
SPACETUG
SUSTAINABLE AND
COLLISION FREE SPACE
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Space Debris…

25%

Objects in orbit are functional

36,500

Human-made objects (satellites, rocket bodies) are being currently tracked as they orbit the earth

Problem

Millions of dollars loss every year for satellite operators.

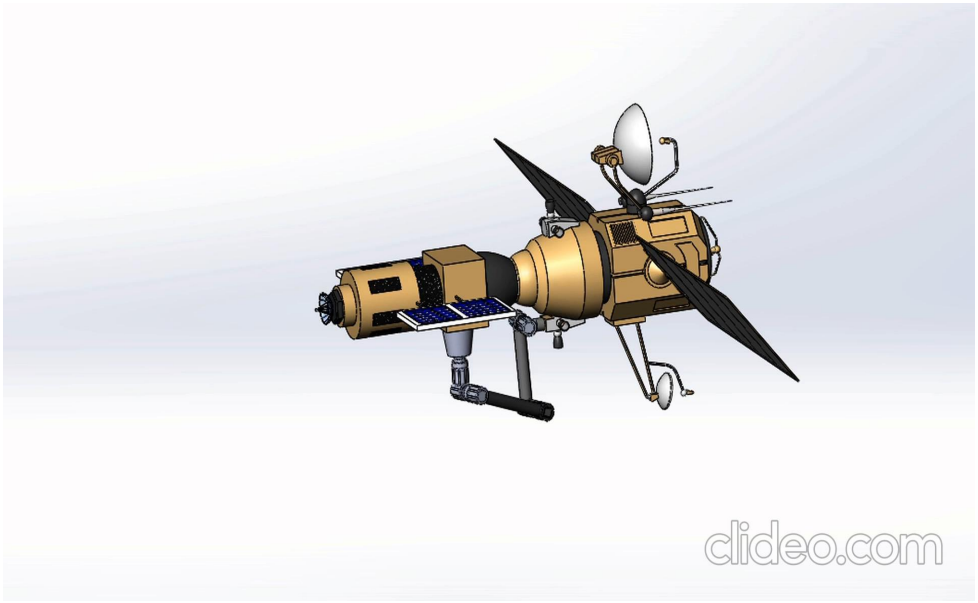
Satellites need to be maneuvered at least 3-4 times a year, which leads to loss of fuel and scientific data.

Increase in satellite launches to 10,000 by 2027

Advanced Techniques

Active Debris Removal (ADR)

Removing existing space debris by capturing it using Robotic Manipulators attached to our Satellite



End-Of-Life(EOL)

Deorbiting the Small Satellite by increasing ballistic co-efficient to increase the drag and removing from Orbit.

YAZHI - 1

Technology Demonstration Mission

Expected Launch 2026
Orbit : 550km Sun Synchronous
Inclination : 97 Degree

Robotic Arm to clutch the debris of any shape and any orientation in LEO.

Visual Based Navigation(VBN) tool helps us to collect data of space debris to inspect, approach and capture the debris.

MARKET - $4.8 BILLION BY 2030

CNN BUSINESS Markets Tech Media Success Perspectives Videos

Rocket Lab CEO Peter Beck said that the sheer number of objects in space right now — a number that is growing quickly thanks in part to SpaceX's satellite internet constellation, Starlink — is making it more difficult to find a clear path for rockets to launch new satellites.

"This has a massive impact on the launch side," he told CNN Business. Rockets "have to try and weave their way up in between these [satellite] constellations."

Part of the problem is that outer space remains largely unregulated. The last widely agreed upon international treaty hasn't been updated in five decades, and that's mostly left the commercial space industry to police itself.

THE NEW INDIAN EXPR

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Space debris removal a $2.7 billion industry: Ex-ISRO chairman Kiran Kumar

He was speaking at Synergia Conclave 'Security 360 degree' by the Synergia Foundation at a private hotel in the city on Friday.

Published: 19th October 2019 05:04 AM | Last Updated: 19th October 2019 05:16 PM

Space junk: India says object found in Australia is theirs

31 July

REUTERS

The object washed up on a Western Australia beach in July, about 250km north of Perth

By Kathryn Armstrong in London & Geeta Pandey in Delhi

BBC News

India has confirmed that an object that washed up on a Western Australian beach recently was from one of its rockets.

Market demand for deorbiting services in LEO expected to be ~60 satellites removed per year by 2029.

Target Customers:

- Satellite Operators
  Launch Providers
  Insurance Companies

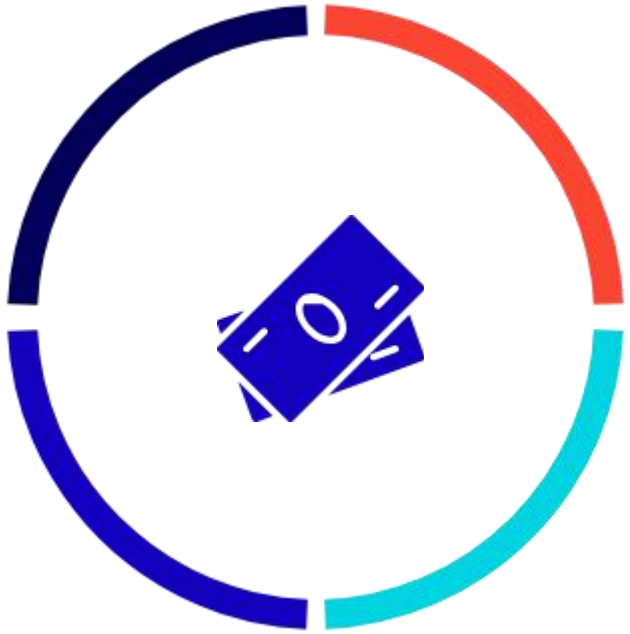
Competitive Landscape

Companies	On-Orbit Servicing	Higher Removal Rate	Massive Debris	Cost - Benefit
SPACETUG(India)	✓	✓	✓	✓
CLEARSPACE(Swiss)	✓		✓	
ASTROSCALE(Japan)	✓	✓		
STARFISH SPACE(US)	✓			
ALTIUS SPACE MACHINES(US)	✓			

WHY SHOULD CUSTOMERS PAY FOR OUR SERVICES?

By adapting to our technology we ensure the safety and dependability of the active satellite of the operator.

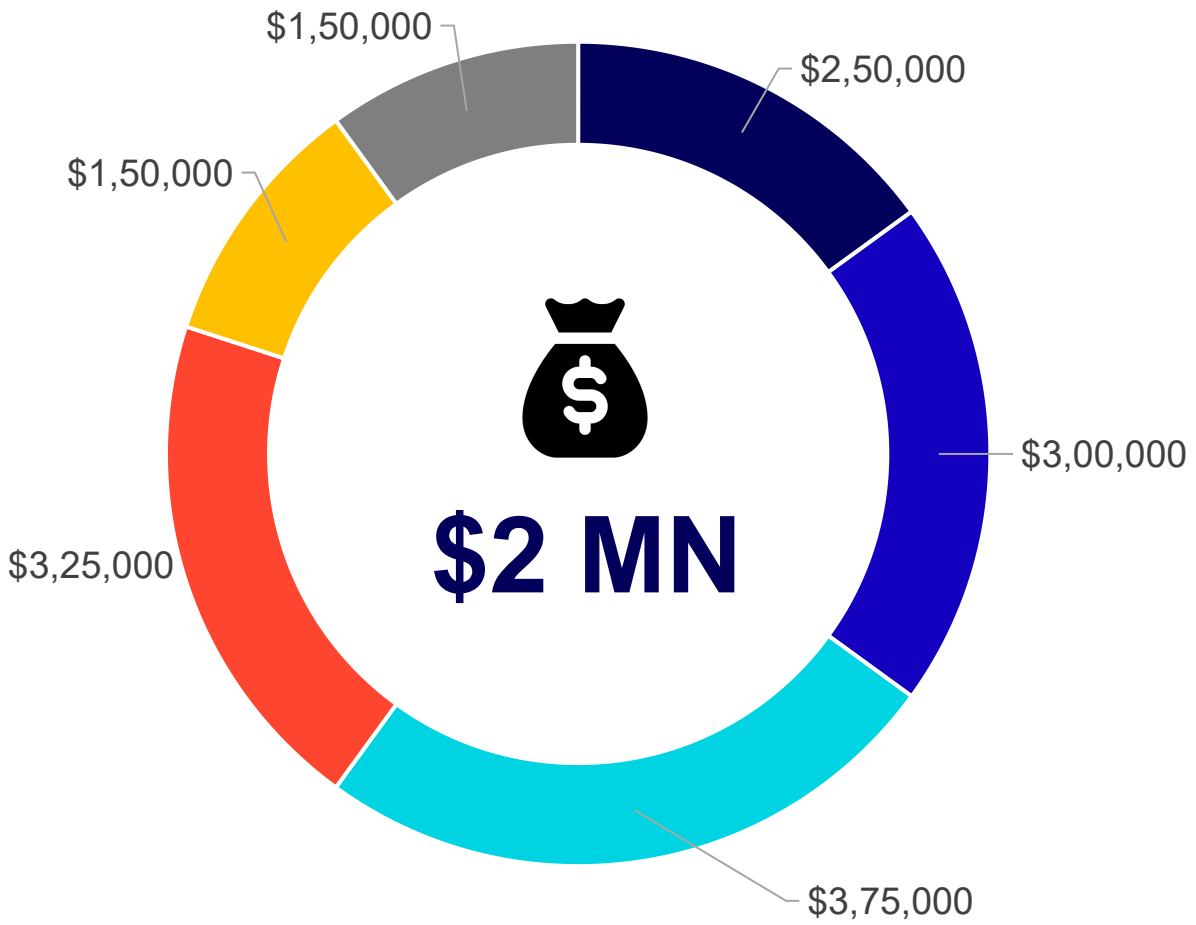
Loss of scientific data and revenue can be minimized.



Reducing insurance companies exposure to 3rd party liability.

Insurance premiums for satellite operators can be lowered.

CAPITAL REQUIREMENT



*Bootstrapped $25,000

Phase 1

1. Research, Literature Survey.
2. Customer Interaction, Market Analysis.
3. Prototyping & Testing
4. Seed Funding

Phase 2

1. Manufacturing & Assembly of Yazhi-1
2. Office & Control Center at Australia & EU
3. Launch of Yazhi -1 in 2026

MISSION ROADMAP

Yazhi Constellation

Phase 3

1. Launch of Yazhi – 2,3,4

Phase 4

1. Office at US
2. On-Orbit Servicing
3. Re-use of Space Debris

2027	2028	2029	2030	2031	2032
Inspection and Tug services for Satellite	Constellation of Yazhi	Removing atleast 50 debris	Upgradation of Yazhi for On-Orbit servicing	Removing 100 Debris	Re-Using debris parts for future mission like Moon base

MISSION ROADMAP

Yazhi Constellation

MEET THE TEAM

Hari Shankar R L
Co-Founder & CEO

Aerospace Engineer
5 yrs Experience in Design & Hardware

Sugashini S
Co-Founder & COO

Civil Engineer
3 yrs Experience in Operations

Swetha M
Co-Founder & CTO

Mechatronics Engineer
4 yrs Experience in Robotics

Advisors

Sivabalakrishnan R

Assistant Prof Senior Grade
Industrial Automation Cell Incharge
Department Of Mechatronics
Bannari Amman Institute of Technology

Niket Kumar Phuria

Senior Product Owner at Data – Axle
Exp. in RPA, Product Development and Emerging technologies like AI/ML and Blockchain

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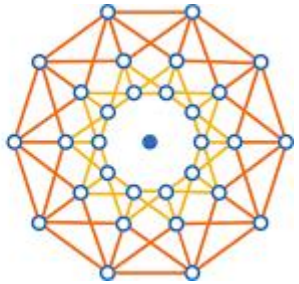
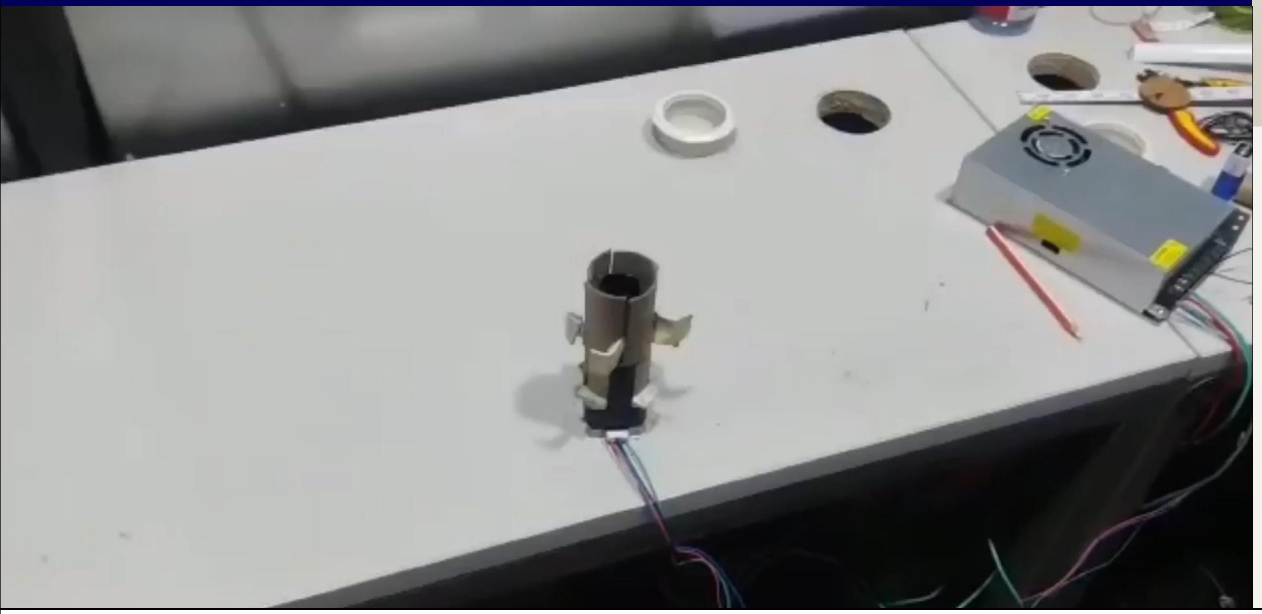
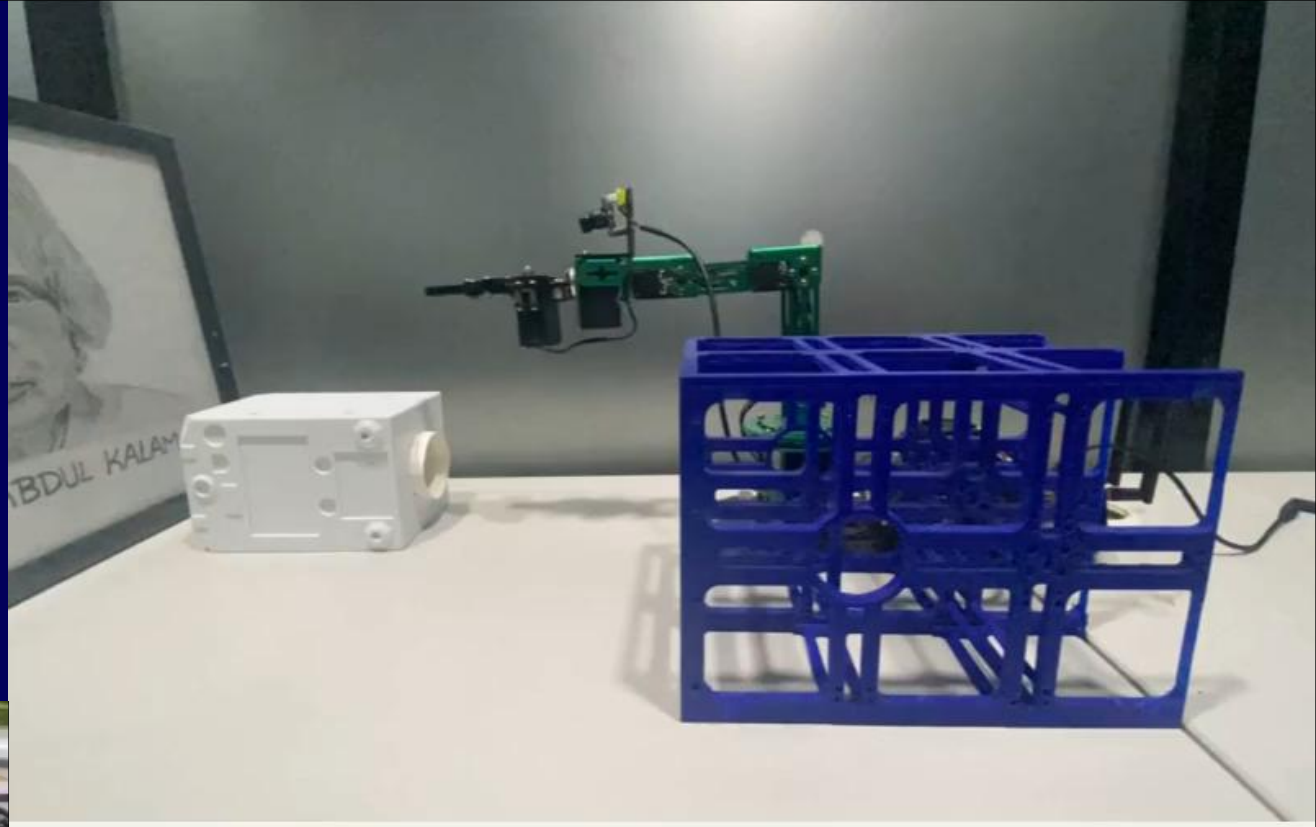


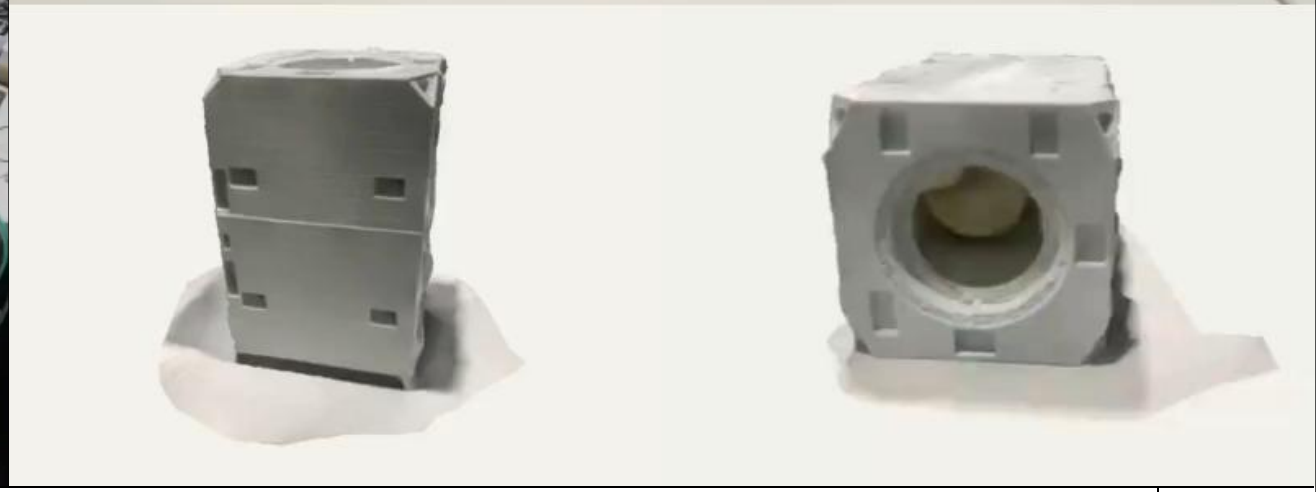
ANNA INCUBATOR

AIC-PECF

INITIAL TESTING







SIMULATION

1. Far - Range Approach – 500m
2. Near - Range Approach – 100m
3. Inspection – 10m
4. Capture – 2m – 3m
5. Deorbit – 300km - 350km

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THANK YOU

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