Rescue Line - Super Team

RoboCupJunior Rescue Committee

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Korean Word Search

Scenario

A disaster has occurred. You and your partner are separated by a wall. You can't see each other, but you can hear each other; the wireless signals are still working, and your systems are functional.

You must retrieve some balls that, when placed in the correct spot, spell out a word. If you place them in the right order, the air rescue team will come to your aid.

But hurry! You only have eight minutes before reinforcements arrive and can see your signal.

Field

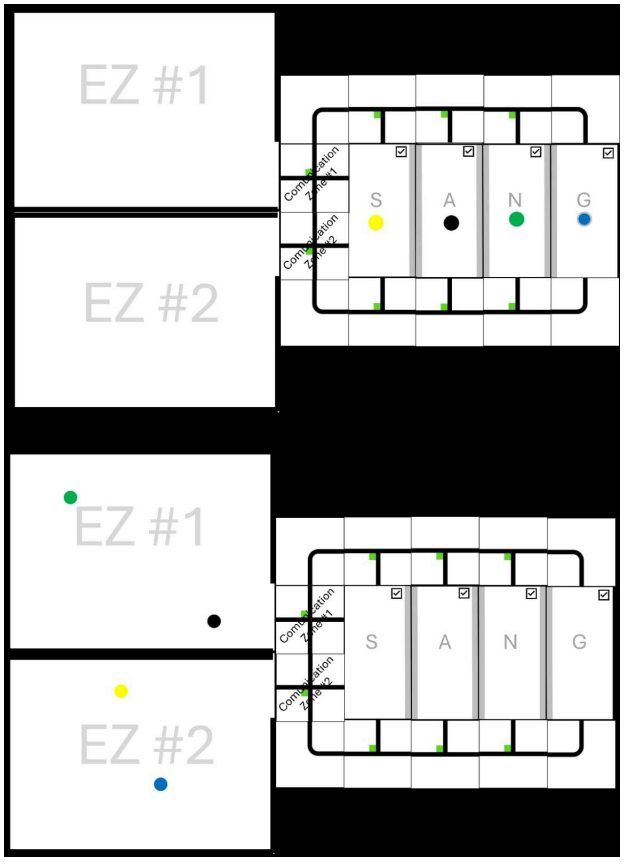

Fig. Example of a Super Team field.

The field will consist of two rescue zones, one for robot A and one for robot B. The characteristics and dimensions of the rescue zones will be the same as those used in the official competition. The entrance will also serve as the exit and will be marked with reflective silver tape.

In addition, there will be a communication zone, which will be a tile with an intersection. Beyond this, there will be several intersections leading to the correct locations of the spheres, as shown in the reference image.

Play

Encourage real collaboration and communication between two robots in order to identify, deduce, and construct a Korean (written using the Latin alphabet) word using colored spheres.

Each robot only has access to part of the information required to complete the assigned word. The robots do not initially know which word they must build.

Both robots must explore their rescue zones, detect the colored spheres, exchange information inside the Communication Zone, determine the correct word together, and finally place the spheres in the correct order.

The sphere colors corresponding to the letters will be:

Black = A

Red = R

Green = N

Blue (or Orange*)= G

Silver = E

Yellow = S

Each robot explores only its assigned Rescue Zone and identifies the colored spheres available in that area. Both robots can physically travel to the Communication Zone in order to exchange information; the type of communication is at the discretion of the super team; it can be: wireless, by sound, lights, gestures, IR.

The robots share which letters/colors each one found and collaboratively deduce the correct word. The robots determine which robot will place each sphere and in which position.

When Robot A and Robot B finish placing the spheres in their corresponding locations, they must return to the goal tile, which will be the same as the starting tile: the intersection before the rescue zone.

Word Configurations Based on the Selected Letters

A-R-N-G-S-E

*SANG // TABLE OR AWARD

*RANG // WITH / AND

*SEGE // STRONG

*GARA // GO

The robots return to collect their spheres and place them in the correct order in the final construction area.

Example Scenario

Robot EZ#1 finds:
- Yellow sphere = S
- Green sphere = A

Robot EZ#2 finds:
- Black sphere = N
- Silver sphere = G

Inside the Communication Zone, the robots exchange information and deduce that the correct word is SANG.

Final placement:
- EZ#1 places S in Box 1 and A in Box 2.
- EZ#2 places N in Box 3 and G in Box 4.

Start of Game

1. Each team has a maximum of **8 minutes** for a game. The game includes the time for calibration and the scoring run.
2. Both robots will start on the starting tile, which is located in the communication zone.

Lack of Progress

A lack of progress occurs when:

1. The team captain declares a lack of progress.
2. Robot A crosses into Robot B's area, or Robot B crosses into Robot A's area.
3. A robot damages the field.
4. A team member touches the field or their robot.

In the event of a lack of progress, the two robots will return to their respective start tile and again both captains will have to press the start button at the same time.

Scoring

Score to be obtained based on the actions performed:

1. Correctly assemble the word: 200 points
2. Place each letter in the correct position: 100 points per letter (ball).
3. Place the letters in the wrong position: 25 points per letter (ball).
4. Exit bonus: The robot stops for 10 seconds at the goal tile, it is scored 50 points.
5. Each LoP adds a penalty of -10 points to the Exit bonus as (#Exit bonus - 10*#LoP) (min. 0 points)

The winner will be chosen based on:

1. The team with the highest score.
2. The team that completed the challenge in the shortest time.
3. Less amount of LoP.

End of Game

The game ends when:

1. The robot reaches the goal tile and completely stops for 10 seconds.
2. The **8 minutes** of allowed game time expires.
3. The team captain calls the end of the game.

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