Team 6: Mid-point Review

Panel Interlocking Mechanism for Solid Reflector

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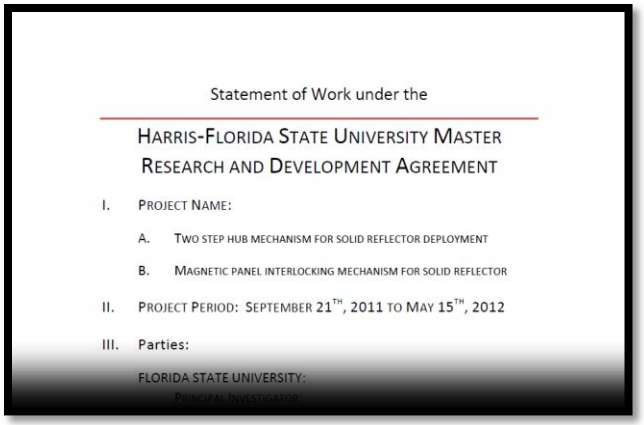
Overview

- Project Scope
- Current Status
- Planning
- Testing
- Summary
- Questions

Project Scope 1 of 2

- "…create a **working prototype** of interlocking panels to demonstrate its functionality."
- "…both teams must **work together** to define interfaces and ensure final prototype performs as expected."



Statement of Work under the

HARRIS-FLORIDA STATE UNIVERSITY MASTER RESEARCH AND DEVELOPMENT AGREEMENT

I. PROJECT NAME:

A. TWO STEP HUB MECHANISM FOR SOLID REFLECTOR DEPLOYMENT

B. MAGNETIC PANEL INTERLOCKING MECHANISM FOR SOLID REFLECTOR

II. PROJECT PERIOD: SEPTEMBER 21TH, 2011 TO MAY 15TH, 2012

III. Parties:

FLORIDA STATE UNIVERSITY:

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Project Scope 2 of 2

- Tangentially Deployed
  Achieved by hub mechanism design
- High Surface Accuracy
  Achieved by rigid material
- Interlocking Panels
  Achieved by panel design

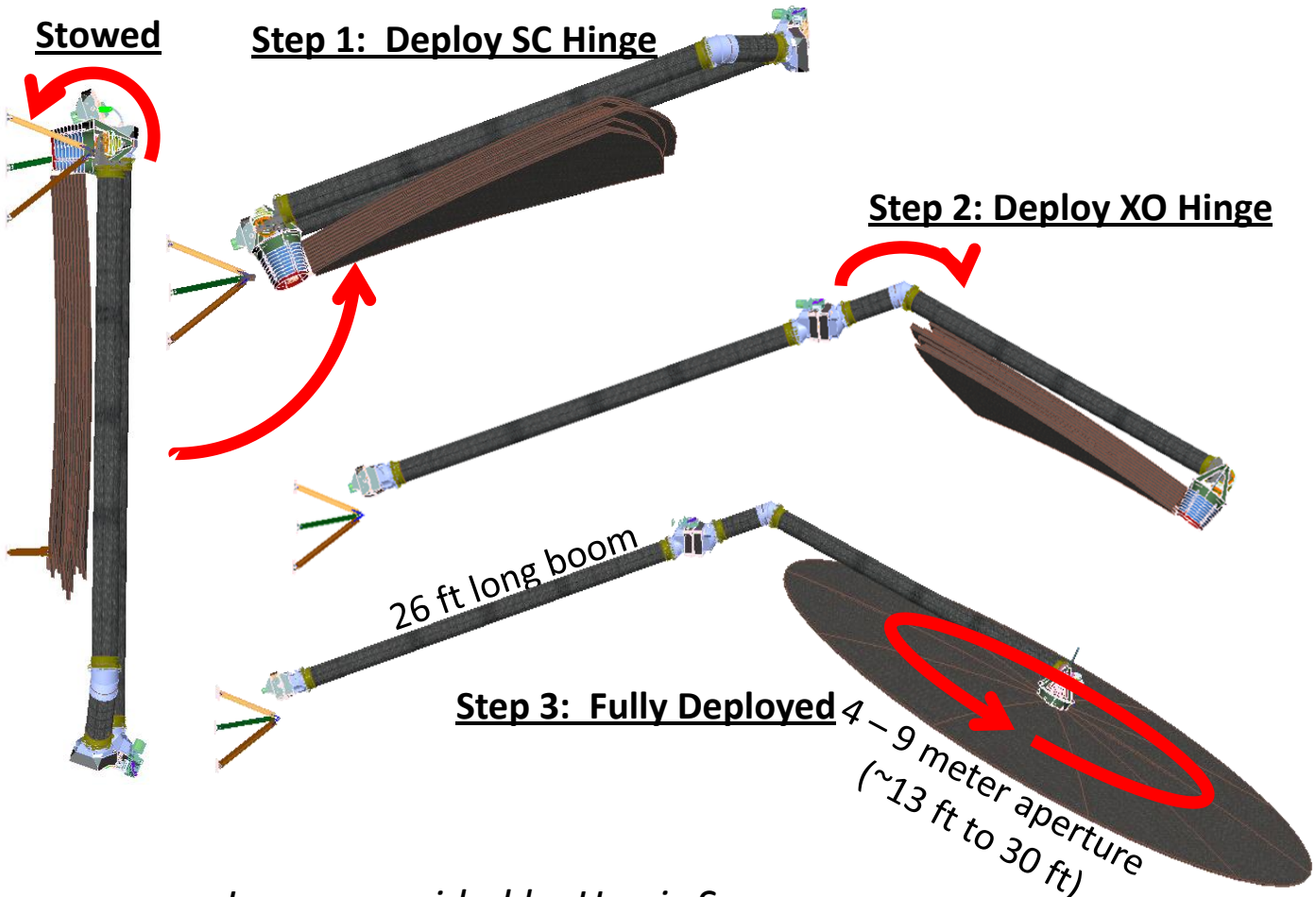

Image provided by Harris Sponsor

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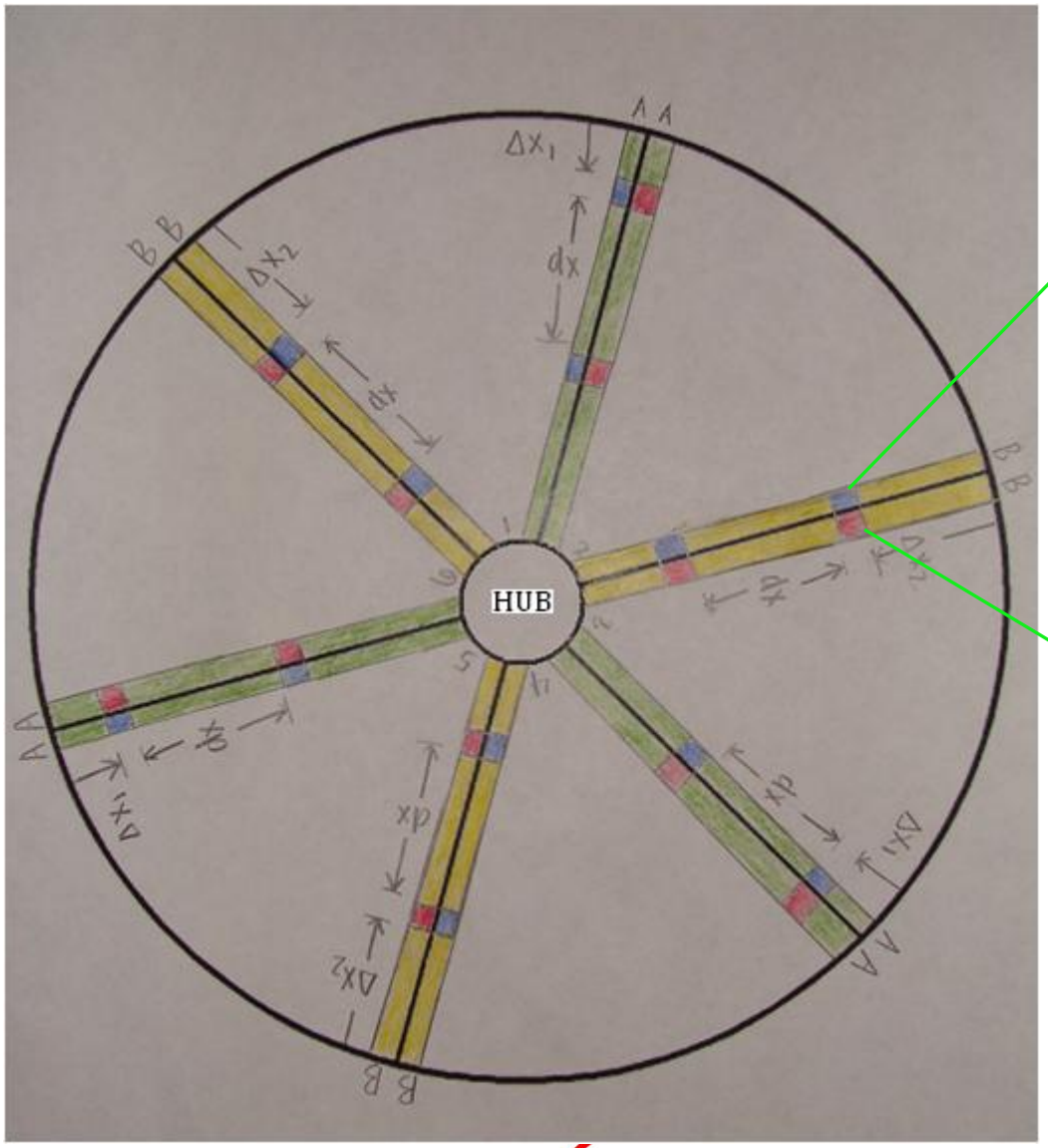
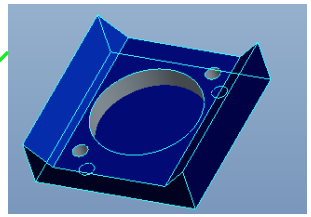
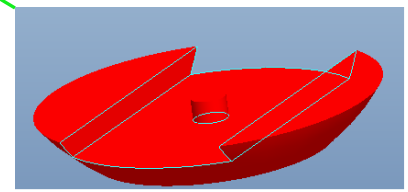
Current Status 1 of 6



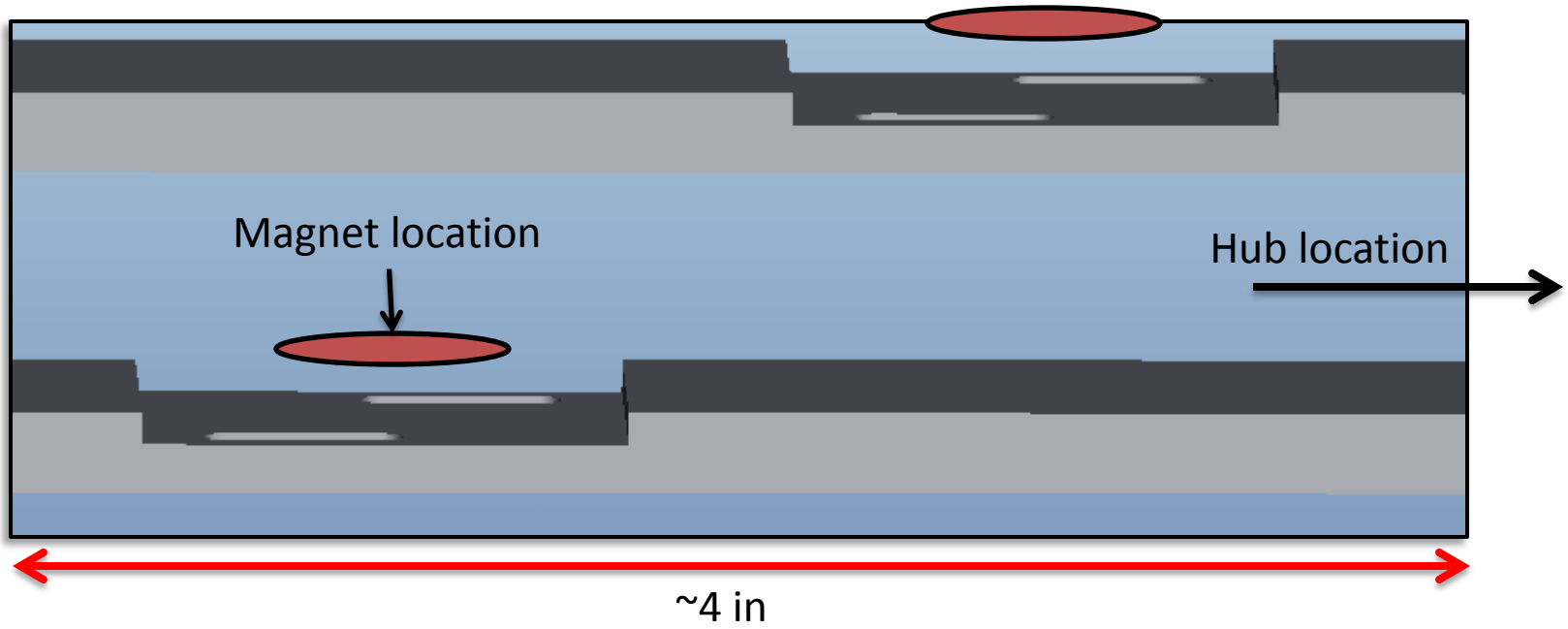
V-Block



Cone



Current Status 2 of 6



- Brackets have staggered orientation so magnets do not interfere
- Allows optimal space without interference
  - Hub ring spacing allows for 0.75”
  - Panel assembly requires 0.45”
  - Provides for 0.30” of clearance

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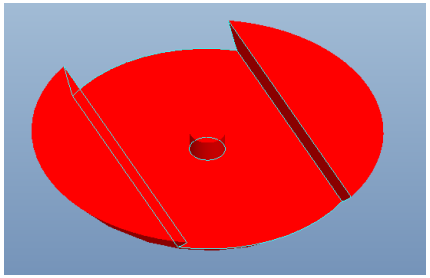
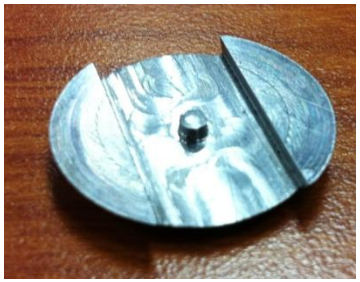
Current Status 3 of 6

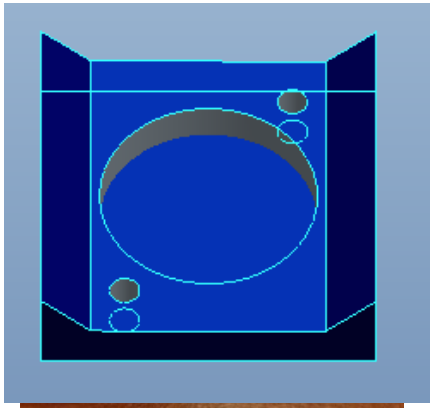
Cone

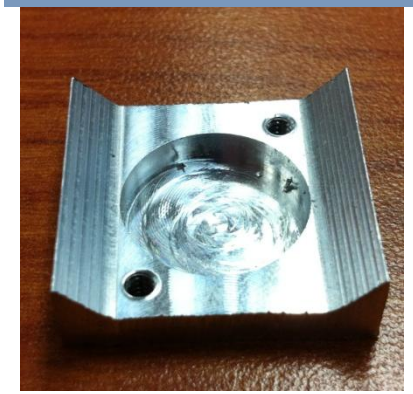




~1 inch

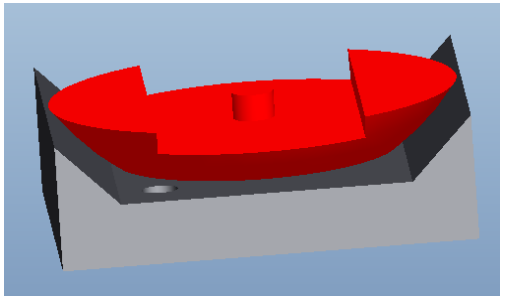
V-Block

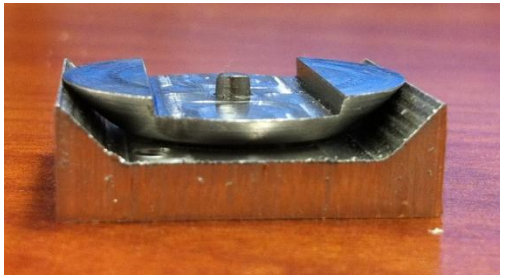




~1 inch

Kinematic Coupling Assembly





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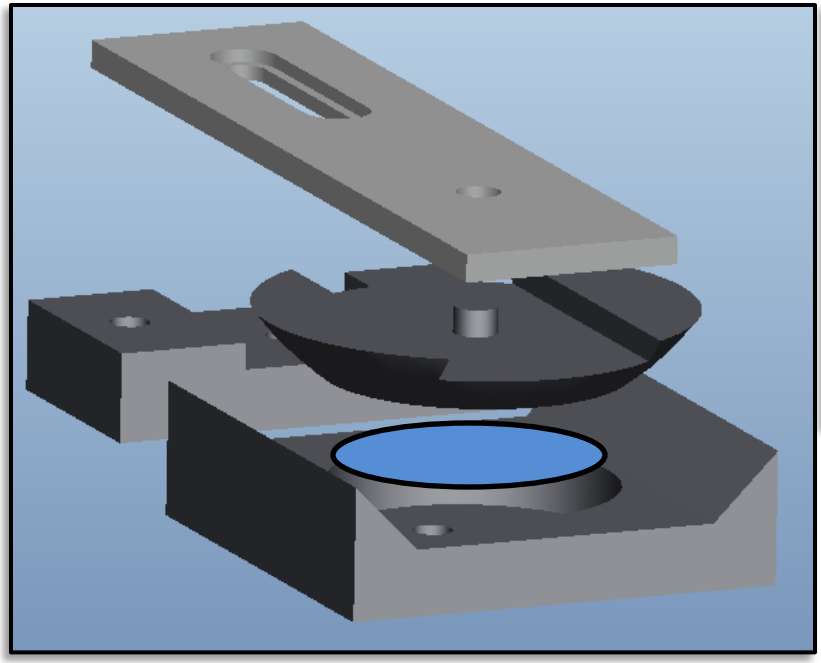
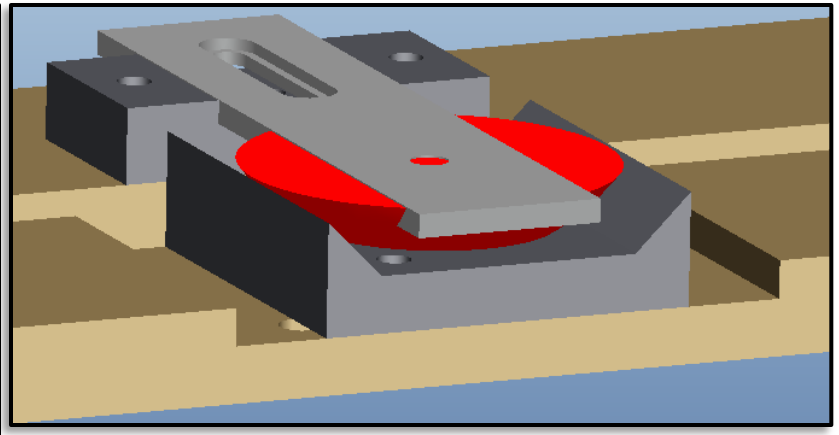
Current Status 4 of 6



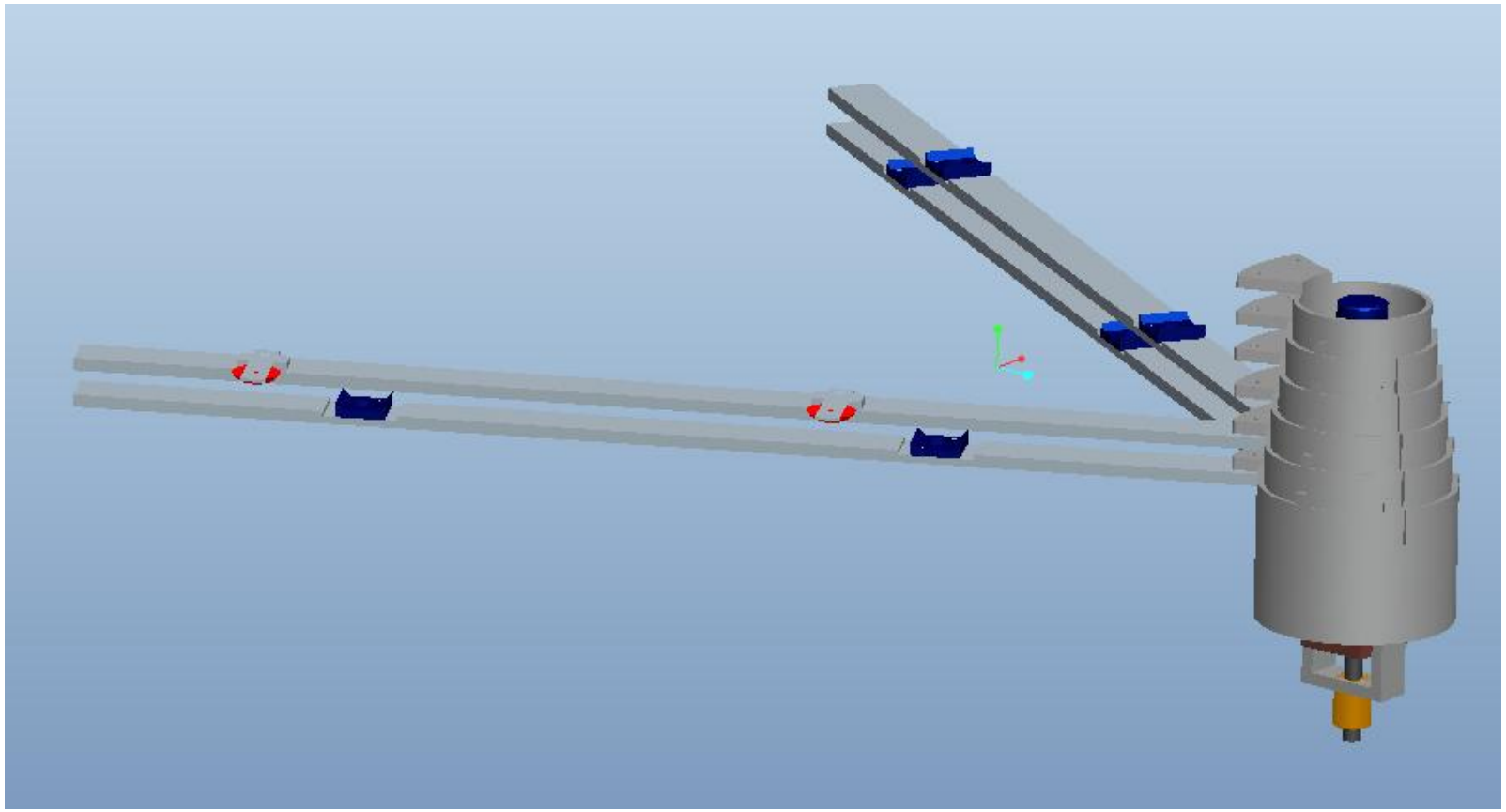
~2in



~0.5 in

Fully Deployed Configuration

Current Status 5 of 6



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Current Status 6 of 6

- Drawings for all parts are finalized
- Armature and Armature arm currently being machined

Part	Specifications	Status
Cone	Steel Rod 1"x12"	Machined
V-Block	Aluminum 6061 - 1"x0.5"x12"	Machined
Bracket	Aluminum 6061 - 1"x0.25"x12"	In Stock
Armature	Aluminum 6061 - 1"x0.2"x12"	In Stock
Magnets	Neodymium 0.65"x0.125"	Order Processing
Hardware	[Steel] Bolts/Nuts/Washers	Order Processing

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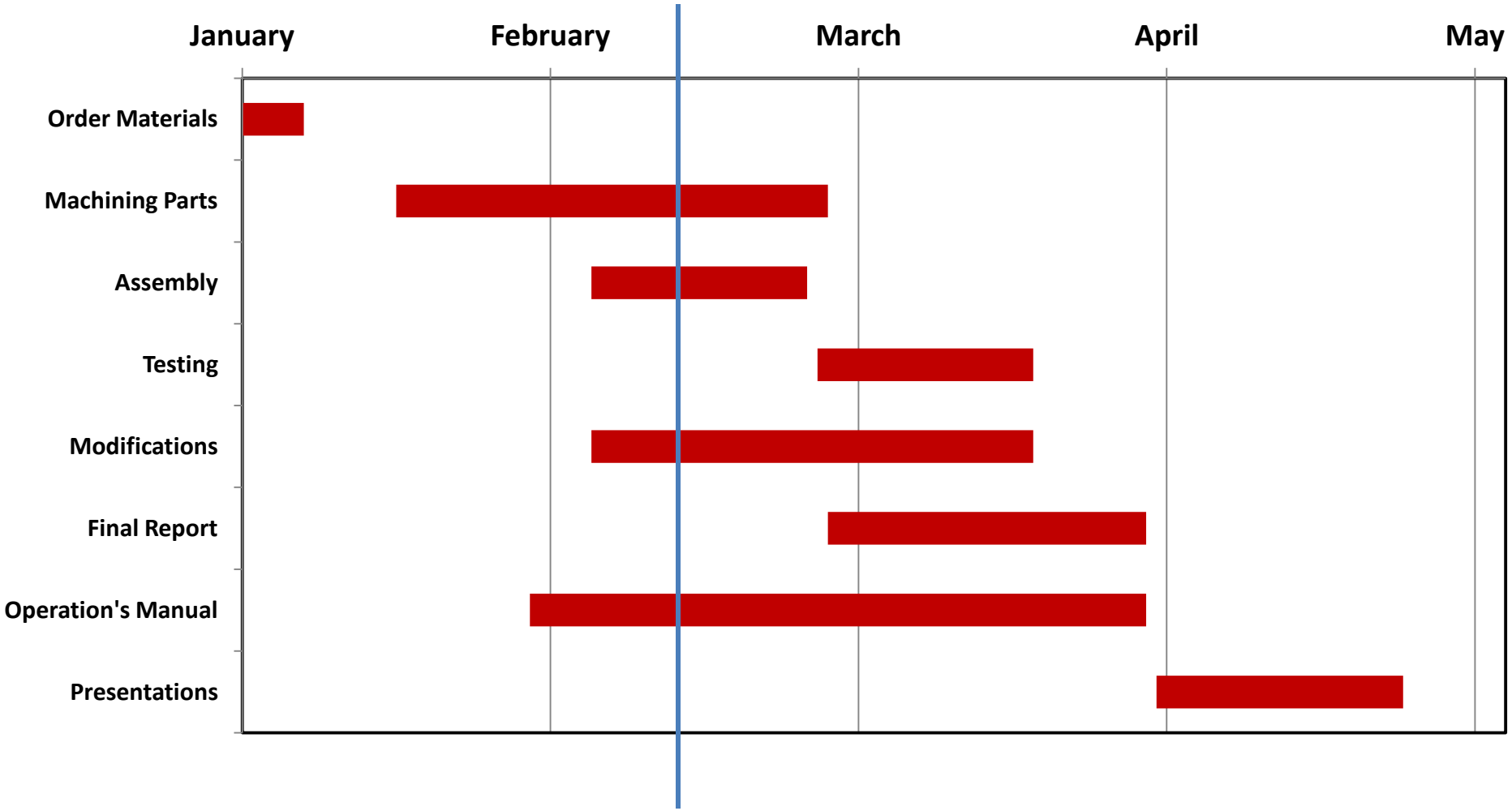
Planning



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Testing

- Once remaining parts are fabricated and necessary hardware purchased, assembly will begin
  - Work with sister team in order to create a full working prototype
  - Make necessary modifications to ensure it satisfies customer's needs
    - Smooth rotational and linear motion (no snagging)
    - No gap criteria

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Summary

- We are on schedule to finish fabrication of remaining parts before February's end
- Assembly and initial testing of prototype will commence in the first week of March.

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Questions?