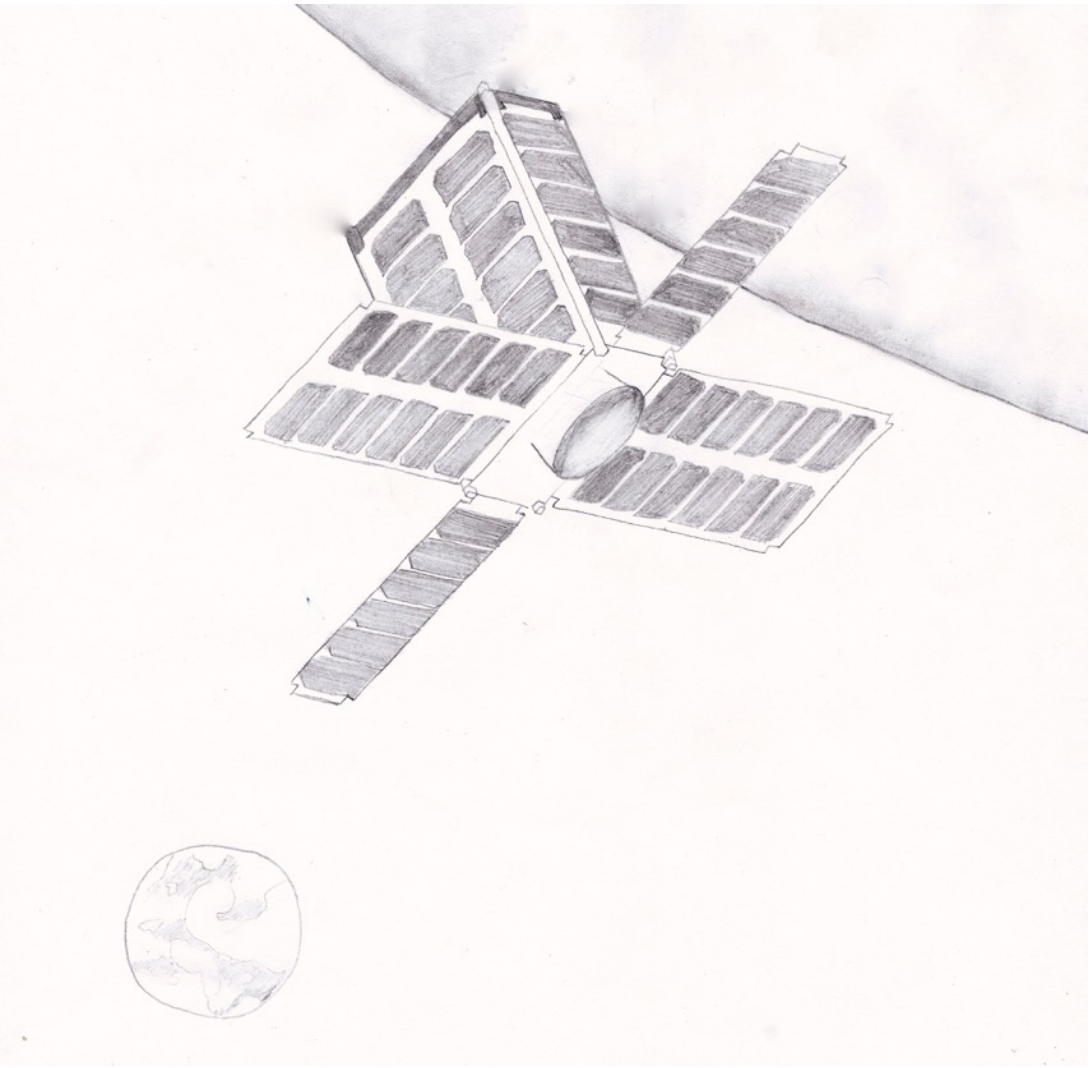

Project Selene

NASA CubeQuest Challenge

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PROJECT OVERVIEW

Project Selene

We are a team of high school students from the La Canada/Pasadena area who would like to enter NASA's CubeQuest Challenge, a challenge to design and build a nano-satellite. Because we are students, we lack resources and financial support, and appreciate your interest in our endeavor.

Objective

Our goal is to send a 6U CubeSat from Earth's orbit to Lunar orbit, and return data randomly generated by NASA.

6U CubeSat

CubeSat is a relatively new nano-satellite technology. CubeSats are a method for creating cheaper, smaller satellites that fit into a cell measuring 10 cm on a side. Because of their compact size, they can be added as a secondary payload on almost any space mission, reducing total cost and weight. Project Selene will consist of six 10 cm cells arranged in a 3 x 2 cell formation.

Propulsion

Due to this constraint, conventional forms of propulsion such as chemical or solid rockets are inefficient, as the amount of thrust generated for its size is to little to be practical. To counter this, Selene will use electric (ion) propulsion. Current ion engines are quite large, but recent advancements have allowed for engines the size of a single CubeSat cell.

Data

In entering NASA's CubeQuest Challenge, our spacecraft must return data in the form of 1024-bit packets, generated randomly by a NASA-provided algorithm. Our goal is to return as many packets as possible, with perfect accuracy. We propose to do this through two methods:

- Long transmission time
- Data redundancy

Extra Objectives

Due to size constraints, adding additional hardware is extremely difficult. If time, money, and space permit, we would like to include a camera and additional instruments to return images and extra telemetry.

Thank you for your interest in our project!

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