



# 12° Monaco Energy Boat Challenge 2025

**KUMARAGURU**  
Institutions

ENERGY BOAT  
**YALI4.0**

# KUMARAGURU INSTITUTIONS

Kumaraguru Institutions, with an enriching history of excellence spanning for four decades, promotes the scientific temper, critical thinking and free inquiry among the scholarly community in education, research and innovation.

Committed to leveraging technology-integrated solutions to scale ecological resilience, Kumaraguru Institutions is a sustainability champion with a unique potential to create a positive impact on the environment.



## KUMARAGURU CENTER OF AUTOMOTIVE INNOVATION & DEVELOPMENT – KCAID

KCAID established in 2014 aims to be the global hub for research development, molds students into ethical leaders with top notch engineering skills focussing on three major areas: student motorsports, product development and sustainable mobility, has 13 ambitious teams with 100+ titles supported by 20 industrial tie ups has 400+ students from interdisciplinary domain, over the span of decade, it has fostered a community of over 1400+ alumni, establishing itself as the beacon for future student research.

## ABOUT EVENT

Monaco Energy Boat Challenge is a decade old annual event hosted by the prestigious Yacht Club of Monaco that welcomes students and professionals from all over the World to race in four different classes:



AI  
CLASS



ENERGY  
CLASS



OPEN  
SEA



SEA  
LAB

The event aims at promoting innovation in the nautical world, recognizing the need for more sustainable maritime practices involving alternative energy sources like solar energy, hydrogen, electricity and other renewable energy sources to power boats.

# ACCREDITED COMMENDATION

**Communication Prize**  
It honors teams for their outstanding communication efforts, showcasing their projects and innovations to a wider audience.

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**Spirit Prize**  
Awarded by the Participants  
This award underscores the importance of camaraderie, collaboration, and the shared vision of a sustainable future in the maritime world.

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**Innovation Prize**  
Awarded for teams with new idea, potential, impact and viability

**Eco Conception Prize**  
It honors teams for Life Cycle assessment (MARINESHIFT report) & fostering/sharing eco conception concept

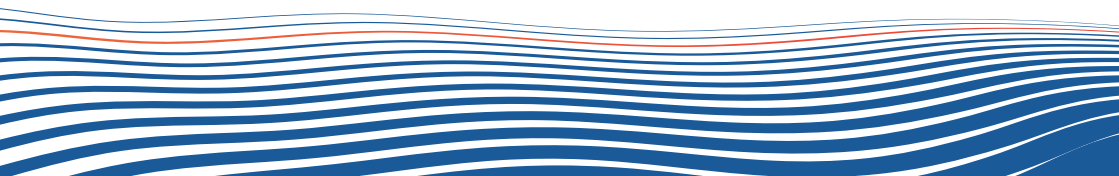
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**Best Tech Talk**  
Awarded with respect of timing, speaker fluidity and pertinence of answers to the jury

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**New Generation Prize**  
For the team whose project is the most “start-up material” and which brings novelty to the market

# RACE PARAMETERS



# THE 12TH EDITION OF MONACO ENERGY BOAT CHALLENGE

*Is an international stage for 46 teams of 31 universities  
from 25 Nations.*

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**02<sup>nd</sup> – 05<sup>th</sup>**  
July 2025

**@Yacht Club De Monaco,**  
Monaco, the Capital of  
Advanced Yachting

Team sea sakthi sails forward to the 12th edition of monaco energy boat challenge

## ABOUT THE TEAM

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Team Sea Sakthi embarked on a historic journey as the first and only Indian team to compete in the prestigious Monaco Energy Boat Challenge in 2022. With a bold vision and relentless passion, 13 trailblazing students engineered 'Yali,' India's first-ever energy boat, pioneering a new era of sustainable maritime mobility. Their spirit of innovation surged forward with 'Yali 2.0' and 'Yali 3.0,' achieving a remarkable hat-trick of groundbreaking advancements.

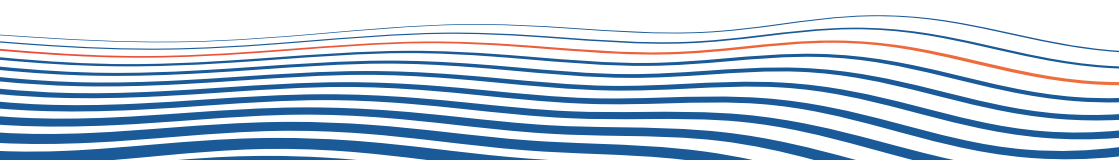
Now, as they enter their fourth consecutive edition, Team Sea Sakthi remains at the helm of clean energy innovation, redefining the possibilities of green marine technology. With every breakthrough, they propel India's ingenuity onto the global stage, proving that the future of sustainable maritime mobility is not just a dream, but a reality they are shaping.

### MISSION

To induce a revolution of electric mobility in the maritime sector by incorporating concepts of cleaner technologies.

### VISION

To establish a maritime sector that is environmentally sustainable





## COUNTRIES PARTICIPATING IN ENERGY CLASS

France, Italy, Monaco, Canada,  
Germany, England, Portugal, Hong Kong,  
Peru, Argentina, Athens, Chile, Croatia.

*(20 Teams from 13 different countries  
participate in Energy Class)*

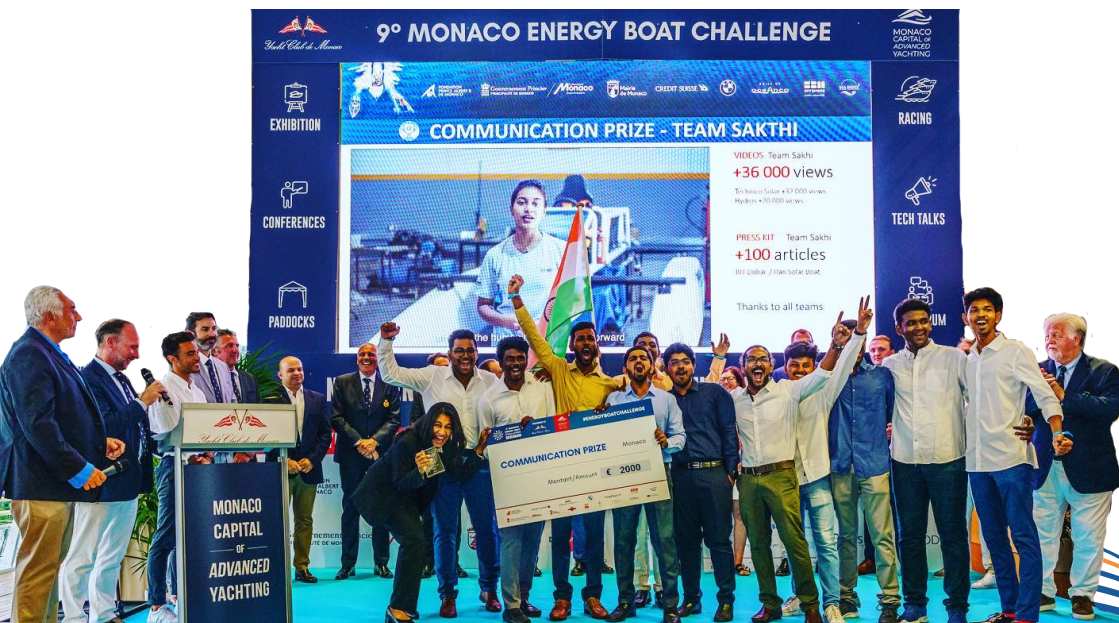


## TEAM SEA SAKTHI – 2022 ACCOMPLISHMENTS OF YALI

The 13-member student team of Team Sea Sakthi built their first energy boat "YALI" for the 9th edition of the MEBC in 2022, and qualified to become the only Indian team at Monaco. YALI, as a maiden entrant, showcased the potential of maritime sustainability in MEBC 2022, and the team garnered

**SIXTH Position** in overall ranking  
among 16 other international  
teams

**Communication Prize**  
worth **2000 Euros** for being the  
most popular team



# TEAM SEA SAKTHI – 2023 ACCOMPLISHMENTS OF YALI 2.0

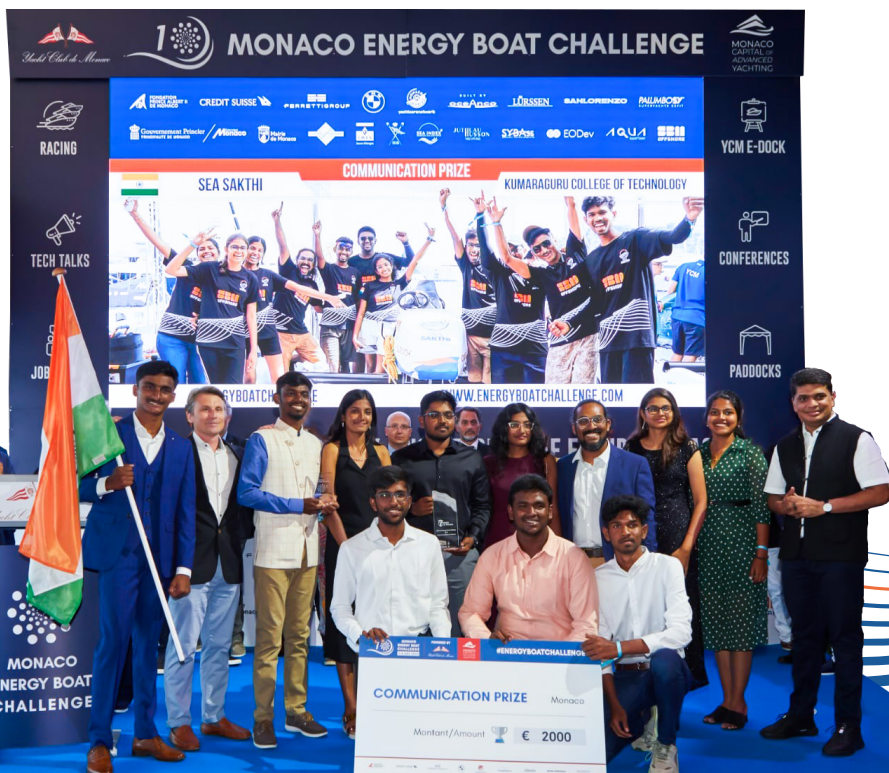
## Nation's First Hydrogen Powered Boat

Team Sea Sakthi comprising 10 students from diverse engineering domains brought together a perfect blend of knowledge and expertise.

**SIXTH Position** in overall ranking  
among 16 other international  
teams

**Communication Prize**  
worth **2000 Euros** for being the  
most popular team

Winner of  
**Monaco Town  
Hall Cup**



# TEAM SEA SAKTHI – 2024 ACCOMPLISHMENTS OF YALI 3.0

## India' first pineapple fibered cockpit

Yali 3.0 made waves at the Monaco Energy Boat Challenge 2024, clinching multiple prestigious accolades and further solidifying Team Sea Sakthi's legacy in sustainable marine innovation, with cutting-edge technology, visionary design, and an unyielding commitment to clean energy.

Winners of a Global  
Challenge in  
04 categories

TOP-10 out of 46 teams  
from 25 nations



**DESIGN  
INNOVATION  
COMMUNICATION  
TOWNHALL CUP**





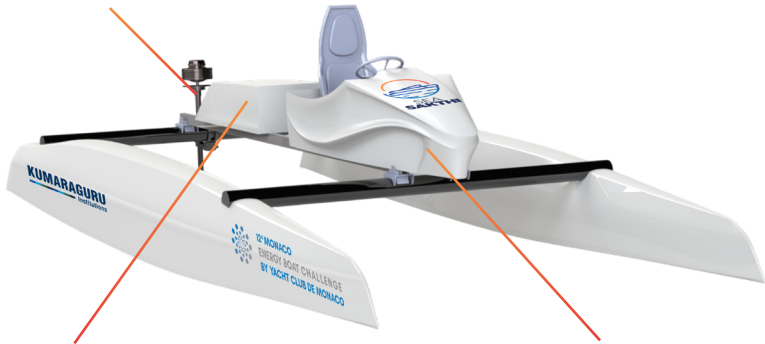
# TEAM SEA SAKTHI – 2025

## SHARPER, SLEEKER, FASTER : THE FRONTIER OF PERFORMANCE IS HERE

### Yali 4.0

#### PROPULSION SYSTEM

Custom made single propulsion system rated at 15 kW with an exceptional power-to-weight ratio. Its streamlined lower unit reduces hydrodynamic drag, and the 50% lighter design enhances speed and maneuverability.



#### ENERGY SOURCE

Integrating a custom-made Lithium Ion Battery pack with a capacity of 10kW.

#### COCKPIT

Constructed with a Balsa-Flax Hybrid Composite, combining high-strength Flax fiber with ultra-light Balsa wood to enhance durability, reduce weight, and promote sustainability.

### The Team



# **YALI 4.0**

## **ENHANCED EFFICIENCY UPGRADES**



### **THE PROPULSION TO PROPEL FORWARD**

#### **CUSTOM MADE SINGLE PROPULSION**

15 kW Composite Contact Axial Flux DC Motor:  
Equipped with a high-performance single propulsion system that ensures unmatched power and efficiency. Its brushed axial flux design delivers exceptional power-to-weight ratio and continuous high output, optimizing energy use for peak performance.

#### **PRECISE AGILITY**

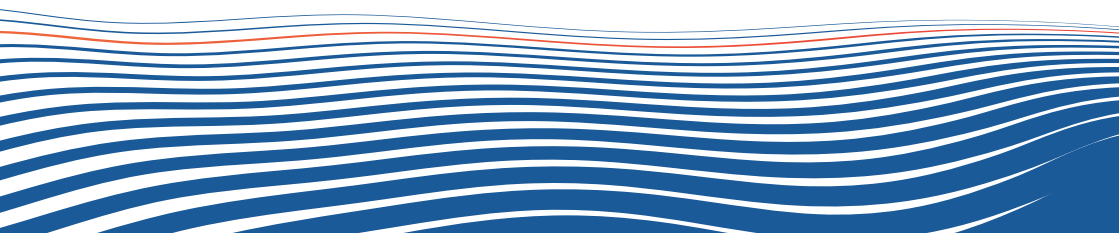
High Torque Density with Dynamic Thrust Vectoring:  
Experience precise control and fluid maneuverability. This advanced system enables seamless navigation and sharp turns, enhancing navigational mastery.

#### **POTENT POWER DELIVERY**

Optimized Torque Dynamics and Accelerative Force:  
Designed for rapid acceleration and adaptability in challenging conditions. Its high torque density and precision-tuned torque mapping provide consistent propulsion and stability.

#### **VISIONARY PROPULSION ARCHITECTURE**

Streamlined Lower Unit with Aerodynamic Propeller Design: Featuring a compact lower unit that minimizes drag and improves hydrodynamics of the system, paired with a lightweight, efficient propeller design. This combination maximizes speed and energy efficiency for a smoother, faster ride.



# **YALI 4.0**

## **ENHANCED EFFICIENCY UPGRADES**



### **THE NATURE'S STRENGTH – THE POWER OF BASAL AND FLAX FIBERS**

#### **ENHANCED WITH BALSA-FLAX HYBRID COMPOSITE**

##### **Lightweight Advantage**

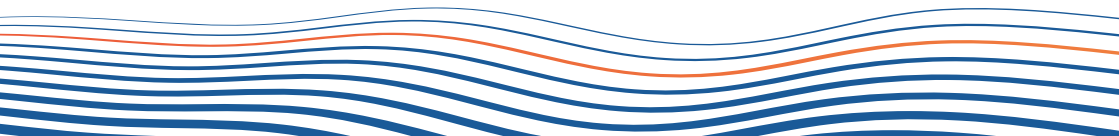
The synergy of balsa and flax delivers exceptional strength-to-weight ratio reducing cockpit mass while preserving rigidity and resilience, enhancing maneuverability, speed, and energy efficiency to optimize catamaran performance.

#### **STRENGTH WITH STABILITY.**

Balsa's rigid core reinforces the cockpit's structural framework, while flax fibers absorb shock and reduce vibration, ensuring durability, smoother rides, and superior onboard comfort Engineered to endure extreme marine conditions, it stands as a breakthrough in sustainable, high-performance marine design.

#### **BALANCING PERFORMANCE WITH RESPONSIBILITY**

By harnessing renewable resources and intelligent material engineering, we elevate performance while minimizing environmental impact. The lightweight properties of the composite enhance propulsion and efficiency, while its biodegradable flax fibers and low-energy production process make it a sustainable, high-performance alternative to fiberglass.



## THE OUTCOME

### ENHANCED PERFORMANCE & EFFICIENCY

The lightweight cockpit, reinforced with an advanced propulsion system enhances speed, agility, and fuel efficiency. This precision-engineered design ensures superior maneuverability and optimize catamaran performance

### REDUCED ENVIRONMENTAL IMPACT

By integrating natural, renewable materials our ecological footprint has been significantly reduced. Compared to traditional fiberglass, this sustainable composite lowers energy consumption and promotes responsible marine innovation

## NEW SYNERGIES

### AR GLASSES

AR Glasses empowers sea pilots with real-time navigation, speed, and weather insights, ensuring seamless situational awareness. With a 360° view, effortless monitoring, and integrated health tracking, safety remains a top priority. Instant alerts provide critical updates, enabling pilots to stay focused, make quick decisions, and navigate with unmatched confidence and precision on open waters.

### PDU

Designed with HVIL and IRM technology, our custom-made PDU delivers enhanced efficiency, reliability, and seamless power distribution.

With a 60% reduction in wiring complexity, it simplifies installation and maintenance while ensuring optimal performance. Its fully IP67-rated design provides complete protection against dust and water, guaranteeing durability in even the most demanding environments.

Engineered for superior performance and longevity, this next-generation PDU sets a new standard in marine power management.

### HVIL

The High Voltage Interlocking Loop (HVIL) serves as a vigilant guardian, isolating faults and preventing potential hazards and ensuring enhanced safety during high-voltage operations. This advanced system enhances safety by 60% compared to last year, ensuring greater reliability and protection in demanding environments.





## Our Patrons

### **H E JAWED ASHRAF**

Ambassador of India to Monaco and France

### **H E DIDIER GAMERDINGER**

Ambassador of Monaco to India

### **Shri. SHANKAR VANAVARAYAR**

President- Kumaraguru Institutions

### **Mr. SUMEET ANAND**

Founder of Indsight Growth Partners

### **CDR ABHILASH TOMY**

Indian Navy Officer, Runner-up Racer at Golden Globe Race (GCR) 2022

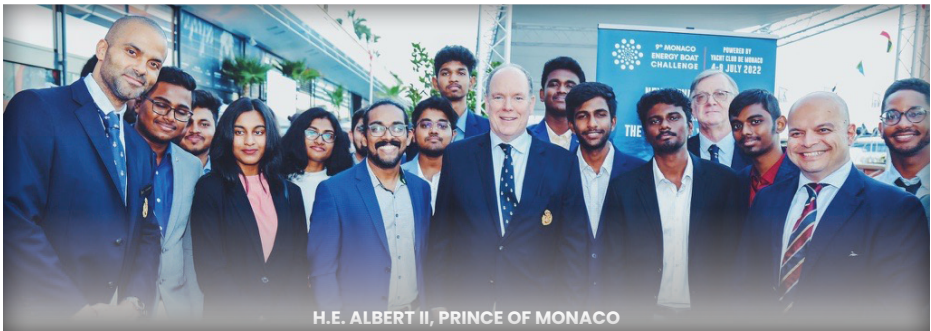
### **Mr. SIDDHARTH SINGH**

Office of the Chief Energy Economist, International Energy Agency

## Wall of Honour



**H.E. JAWED ARSHAF, AMBASSADOR OF INDIA TO MONACO AND  
MR. ABILASH TOMY, ICONIC INDIAN SAILOR AT GOLDEN GLOBE RACING (GGR)**



**H.E. ALBERT II, PRINCE OF MONACO**

## Team's Outreach with Eminent Personalities



A Grant of Rs. 15 Lakhs under Tamil Nadu Startup and Innovation Mission received from the Honorable Chief Minister Thiru M K Stalin



Team with Mr. H.E Didier Gamerding - Ambassador Monaco to India,  
Mr. Sumeet Anand - President of IFCCI,  
Shri. Shankar Vanavarayar - President of Kumaraguru Institutions and  
Mr. Siddarth Singh - Lead Analyst International Energy Agency



Meet with Mr.P.Umanath, IAS,  
Principal Secretary II to CM



Thiru. Kranthi kumar pati I.A.S.,  
Prathap M I.A.S.,  
Balakrishnan V I.P.S.

## Team's Outreach with Eminent Personalites



Meet with Dr. Mansukh Mandaviya,  
Hon'ble Union Minister for Youth Affairs & Sports



Meet with Dr. Abhay Jere,  
Vice Chairman of AICTE



Meet with Dr. L Murugan,  
Hon'ble Union Minister of State for  
Information & Broadcasting



Meet with  
Thiru. Udhayanidhi Stalin,  
Minister for Youth Welfare and  
Sports Development of Tamil Nadu



Meet with Dr. TRB Rajaa,  
Honourable Minister for Industries,  
Government of Tamil Nadu



## Moments At Monaco



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## Support Team Sakthi Yali 4.0



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THE  
WORD

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