OTOMATIKS®

PROUDLY PRESENTS

ROBOTICA-25

6TH NATIONAL LEVEL ROBOTICS COMPETITION

TABLE OF CONTENTS

General Information for Robo Sumo Event

In the Robo Sumo event, where two robots, called "sumobots," face off in a circular arena. The goal is to push the opponent out of the ring. These robots have to be designed as per specification and the event features different missions designed. All robots should follow the rules which have been provided that tests the creativity and problem-solving abilities, especially at international levels.

In the Robo Sumo category, students will focus on developing the following skills:

- **Coding Skills & Robotics Concepts:** Understanding how to perceive and interact with the environment, control robot movements, and navigate through the competition field.
- **Engineering Skills:** Building a robot that can push the opponent out of the ring.
- **Strategy Development:** The robot's design, speed, and power will influence the choice of strategy.
- **Computational Thinking:** Engaging in practices like tinkering, debugging, collaboration, and iterative problem-solving.

Challenges

- **Durability:** Ensuring the robot can withstand impacts and collisions.
- **Weight Distribution:** Achieving optimal weight distribution for balance and stability.
- **Power and Torque:** Selecting motors with sufficient power and torque for effective pushing.
- **Friction:** Managing friction between the robot and the arena surface to optimize traction and maneuverability.

Learning is Key

The primary goal of Robotica-2025 is to inspire students to explore STEM subjects and develop their skills through fun and engaging competitions. Key aspects of our competition are:

- **Guidance vs. Participation:** Teachers, parents, and mentors can guide and inspire teams, but they are not permitted to build or program the robot.
- **Fair Play and Ethics:** Teams, coaches, and judges are expected to adhere to the Robotica Guiding Principles and Ethics Code, ensuring a fair and educational competition experience for all participants.
- **Judges' Final Decision:** Teams and coaches are required to respect the final decisions of the judges and collaborate with other teams and officials to maintain a positive and respectful atmosphere during the event.

2. EVENT DETAILS

- **Date:** February 7, 2025
- **Venue:** VIT University, Chennai, Tamil Nadu
- **Registration Fee:** Rs. 800 per person
- **Category:** From Grade 6 onwards
- **Registration:** Registration can be done by visiting the website https://robotica.org.in/or Contact +91-90432 09448 so that our staff will guide you through the registration process.

3. RULES & REGULATION

- This is a combat event so the fastest and most balanced robot will win.
- Each member must contain the identity card of his/her respected institute.
- The robot should not damage the arena.
- No test practice will be allowed on the arena.
- The robot must not leave behind any of its parts during the run, else it will result in disqualification.
- The competition is based on a time trail system.
- Matches typically last for 2 minutes.
- Your robot must be ready when a call is made for your team.
- If any of the robots starts off before the start up call, the counter would be restarted and the machines will get a second chance. If repeated again then the team will be disqualified.
- Unethical behavior could lead to disqualification. Faculty coordinators have all the rights to take final decisions for any matter during the event.
- Judge's decision will be considered final.
- Certificates of Participation will be given to all the participants that will participate in the event, but not to the participant which gets disqualified due to disobeying any of the competition rules. *Co–ordination committee reserves the right to add or update any rule.

B. Robot Specification

1. The maximum dimension of the robot can be **30 cm x 30cm** x15 cm (l x b x h).
2. Robots must be in **within 3 kg**.
3. Start Mechanism:
    a. Robots are placed in the ring at designated starting positions.
    b. The match starts upon a signal from the referee.
4. Wheels and Tracks:
    a. Rubber Wheels: Good grip and traction for movement.
    b. Tank Tracks: Useful for better stability and traction.
5. Chassis and Frame:
    a. Aluminum (Lightweight and durable for structure.)
    b. Metal
6. Construct a sturdy and agile robot with reliable remote control mechanisms.

C. Batteries & Power:

1. There are NO restrictions on the type or size of batteries used in your RoboSumo robots.
2. The adapter will not be provided to the Robo Sumo competition

4. RING SPECIFICATION

- A circular ring with a diameter of 200 CM.
- The ring's boundary is marked with a white line, typically 2.5 cm thick.
- Material - Foam

5. POINT SYSTEM – Will be announced during the event

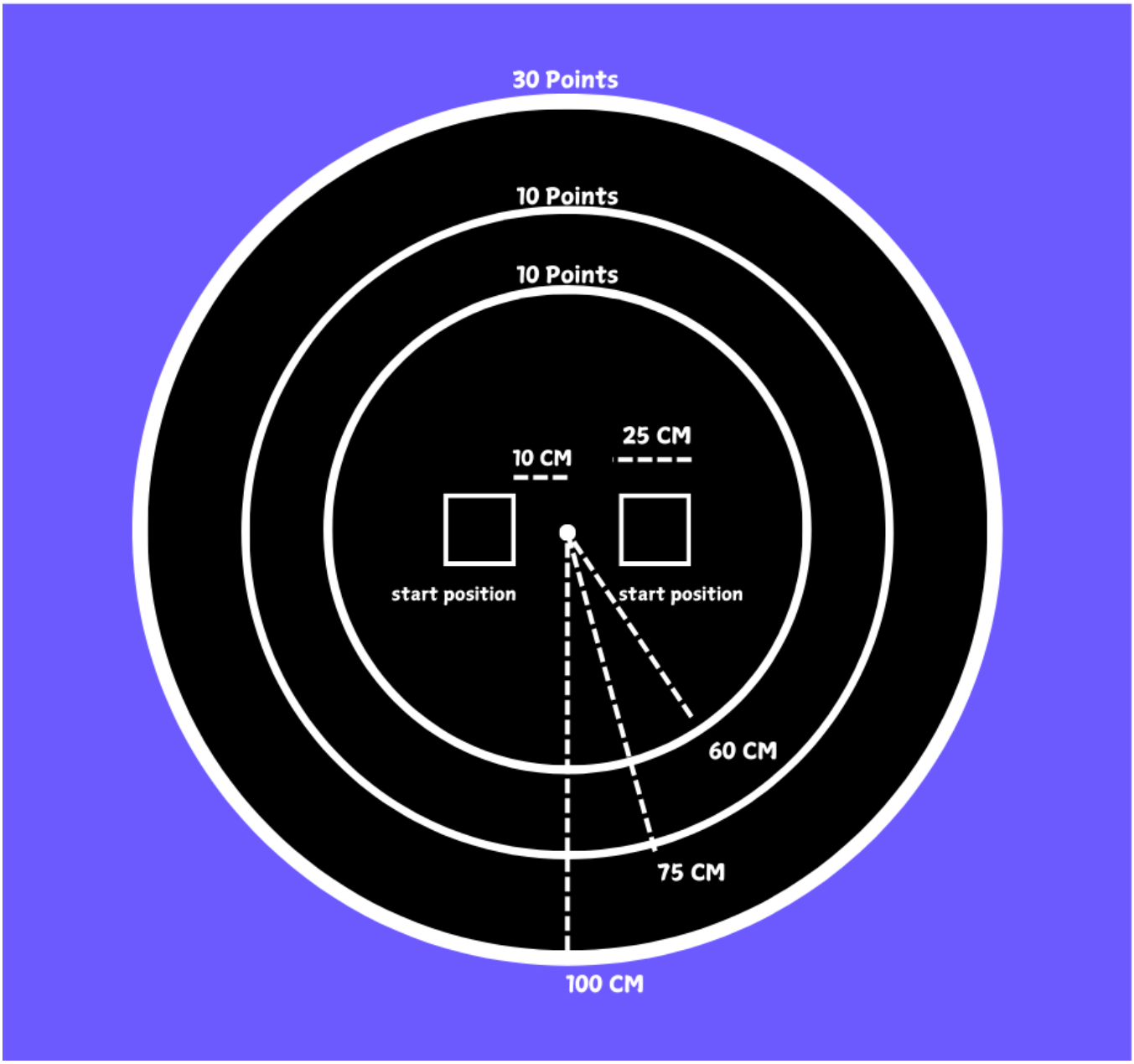
6. GAME RULE

1. The competition is based on a time trail system.

2. Wires should remain slack during the course of the run. Pulling the wire to aid the robot in traversing may lead to disqualification.

3. If any of the robots starts off before the start up call, the counter would be restarted and the machines will get a second chance. If repeated again then the team will be disqualified.

4. Your robot must be ready when a call is made for your team.


30 Points
10 Points
10 Points
10 CM
25 CM
start position
start position
60 CM
75 CM
100 CM