Wall Tracing Rescue	Level	Team	Building
	Junior / Senior	1–2 person	On-Site

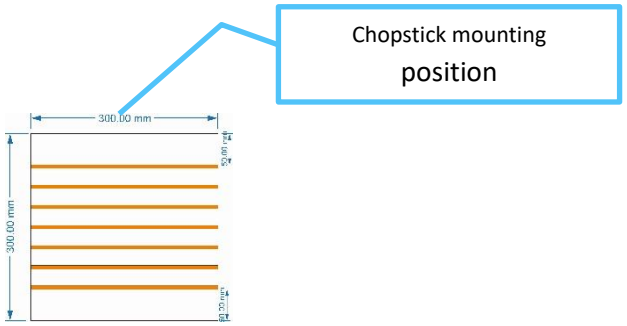
The competition involves robots designed to assist disaster victims by delivering survival kits to designated locations. The robot must navigate along a path enclosed by walls. Once the mission is completed, the robot must stop at the FINISH point.

Robot Specifications

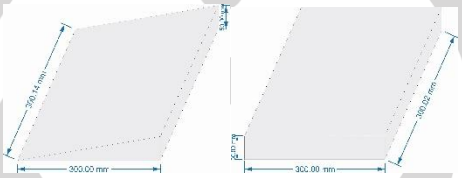
1. The fully expanded size of the robot must not exceed 200 mm × 200 mm. There are no restrictions on weight or height.
2. The robot must operate autonomously only (remote control is not allowed).
3. There is no limit to the number of motors or sensors used in the competition.
4. Power supply must not exceed 12 volts (or 13.5 volts when fully charged), or up to 8 AA batteries (1.5 volts each).
5. There are no restrictions on the type of materials used to build the robot's structure. Materials may include plastic, wood, PVC foam board, metal, 3D-printed parts, or perforated plastic plates, etc. Robots may be pre-assembled before the competition.
6. Robots must perform autonomously and complete tasks without any external control. The use of wireless communication, remote control devices, or tethered connections is strictly prohibited. Teams violating this rule will be disqualified immediately.
7. Robots may be damaged during the competition. Participants must inspect and protect their robots on their own responsibility.

Competition Field Requirements

1. The competition field is made of PVC foam board, approximately 120 cm wide and 240 cm long or larger. The field surface is white. The surrounding walls are 20 cm high, made from 8 mm thick black PVC foam board. The path walls inside the field are also 20 cm high and 8 mm thick.
2. There are 3 Check Points, marked with yellow stickers measuring 5 cm × 5 cm (locations will be announced before the trial on competition day).
3. There are 4 Drop Zones for the supply cubes, marked with green stickers, each measuring 15 cm × 30 cm (locations will be announced before the trial on competition day).
4. The supply kits are cube-shaped, with all sides equal at 2 cm (±3 mm). Each cube must not weigh more than 100 grams.
5. Obstacles:
    1. A series of 7 bumps (speed bumps), each with a diameter between 3–5 mm, placed on the track surface.

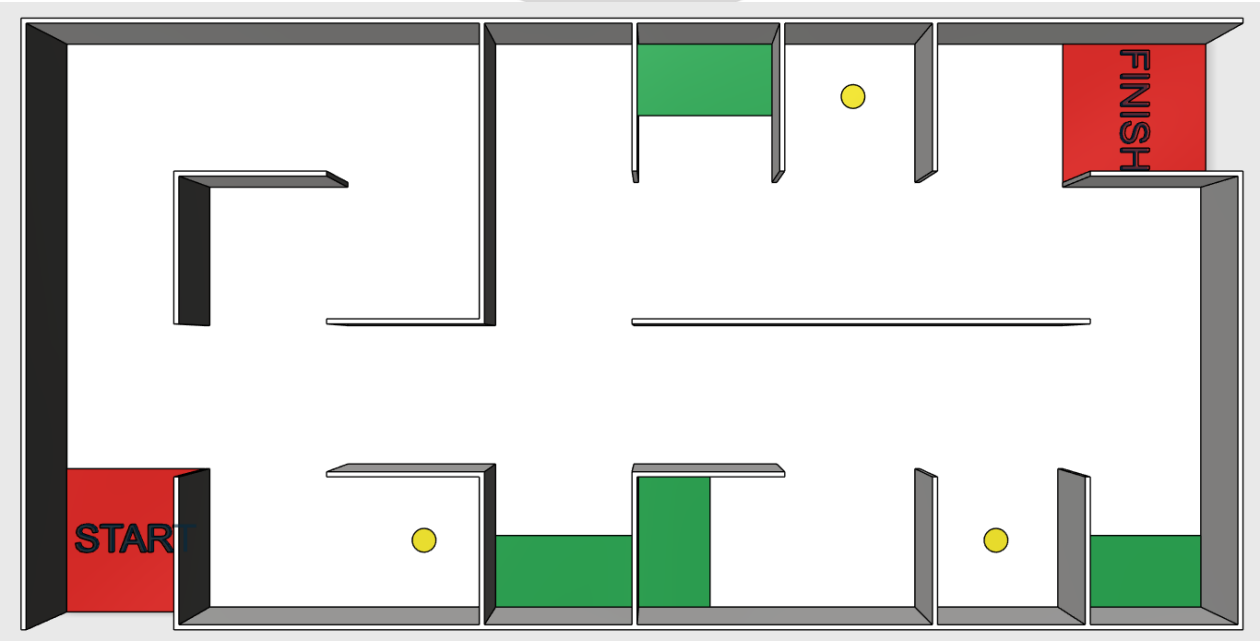


2. Bridge: The bridge has a height of 5 cm (with a tolerance of ±2 cm), as shown in the diagram.



3. **Black Hole:** A black sticker with a size of **20 x 30 cm** is placed on the field surface. It represents a **danger zone that robots must not enter**.

Example of a Wall Line Track Field



Competition Rules

1. Mission
    - The robot must load up to 8 survival kits before leaving the START point.
    - It must then follow the path to deliver these cubes to designated areas as specified by the judges.
    - Once all deliveries are completed, the robot must return and come to a complete stop at the FINISH point.
2. Field Briefing & Practice
    - Before the competition, all participants will be briefed on the track layout and competition rules.
    - A practice session of at least 1 hour will be provided.
    - Important details revealed by judges include:
        - Locations of Check Points (yellow circular stickers); these are fixed and not randomly placed.
        - Location of the Black Hole Zone (danger zone); if the robot enters, the run is immediately terminated—no time is recorded; only points are awarded (Update June 9, 2025).
        - Drop Zones for survive kits (green stickers); their positions change every 30 minutes and again before each competition run.
3. Pre-Run Setup
    - After practice time ends, each team must have their robot inspected and placed at the judge-designated start location.
4. Setup Time
    - When called to compete, teams have 30 seconds to set up and load up to 8 cubes on the robot at the START area.
5. Starting the Run
    - Robots are placed at the START point. Once the signal is given, the competitor presses the start button.
    - Competitors may not touch the robot during the run—touching will result in a forced retry.
6. Scoring Check Points
    - The robot must travel over 3 fixed Check Points (yellow stickers).
    - Each unique Check Point crossed grants 10 points (cannot be scored twice).
7. Delivering Survival Kits
    - When a robot drops a cube such that any part of it touches a green drop zone sticker, the team is awarded 15 points per cube.
    - Once scored, these cubes cannot be used again on a retry.

8. Retries
    - If a retry is triggered, the robot must return to START, without additional cubes being loaded.
9. Re-entering a Drop Zone After Retry
    - If a cube is already scored at a zone, it cannot earn points again on a redo.
10. Self-Abandonment

- A competitor may voluntarily stop at any time, but no time will be recorded (lower priority than a full 3-minute run).

11. Runtime During Retries

- Time continues running during retries, until the 3-minute time limit.

12. Scoring Summary

- Points are awarded only after completing the full run (delivering up to 4 cubes, passing all 3 Check Points, and stopping at FINISH).

13. Run Termination Conditions

- If the robot gets stuck against a wall for more than 5 seconds: the run is terminated, no time is recorded.
- If the robot pushes wall panels to shift them:
    - First incident: forced retry and –10 points penalty.
    - Second incident: running terminated, no time recorded, score kept. (Update June 9, 2025)
- If a robot drops a cube in the wrong place, the cube remains as an obstacle and won't be removed.

14. Time Limit & Total Scoring

- Duration: 3 minutes
- Scoring breakdown (max 100 points):
    - Check Points: 3 × 10 pts = 30 pts
    - Survival Kits delivered: 4 × 15 pts = 60 pts
    - FINISH stop (≥3 seconds): 10 pts

15. Repair and Restarts

- Robots may be repaired during runs; time continues. However, no re-uploading of code is permitted.
- Robot must be re-placed at START and the judge notified before restarting.

16. Between Run Interval

- After Run 1, teams have at least 30 minutes to adjust or repair.
- If the field or drop zone positions are changed, another minimum 30-minute interval is provided.

17. Ranking and Winner Determination

- Each team has 2 runs. Best run (by points/time) is used for ranking.
- Ranking priority:
    1. Highest score

2. Achieved FINISH
3. Faster time

- Ties are broken by: better performance in Run 1, then combined points/time across both runs.

18. Final Authority

- All decisions by the judges are final and non-negotiable.