

NRC RoboCup Singapore Challenge 2025 – CoSpace Rescue Category

Age Group: Primary | Secondary | Junior College (JC)

Team Size: 1 – 3 students

Software: CoSpace Rescue Simulator

Hardware: VRBOT-D1

Challenge Theme: Environmental Sustainability

This challenge aims to bring together students with basic robotics and coding skills who are interested in solving real-world problems through technology. By participating in the NRC RoboCup Singapore Challenge, students will build a strong foundation in robotics & AI and gain the confidence to advance to regional events such as the RoboCup Asia-Pacific (RCAP) competitions.

Additional Recognition:

Students demonstrating proficiency based on the RoboCup Singapore Education Framework will also receive official Certificates of Recognition.

Moving forward:

Winning teams will have an opportunity to take part in the RoboCup Asia-Pacific finals in Abu Dhabi, 10 - 14 Nov 2025.

Below are the details for different age groups.

PRIMARY LEVEL

In this challenge, teams are required to develop and program strategies for a virtual autonomous robot to navigate, search, and collect different objects within a virtual environment.

Platform & Rules:

- Simulator: RCAP CoSpace Rescue FirstSteps, U12
- Rules: [\[PDF\]](#) [\[Video\]](#)

Challenge Format:

- Single-team, single-robot performance format. Each robot operates independently and does not interact with robots from other teams.

Awards:

- Virtual Robot Challenge Award

SECONDARY LEVEL

In this challenge, teams are required to develop and program appropriate strategies for autonomous robots to collect objects in both real and virtual environments. Tasks involve navigation, obstacle avoidance, colour detection using RGB sensors, and path planning.

Challenges:

Participants in this age group may choose to compete in the Virtual Robot Challenge only or take part in both the Virtual and Real Robot Challenges. Virtual Robot Challenge is compulsory.

If your team decides to participate in both the virtual and real challenges, it is compulsory to have at least two students per team.

1. Virtual Robot Challenge

- Simulator: RCAP CoSpace Rescue U19
- Rules: [\[PDF\]](#) [\[Video\]](#)

2. Real Robot Challenge

- Simulator: RCAP CoSpace Rescue U19
- Hardware: VRBOT-D1 (Teams must bring their own hardware)
- Rules: [\[PDF\]](#) [\[Video\]](#)

Challenge Format:

- Single-team, single-robot performance format. Each robot operates independently and does not interact with robots from other teams.

Awards:

- Virtual Robot Challenge Award
- Real Robot Challenge Award
- Grand Challenge Award: Awarded based on the combined scores of both virtual and real robot challenges.

JUNIOR COLLEGE (JC) LEVEL

In this challenge, teams are required to develop and program appropriate strategies for autonomous robots to collect objects in virtual environments while competing directly against another team's robot that is also searching and collecting objects in the same virtual world. Tasks involve navigation, obstacle avoidance, colour detection using RGB sensors, and path planning.

Platform & Rules:

- Simulator: RCAP CoSpace Rescue U19
- Rules: [\[PDF\]](#) [\[Video\]](#)

Challenge Format:

- Two teams will compete directly against each other while completing mission tasks.

Awards:

- Virtual Robot Challenge Award

Website: NRC2025.robocupsg.org

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