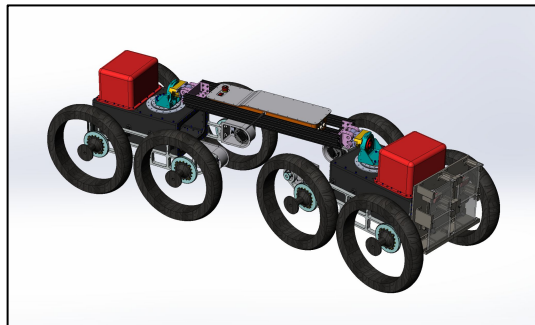


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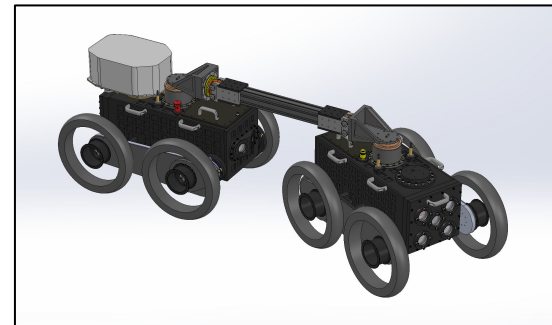
Project → A dual body robot capable of traversing hazardous environments and difficult terrain in underground mines
Tasks → Central **structure design** and **delivery**, avionics **mechanical configuration**, prototype **testing**, controller design



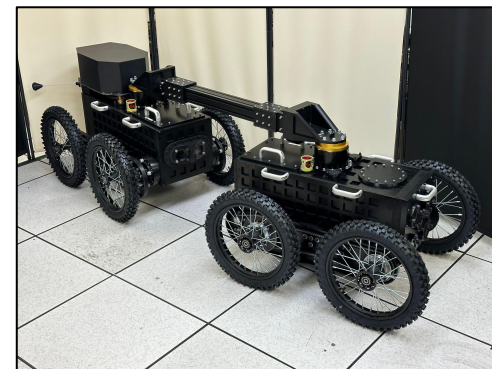
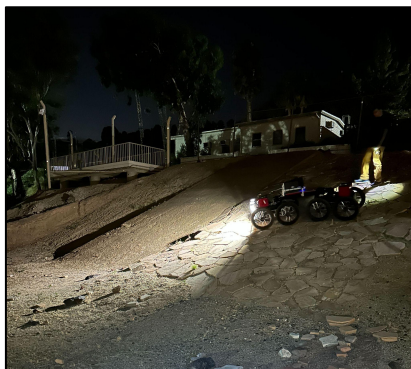
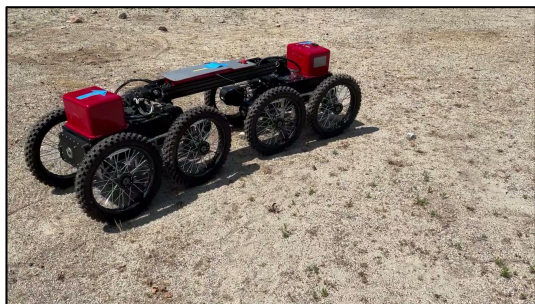
[Click](#) for Prototype Field Test Video



Rapid Test Rig Development



Integration and Hardware Delivery



Jet Propulsion Laboratory
California Institute of Technology

This research was carried out at the Jet Propulsion Laboratory, California Institute of Technology, and was sponsored by the Year-Round Internship program and the National Aeronautics and Space Administration (80NM0018D0004)

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Objectives

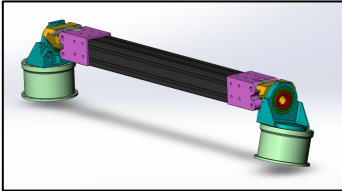
- Create a fieldable robotic system capable of going into a mine after an explosion and traversing hazards in tight spaces
- Design and deliver the robot's central structure and avionics tower
- Work with a team to prototype and develop various rover subsystems

Process

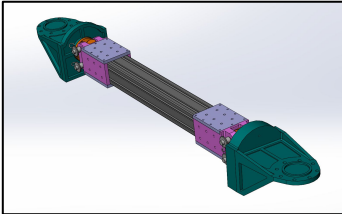
- Filled **responsible engineer** role for central structure subsystem, leading CAD, analysis, procurement, integration, and test for it
- Led **design reviews** to ensure subsystem requirements were met
- Provided other subsystems with **code**, testing aid, and **structural designs**

Results

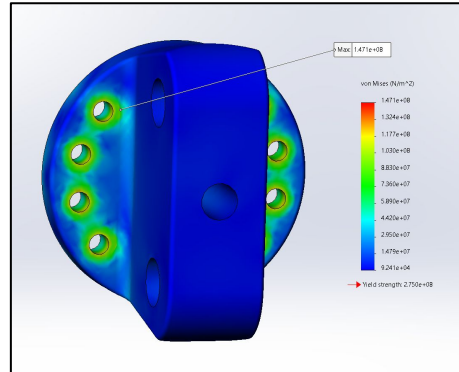
- On time delivery and integration of hardware for presentation of completed robot to stakeholders
- Demonstrated a controller capable of deploying and retracting a communication tether under ideal tension while moving



Design Review Iterations



Structural Analysis



[Click](#) for Roll Mechanism Demo

