

## **EE/CprE/SE 491 WEEKLY REPORT 09**

**11/06/2024 – 11/13/2024**

**Group number: 9**

**Project title: Space Cyclones - COSMIC CAPSTONE CHALLENGE 2024-2025**

**Client &/Advisor: Bo Varga, Benjamin Rupp, Rachel Shannon**

**Team Members/Role: John Beuter (Team Lead), Daniel Sprout, Maheeka Devarakonda, Tanvi Mehetre, Riley Heeren, Ben Swegle**

### ○ **Weekly Summary**

Week Objectives:

- Create design concepts based on net launcher research
- Assess the best method of net propulsion
- Determine potential net material to utilize for our design

### ○ **Past week accomplishments**

- John Beuter: Revised team documentation, collaborated with advisor and professor to receive feedback on the current design, researched power and weight limitations on Venus Bus.
- Daniel Sprout: Continued development of potential launcher designs. More review of the given requirements/expectations for the capstone project. Trying to find ways to adapt ourselves to them.
- Maheeka Devarakonda: Continual research and development of mounts. Looked into various possible materials for design options.
- Tanvi Mehetre: Continued research on the launching mechanisms for a net. Researched on different shapes of the nets that might affect the efficiency of capturing.
- Riley Heeren: Met with materials post grad students to discuss ideas for possible net ideas. Looked into ashby charts.
- Ben Swegle:  
Created multiple design concept sketches to share and get feedback from the team.

Researched net launching mechanisms.

○ **Pending issues** *(If applicable: Were there any unexpected complications? Please elaborate.)*

- John Beuter: N/A
- Daniel Sprout: N/A
- Maheeka Devarakonda: N/A
- Tanvi Mehetre: N/A
- Riley Heeren: N/A
- Ben Swegle: N/A

○ **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u>	<u>Hours this week</u>	<u>HOURS cumulative</u>
John Beuter	Reformatted and revised previous docs presented by the group to prepare for our faculty review. Filled information in for the weekly lightning talk and revised work	2	14
Daniel Sprout	Perasilic pump research (and possible alternative pump types)	2.5	19.5
Maheeka Devarakonda	Mounts research	2	22
Tanvi Mehetre	Researched net launching and shapes of nets.	2	19
Riley Heeren	Materials research	2	14
Ben Swegle	Researched net launcher design concepts and created design concept sketches for net launcher and net capsule options.	7	20.5

○ **Plans for the upcoming week:**

Next week, we will further develop how we will launch a net. Our current goal is to construct a CAD model for testing by November 21st. We will continue materials research for our nets to make more accurate predictions about net behavior in orbit.

- **Summary of weekly advisor meeting:**

Professor Shannon expects a comprehensive breakdown of cost and power consumption for our design.