

EE/CprE/SE 491 WEEKLY REPORT 08

10/30/2024 – 11/06/2024

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:

- Review Lightning Talk feedback
- Create specialized team roles
- Create a list of requirements for the net launcher -> what are our 3 operations?
- Create design concepts based on net launcher research

○ **Past week accomplishments**

- John Beuter: Organized team in new structure for ideal workflow. Conducted research on previously designed net launchers and shared findings with the team.
- Daniel Sprout: More market research / general research : focusing on explicit justification of the service (such as a defunct soviet satellite colliding with an active one in 2011 creating thousands of debris).
- Maheeka Devarakonda: Continued diving into net proposal idea. Prepared for presentation. Spent time learning about CAD and practiced 3D printing.
- Tanvi Mehetre: Researched possible mechanisms for net deployment. Studied different ways to design a net and its tradeoffs.
- Riley Heeren: More materials research. Emailed professor Shan Jiang to hopefully set up a meeting to discuss possible build materials.
- Ben Swegle:

Went through all the feedback from our lighting talk presentation and noted improvements and questions for the team to review during the Thursday meeting. Researched net launching mechanisms and began brainstorming some ideas for net launcher designs and how to make one that can launch multiple nets.

○ **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	Research 3D modelings for how to create a net launcher. Discovered difference pressure based ways to fire a net. Read leadership essays to determine better ways to organize and structure the team for better results.	2	12
Daniel Sprout	Looking to find ways to justify our idea and other available options. Particularly the <i>unique</i> identifier for our project.	2	17
Maheeka Devarakonda	Developing CAD skills. Continuing development of big picture net idea.	2	20
Tanvi Mehetre	Researched different ways to deploy a net and design it.	2	17
Riley Heeren	More materials research. Emailed professor Shan Jiang to hopefully set up a meeting to discuss possible build materials.	2	12
Ben Swegle	Reviewed and summarized lighting talk presentation feedback for the team to review. Researched net launching mechanisms and began brainstorming	2.5	13.5

	design concepts.		
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○ **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:**

No Meeting.