



**SMART INDIA
HACKATHON
2022**

Basic Details of the Team and Problem Statement

Ministry/Organization Name/Student Innovation: National Mission for Clean Ganga (NMCG), Ministry of Jal Shakti

PS Code: BV800

Problem Statement Title: Artificial intelligence enabled robotic trash boat to drive & harvest floating trash from urban drain

Team Name: THREADRIPPERZS

Team Leader Name: Charan Velavan

Institute Code (AISHE): C-16537

Institute Name: St. Joseph's College of Engineering

Theme Name: Disaster Management

Idea/Approach Details

- ❖ Our idea fundamentally includes of an unmanned water vehicle [UWV] which collects trash using AI-OPS and can be controlled remotely.
- ❖ It can be powered by both solar panels and batteries thereby, making it more ECO-FRIENDLY and emission-free.
- ❖ The vehicle also possesses the ability to analyze the water for pollutants and treat it accordingly.



Technology stack:

- Lidar Sensor
- Depth Sounder
- P4 multispectral
- RTK sensor

Idea/Approach Details

PROBLEM: Local water bodies such as lakes and canals are being heavily polluted with plastic and chemical wastes, this affects the ecosystem.

Use Cases:

- Our water bot picks up the floating debris, Shards of plastics and cleans up any alien aquatic matters (Algae, duck weed). Thereby allows penetration of sun rays in the lake which restores aquatic life.
- Our UWV is a swimming laboratory which is equipped to [pH, salinity, dissolved oxygen, etc].
- The UWV can also be equipped to treat the water body automatically with respect to analysis made from the water body.

Describe your Dependencies / Show stopper here

- We would be required to designate specified areas for the bot to unload the trash collected.
- The water bot is not yet equipped with dealing with scenarios such as flash floods.

Team Member Details

Team Leader Name: Charan Velavan

Branch (B.E): Stream (ECE): Year (I)

Team Member 1 Name: Aditya.S.Nair

Branch (BE): Stream (CSE): Year (I)

Team Member 2 Name: Akshay B

Branch (B.E): Stream (ECE): Year (I)

Team Member 3 Name: Prakriti Harith

Branch (B.E): Stream (Mechanical): Year (I)

Team Member 4 Name: Thanisqka N

Branch (B.E): Stream (CIVIL): Year (I)

Team Member 5 Name: Medha R

Branch (BE): Stream (EIE): Year (I)

Team Mentor 1 Name: Dr. Venkateshwara

Category (Academic): Expertise (embedded systems IOT, ML & Non linear objects): Domain Experience (in years): 14 Year

Team Mentor 2 Name: Dr. U.Venkateshwara

Category (Academic): Expertise (MLP): Domain Experience (in years): 18 Years