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ROBOSUB

RoboSub 2026 | TeamTime #1

Date

12 March 2026

Website

robosub.org/2026


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Welcome to
RoboSub 2026!
July 11-16, 2026
Woollett Aquatics Center | Irvine, California, USA

AGENDA

Edit your name to “Name | Team Name“
For example: Jane | University of RoboNation

COMPETITION OVERVIEW
(Timeline, Deliverables)

EVENT DETAILS
(Schedule, Hotel, Shipping)

TASKS OVERVIEW

RESOURCES & QUESTIONS

MEET THE STAFF

DAVEMAN
Technical Director

JULIANNA
Director of Program Operations

CHERI
Senior Events Manager

ALICIA
Director of Communications & Marketing

LAVERNE
Program Operations Coordinator

YADIRA
Events Assistant

DAVID
Product Manager

JAMIE
Product Design Engineer

MATT
Technical & Product Advisor

ALISON
Support Coordinator

SARAH
Media & Brand Manager

EBBIE
President of Pats

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MEET THE TEAMS

as of today

- BANGLADESH ROBOSPACE CONSORTIUM
- CARNEGIE MELLON UNIVERSITY
- CORNELL UNIVERSITY
- DUKE UNIVERSITY
- ÉCOLE DE TECHNOLOGIE SUPÉRIEURE
- AMRA AT EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
- INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
- ISTANBUL TECHNICAL U NIVERSITY
- KONYA TECHNICAL U NIVERSITY
- MCGILL UNIVERSITY
- MIDDLE EAST TECHNICAL UNIVERSITY
- NATIONAL UNIVERSITY OF SINGAPORE
- OLYMPIC COLLEGE
- SAN DIEGO STATE UNIVERSITY
- SOUTH DAKOTA SCHOOL OF MINES AND TECHNOLOGY
- STANFORD UNIVERSITY
- TEXAS A&M UNIVERSITY
- THE OHIO STATE UNIVERSITY
- TROY HIGH SCHOOL NJROTC
- UNIVERSITÉ DE SHERBROOKE
- UNIVERSITY OF ALBERTA
- UNIVERSITY OF BRITISH COLUMBIA
- UNIVERSITY OF CALIFORNIA, BERKELEY
- UNIVERSITY OF HAIFA
- UNIVERSITY OF ILLINOIS URBANA CHAMPAIGN
- UNIVERSITY OF MICHIGAN
- UNIVERSITY OF SOUTHERN CALIFORNIA
- UNIVERSITY OF VICTORIA
- YOUR TEAM

REGISTER TODAY!

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MathWorks

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MATHWORKS SIMULATION AWARD

Introduction

The MathWorks Simulation Award recognizes teams that score high in an Autonomous Underwater Vehicle virtual environment made especially for the RoboSub competition. The current environment will be updated to reflect the tasks in the team handbook. Open to all teams registered for RoboSub.

Award Prize and Recognition

- 1st Place - $1000
- 2nd Place - $750
- 3rd Place - $250

Deliverable Requirements

- 3-5 minute video (screen recording) of the AUV doing the tasks in simulation
- All the necessary code/files to run the model

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

AUV Simulation Webinar with MathWorks

COMPETITION OVERVIEW

JULIANNA

Director of Program Operations

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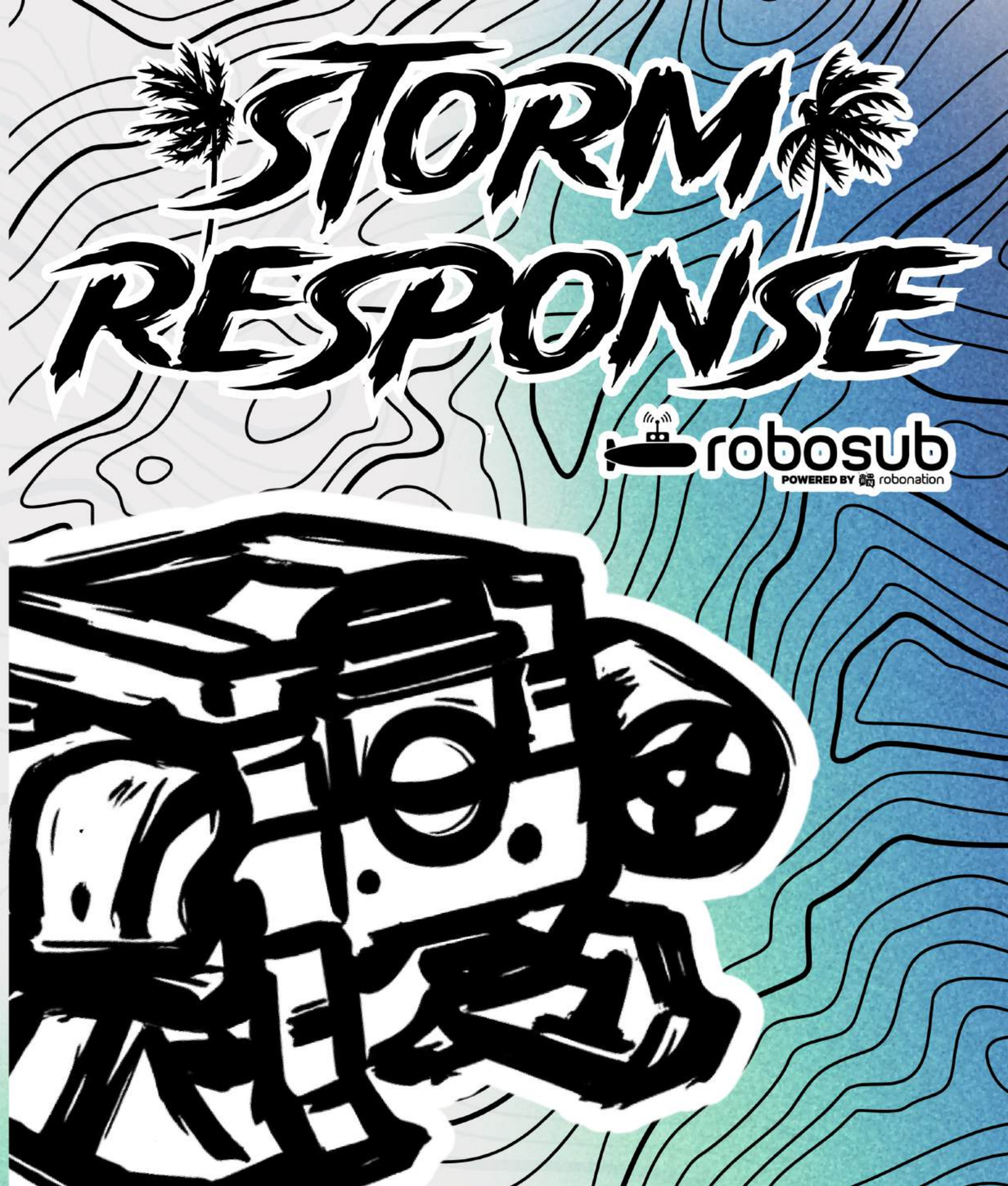
2026 Theme

Technology in Action for Recovery and Relief.

Storm Response explores the power uncrewed systems play in recovery, resilience, and discovery in disaster relief efforts. Framed as an opportunity, not just to restore what was lost, but to rebuild smarter and reimagine the future; this season's challenges reflect the real-world role of robotics in helping communities respond to and recover from storms and other natural events. Through hands-on missions grounded in post-disaster scenarios, teams will apply technology with purpose – restoring harbor operations, assessing underwater infrastructure, supporting exploration, and unlocking new possibilities.



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Eligibility

Autonomous System

Teams must build an Autonomous Underwater Vehicle (AUV) to compete and may enter up to two vehicles in the competition.

**First-year teams are permitted to enter competition without a fully built AUV.*

Team Composition

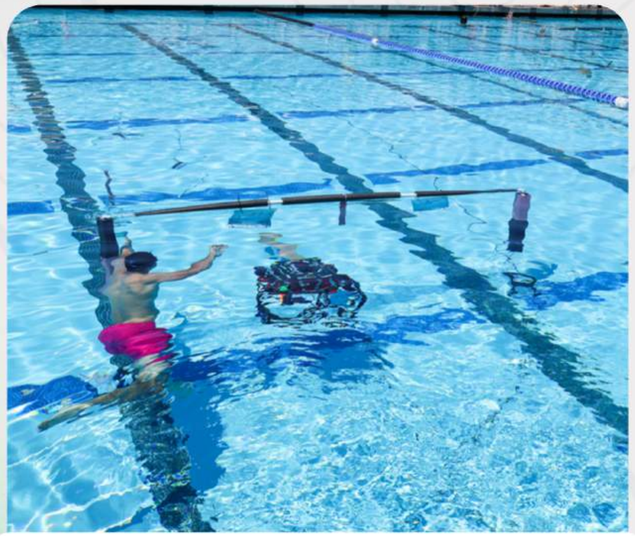
Teams must be comprised of:

- 75% or more of full-time students, the majority of which are college or high school.
- 25% or less of alumni, industry, academic or government partners.

Student Team Members

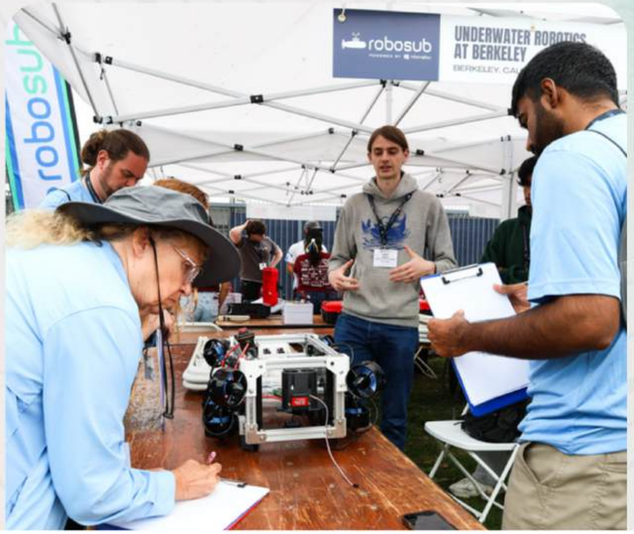
The majority of full-time student team members must be college or high school students. Team may also include middle school students. Interdisciplinary teams are encouraged.

Overview



AUTONOMY CHALLENGE

Teams build an Autonomous Underwater Vehicle (AUV) to showcase autonomous performance.



DESIGN DOCUMENTATION

Team prepare documentation showcasing AUV design and competition strategy:

- Team Website
- Technical Design Report
- Team Introduction Video
- Design Presentation (in-person)
- System Assessment (In-person)

What's New in 2026

Capability Levels

- **Core:** Fundamental competencies for safe & effective baseline autonomous operation
- **Advanced:** Reflects growth in autonomy sophistication & real-world relevance
- **Disruptive:** Transformative & pushing boundary of autonomous systems.

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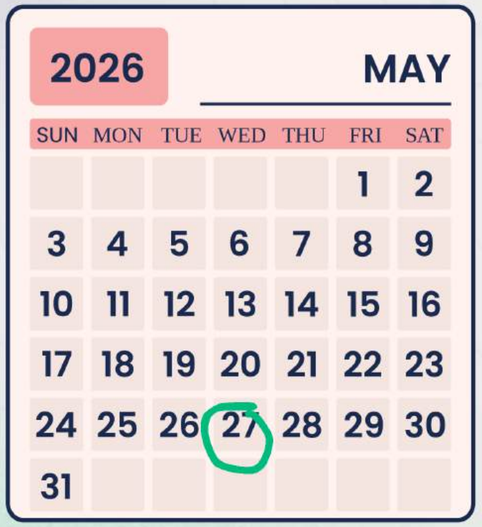
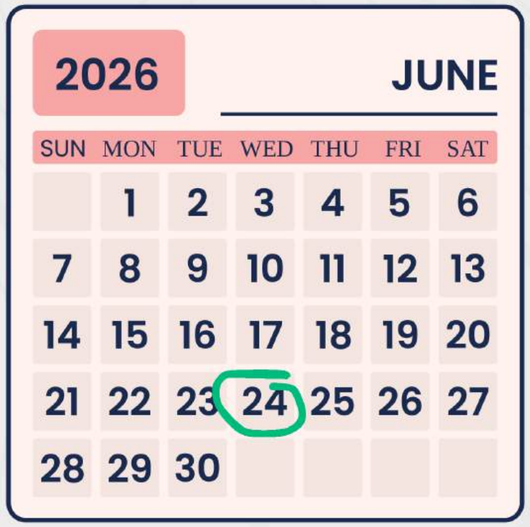
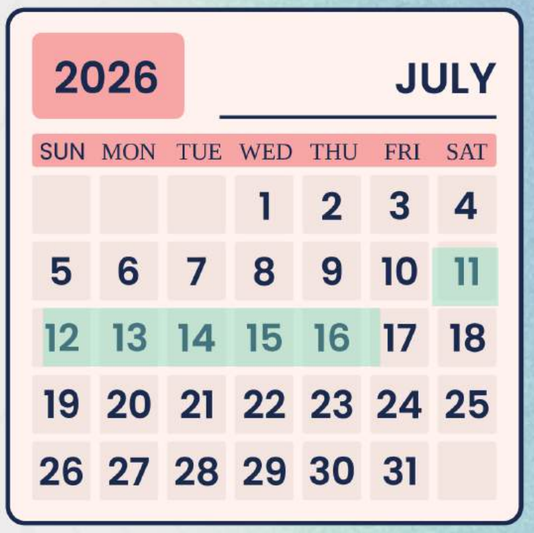
Important Dates







May 27 - Event & Design Documentation Submission Deadline

June 24 - Pre-Qualification Deadline

July 11-16 - RoboSub 2026

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EVENT DETAILS

YADIRA

Events

Coordinator

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Preliminary Schedule

MAY 2026	JUL 11 SAT	JUL 12 SUN	JUL 13 MON	JUL 14 TUE	JUL 15 WED	JUL 16 THU
Pre-Competition Submission Deadline	Team Orientation *(mandatory)*	Practice & Qualifications		Semi-Finals		Third-Chance & Finals
	Design Presentations / System Assessments					
	Overnight Pool Testing (@ Event Hotel)					Awards

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Lodging

Event Hotel: Hilton Irvine/Orange County Airport

- Rate: $190 + tax / night
- Available Dates: July 9 - 17
- Booking Deadline: June 19, 2026
- Booking Link: www.hilton.com/en/attend-my-event/student-robosub-2026/
- Parking Fee: $22.00+ 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 Airbnb and other short-term rentals. RoboNation recommends that staying in a hotel is going to be a more reliable and secure option.
- Recommended areas for your stay can be found on Discord.

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Shipping

Guidelines in the Team Handbook

START PLANNING NOW!

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:

Example Inbound Shipping Label
(to the hotel)

- Packing List
- Crate Size/Composition
- Battery Shipping
- International Shipping
  - Carnet / Import Bond

Questions? Submit on Discord.

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 Outbound Shipping Label
(back to school)

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Travel Considerations

VISA Process

- Finalize now!
- Familiarize yourself with all travel requirements: travel.state.gov.

Invitation Letter

- Teams may request invitations letters when officially registered and registration fee is paid.
- During Team Member Registration, each team member may request an invitation.

Travel Documentation

- Keep your travel documentation, identification, and invitation letter on your person at all times.

Questions? Submit on Discord.

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TASK OVERVIEW

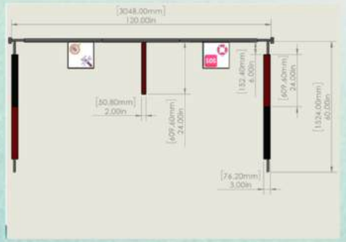
DAVEMAN

Dr. Dave Novick

Technical Director

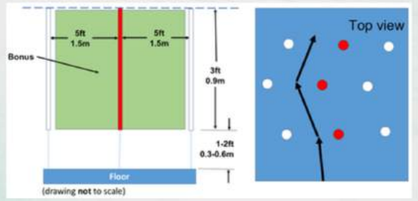
Task Overview

Task 1: Begin Assessment



Head out to assess the environment.

Task 2: Avoid Debris

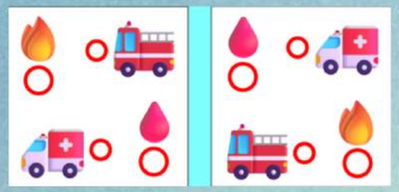


Navigate a channel that is blocked with debris.

Task 3: Recon

Recon the area to determine what assistance to provide.

Task 4: Deploy

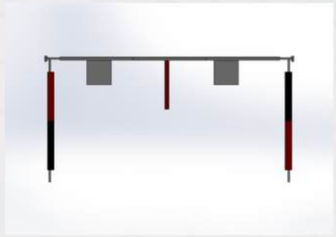


Provide necessary assistance

Task 5: Restore

Restore vital infrastructure and health.

Task 6: Return Home



Safely return home after the assessment.

Task Images

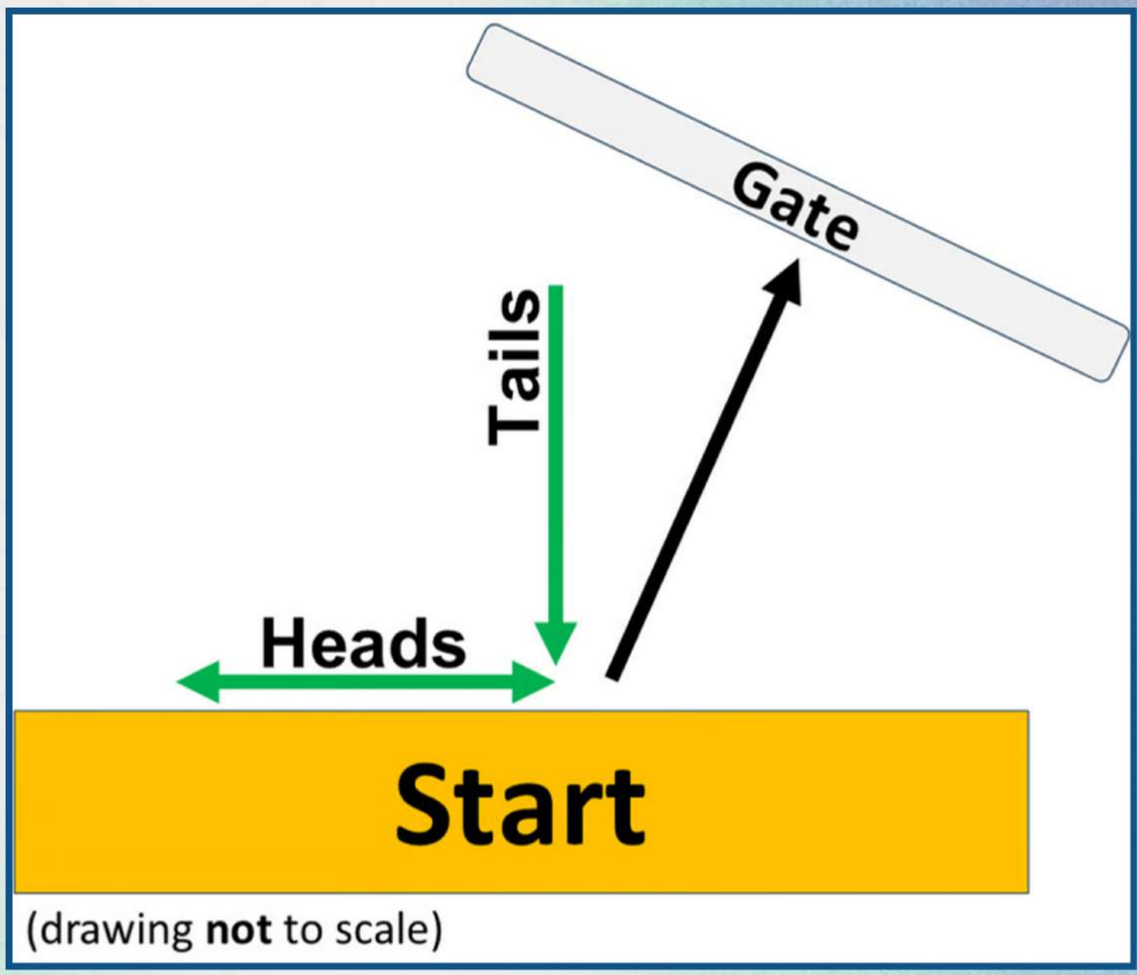

Task 1
Start Assessment
SOS
Task 2
Avoid Debris
Task 3
Recon
Task 4
Deploy
Task 5
Restore
SOS

Heading Out (Coin Flip)

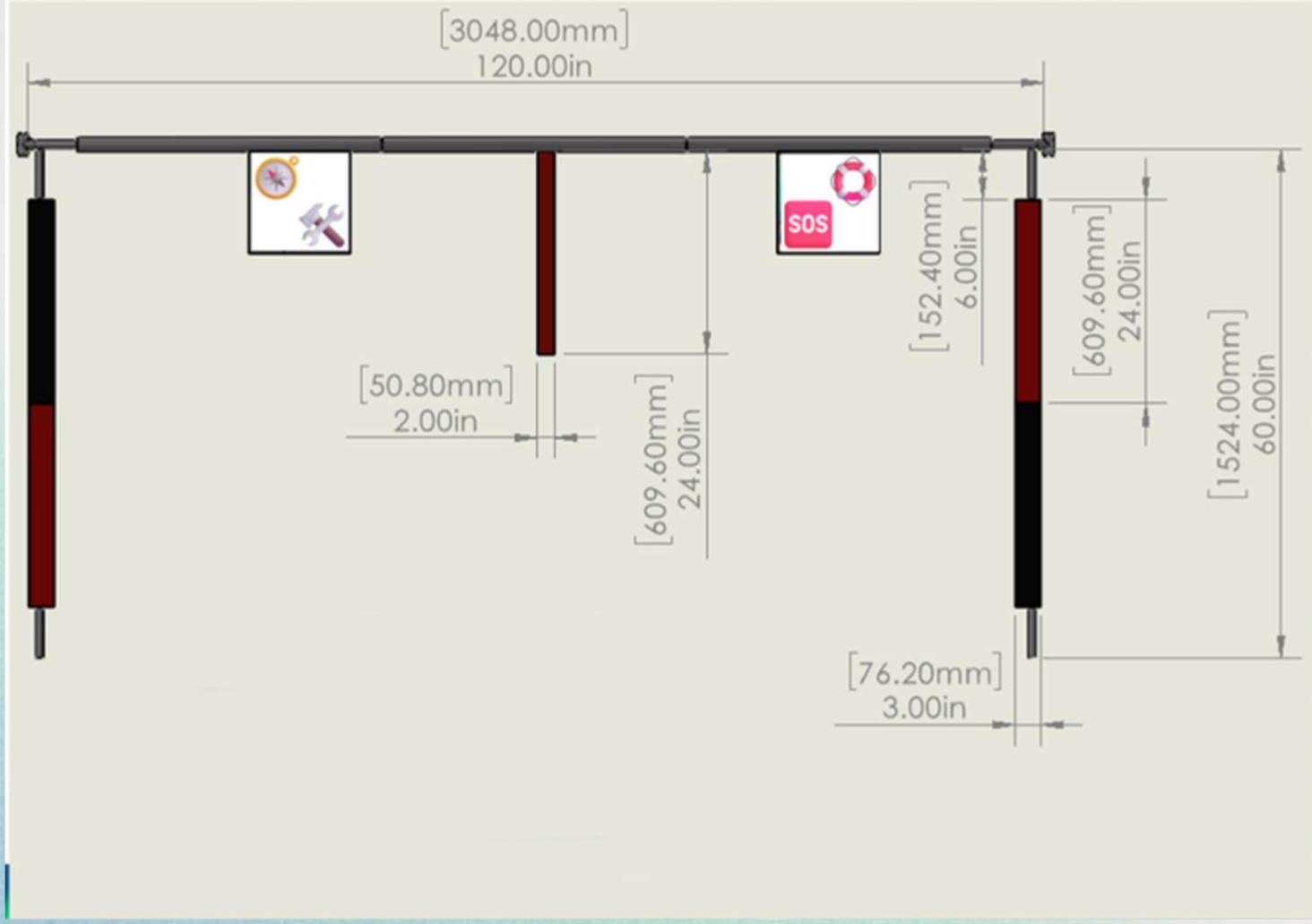
At the start of a run, teams may orient their AUV in any orientation from the designated starting location. All vehicles must begin the run on the surface, and submerge before leaving the start zone.

Before the start of a run, and for additional points, teams may request a coin flip which determines the AUV's starting orientation:

- If the coin lands on HEADS, the AUV is positioned approximately parallel to the gate.
- If the coin lands on TAILS, the AUV is positioned with its tail approximately facing the gate (the AUV is backward).



Task 1 - Begin Assessment (Gate)



- The AUV navigates through the gate, and chooses a role:
  - **Survey & Repair**
  - **Search & Rescue**
- Extra points awarded for AUV staying with the choice for the remainder of the tasks
- **New**: randomly assigned a role

- 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 1 - Begin Assessment (Gate)

CAPABILITY MATRIX

Maintain depth and heading, visual identification

- **Core**: Pass through the gate.
- **Advanced**: Coin flip determines orientation of the vehicle at the start.
- **Disruptive**: Random role assignment, either by a coin flip or visual indicator.

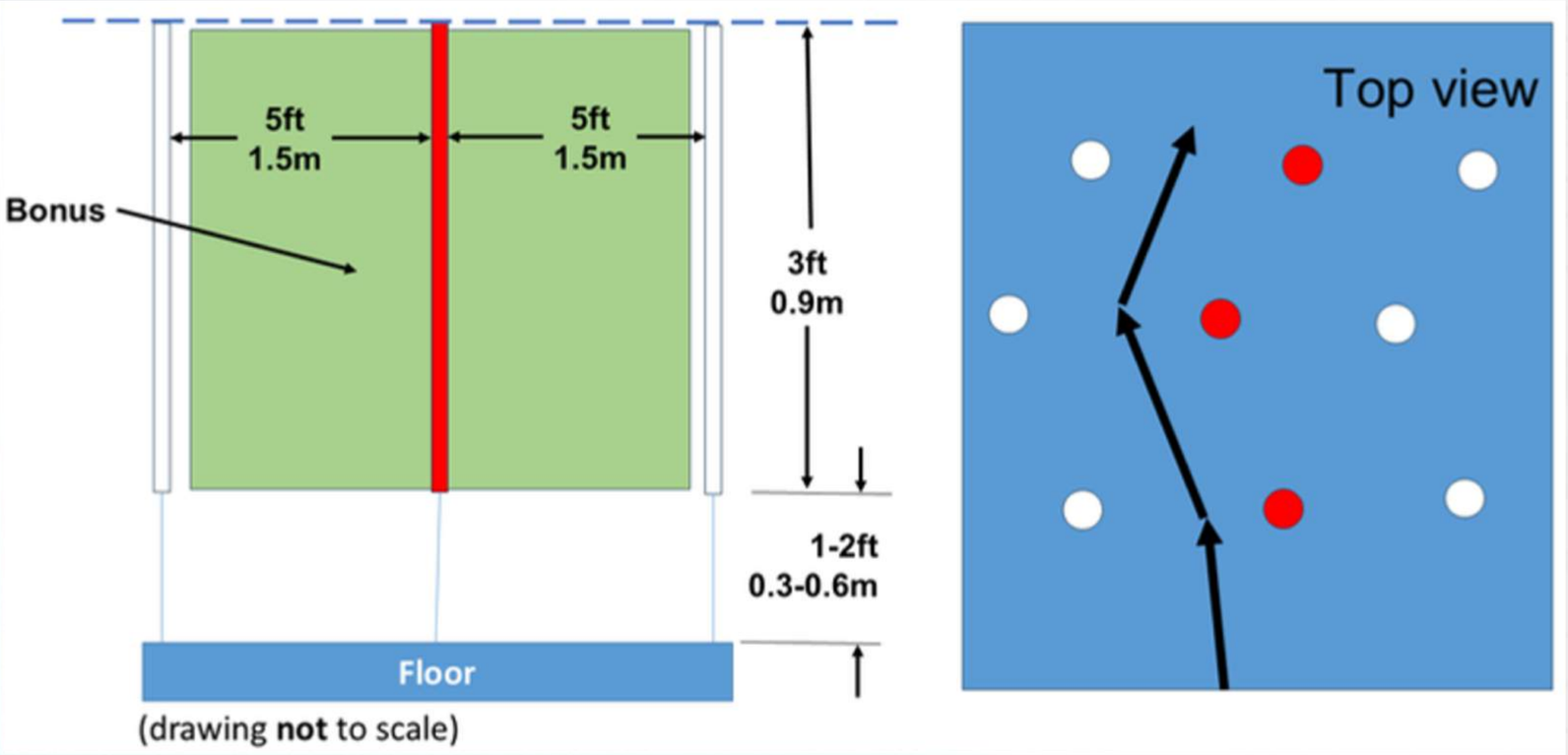
SCORING QUEST

- Pass through the gate
- Maintain control
- Coin flip (heading)
- Coin flip (role)
- Style: Yaw, Roll/Pitch

QUESTIONS

- *If my team has 2 robots, will both robots need to follow the same coin flip or can we coin flip for the roles for each robot individually?*

Task 2 - Avoid Debris (Slalom)



- Vertical RED and WHITE PVC pipes moored at different heights to the floor, floating vertically
- Keep the red center PVC on the same size as when you passed through the gate.
- Stay within the area of the pipes (green)

Task 2 - Avoid Debris (Slalom)

CAPABILITY MATRIX

Adjust depth, course correction, visual perception

- **Core**: Identify and stay within the slalom
- **Advanced**: Navigate the correct side
- **Disruptive**: None.

SCORING QUEST

- Navigate the debris: any, correct side
- Correct depth

Task 3 - Recon (Bins)

- 3D pipeline made from PVC supported off the bottom of the pool
- Four bins hang off the sides of the pipeline
  - Two for **Survey & Repair**
  - Two for **Search & Rescue**

Survey & Repair

Search & Rescue

Task 3 - Recon (Bins)

Survey & Repair

Search & Rescue

QUESTIONS

- *What is the specific layout or geometry of the PVC pipeline? Is it a single linear track with bins on either side, or does it follow a more complex path (e.g., U-shaped or L-shaped) that the AUV must navigate?*
- *Could you clarify the arrangement of the four bins? Are there four individual physical containers in total (two for each role), or does this refer to four separate compartments within a larger structure?*
- *Are the bins identical in design and dimensions to the ones used in last year's competition, and are there now four of these units distributed along the pipeline? And also are there 4 of these identical bins?*

Task 3 - Recon (Bins)

CAPABILITY MATRIX

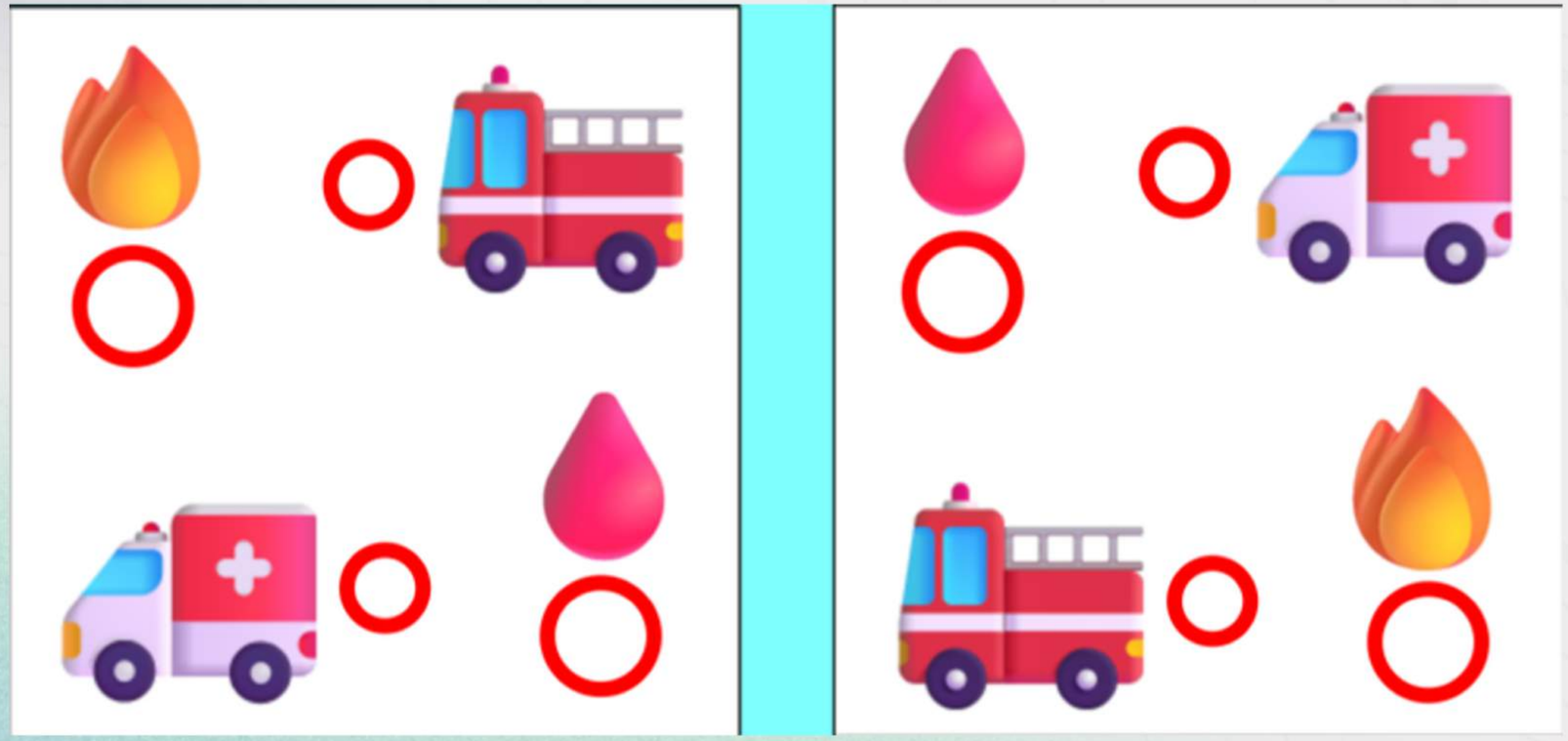
Station keep (horizontal), Visual identification, (maybe) Interaction

- **Core**: Drop markers in the bin
- **Advanced**: Drop markers in the correct bin
- **Disruptive**: (maybe) Interact with the light

SCORING QUEST

- Drop marker(s) in: any, correct bin
- (maybe) Interact with the light

Task 4 - Deploy (Torpedoes)



- Fire torpedoes through opening
- Maximum points for firing through larger opening and then smaller open for your role.
- Additional points awarded for firing far (1.0m) and farther (1.5m)

Vote: The shape/size/color of the opening

Task 4 - Deploy (Torpedoes)

CAPABILITY MATRIX

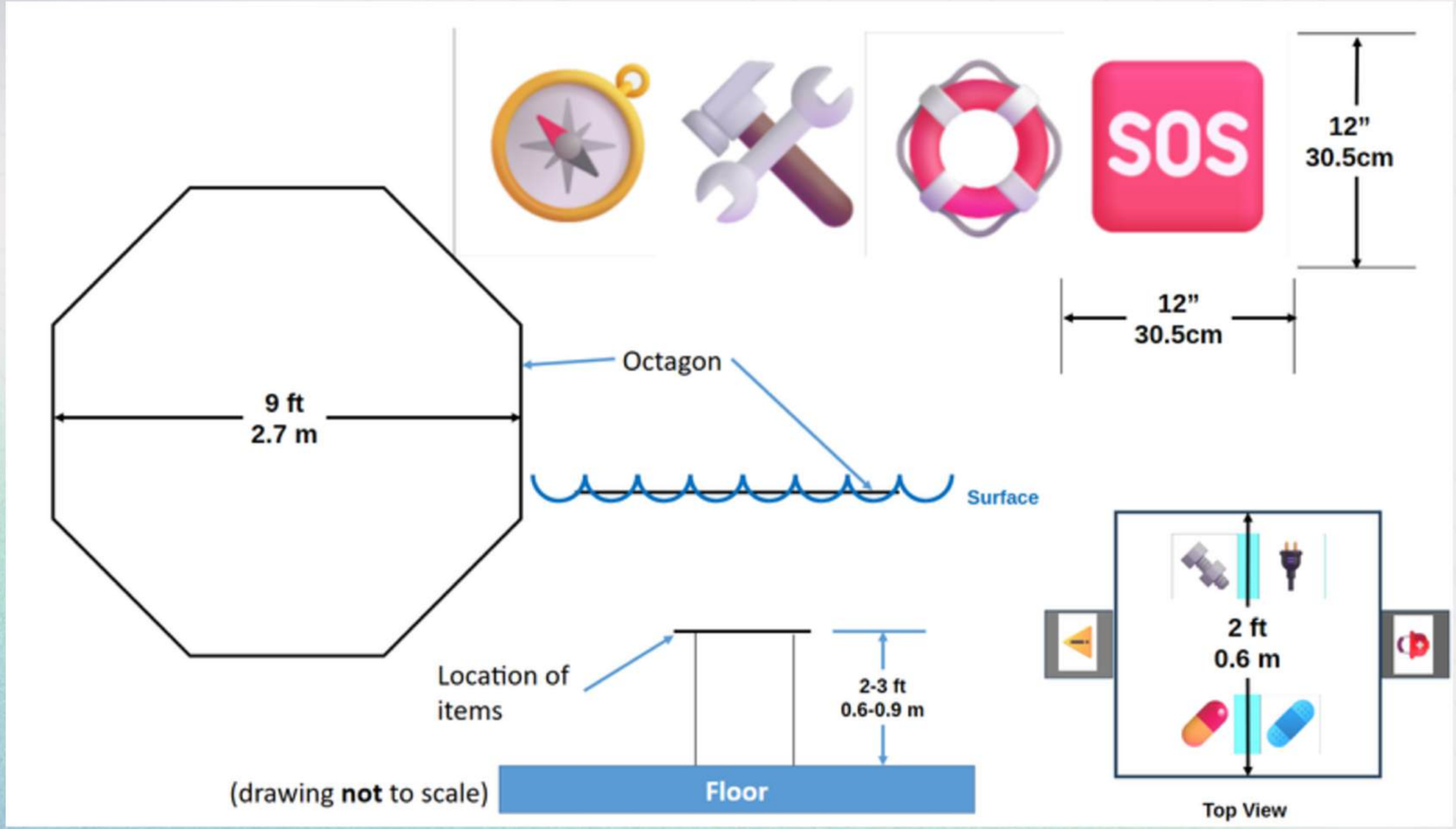
Acoustic localization, station keep (horizontal/vertical), visual identification

- **Core**: Fire torpedo through any opening
- **Advanced**: Fire torpedoes through opening in the correct sequence (large, small)
- **Disruptive**: None.

SCORING QUEST

- Fire torpedo through any opening
- Fire torpedo through correct sequence
- Fire from far, farther

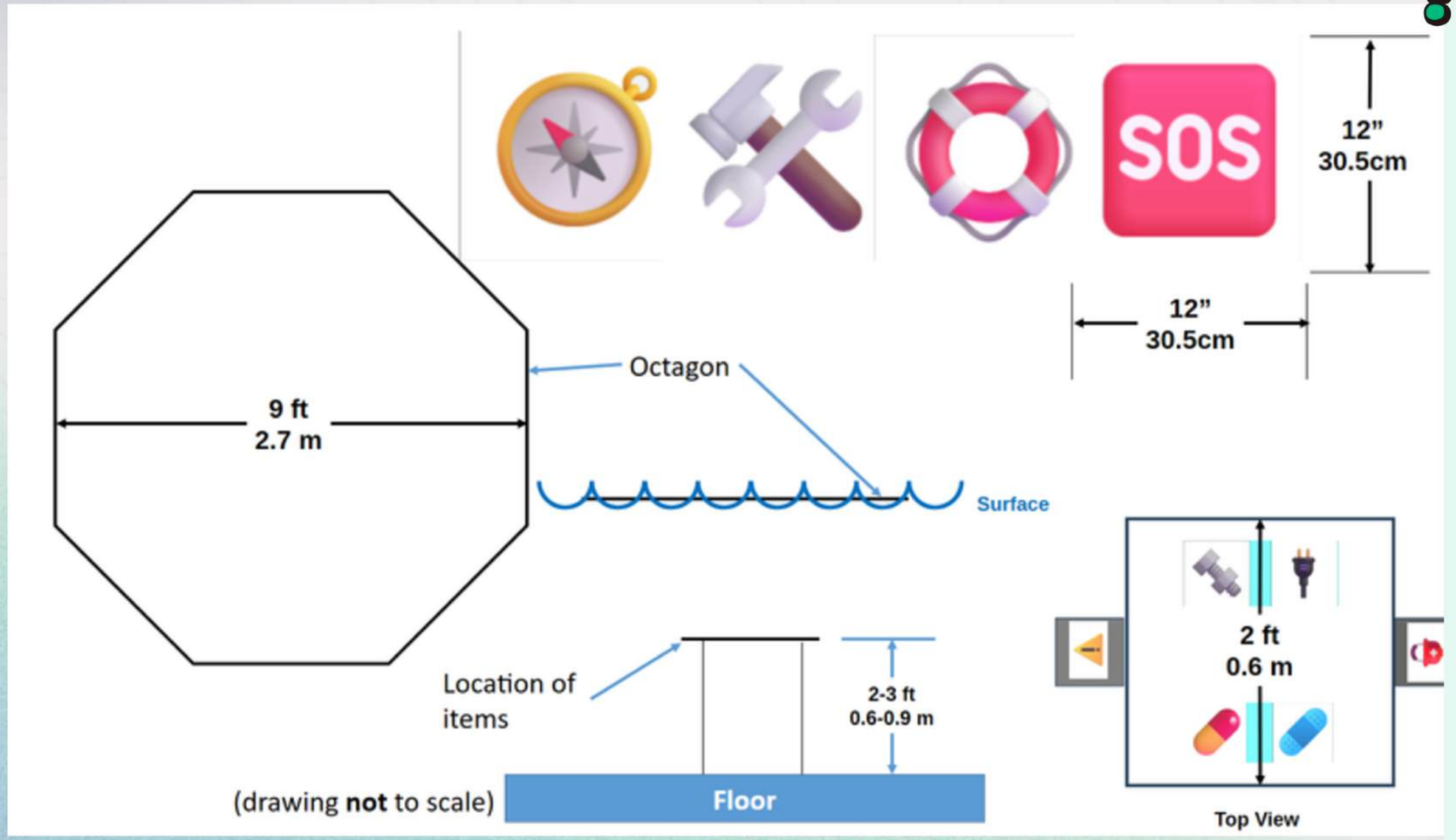
Task 5 - Restore (Octagon)



- Octagon floats on the surface.
- Hanging off octagon, four images face inward
  - Table below holds four items
  - Basket on opposite side
    - Survey & Repair
    - Search & Rescue

Vote: Orientation of images in baskets

Task 5 - Restore (Octagon)



QUESTIONS

- *Regarding the rotation sequence: At what exact point in the task workflow should the AUV perform the rotations? Should the vehicle rotate immediately after placing each object in the basket, or should it perform all the required rotations consecutively at the very end of the task based on the total number of collected items?*
- *Regarding surfacing and facing images: Does the AUV need to face the correct image while it is surfacing with an object, or is facing the image a separate action performed only after the items have been placed in the basket?*

Task 5 - Resupply (Octagon)

CAPABILITY MATRIX

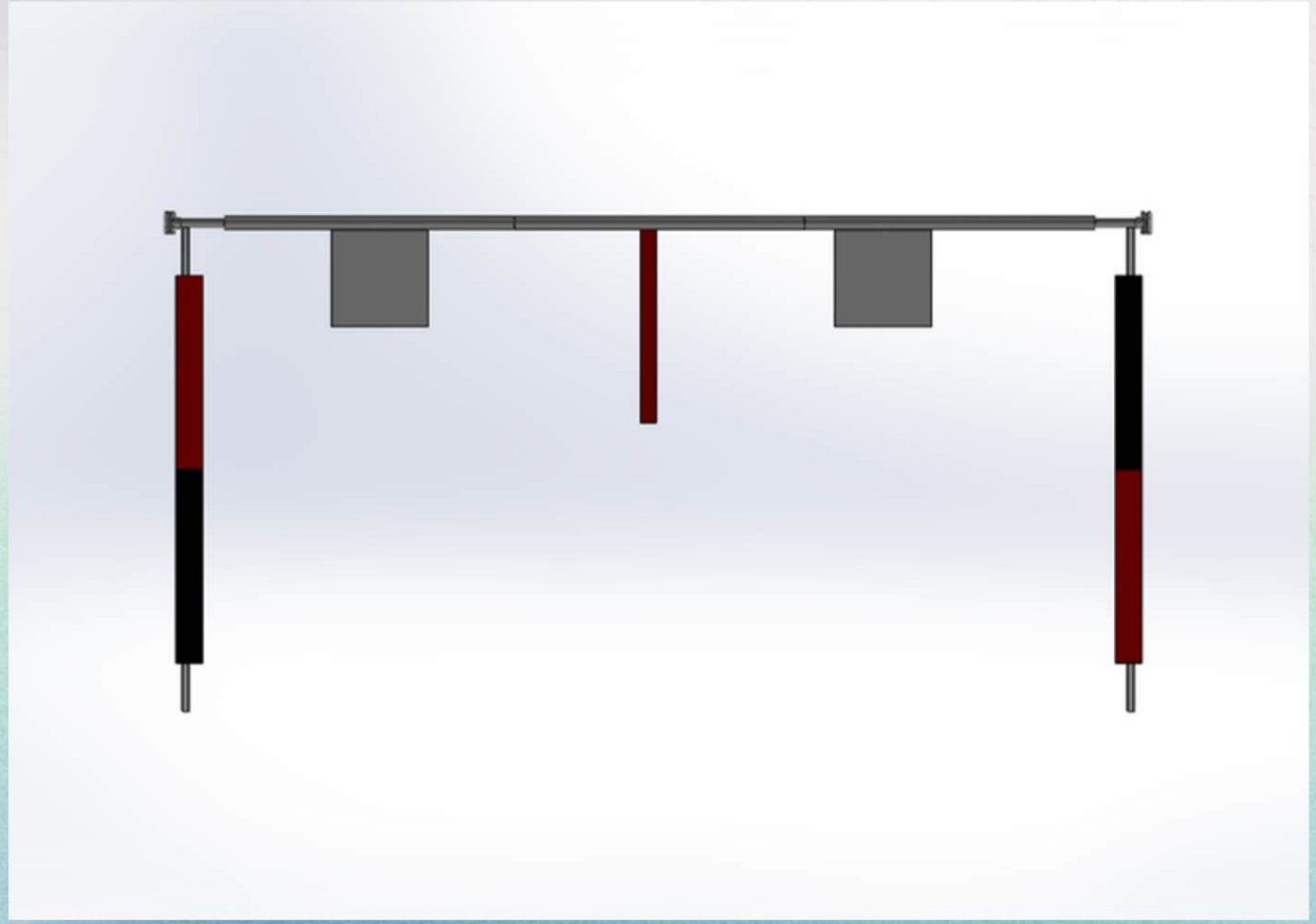
Acoustic localization, station keep (horizontal/vertical), visual identification, manipulation

- **Core**: Surface in octagon
- **Advanced**: Pick up and deliver at least one object to any basket
- **Disruptive**: Face correct image

SCORING QUEST

- Surface in area
- Surface with object
- Drop object
- Place object in any / correct basket
- Yaw correct number of times for object in basket
- Face any image / correct image
    - Correct image is dependent on number of objects in basket

Task 6 - Return Home

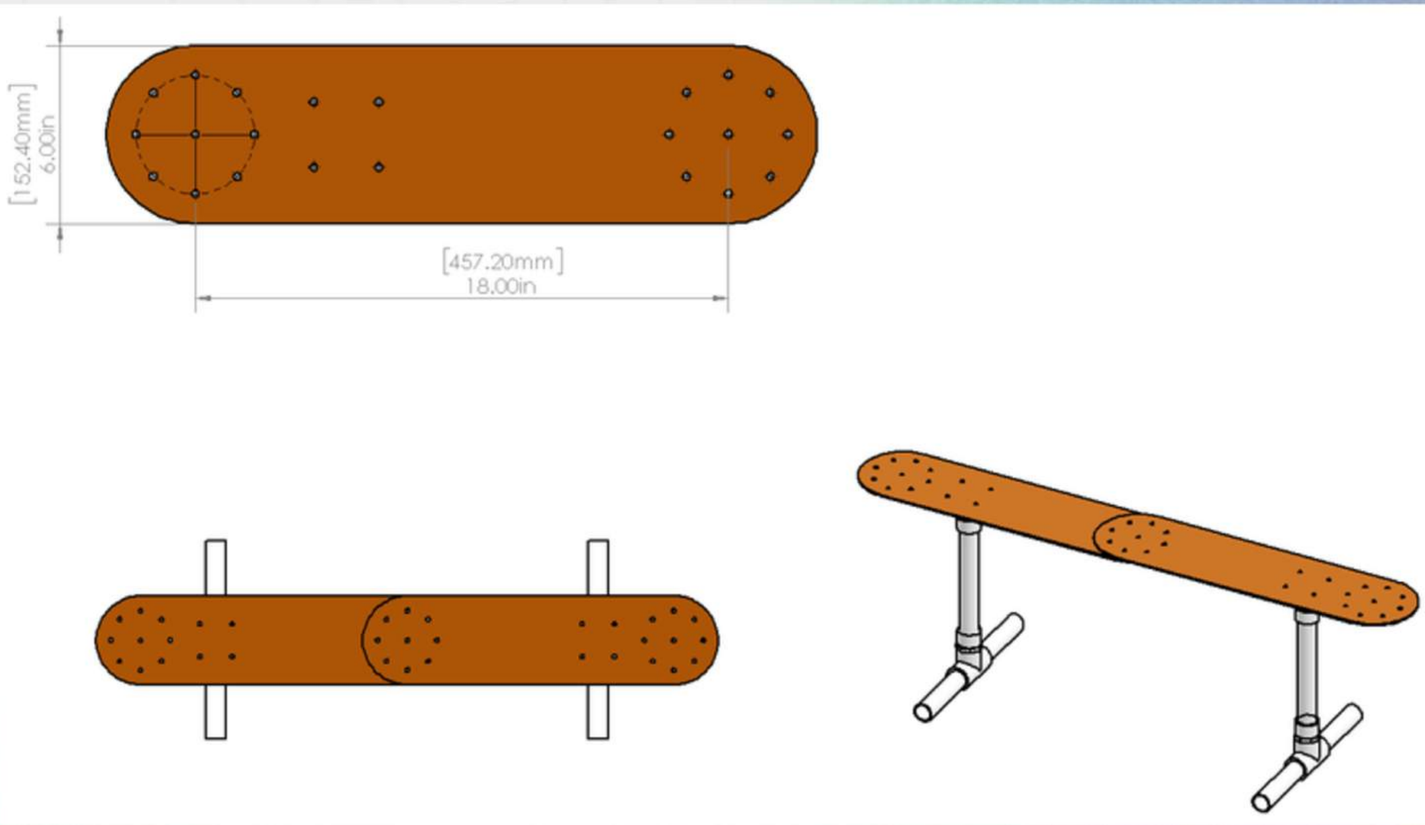


- At the end of the run, while underwater, pass back through the start gate.

Path

The Path is colored ORANGE. Each path markers is placed directly after the current task and points to the next task. The path is a straight segment. No points are awarded for following the path, the path is intended to help guide the AUV to the next task.

There are two path markers to aid in navigation. One path marker is positioned at the gate that points to the Avoid Debris (Slalom) task. From the Avoid Debris, the second path points to Recon (Bins). Those are the only path segments which can be used to visually orient the AUV to the next task.



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Pinger

Two pingers deployed to aid in navigation to two tasks:

- Deploy (Torpedoes)
- Restore (Ocatgon)

Frequencies:

- 25-40 kHz in 0.5kHz increments

Pinger specifications: robonation.org/benthos-locator

Markers

Vehicles must carry up to two markers that must:

- Fit within a box:
  - 2.0” square and 6” long
  - 51 x 51 x 152 mm
- Weigh no more than 2 lbs (0.91 kg)
- Include team name, color or emblem.
- Cleared from arena after each run.

Bring back-ups!

Torpedoes

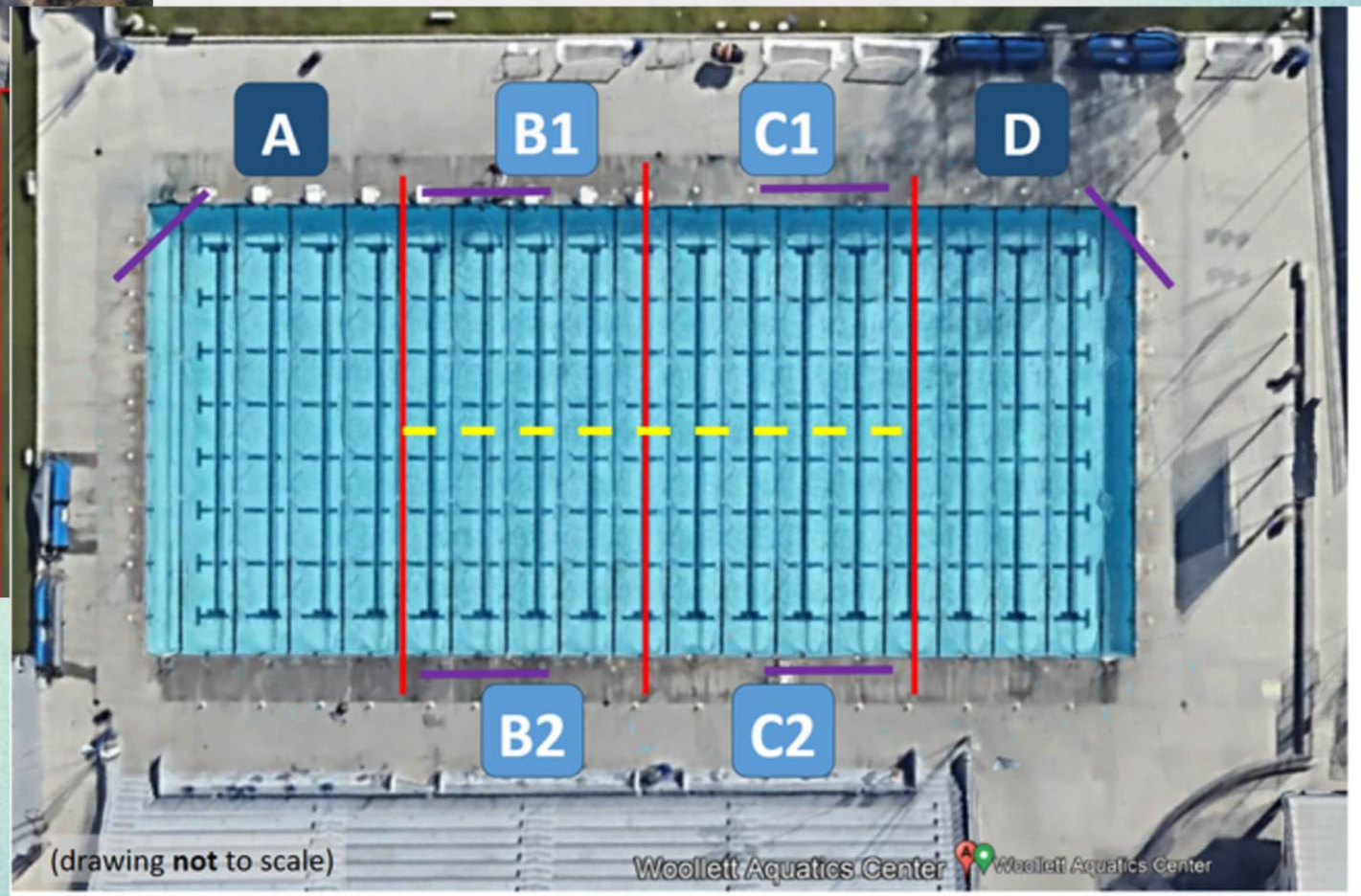
Same requirements as markers. Torpedoes must travel at a “safe” speed. A “safe” speed is one that would not cause a bruise when it strikes a person underwater from close range.

Bring back-ups!

QUESTION

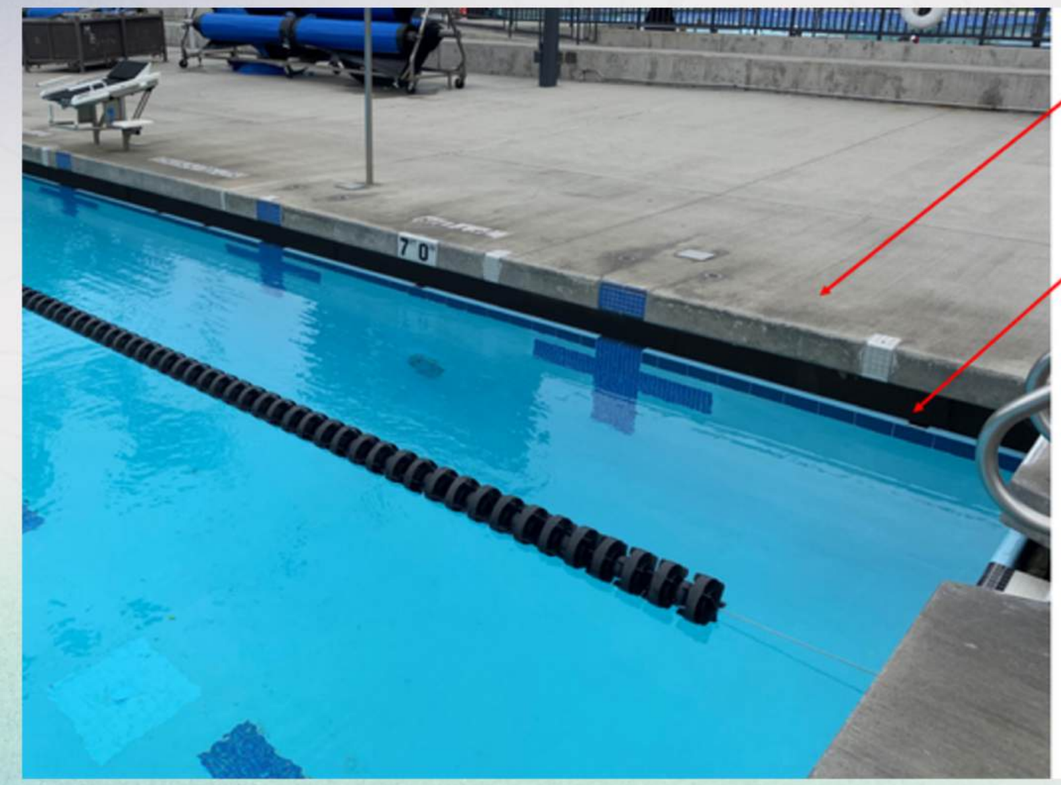
- *For torpedoes, do small propellors on rubber band powered torpedos or similar need to be shrouded the same as electrically powered thrusters on the main AUV, or is this requirement only for the main AUV thrusters?*

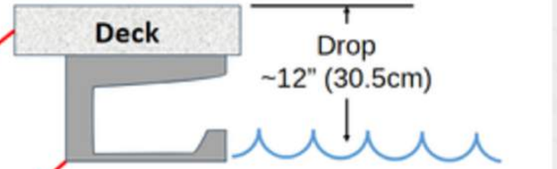
COURSE LAYOUT

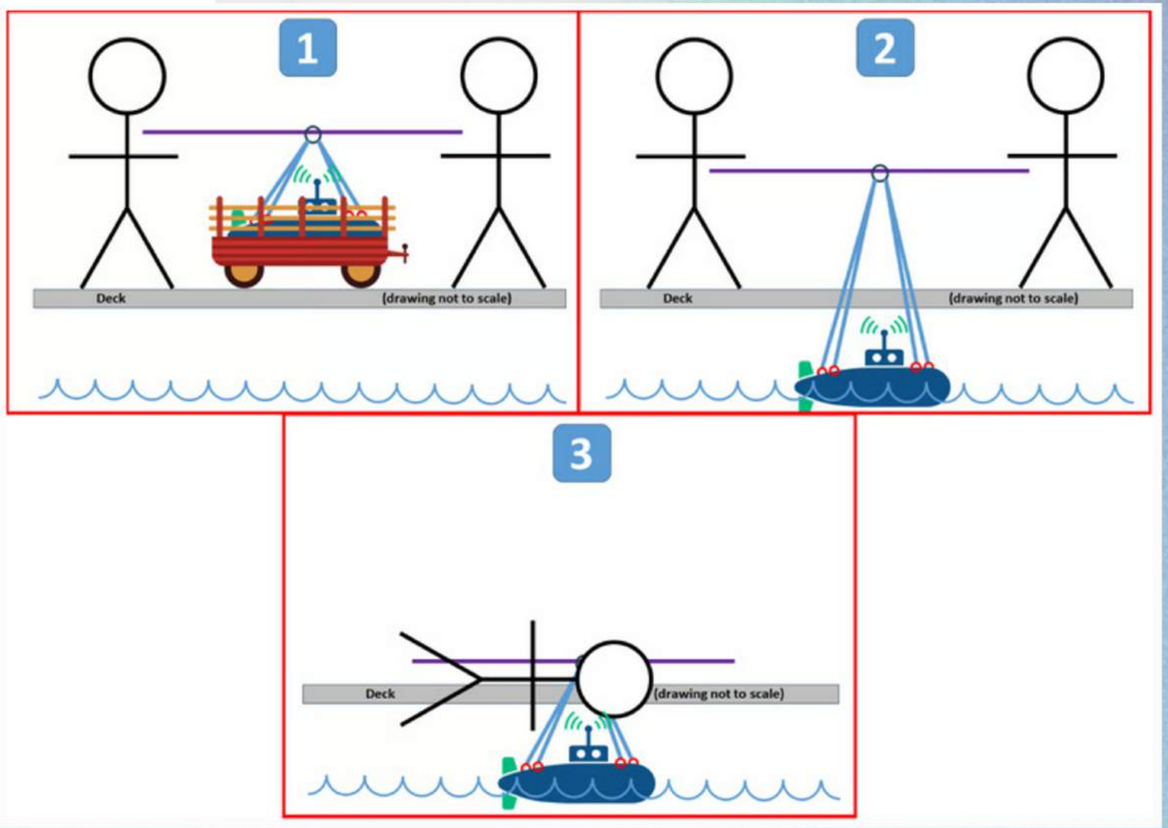


X Semi-finals courses

VEHICLE ENTRY / EXIT



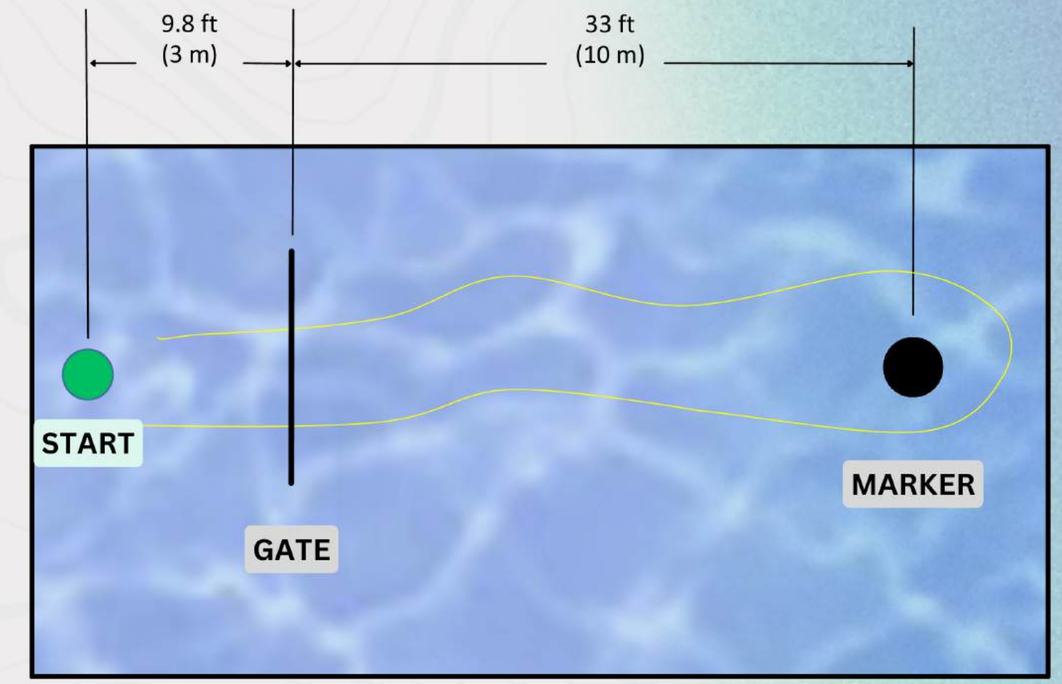


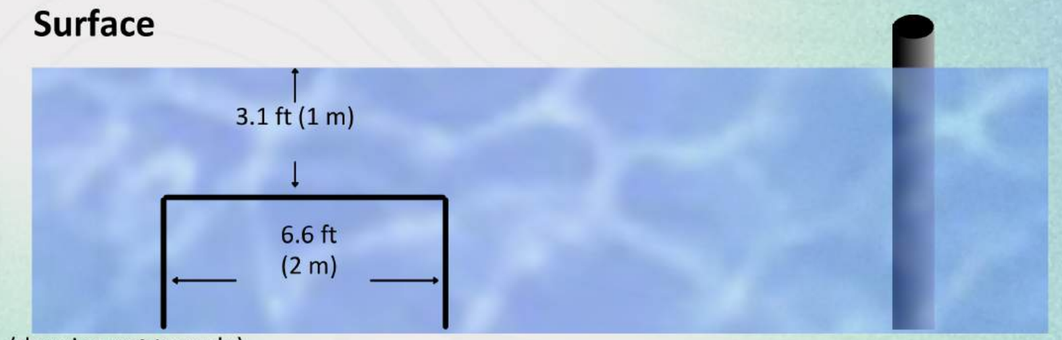


PRE-QUALIFICATION

Submission Deadline is June 24th

- 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).
- If you can't duplicate this layout, let us know and we can modify the layout to accommodate your area.





(drawing **not** to scale)

CONGRATULATIONS!
PRE-QUALIFIED TEAMS

- École de Technologie Supérieure (SONIA)
- The Ohio State University
- Istanbul Technical University

RESOURCES

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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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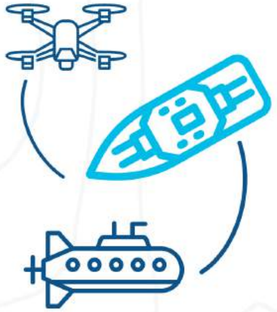
RobotX 2026 | Singapore | Early November



- Develop a System of Systems: USV + UAV and/or UUV
- Opportunity to apply for a granted BlueBoat or BlueROV
- More information: robotx.org/2026

QUESTIONS?

QUESTIONS

- *If two vehicles are going to be competing with intervehicle communication, do both subs need to prequalify? If the main sub pre-qualifies but then we decide to bring a second, do we need to pre-qualify?*
- *Will the prop icons be enlarged versions of the emojis in the handbook? If not, when will the prop icons be released?*
- *Can tasks for time bonus be split between both robots?*
- *Given additions to bins will there be additional points added to that task over torpedoes?*

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NEXT TEAM TIME

Thursday, April 16, 2026

7:00 p.m. Eastern Time (US & Canada)

Register Now!

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