robotix Iran

TECHNOXIAN WORLD ROBOTICS CHAMPIONSHIP IRAN

WORLD'S BIGGEST ROBOTICS CHAMPIONSHIP TECHNOXIAN

Water Rally

TECHNOXIAN IRAN

The 12th National Student and Open robotics Competition RobotixIran

First TechnoXianIran International Competition

KISH-IRAN-2025

DATE: 23-25 June

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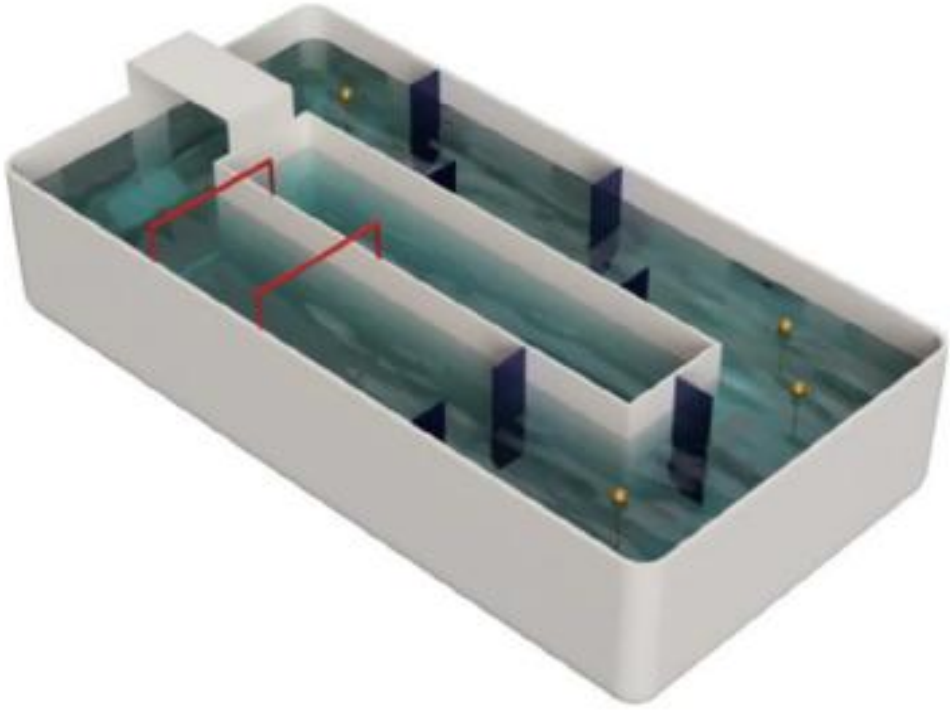
Water Rally

1. Introduction

The idea of the competition is to simulate the engaging nature of a boat race. The goal is to complete as many laps as possible and collect as many points as possible within the allotted time.

2. The Field

1. The depth of the water, covering the course surface is at least 30 cm.
2. The height of the course obstacles from the water level is at least 10 cm. The obstacles can be made of any colored or transparent material.
3. The track forms a circular trajectory.
4. The cross-section of the track can be square, round, or inclined.
5. The width of the track is at least 70 cm.
6. The course may have simple obstacles such as buoys, walls, tunnels, or track dividers. The obstacles are arranged in a way that makes it difficult for the robot to navigate the track by moving along the walls. Touching the buoys and walls is not prohibited, and their location is not predetermined.
    - Buoys are attached to the bottom of the course with cables or strings.
    - Walls and tunnels are attached to the sides of the course, leaving at least 40 cm of free space for the robot to pass through the track. There is at least 40 cm of free space above the water level in the tunnels.



3. The Robot

1. Robots must be intelligent and programmable using microcontrollers such as STM, SRC, KRC, Arduino, PIC, AVR, etc.
2. The robot must swim or float.
3. The maximum dimensions of the robot are 25 x 25 x 25 cm (length x width x height) and it can weigh up to 2 kg.
4. The robot is allowed to dive underwater.
5. The robot is not allowed to:
    - Move along the bottom of the course using wheels, tracks, or other equipment for bottom movement.
    - Damage the course surface, splash, and/or endanger spectators (including the referee).
    - Emit gases, hazardous liquids, pollutants (e.g., oil), or dust.
    - Intentionally ram or sink other robots.
    - Use another robot for movement.
    - Intentionally consume and discharge water outside the boundaries of the course.
    - Extend beyond the external boundary of the course.
    - Leave the pool.
6. The robot must have a start and stop button or a remote control.

Competition Procedure

1. The competition is open to participants of all ages, with a maximum of three team members per team.
2. In this competition, two robots start a round simultaneously (in case of an odd number of teams, one round will be held with three robots).
3. The winner is the robot that scores the most points.

- Each completed lap earns one point.
- Each incorrect lap results in one negative point.

4. The duration of each round is 5 minutes.
5. At the beginning of the competition, robots are placed on the starting line.
6. The starting position and sequence of the competition are determined by a draw.
7. The start signal is given only once when all competitors are ready.

8. Robots must start their movement 5 seconds after receiving the start signal.
9. A robot that makes a false start receives a warning. If the number of warnings reaches two, the robot loses that round.
10. Robots that fail to complete the competition or make a false start are returned to the starting line by the team captain under the referee's instruction.
11. If a robot stops moving or reverses direction for any reason, the referee has the authority to instruct the team representative to remove the robot from the pool and take one of the following actions:

- Leave it in the same place.
- Return it to the starting line.

12. A robot that obstructs movement is removed after 10 seconds and is then repositioned at the starting line.
13. If a robot gets stuck, the team has the right to return it to the starting line. With the referee's consent, the team captain may do so without disturbing the performance of other robots or participants.
14. In case of rule violations, the referee may disqualify the team and remove the robot from the pool.
15. This competition will be held in multiple rounds, and a draw will be conducted for each round.
16. If teams end the competition with tied scores, an additional match will be held to determine the winner among them.
17. The winner in each round is the robot that completes the highest number of laps in the specified direction. In case of tied scores, an additional match will determine the winner.
18. Only one team member, designated as the team captain, is allowed to come within two meters of the competition area.
19. During the competition, participants must use the same robot and cannot switch robots between rounds.
20. The team captain or a team member must sign the scoring sheet after the competition ends.
21. Each team must provide a printed technical report detailing the mechanical design, electronic design (including PCB and module designs), and programming algorithms of the robot on competition day.
22. After the competition is over, the top 5 teams must submit reports about how they built their robots. This will give them up to 10 points. Teams will also have technical interviews worth 20 points. The final rankings (1st to 5th place) will be based on these points combined with their competition scores. (Teams that cannot properly explain or defend their work during the technical interview might be disqualified, based on the decision of the technical committee)

Scoring Method

- Each complete lap earns the robot one point.
- If the robot starts moving before the designated time, it is considered a false start and receives a warning, along with a negative point.
- If the robot has to restart during the competition for any reason, it loses one point.
- The final winner is the team with the highest total score at the end of all rounds.

Objections

- Objections must be submitted in the specified forms immediately after the competition or during the round. Late objections will not be considered.
- The final decision on disputes lies with the referees and the organizing committee.

Organizational Chart

- Teams are responsible for staying updated on any rule changes up to 2 weeks before the competition.
- Teams must register within the specified timeframe and submit a 1–5-minute video (max 100 MB) showcasing their robot's functionality and their motivation for participating. Videos should be emailed to technoxian.iran@gmail.com.
- Robots will undergo technical inspections before the competition.

GOOD LUCK!