

AQUATRIA

Creating a Wave of Change

SUSTAINABLE DEVELOPMENT GOALS



By tackling the source of microplastics, we directly reduce public exposure to pollutants, leading to better health outcomes and aligning with SDG 3's goal of a healthier future.



By capturing plastic debris in urban waterways with our magnet-and-net system, we create cleaner, more attractive cities, aligning with SDG 11: Sustainable Cities and Communities.



Our innovative system with ferrite magnets and abaca nets efficiently captures plastic debris before it contaminates water, directly contributing to SDG 6 by safeguarding clean water for all and promoting healthy ecosystems.



By capturing microplastics before they reach the ocean, we protect marine life and ecosystems, supporting SDG 14: Life Below Water. This ensures healthy, productive oceans for a sustainable future.

OUR VISION

With innovative **ferrite magnets** and **abaca fiber nets**, Aquatria aspires to achieve a **90% success rate** in collecting plastic debris.



MISSION

Aquatria aims to successfully **extract 1.5 billion** micro plastic particles. Our goal is to convert our **local lakes** and rivers into pure and **safe havens** to safeguard marine life



PROBLEM

The Sundarban Mangrove ecosystem is highly productive with diverse species. High concentrations of microplastic may alter the phytoplankton and primary production dynamics, affecting the food web and other ecosystems' functioning.

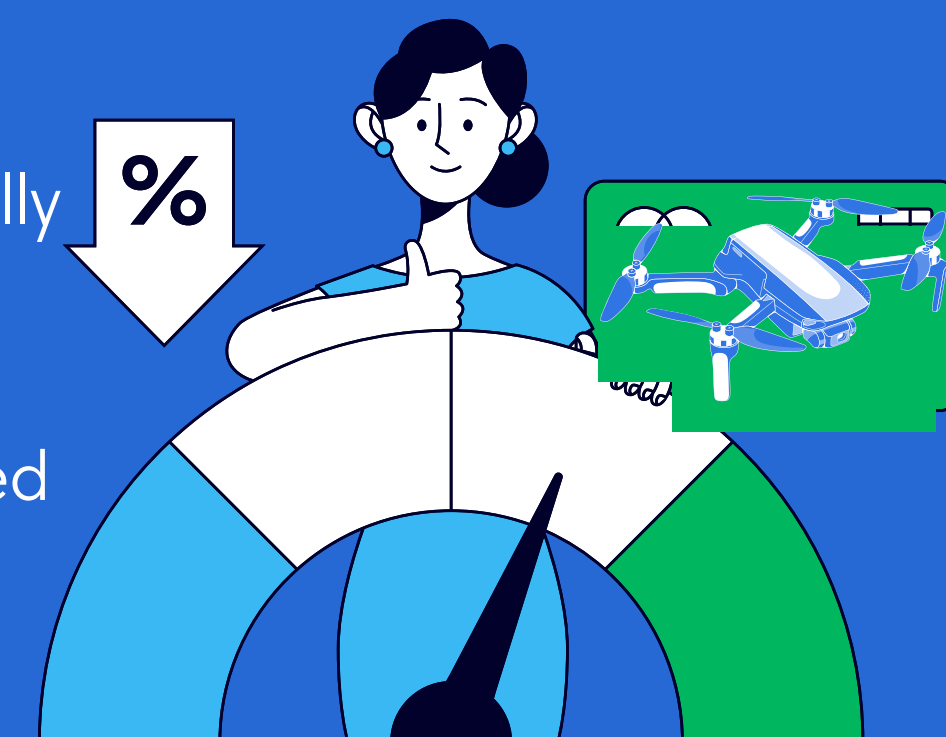
Rivers discharged 4 million tons of plastic waste annually to the Bay of Bengal.



SOLUTION

Our 'Aquatria' **drone** tackles this challenge with a multi-pronged approach. An abaca fiber net, specifically designed for efficient microplastic capture, works in conjunction with environmentally safe ferrofluids released by the drone. These fluids bind to microplastics, allowing the drone's magnets to attract and collect them effectively.

This eco-friendly technology offers a scalable solution, maximizing the impact on microplastic removal.



FINANCES

Variable Cost	
Maintenance Cost	₹ 50,000
Electricity	₹ 50,000
Transport & Storage	₹ 100,000
Ferro fluids	₹ 20,00,000
Outsourced work	₹ 100,000
Charter of vessels	₹ 500,000
Public Relations	₹ 2,5000
Travel & Accommodation	₹ 500,000
Total	₹ 33,25,000

Fixed Cost/per month	
Rent	₹ 1,50,000
Insurance	₹ 5,00,000
Salaries	₹ 5,00,000
Consultancy fee/ R&D	₹ 3,20,000
Administration costs	₹ 25,000
Total	₹ 14,95,000

A total of
₹ 9,63,091/£9300

Earned through Competitions, scholarships, and internships (Conrad Challenge, California scholarship, Motilal Oswal internship)

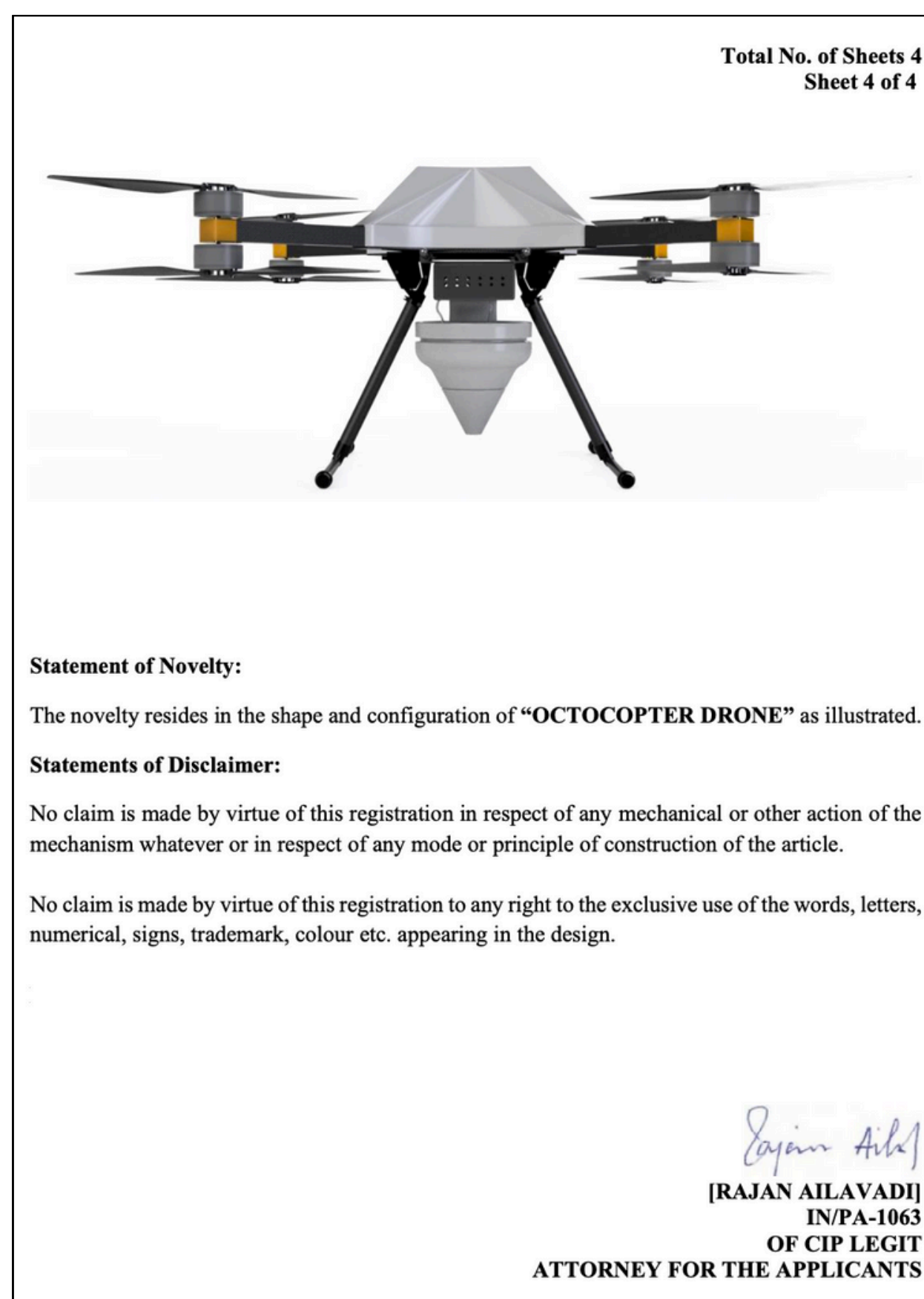
Awarded
₹82,297/£800

By the Harvard Sustainability grant

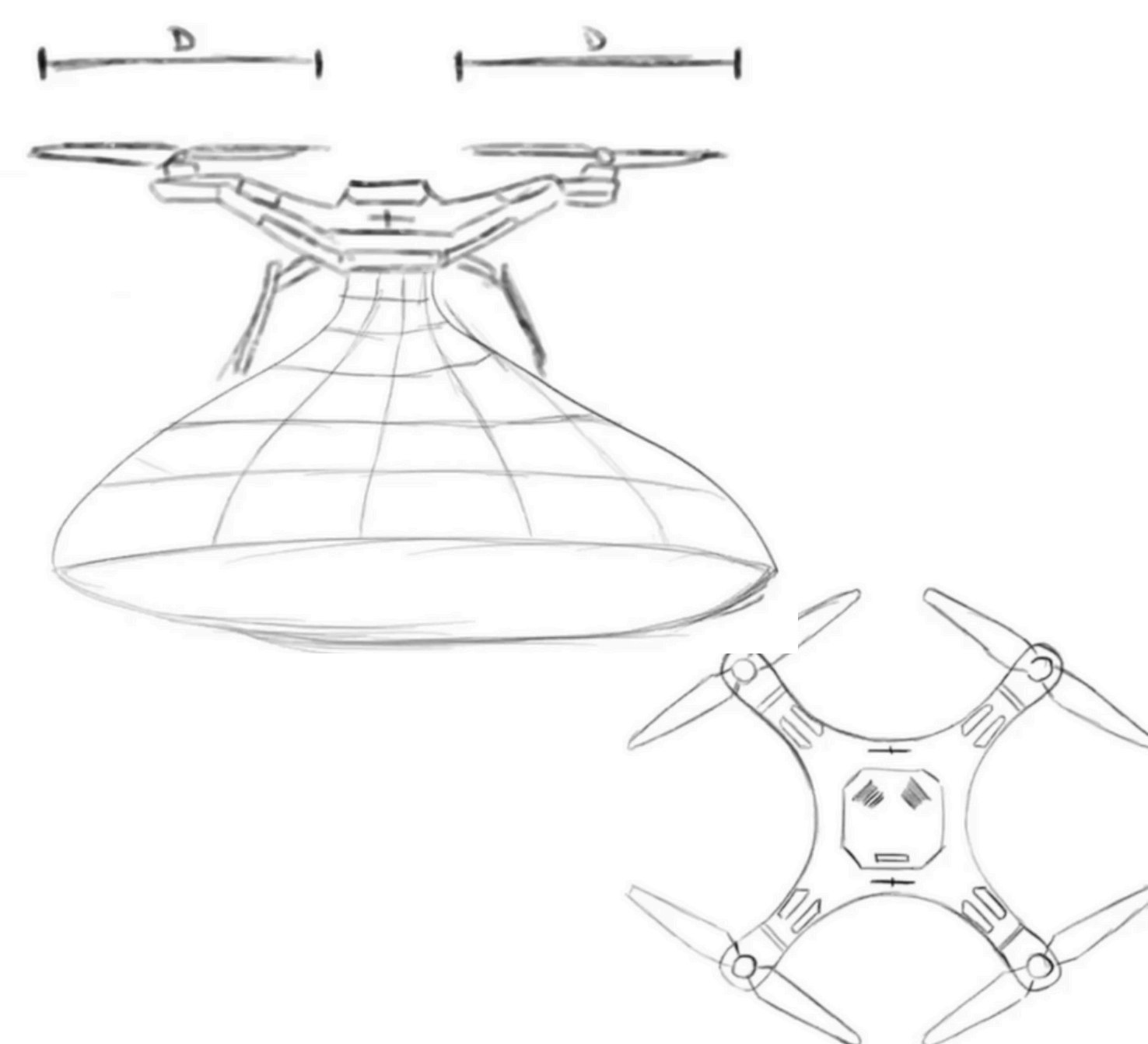
Awarded
₹5,75,997/£5500

By the Department of Science and Technology

PATENT



PROTOTYPE



- The solution is explained via the product itself. Based on the mechanism of the drone, it Consists of a compartment that stores a conical-shaped abaca fiber net placed into the water. Next, the sprinklers help to release the ferrofluids into the water body. This will coat the microplastics on the surface thus attracting it.
- The magnets in the net will attract the plastic-coated ferrofluids leaving the water unharmed and plastic-free. Each flight can cover 15 km. Please note that 1 liter of ferrofluids can pick up **0.3 kgs of microplastics**, and our drone can sustain **18 liters of ferrofluids**, picking up **6 kgs of microplastics in one flight**.

IMPACTS

- Clearing microplastics enhances the ecological integrity of the Sundarbans. Which supports ecosystem functions such as carbon sequestration, shoreline stabilization, and nutrient cycling, contributing to climate resilience and sustainable coastal management.
- By purging microplastics, water quality improves, benefiting aquatic organisms and the broader food web.
- Removal of microplastics reduces the risk of ingestion and entanglement for marine and terrestrial species, preserving biodiversity.
- The restoration of natural habitats enhances the resilience of coastal communities to climate change impacts such as storm surges and sea-level rise.

FUTURE GOALS AND ORGANIZATIONS

- Expand operations globally, targeting plastic pollution hotspots from the Sundarbans to the Pacific.
- Establish zero plastic waste discharge policies, ensuring our oceans remain pristine and biodiverse.
- Forge dynamic partnerships with governments, NGOs, and industry leaders to maximize our collective impact.
- Empower coastal communities through education, training, and sustainable livelihood opportunities, fostering resilience and stewardship.
- Discussing possible partnerships with the International Forum for Environment, Sustainability & Technology (iFOREST) and PlanIndia

OUR TEAM



Naman Bansal



Krishiv Agarwal



Ansh Garg



Pranay Sadani



Arhaan Goyal



Vedant Goel