



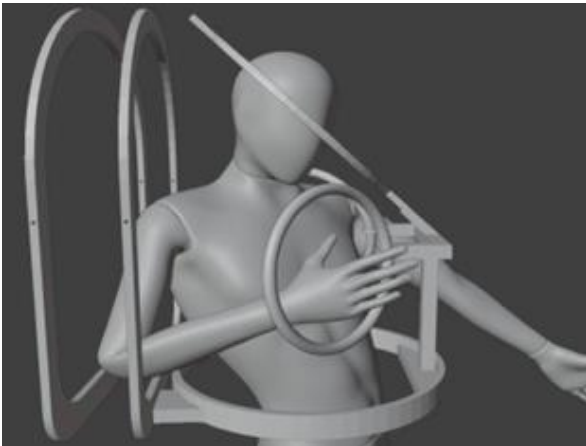
Left to right: Christina Creighton, Kirthi Holes, Brody Hanley, Aiden Hilger

## PROJECT BACKGROUND & DESIGN GOAL:

Astronauts on spacewalks operate in large, bulky suits that restrict fine motor mobility. Currently inside access is impossible, and suits are not designed for that. A modified spacesuit would allow astronauts to safely bring their hand inside the suit. **The goal of this project is to design a proof-of-concept prototype of a pivoting inner panel system in the backpack area to evaluate this concept's potential to improve mobility, safety, and comfort.**

## DESIGN OUTCOMES:

This project involved developing a prototype mechanical system integrated into an existing suit mockup. The system is designed to pivot the rear panel within the suit. This motion allows the user's right arm to retract from the arm hole and access the inside of the suit.



[Left] Blender idealization of arm retraction into suit inner volume

# NOVUS GEOMETRIKS

## TEAM 17

### INDUSTRY REPRESENTATIVE

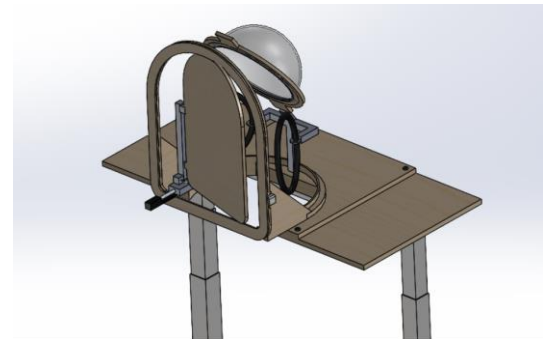
Timothy Lexen

### FACULTY ADVISOR

Michael Hennessey

## DESIGN CONSTRAINTS:

- **MODIFICATIONS ONLY FOR RIGHT ARM** Production for left-handed suits in future
- **CONCEPT FOR ALL SIZES** Prototype is based on a standard size, but is adjustable for a range of user sizes
- **PIVOTING SYSTEM** User controls actuation system on suit exterior
- **SIMPLICITY** Concept will easily allow for future adjustments



[Right] SolidWorks CAD Model of the pivoting panel, the key design modification