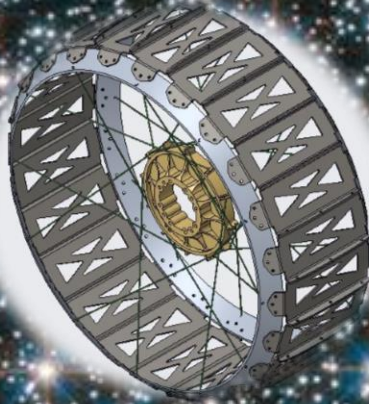




UB-E – GMRO Lab

Mini RASSOR and Pilot Excavator

Victoria Ortega
Mechanical Engineer
Pathways Intern

About Me



From

Connecticut

School

Carnegie Mellon University

Major

Rising Senior in Mechanical Engineering with a Minor in Robotics

Background

Research Assistant in the Robotics Institute working with Team Explorer as part of the DARPA SubT Challenge

RASSOR

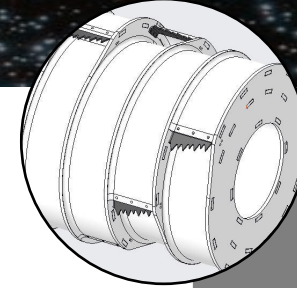


- RASSOR (Regolith Advanced Surface Systems Operational Robot) is a dual bucket drum excavator prototype that is designed to dig regolith (moon dirt)
- Will develop into a smaller excavator named the ISRU Pilot Excavator that will go to the moon to support the Artemis mission
- Regolith gathering by Pilot Excavator can be used as building material while dug up ice can be used as a water resource

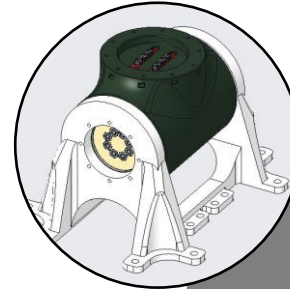
Mini RASSOR



Mini RASSOR is a smaller version of RASSOR that will be used for educational programs



Designing 3D printable bucket drum



Designing test rig



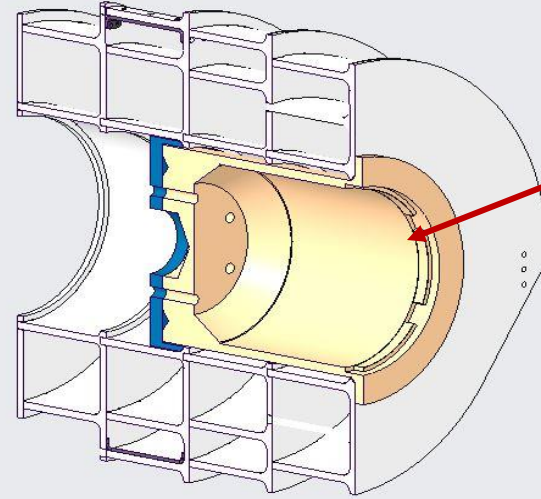
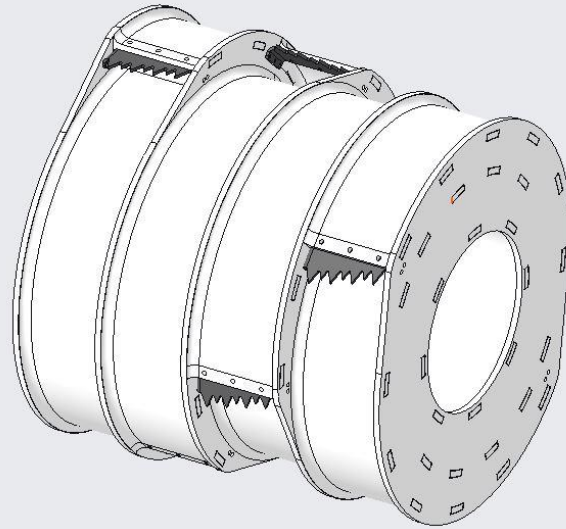
Assembling parts



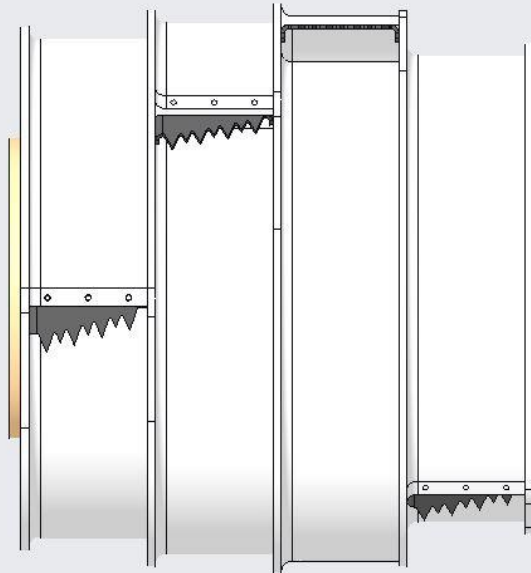
3D Printing and tolerancing parts

Mini RASSOR – Bucket Drum

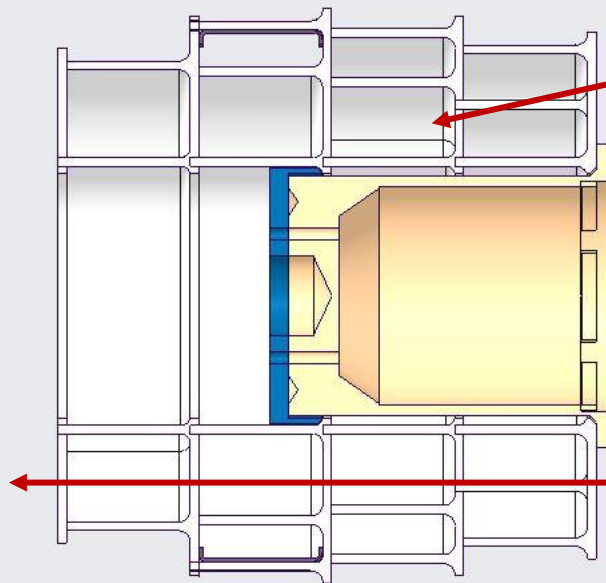
One section of
the 3D print



Actuator
housing

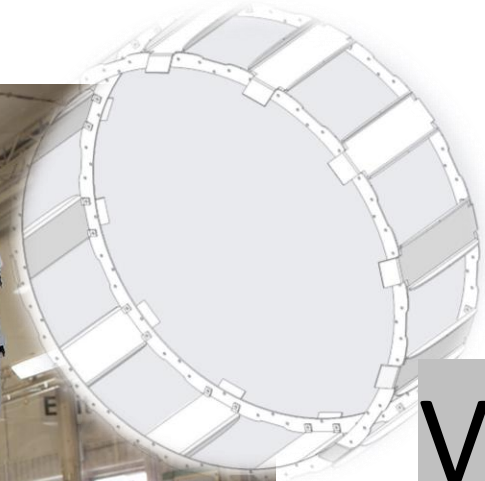


Sections to
hold regolith

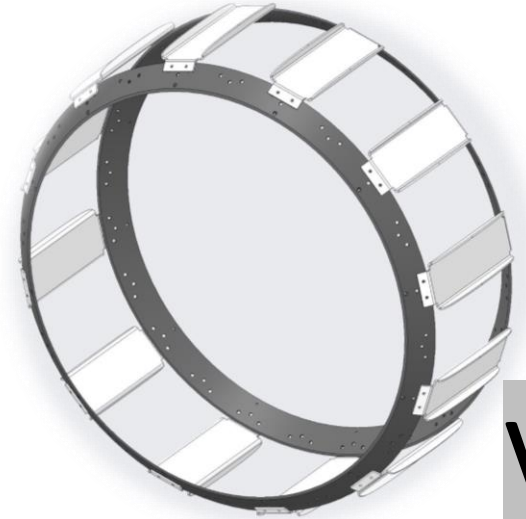


Blades to help
with digging

Pilot Excavator Wheel



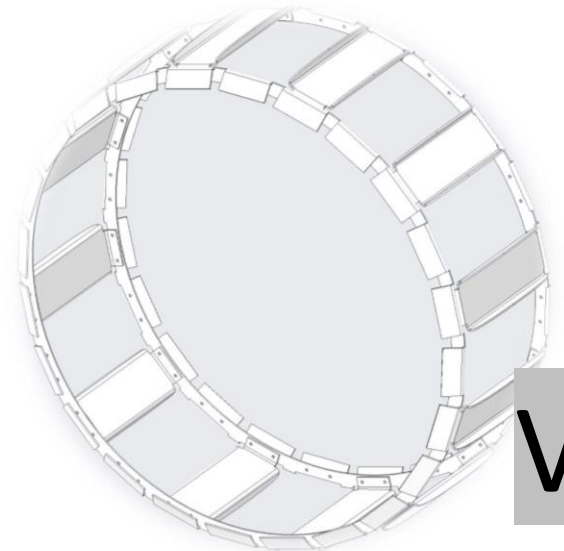
V1



V3



V2

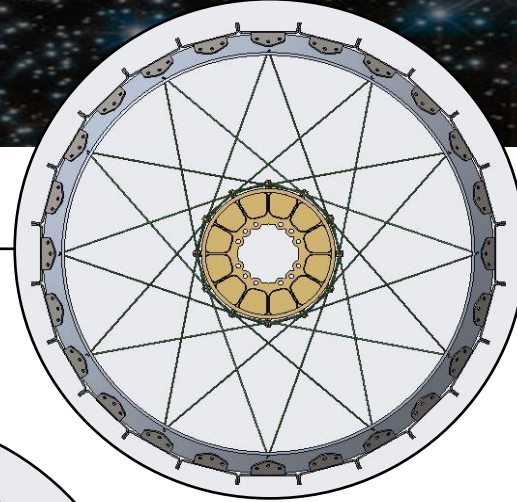


V4

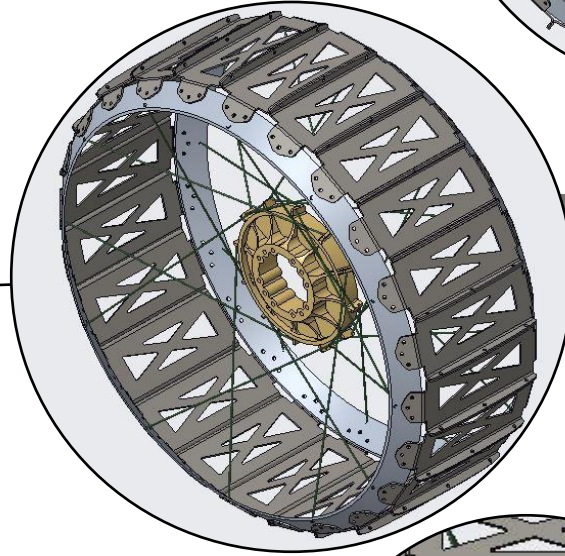
Pilot Excavator Wheel



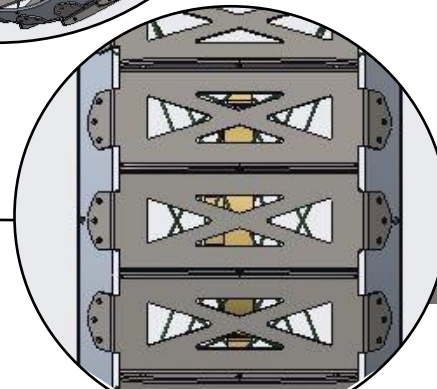
RASSOR



Bike Spokes



Sloped Rim



Connected Grousers

Summary

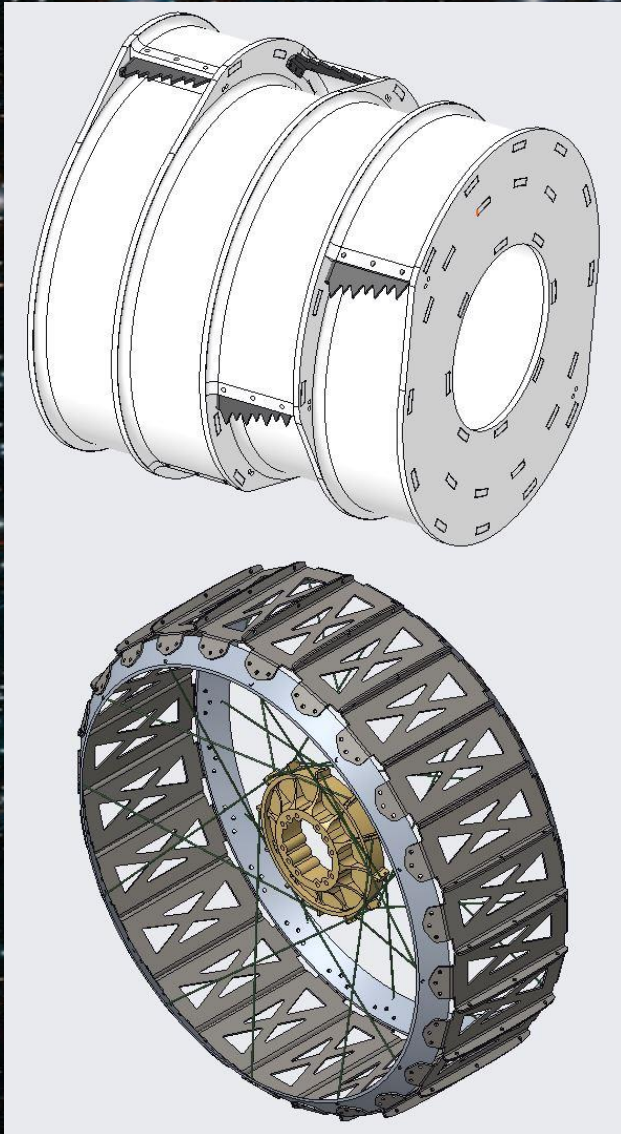
Projects Worked On:

- Mini RASSOR
- Pilot Excavator Wheel

Takeaway:

Through this internship I was constantly challenged to be creative which sharpened my mechanical design skills and gave me experience in areas completely new to me

Shoutout to my mentor Drew Smith, the Pilot Excavator team, and UB-E for welcoming me into their group and showing me the ropes



The background of the image is a deep black space filled with a vast number of stars. The stars vary in size, brightness, and color, with many appearing as bright white or yellow points of light, while others have a distinct blue or cyan hue. Some stars exhibit prominent diffraction spikes, creating a starburst effect. The overall distribution of stars is dense and uniform across the frame, creating a sense of a deep, expansive universe.

Questions?

Resources

[Images.nasa.gov](https://images.nasa.gov)

Rest of photos taken by me