

Design Expo—Fall 2020

LENDING A HELPING HAND

MICHIGAN
NEUROPROSTHETICS

1 IN 2,500



**AMERICAN PEDIATRIC
UPPER LIMB REDUCTION**

\$1,279,751



AVERAGE LIFETIME COST

21.6%



DISCONTINUATION RATE

MISSION STATEMENT

- To design cost affordable, accessible, and scalable myoelectric prosthetic devices for pediatric patients.

THE SOLUTION



AFFORDABLE

Our team produces a device for under two-hundred USD and distributes in completely pro-bono to the family



LIGHTWEIGHT

All of our models have weighed under a single kilo, with the lightest design being only one pound.



CUSTOMIZABLE

Our team holds a continuous conversation with the patient and the family regarding their desires of the product.

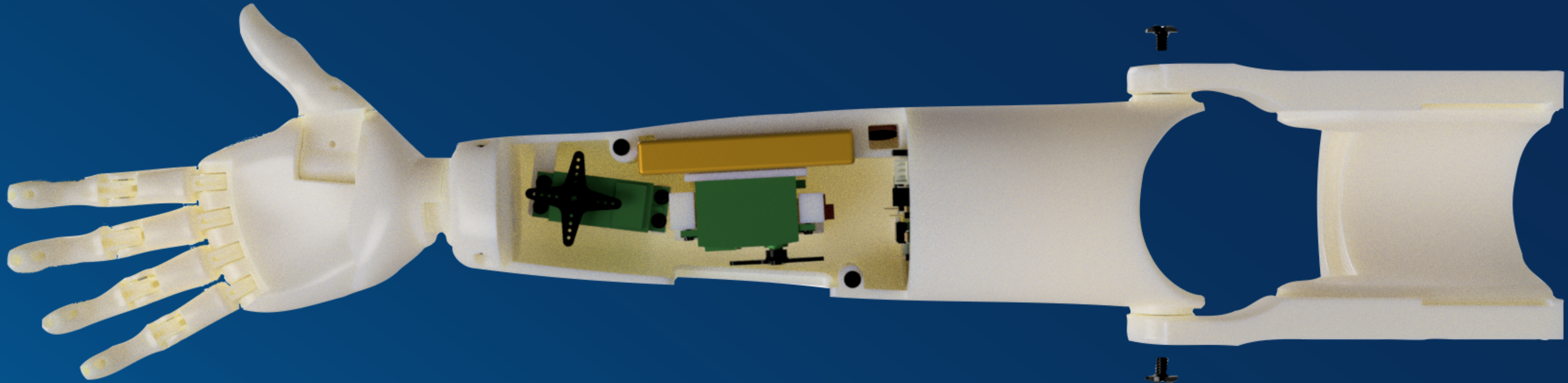


SCALABLE

There is an extended guarantee with each device so that our team is able to ensure continued satisfaction.



OUR DESIGN



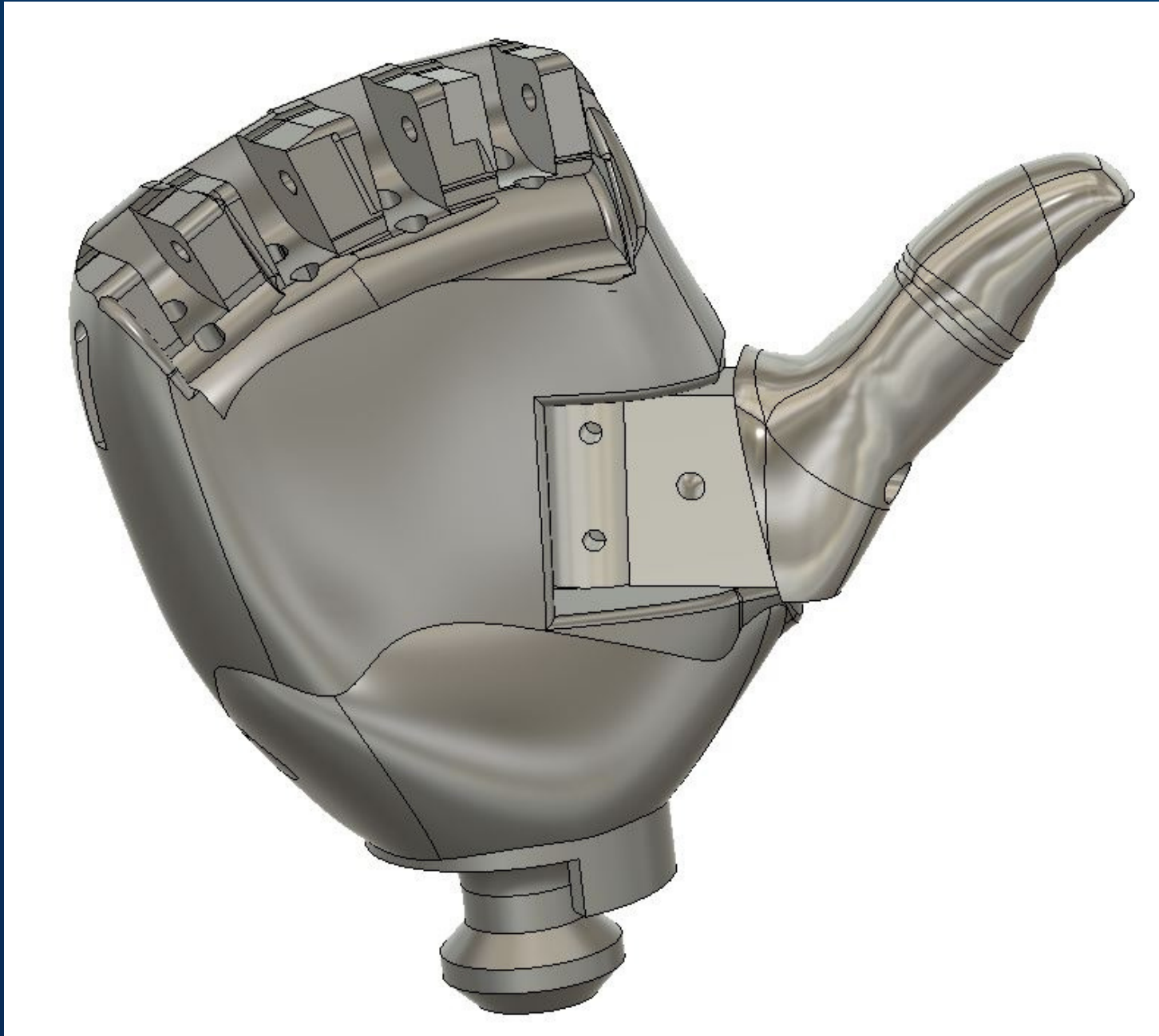
A decorative graphic consisting of multiple thin, light blue wavy lines that flow across the top half of the page, creating a sense of movement and depth.

2020 DESIGN CYCLE

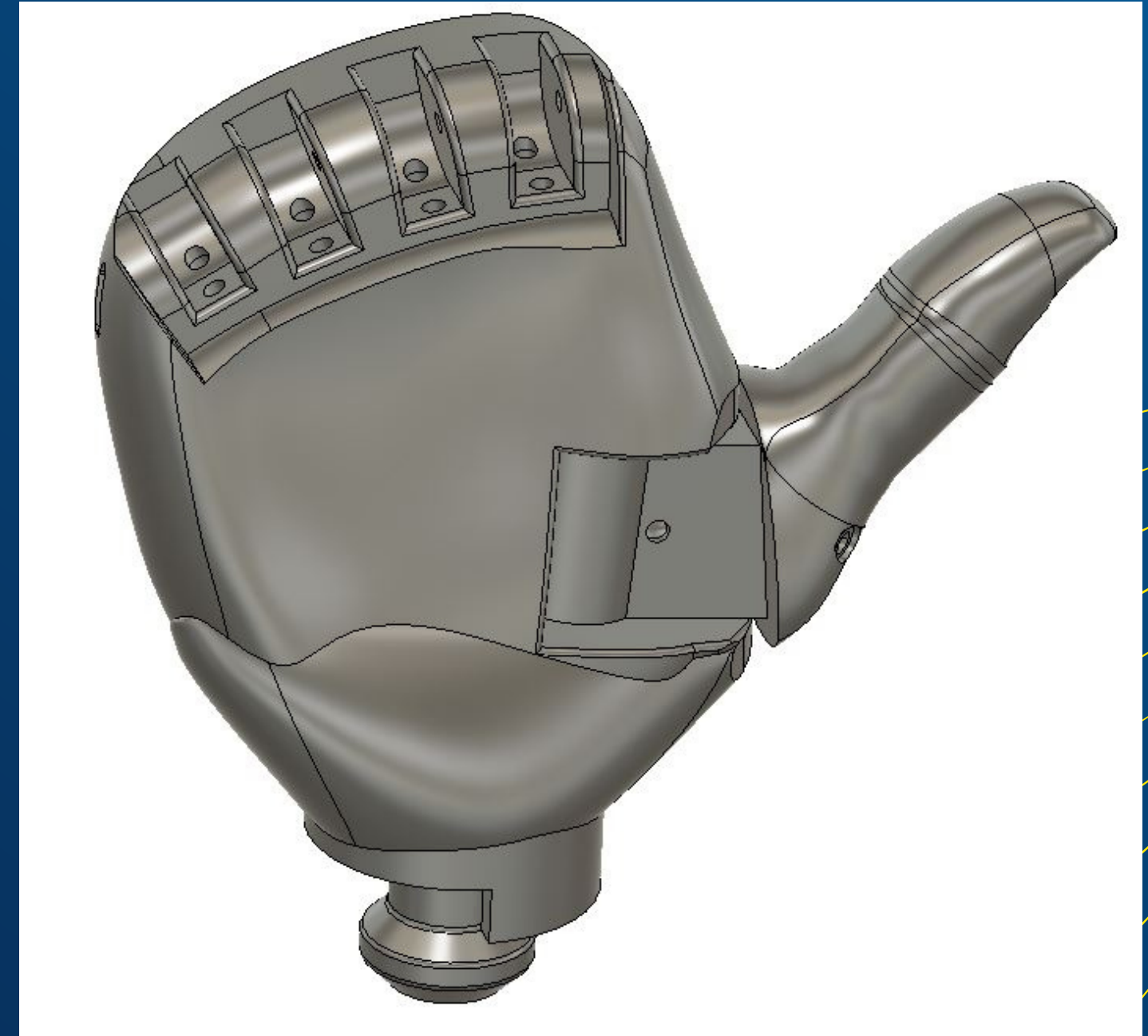
DESIGN GOALS

- Streamline palm string channels
- Add charging port
- Strengthen forearm–socket interface
- Improve aesthetic appearance
- Reduce weight of arm

Hand Redesign

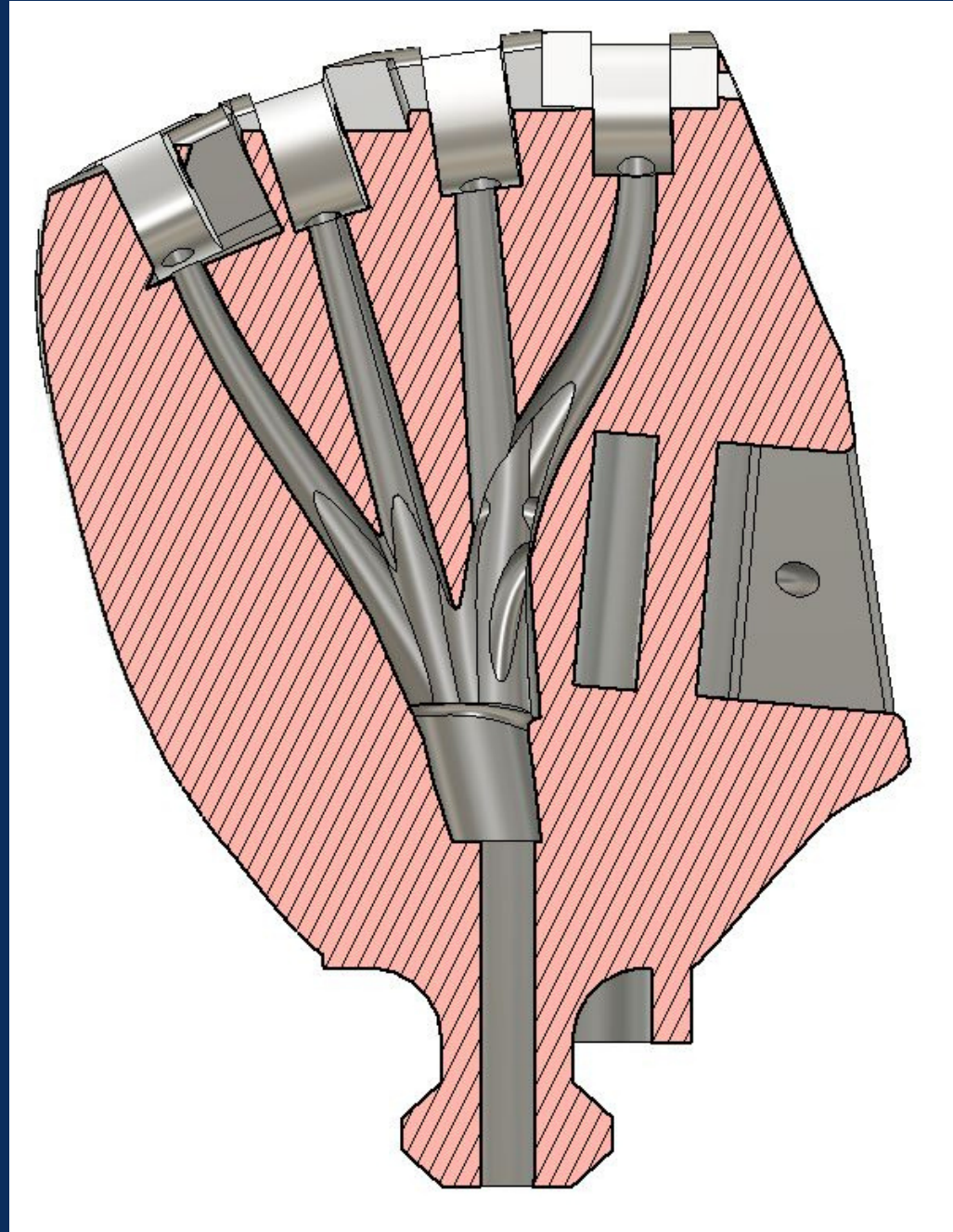


Before

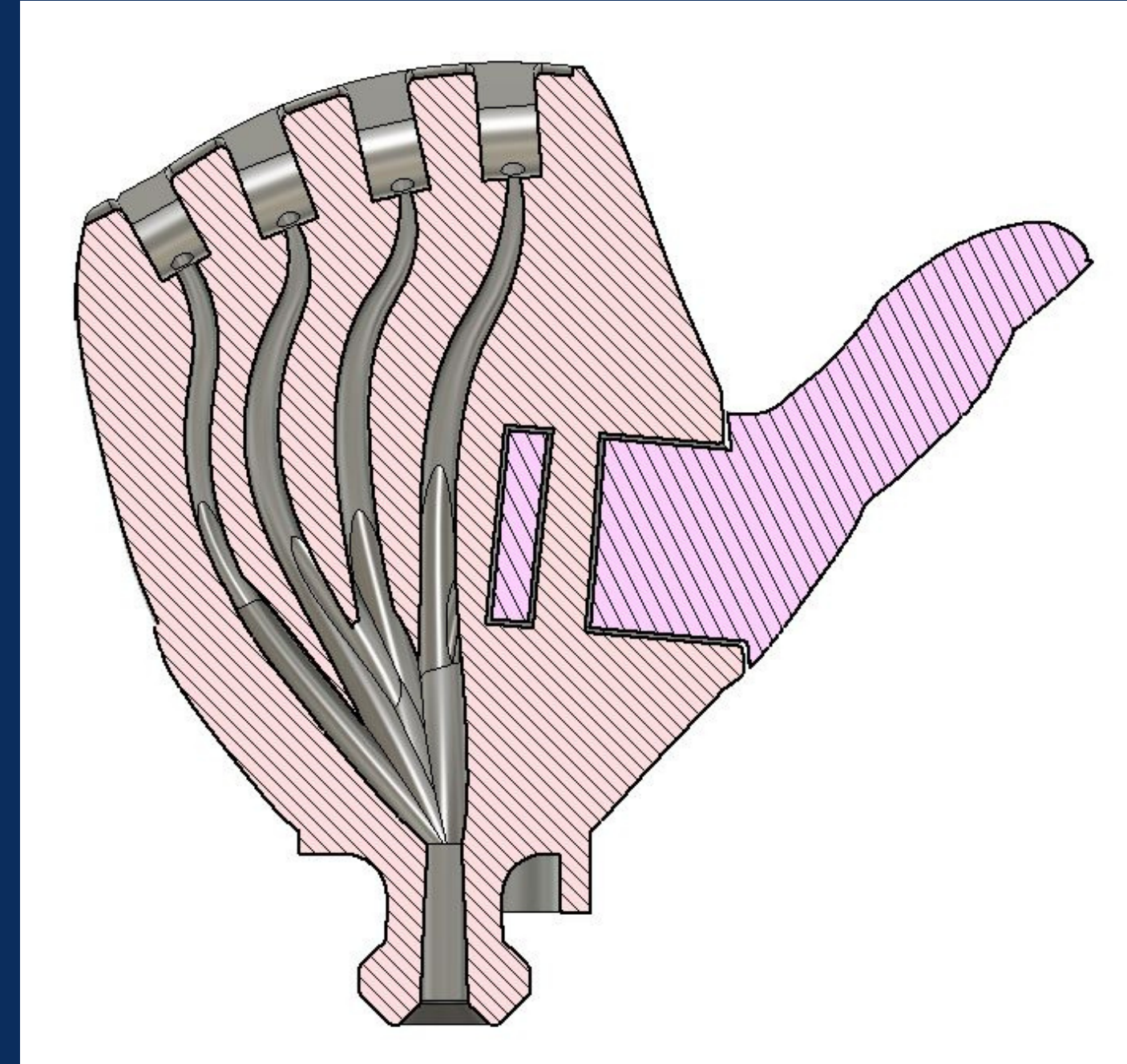


After

Hand Redesign

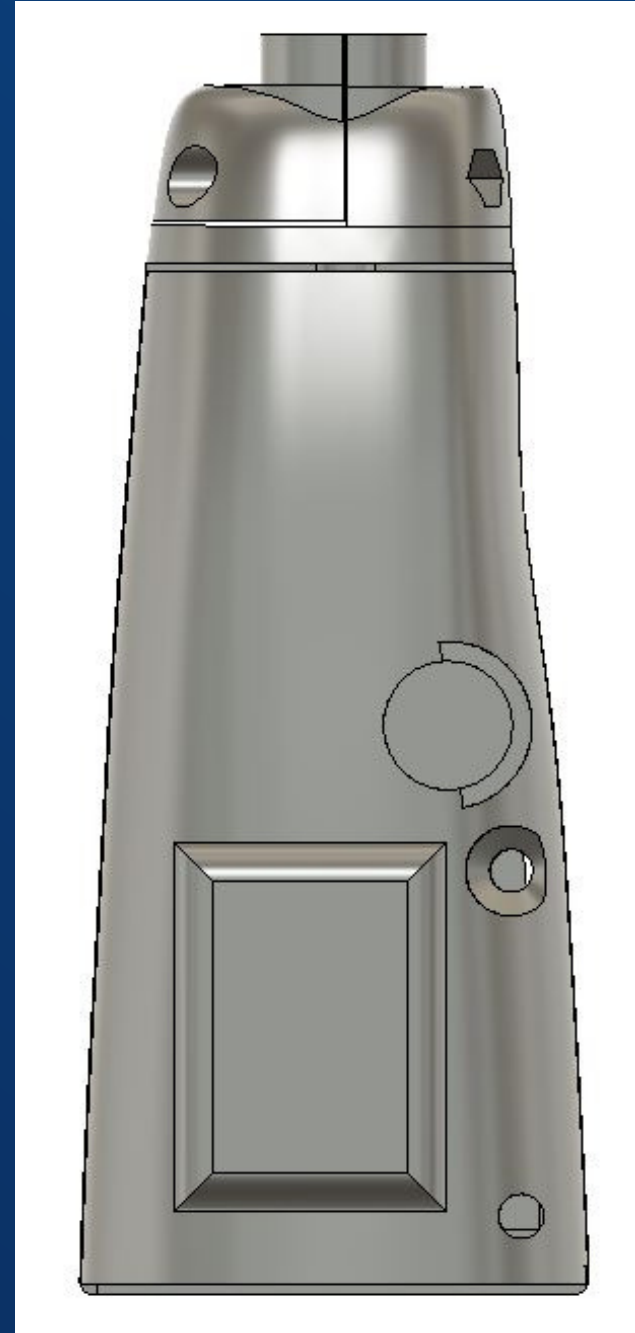
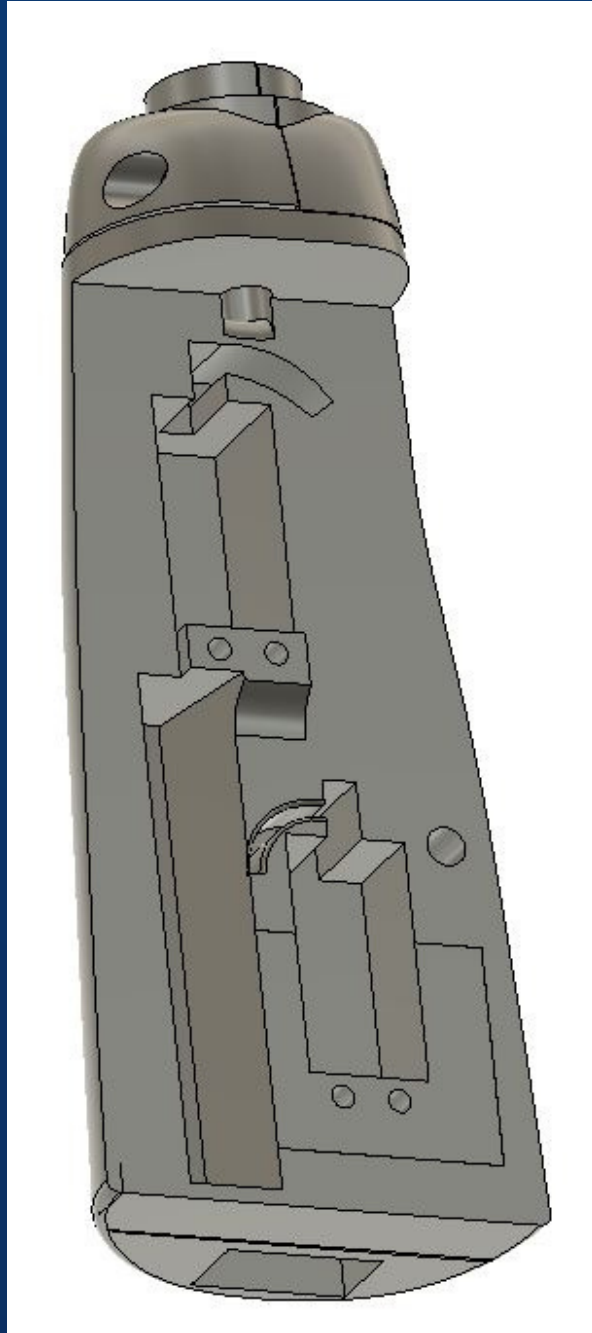


Before

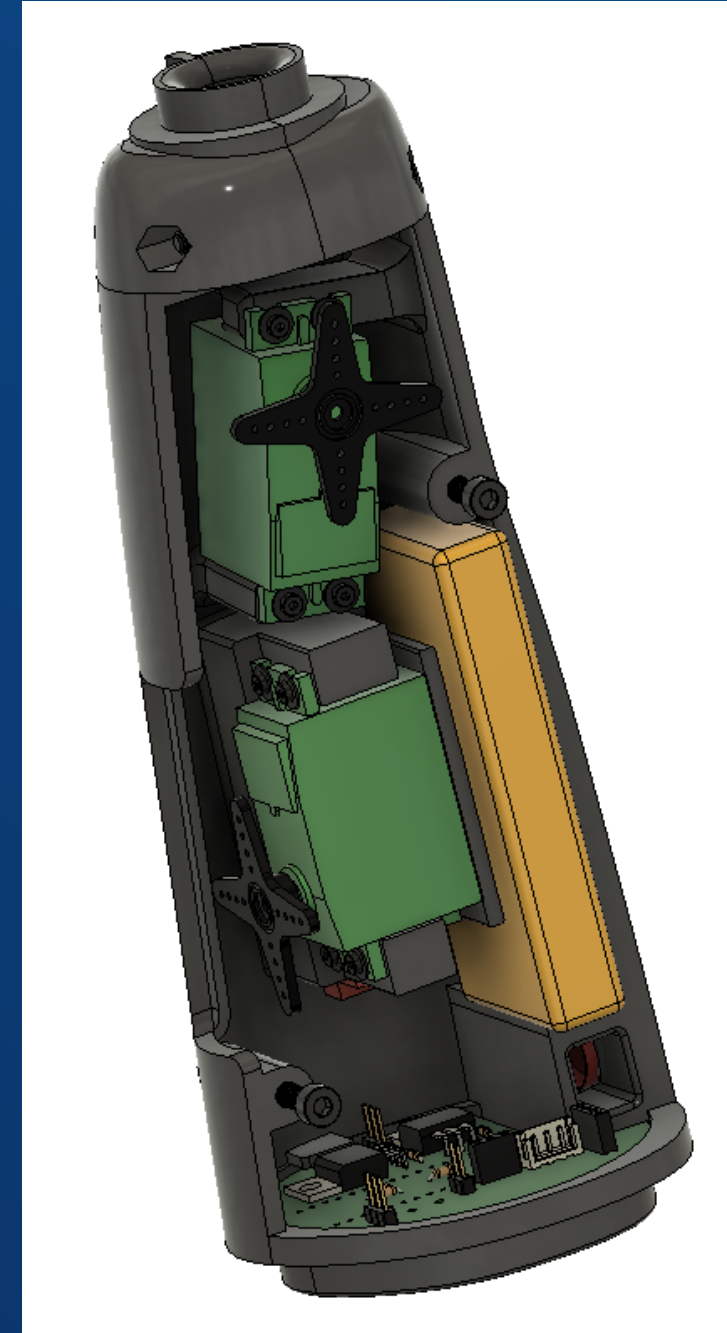


After

Forearm Redesign

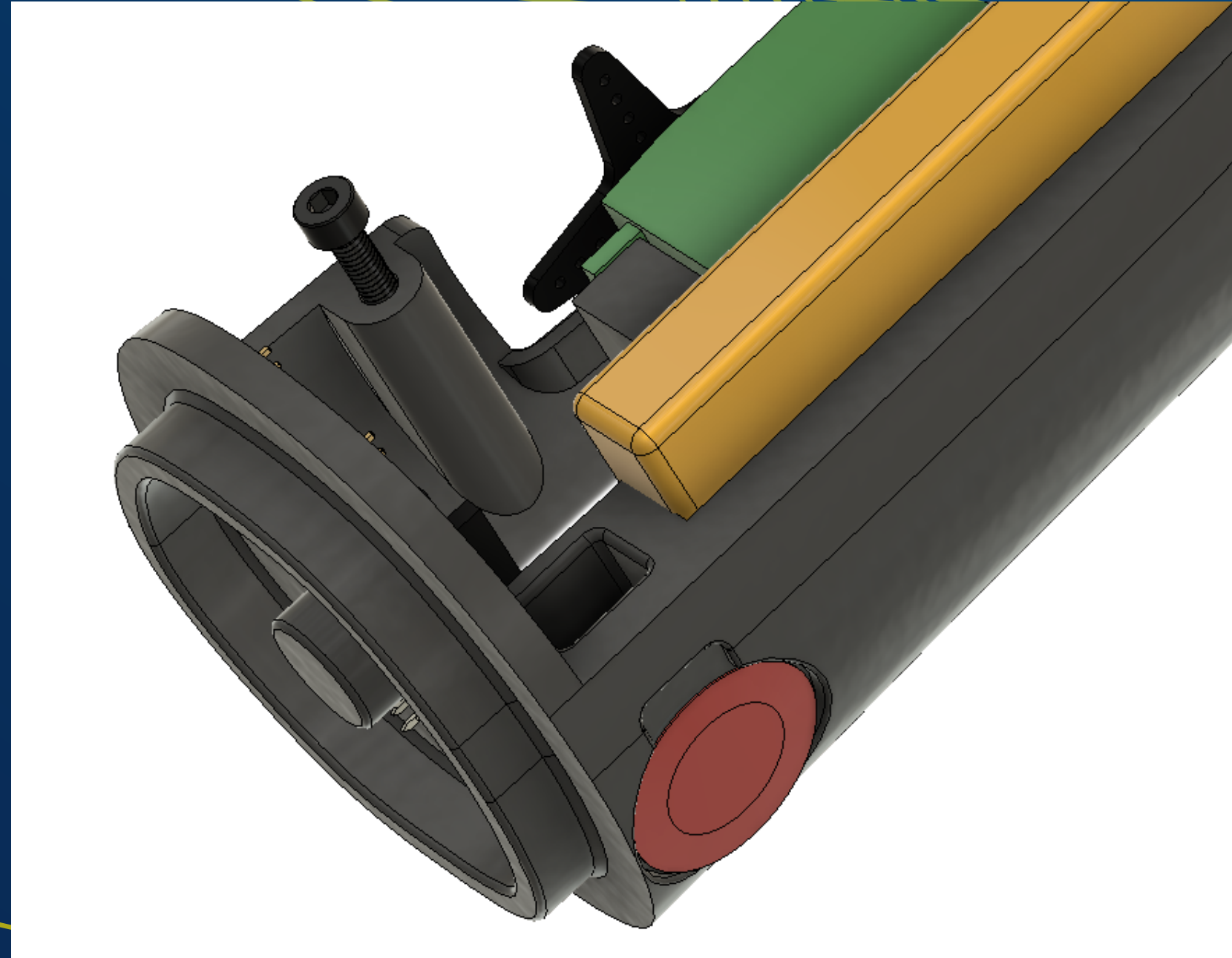


Before

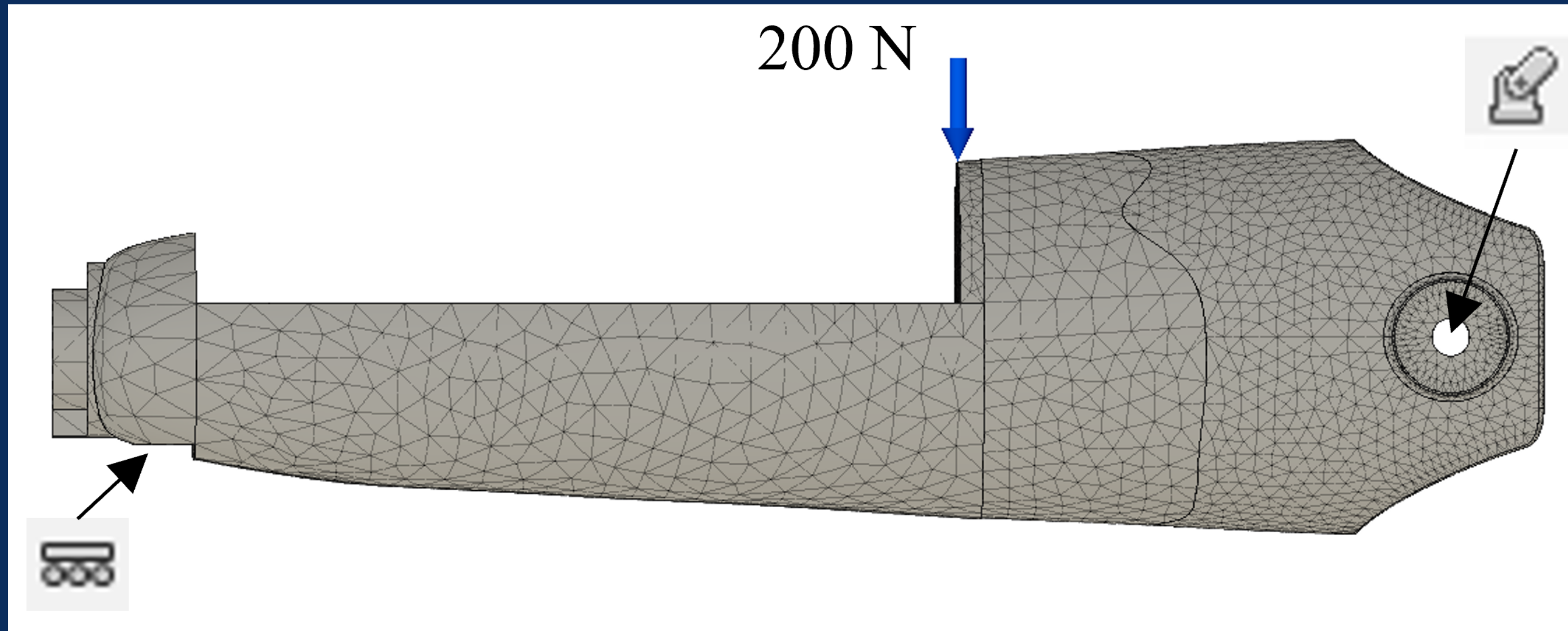


After

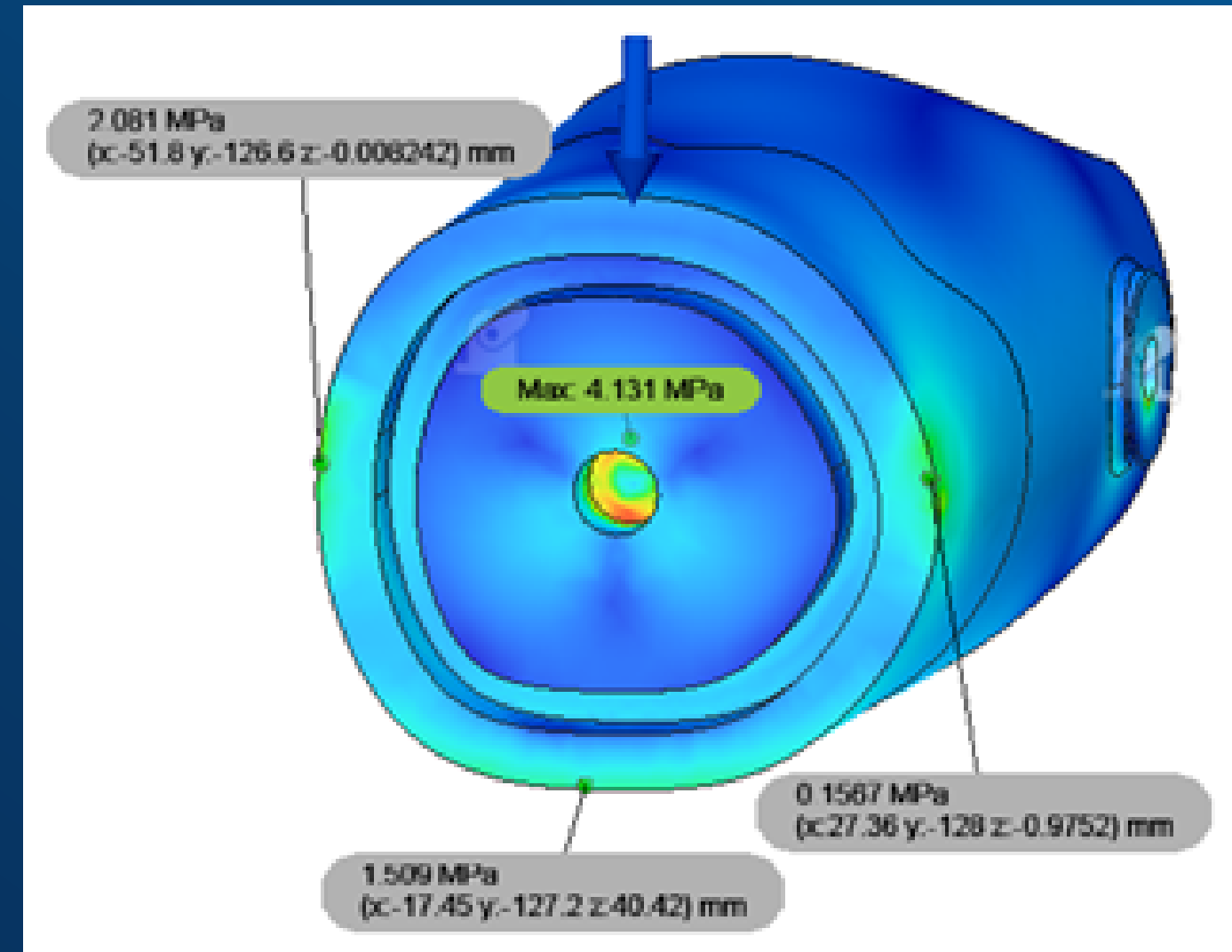
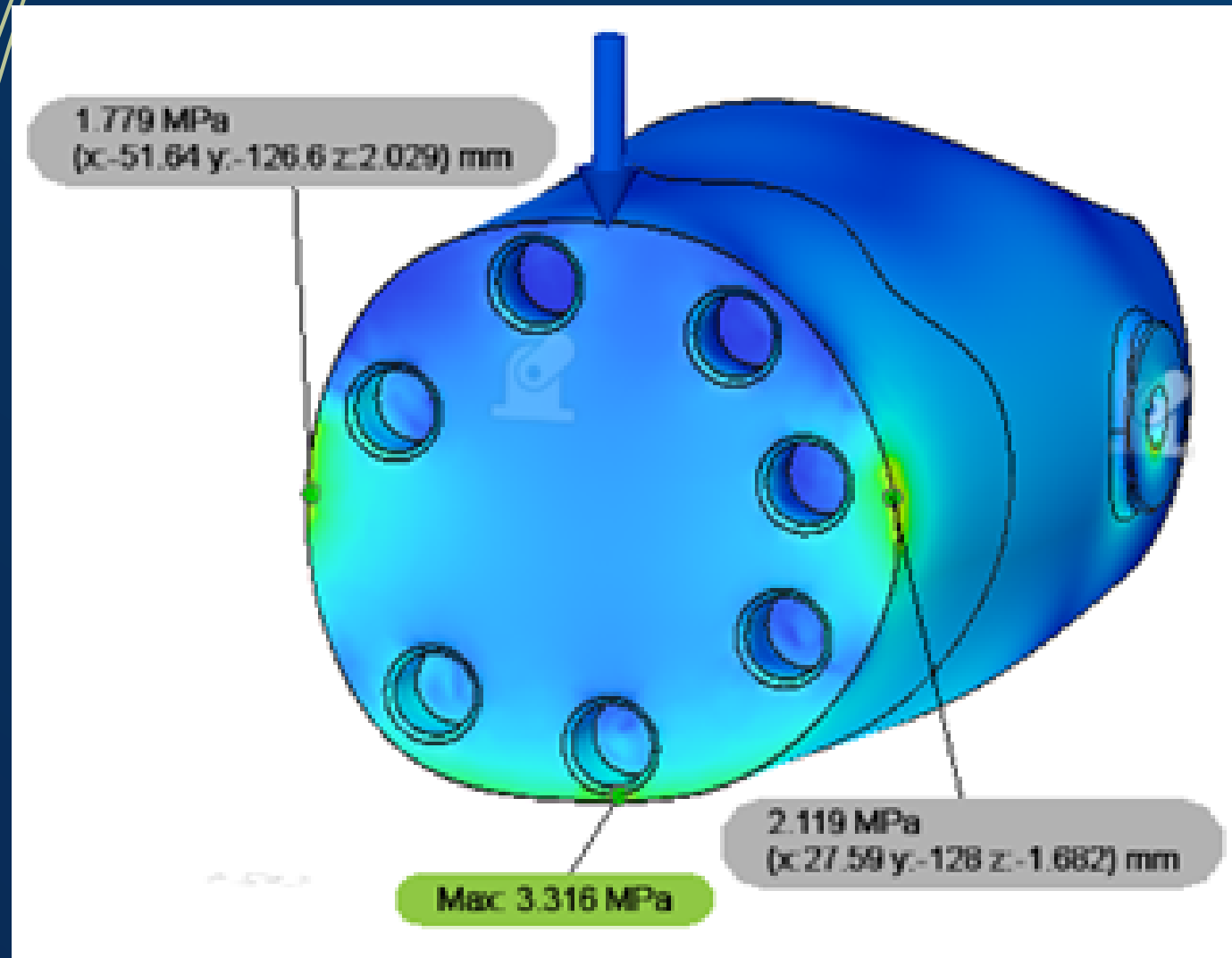
Charging Port



Socket Joint Analysis



Socket Joint Analysis



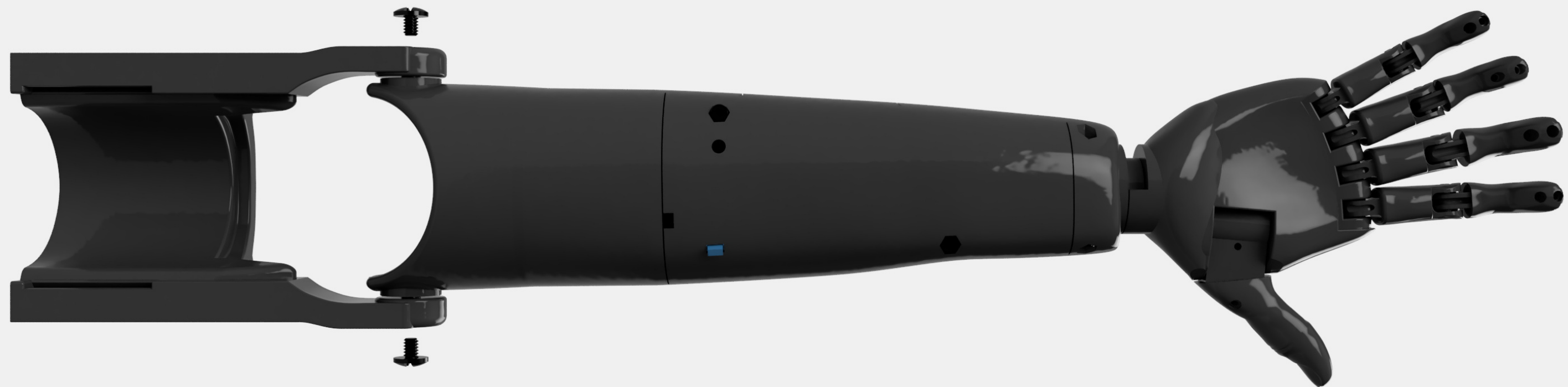
WEIGHT REDUCTION

Before: 166.82g

After: 153.73g

8% Reduction

THANK YOU!





CONTACT MICHIGAN NEUROPROSTHETICS

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FUTURE GROWTH

- We are poised to expand our impact to new markets and *greater opportunities* in the coming year.



LEADERSHIP TEAM

Dr. Cynthia Chestek- Robotics Advisor

Kiana Sadri- President of Michigan Neuroprosthetics

Dani Garrido- Head Lead of Interfaces Design

Yvonne Lin- Mechanical Coordinator

Stef Reamer- Head Lead of Manufacturing Process

Olga Tsuker- Head Lead of Outreach

Allison Wilcox- Head Lead of Mechanical Engineering

Maxton Wilson- Head Lead of Computer Software

Daniel Yan- Head Lead of Electrical Hardware

OUR WORK IN ACTION

— We continuously develop relationships with new patients and help them reach their goals.



JULLIAN AND MICHAEL



A dual motor device with a high range of motion and the ability to complete physical activity was designed for this eleven year old who wished to have an arm that would allow for him to participate in athletic competitions. An additional feature of touch screen capability was added, per parental request.

