



UNITED INTERNATIONAL UNIVERSITY

LFR-TrackBots

Summary

“TrackBots” at UIU CSE Fest 2025, is the Line Following Robot event that offers UIU students an exciting opportunity to gain real-world experience through competition. This event encourages participants to apply theoretical knowledge practically, building skills in robotics and problem-solving.

Grooming sessions are available to support all UIU teams, providing guidance in teamwork, project presentation, and professional networking. These sessions ensure students are well-prepared for the competition, enhancing their confidence and refining their projects for success. Through this, the UIU Robotics Club is dedicated to empowering students to excel at CSE Fest 2025.

Registration Procedure

- **Registration Deadline:** 15th December, 2024
- **Eligibility:** All undergraduate program students from public/private universities are eligible to compete!
- **Fees:** 1500 BDT per team
- Teams of up to 5 members; each participant can only join one team of a segment, i.e. a participant cannot be in two teams that are competing in the same segment.

Rulebook

A. General Rules

1. Teams must report on time; late arrivals will not be permitted to participate.
2. Robots and teams will undergo an inspection before each round.
3. Robots must be submitted before the round begins and can only be retrieved afterward.
4. Robots may be programmed prior to submission; programming during a round is prohibited.
5. Mechanical modifications after submission are not allowed. Repairs during a run must be made without tools.

6. Only one team member may enter the arena during a round.
7. Only team members may operate the robot; external intervention is strictly prohibited.
8. Disrespectful behavior towards judges or teams may result in disqualification.
9. Taunting or disruptive comments towards other teams may lead to disqualification at the judge's discretion.
10. The organizer reserves the right to amend rules as deemed necessary. Any amendments will be communicated clearly and in advance.
11. Teams must have all required tools and safety equipment during the competition.
12. Communication During Rounds: Teams are prohibited from using communication tools (e.g., walkie-talkies) for external coordination during the round. Only internal communication between team members in the arena is allowed.

B. Team Specifications

1. Teams may have a maximum of 5 members.
2. All participants must be students, with valid identification provided at registration.
3. Teams may include members from different institutions. Team sizes should remain manageable to ensure efficient coordination.
4. A participant may only belong to one team per segment.
5. All members must be present for certification in the arena.
6. The team leader is responsible for team decisions and conduct.
7. Any team member can operate the robot during the competition.

C. Robot Specifications

1. Robot dimensions must not exceed 20cm x 20cm x 15cm (W x L x H).
2. Maximum robot weight is 1 kg.
3. Robots must have an onboard power supply; wired power is prohibited.
4. Robots must have a kill switch; programmable switches are permitted.
5. Commercially available, pre-assembled robots are not allowed. For clarification, a commercially pre-assembled robot refers to any robot that has been entirely put together and programmed by a third-party vendor.
6. Each team must use a single robot, with no replacements allowed after the first round.
7. No wireless communication is allowed mid-round; any breach may lead to disqualification.
8. Voltage across any terminals must not exceed 16.8V.
9. Robots must not damage or discolor the track. Modifications to comply may be required.
10. Only two-wheel drive robots are allowed; four-wheel or pedal mechanisms are not.
11. Robots may have any shape within the specified dimensions.
12. Robot Modifications: Modifications (e.g., adding/removing parts) are not allowed after the robot is submitted. Any mechanical changes before submission should be done outside the competition area.

D. Arena Specifications

1. The first-round arena dimensions are TBD.
2. The arena will feature a black line on a white background or vice versa.
3. Line width, node distances, and specific turns will be defined (TBD).
4. The arena may include curved paths, sharp angles, and bonus checkpoints.

5. Some checkpoints are mandatory; others are optional.
6. Start and end points will be marked with black boxes (TBD dimensions).
7. Obstacles may include bridges, bumps, and slopes up to 15°.

E. Gameplay Plan

- The specific gameplay plan will be provided at a later date, including any rules regarding timed rounds, special challenges, or bonus points.

F. Common Rules for Participants

- Additional common rules, such as behavior expectations during the event, will be clarified at the start of the competition.

G. Scoring

- Detailed scoring criteria will be announced before the competition. It will include how points are awarded for completing checkpoints, speed, and accuracy.
- Bonus Points: Points may be awarded for completing additional tasks, bonus checkpoints, or achieving exceptional performance.
- Time Penalties: Penalties may be applied for exceeding time limits or violating specific rules (e.g., robot leaving the track).

H. Deciding Factors

1. The team with the highest cumulative score from both rounds wins.
2. If scores are tied, the team with the most perfect runs wins.
3. If still tied, the team with the fewest restarts wins.
4. Final Tiebreaker: If scores remain tied, the fastest completion time for the final run will determine the winner.

Prize Money

The top three teams will receive the following prizes:

- **First Prize:** 25,000 BDT
- **Second Prize:** 15,000 BDT
- **Third Prize:** 10,000 BDT

Objectives

Through this competition, participants will:

1. **Enhance Problem-Solving Skills:** By tackling track obstacles and navigating varied pathways, participants develop and refine their problem-solving techniques.

2. **Strengthen Technical Knowledge:** Building and programming an autonomous robot allows students to gain deeper technical expertise in sensor integration, algorithm design, and hardware management.