

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 Kreativitiy 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 solve a 3-letter word from jumbled blocks** and form the word given to them on the spot.

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.

Get Ready to Showcase Your Robotic Brilliance!

Are you up for the challenge? Register your team today and embark on a thrilling adventure of robotic innovation!

Additional Details:

- **Specifications, Rules & Regulations:** Look into this segment for the details.
- **Arena Reveal:** Stay tuned for the exciting reveal of the official RoboQuest arena!
- **Competition Rounds and Scoring:** Get ready for mind-boggling challenges and a scoring system that will test your robotic ingenuity! Details coming soon.

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 $\pm 5\%$ 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

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1	Completion Time <ul style="list-style-type: none">- Under 5 minutes- Under 4 minutes- Under 3 minutes- Under 2 minutes	40 points 60 points 80 points 100 points
2	Drag and Place Points for each block (Total 3 blocks) <ul style="list-style-type: none">- Perfect placement- Near-perfect placement (some part of the block touches the circle)- Significant deviation from the target (No part of the Block touches the circle)	20 points 10 points 0 points
3	Complete Arena Scoring (In line) <ul style="list-style-type: none">- Only 1 block completion- Only 2 block completion- All 3 blocks completion- Perfect Word formation(in line)	10 points 20 points 30 points 5 points
4	Time Points for Incomplete Maze <ul style="list-style-type: none">- Deduct 5 points for every 30 seconds over the time limit(Max time is 7 min)	
5	Misdirection Adjustment <ul style="list-style-type: none">- Any block cross Arena's boundary will be disqualified and marks will not awarded	

6	Touching Boundary wall will awarded negative marks	2 points for every touch
7	Special Bonus (If you use bump)	Plus 2 points for each bump per Letter (If you cross a bump multiple time while dragging same letter block, this bonus will not be awarded)

