

ROBOTX

RobotX 2026 | TeamTime #2



AGENDA

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

EVENT OVERVIEW

Dates, Venue, Teams, Timeline

DELIVERABLES

Design Documentation & Proof of Readiness

TASKS

Overview of Mission Tasks

QUESTIONS

DATES & LOCATION

08-14 November 2026



Marina Bay Sands Hotel

Promontory at Marina Bay | Singapore, Singapore



MEET THE TEAMS

21 TEAMS

- ADELAIDE UNIVERSITY
- ADVANCING SCIENCE TECHNOLOGY AND ART
- EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
- FLINDERS UNIVERSITY
- FLORIDA ATLANTIC UNIVERSITY
- GEORGIA INSTITUTE OF TECHNOLOGY
- INSTITUT TEKNOLOGI SEPULUH NOPEMBER
- KOREA MARITIME & OCEAN UNIVERSITY
- LAKE SUPERIOR STATE UNIVERSITY
- NANYANG TECHNOLOGICAL UNIVERSITY
- NATIONAL UNIVERSITY OF SINGAPORE
- NATIONAL YANG MING CHIAO TUNG UNIVERSITY
- PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
- PONTIFICIA UNIVERSIDAD CATÓLICA DEL PERÚ
- SINGAPORE INSTITUTE OF TECHNOLOGY
- SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN
- SRM UNIVERSITY
- TONGJI UNIVERSITY
- UNIVERSITY OF FLORIDA
- UNIVERSITY OF LOUISIANA AT LAFAYETTE
- UNIVERSITY OF NEWCASTLE AUSTRALIA

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EVENT OVERVIEW

Preliminary details for the Event

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Design Documentation & Proof of Readiness

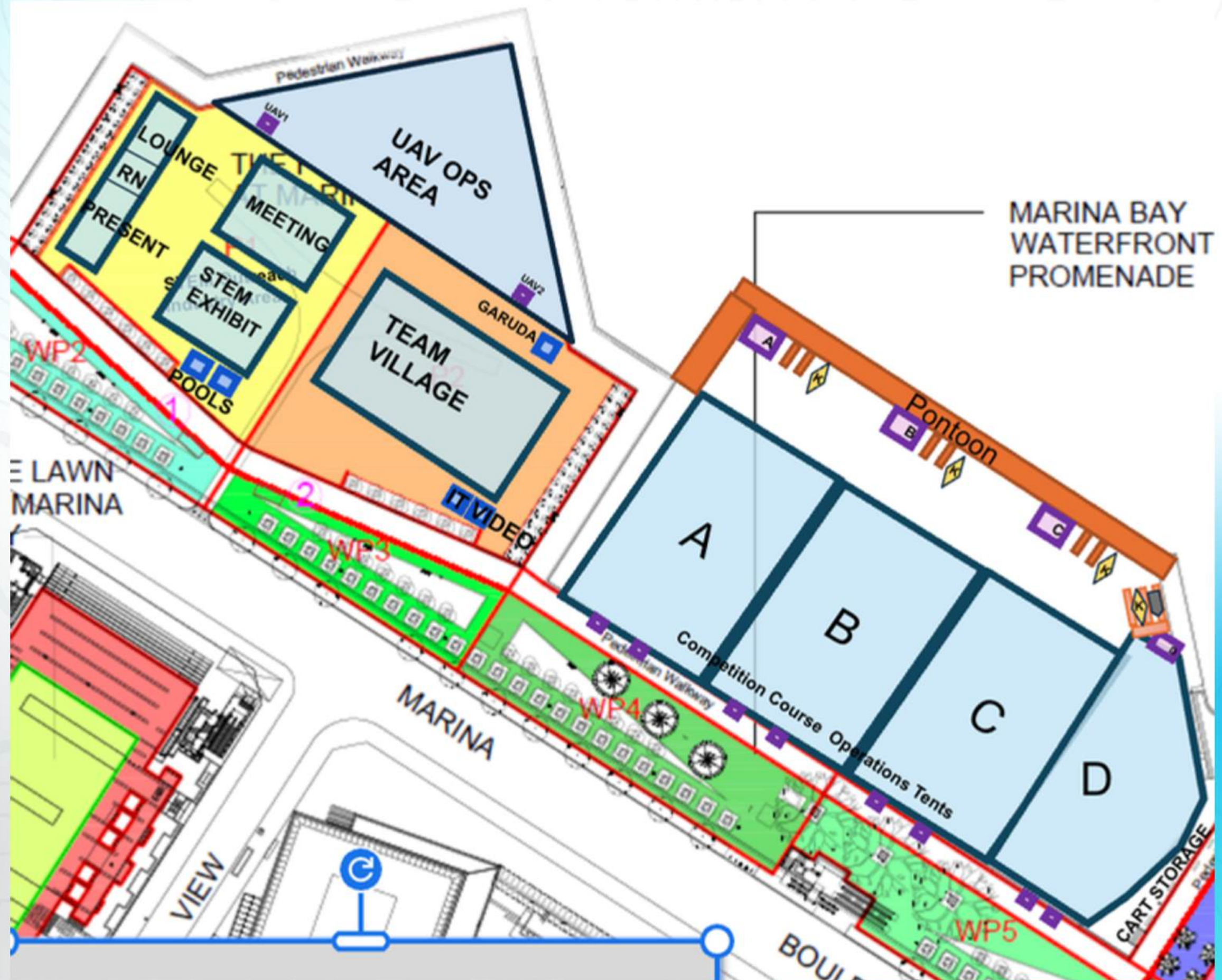
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VENUE

Preliminary Layout



VENUE

Promontory at Marina Bay I
Singapore, Singapore

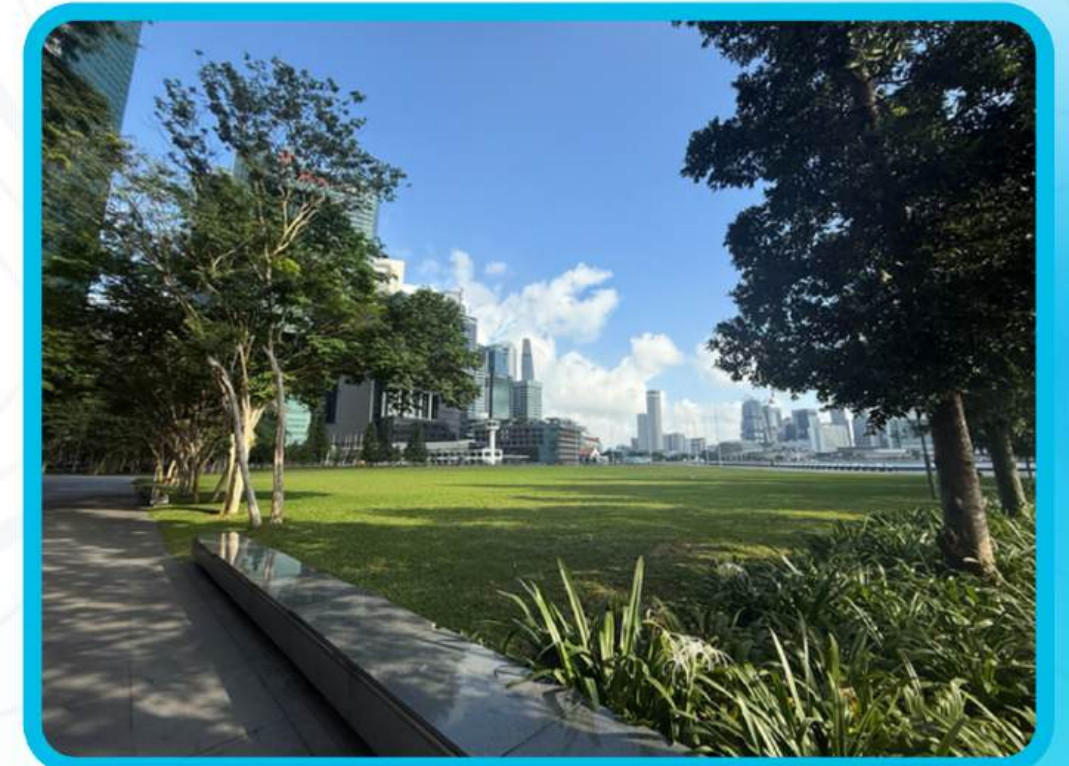


Location for Team Village, Industry Village, Staff Office, and more.

Point will be the UAV Flying Area



Right Along Public Walkway



PRELIMINARY SCHEDULE

Mandatory for UAV Pilots

NOV 06 FRI	NOV 07 SAT	NOV 08 SUN	NOV 09 MON	NOV 10 TUE	NOV 11 WED	NOV 12 THU	NOV 13 FRI	NOV 14 SAT
Pilot Theory Test	Pilot Assessment Test	Team Orientation (mandatory)	UAV Air Worthiness Test	Practice	Media Day	Scored Runs		Finals
		Team Move-in	USV/UUV Safety Checks					
		Team Networking	Practice	Design Presentations / System Assessments				
TBD – Overnight Pool Testing (@ Event Hotel)								Awards

HOTEL & LODGING

Event Hotel

- Coming Soon!
- Choices likely -
 - Dbl Queens/ more expensive / better workspace
 - Dbl Doubles / less expensive / tiny rooms & bathrooms

Airbnb

- Illegal in Singapore due to lack of housing

Hostels

- Several in the area
- Less expensive
- Work areas difficult

TRAVEL CONSIDERATIONS

VISA Process

- Apply now!
- Explore the different types of visas: www.visitsingapore.com.

Invitation Letter

- Teams may request invitations letters when officially registered.
- 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.

Singapore Laws & Rules

- Gum is not allowed!
- Drugs and medications must be cleared before bringing into Singapore.
- <https://www.goabroad.com/articles/study-abroad/singapore-laws-to-know-before-you-go>

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Design Documentation & Proof of Readiness

- **August 31** | Proof of Readiness deadline for mandatory two (2) systems
- **September 23** | Event Submissions & Design Documentation Deadline
- **October 12** | Proof of Readiness deadline for optional third system
- **November 6-7** | Pilot Certification Tests (in country)
- **November 10-11** | Presentations & Assessments

PROOF OF READINESS

31 August 2026 | Proof of Readiness deadline for minimum two (2) systems.

12 October 2026 | Proof of Readiness deadline for optional third system.

- USV (Uncrewed Surface Vehicle)
- UUV (Uncrewed Underwater Vehicle)
- UAV (Uncrewed Aerial Vehicle)



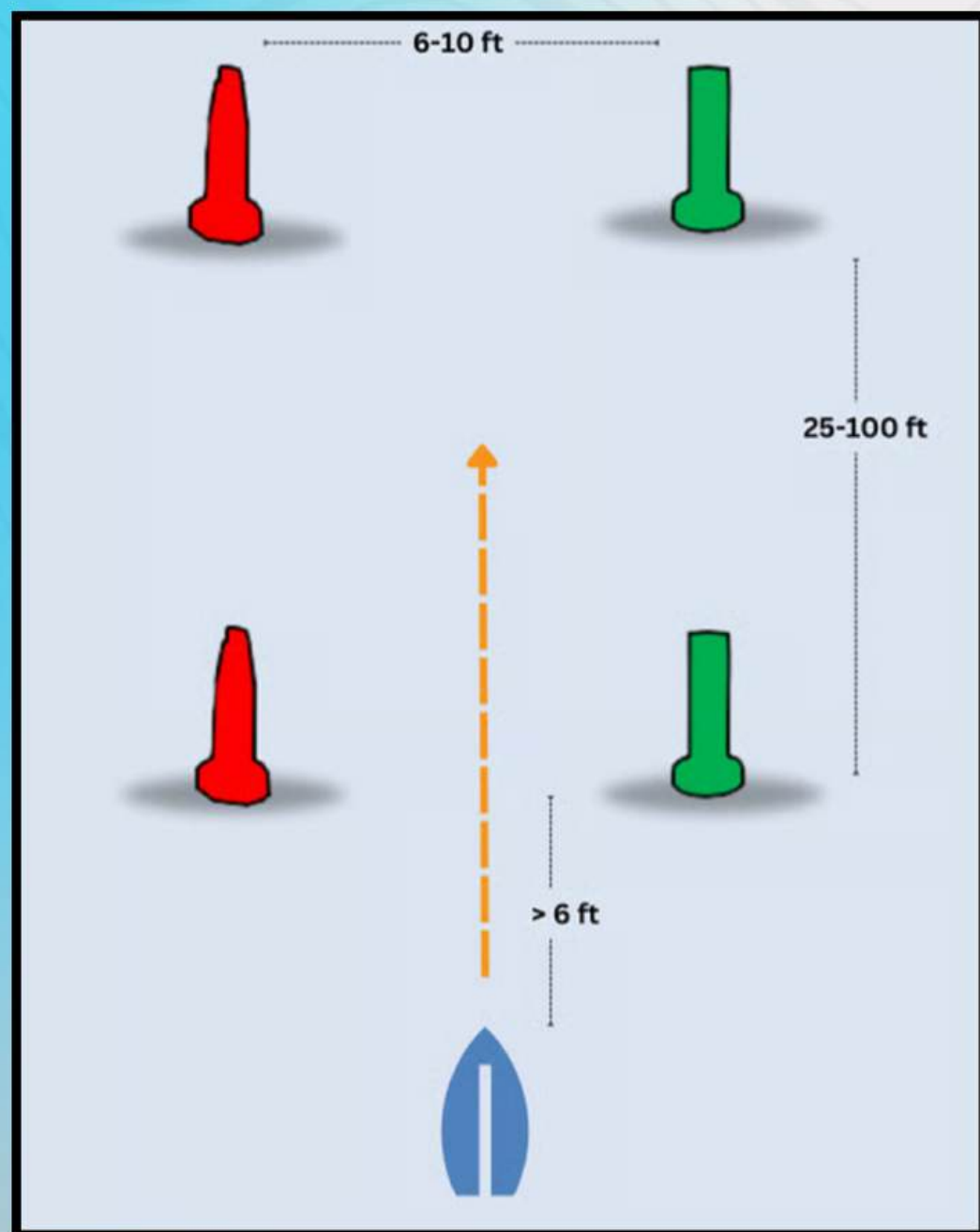
Pre-Event Deadline:
31 August 2026

PROOF OF READINESS

- Teams must complete and pass Proof of Readiness for each domain in which they will compete.
- Submissions will be reviewed and responded to in a timely manner, teams will receive a pass/fail, including any necessary follow-up questions.
- Teams are permitted to keep submitting attempts up until the close of the submission window.

SYSTEM	MANEUVER	SAFETY SYSTEM	SUBMISSION
USV Uncrewed Surface Vehicle	Autonomous navigation: (a) Start 9.8 ft (3m) behind the 1st buoy pair (b) pass through the 1st buoy pair (c) pass through the 2 nd buoy pair	Safety overview: (a) kill switch demo and diagrams (b) harness (lift/tow points and harnesses) (c) Mode indicator (auto, manual, kill) (d) Emergency Lighting mount point (e) Comms heartbeat message/System overview [tentative]	1.Video: Proof of USV Readiness (< 5 min) 2.Supporting Photos/Videos 3.Technical Data Package
UUV Uncrewed Underwater Vehicle	Autonomous navigation: (a) Start 9.8 ft (3m) behind the Gate, (b) Submerge and pass through the Gate, (c) circle around the Marker, and (d) pass back through the Gate.	Safety overview: (a) kill switch demo and diagrams (b) harness (lift/tow points and harnesses) (c) Mode indicator (auto,manual,kill) (d) Emergency Light mount point (e) Positively buoyant	1.Video: Proof of UUV Readiness (< 5 min) 2.Supporting Photos/Videos 3.Technical Data Package
UAV Uncrewed Aerial Vehicle	1. Autonomous proof of flight (details to be provided when available) 2. Pilot licensing (details to be provided when available)	Safety overview: (a) Water safety system (stays on water surface) (b) Mode indicator (auto,manual,kill) [tentative] Proof of Pilot Licensing Preparation (Additional details to be provided when available)	1.Video: Proof of UAV Airworthiness (details forthcoming) 2.Supporting photos and videos 3.Technical Data Package

USV PROOF OF READINESS



Autonomous Navigation Demonstration (Video Submission)

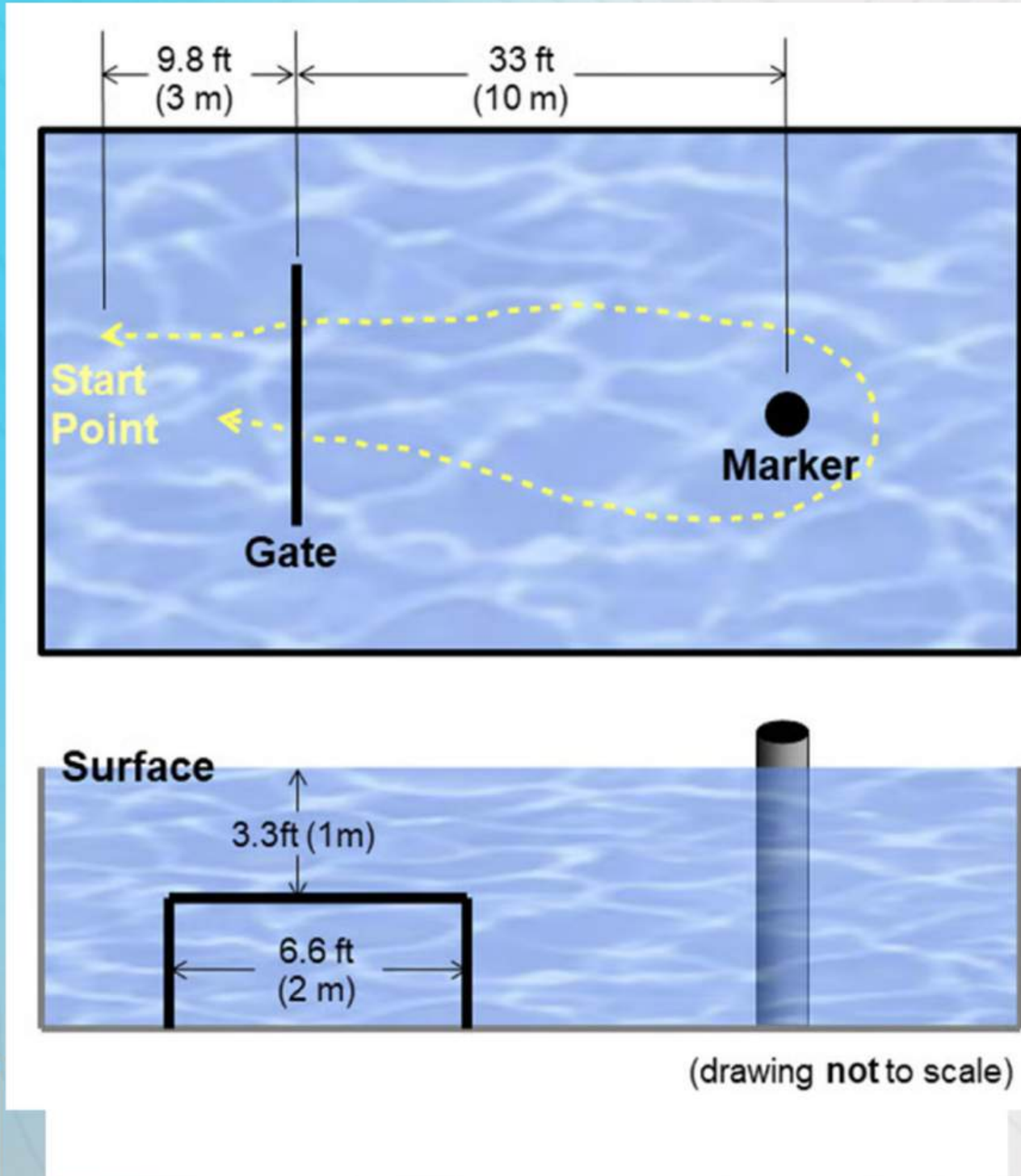
- USV passes through both sets of Gates
- No obstacle strikes
- Maintain good autonomous control

Safety Systems (Photo/Video Submission)

- File Upload Submission
 - Drawings detailing how the kill switches are wired into the system.
 - Pictures of clearly marked tow points with proper tow harness.
 - Pictures of clearly marked lift points and lift harness.
 - Pictures of mount point for USV emergency light.
- Video Submission:
 - Demonstrate onboard and remote kill switch operating correctly.
 - Demonstrate functionality of the Mode indicator (auto, manual, kill).



UUV PROOF OF READINESS



Autonomous Navigation Demonstration (Video Submission)

- UUV passes through Gate, circles Marker, and passes back through Gate
- Entire UUV submerged (nothing floating on surface)
- No breach of the surface
- No obstacle strikes
- Maintain good autonomous control

Safety Systems (Photo/Video Submission)

- File Upload Submission
 - Drawings detailing how the kill switches are wired into the system.
 - Pictures of clearly marked tow points with proper tow harness.
 - Pictures of clearly marked lift points and lift harness.
 - Pictures of mount point for UUV emergency light.
- Video Submission:
 - Demonstrate onboard kill switch operating correctly.
 - Demonstrate functionality of the Mode indicator (auto, manual, kill).
 - Demonstrate proof the system is positively buoyant.



UAV PROOF OF READINESS

Criteria for the UAV and Pilots' proof of readiness submission are being finalized and will be released at a later date.



DESIGN DOCUMENTATION



Past Examples
robotx.org/past-programs

Technical Design Report

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

Max: 10 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 team's personality, mission and culture.

Max: 3 minutes

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



Questions? Submit on Discord.

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

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: 30 min.

System Assessment

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

Time: 30 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: November 10-11



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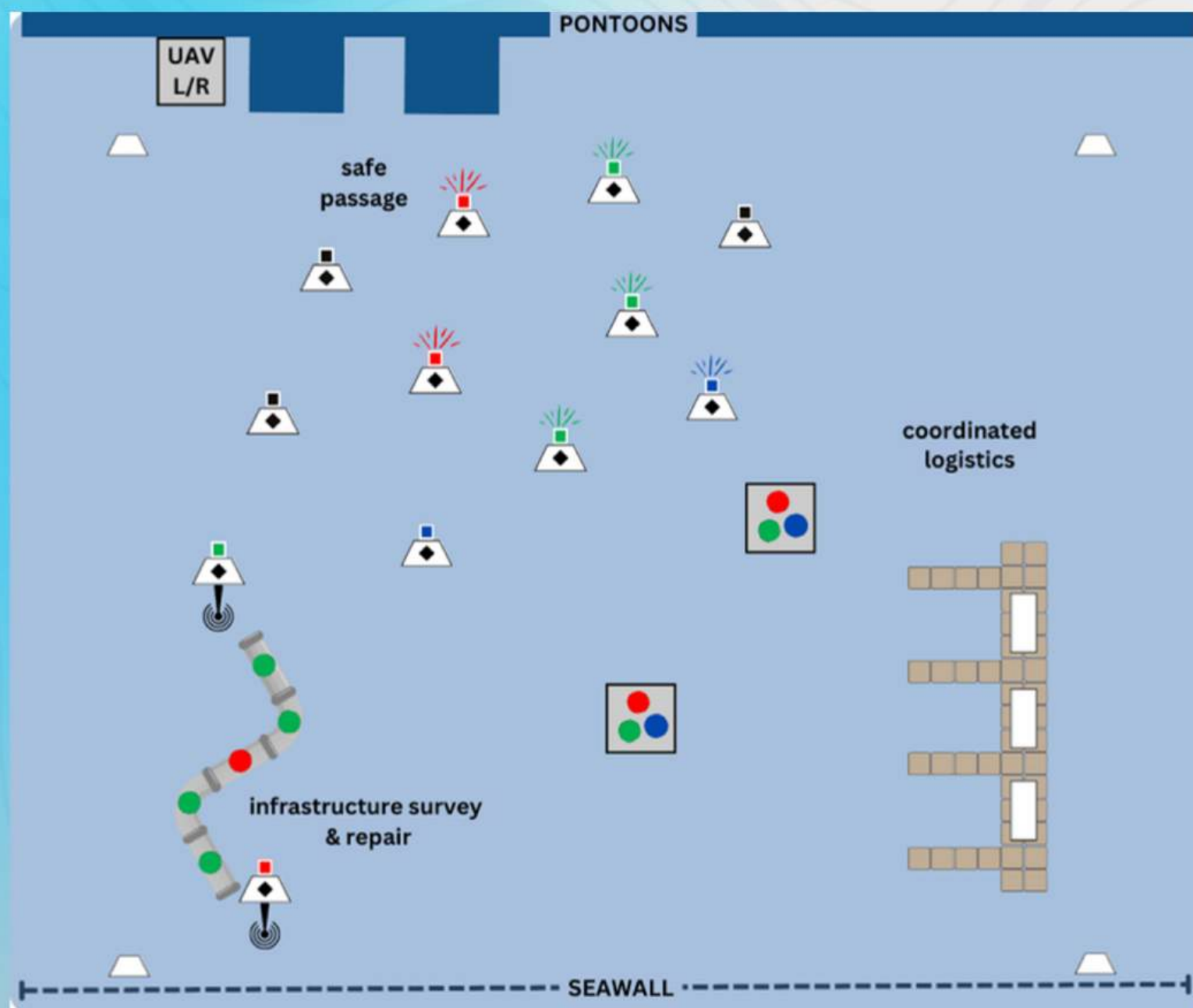
Overview of Mission Tasks

QUESTIONS

UPDATES

- **One system per domain!**
- **Updated Size Specifications for Platforms**

TASKS OVERVIEW



Communications & Reporting
 All systems must be capable of receiving and transmitting messages between each system and the competition server (RoboCommand).

Mission Task 1: Safe Passage
 The System of Systems must discover, report, and navigate a safe pathway to the survey and relief mission.

Mission Task 2: Infrastructure Survey & Repair
 The UUV must locate, survey, and “repair” an underwater pipeline, then report status/results and request resource delivery from a support UAV.

Mission Task 3: Coordinated Logistics
 The System of Systems must find a safe docking area, complete tasking in the bay, and request resource delivery support from a support UAV.

Mission Task 4: Dynamic Incident Response
 The System of Systems must demonstrate the ability to adapt to changing conditions or mission priorities.

CROSS-CUTTING TASKS

All uncrewed systems are required to autonomously perform basic functions as part of mission execution and safe operation. These functions cut across all aspects of autonomous mission execution.

- **Interface with RoboCommand:**

- The System of Systems (SoS) must provide updates and reporting for any system operating during any run in the autonomy challenge courses via the RoboCommand system.
- This is mandatory to earn any points during scoring runs.

- **Obstacle Avoidance:**

- The ability to avoid obstacles is a critical capability for safe operation of uncrewed systems.
- Every course element is an object to be avoided or approached safely in some way.

- **Inter-vehicle Communication:**

- Inter-vehicle communication is a central component to multi-vehicle collaborative execution of the tasks as required by Advanced and Disruptive Tiers.
- Teams are encouraged to provide clear and easily understandable demonstration of this capability for judges to understand.

- **Dynamic Adaptability:**

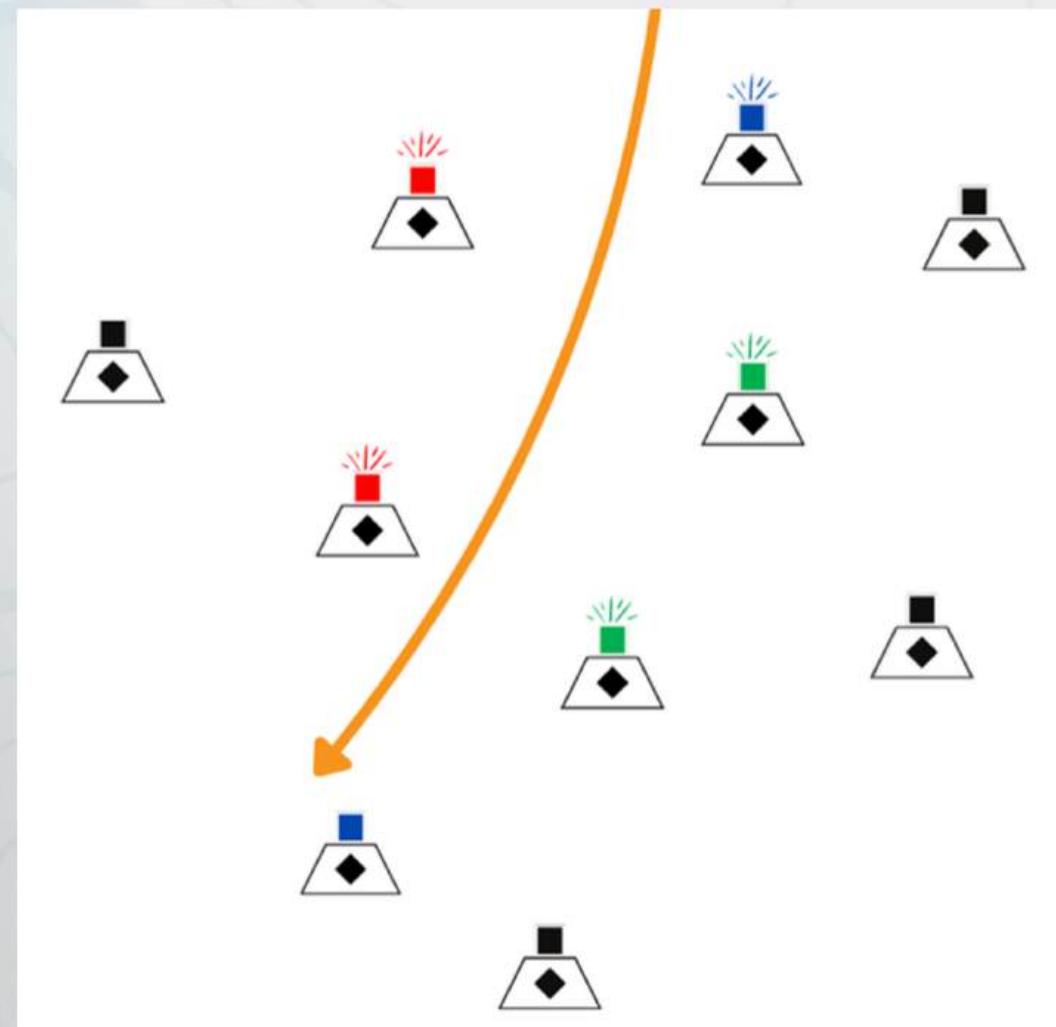
- In real-world scenarios, uncrewed systems must be able to adapt to changes in the operating environment or other mission priority changes.
- Mission Task 4 represents these conditions through use of the RoboCommand system to transmit dynamic changes to the mission priorities or operating environment.

TASK 1

Safe Passage

The maritime systems must safely enter the recovery area in order to begin survey and relief efforts. There are hazards to surface and underwater vessels, represented by buoys in the transit area. Light beacons on top of the buoys will represent elements of the mission.

At the start of a run, a random path is generated and defined as a safe path.



Core: The System of Systems must locate, identify, and report the location of the start and end points of the safe passage.

- A flashing BLUE light indicates safe entry point.
- A solid BLUE light indicates safe exit point.

The USV and/or UUV must then transit safely through the passage, as indicated by red and green indicators.

- Pass GREEN markers to the system's port.
- Pass RED markers to the system's starboard.
- Avoid contact with all objects.

Advanced: UAV must complete Core Tier, and successfully report RED/GREEN locations to RoboCommand and USV for execution.

The USV or UUV must use data to successfully navigate path (buoy colors will NOT be visible to the USV).

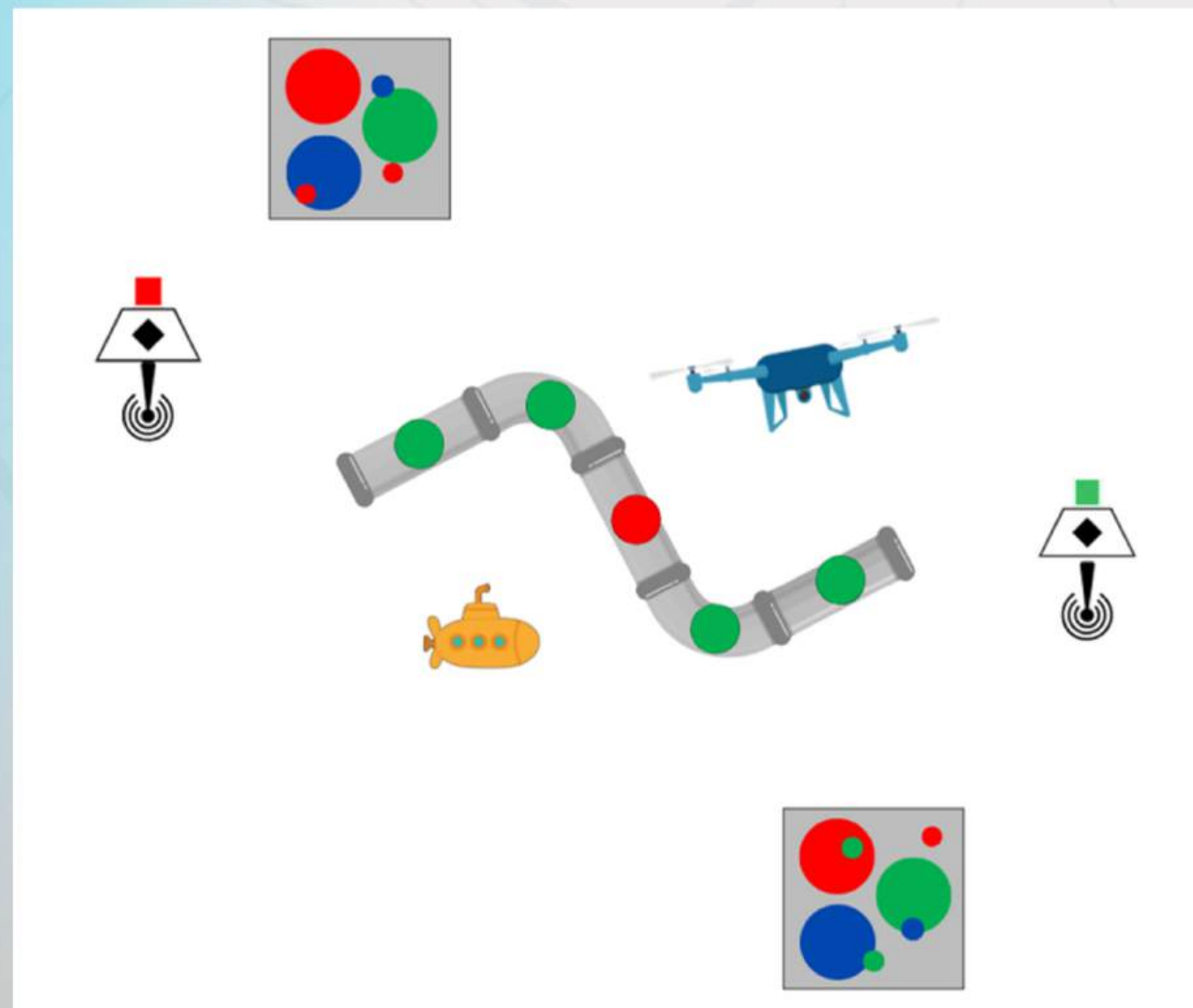
Disruptive: Adding to Advanced Tier, the UAV must remain on station to guide the USV or UUV because safe passage buoy indicators may change mid-run, forcing the systems to communicate and adapt.

TASK 2

Infrastructure Assessment & Repair

An underwater pipeline is indicating signs of damage in the harbor. It must be surveyed for damage and repaired. The area to be surveyed will be indicated on the surface by a pair of buoys.

At the start of each run, a random pattern is generated for the pipeline.



Core: The UUV must locate the survey start point, indicated by an active acoustic pinger and surface color indicator.

- The UUV must follow the pipeline, report sequence of lights, and tags the red light(s) with a magnetic probe.
- Once the probe is placed, the pipeline will notify the competition server and the light color will change.

Advanced: The UUV must complete Core Tier, then request UAV support to deliver any resource to the colored circle indicated by the pipeline. The UAV must deliver any resource to the correct colored circle.

Disruptive: This tier builds on the Advanced Tier by expanding the resource request to specify the color of the resource needed as well as the location where it should be delivered.

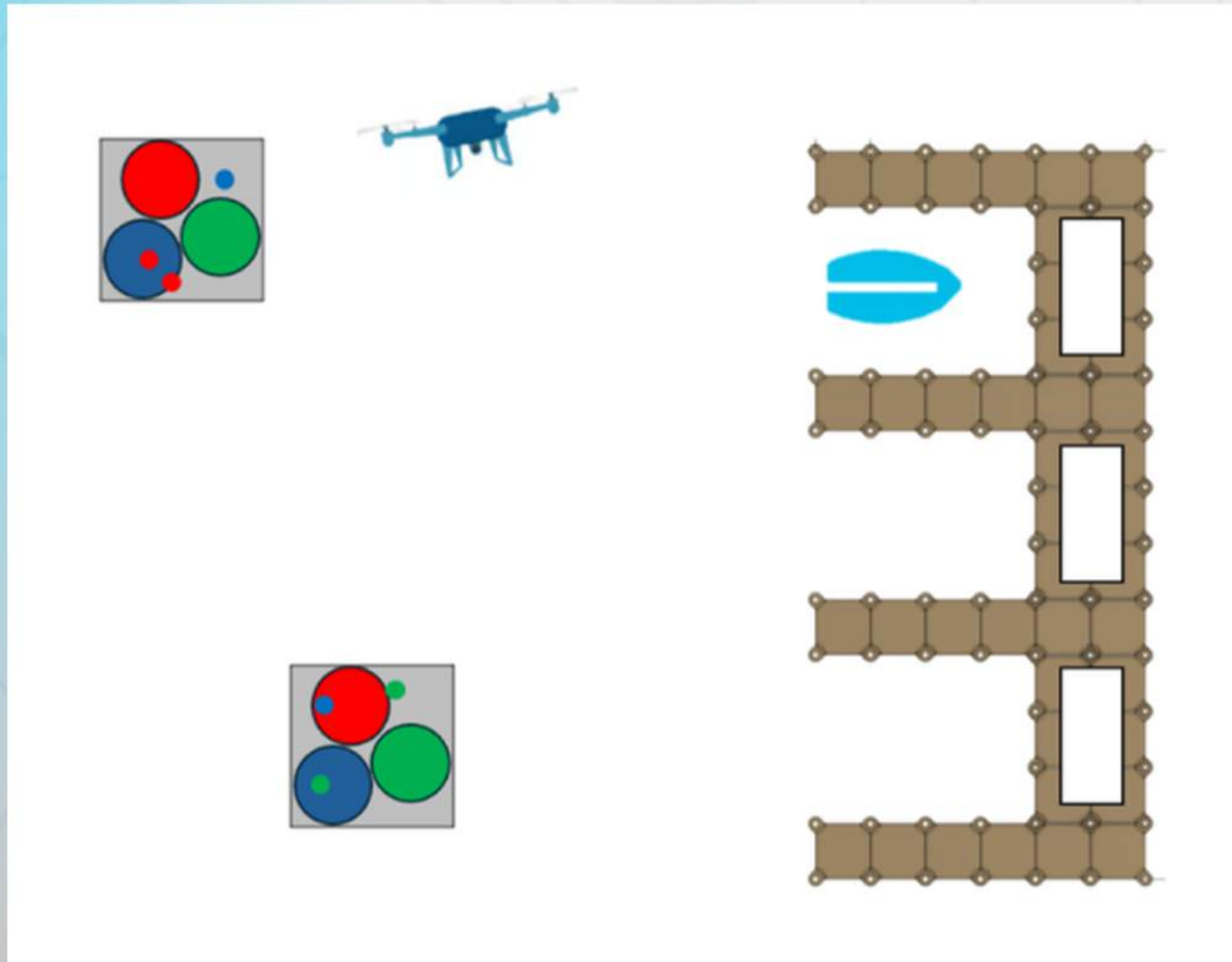
The UAV must locate the correct resource from one of the floating platforms, retrieve it, then deliver this resource to the correct colored circle on the other floating platform.

TASK 3

Coordinated Logistics

This task represents multiple scenarios that may exist after a natural disaster: (a) the USV must find the safe docking bay, (b) complete a "firefighting task", and (c) request resources such as food, medical, or other supplies be delivered.

The uncrewed systems can work as a team to quickly complete these challenges.



Core: The USV must locate the floating docking platform, dock in the safe bay, and complete the assigned tasking.

- The USV must identify and dock in the safe bay, indicated by the **GREEN** color indicator.
- The USV must report successful docking and readiness to receive tasking.
- The USV must spray water into the indicated (**RED** lit) window.

Advanced: The USV must complete the Core Tier tasking, then request resource delivery by a UAV.

- After completion of the Core Tier, the light in the window will flash the color of the circle where any resource must be delivered.
- UAV may start with resource (tin) on board and must deliver to the correctly colored circle on one of the floating platforms.

Disruptive: The USV complete the Core Tier, then request specific resource delivery by a UAV.

- The correct resource color and delivery location will be indicated by the flashing lights when Core Tier is completed.
- The USV must report the perceived resource and location to RoboCommand and request UAV to complete the tasking.
- The UAV must retrieve the correct colored tin from one platform and deliver it to the correct circle on the other platform.

TASK 4

Dynamic Incident Response

Core: The RoboCommand system will transmit a request for assistance at a specific GPS position for a specific domain. The uncrewed system operating in that domain must acknowledge receipt and intent to support via the appropriate RoboCommand message.

The specified system must then break off of its current tasking, transit to the requested area, loiter, and report readiness for further tasking. The RoboCommand system will respond to the readiness message indicating receipt of the message from the uncrewed system and clearance to return to normal operations.

In the core tier, the system may resume normal operation after receiving confirmation from RoboCommand.

Advanced: The RoboCommand system will transmit a static keep out area representing a detected hazard and the impacted domain. Any uncrewed systems operating in the affected domain must acknowledge receipt of this message and avoid the area for the duration of the run or until an All Clear message is transmitted by RoboCommand and acknowledgement sent in response by the uncrewed system.

Disruptive: The most challenging scenario is an unexpected moving object within the field of operations. During a run, the RoboCommand system will transmit a report of a moving surface object within the operational area and the domain(s) impacted.

All uncrewed systems operating in the impacted domains must avoid approaching within 10m of this object (as visible on the tracking display) based on its current and projected travel. The RoboCommand message will include (at a minimum) GPS location, heading, speed, and system type.

STAY UPDATED

ALL THINGS ROBOTX

For all the latest information and updates for the competitions season, visit the RobotX website!



robotx.org/2026

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 receive invitations. Contact competitions@robonation.org for questions.



robotx.org/data-sharing/access

DISCORD

Stay connected and updated with the RobotX Discord. Scan the QR code to get started!



JOIN TODAY!

- Scan the QR code
- Select the RobotX role
- Turn on notifications!



robonation.org/discord

SPOTLIGHT ON DATA SHARING

SATURDAY, APRIL 11, 2026 @ 12:00 pm

DATA SHARING

On April 11, you're invited to join the Data Sharing Moderators for a spotlight session on how shared datasets can enhance your vehicle development process.

Join us on the RoboNation YouTube channel Live.

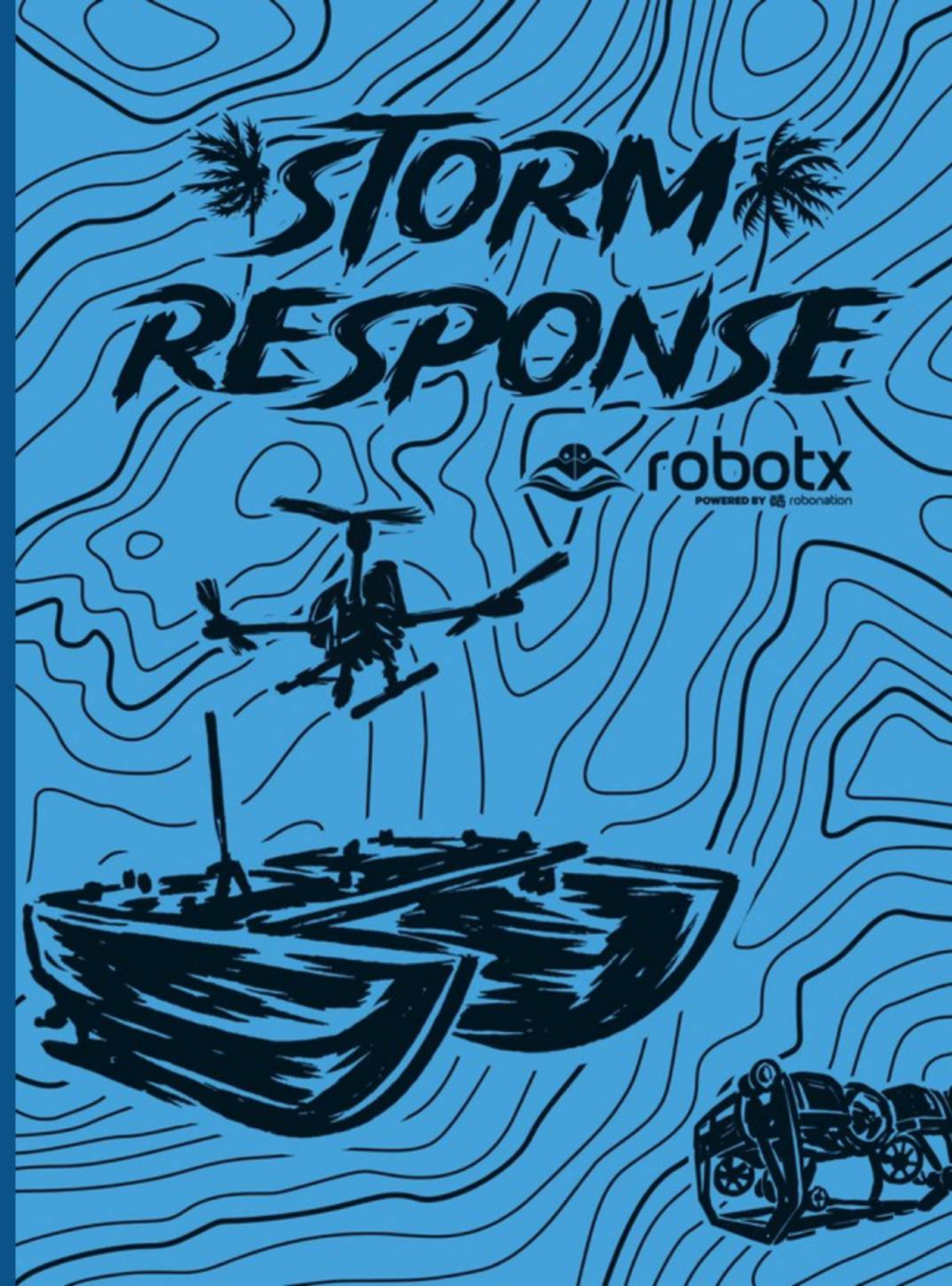


<https://www.youtube.com/channel/UCQbovXzNNhW8jWZXaX8IlgA>

TIMELINE

- **April 12** | Grant Application, Final Round
- **May 1** | Registration Deadline
- **June 25** | TeamTime #3
- **August 27** | TeamTime #4
- **August 31** | Proof of Readiness deadline for minimum of two (2) systems
- **September 23** | Event Submissions & Design Documentation Deadline
- **October 12** | Proof of Readiness deadline for optional third system
- **November 6-7** | Pilot Certification Tests (in country)
- **November 8-14** | 2026 Maritime RobotX Challenge

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 competitions@robonation.org