



**University of  
New Hampshire**

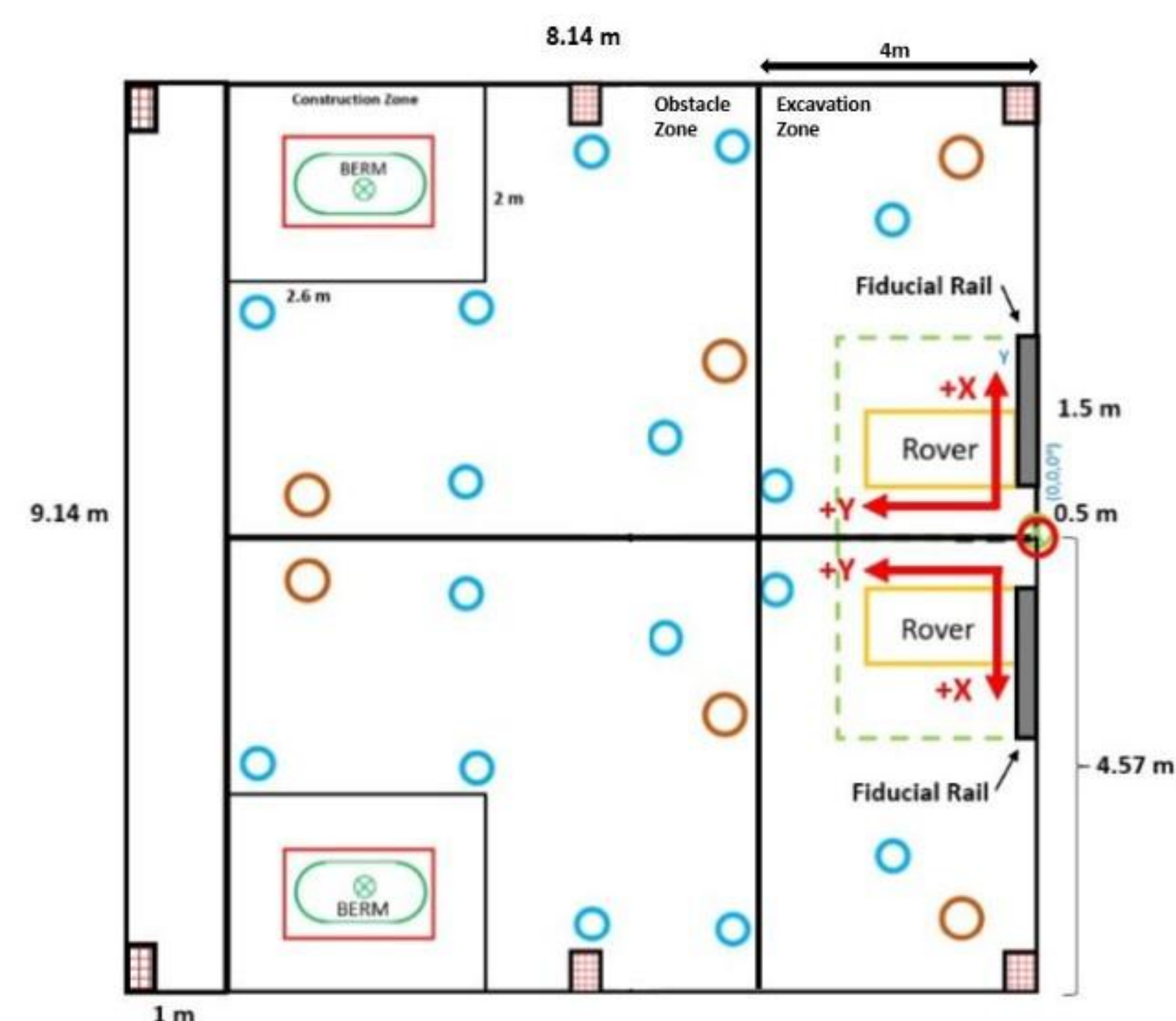
# 2026 UNH Lunacats Drivetrain

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## Introduction:

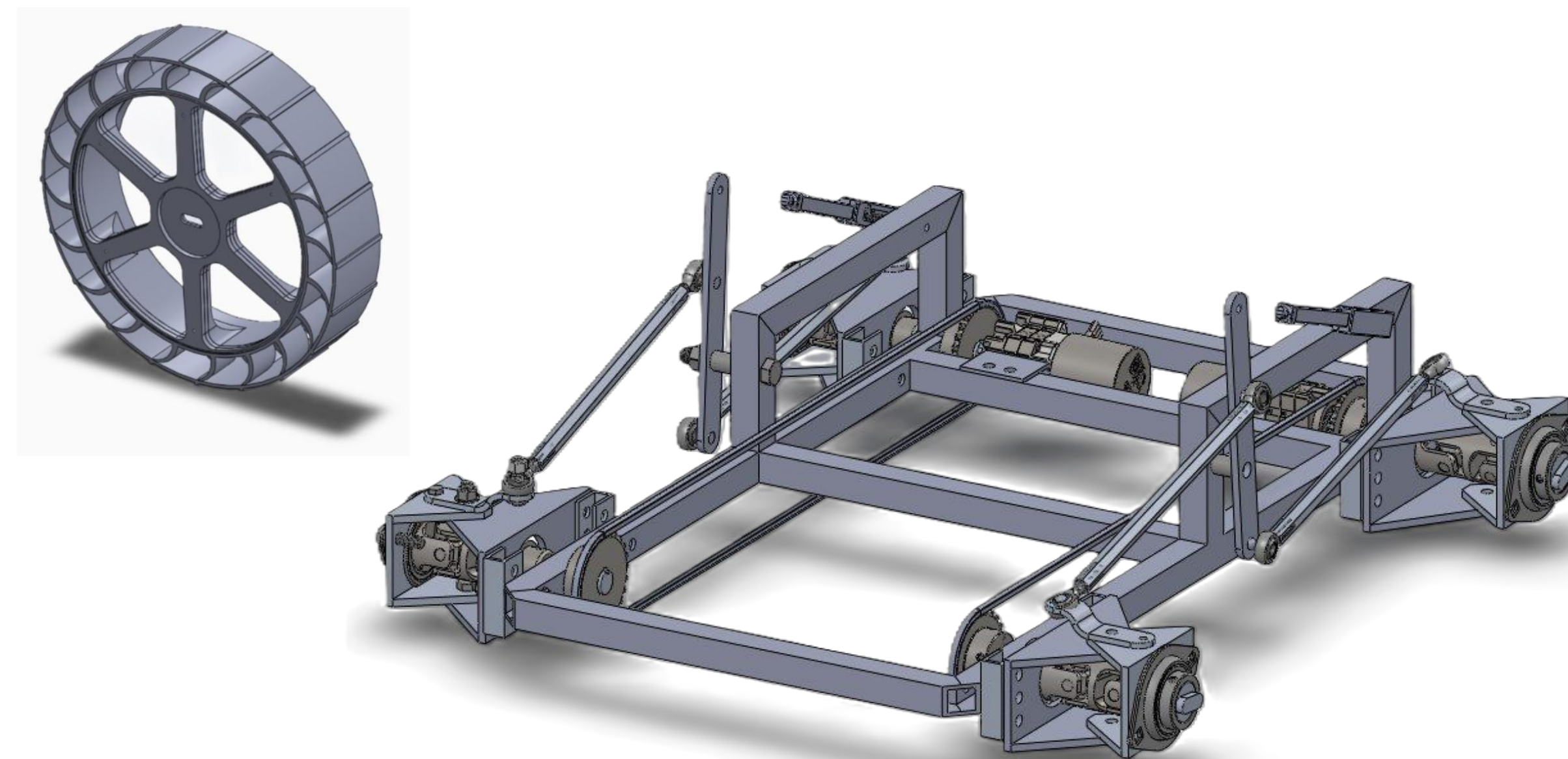
The National Aeronautics and Space Administration (NASA), in preparation for future Artemis missions, annually hosts an intercollegiate engineering competition between roughly 40 universities from all around the country to gather data on which rover designs are best suited to collecting and depositing lunar regolith. The robots are placed in a makeshift lunar arena and the volume of regolith simulatant moved to the depositing area is measured using Light Detection and Ranging (LiDAR) sensors.



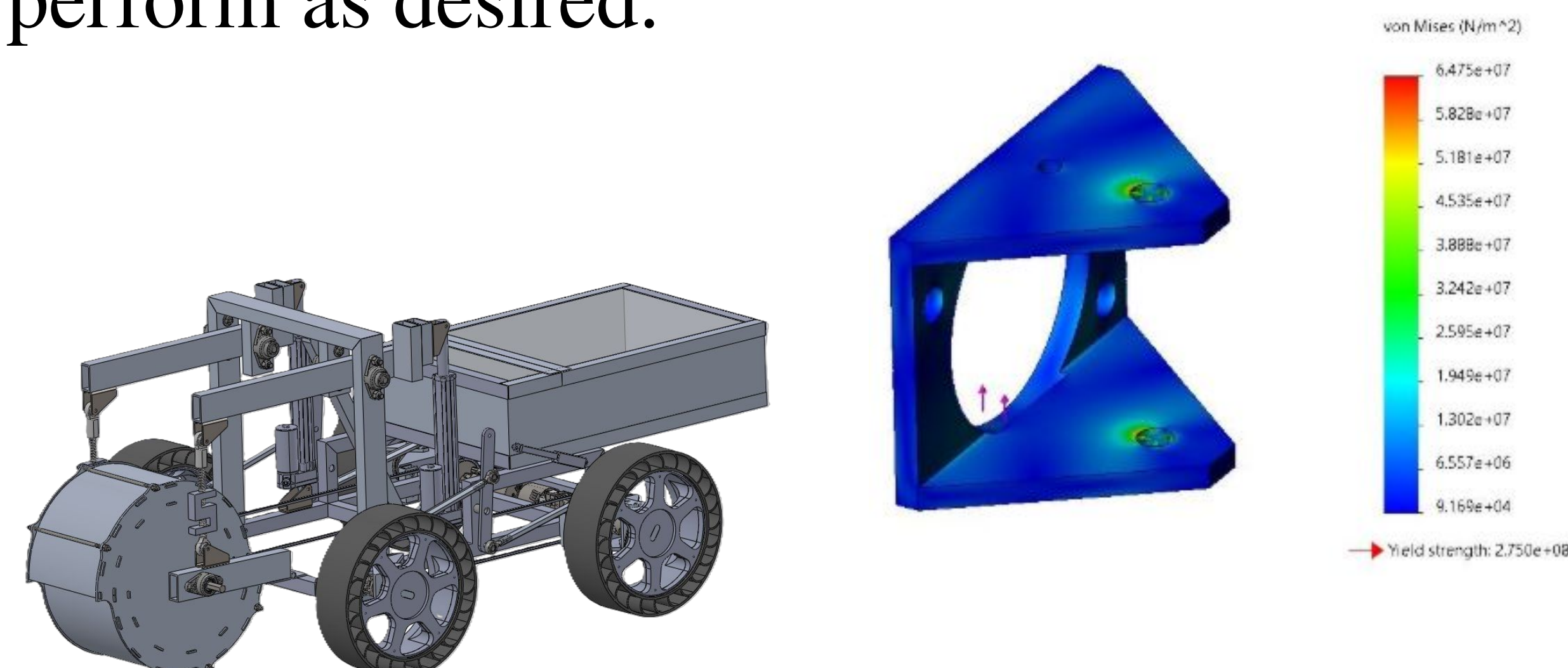
Our subteam's mission was to design and fabricate a drivetrain capable of reliably traversing the lunar terrain while also supporting the weight of the mining subsystem, all while complying with the guidelines specified in NASA's 2026 Lunabotics Challenge guidebook.

## Design:

The design process began with brainstorming and conceptual drawings. Several areas of improvement were identified based on the performance of the previous year's robot. After weeks of meticulous design and analysis, the team held its Preliminary Design Review upon which the design was approved for fabrication.



The majority of the drivetrain, including the frame, would be made from Aluminum 6061-T6 to minimize weight while still maintaining an appropriate factor of safety. Mission critical components were analyzed in SolidWorks simulations to ensure they would perform as desired.



## Fabrication:

Stock material was ordered from McMaster-Carr, and the linear actuators, DC motors, and universal joints were ordered from their respective websites. Then the process of cutting the stock aluminum and welding the frame began. The remainder of the drivetrain's constituent pieces were cut and sanded in the following weeks. The manufacture of the more complex parts was outsourced to one of the university's machinists.

