RoboCup Asia-Pacific Tianjin Invitational Tournament 2023

CoSpace Rescue Challenge, University

Newsletter #1

Dear Teams,

Welcome to RCAP CoSpace Rescue @ RoboCup Asia-Pacific Tianjin Invitational Tournament 2023(RCAP-TJI2023) at the National Convention & Exhibition Centre (Tianjin) in Tianjin, China. Please read the information on CoSpace Rescue Challenges carefully.

1. Schedule

Activity	Date	Time
Team Registration and Drawing lots	19 May 2023	10:00 – 16:00
Team Practice and Testing	19 May 2023	14:00 – 16:00
Challenge Day 1	20 May 2023	09:00 – 16:00
Challenge Day 2	21 May 2023	09:00 – 13:00
Award Ceremony	21 May 2023	15:00 – 16:00

2. Platforms

Please make sure that you are using the correct version of the CoSpace Simulator. They are all activated.

- **RCAP CoSpace Rescue Platform Download and Challenge Rules**

Download link:	https://cospacerobot.org/download/documents/category/1software?download=155:rcap-cospace-rescue-2022-v22-4-3-9
Version:	V22.4.3.9
Hybrid Challenge Rules	https://robocupap.org/rcap-cospace-challenges/ For University Preliminary Challenge, CoSpace Rescue U19 simulator and competition rules will be adopted.

3. TDP and Technical Demonstration Video

- **TDP for RCAP CoSpace Rescue, University, Preliminary Challenge**
  The team must submit a Team Description Paper (TDP) (in English) describing the focus, ideas, and recent advancements implemented in the team. The TDP is limited to 10 pages and must be submitted as PDF to cospace@robocupap.org before 15 May 2023.
  * Refer to Appendix B.
- **Video for RCAP CoSpace Rescue, University, Preliminary Challenge**

All teams are requested to submit the VIDEO to share their methodologies and strategies to cospace@robocupap.org before 15 May 2023.
* Refer to Appendix C.

4. <u>Real Robot</u>

The Competition will be played in CoSpace mode. Each team is required to bring its own Robot (VRBot_D1) and sufficient batteries.

The event organizer will set up a robot clinic to help teams to fix the robot failure.

The real robot VRBot_D1 as shown below will be used in the first day of competition. This platform is a standard hardware platform, and the team should not make changes to the robot hardware.

5. <u>Team Registration (19 May 2023)</u>

Please report to the CoSpace Rescue desk after team registration. Teams will be given:
- Team ID
- Group ID
- Team table
- Updated daily schedule.

The team draw lots will be conducted when teams report to the CoSpace Rescue desk. **If a team has not completed the draw before 4:00 pm, the organizing committee will conduct the draw on behalf of that team.**

6. <u>Competition DAY 1 (20 May 2023)</u>

Teams will play a round-robin tournament for 1st, 2nd and 3rd place.

7. <u>Competition DAY 2 (21 May 2023)</u>

In the RCAP CoSpace Challenge University League, two special challenges will be organized at RCAP-TJI2023. University teams can choose to participate in either of them, and specific requirements can be found in the following text.

- **TDP for RCAP CoSpace Rescue – Vision Technical Challenge**
  - The team must submit a Team Description Paper (TDP) (in English) describing the focus, ideas, and recent advancements implemented in the team. The TDP is limited to 10 pages and must be submitted as PDF to cospace@robocupap.org. If you wish to participate in the Vision Technical Challenge, please complete the submission before May 15, 2023.
    * Refer to Appendix B.
- **Video for RCAP CoSpace Rescue – Vision Technical Challenge**
  - The team must submit the VIDEO to share their methodologies and strategies to cospace@robocupap.org. If you wish to participate in the Vision Technical Challenge, please complete the submission before May 15, 2023.
    * Refer to Appendix C.
- **RCAP CoSpace Rescue – Vision Technical Challenge**
  - Teams are only required to code a virtual robot. The game will only take place in virtual world 2. The game is a single-player mode, and all teams will use the blue robot.
  - Resources and Rules: https://cospacerobot.org/rcap-cospace-rescue-university-advanced

b). RCAP CoSpace Autonomous Delivery (ADL) Challenge – SuperTeam

It is not compulsory for university teams to take part in the SuperTeam Challenge on 21st May. In SurperTeam Challenge, SuperTeams will work together to complete a RCAP CoSpace Autonomous Delivery (ADL) Challenge. This is a good opportunity to learn from each other.
Have fun!
Please make sure that you are using the correct version of the CoSpace Simulator. They are all activated.

RCAP CoSpace Autonomous Delivery Platform Download and Challenge Rules

Download link:	http://cospacerobot.org/download/documents/category/1-software?download=198:rcap-cospace-auto-delivery-2023-23-4-7-8
Version:	V23.4.7.8
Hybrid Challenge Rules	https://tji2023.robocupap.org/rcap-cospace-autonomous-delivery-challenge/ CoSpace ADL Open simulator and competition rules will be adopted.

8. <u>USB Thurmb Drive</u>

a) The organizer will loan a USB thumb drive for each participating team. The thumb drive is used to transfer files during the competition. **It is not allowed to share thumb drive with other teams. Teams need to return the thumb drive to their game station each day after competition.**

9. Challenge Map Release

a) There will be a team leader meeting at 9:15 am each day. Teams must not be late for the team leader meetings. The challenge map will be stored in a thumb drive and distributed to teams after the meeting.

10. Programming

- **RCAP CoSpace Rescue, University, Preliminary Challenge**

  On-Site challenge is a **Counteract Game between the two teams**. Teams need to program in **COMPETE** mode. Please make sure your platform and map are correct before coding.

  - Teams need to program a **REAL** robot in World 1 (3 mins) and a **VIRTUAL** robot in World 2 (6 mins).

    o **NO TELEPORTATION** is required.
    o The real robot program needs to be uploaded onto the real robot (Board: VRBot) by teams. The virtual program should be submitted to the referee for uploading to the game station.
    o How to use the real robot in **RCAP CoSpace Rescue**: https://youtu.be/_hXFt-rd7KY (Technical documentation and resources can be found in the video description)

- **Important Note**

  a) It is the team captain's responsibility to ensure that the correct program is uploaded.
  b) The AI File (DLL file) must be named in the format:
     TeamID_TeamName_VersionNo
     For instance, if a team has the team ID "S1" and team name "CsBot", their first AI program file should be named "S1_CsBot_V1.DLL". The folder name in which the AI file is placed should also be named "S1_CsBot_V1".
  c) How to save the program folder to a USB thumb drive:
     https://youtu.be/2U5NoAO5SR0
     * Refer to Appendix A.

11. Challenge Rules Highlights

a) At the end of the programming period, each team must submit their first AI (V1) to the Game Station. Each team is allowed to submit 2 AIs, one for the RED robot and another for the BLUE robot. For the **RCAP CoSpace Rescue, University, Preliminary Challenge**, please also submit the **REAL robot** (with the program uploaded) to the Game Station.

b) The first AI folder needs to contain a ".DLL" file and a ".c" file. The folder name should be "TEAM ID_TEAM NAME_V1".

c) At the end of the programming period, each team must submit their first AI (V1) to the respective Game Station. The first AI will be used for the first game. Once submitted, the program cannot be changed for the first game. After the first game, teams are allowed to change the AI once before your next game. The modified AI must be submitted 5 minutes before your next game.

d) Pre-match meeting: the referee will toss a coin to let the team captains to choose the robot colour.

e) Only Team Leaders are allowed to talk to the referee in the game.

f) Each team has 3 times to relocate the virtual robot and real robot respectively (if there is a real robot).

g) Team leaders should report to the referee 5 minutes before the game.

h) If a virtual/real robot is hit/attacked by another virtual/real robot, the attacking robot will be separated from the attacked robot and repositioned at the same location with a different orientation (if there is a collision) and frozen for 10 seconds. There will be no point deduction.

i) If two virtual/real robots bump into each other, both robots will be frozen for 10 seconds. There will be no point deduction.

j) In the submitted program, please do not use functions such as Print() that need to generate output in the console.

k) In special circumstances, rules may be modified by the CoSpace Rescue Organizing Committee, even during a tournament if necessary.

l) If any of the team captains/members do not show up to the team meetings to discuss the problems and the resulting rule modifications described above, it will be considered as an endorsement.

Please note:
- **No mobile phone or earphones are allowed during the challenge.**
- **Keep your mobile phone in your bag, don't take it out during the programming session.**
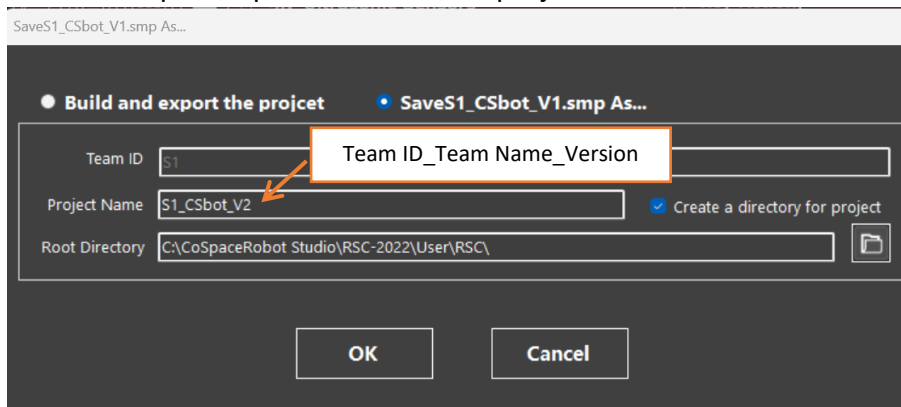- **No laptop is allowed to be taken out of the competition venue.**

Best of luck,

RoboCup Asia-Pacific CoSpace Challenge Organising Committee

Appendix A: How to save your program folder into a USB thumb drive

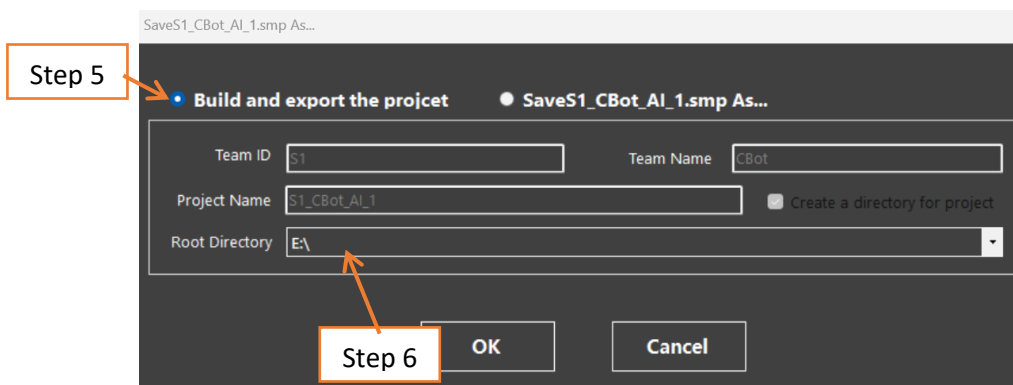A. To rename your project name for a new AI version

Click 🖫 on AI development panel and rename project name as shown below.

B. To save your program files onto a USB drive, please follow these steps:
1. Plug in your USB drive to your laptop.
2. Enter the programming interface.
3. Load your program.
4. Click the "Save" button.
5. Select "Build and Export the Project."
6. In the "Root Directory" section, select your USB drive.
7. Click "OK" to save the program files to your USB drive.

By following these steps, you should be able to successfully save your program files onto your USB drive for program submission.

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Team Description Paper

(Cover Page)

League Name:	
Age Group:	
Team Name:	
Team Website:	
Participants Name:	
Mentor Name:	
Institution:	
Region:	
Contact Person:	
Contact Email:	
Date:	

Team Description Paper

League Name

Student 1, Student 2, …

Team Name, Institution, Country

1. Abstract

2. Introduction
    a. Team Background
    b. Team website (if you have one)
    c. Team photo (optional)
    d. Provide any video link (URL) related to your team and challenge if any (optional)
    e. Previous RoboCup or other robotics experience

3. Strategy
    a. Description of your AI strategy.
    b. Include flowcharts, tools, or pseudo code if appropriate.
    c. Describe and highlight innovative algorithms in any.

4. Track Record
    a. RoboCup Achievement
    b. Other robotics competition achievement

5. Discussion and Conclusion
    a. Share your team's learning experience
    b. Highlight collaboration with other teams if any
    c. Description of future work

6. Acknowledgements

7. References

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PPT Presentation and Technical Demonstration Video

Guideline for PPT preparation:

1. Title/Identification
   - Team name, country, sub-league.
   - Team photos
2. Abstract
   - A concise summary of the entire project. The abstract should state
     - the problem(s) you investigated
     - the methods and key result
     - the conclusion
3. Strategy
   - Description of different types of the algorithms can be used to solve the problem
   - Which AI algorithm to be selected and used? Include flowcharts or pseudo code if appropriate.
   - Innovative ideas involved
4. Discussion and Conclusion
   - Teams should include the result when the selected AI algorithm is adopted.
   - How the result is improved.
5. Photos/Images
   - Teams should include images and graphics of the team's robots. Images and graphics should be original or should be available for non-commercial reuse with modification as per the creative commons license (http://creativecommons.org/).
6. Sharing
   - Share your team's learning experience
7. Additional Information
   - You may like to include all achievement in RoboCup / RCAP or other robotics competition achievement

Video Guideline

Each team should submit 1 video. The video is focusing on presentation and sharing.