RoboMaster EP Core Competition Database

Intelligent Warehouse
Overview

Intelligent warehousing: A robot automatically completes warehousing tasks.
- Identifying signs and planning routes
- Transferring goods to the designated warehouse

Nuclear Power Plant Rescue
Competition Area

Size: 2×4 m
Components: Starting Zone, Pick-Up Points, Warehouses, Guiding Lines

Pick-Up Points

- There are four pick-up points. Each has a size of 200×200 mm.
- One cubic goods module is placed within each pick-up point area.
- A visual marker is placed on the right side of each module.
Warehouses

- There are four warehouses. Each has a size of 200×200 mm.
- They are numbered 1-4.
Task Description

The ultimate goal: Transport all goods from pick-up points to their corresponding warehouses.

Identify signs: Identify the visual markers and indicate the relevant information through light signals.

Pick up goods: Pick up goods at the pick-up points.

Place goods: Transport goods to the corresponding warehouses as instructed by the signs (extra points are given if two goods in the same warehouse are stacked on top of one another).
Timing/Scoring Rules

- Each round is limited to three minutes.

- The full score for the completed mission is 100 points.

- The mission time of the participating teams will be recorded. In the event that two teams have a tied score, the ranking will be based on recorded time, with the fastest team being rewarded.

<table>
<thead>
<tr>
<th>No.</th>
<th>Task</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indicating the numeral information on the sign through light flashes</td>
<td>5 each</td>
</tr>
<tr>
<td>2</td>
<td>Picking up goods</td>
<td>5 each</td>
</tr>
<tr>
<td>3</td>
<td>Placing goods in the correct warehouse</td>
<td>10 each</td>
</tr>
<tr>
<td>4</td>
<td>Stacking up two goods in the same warehouse</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>Lighting up to indicate the completion of the task</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Driving off the guiding line for more than 5 seconds</td>
<td>-5 each</td>
</tr>
<tr>
<td>7</td>
<td>Knocking goods out of the pick-up point area</td>
<td>-5 each</td>
</tr>
<tr>
<td>8</td>
<td>Goods falling to the floor during handling</td>
<td>-5 each</td>
</tr>
</tbody>
</table>
Warnings

- Before the competition starts, the robot must be placed in the starting zone.

- Once the competition begins, teams cannot touch their robots.

- Remote control of the robot by wire or radio is not allowed.

- You may not borrow another team's robot for a match.
Technical Points Summary

- Automatic line following
- Cross-road identification and turning
- Visual marker identification
- Mechanical claw control
- Path planning
Equipment

Recommended competition equipment: RoboMaster EP Core
(Buy Now: https://www.dji.com/robomaster-ep-core)

Battlefield components list:

<table>
<thead>
<tr>
<th>Material Name</th>
<th>Dimension (mm)</th>
<th>Quantity</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue tape</td>
<td>Width: 35 or 20</td>
<td>-</td>
<td>Guiding Line</td>
</tr>
<tr>
<td>Visual markers (including the base)</td>
<td>150×150</td>
<td>Numbered 1-4, two cards for each number</td>
<td>Signs</td>
</tr>
<tr>
<td>EVA cubes</td>
<td>50×50×50</td>
<td>4</td>
<td>Goods</td>
</tr>
</tbody>
</table>
Reference Materials
(Released Soon)

- Rules manual
- Documentation for interpretation of rules
- Sample code
- Task demonstration video