Initial **Task**
SCHOOL CATEGORY

IESL ROBO GAMES 25/26

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About
Robogames

IESL RoboGames is an annual robotics competition organized by the Department of Computer Science and Engineering at the University of Moratuwa, together with the ITCE Sectional Committee of the Institution of Engineers, Sri Lanka (IESL) and in partnership with SLT Mobitel. The event aims to support and develop young talent by encouraging interest and skills in engineering and technology.

The competition has three categories: School, Undergraduate, and Open. For the School and Undergraduate categories, workshops and awareness programs are conducted to introduce students to robotics in a simple and practical way. These programs help improve learning, boost creativity, and motivate students to become future engineers and innovators

MISSION

The mission is to bridge the gap in robotics education by providing all students around the country with hands-on training and guidance, empowering them to apply their knowledge in real-world challenges, and grow as future engineers and technologists.
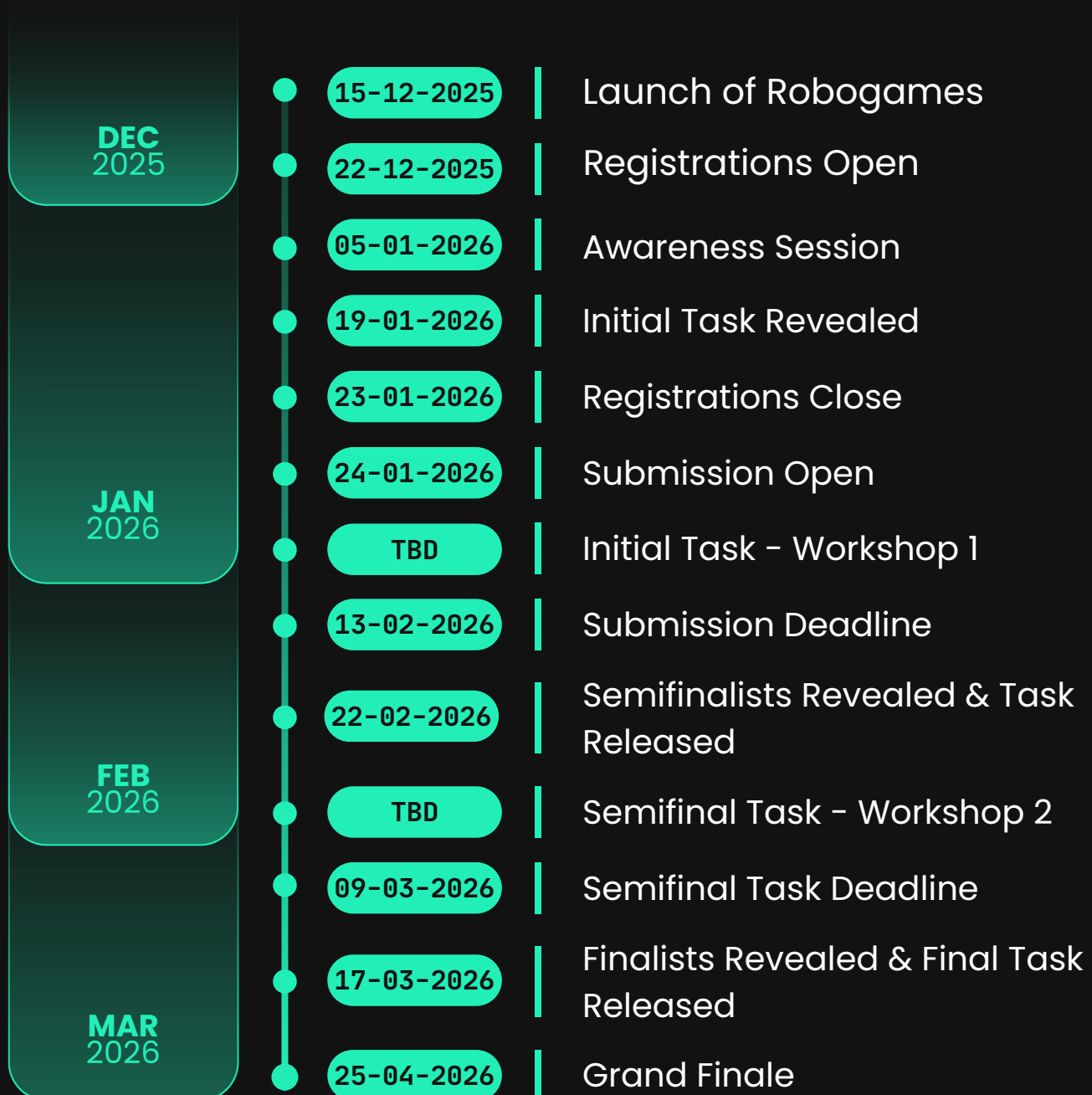
Overview of the
School Category

The School Category is designed for school students, with the aim of **introducing them to the fundamentals of robotics, coding, and logical thinking** in an engaging and accessible way. The competition focuses on programming robots to perform specific tasks within a defined play area, encouraging students to apply creativity and problem-solving skills in a practical setting. There is a series of workshops, providing all the necessary knowledge that is required for the competition.

Participants **are not required to build their own robots**, as **all necessary robotic equipment will be provided by the organizers**. This ensures equal opportunity for all students, regardless of access to technical resources, and allows them to focus on learning and innovation rather than hardware complexity.

This category contributes to society by promoting early exposure to STEM education, fostering curiosity and interest in technology among young learners. It helps develop essential skills such as teamwork, analytical thinking, and adaptability, while inspiring students to explore future careers in engineering, science, and technology.

School Category
Timeline

DEC 2025

- 15-12-2025 | Launch of Robogames
- 22-12-2025 | Registrations Open

JAN 2026

- 05-01-2026 | Awareness Session
- 19-01-2026 | Initial Task Revealed
- 23-01-2026 | Registrations Close
- 24-01-2026 | Submission Open
- TBD | Initial Task - Workshop 1

FEB 2026

- 13-02-2026 | Submission Deadline
- 22-02-2026 | Semifinalists Revealed & Task Released
- TBD | Semifinal Task - Workshop 2

MAR 2026

- 09-03-2026 | Semifinal Task Deadline
- 17-03-2026 | Finalists Revealed & Final Task Released
- 25-04-2026 | Grand Finale

General
Rules

- A team can consist of a maximum of 5 members and a minimum of 1 member. All members must be from the same school/institute.

- The teams that will pass the Completion round will be selected for the next round.

- Plagiarism is a serious offense and will cause a team to be disqualified. The judge panel may carry out a viva if solutions provided by a team are suspected to be plagiarized.

Note: The decision of the judges will be final.

Task
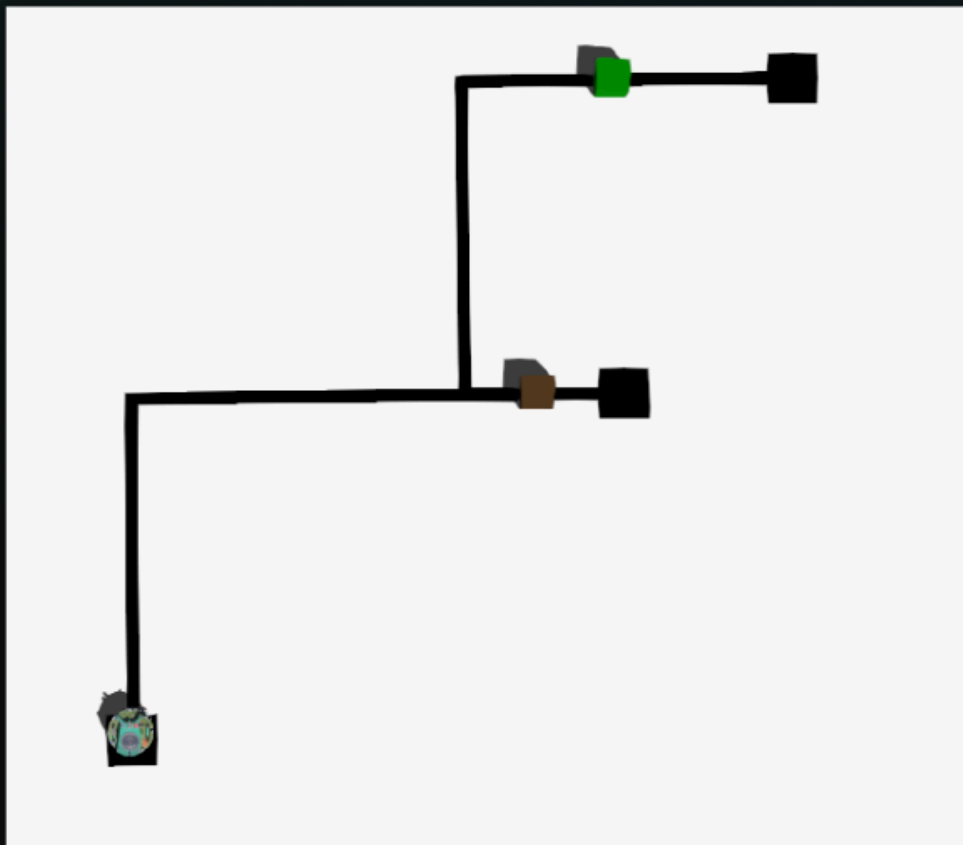# Introduction

Landslide Scenario

- After a landslide, a rescue robot is sent to clear a narrow path through a forest area.

- Along the path, fallen objects are blocking the way.

    - **Brown cubes represent landslide debris** that must be cleared.

    - **Green cubes represent trees** that must be avoided.

- The robot must follow the marked path (black line), identify the type of object it encounters, and act accordingly to safely reach the destination.

The Arena

The Webots world file can be downloaded from the link below:

https://robo.cse.mrt.ac.lk/school-task1

Competitors must not modify the provided Webots environment file **"School_First_Task.wbt"** or **"E-Puck robot"** while programming the task.

The
Arena CTD.

Arena Specifications

- All measurements are in meters (m)

- The arena is square with dimensions 2m × 2m

Cube Properties

- Edge length: 0.05m

- Colors: Green(#00FF00), Brown(#996633)

Line Properties

- A black line on a light background, forming a straight path with a right-angle branch.

- Line width: 0.025m

- Colors: Black(#000000)

The
Arena CTD.

Robot Configuration:

- *Competitors should use the provided modified E-puck robot for simulation.*

    - A line following robot with 5 IR sensors for black line detection

    - Proximity sensor

    - A colour sensor.

    - Initial Position: On Starting Black Square

    - Initial Orientation: Facing Forward towards the black line path

The Task

Programming Language:
The robot controller must be implemented using **C/C++ languages** only

The robot must perform the following actions in order:

1. Start and Line Following

- The robot starts from the starting black square.

- It must follow the black line using its IR sensors.

2. Brown Cube Handling (Landslide Debris)

- The robot will first encounter a brown cube on the main path.

- The robot must detect the cube and identify its color.

- Since the cube is brown, the robot must push the cube forward along the black line.

- The robot must continue pushing until the cube reaches the black square in front (PLACE).

The
TASK CTD.

3. Return and Branch Navigation

- After placing the brown cube at the front black square, the robot must **turn back** and return to the junction.

- The robot must then take the **other branch** of the path.

4. Green Cube Handling (Tree)

- On this branch, the robot will encounter a **green cube**.

- The robot must detect the cube and identify its color.

- Since the cube is green, the robot must not push it.

- The robot must go around the green cube, without disturbing it.

5. Goal and Stop Condition

- After avoiding the green cube, the robot must continue following the black line.

- It must stop completely at the designated black square (END).

Robot must print the color of the detected cube from the color sensor in the console.

Video Submission
Requirements

- Show the complete task execution from start to finish.

Note: The robot does not need to stop after completing the box- pushing action

Violations

- **Modification of the environment** including changing the positions of the cubes, changing the initial position, and changing the direction and position of the robot.

- **Manipulating/editing the video demonstration** intended to mislead the judges is a violation. The code you submit will be executed and checked against the video submission and any discrepancy will be investigated.

Any violation will cause the submission to be rejected

Submission

- The submission period **starts at 12:01 am on the 24th of January 2026** and **ends at 11:59 pm on the 20th of February 2026.**

- Participants will receive the submission link via email, and it will also be shared in the WhatsApp group.

- A submission should include the following contents :

  - The code of the robot controller and a zip file of the entire project

  - A video demonstrating the robot performing the task.

  - An approval letter issued by the Principal or Vice Principal of the relevant school. The letter must mention the names of all team members participating in the competition.

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