Overview

- Background
- CAD Model Design
- 3D Printing
- Vibration Test Stand Design
- Testing
- Future Work

Background

- In preparation for EagleSAT's possible 2015 delivery, a high fidelity CAD model and vibration test stand were required
- The high fidelity CAD model will mainly be used for presentation and systems purposes
- The vibration test stand will be used to hold EagleSAT while its being tested on the shaker table

Background

High-Fidelity CAD Model
- Created to an accuracy of +/- 0.1mm
- used DDS CATIA
- Each board was created separately as different parts then combined in an overall assembly
- Boards were measured using a caliper or specification files from each reciprocal team.
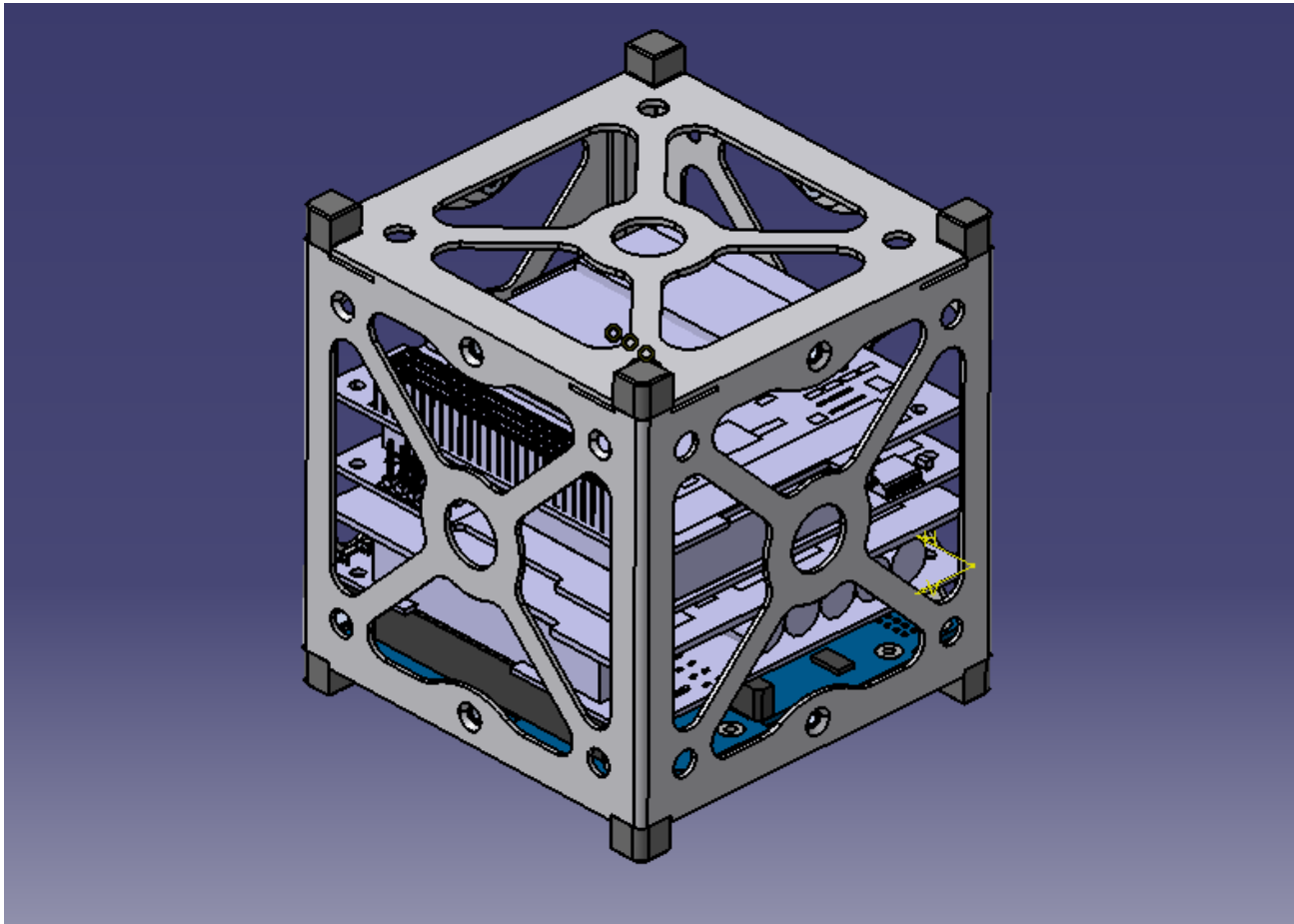
Background

Vibration Test Stand
- Designed as close to the actual specifications of the NRCSD (Nano Racks CubeSat Deployer)
- Designed to fit launch criteria for vibration parameters of test
- Designed also for easy assembly and low cost of production

Current Model

Creation of Model

- All common parts found on boards were made first and re-used extensively
- The final assembly is a product, or culmination of many other products in CATIA
- Each board itself is also a product, being comprised of many different parts

3D Printing

- All boards, as well as the structure will be printed separately
- They will be painted to match realistic coloring of parts

Vibration Test Stand Design

Vibration Test Stand
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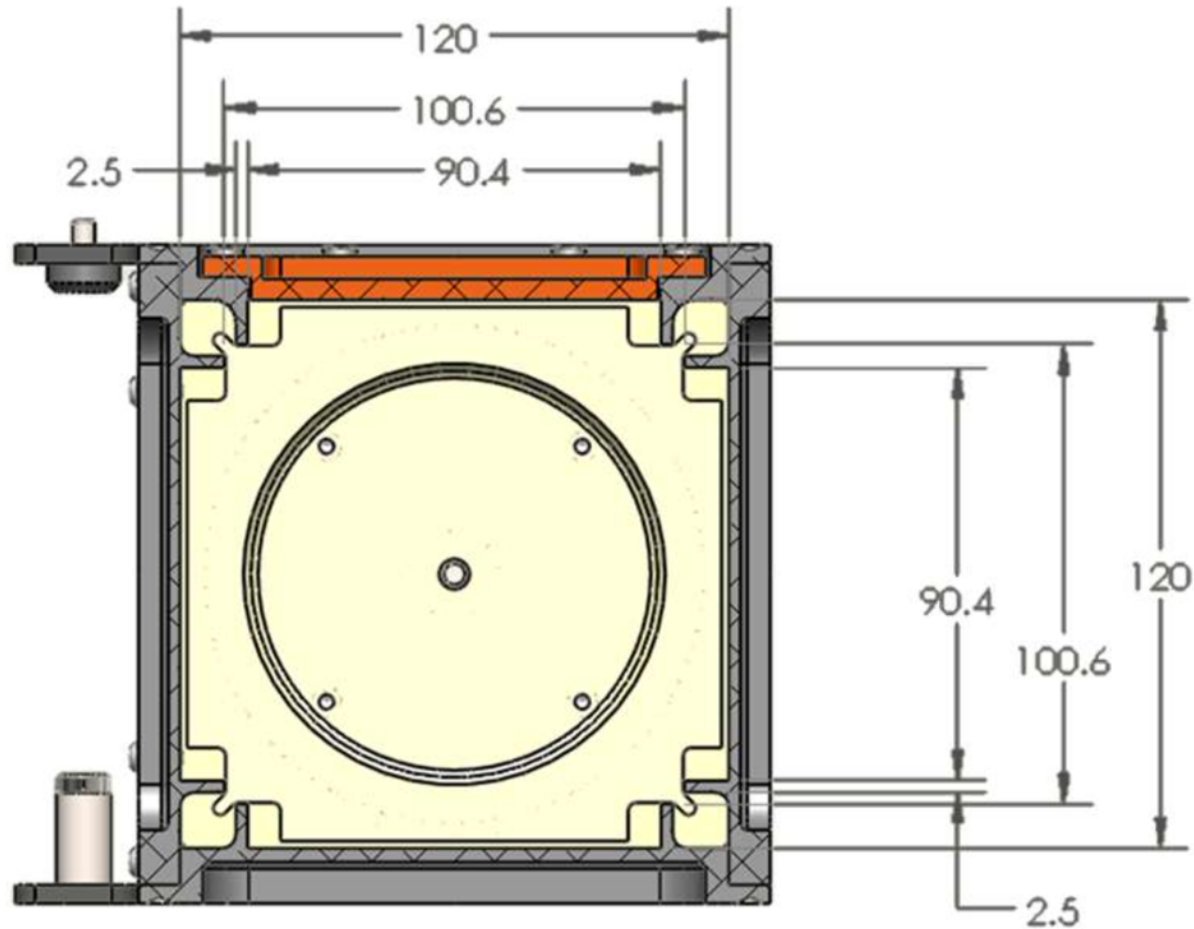
Vibration Test Stand Design

Figure 5 NRCSD Axial Cross-Section (+Z view).
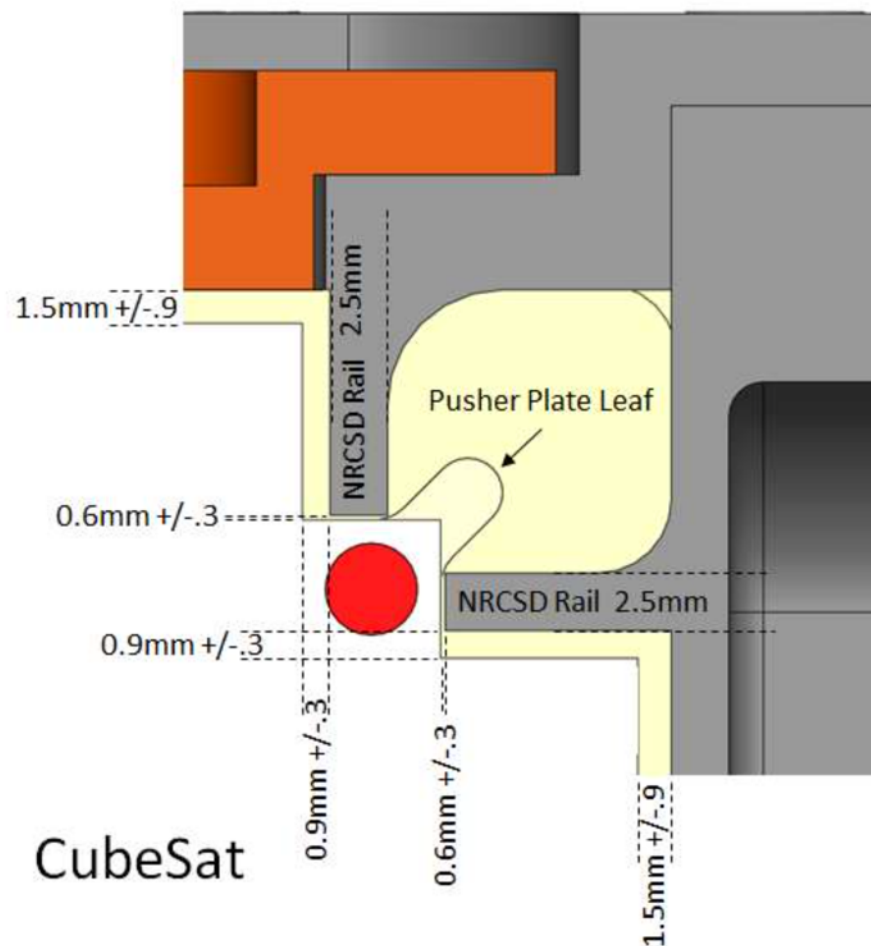
Vibration Test Stand Design

Figure 6 CubeSat Rail and NRCSD Rails Clearances (+Z view, +Y top).

Vibration Testing

- Will be tested in a range of 20-2000Hz in a range of hard mount configuration parameters
- Will be done using an electromagnetic shaker table found on the ERAU Prescott Campus

Future

- Finish designing the Vibration Test Stand
- Create a set of parameters in which to accurately test time after time
- Ensure safe delivery of EagleSAT when needed

Questions?