



Kre8ivity League-Zonal Round PS

Introduction

Welcome to the Kre8ivity League!

In this thrilling event, participants will showcase their creative skills through the design, assembly, and programming of robots that excel in the art of drag and place. The task at hand is both simple in concept yet profoundly challenging in execution: to create robots that can adeptly identify, grab, and move objects with precision and efficiency.

Note: Lego kits are not allowed in the competition.

Good luck to all participants, and may the most creative and skilled Drag and Place Bots win!

Problem statement for Grades 9-12

Teams are tasked with designing a wireless **Drag and Place Bot** capable of performing the assigned task of moving objects and arranging them within designated zones. The robot should be pre-programmed and operated using an **Arduino controller**.

Robot Specifications

- The robot's dimensions must not exceed 30 cm X 30 cm X 30 cm (LxWxH) during initial inspection, excluding the gripper but including wheels. However, the bot can extend its size once the run begins. A tolerance of $\pm 5\%$ is allowed.
- The bot must be controlled wirelessly using a remote.
- Teams are permitted to use Wi-Fi or Bluetooth control mechanisms only.
- The dimensions of the remote control are not counted in the bot's size constraint.
- Participants are allowed to incorporate ready-made gear assemblies in their robots.
- Failure to meet any of the above specifications will result in immediate disqualification.
- AC power supply will not be provided or allowed in the competition.
- Participants may use the MechanzO Kit or a similar kit for mechanical assembly.

Rules

- Each team can consist of a maximum of 3 students.
- The potential difference between any two points on the Drag and Place Bot should not exceed 12V.
- The use of pneumatics and hydraulics is not permitted.
- Participants must provide an additional power source for the final built bot used in the competition.
- Motors used should be DC motors with a maximum speed of 150 RPM.
- Electric tools are not allowed for robot assembly.
- The Drag and Place Bot must incorporate various mechanical components.
- Negative marking may be applied for errors in the dragging and displacement task.
- Teachers and mentors are not allowed in the competition arena.
- To participate at the Zonal level, participants must strictly adhere to all rules.
- The robot's weight should not exceed 3kg.
- Robot dimensions must conform to: Height = 30 cm, Width = 30 cm, Length = 30 cm.
- In the event of any scoring discrepancies or issues during the competition, the final decision will be made by the judges.
- **The competition rules are subject to modification by the organizers, so participants are advised to regularly check the competition's official website for any updates.**

Scoring and Penalties

The general scoring is as follows:

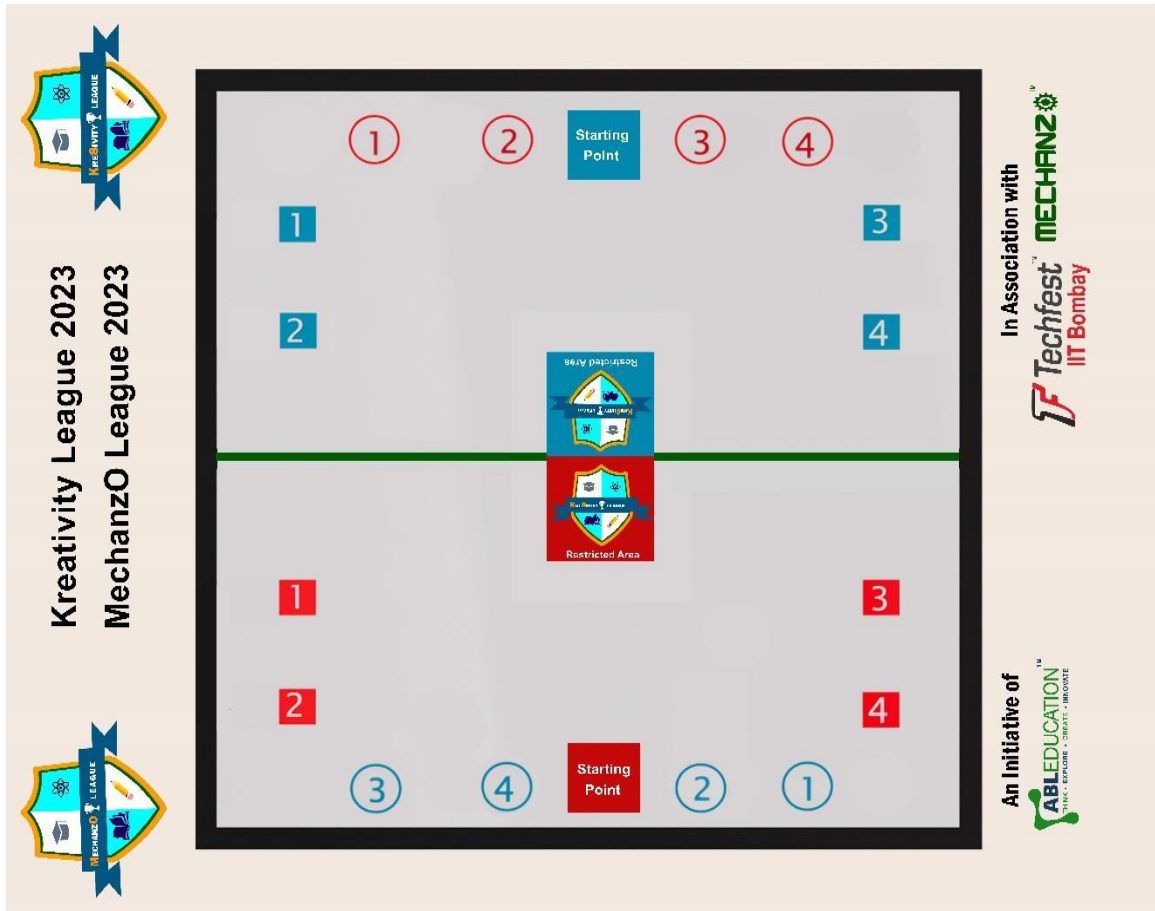
S. No	Task Completed	Points Awarded
1	Time Score <ul style="list-style-type: none">- Completed within 6 minutes- Completed within 7 minutes- Completed within 8 minutes	+10 points +5 points 0 points
2	Object Placement Accuracy <ul style="list-style-type: none">- Perfect placement- Near-perfect placement- Slight deviation from target (Some parts touches the target)- Significant deviation from target (No part of robot touches the target)	+10 points +5 points +2 points 0 points
3	Design and Innovation <ul style="list-style-type: none">- Excellent design and innovation- Good design but lacks innovation- Basic design with no innovation	+5 points +2 points 0 points
4	Collision/Touches Wrong Area <ul style="list-style-type: none">- Robot touches the Restricted Area -3 points- Two Robots collide with each other -5 points- A Robot strikes the other robot by mistake or intentionally	-3 points -5 points -5 points for the team that strikes the other robot
5	Miscellaneous	Points assigned based on judges' discretion

Arena Specifications

- The outer dimensions of the arena are 166 cm X 170 cm (LxB).
- The object dimensions are 6.35 cm x 6.35 cm x 6.35 cm (LxBxH).
- Drop point dimensions are 8 cm x 8 cm (LxB).
- Object weight is less than 100 grams.
- Checkpoints are not available.
- Objects are indicated by squares with numbers 1-4.
- Drop spots are indicated by circles with numbers 1-4.

Note: The above dimensions may vary during the competition

ARENA



Note: The above pictures are just for representation and it does not resemble the actual arena.

Gameplay

- This game can only be played between two teams at once.
- Both Robots are initially placed at the starting point.
- Both robots will start at the same time when the judge says.
- Both robots will be assigned one color either Red or Blue.
- The Robots must avoid touching the Restricted Area while moving.
- To successfully complete the competition, the Drag and Place Bot must accurately pick up objects and transport them to the designated drop points matching the objects' respective colors.
- Both teams must finish in the least amount of time feasible while not making fouls.