BAHRI

Bio Autonomous Hull Robot for Innovation

Problem:

- Biofouling increases ship drag, leading to 30-40% higher fuel consumption.
- Traditional hull cleaning methods are invasive, chemical-based, and harm marine life.
- Dry docking is expensive and time-consuming.

Objective:

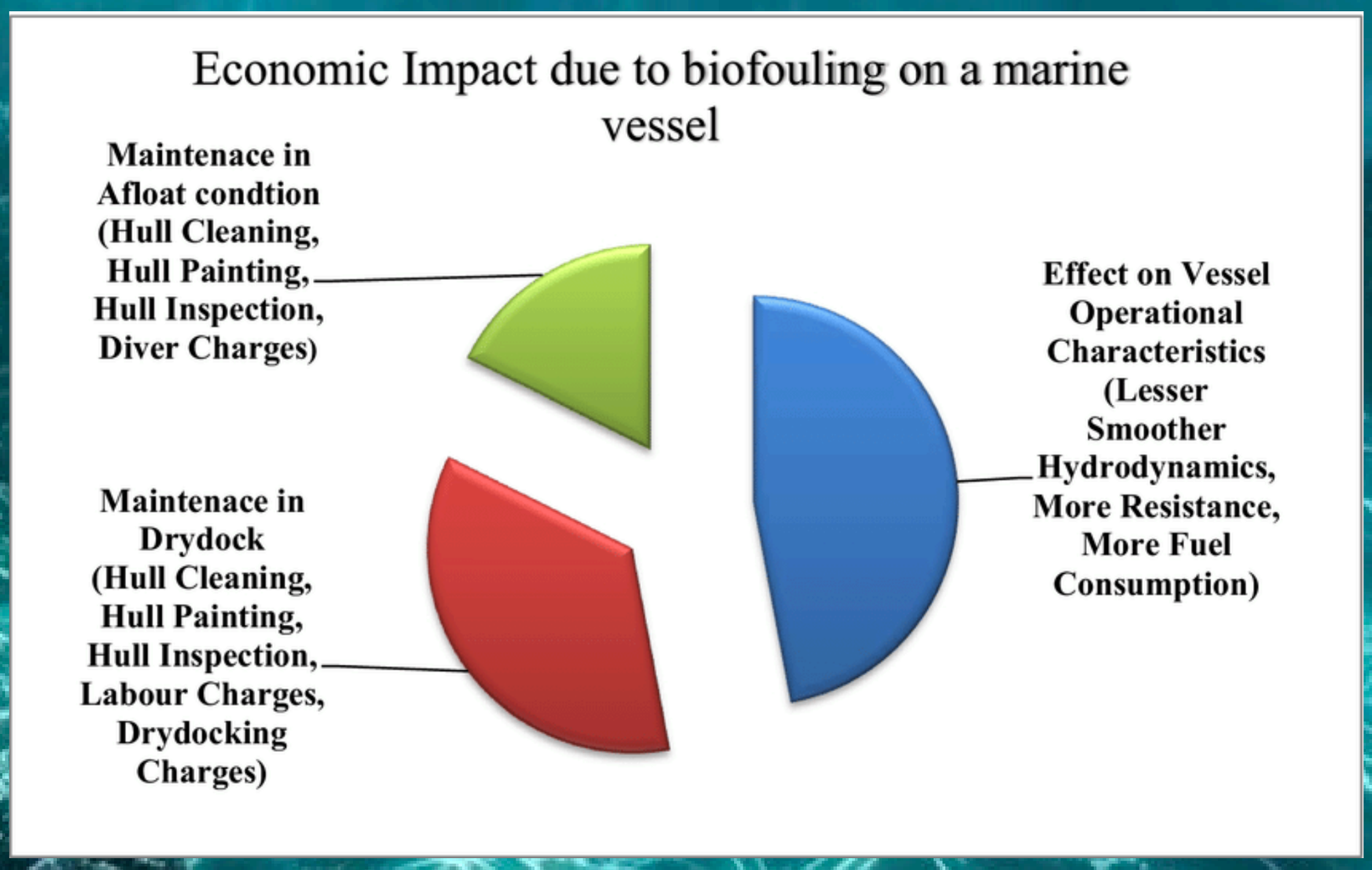
To design an eco-friendly, autonomous underwater robot that cleans submerged parts of ships using non-invasive tools and renewable energy.

SDG FOLLOWED:

UNITED NATIONS

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

14 LIFE BELOW WATER



Key Features:

- **Eco-Cleaning System:**
- Soft brushes, water jets, ultrasonic scrubbers.
- **AI Navigation:**
- Obstacle detection and optimized cleaning paths.
- **Robotic Arms:**
- Interchangeable tools for cleaning and inspections.
- **Marine-Safe Operation:**
- Quiet motors and debris collection.
- **Sustainable Materials:**
- Recycled plastic + marine-grade aluminum.
- **Solar Charging Dock:**
- Powered by floating solar stations.

Working Mechanism:

- Sensors scan the hull surface.
- AI identifies fouled areas.
- Robotic arms clean the surface.
- Debris collected in internal compartment.
- Returns to solar dock when low on power.

Impact & Benefits:

- Reduces ship fuel consumption.
- Minimizes dry docking.
- Avoids harmful chemicals.
- Boosts operational efficiency.
- Promotes cleaner seas and biodiversity.

ENGINEERED BY:

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