



Project Overview

At the moment, NASA employs planetary rovers, such as Curiosity, Perseverance and Mars 2020, to carry out surface level missions. These rovers are expensive and high-stakes, limiting exploration and sample retrieval.

Today, a Split-Chore Autonomous Network (SCAN) is capable of working with other robots to identify tasks and work in a synchronous manner. Developing a versatile multi-coordinated agent system which has the capabilities of accessing treacherous terrains (such as the Hellas Planitia Crater on Mars) opens the door to new exploration opportunities. SCAN's purpose is to create a fleet of rovers which offer a low-cost and high mobility solution to interplanetary exploration.

Meet The Team



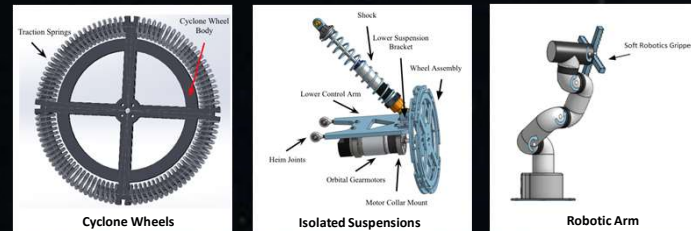
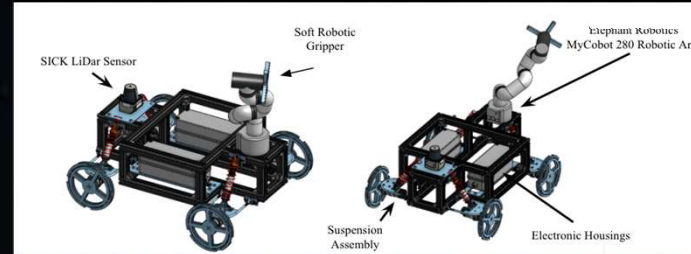
Mechanical Engineering

- Abelardo Garcia
- Andrew Richter
- Cameron Jaynes
- Sophie Koehler
- Martin Ruiz

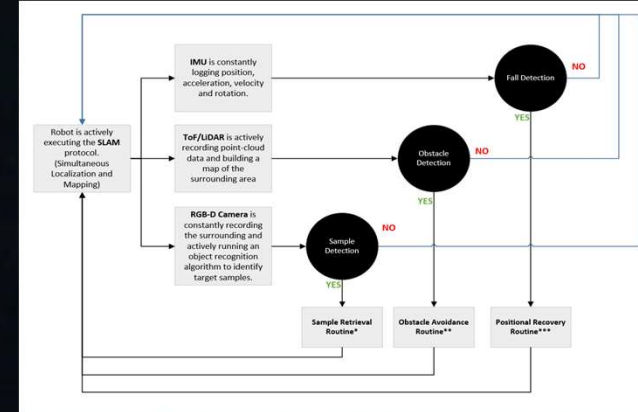
Electrical & Computer Engineering

- David Aw
- Chris Choo
- Shahad Al Neesan
- Shingo Morita
- Uriel Zamorano

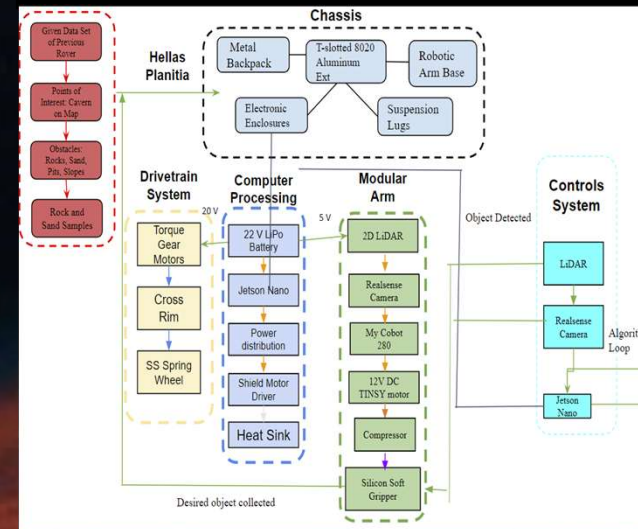
Engineering Models



Logic of Operation



System Level Diagram



Meet The Sponsor



Dr. Zahra Nili Ahmadabadi is a Mechanical Engineering Professor at San Diego State University, with a PhD from Université du Québec (École de Technologie Supérieure) she specializes in the areas of robotics and artificial intelligence with a focus on multi-agent coordination and nonlinear motion planning for mobile robots and unmanned air vehicles, useful in surveillance and exploration missions.

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San Diego State University

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Testing, Simulation and Hardware Integration



Conclusion

Our fully integrated multi-agent robotics system expands past the current limitations of interplanetary exploration by overcoming the single-directive nature of existing rovers (i.e. Curiosity and Perseverance). SCAN Robotics creates a robust platform for carrying out diverse missions on Mars. The final product is a biomimetic system which comes at a thousandth of the cost of current robotics solutions.