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team time 2

April 17, 2025

agenda

Edit your name to "**Name | Team Name**"
E.g., Laverne | University of RoboNation

[● REC]

COMPETITION

Introduction to the competition, including the teams, staff, and timeline.

EVENT DETAILS

Overview of the event, including schedule, hotel, testing, and shipping.

TASKS & SCORING

Breakdown of the tasks and scoring for the autonomy challenge.

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event overview

featuring the 2024 RoboSub Teams

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meet the teams

63 Teams
11 Countries
9 First-Years

- 2 Bangladesh
- 2 Brazil
- 6 Canada
- 1 China
- 3 India
- 1 Israel
- 1 Puerto Rico
- 1 Qatar
- 3 Singapore
- 2 Turkey
- 41 United States

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competition timeline

April 17 - TeamTime #2

June 23 - Event Submissions Deadline

June 30 - Design Documentation Deadline

August 04 - Pre-Qualification Deadline

August 11-17 - RoboSub 2025

JUNE 2025

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

AUGUST 2025

S	M	T	W	T	F	S
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

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pre-competition deliverables

TIP: Review your submission from the perspective of a judge.

Technical Design Report

Write a report describing the teams' design principles and competition priorities.

Max: 6 pages

Team Website

Website documents your team, system design, and competition approach, evaluated on (1) Content and (2) Quality.

Team Video

Prepare a video that is a creative showcase highlighting the teams' personality, mission and culture.

Max: 3 minutes

Submit in registration portal:
robonation.smapply.org/acc/l/

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in-person deliverables

Design Strategy Presentation

Prepare a presentation with a concise description of your team's strategic vision and how the vehicle design compliments your goals.

Time: 15 min.

System Assessment

Prepare your AUV to be inspected by judges to assess technical design, technical innovation, and craftsmanship of the design.

Time: 15 min.

TIP: Define your team's competition strategy and how that influenced your design choices, testing, and overall approach.

**Delivered in-person during the competition:
August 12-14**

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event details

venue, accommodations, shipping

lodging

Booking Information available on website

Event Hotel: Hilton Irvine/Orange County Airport

- **Rate:** $182.93+ tax / night
- **Available Dates**: August 8-20
- **Booking Deadline:** July 17, 2025
- **Booking Link:** robosub.org/2025#lodging
- **Parking Fee:** $12.00+ tax/ night
- **Overnight Pool Practice:** 10:00 pm - 2:00 am

Alternative Options

- Short Term Rental Homes/Condos - Many teams reserve a short-term rental in the area. Several cities in Orange County have implemented bans or strict regulations on short-term rentals due to recent fires.
- Recommended areas for your stay can be found on Discord.

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schedule

AUG 11 MON	AUG 12 TUE	AUG 13 WED	AUG 14 THU	AUG 15 FRI	AUG 16 SAT	AUG 17 SUN
Team Check-in 3:00 pm						**Third-Chance** 8:00 am
Team Orientation *(mandatory)*						**Finals** 1:00 pm
Team Networking Event						**Awards** 6:00 pm

Lottery *(optional)* 6:45 am (Aug 12–15)

Practice & Qualifications 7:00 pm – 6:00 pm (Aug 12–14)

Semi-Finals 7:00 pm – 6:00 pm (Aug 15–16)

Design Presentations & System Assessments 8:00 pm – 4:00 pm (Aug 12–14)

Team Meeting *(mandatory)* 6:30 pm (Aug 14–16)

Overnight Pool Testing (@ Hotel) 10:00 pm – 2:00 am (Aug 12–16)

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venue

Woollett Aquatics Center

Overview Site Map

1 – Competition Pool
2 – Team Pit Area
3 – Presentations / Staff Office
4 – Staff Lounge
5 – Award's Ceremony / Party
6 - Loading Zone
7 – Team Parking
8 – Staff/ADA Parking
9 - Food

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Subject to change

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venue layout

shipping

Shipping Guidelines available in Team Handbook

- Teams may ship their equipment to the event hotel (Hilton Irvine)
- IMPORTANT DATES
  - August 4 - Shipments cannot arrive at hotel prior to August 4.
  - August 11 - All shipments must be picked up for the competition by August 11.
  - August 18 - Shipments must be shipped out before the team leaves California (no later than August 18)
- Use the Inbound Shipping Label (in Shipping Guidelines) for the hotel or location where you have a reservation.
- Use the Outbound Shipping Label (in Shipping Guidelines) using the address of the hotel or location where you have a reservation or drop your crate off directly with your shipper.
- Start now on planning on your outbound shipping arrangements! Batteries are exceptionally difficult to ship.
- Local Shipping Outlets available in Shipping Guidelines.

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shipping labels

Example Shipping Labels available in Team Handbook

FROM: School/Team Name
Address
City, State, Zip
Country

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**Hilton Irvine/Orange County Airport
Attn: RoboSub / School Name – Guest Name
18800 MacArthur Blvd.
Irvine, CA, USA 92612**

On-site Team POC Name: Phone:

FROM: School/Team Name
18800 MacArthur Blvd.
Irvine, CA, USA 92612

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**School/Team Name
c/o School POC
Address
City, State, Zip
Country**

Team POC Name: Phone:

Example Inbound Shipping Label (to the hotel)   **Example Outbound Shipping Label (back to school)**

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task
overview

Heading Out (Coin Flip)

- Teams have the option to start their run with a coin flip to determine the direction of their AUV.

- Coin lands on Heads: 90°
  - AUV ~parallel to gate

- Coin lands on Tails: 180°
  - Tail of AUV is ~pointed toward gate (AUV is backward)

(drawing **not** to scale)

Path

- Two path markers are placed to aid navigation through the course.
- On points from Collecting Data (Task 1) to Navigate the Channel (Task 2)

Vote: The location of the second path/first pinger (Drop a BRUVS, Tagging)

[152.40mm] 6.00in

[457.20mm] 18.00in

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Task 1: Collecting Data (Gate)

- The AUV navigates through the gate, and chooses a fish:
  - Reef shark
  - Sawfish
- Extra points awarded for AUV staying with the choice for the remainder of the tasks

- With Style
  - 10 ft (3m) before/after gate
  - Extra points: Yaw, Roll/Pitch
    - Every 90° change in orientation
      - Yaw +100
      - Roll/Pitch +200
    - Up to 720° (8x)

Task 2: Navigate the Channel (Slalom)

- (**NEW**) The AUV navigates the channel of white and red (TBD) vertical PVC pipes, in a slalom maneuver.
  - Points for keeping the center pipe on the same of your AUV from the Gate.
  - More points for passing within the plane of the pipes.

Vote: The color of the center pole

Task 3: Drop a BRUVS (Bin)

BRUVS: Baited Remote Underwater Video System

- AUV drops up to two (2) markers into the bin.
  - More points awarded for dropping the marker in the selected fish from the Collecting Data (Task 1)

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Task 4: Tagging (Torpedoes)

2ft square (0.6m)

0.5" (13mm)

4" (102mm)

Floor

(drawing **mostly** to scale)

- Tag the Sawfish and/or the Reef Shark with a projectile.
- Most points are awarded for tagging the chosen fish from the Collecting Data (Task 1) first, then the other.

Vote: The shape/size/color of the opening

Task 5: Ocean Cleanup (Octagon)

- The acoustic pinger guides the AUV to the task.
- Below the octagon is a table. On the table are two cups and two spoons. There are two bins on the side of the table
  - Points for surfacing in octagon (more for facing the chosen fish).
  - Points for picking up/ dropping objects

Task 5: Ocean Cleanup (Octagon)

2 ft
0.6 m

example objects

- A table with trash and two collection baskets is centered and below the octagon:
  - Most points for sorting the trash (2 of each)

- (**NEW**) Extra points for the vehicle rotating the same number of turns as the trash collected in the baskets
  - Three items in the bins? Rotate three times.

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Task 6: Return Home

- (**NEW**) At the end of the run, the AUV passes back through the start gate.

Layout

Layout - Practice and Semi-Finals

Symbol	Item
▭	Gate
▬	Path
●	Pinger
○ ● ○	Navigate the Channel
▦	Drop a BRUVS
▦	Tagging
⬡	Ocean Cleanup
X	Semi-finals courses

(drawing **not** to scale)

Woollett Aquatics Center

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Layout - Finals

Symbol	Item
▭	Gate
▬	Path
●	Pinger
○ ● ○	Navigate the Channel
🖼️🖼️	Drop a BRUVS
🖼️	Tagging
⬡	Ocean Cleanup

(drawing **not** to scale)

Woollett Aquatics Center

Pre-Qualification (end 4 August 2025)

- Optional opportunity to pre-qualify before traveling to competition.
- Specific instructions on the pre-qualifying maneuver is available in the Team Handbook (also available in previous handbooks).

congratulations pre-qualifiers!

- **École de technologie supérieure | SONIA**

- **Duke University | Duke Robotics**

- **The Ohio State University | The Underwater Robotics Team**

- **Cornell University | CUAUV**

- **National University of Singapore | Bumblee Autonomous Systems**

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resources & questions

MATHWORKS SIMULATION AWARD

Introduction
The MathWorks Simulation Award recognizes teams demonstrating innovative and effective use of MATLAB and Simulink in designing their AUV's for the RoboSub competition.

Award Prize and Recognition
- 1st Place - $1000 (and a featured post with MathWorks Student Lounge)
- 2nd Place - $750
- 3rd Place - $250

Deliverable Requirements
- 5-minute video showcasing how MATLAB or Simulink was used to solve a problem faced.
- Team introduction - high level software and strategy overview
- Explain the problem faced and the team's solution using MathWorks tools
- Demonstrate solution(supported with plots, metrics, videos, etc)
- Reflection and feedback on the tools

Contact Abhishek Shankar through email (abshanka@mathworks.com) or Discord for any questions!

MATHWORKS mini SERIES

APRIL 15 @ 07:00PM EDT

MAY 6 @ 07:00PM EDT

JUNE 10 @ 07:00PM EDT

Filter Sensor Noise with MATLAB
Learn how to stream sensor data to MATLAB, analyze the noise, and design your own filter.

Design and Deploy your State Machines with Stateflow
Learn how to use Stateflow to design your state machine and deploy them to a target hardware as an executable or as a ROS node.

Determine Direction of Arrival of an Acoustic Beacon
Learn how to use a towed passive sonar array to detect and estimate the direction of arrival of an acoustic beacon.

SAVE THE YOUTUBE LINK TODAY

Please contact humans@robonation.org with any questions

MathWorks®

Mathworks x RoboNation

mini SERIES

Control Algorithm Design using Simulink

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DISCORD

Stay connected and updated on the RoboSub Channel on RoboNation Discord. Scan the QR code below to get started!

JOIN TODAY!
- Scan the QR Code
- Select the RoboSub role
- Turn on notifications!

DATA SHARING

Join the community-driven project created to increase collaboration between teams and address the never-ending quest for test data.

All new teams received invitations. Contact competitions@robonation.org for questions.

ALL THINGS ROBOSUB

For all the latest information and updates all week, scan the QR code to the right and visit the RoboSub website! (robosub.org)

Stay connected and follow the journey via our social media!

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@robonation   @robonationinc   @robonation   @robonationinc   robonation.org

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RoboNation is a 501c3 nonprofit organization whose mission is to provide a pathway of hands-on educational experiences that empower students to find innovative solutions to global challenges. Working together with the industry, research and educators, we have grown to include over nine student competitions and programs and engage more than 250,000 students per year.

For more information contact competitions@robonation.org