RoboCupJunior Rescue Simulation Rules 2023

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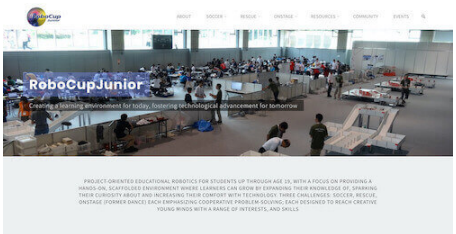
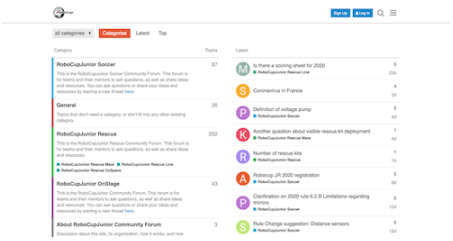
Official Resources

RoboCupJunior Official Website	RoboCupJunior Official Forum	RCJ Rescue Community Website
		
https://junior.robocup.org	https://junior.forum.robocup.org	https://rescue.rcj.cloud

The RoboCupJunior Rescue Simulation rules are developed and reviewed by the RoboCupJunior Rescue Committee. The simulation platform is developed and maintained by the Platform development team.

Corrections and clarifications to the rules may be posted on the forum before updating this rule file. It is the responsibility of the teams to review the forum to have a complete vision of these rules.

Before you read the rules

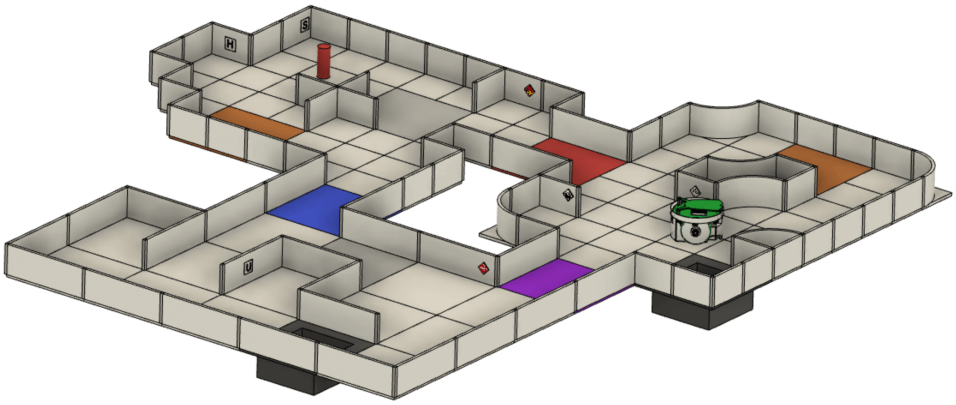
Please read through the RoboCupJunior General Rules before proceeding with these rules, as they are the premise for all rules. The English rules published by the RoboCupJunior Rescue Technical Committee are the only first draft rules for RoboCupJunior Rescue Line 2023. In the translated versions, each regional committee can publish only reference information for non-English speakers to understand the rules better. It is the responsibility of the teams to read and understand the official rules.

Sections of the rules that apply specifically for in-person competitions and online competitions will be marked with a " * ". These sections are highly likely to be affected in the future.

The "robot" refers "virtual robot" in these rules.

Scenario

Rescue teams can use robots to navigate complicated to dangerous or hard-to-access environments for search and rescue operations to minimize the risk to humans. In this challenge, the autonomous controller for a robot must be developed to search and identify victims in a simulated hazardous rescue scenario. The robot must navigate through challenging terrains without getting stuck, search for victims and signal the victims' locations alongside the map of the maze environment to human search teams.

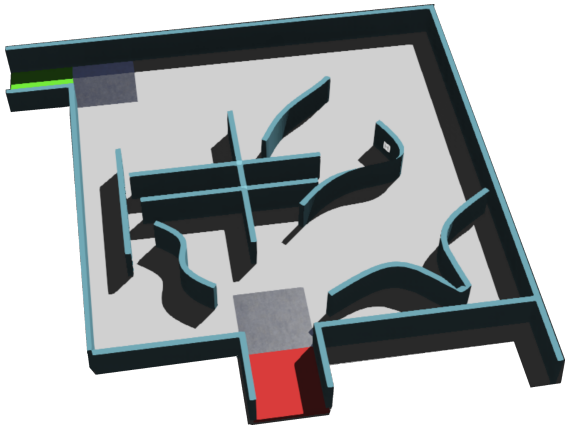


Summary

Since this simulates a rescue environment, the robot's goal should be to try its best to locate all victims by navigating and mapping simultaneously, i.e., map out unknown domains. There are four areas. Areas 1 to 3 consist of a tile-based system maze-like layout. Area 4 (optional area) is not tile-based, and teams are encouraged to explore interesting simultaneous localization and mapping algorithms.

If the robot is stuck anywhere in the arena, it can be restarted at the last visited checkpoint. Silver tiles in the field represent checkpoints, so the robot can save the position to a map (if it uses a map) in a non-volatile medium and restore it in case of a restart.

A sample Area 4 (Tentative):



Contents

1. Code of Conduct

1.1. Spirit

1. It is expected that all participants (students and mentors alike) respect the aims and ideals of RoboCupJunior as set out in our mission statement.
2. The volunteers, referees, and officials will act within the event's spirit to ensure the competition is competitive, fair, and, most importantly, fun.
3. **It is not whether you win or lose but how much you learn that counts!**

1.2. Fair Play

1. Robots that cause deliberate or repeated damage to the field will be disqualified.
2. Humans that cause deliberate interference with the Rescue Simulation runs, including the simulation engine, server, or computers, will be disqualified.
3. It is expected that all teams aim to participate fairly.

1.3. Behavior

1. Each team is responsible for verifying the latest version of the rules on the RoboCupJunior Official website and additional clarifications/corrections on the official forum made by the RoboCupJunior Rescue Committee before the competition.
2. * Participants should be mindful of other people and their robots when moving around the tournament venue.
3. * Participants are not allowed to enter setup areas of other leagues or teams unless explicitly invited to do so by team members.
4. Teams will be responsible for checking updated information (schedules, meetings, announcements, etc.) during the event. The RoboCupJunior Rescue Committee will provide updated information on notice boards in the venue, the local competition website, or the RoboCupJunior website if possible.
5. Participants and their companions who misbehave may be asked to leave the venue and risk being disqualified from the tournament.
6. Referees, officials, tournament organizers, and local law enforcement authorities will enforce these rules equally to all participants.
7. Teams are expected to be at the venue early on the setup day as important activities will occur. These activities include but are not limited to registration, participation raffle, interviews, captains, and mentor's meetings, among others.

1.4. Mentors

1. * Adults are not allowed in the student work area.

2. Mentors are not permitted to be directly involved in the programming before and during the competition.
3. In the first instance, mentor interference with robots or referee decisions will result in a warning. If this behavior recurs, the team could face a possible elimination from the tournament.
4. Robots have to be the work of the students. Any robot that appears identical to another robot may be prompted for re-inspection.

1.5. Ethics and Integrity

1. Fraud and misconduct are not condoned. Fraudulent acts may include the following:
    a. Mentors working on the software or hardware of student's robot(s) during the competition.
    b. More experienced/advanced groups of students may provide advice but should not do the work for other groups. Otherwise, the team risks being disqualified.
2. RoboCupJunior reserves the right to revoke an award if fraudulent behavior is proven after the award ceremony occurs.
3. Suppose it is evident that a mentor intentionally violates the code of conduct and modifies and works on the student's robot(s) during the competition. In that case, the mentor will be banned from future participation in RoboCupJunior competitions.
4. Teams that violate the code of conduct can be disqualified from the tournament. Disqualifying a single team member from further participation in the tournament is also possible.
5. Referees, officials, tournament organizers, and local law enforcement authorities will give a team a warning in less severe cases of violations of the code of conduct. A team can be disqualified immediately without warning for severe or repeated violations of the code of conduct.

1.6. Sharing

1. The spirit of world RoboCup competitions is that teams should share technological and curricular developments with other participants after the tournament. Sharing furthers the mission of RoboCupJunior as an educational initiative.
2. The RoboCupJunior Rescue Committee may publish developments on the RoboCupJunior website after the event.
3. Participants are strongly encouraged to ask questions to their fellow competitors to foster a culture of curiosity and exploration in the fields of science and technology.
4. The RoboCupJunior Forum should be used for general queries and discussions. In contrast, the platform-specific Discord server should be used for technical questions regarding the platform.

2. Field

2.1. Simulation platforms

1. We will be running games on a platform called Webots. For the setup guide: Platform wiki page.
2. Teams are required to create programs to solve maze tasks.
3. * The organizers will run the games on a server-client model and prepare one RJ-45 socket for teams to connect to the game server. Teams must prepare a computer and an ethernet cable to run the prepared programs.
4. * The organizers will collect all the teams' simulation software before the competition is recorded. The recordings will be used as competition runs and showcased during the competition.
5. Teams are encouraged to develop their worlds and upload these to the forum to enable sharing.

2.2. Description

2.2.1. Area 1 to Area 3

1. The field layout will consist of a collection of tiles with a horizontal floor, a perimeter wall, and walls within the field.
2. The field may be divided into three distinct areas with different types of walls for the robot to navigate around.
3. All areas are connected by a passage of one standard tile in width. A color will mark the floor of this passage.

2.2.2. Area 4

1. This room’s layout is not based on a tile system, meaning walls and obstacles are not placed according to a grid system (i.e., arbitrarily).
2. Every scoring element will be accessible by a path with a minimum width of 12 cm. Note that the course may require diagonal movement. The robot’s action is not aligned to cardinalities (north, east, south, or west directions).

2.3. Checkpoints

1. Silver tiles in the field represent checkpoints.
2. Silver tiles will be placed randomly at the start of each game.
3. Area 4 will contain two checkpoints immediately after the red and green tile entrances to the room.

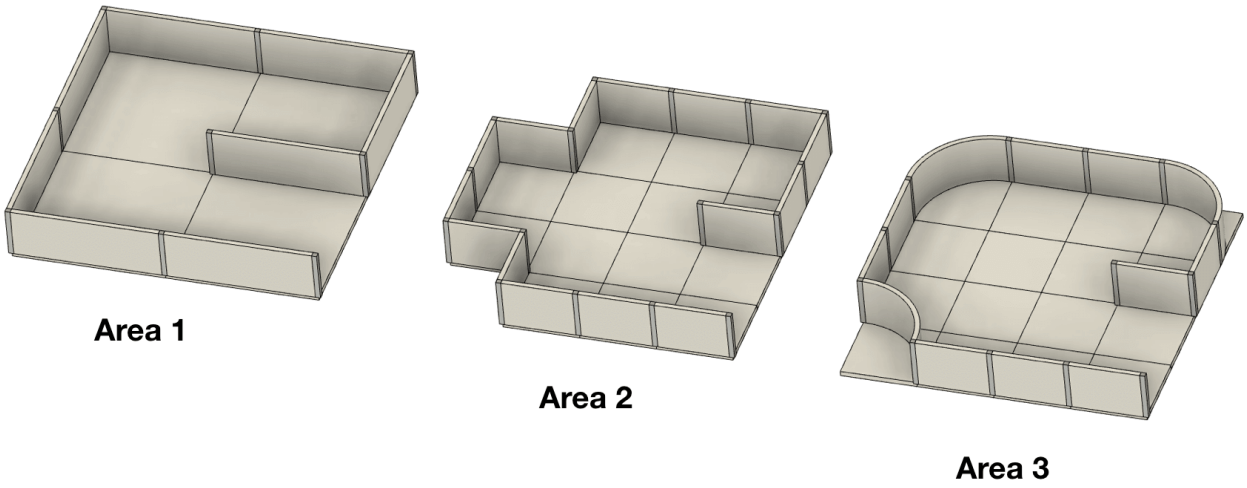
2.4. Tiles, Areas, and Walls

2.4.1. Area 1 to Area 3

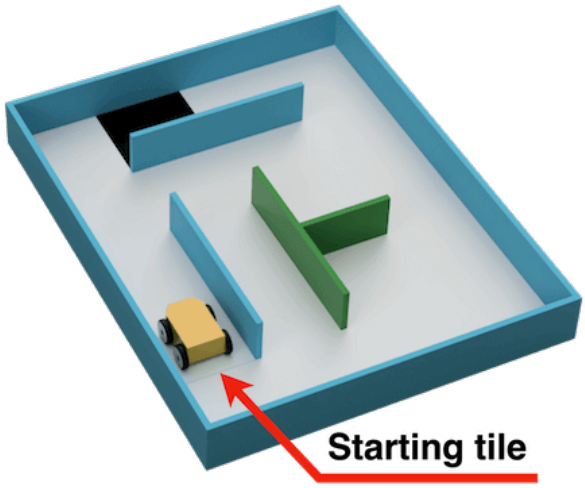
1. The field is divided into tiles of 12cm by 12cm in dimension. The tiles are not physical structures but

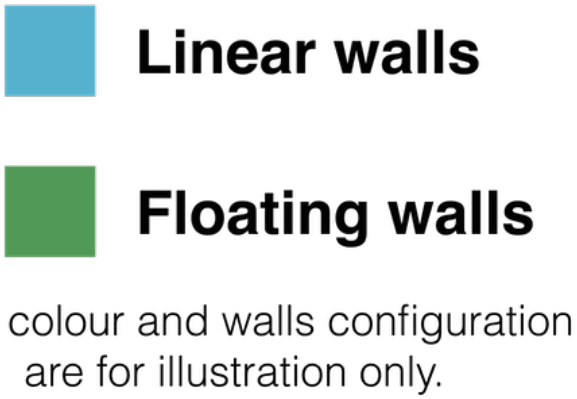
rather a concept of how the field is generated. For areas 2 and 3, quarter-tiles are considered, where each tile is subdivided into four 6cm by 6cm squares.

2. The walls will have a thickness of 1cm and a height of 6cm.
3. Pathways for the robot are intended to be of the width of the tile and may open into foyers more expansive than the pathways.
    - Area 1: Walls are placed on the edges of each tile.
    - Area 2: Walls can be placed on the edges of each quarter tile.
    - Area 3: Walls can be placed on the edges of each quarter tile. Organizers can round a 90-degree corner into a quarter circle.



4. For areas 2 and 3, regions where the robot cannot physically traverse (i.e., openings that are half tile length) will not contain victims and hazmat signs. Such areas must be fully viewable from the opening.
5. Connection tiles between each area must have two sides surrounded by a wall, such that the tile has an unambiguous entrance and exit edge to the two areas.
6. One of the outermost tiles in Area1 is the starting tile, where a robot should start the run.
7. Walls may or may not lead to the starting tile consistently following the leftmost/rightmost wall. Walls that lead to the starting tile are called 'linear walls'. The walls that do NOT lead to the starting tile are called 'floating walls'. Black tiles will affect the determination of wall type (linear or floating) since they can be considered virtual walls.





2.4.2. Area 4

1. Area 4 is non-tile-based.
2. There will be various objects, e.g., boxes, inside this area. Note that these objects will not vary by height (within the context of the robot), meaning the height of a robot's distance sensor will not affect a robot's performance. In the end, since walls can take any shape, there is no real distinction between objects and walls.

1. All traversable paths measure a minimum of 12 cm in width.
2. Area 4 will not exceed one-quarter of the entire arena.

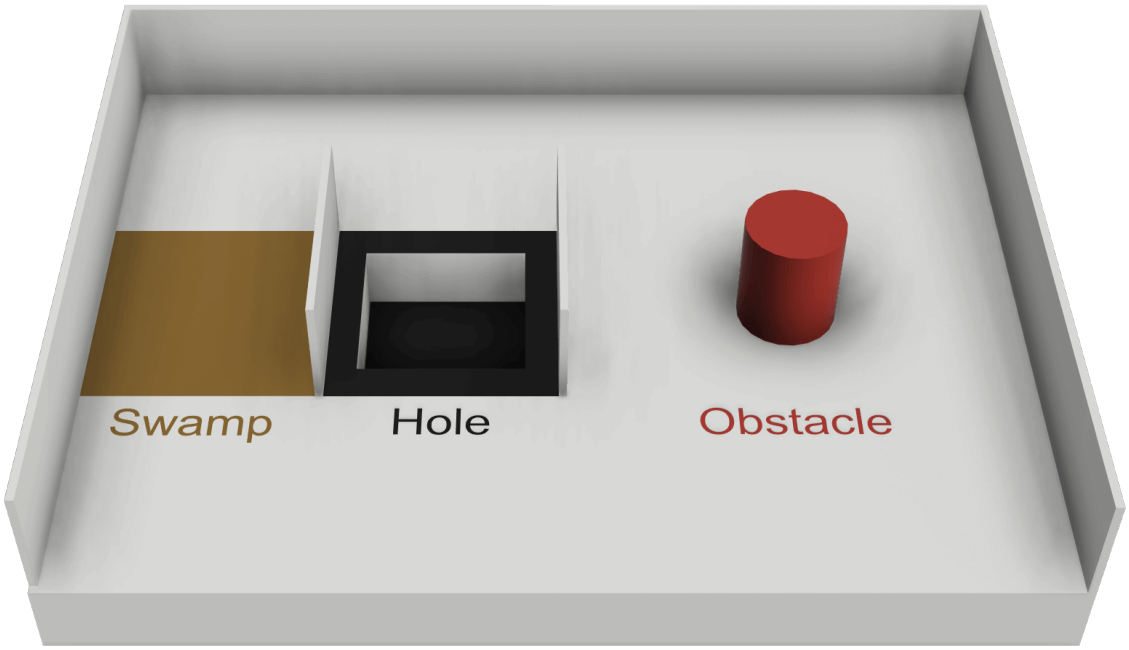
2.4.3. Division of Areas

The colors of the connection tiles are as such:

- Between Area 1 and 2: Blue
- Between Area 2 and 3: Purple
- Between Area 3 and 4: Red
- Between Area 4 and 1: Green

2.5. Swamps, Obstacles, and Holes

1. Swamps:
    a. The color is brown.
    b. Affects the straight-drivability and speed of the robot.
2. Obstacles:
    a. May be fixed to the floor.
    b. May be any shape, including rectangular, pyramidal, spherical or cylindrical.
    c. The color of the obstacle is not specified.
    d. It must be at least 8cm away from every wall.
3. Holes:
    a. The edge of the holes is colored black and will be 1.5cm from neighboring tiles.
    b. The robot has to avoid the hole.



2.6. Victims and Hazmat Signs

1. Victims and hazmat signs are represented by a 2cm by 2cm image placed anywhere on walls (including curved surfaces)
2. Visual victims are uppercase letters printed on or attached to the wall. They are printed in black, using a sans serif typeface such as "Arial". The letters represent the health status of the victim.
   a. Harmed victim: H
   b. Stable victim: S
   c. Unharmed victim: U

3. Hazmat signs are taken from the RoboCup Rescue League Website, out of which four will be used:
   - Flammable Gas [F]
   - Poison [P]
   - Corrosive [C]
   - Organic Peroxide [O]

3. Robots

3.1. Construction

1. The organizers provide the robot model used on each platform.
2. Using the robot customizer tool, teams can customize their robot (sensor locations, sensor types, wheel location, etc.).
3. An upper bound to the budget is introduced. Each sensor and wheel costs a certain amount which teams can view in the Robot Customiser Tool. This upper bound is 3000. The number of sensors is

also limited, which can be viewed using the same tool.

3.2. Sensors

1. The robot has the following sensors.
    a. Location sensor to detect where the robot is in the field
    b. Color sensor to detect floor color
    c. Distance sensors to measure distance to surrounding walls
    d. RGB camera to search victims and hazmat signs
    e. LiDAR to measure the distance to surrounding walls
    f. Add the option to use inertial measurement unit (IMU) sensors: gyroscopic and accelerometers.
2. The RoboCupJunior Rescue Committee will have created the simulation world and robot with noise that is similar to real-world noise levels. Teams should ensure their programs are robust to this noise. Organizers will not change the noise levels within the simulation for the competition.

3.3. Control

1. Robots must be controlled autonomously.
2. The referee will start robots.
3. Robots may utilize various maze navigation algorithms. Any pre-mapped type of dead reckoning (movements predefined based on known locations or placement of features in the field) is prohibited.

3.4. Team

1. Each team must have between 2 and 4 members.
2. A student can be registered on only one team across all RoboCupJunior leagues/sub-leagues.
3. A team can only participate in one league/sub-league across all RoboCupJunior leagues/sub-leagues.
4. Each team member must explain their work and have a specific technical role.
5. All team members must be of the correct age, as stated on the RoboCupJunior General Rules.
6. Mentors/parents cannot work with or help the students during the competition. The students will have to self-govern themselves (without a mentor's supervision or assistance) during the long stretch of hours at the competition.

3.5. Inspection

1. Students will be asked to explain the operation of their programs to verify that all are their works.
2. Students will be asked about their preparation efforts. The RoboCupJunior Rescue Committee may request them to answer surveys and participate in videotaped interviews for research purposes.

3. All teams must complete a web form before the competition to allow referees to prepare better for the interviews. The RoboCupJunior Rescue Committee will provide instructions on submitting the form to the teams before the competition.
4. All teams must submit their Technical Description Paper (TDP) before the competition. The TDP is a public document that will be shared with the community. A template for the TDP and rubrics are available on the RoboCupJunior Official website.
5. All teams have to submit their source code before the competition. The organizers will share them online after the competition such that other teams can draw inspiration and learn from them.
6. All teams must submit their Engineering Journal before the competition. The organizers will not share the journals with other teams without the team's permission. The organizers will request permission at the registration. A guide for the Engineering Journal format and rubrics are available on the RoboCupJunior Official website.

However, it is highly recommended that teams publicly share their Engineering Journal. The RoboCupJunior Rescue Committee will share the team's journals alongside their poster presentation and TDP through the RoboCupJunior Forum of the teams that provided their consent. The aim is that other teams could learn from them.

3.6. Violations

1. Teams must make modifications within the schedule of the tournament, and teams cannot delay tournament play while making modifications.
2. No mentor assistance is allowed during the competition. (See Section 1, "Code of Conduct")
3. Any software specifically designed to complete any single primary task of RoboCupJunior Rescue, e.g., any letter recognition libraries such as Tesseract or EasyOCR, etc., will be prohibited.
4. Any rule violations may be penalized by disqualification from the tournament or the game or result in a loss of points at the discretion of the referees, officials, or RoboCupJunior Rescue Committee.

4. Play

4.1. Pre-round Practice

1. When possible, teams will have access to practice simulation environments for calibration and testing throughout the competition.
2. Whenever there are dedicated independent simulation environments for competition and practice, it is at the organizers' discretion if testing is allowed in the competition environments.

4.2. Humans

1. * Teams should designate one of their members as "captain" and another as "co-captain." Only these two team members will be allowed access to the competition areas where the simulation

environments are located unless otherwise directed by a referee.

2. The referee performs all operations of the simulation environment in-game, such as loading programs and operating LoP.
3. * No one is allowed to touch the simulation environments intentionally during a game.

4.3. Before the game

1. * When the beginning of a round is called, teams must submit their computer with the program to run saved on it. The organizers will announce the method to collect the computers.
2. * The organizers will decide the time limit of submitting the computer with the program to be run in each game.
3. * If the computer is not submitted by the time limit, the team is considered to have abandoned the game. The score of the game will be -50 points.
4. * Organizers will only reveal Competition World for each round after the round's computer submission time expires.
5. * No program changes or updates after each round's deadline is allowed.
6. * A game begins at the scheduled starting time, whether or not the team is present or ready. Start times will be posted around the venue.
7. Pre-mapping the field or victim's location is prohibited. Pre-mapping activities will result in immediate robot disqualification for the round.
8. * Teams must submit the source code and any other required documents before a particular day set by the RoboCupJunior Rescue Committee. Organizers will share details through the Official RoboCupJunior Forum.

4.4. Start the game

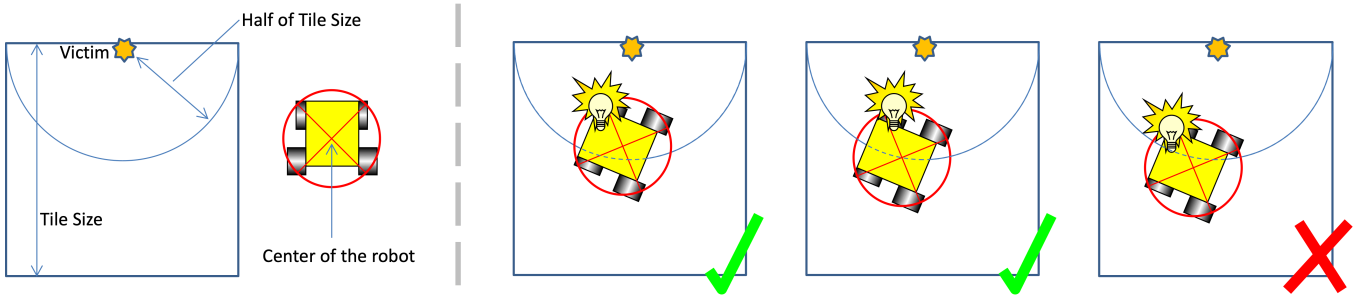
1. * The next team in line should prepare the computer submitted at the beginning of the previous team's round to run the program as a client to the game server. The referees will give a maximum of 2 minutes.
2. * When ready, run the program and report to the referee. The team cannot touch a client's computer after this for any reason.
3. * The game will start with a referee's operation on the game server.
4. The game time allowed is 8 minutes in real time (not simulated time). Since this is a simulation, an additional one-minute real-time will be allowed. Thus, judges will terminate the controller when 9 minutes of real-time expire.
5. A "visited tile" means that the center of the Robot is inside. The game management system makes this judgment.
6. * Judges will start the game with the submitted code loaded on the simulation platform.

4.5. Lack of progress

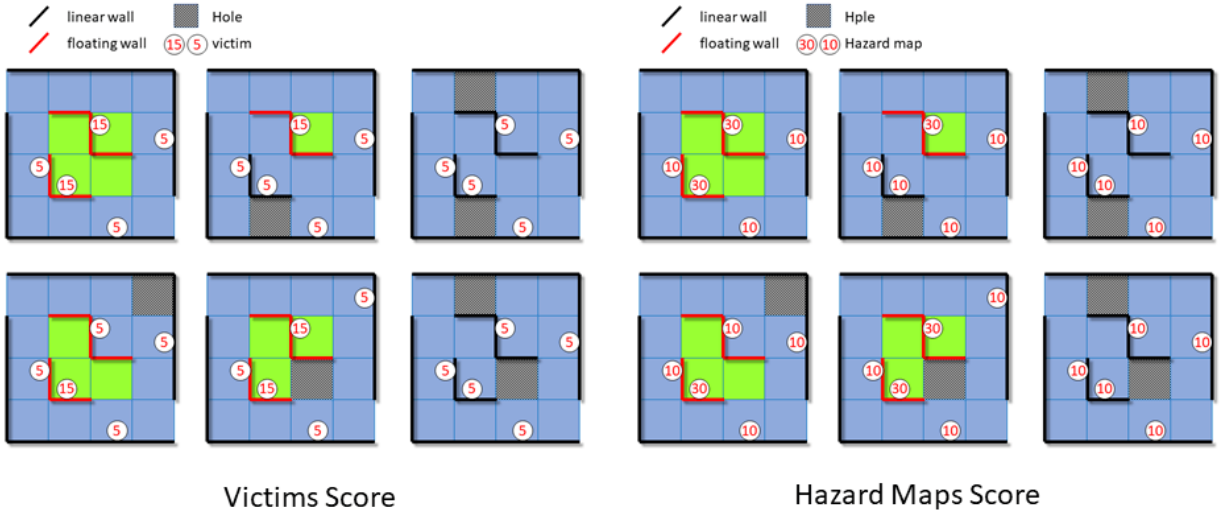
1. A Lack of Progress (LoP) occurs when:
    a. The Robot has fallen into a hole.
    b. Robot being in a fixed location for 20 seconds or more (automatically called).
    c. The referee determines the Robot is not entirely static but stuck in a motion sequence. A button will allow the referee to execute a manual lack of progress.
    d. The Robot can call the LoP autonomously.
    e. * In any other cases, calling for LOP rests on the team captain, but the referee must make the final decision.
2. If there is a lack of progress, the Robot must return to the last visited checkpoint (or the start tile if it never reached a checkpoint). The Robot can be installed in any direction. For the definition of the visited tile (see 4.4.5).
3. When a LOP is triggered, the engine will send a letter "L" to the Robot.

4.6. Scoring

1. To identify a victim, the Robot must stop by the victim for 1 second. After 1 second, it must send a command to the game manager with the type of the victim in a platform-specific format.
2. For successful victim identification, the center of the Robot must be equal to or less than half a tile distance from the location of the victim when the Robot indicates a victim has been identified.



3. Victim identification (VI). Points are rewarded for each Successful Victim Identification on the field.
    a. For victims and hazmat signs located on a tile on a linear wall (within a 6 cm radius from a victim - see 4.6.2 above) in Area 4 or adjacent to a linear wall (even diagonally), i.e., all victims at the six tiles around a linear wall in Area 1 to 3 :
        i. Victims: 5 points
        ii. Hazmat signs: 10 points
    b. On other walls (i.e., floating walls)
        i. Victims: 15 points
        ii. Hazmat signs: 30 points



Some of the victims on the floating wall are worth 5 points. The score is because these victims are placed on a tile adjacent to a linear wall. The same score also applies to hazmat signs. The colors in the figure are for illustration purposes only.

4. Victim type identification (VT). Additional 10 points are rewarded if the victim's reported type and Hazmat sign are correct.
    a. Victims: 10 points
    b. Hazmat sign: 20 points
5. Victim misidentification (VMI). Suppose a robot identifies the victim's location as greater than half the tile size away from the true position. In that case, it will be considered a misidentification and cause 5 points deduction. However, the total points will never go below zero points.
6. Successful Checkpoint Negotiation (CN). A robot is awarded 10 points for each visited checkpoint. Refer to 4.4.5 for definition of visited tile.
7. Lack of progress (LoP). Each LoP will cause 5 points deduction. However, the total points will never go below zero points.
8. Area multipliers (AM).
    a. The scores for VI, VT, and CN obtained in each of the three areas will be multiplied by a unique multiplier. The multipliers are 1, 1.25, 1.5, and 2 for areas 1, 2, 3, and 4, respectively.
    b. The multipliers are 2, 2.25, and 2.5 for area 4 respectively.
9. Successful Exit Bonus (EB). A robot will be awarded additional 10% of the total score as an exit bonus if: it can identify one victim and return to the starting tile while sending an 'exit' command to the game manager to finish the game.
10. Mapping bonus (MB).
    a. The Robot may submit a matrix with the maze map at any time. The maze map should be encoded in the following prescribed format. The map aims to encode the environment's geometry, key elements such as holes, and victim locations. The mapping bonus is a multiplier between 1 and 2.

b. For Area 1, 2 and 3:

   i. Each quarter tile and its surrounding edges and vertices will be represented by a cell (value).

   ii. Walls are marked by '1'; holes as '2'; swamps as '3'; checkpoints as '4'; starting tile as '5'; connection tiles from 1 to 2 as '6', 1 to 3 as '7', 2 to 3 as '8'; victims as the corresponding victim code, and any other tiles/edges/vertices should be zero.

   iii. For curved walls in area 3, the vertex should be represented by a '0'

   iv. The presence of a victim should be marked on the cell expressing the corresponding wall. Organizers should concatenate the entry if more than one victim is on a wall.

   v. Organizers can store maps in any rotation as long as it is a multiple of 90°

   vi. Organizers will check the correctness of a submitted map matrix against the matrix representing the real map (real map matrix).

      A. Organizers will use the starting tile to align the two maps' matrices. The two values are compared for every non-zero entry on both the real and submitted map matrices.

      B. If the two values match, the correct count is incremented. Otherwise, the incorrect count is incremented.

      C. The correctness is given by the ratio of the correct count over the sum of the correct count and incorrect count.

      D. Organizers will calculate the correctness for each possible orientation of the submitted map matrix aligned to the real map matrix. The maximum value will be used.

   vii. The mapping bonus multiplier will be the correctness + 1

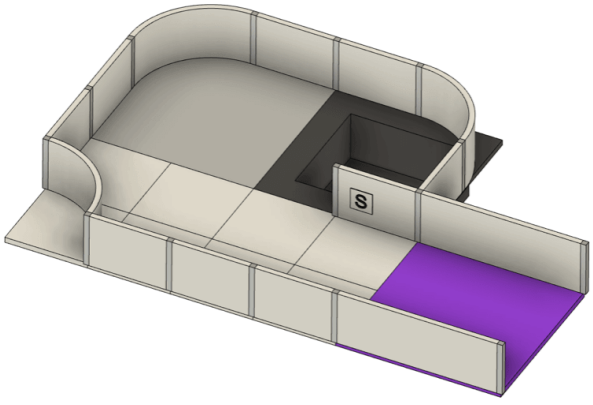
   viii. Ambiguous edge cases will be noted in the official documentation. For new edge cases that are not defined, please contact the International RoboCupJunior Rescue Committee or the platform development team.

   ix. The method of submitting a map matrix is described in the documentation and example codes located in the platform releases.

c. For Area 4

   i. Simply fill area 4 elements with arbitrary value (including the border of area 4).

d. Example



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11. Ties in scoring will be resolved based on each Robot's time to complete the game.

12. No duplicate rewards. For example, if a robot visits a checkpoint multiple times, only one successful checkpoint negotiation will be rewarded. The same result applies to all other scoring rules.
13. Robot Scoring will be automated through the platform scoring engine.

$$\textbf{Robot Score} = \left(\sum_{i=1}^{4} (\textbf{VI}_i + \textbf{VT}_i + \textbf{CN}_i) \cdot \textbf{AM}_i - \textbf{VMI}_i - \textbf{LOP}_i \right) \cdot \textbf{EB} \cdot \textbf{MB}$$

Example:

VI	Victims OR Hazmat Sign Identification
VT	Victim Type
CN	Checkpoint Negotiation
VMI	Victims mis-identification
LOP	Lack of Progress

The multipliers are 1, 1.25,1.5 , 2 for areas 1, 2, 3, 4 respectively

	AM	VI				VT		CN	VMI	LOP	Sum-VI
score ea. →		5	10	15	30	10	20	10	-5	-5	& VT
rm1	1	2	4	0	0	3	3	1	1	2	135
rm2	1.25	1	1	3	2	4	3	1	1	1	275
rm3	1.5	2	2	4	3	6	4		1	1	480
rm4	2	1	1	1	1	2	2	1	1	2	230
										Sub-total	1120
										EB (10%)	112
										Sub-total	1232
									assuming all correct: MB		2
										Total Robot Score	**2464**

14. The robot score for every round will be normalized with the score of the best team of that round:

```
(NORMALIZED ROBOT SCORE) = (ROBOT SCORE) / (ROBOT SCORE OF BEST TEAM)
```

15. The normalized rubrics score is made up of a sum of normalized scores for the individual rubrics as follows:

```
(NORMALIZED RUBRICS SCORE) =
    0.4 x (TDP SCORE) / (TDP SCORE OF BEST TEAM)
  + 0.4 x (ENGINEERING JOURNAL SCORE) / (ENGINEERING JOURNAL SCORE OF BEST TEAM)
  + 0.2 x (POSTER SCORE) / (POSTER SCORE OF BEST TEAM)
```

16. The final score is made up of a weighted sum of normalized scores from the robot and the rubrics score as such:

```
(TOTAL SCORE) = 0.8 x (SUM OF NORMALIZED ROBOT SCORES) + 0.2 x (NORMALIZED RUBRICS
SCORE)
```

17. The Rubrics for TDP, Engineering Journal, and Poster will be available on the RoboCupJunior website

and the RCJ Rescue Community website.

18. Ties in scoring will be resolved based on the game time.

4.7. End of Play

1. A team may elect to stop the round early at any time. In this case, the team captain must indicate the team's desire to terminate the game to the referee. The team will be awarded all points earned up to the call at the end of the round.
2. The round ends when:
   a. The time expires.
   b. The team captain calls the end of the game
   c. The Robot sends an 'exit' command to the game manager.

5. Open Technical Evaluation

5.1. Description

1. The organizers will evaluate your technical innovation during a dedicated time frame. All teams need to prepare for an open display during this time frame.
2. Judges will circulate and interact with the teams. The Open Technical Evaluation is intended to be a casual conversation with a question-and-answer atmosphere.
3. The Open Technical Evaluation's main objective is to emphasize the innovation's ingenuity. Innovative may mean technical advances compared to existing knowledge or an out-of-the-ordinary, simple but clever solution to existing tasks.

5.2. Evaluation Aspects

1. A standardized rubric system will be used, focusing on:
   - creativity
   - cleverness
   - simplicity
   - functionality
2. Your 'work' can include (but is not limited to) one of the following aspects:
   - creation of a new software algorithm for a solution
3. Teams must provide documents that explain their work. Each invention must be supported by concise but clear documentation. The documents must show precise steps towards the creation of the invention.
4. Documents must include one Technical Description Paper (TDP), one poster and one Engineering Journal. Teams should be prepared to explain their work.

5. TDP should describe your team's project planning, robot's configuration and design choices, your software architecture and solutions and, the applied process on performance evaluation. A template for the TDP and rubrics are available on the RoboCupJunior Official website.
6. Engineering Journals should demonstrate your best practices in the development process. A guide for the Engineering Journal format and rubrics are available on the RoboCupJunior Official website.
7. The poster should include but is not limited to: the name of the team, country, league, programming language/libraries used, detailed description of the algorithm you developed, time used for development, and awards won by the team in its country, etc. A guide for the poster format and rubrics are available RoboCupJunior Official website.

5.3. Sharing

1. Teams are encouraged to review others' posters, TDPs and presentations.
2. Teams awarded certificates must post their documents and presentation online when the RoboCupJunior Rescue Committee asks.

6. Conflict Resolution

6.1. Referee and Referee Assistant

1. During gameplay, the decisions made by the referee or the referee assistant are final.
2. After gameplay, the referee will ask the captain to sign the score sheet. Captains will be given a maximum of 1 minute to review the score sheet and sign it. By signing the score sheet, the captain accepts the final score on behalf of the entire team. In case of further clarification, the team captain should write their comments on the score sheet and sign it.

6.2. Rule Clarification

1. If any rule clarification is needed, please contact the International RoboCupJunior Rescue Committee through the RoboCupJunior Forum.
2. If necessary, even during a tournament, a rule clarification may be made by members of the International RoboCupJunior Rescue Committee.

6.3. Special Circumstances

1. If particular circumstances, such as unforeseen problems or capabilities of a robot occurs, rules may be modified by the RoboCupJunior Rescue Committee Chair in conjunction with available committee members, even during a tournament.
2. Suppose team captains/mentors do not attend the team meetings to discuss problems, and the resulting rule modifications described at 6.3.1. In that case, the organizers will understand that they agreed and were aware of the changes.

3. In the event of unexpected issues, the Organizers will do their utmost to avoid any disadvantage to the team.