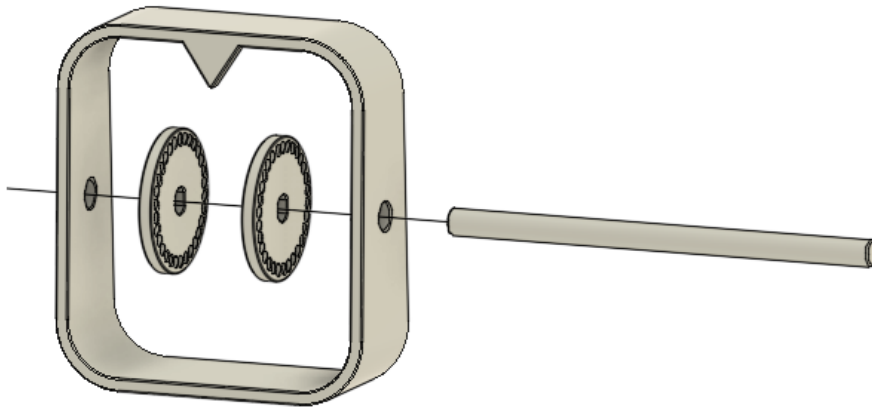
- Laser cut 30 copies of "Flaps.svg" out of the polystyrene. On my Glowforge laser cutter I used 520 speed, 80 power and 2 passes.
- I made the moon prints out of white and grey vinyl on my Cricut vinyl cutter. It was... very fiddly, and the cutouts ended up tiny and brittle. I'd probably recommend printing the moon design on some printable vinyl sticker paper instead, or just straight on paper and then glueing it to each flap.
- No matter how you make the moon designs, make sure that you have them in the correct order, as they are laid out in "Moon Phases.svg"
- Put all the polystyrene flaps in a pile. Take one from the pile and attach the bottom part of day 1 to that flap. Attach the top part of day 1 to the next one in the pile. Flip it over, and attach the bottom part of day 2 to the backside. Go through the pile like this until you run out of stickers. [PHOTO]

YETCH*

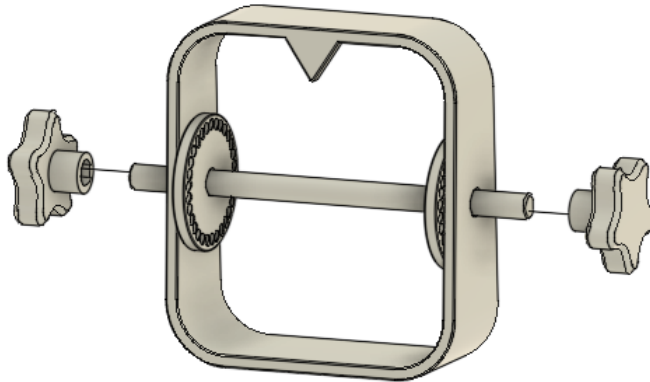
- Attach the flaps one by one to the wheels by feeding the flap ears into the wheel holes. Two sets of flaps will not have any prints on them since those are days when the moon is completely dark.

Assembly

- Push the D-shaft through the side wall of the frame, through the two wheels and through the other side of the frame. The fit in the wheels should be tight, the fit in the frame should be loose. Try to align the shaft as centrally as possible and allow a tiny gap between each wheel and the side walls to prevent excessive rubbing.



- Attach the two handles as shown. Use a drop of glue if necessary.



- Carefully bend each flap into the corresponding holes on the two wheels. Use the D-shaft as a visual alignment cue to ensure that the flaps are level and in the correct holes at each end.

