

# NASA Psyche Mission

## Robotic Explorer for Hypothesized Surfaces

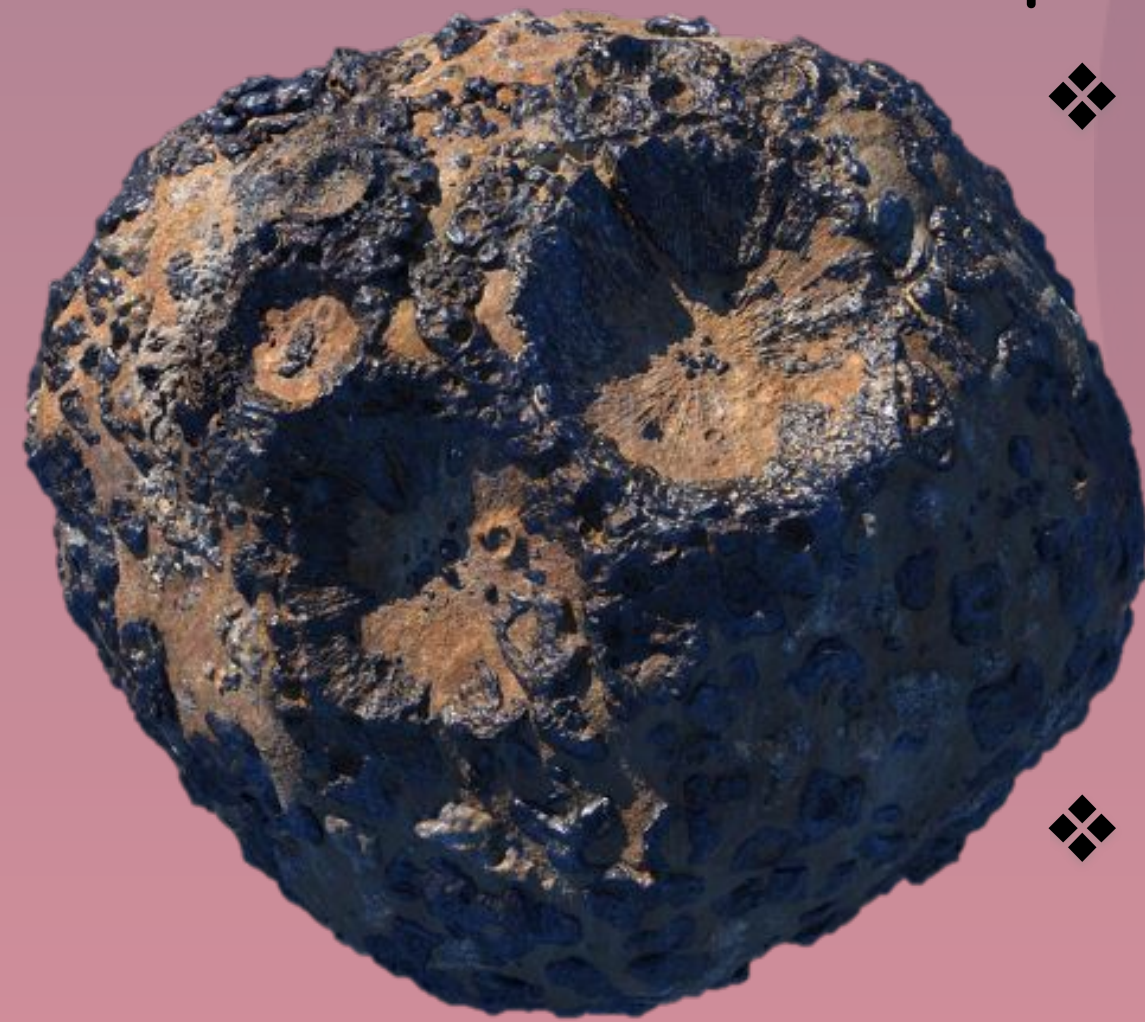
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Industrial Partner: NASA Psyche Mission, Cassie Bowman

### Mission Statement

Design a prototype that would explore the surfaces of the metal - rich asteroid called (16) Psyche. Potentially to help NASA Psyche Mission to discover the unknowns surfaces of Psyche.

### About Psyche

- ❖ Discovered in 1852 by Italian Astronomer, Annibale de Gasparis



- ❖ Located in the asteroid belt in between Mars and Jupiter
- ❖ Likely rich in metals
- ❖ Gravity on Psyche is near zero
- ❖ Temperature varies from different latitudes



### Team Solution

The solution was to design a prototype that would travel through different ranges of the hypothesized surfaces of Psyche.

### Encounters

Challenges:

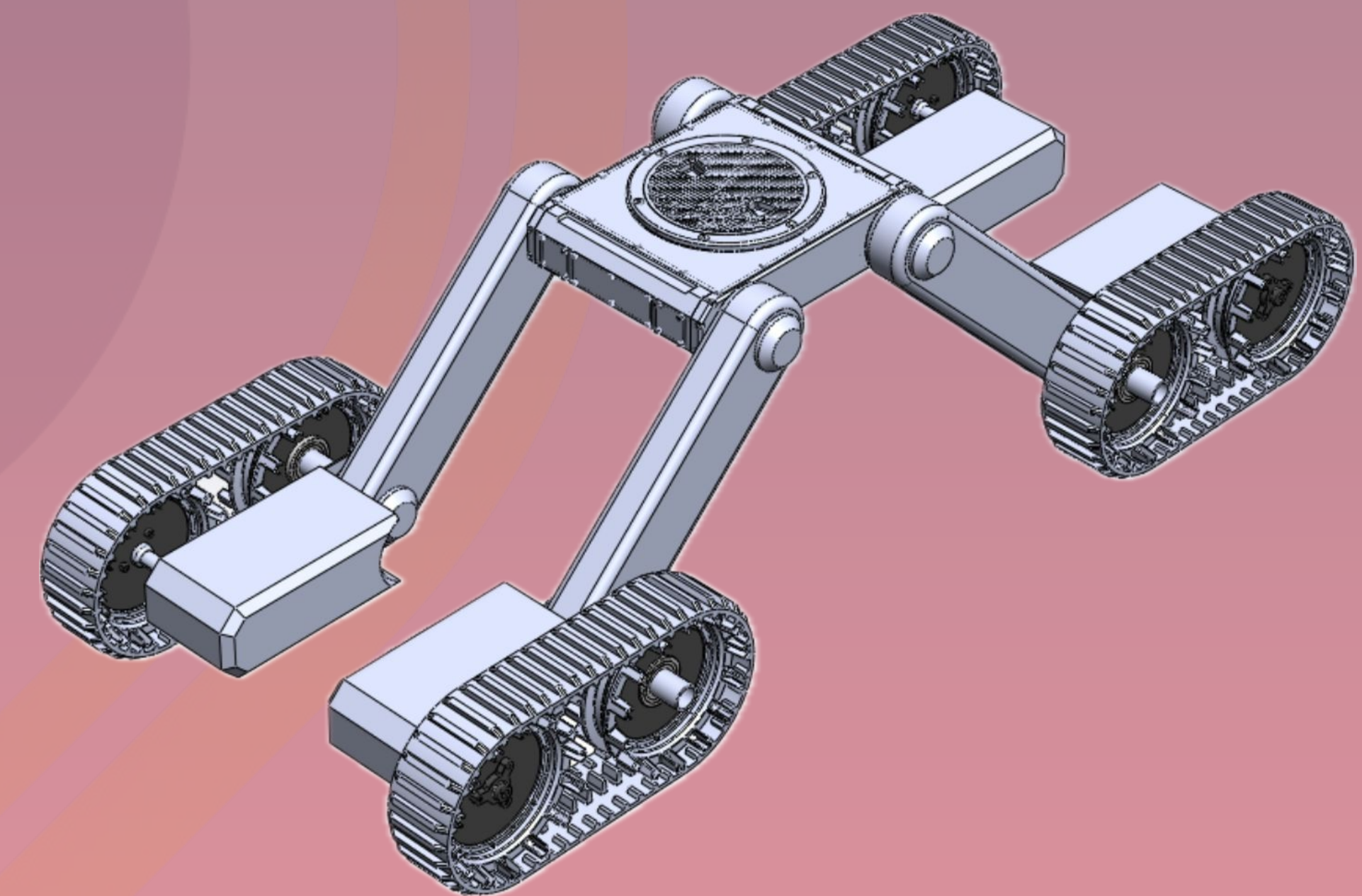
- ❖ Multiple 3D print failures
- ❖ Lack of availability for certain parts and materials
- ❖ Damaged parts being delivered

Accomplishments:

- ❖ Maintain movement after modification
- ❖ Traveled through tested hypothesized surfaces on Psyche

### Final Design:

Modifying a rover purchased from another vendor to our team's concept. Each leg will move independently and will include a tension spring as its suspension system.



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Disclaimer:

This work was created in partial fulfillment of {Arizona State University} Capstone Course "EGR 402". The work is a result of the Psyche Student Collaborations component of NASA's Psyche Mission (<https://psyche.asu.edu>). "Psyche: A Journey to a Metal World" [Contract number NNM16AA09C] is part of the NASA Discovery Program mission to solar system targets. Trade names and trademarks of ASU and NASA are used in this work for identification only. Their usage does not constitute an official endorsement, either expressed or implied, by Arizona State University or National Aeronautics and Space Administration. The content is solely the responsibility of the authors and does not necessarily represent the official views of ASU or NASA.