TARTANAUV

Sponsorship Information
2025-26

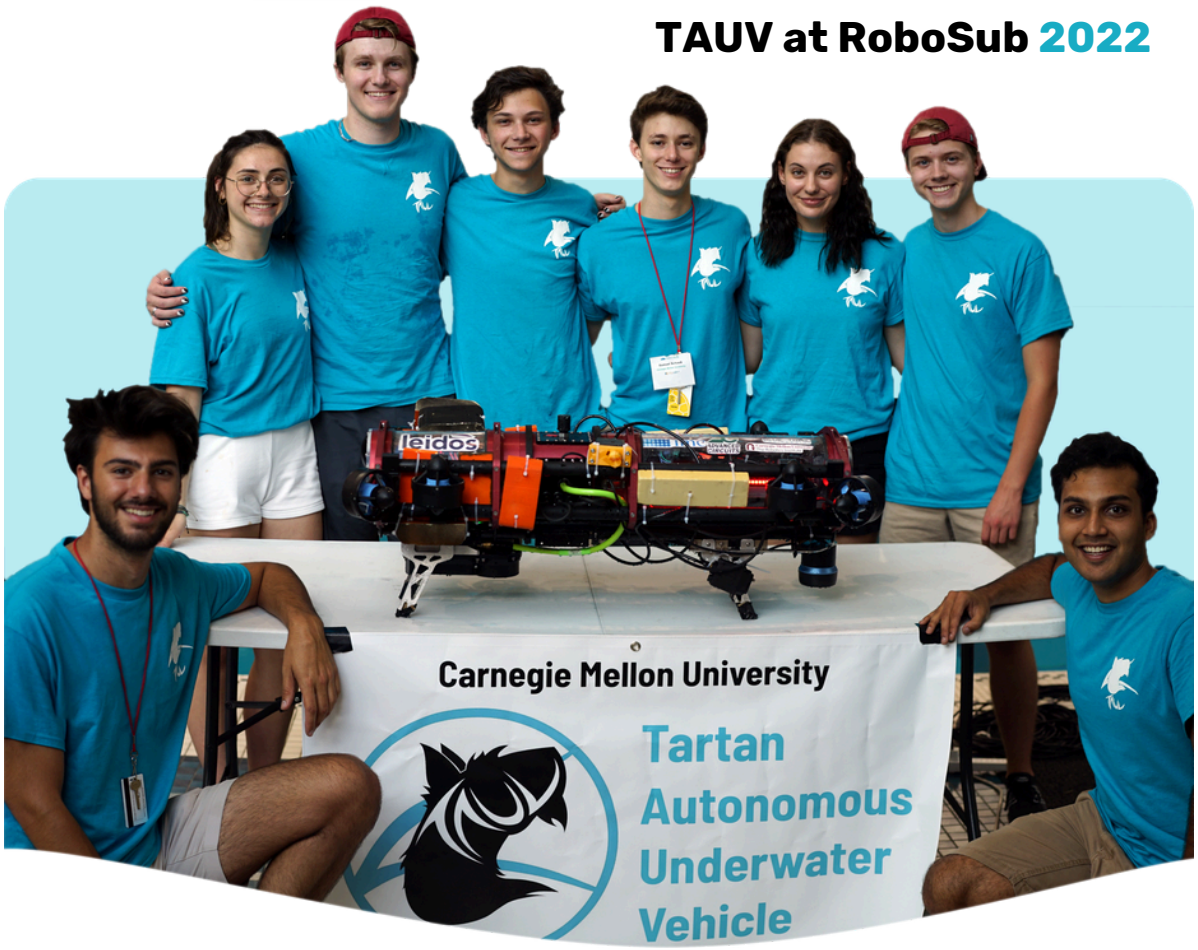
Carnegie Mellon University

ABOUT US

OUR TEAM

Founded in 2019, TartanAUV is an interdisciplinary robotics team of undergraduates at Carnegie Mellon University in Pittsburgh. **TAUV designs, constructs, programs, and tests an autonomous submarine to compete in the annual international RoboSub competition.** We are a team of passionate and dedicated students excited about designing robotic systems for oceanography, exploration, and research.

TAUV at RoboSub 2022



WE NEED YOUR HELP!

TAUV provides students the unique opportunity to explore their interests in electrical and mechanical engineering, computer science, robotics, marketing, finance, and community outreach. **As a sponsor, your assistance will ensure the competitive and educational success of our team as we work to create new technology while cultivating the next generation of innovators.**

WHAT'S ROBOSUB?

COMPETITION STRUCTURE

The annual RoboSub Competition challenges teams worldwide to design submarines capable of demonstrating their autonomous capabilities by completing a series of underwater tasks.

Scoring evaluates the autonomous features of the team's robot and the efficacy with which teams communicate their innovations and the engineering design process.

Still curious? Check out Robosub 2026 to learn more.

Design Documentation

Through a team website, competition strategy video, technical design report, design presentation, and AUV inspection, teams convey the implementations of their autonomy, propulsion, and control systems to expert judges.

Autonomy Challenge

Teams demonstrate their robots' capabilities by completing a series of autonomous tasks with an underwater vehicle. Autonomy challenge tasks range across navigation, perception, and manipulation. Teams must develop accurate state estimation and control algorithms, engineer custom acoustic sensing technology, and build pressure vessels with attached manipulators to complete all course objectives autonomously with their robot.

WHAT'S REQUIRED

In-depth knowledge of specific skills like embedded systems, software simulation, robot kinematics and dynamics, deep learning, wiring and circuitry, CAD, and CNC manufacturing are divided amongst subteams to ensure TartanAUV's success.

Mechanical

- Computer Aided Design
- Finite Element Analysis
- CNC and Manual Machining

Software

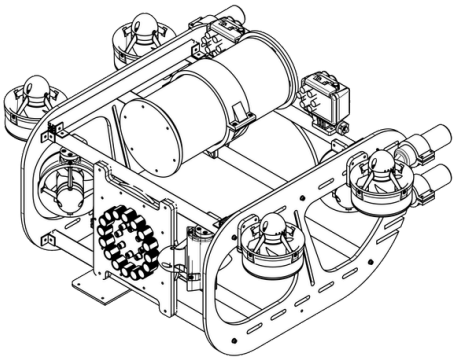
- Dynamics Modeling and Simulation
- Robot Controls
- Robot Localization
- Sensor Drivers and Firmware
- Classical and ML-based Computer Vision
- Optimization

Electrical

- Custom PCB Design
- FPGA Programming
- Digital and Analog Filtering

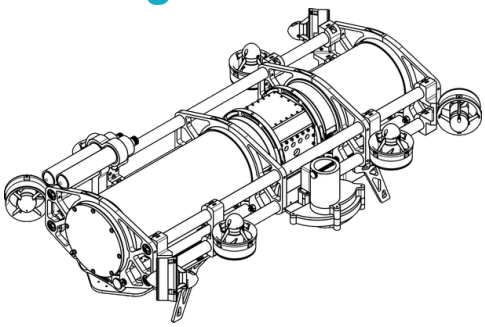
OUR ACHIEVEMENTS

Submarine Series:
Albatross



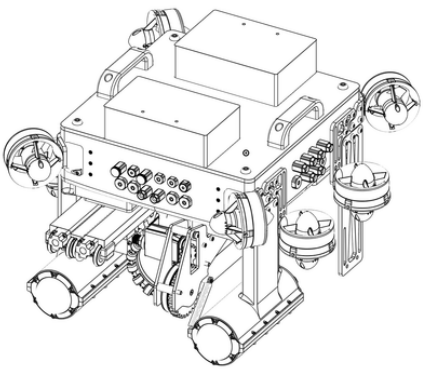
Albatross (2019) was TAUV's first vehicle ever created: designed in CAD and laser cut from plastics. Albatross employed a 9DoF IMU to perform state estimation and RGB cameras to identify vision targets.

Submarine Series:
Kingfisher



Kingfisher (2020-25) debuts TAUV's second submarine series, manufactured from aluminum and steel with a 5-axis CNC, water jet, and MIG welding and tested with FEA and fluid dynamics simulation. With an upgraded sensor and autonomy stack, the vehicle employs a DVL, imaging sonar, depth cameras, 9DoF IMU, and depth sensor for localization and mapping. Built with ROS, the autonomy stack implements a model predictive controller for closed-loop pathing, an extended Kalman filter for localization, and neural networks for object detection. Recent *Kingfisher* editions (2023+) are equipped with skillfully engineered manipulators for all competition tasks.

Submarine Series:
Osprey



Osprey (2025) is TAUV's latest vehicle, engineered to overcome Kingfisher's limitations. Its design increases the number of mounting points, improves accessibility to internal components, and reduces the total number of seals.

Albatross Series

- **2019** NIWC Pacific's TRANSDEC, San Diego, CA
  Semifinalists

Kingfisher Series

- **2020** Virtual competition
  5th place
- **2022** University of Maryland, College Park, MD
  3rd place in Autonomy Challenge
- **2023** NIWC Pacific's TRANSDEC, San Diego, CA
  8th place in Autonomy Challenge
- **2024** Woollett Aquatics Center, Irvine, CA
  6th place in Autonomy Challenge

Osprey Series

- **2025** Woollett Aquatics Center, Irvine, CA
  Semifinalists, 2nd place in Design Assessment

WHY SUPPORT US?

OUR MISSION

TartanAUV's mission is simple: we prepare students for industry by cultivating problem-solvers, independent researchers, and a strong reputation for excellence.

OUR 2025-26 GOALS

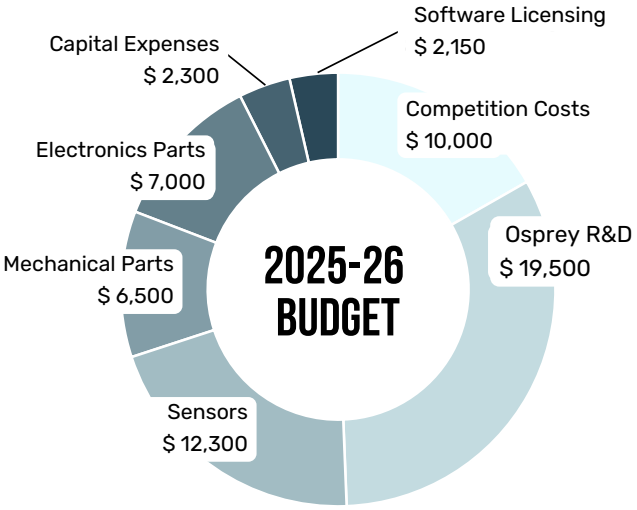
Our team aims to secure the title of top United States university at the RoboSub competition and raise our international standings to 1st place.

Throughout the year, we intend to continue the development of our *Osprey* software platform, focusing on integrating improved mapping algorithms with our existing localization protocol that incorporates vision, DVL sensor, and acoustics data. By performing regular water tests and utilizing software simulation, we will ensure the performance and reliability of the software we bring to RoboSub 2026.

Our electrical and mechanical teams are working tirelessly to design, prototype, and build new components for TartanAUV's third submarine series. **We seek monetary and in-kind donations (sensors, materials, manufacturing, etc.) from sponsors to help assist in this effort of bringing our engineering vision to RoboSub 2026.**

TOTAL: $ 59,750

Each year, TAUV covers the expenses for competition, marketing and outreach, and software licensing. With plans to upgrade Osprey's electronics for RoboSub 2026, a significant portion of this year's expenses will serve R&D.



SPONSOR BENEFITS

As a sponsor, you get the opportunity to **hire experienced students**, gain **brand recognition**, and **influence the future of engineering**.

SPONSOR PACKAGES

	FRIENDS	BRONZE	SILVER	GOLD
DONATION LEVEL by default, the retail value of an in-kind donation determines its package (but we are happy to discuss benefits that suit your interests!)	info below*	$500 - $1,999	$2,000 - $5,999	$6,000+
LOGO DISPLAY on competition banner, T-shirts, and team website.	X	X	X	X
SESSIONS WITH TAUV in-person or virtual meet-and-greet, info, recruiting, and more!	X	X	X	X
RESUME BOOK premium access to our skilled, knowledgable, and experienced active team member and alumni resumes		X	X	X
SOCIAL MEDIA SHOUT-OUTS promotional shout-outs on TartanAUV social media (Instagram & LinkedIn)			X	X
COLLABORATION opportunity for research, testing, data-collection, demo, and development of your products and technology				X

***Friends of TAUV** are sponsors who have made in-kind donations in the past two seasons (2023-24 or 2024-25) of equipment, parts, or sensors used in the manufacturing, assembly, or capabilities of our 2026 vehicle.

CONTACT US

DROP US A LINE

Feel free to reach out to TartanAUV with any questions, concerns, or requests. We are always happy to hear from you! *For more info on donations and sponsorships, contact tartanauv@gmail.com.*

SOCIAL MEDIA

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