

TeamTime

Thursday, February 22, 2024 | 7:00 PM Eastern Time



robosub

BY ROBONATION



GET STARTED



- 1 Edit your name to "Name | Team Name"
- 2 Let us know in the chat:
Are you a returning or new team?

AGENDA

- [19:00 - 19:10] Welcome & Competition Introduction
- [19:10 - 19:20] Venue & Schedule Expectations
- [19:20 - 19:40] Task Ideas Overview
- [19:40 - 19:50] Data Sharing Introduction
- [19:50 - 20:00] Questions?



Task Ideas Released

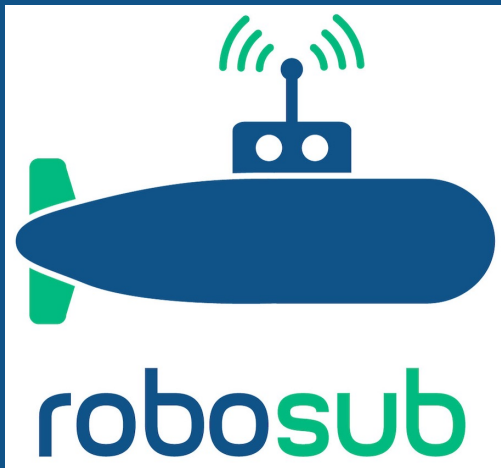


RoboSub 2024: August 5-11, 2024

Woollett Aquatics Center, Irvine, California, USA



Credit: City of Irvine



Meet the Humans

 RoboSub.org/2024



Julianna Smith
Program Manager



Lindsey Groark
Vice President of Programs



Joe Conway
Technical Manager



Laverne Imori
*Community Engagement
Coordinator*



Cheri Koch
Senior Events Manager



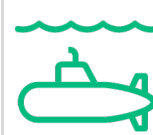
Dr. Dave Novick
Technical Director





Competition Structure

 RoboSub.org/2024



Autonomy Challenge

Build an AUV to showcase autonomous performance.



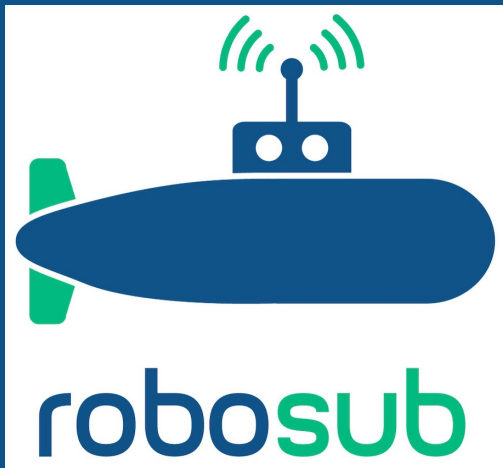
Design Documentation

Prepare documentation showcasing AUV design and competition strategy.

Design Documentation

- Team Website
- Technical Design Report
- Team Intro Video
- Design Presentation
- System Assessment





Eligibility

 RoboSub.org/2024



All teams must build an AUV to compete; multiple vehicles may be entered in the competition.

Teams must be comprised of:

- 75% or more full-time students
- 25% or less alumni



Most team members must be college or high school students. Teams may also include middle school students. Interdisciplinary teams are encouraged.





Registration

 RoboSub.org/2024



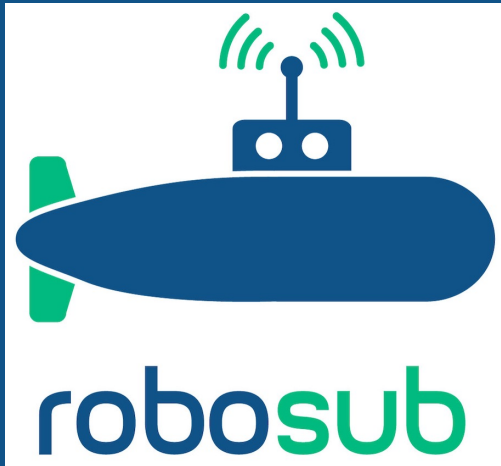
Registration

Extended to March 18

Fee is \$1,250 USD

 RoboSub.org/2024





TimeLine

 RoboSub.org/2024

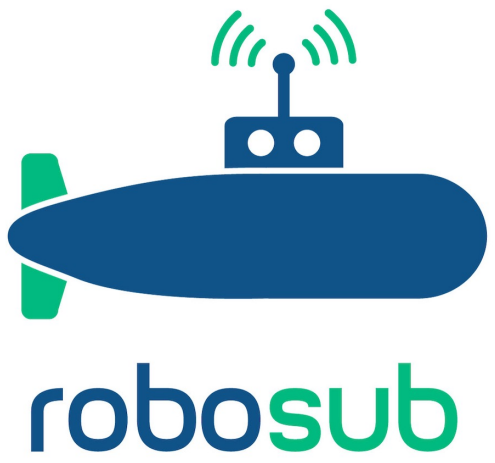
Date / Deadline	Event
November 1, 2023 – March 18, 2024	Registration
May 19, 2024	Last day to cancel and receive 100% refund
June 17, 2024	Event Submissions Deadline: <ul style="list-style-type: none"> • Team Information • Background Checks • On-Site Requirements • Merchandise Order
June 24, 2024	Design Documentation Deadline <ul style="list-style-type: none"> • Technical Design Report • Team Video • Website • Testing Plan • Community & Outreach
June 24, 2024	Last day to cancel and receive 50% refund
July 22, 2024	Last day to Submit Pre-Qualification Video



Woollett Aquatics Center, Irvine, CA

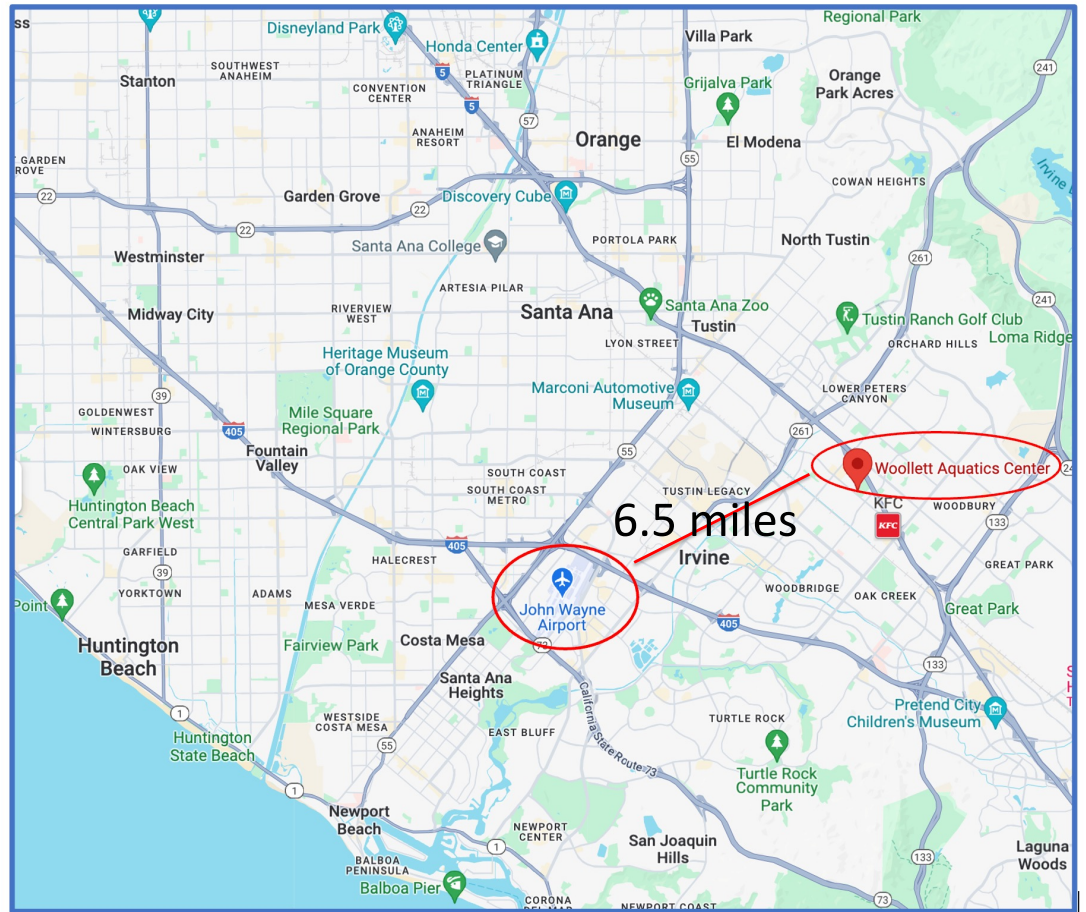
OVERVIEW





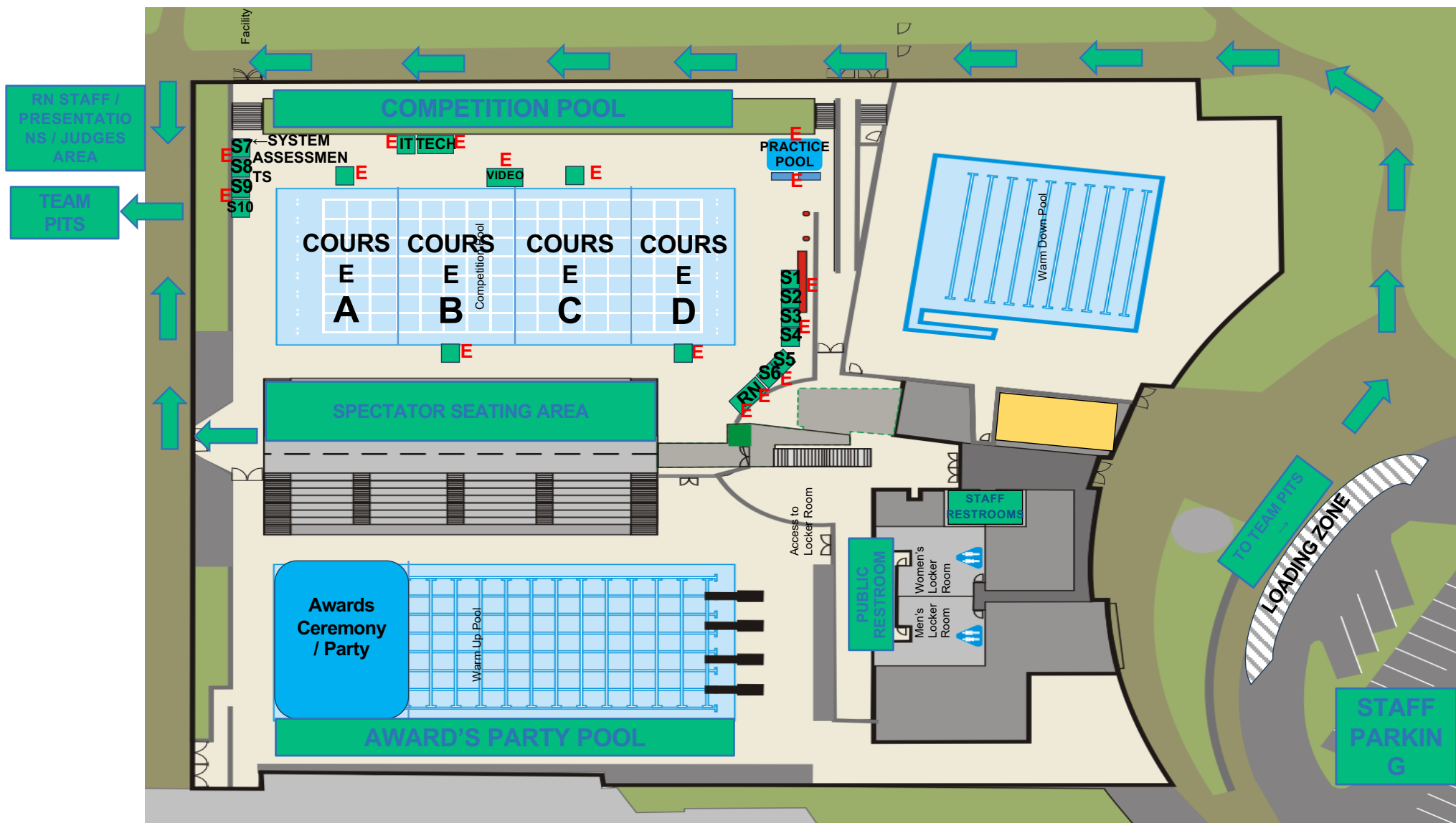
TRAVEL

 RoboSub.org/2024

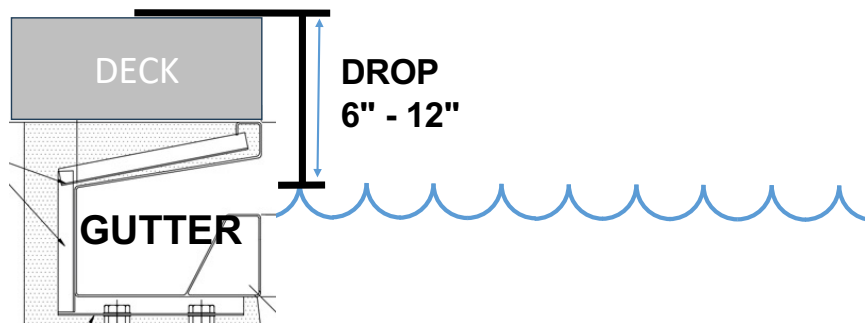


To LAX - 48 miles

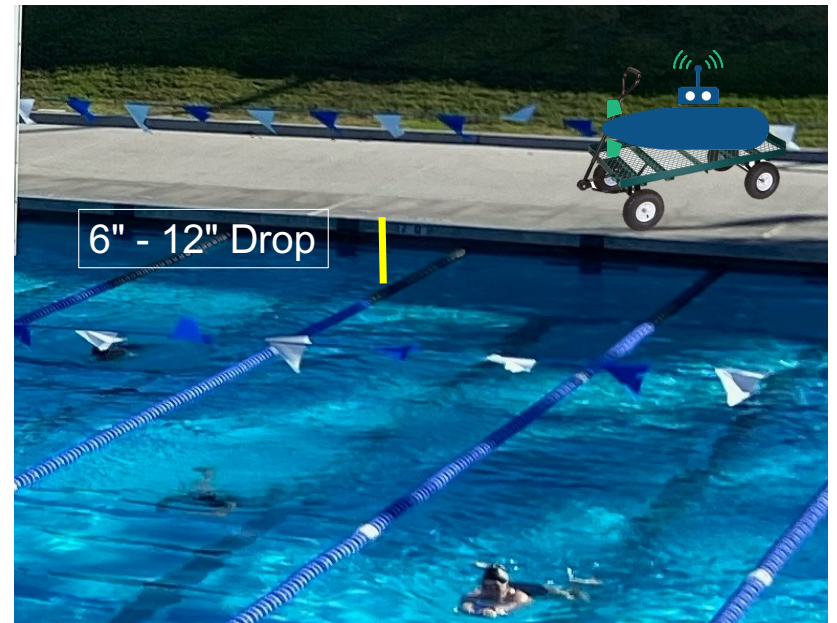




Getting In & Out of Water



A Challenge



Preliminary Schedule

Monday 5 August	Tuesday 6 August	Wednesday 7 August	Thursday 8 August	Friday 9 August	Saturday 10 August	Sunday 11 August
	0730-1030 Breakfast Available for Purchase					0630-0800 Breakfast Available for Purchase
	Presentations & Assessments Day 1 (Tuesday) 0900-1700 Day 2 (Wednesday) 0800-1700 Day 3 (Thursday) 0800-1400					0800-1100 Third Chance / Finalist Practice Runs
	1130-1430 Lunch Available for Purchase				1100-1300 Lunch Available for Purchase	
	1215 Group Photo			0700-1800 Autonomy Challenge Semi-Finals Day 1	0700-1800 Autonomy Challenge Semi-Finals Day 2	1200-1600 Autonomy Challenge Finals
1600-1700 Team Check-In	0700-1800 Autonomy Challenge Practice & Qualifying Vehicle Assembly & Safety Inspections					
1700-1800 Mandatory Orientation						
			1800 Team Meeting			1800-1900 Awards
	1900 Venue Closes					
						1900-2200 Pool Party
	2200-0200 Overnight Pool Testing					

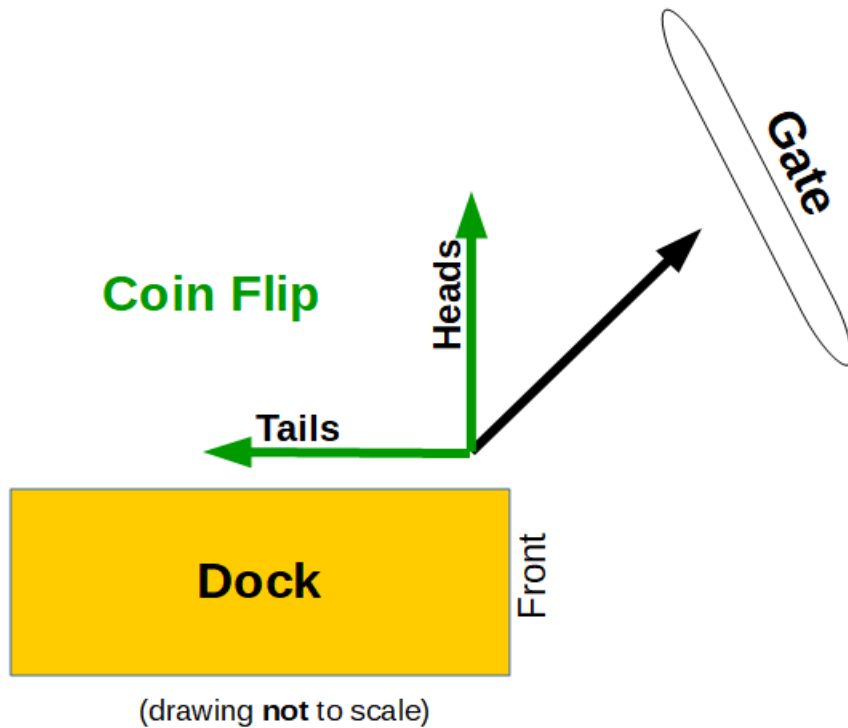
27th Annual
RoboSub 2024
Task Ideas

Logarithmic Spiral
Based on deep sea exploration expeditions



robosub.org

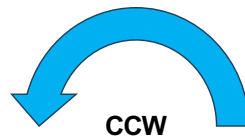
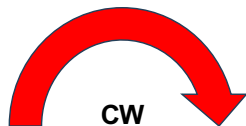
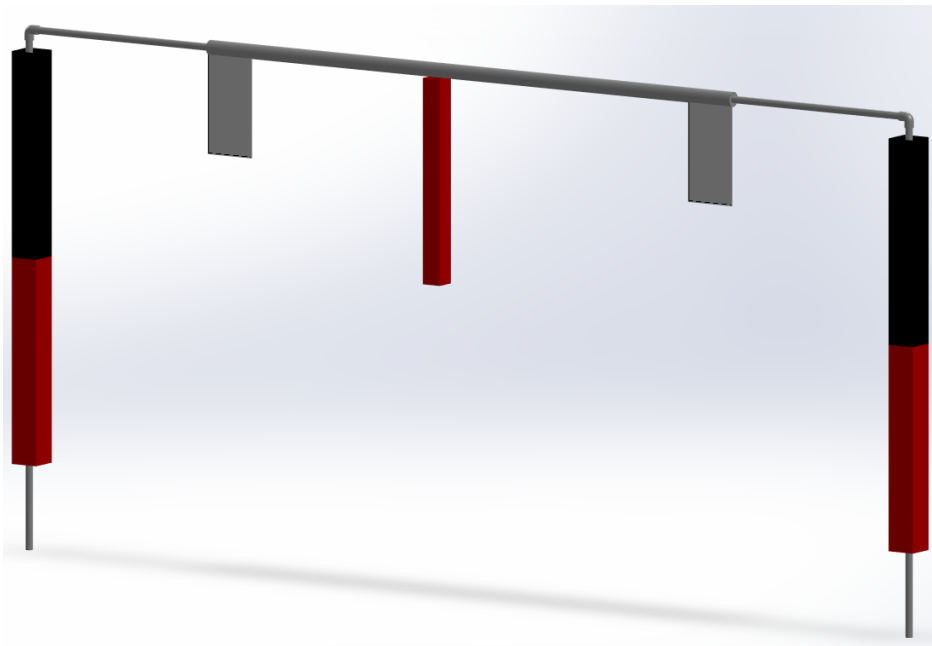
Rough Seas | Coin Flip



- Random orientation
 - 90° or 180° from dock



Enter the Pacific | Gate



🚢 Choose direction and ocean temperature

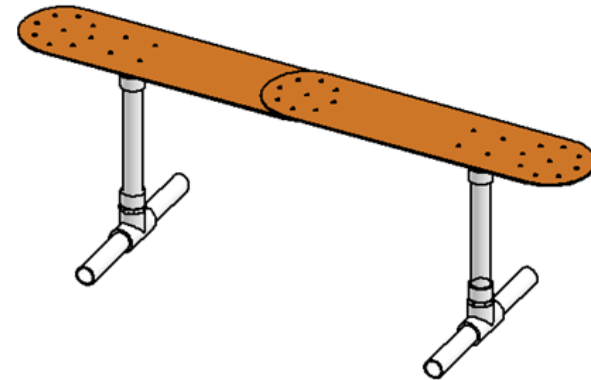
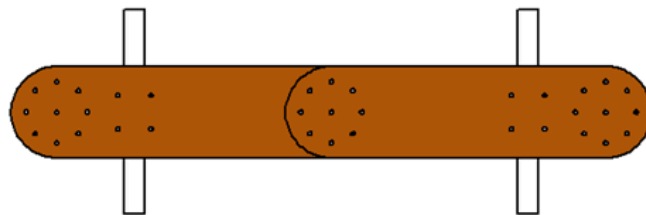
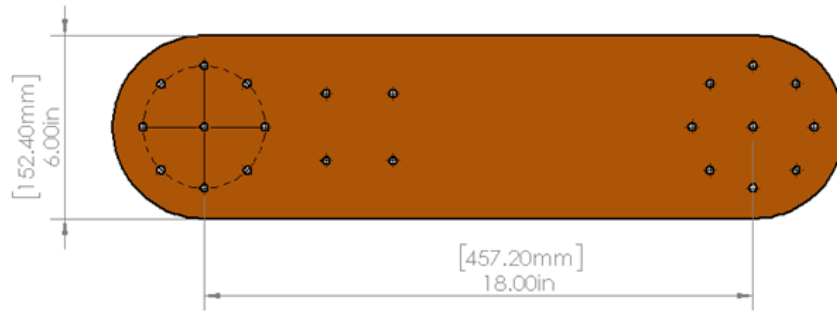
- Clockwise (CW) / Hot (**Red**)
- Counter clockwise (CCW) / Cold (**Blue**)

🚢 Extra points for staying with your choice for the remainder of the tasks

🚢 With Style

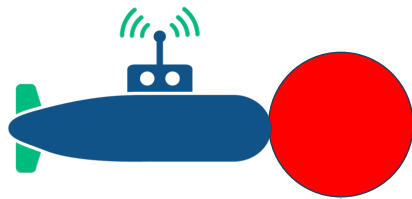
- 10 ft/3 m before/after gate
- Extra points
 - Every 90° change in orientation
 - Yaw: +100
 - Roll/Pitch: +200
 - Up to 720° rotation
 - Yaw: +800
 - Roll/Pitch: +1600

Path



Hydrothermal vent | Buoy

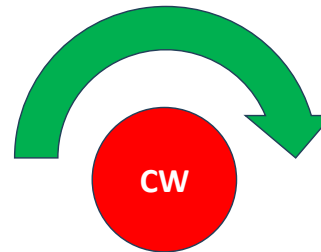
Single **RED** buoy



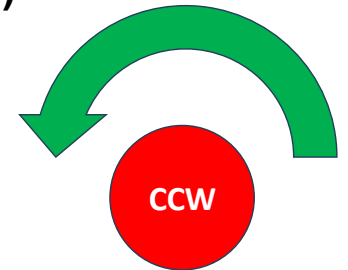
Floor

(drawing **not** to scale)

Circumnavigate
(Top View)



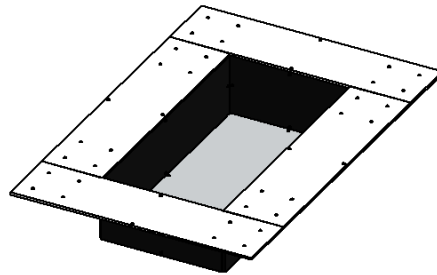
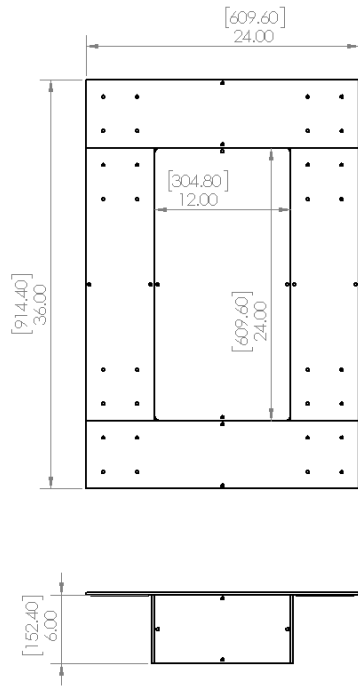
360°



360°




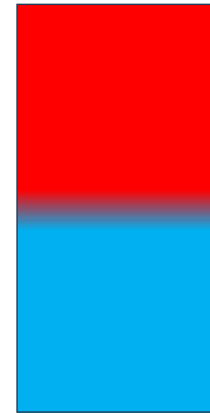
Ocean Temperatures | Bins



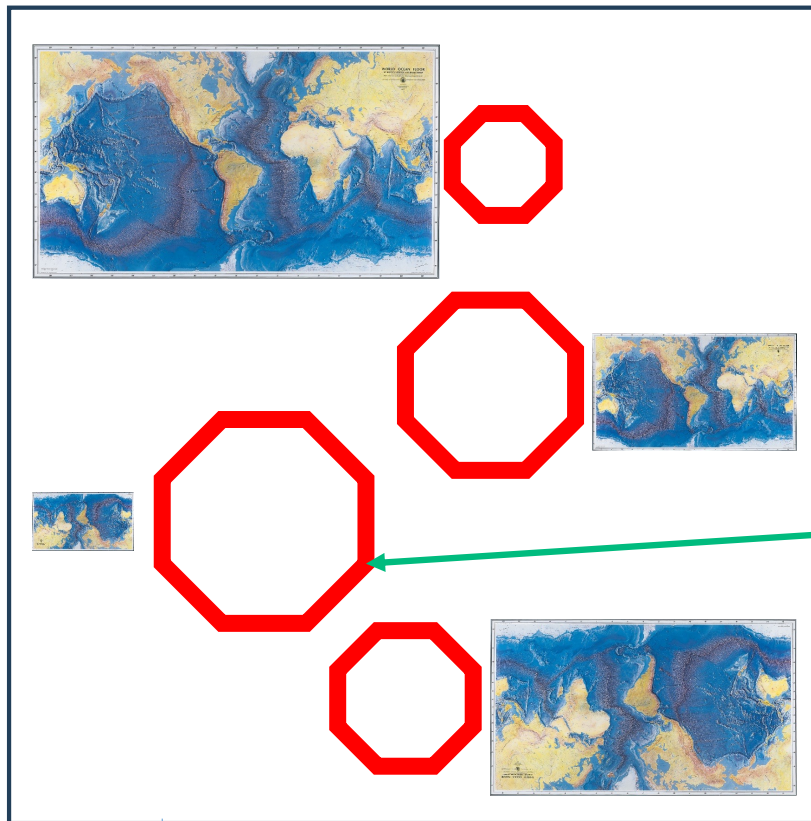
 Single bin

- ½ Red, ½ Blue

 Place marker in correct side based on your choice



Mapping | Torpedoes



🚢 The panel has four different map sizes and openings

- Larger map (smaller opening) more points
- Can not obtain points twice on the same map

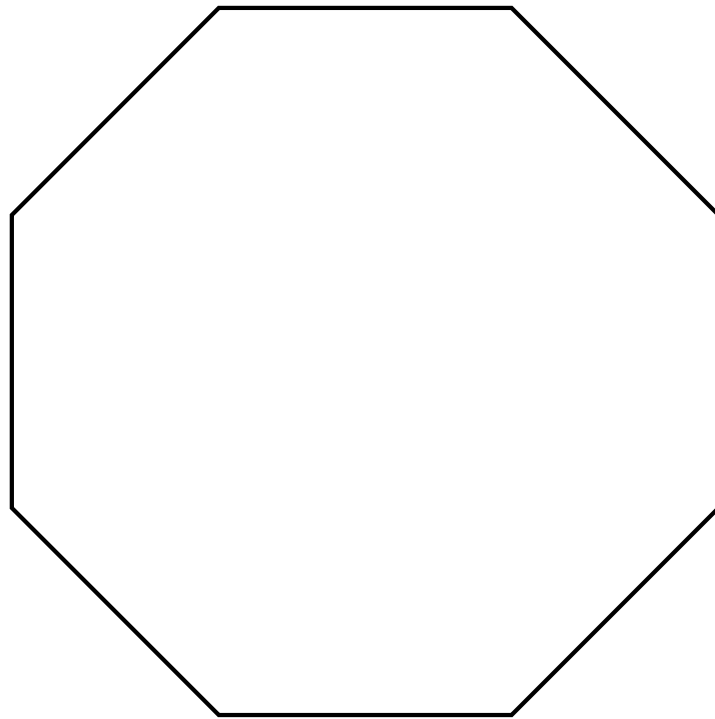
Vote on the color of octagon



Floor

(drawing **not** to scale)

Collect Samples | Octagon



- 🤖 “Ring” floating on the surface
- 🤖 One Pinger located at the center of the octagon
- 🤖 Three (3) different samples to collect
 - Tube worm
 - Sea star
 - Coral

Octagon

Location of
samples

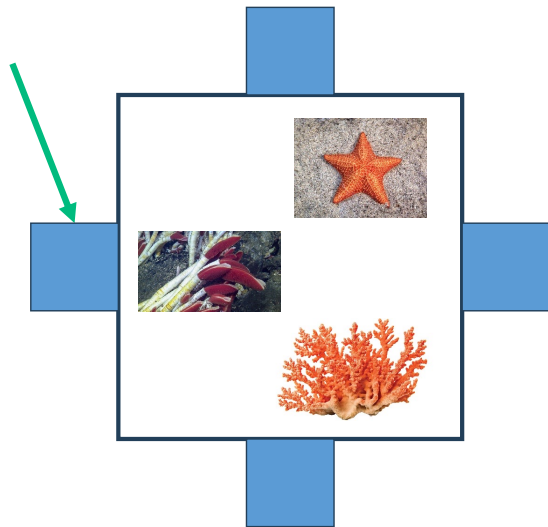
Floor

(drawing **not** to scale)



Collect Samples | Octagon

Vote on the color of the collection bins (and maybe the color of the samples)



🚢 3 samples in the center (PVC structures).

- Tube worm
- Coral
- Sea star

🚢 Place each one in a collection bin



(drawing **not** to scale)

Finding the tasks

🚢 Path

- One from Gate to Hydrothermal vent (Buoy)

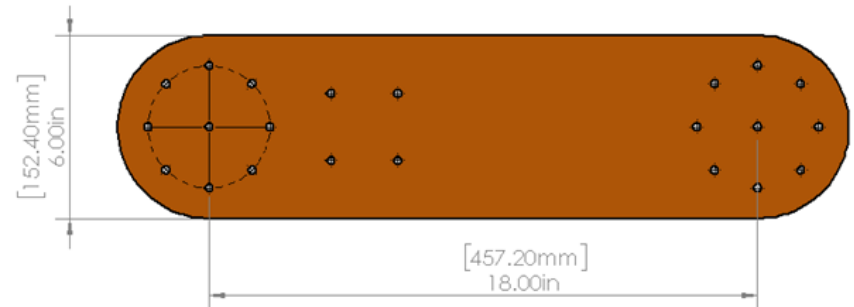
🚢 Pinger

- One located at the center of the octagon

🚢 **Vote** on the location of the second pinger

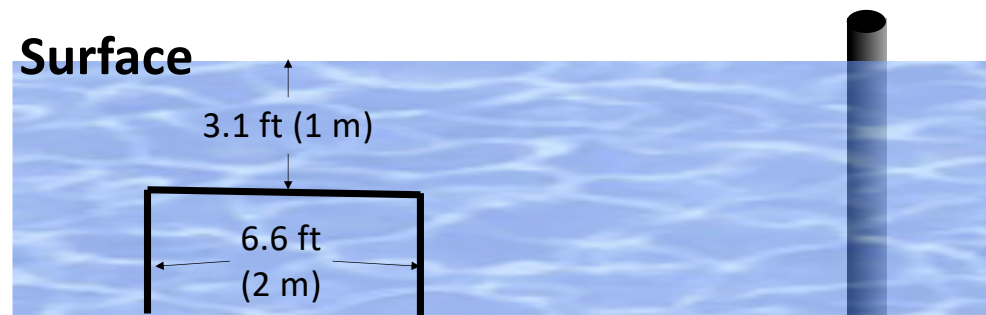
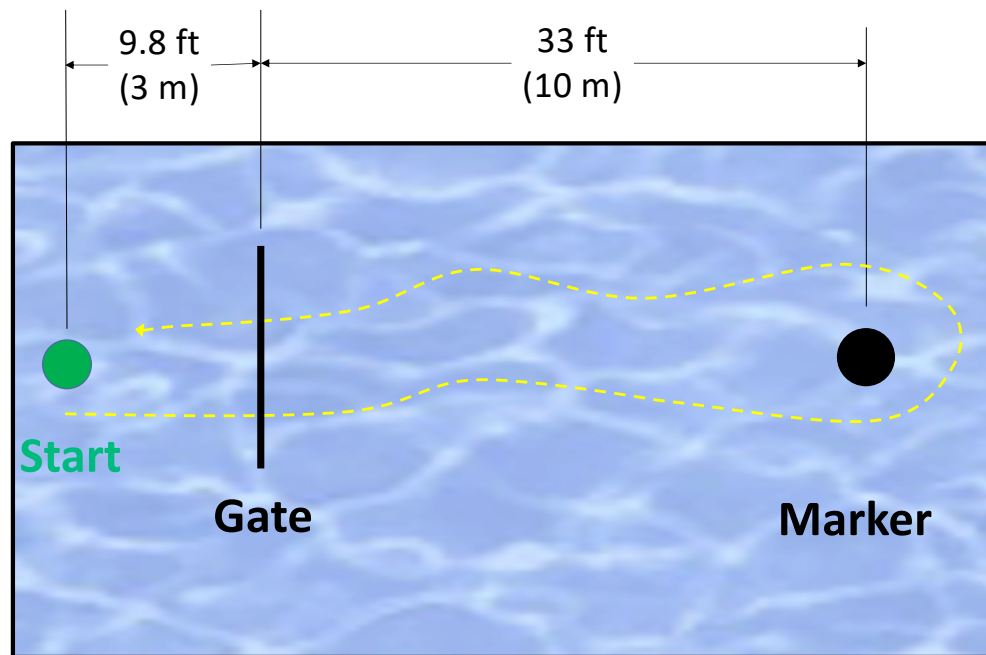
- Ocean Temperatures (Bins)
- Mapping (Torpedoes)

🚢 Second path will point toward the other task



Pre-qualification

- Optional
- Must be submitted before being on-site at competition
- Directions on how to do this will be available in the Team Handbook (or review the old handbook, since it's the same).



(drawing **not** to scale)



Data Sharing



RoboSub.org/data-sharing

What is Data Sharing?



Centralized Repository



Community Driven



Competition
focused

Vision
Acoustics
Mechanical Designs
Electrical Designs



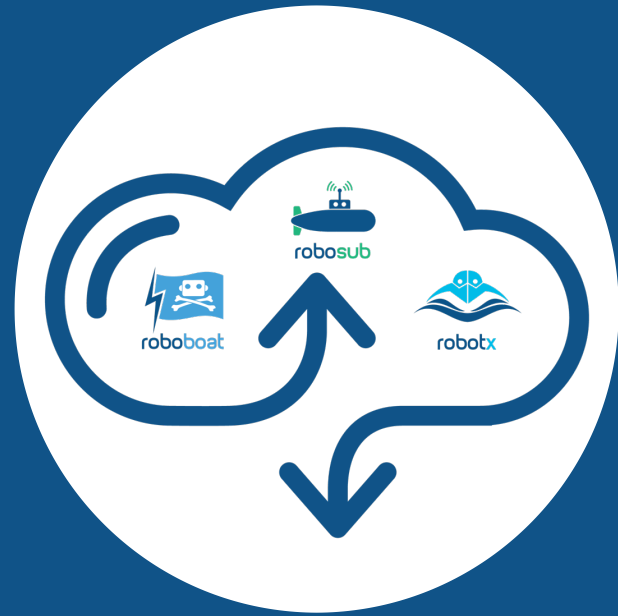
DATA FOR ALL
TEAMS



LARGE DOMAIN
OF DATASETS



BETTER PLATFORM
FOR NEW TEAMS



Data Sharing

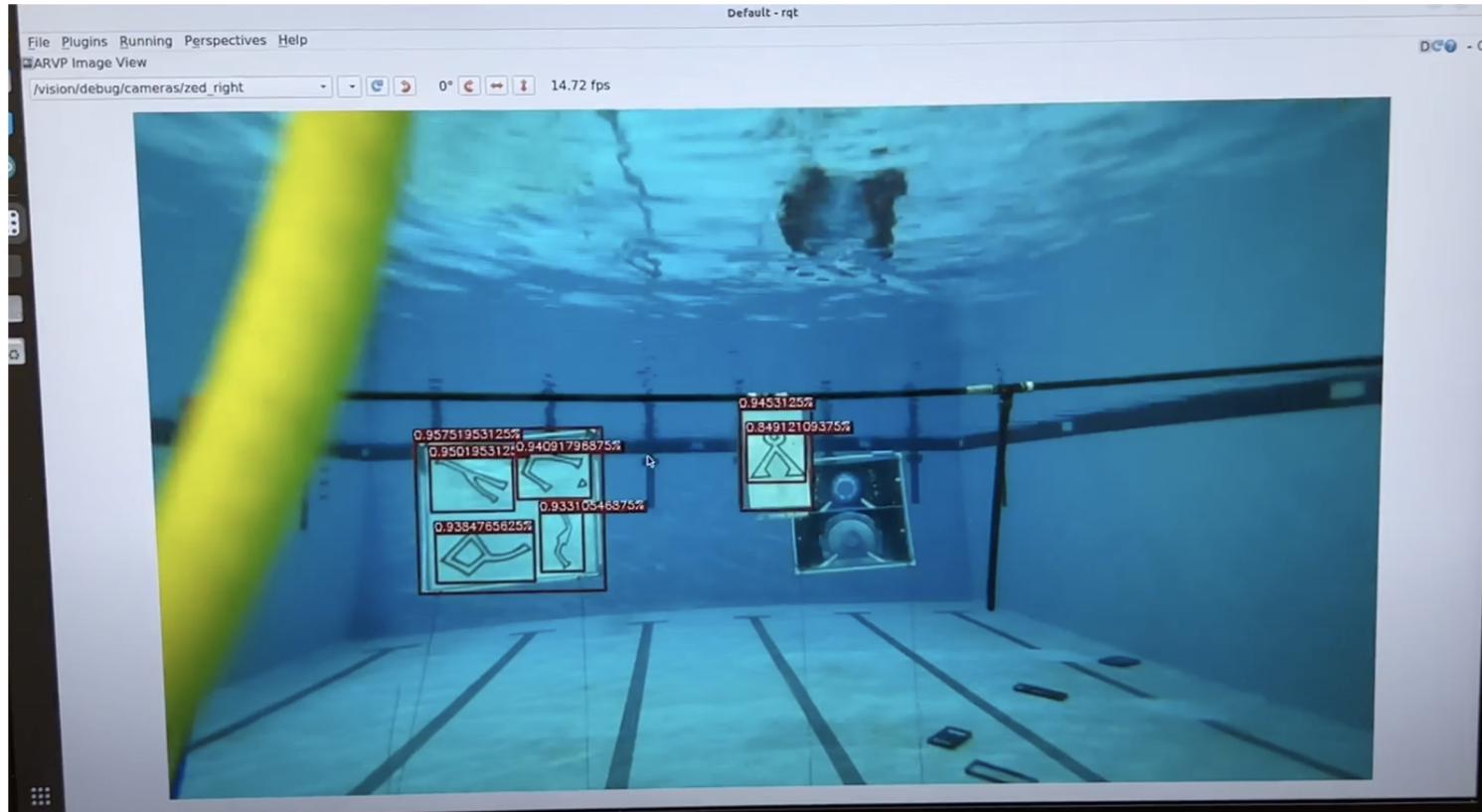
 RoboSub.org/data-sharing

Data Moderator

Sam Scholnick-Hughes

University of Alberta

Computer Vision



Benefits Of Computer Vision

Allows robots to locate objects in their surroundings

Is a more robust way of controlling robotics

Problems With Computer Vision

Requires large amounts of labeled data.

Requires pricy hardware to train models.

Solution – Data Sharing

Data Sharing is a way for RoboSub teams to work together to create Computer Vision models for all teams with the help of all teams.

Goal for Data Sharing this year

Create Computer Vision models that are available for all teams to use at competition.

Several Teams have already committed to sharing trained models before and during competition.

How to get access to these models

Any team that contributes labeled data to the data sharing program will be given access to the trained models.

Once your team is registered you will receive access to the RoboSub data sharing system and once you contribute labeled data you will get access to trained models.

Data Sharing Committee

We work with RoboNation staff to help teams get the data they need.

Any team that competed in RoboSub 2023 is eligible to join the data sharing committee.

See the link in the chat to join and message in the #rs-data-sharing in discord if you have any questions.

Sign up for the data sharing committee





Get Started

 RoboSub.org/2024

How to Get Started:

- ☐ Task Ideas
- ☐ Registration
- ☐ Competition Strategy
- ☐ AUV Design Process
- ☐ TeamTime Meetings





TeamTime

 RoboSub.org/2024

RoboSub 2024 TeamTime Meetings

- #1 22 February | Open to All
- #2 TBD Late April | Registered Teams
- #3 TBD July | Registered Teams





Stay Connected

 RoboSub.org/2024

RoboSub 2024 Discord

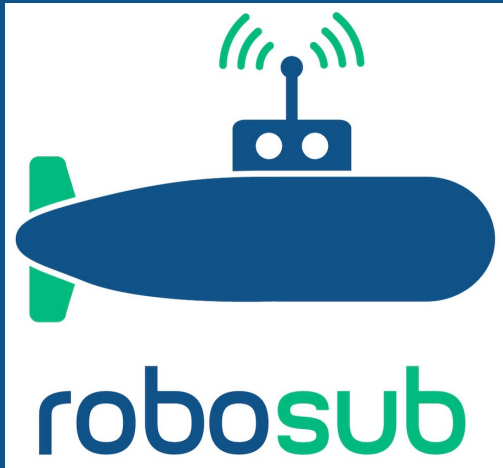


Discord

JOIN TODAY!

- Scan the QR Code
- Select the RoboSub24 role
- Turn on notifications





Get Started

 RoboSub.org/2024

GOT QUESTIONS?





robonation



seaperch



seaglide



gosense



roboboat



robosub



robotx



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 university-competitions@robonation.org