

Puck Collect

Two robots search coloured pucks and bring them home.

1. Contest description

Two robots compete on a rectangular playing field. Before the start, they are placed inside their home bases. When the match is started, they run to collect pucks to bring them back to their respective starting area until all pucks are delivered or time limit of 3 minutes is reached.

2. Robot

The robot is fully autonomous and must not be dangerous or excessively annoying.

Throughout the race (including the start) no external connection is allowed. Since the robot is prepared for start, it must not be touched or interfered with in any way except starting until the referee allows so. On its top side, an emergency switch must be located. By pressing it all actuation must be switched off. The switch must be big enough and well distinct so that it can be easily recognized. It must be also easy to be reached and intuitively used.

A 10x7 cm space for sticker marking must be reserved on the robot's top side.

Maximum size of the robot is 50(w)x50(l) cm, there is no limit on its height but the robot must be at least 3 times higher than a puck all around its perimeter and the construction of the robot must allow good detection by the opponent (for example to be of solid body, not "mostly see-through", including any puck-manipulating device / structure). A robot may expand in size after a match begins, but must not physically separate into pieces, and must remain a single centralized robot. Screws, nuts, and other robot parts with a total mass of less than 5 g falling off from a robot's body shall not cause the loss of match. Every robot must pass the homologation to check that it can score and avoids collisions with the opponent (match collisions will lead to penalties or even disqualifications). In the direction of its moving (including turning), the robot must not collide with the opponent. If the robot blocks the opponent or the opponent's home base, it may be disqualified from the match. In such case, pucks are added to the opponent's home base so that there are at least 5 opponent's pucks there.

Standard Category: The robot may be constructed from arbitrarily chosen components.

Construction Kits Category: The robot may be built fully using only a pre-approved Construction Kit. For details, see Construction Kits specific rules.

3. Playing field

The playing field size is approx. 250 cm x 250 cm. It is framed with a boarder of at least 8 cm height of any colour. Two 70 cm x 70 cm big home bases (red and blue) are positioned in opposing corners of the field. The remaining part of the field is white.

4. Pucks

Ten pucks of each colour (red and blue) are spread randomly in the neutral zone. The pucks are wooden disks in the size of a tea light (ca. 4 cm diameter and ca. 2 cm height) with slightly chamfered edges. Their weight is about 15-20 g.

5. Game and scoring

Each of the two robots is assigned a colour (red or blue) and is fully placed on the corresponding home base. The robots are not allowed to leave the home base until the judge announces the start of the match.

A puck scores if all the following conditions are met:

- Its entire body is located unmoved within any of the home bases for more than 1 second
- It is outside the convex envelope of the robot
- It is removed by the judge off the home base.

The judges remove pucks deployed by the robots into the home bases as soon as possible after the first two conditions mentioned above are met and it is not dangerous to pick them. The puck counts for the robot, which is assigned to the colour of the particular home base as follows:

- If the colour of the puck is equal to the colour of the home base, the score will be increased by 1.
- If the colour of the puck is not equal to the colour of the home base, the score will be decreased by 1.

