

RoboMaster EP Core Competition Database

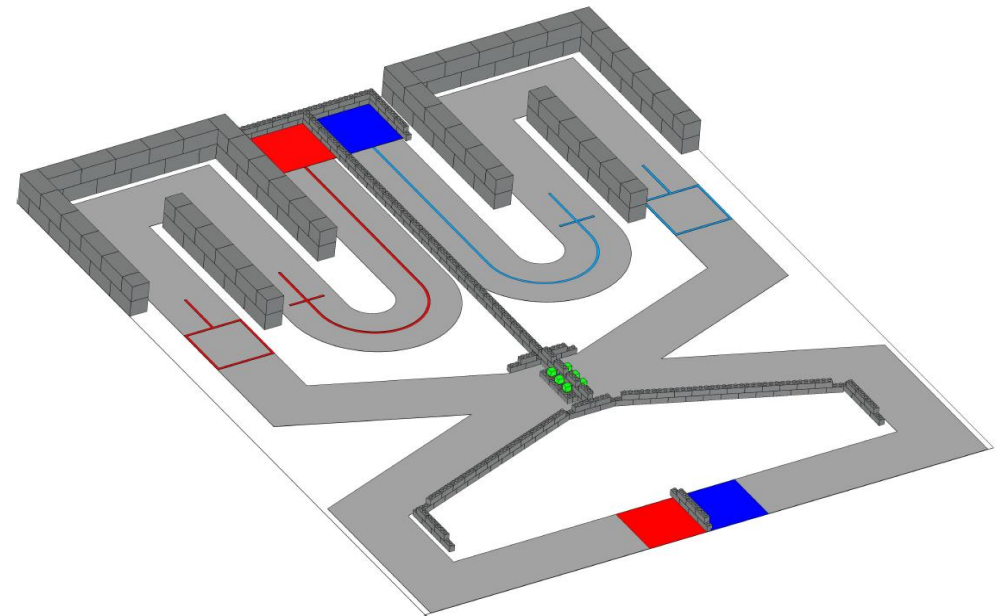
Search and Rescue

Mission Overview

Two robots work together to complete rescue tasks:

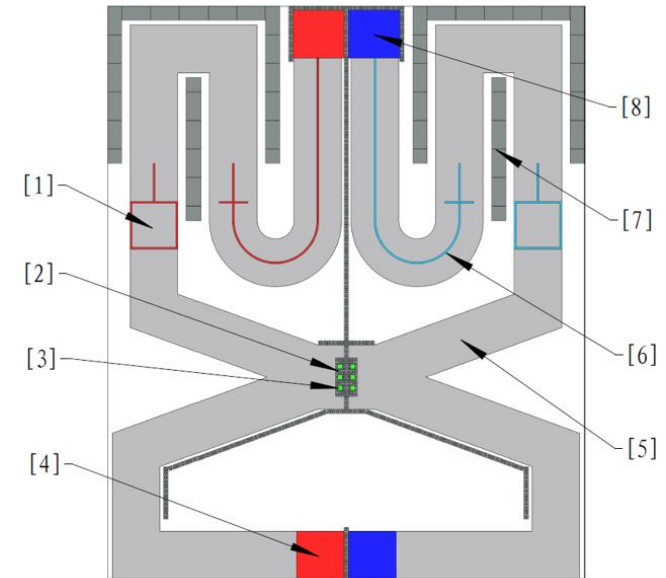
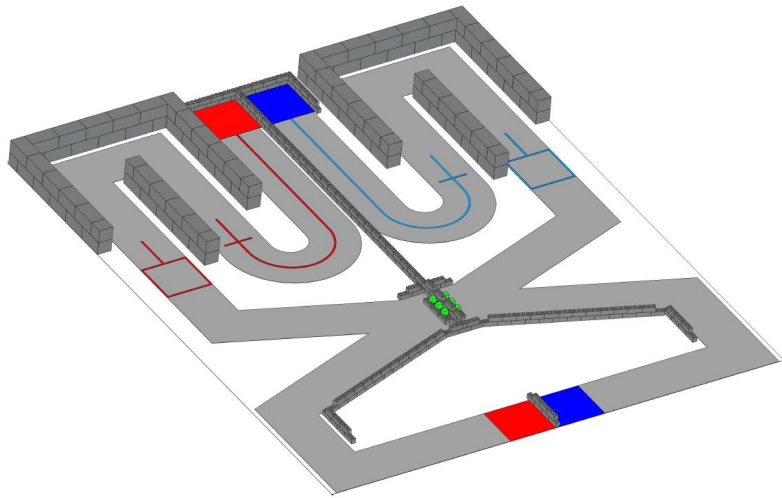
The pick-up robot (manually-operated) is responsible for picking up and transferring relief materials to the delivery robot.

The delivery robot (automatically-operated) is responsible for transporting the relief materials to the disaster control center.



Competition Area

The competition area is a 6×5-meter rectangle, which is divided into red and blue sides.

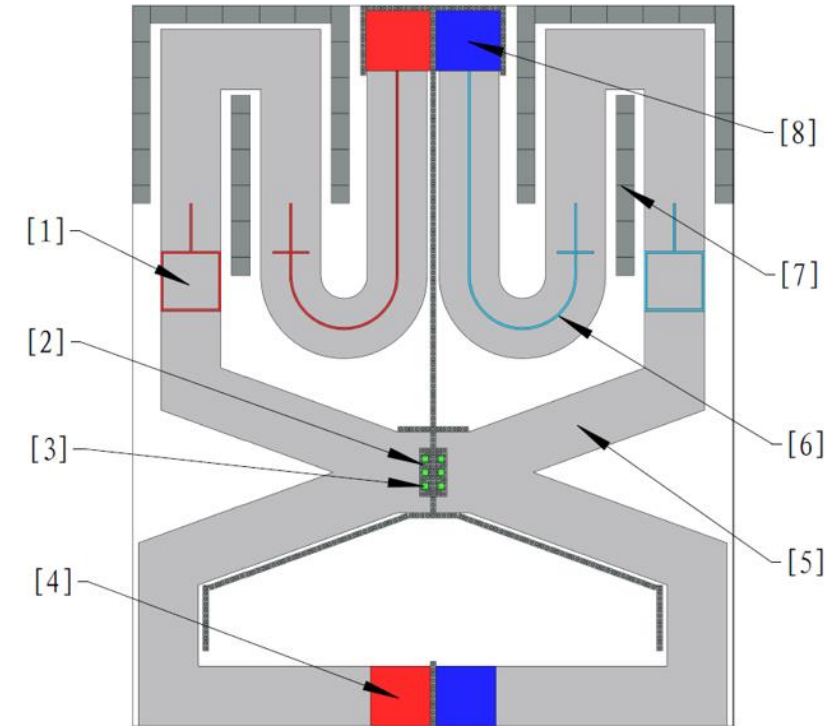


[1]	Material Transfer Zone	[2]	Material Distributing Zone	[3]	Relief Materials	[4]	Starting Zone
[5]	Road	[6]	Guiding Line	[7]	Alley	[8]	Disaster Control Center

Task Description

The mission consists of three tasks: picking up, transferring, and transporting relief materials.

1. The pick-up robot (manually-operated) picks up relief materials at the material distributing zone and moves to the material transfer zone.
2. The pick-up robot transfers the relief materials to the delivery robot (automatically-operated) at the transfer zone.
3. The delivery robot transports the relief materials to the disaster control center along the designated route.



Timing/Scoring Rules

- Each round is limited to three minutes. The full score for the completed mission is 100 points.
- With each completed task, the team will gain a corresponding number of points; when a robot is rebooted or relief materials drop from a robot, the team will lose the corresponding number of points.
- The ranking will be primarily based on the total scores. In the event that two teams have a tied score, the ranking will be based on the mission time.

No.	Task	Score
1	The pick-up robot sets off from the starting zone and successfully reaches the material distributing zone.	5
2	The pick-up robot successfully picks up one piece of materials from the distributing zone.	15
3	The pick-up robot successfully reaches the transfer zone.	5
4	The pick-up robot successfully transfers the material to the delivery robot.	20
5	The delivery robot makes the first turn in the alley.	10
6	The delivery robot makes the second turn in the alley.	10
7	The delivery robot exits the alley.	5
8	The delivery robot successfully passes the 180° bend.	10
9	The delivery robot reaches the disaster control center.	20
10	Materials dropped by pick-up robot.	-5 each
11	The delivery robot is rebooted.	-10 each

Precautions

1. At the start of the game, the pick-up robot is placed in the starting zone, and the delivery robot is placed in the transfer zone.
2. The pick-up robot is manually controlled; the delivery robot runs automatically.
3. Once the game begins, team members cannot touch the robots.
4. Remote control of the robot by wire or radio is not allowed.
5. You may not borrow another team's robot for a match.

Technical Points Summary

The pick-up robot:

1. Reasonable design and modification of mechanical claw to efficiently grasp relief materials;
2. Design efficient material-transfer plan.

The delivery robot:

1. Use sensors to detect the transfer of materials;
2. Automatic line following;
3. Automatic detection of obstacle avoidance.

Equipment

Recommended competition equipment:

RoboMaster EP Core

(Buy Now: <https://www.dji.com/robomaster-ep-core>)



Battlefield components list:

Material name	Quantity	Application
18mm red/blue tape	-	Guiding Line
18mm black tape	-	Road Edge
EVA cubes with a side length of 50 mm	6	Relief Materials
300×150×150 mm EPP bricks	-	Alley Wall
135×45×55 mm EPP bricks	-	Blue/Red sides dividing line

Reference Materials (Released Soon)

- Rules manual
- Documentation for interpretation of the rules
- Task demonstration video