**RoboQuest: Design the Ultimate Drag-and-Place Bot**

**Calling all young engineers and robotics enthusiasts!**

Get ready to unleash your creativity and problem-solving skills in Kreativity League 2024's RoboQuest challenge. Your mission: design and build, a wirelessly controlled robot that can navigate a complex arena, strategically drag objects, and precisely relocate them.

**The RoboQuest Controller is compulsory for this challenge and contains all the necessary components you will need.**

**The Challenge:**

You must use a multiple-piece chassis from any kit to design a unique and innovative robot, showcasing your engineering ingenuity. As part of the challenge, participants will have to **drag and place all the 4 blocks at their respective place.**

**Your Robot Must:**

- Be wirelessly controlled using the RoboQuest Controller.
- Use BO DC motors with a maximum speed of 150 RPM (Tested on a Tachometer).
- Navigate the arena manually, following pre-programmed instructions.
- Efficiently drag and reposition objects within the arena.
- Adhere to all size, weight, and electrical specifications (Detailed in the RoboQuest Rules and Regulations).
- Only mobile phones can be used for robot control (No RC Remotes).

**Prizes:**

- **Grand Prize:** A life-changing trip to the Indian Space Research Organisation (ISRO)!
- **Additional Prizes:** Exciting rewards for top-performing teams and individual achievements.

**Additional Details:**

- **Specifications, Rules & Regulations:** Look into this segment for the details.
- **Competition Rounds and Scoring:** Get ready for mind-boggling challenges and a scoring system that will test your robotic ingenuity!

**Let your creativity soar and your robots conquer!**

# Specifications, Rules & Regulations:

**1. Robot Specifications**:

The main part of the robot's dimensions must not exceed **25 cm X 25 cm X 20 cm** (LxWxH) during the initial inspection, excluding the dragging part but including the wheels. However, the bot can extend its size once the run begins. A tolerance of ±5% is allowed.

- Only **ONE** RoboQuest Controller is allowed for programming and control.

**2. Control Mechanism: The bot must be controlled using a RoboQuest Controller.**

**3. Wireless Communication Integration**: Only a maximum of one Bluetooth is allowed for this purpose. And a mobile application for controlling the bot using Bluetooth connectivity is allowed.

**4. Ready-made Assemblies**: Participants are **not allowed** to use ready-made mechanical assemblies in their robots. Participants must use **multiple piece chassis** from **any kit** to design a unique and innovative robot.

**5. Power Supply**: AC power supply will not be provided or allowed during the competition.

**6. Wheel Specifications and Restrictions**:

Maximum overall diameter: **8 cm** Maximum width: **2 cm**

Omni-directional wheels are not allowed

**7. Electrical Specifications**:

- The battery used for the Bot should not exceed **12V.**

- Participants must provide an additional power source for the final built bot used in the competition.

**8. Motor Specifications**: Motors used should be BO DC motors with a maximum speed of **150 RPM.**

**9. Arena and Block Setup**: The Arena will have different levels of complexity, providing a dynamic challenge. Blocks will be placed strategically within the arena.

**10. Programming**: The robot must be pre-programmed before the start of each round. Teams are not allowed to reprogram the robot once the competition has started.

**11. Competition Rounds**: Each team will have a specified time to complete the task. Points will be awarded based on completion time and successful block placements.

**12. Participant Restrictions**: Teachers and mentors are not allowed in the competition arena.

**13. Disqualification Criteria**: Failure to meet any of the specified requirements will result in immediate disqualification

## Scoring and Penalties

| Step | Challenge | Points to Win |
|---|---|---|
| 1 | **Race against Time!** | Finish in under 3 minutes: **100 points!**<br>Finish in under 4 minutes: **80 points!**<br>Finish in under 5 minutes: **60 points!**<br>Finish in under 6 minutes: **50 points!** |
| 2 | **Place your blocks!**<br>*(Each block – Total 4 blocks)* | ⭐ Perfect placement: **20 points**<br>✓ Almost perfect (touching the circle): **10 points**<br>✗ Missed the mark (not touching the circle):<br>**0 points** |
| 3 | **Build Your Path!** | Finished 1 block: **10 points**<br>Finished 2 blocks: **20 points**<br>Finished 3 blocks: **30 points**<br>Completed all 4 blocks: **40 points!** |
| 4 | **Watch Out for Mistakes!** | ✗ If a block leaves the game area:<br>**Oh no! Disqualified!** |
| 5 | **Special Bonus Fun!** | Use the Double-Road trick: **25 bonus points!**<br>Use the Hinge to win: **10 bonus points!** |