Index Finger Prototyping Journal

We had first built an index finger, and needed to test it. Getting the right amount of torque and having it actually function is what took the most time. This document is a journal of each different version of the finger, and the journey to get it to work.

Version 1:

Flaws:

- Single hole provides no force to turn.
- Top phalanx was not designed with the intent to move in mind.

Version 2:

Updates:

- Made 2 holes instead.
- Reworked from scratch

Flaws:

- Joints are much too loose. Middle phalanx wiggles all over the place.

Version 3:

Updates:

- Adjusted fishing line hole for better torque - May 8
- Adjusted length of some pieces - May 8
- Adjusted extrusions so they don't wiggle.

Flaws:

- Joint pokey things are much too out now. Had to file down from 16.5mm to 15.9mm

Version 3.1:

Updates:

- Reduced joints' extrusion by 0.3mm each

- Added top down type cut in top hole in the base.
- Adjusted top cover extrusions
- Pulling on the string to turn works on all joints now

Flaws:

- Top phalanx still has trouble fitting in. Need to redesign joints
    - Top joint also is offset up? And seems to get stuck
- Top phalanx doesn't want to put a support when printing?

Version 4:

Updates:

- Remodelled joint → new design, to test
- Remodelled top cover joint

Flaws:

- Top cover joint doesn't fit. Had to file down

Version 4-1:

Version 4-2:

Updates:

- Fixed top cover dimensions
    - Adjusted hole width by 0.3mm (inwards)
    - Adjusted other parts of hole by various amounts

Flaws:

- Seem to be none.

NOTES

When getting ready to print:

1. Create a separate copy for each component/piece
2. Remove all other components
3. Join all bodies.
4. Download from Web - as STL