# Techfest 2026-27

# OLL Robotics Championship

## Objective

The Techfest's OLL Robotics Championship gives school students across the country a structured, credible platform to design, build, and compete with robots, and to pitch original engineering ideas in front of a national panel. The championship is built around three tracks so that students with different strengths, mechanical building, dynamic control, or research and innovation, all have a track suited to them.
Specifically, the championship aims to:

- Introduce school students to hands-on robotics, mechanical design, and applied STEM concepts through competition.
- Offer three distinct tracks that test different skills: structural design and strategy (RoboSumo), agile control and speed engineering (Roboracer), and original problem-solving and research (Robotics Innovation Challenge).
- Build a wide, scalable outreach funnel that combines a national online qualifier with on-ground OLL Regional Qualifiers.
- Recognise genuine technical effort and original thinking with a credible national stage, at the Techfest Grand Finale in IIT Bombay.

*Note: Visit oll.co/techfest for latest updates, and detailed videos*

## The Challenge

The Techfest Robotics Championship is one championship with three competitive tracks, each run to its own format and its own set of rules, but all converging at the same Grand Finale during Techfest at IIT Bombay.

### Track 1 - RoboSumo

A head-to-head pushing contest between two bots inside a circular ring, testing structural design, traction, and pushing power. Full rules are adapted from the Technoxian World Robotics Championship Sumo Bot format.

### Track 2 - Roboracer

A head-to-head speed contest between two RC bots on a shared track, testing drivetrain design, agility, and race-line strategy.

### Track 3 - Robotics Innovation Challenge

A research and presentation-driven track where students identify a real-world problem and present an original robotic prototype or automation concept to a judging panel. This track runs across two age categories, Junior (grades 4-7) and Senior (grades 8-12), each with its own problem statement theme.

RoboSumo and Roboracer both qualify to the Grand Finale through the Qualification Pathway detailed below. The Robotics Innovation Challenge runs on its own two-round structure, online qualifier followed by an on-site final, detailed in its own track section.

## Qualification Pathway

Applies to: RoboSumo and Roboracer.

### Round 1: National Online Qualifier (Mandatory)

Open to all students registering directly through the official Techfest website. Every team must submit a **technical abstract and a short video demonstration** of their bot. Teams that clear Round 1 qualify for their nearest OLL Regional Qualifier.
**Technical Abstract (For Track 1 & 2): 500-800 words**, should cover:

1. Team & bot name, one-line design approach
2. Mechanical design - chassis, dimensions/weight, key structural choices
3. Drivetrain & motors - motor type/count, wheels, battery/voltage
4. Control system - autonomous/wired/wireless (Track 1); RC setup (Track 2)
5. Match strategy - pushing/defense (Track 1) or driving approach (Track 2)

### Round 2: OLL Regional Qualifiers

OLL hosts on-ground Regional Qualifiers across **five** city hubs, open only to teams that have qualified through Round 1.

| Zone | City |
|---|---|
| West | Mumbai |
| East | Kanpur |
| North | Delhi |
| South | Banglore |
| Central | Indore |

*If you would like to host an offline Regional Qualifier at your institution, reach out to skills@oll.co.*

**Dates and Locations of these Regional Qualifiers will be live on https://oll.co/techfest**

Grand Finale

The **top 4 teams** from each of the five Regional Qualifiers converge at IIT Bombay for the final round of RoboSumo and Roboracer during Techfest 2026-27.

## Track 1: RoboSumo

### Description

RoboSumo turns mechanical design and control programming into a head-to-head duel. Teams build a fully autonomous, wireless bot and send it into the arena to push the opponent clean over the edge. No weapons, no flipping, just raw traction, weight distribution, and sharp control strategy going toe to toe.

### Arena Specifications

| Parameter | Specification |
|---|---|
| Shape & size | Circular arena, approximately 150 cm in diameter |

| | |
|---|---|
| Boundary | The arena is marked with a clearly defined circular boundary line. A bot is declared out the moment any part of it, including a single wheel, crosses this line. |

**Bot Specifications**

| Parameter | Limit |
|---|---|
| Bot size | Must fit within a 25 cm × 25 cm × 25 cm space at all times, including any moving or extended mechanisms. |
| Maximum weight | 3 kg including battery |
| Control | Fully autonomous, wired, or wireless remote control permitted. |
| Prohibited | Weapons, sharp or pinching mechanisms, flipping mechanisms, projectiles, or any part designed to damage the opponent bot.<br>No restriction on motor type or count, provided total battery voltage does not exceed **12V** nominal, and the bot stays within the size and weight limits. |
| Build origin | Must be the team's own original design and construction; ready-made kits or bots are not permitted. |
| (Not compulsory but Recommended) **Kit** | https://oll.co/shop/product/robo-sumo-kit-specially-for-techfest-iit-bombay-22b5228a |

**Competition Structure**

- Each match is a 1v1 face-off between two bots, placed at opposite starting points in the arena.
- A match lasts up to **2 minutes**; the first bot to push its opponent out of the arena wins.
- If neither bot is pushed out within the time limit, 2 restart / sudden-death rounds will be conducted, after that the referee decides the winner based on control and dominance shown during the matches. Refree's decision is final.
- Once the robot is placed in the arena, there can be no manual interference by the participants unless the referee permits the same.

- If both the robots are not able to fight then a time period of 2 minutes will be given for grace period to fix the robot, if even then the robot is not functional, it will lead to disqualification of both teams.
- Matches are run on a knockout bracket; the winner advances, the loser is eliminated.

### Evaluation

RoboSumo is decided purely on match outcomes. Each 1v1 match has one winner, who advances in the bracket; there is no separate scoring or weightage system unless it's a tie.

## Track 2: Roboracer

### Description

Roboracer puts drivetrain design and nerve to the test. Teams build RC bots and race them head-to-head down a shared track, from a standing start to the finish line. Whether built for raw top speed or tight control, every bot lives or dies by its traction, steering, and the driver's reflexes.

### Arena & Bot Specifications

| Parameter | Specification |
|---|---|
| Track & Lane Layout | Straight track, approximately 10-12 m long, with 2 parallel lanes (approx. 40-50 cm wide each) separated by clearly marked lane lines. Start and finish lines marked. Exact dimensions may vary by venue |
| Bot size | Fits within a 20 cm × 15 cm × 15 cm envelope |
| Maximum weight | 1.5 kg including battery |
| Control | Fully wireless RC control only, one frequency/channel per team to avoid interference |
| Track Surface | Non-slip vinyl or mat surface with painted lane markings; exact surface material may vary by venue. |

| | |
|---|---|
| Finish Line | Clearly marked finish line at the end of each lane; a bot must fully cross the line to be considered finished. |
| Prohibited | Any mechanism designed to obstruct, block, or damage the opposing bot or lane; sharp or protruding parts; projectiles. |
| Build origin | Chassis, drivetrain, and control logic must be the team's own original design and assembly; ready-made RC toy cars are not permitted. |
| (Not compulsory but Recommended) **Kit** | https://oll.co/shop/product/robo-racer-kit-specially-made-for-iit-bombay-8bf545dc |

### Competition Structure

- Each race is a **1v1** heat between two bots running in adjacent lanes on the same track, starting simultaneously on the referee's signal.
- Each heat lasts up to **2 minutes**. The first bot to complete the track and fully cross the finish line wins the heat.
- A dead heat(tie) or photo finish goes to an immediate re-race between the same two bots.
- Matches are run on a knockout bracket; the winner advances, the loser is eliminated.

### Evaluation

Roboracer is decided purely on race outcomes. Each 1v1 heat has one winner, who advances in the bracket; there is no separate scoring or weightage system.

## Track 3: Robotics Innovation Challenge

### Description

This track steps away from head-to-head competition. Students spot a real-world problem and design an original robotic prototype, automation system, or STEM concept to solve it, then pitch it to a judging panel. It runs on its own two-round structure and does not use the OLL Regional bypass.

## Age Categories

| Category | Grade Range |
|---|---|
| Junior | Grades 4 to 7 - Theme: Smart Solutions for Everyday Life |
| Senior | Grades 8 to 12 - Theme: Robotics & Automation for a Smart, Sustainable Future |

## Round 1 - Online Qualifier

Round 1 is conducted entirely online. Every team submits the following, specific to the problem statement theme assigned to their age category:

- Team registration details: team name, school or RoboClub name, category (Junior or Senior), and details of all team members and the mentor.
- Problem write-up (1 page): a clear statement of the real-world problem being addressed, why it matters, and who it affects.
- Technical abstract (500-800 words): describing the proposed solution, how it works, the technology or components involved, and what makes the approach original.
- Design diagram or sketch: a labelled diagram, circuit sketch, or CAD drawing showing how the prototype is structured and how its parts connect.
- Video demonstration (1-3 minutes): showing the working or partially working model in action, with a brief walkthrough by the team explaining what it does (The faces of all team members must be clearly visible in the video).

## Evaluation Criteria

| Criterion | Weightage |
|---|---|
| Problem relevance & clarity (write-up) | 20% |
| Originality & technical soundness of the abstract | 30% |
| Design clarity (diagram/sketch) | 20% |
| Working/partial model demonstrated (video) | 30% |

### Round 2 - Grand Finale (IIT Bombay)

Shortlisted teams travel to IIT Bombay to compete in Round 2 during Techfest. This round centres on a live prototype presentation:

- Prototype display: teams set up their physical prototype (or an upgraded version of the Round 1 model) at an assigned presentation space.
- Live demonstration: teams demonstrate the prototype working in front of the judging panel in **a 10 mins slot**, showing the problem-to-solution flow in action.
- Judge walkthrough & **5 mins** Q&A : judges question the team on the technical working, design choices, and real-world feasibility of the prototype.
- Presentation format: Junior category presentations are kept conversational and encouraging; Senior category presentations may include a more detailed technical walkthrough of the build.

### Evaluation Criteria

| Criterion | Weightage |
|---|---|
| Originality & creativity of the idea | 30% |
| Technical execution of the prototype | 35% |
| Real-world relevance | 15% |
| Presentation & Q&A | 20% |

Round 1 is used only to shortlist teams; final rankings are based on Round 2.

### **Junior Theme (Grades 4-7):** Smart Solutions for Everyday Life

Simple, relatable problems from school, home, or the neighbourhood, solved with a basic working model.
Suggested directions: waste segregation, water conservation, road/school safety, plant care, home help, energy saving. Basic components (simple circuits, recycled materials) are expected; a working physical model matters more than technical complexity.

**Senior Theme (Grades 8-12):** Robotics & Automation for a Smart,

Sustainable Future

More technically demanding problems solved with a functional prototype. Suggested directions: smart agriculture, disaster management, healthcare & assistive tech, sustainable energy, smart mobility, environmental monitoring. Submissions may use microcontrollers, sensors, or basic IoT logic (Arduino, Raspberry Pi, micro:bit), and should show a working principle, not just a concept sketch.

## Team Specification and Eligibility

- **Eligibility:** Track 1 (RoboSumo) and Track 2 (Roboracer) are open to all school students. The Robotics Innovation Challenge runs by age category: Junior (grades 4-7) and Senior (grades 8-12).
- **Team Specification:** Each team must consist of **3 to 5 members**, across all three tracks (RoboSumo, Roboracer and the Robotics Innovation Challenge).

## Round 1 - Common Submission Guidelines (All Tracks)

Regardless of track, every team must submit **a single Google Drive link** (with viewer access enabled) containing all required documents in one folder. Submissions split across multiple links, or missing any required item, will not be considered for shortlisting.

**Required for all tracks:**

- **School permission letter** - scanned document on the school's official letterhead, signed by the Principal (or equivalent school authority), authorizing the team's participation.

## Competition Timeline

| Event | Date |
|---|---|
| Deadline of Registration on Techfest Website | 30th Sept 2026 |
| Round 1 Submission Deadline of all 3 tracks on Techfest's Website | 10th October 2026 |

| | |
|---|---|
| Round 1 Result announcement of all 3 tracks of submissions made on Techfest's Website | 17th October 2026 |
| Round 2 OLL Regional Qualifiers | Dates of these Regional Qualifiers will be live on https://oll.co/techfest |
| Round 2 OLL Regional Qualifiers Result Announcement | On the Same day of OLL Regional Qualifier round. |
| Grand Finale - Finals of all 3 Tracks | 16th - 18th December 2026 |

## General Rules

- Every participant must register online at techfest.org, receiving an ID for future reference.
- Techfest, IIT Bombay, is not responsible for late or lost entries.
- The latest information will be available on techfest.org, with registered participants notified of changes via email.
- All bots across RoboSumo and Roboracer undergo a mandatory technical inspection before their first match, checking size, weight, power, and prohibited-feature compliance.
- The OLL Regional Qualifier bypass applies only to RoboSumo and Roboracer; the Robotics Innovation Challenge is evaluated solely through its own two-round online-to-onsite structure.
- Referee and judging panel decisions are final and not open to appeal, across all three tracks.
- Any team found using a bot or prototype that does not match its submitted specifications will be disqualified from the match or round in progress.
- Exact arena dimensions, goal sizes, and ring diameters may vary by up to 10% depending on venue constraints at each Regional Qualifier or the Grand Finale.
- Any idea, design, or bot submitted must be the team's own original work; plagiarism or use of pre-built commercial products without meaningful original modification will result in disqualification.
- Teams are expected to maintain safe and respectful conduct at all venues; unruly behaviour, damage to venue property, or interference with another team's bot or prototype can result in disqualification.
- Techfest and OLL reserve the right to amend match schedules, venues, or minor rule details in case of unavoidable circumstances, with reasonable prior

notice to teams.
- All technical, procedural, and competition-related queries must be submitted directly through the Techfest Competition Portal under the Doubt section. Participants are strictly requested to regularly check the portal for answers and updates
- Official communication for important announcements will be through the email siddhi@techfest.org. Queries submitted via email will not be entertained

## Certificate Policy

All students who take part and submit an acceptable entry will receive a Certificate of Participation. Teams that qualify for and compete in the Grand Finale at Techfest 2026-27 will additionally receive a Certificate of Finalist recognition.

## Prize Money

Prize money will be awarded to the **top three teams of each track** via NEFT, latest by May 2027.

## Prize Money Submission Process

- **Submission Channel:** Complete the prize money form **directly on the website** after the final round concludes. The winners would be able to view the form through their registered email ID
- **Deadline:** The form must be submitted by **December 31, 2026**.

### Details Needed for the Website Form

When filling out the form on the website, make sure you have the following bank account details ready:

1. Account Holder's Name
2. Account Number
3. Bank Name and Branch Name
4. IFSC Code