

RACLAB TEAM

Introduction and Mission As the RACLAB NOVA team, our mission extends beyond developing advanced Autonomous Underwater Vehicles (AUVs); we are dedicated to sharing our engineering expertise to empower our community. Based at Konya Technical University, we foster an interdisciplinary environment aimed at strengthening the local robotics ecosystem and raising public awareness about the critical importance of underwater technologies.

Educational and Outreach Activities

- **Peer-to-Peer Learning & Workshops:** We conduct technical seminars within our university focusing on our uniquely developed control boards and modular software architectures. By prioritizing custom-built solutions over off-the-shelf components, we inspire fellow engineering students to transition from being technology consumers to innovative creators.
- **Inspiring the Next Generation (STEM):** Leveraging our success as the First Place winners at TEKNOFEST 2025, we organize motivational talks for high school students. We aim to demystify the complexities of underwater robotics and autonomous systems, encouraging young minds to pursue careers in STEM and maritime technology.
- **Sustainable and Socially Responsible Solutions:** A core component of our outreach is the development of an "AI-Powered Autonomous Pool Cleaning Robot." This project serves as a practical demonstration of how high-level autonomous technology—typically reserved for competitions—can be adapted for environmental sustainability and public service.

Technical Contributions to the Community Our team is committed to the "open-science" philosophy. We actively document and share our progress in areas such as:

- Autonomous navigation and sensor fusion (IMU, DVL, and pressure sensors).
- AI-supported object detection and task execution.
- Custom PID control algorithms developed entirely in-house to ensure system reliability and flexibility.

Impact and Future Goals As we prepare for RoboSub 2026, we aim to contribute to the global robotics community by sharing our findings on open-source platforms. Our ultimate goal is to be a team that not only advances the state of the art in AUV technology but also builds bridges that allow this technology to serve society.

