"MAZE SOLVING"
ROBOTS CONTEST ORDER

Age of participants: from 12 years up to 19 years.
Team: 2 participants.
Robots: autonomous robots.
Equipment: any platform, any parts of the constructors, including those made by yourself.
Programming language: at the discretion of the team, without limitation.
Procedure for the conduct of competitions: by turn, according to the draw.

The Objective
For a self-contained robot, prepared by contestants themselves, to negotiate a maze from start to finish and back in the shortest possible time
The trajectory of the maze becomes available for viewing before an attempt start, after placing robots in quarantine.

1. Requirements for Robots
1.1. Dimensions (width x length) of a robot shall not exceed 250x250x250mm, during the contest, the structure of a robot can change autonomously (without operator intervention).
1.2. Weight of a robot shall be unlimited.
1.3. The body of a robot shall not in any way damage the surface of the contest site, otherwise the team will be removed from the contest and disqualified.
1.5. The contest shall be held only for self-contained robots.

2. Requirements for the Contest Site
2.1. The site dimensions

<table>
<thead>
<tr>
<th>№</th>
<th>Name</th>
<th>Material</th>
<th>Color</th>
<th>Size, mm</th>
<th>Quantity, pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Site base</td>
<td>Laminated chipboard</td>
<td>White</td>
<td>2440x1220</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Side, long</td>
<td>Laminated chipboard</td>
<td>White</td>
<td>2440x150x16</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Side, short</td>
<td>Laminated chipboard</td>
<td>White</td>
<td>1188x150x16</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Section with a wall</td>
<td>Laminated chipboard</td>
<td>White</td>
<td>300x300x150</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Thickness of 16</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Section without a wall</td>
<td>Laminated chipboard</td>
<td>White</td>
<td>300x300</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Thickness of 16</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>“Base Camp” section</td>
<td>Laminated chipboard, adhesive tape</td>
<td>White, green</td>
<td>300x300x150</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Thickness of 16</td>
<td></td>
</tr>
</tbody>
</table>
2.2. Internal contest site size is a field of $1200 \times 2400$mm, fenced by sides.

2.3. The trajectory of the maze is made up of double and single sections with dimensions of $30\times30\times15$cm and $30\times30$cm respectively.

2.4. Start ("Base Camp") is green, finish is red.
3. The Rules of the Contest
3.1. A team shall begin the contest after the judge's signal. By this time, a robot must be completely located in the "Base Camp" zone. After the judge’s command, an operator shall launch a robot.
3.2. Time allowed to completely negotiate the maze shall be 2 minutes.
3.3. An attempt shall be considered accomplished:
   3.3.1. After a robot negotiates the maze from the start zone and back and after the corresponding judge's command.
   3.3.2. After the judge stops an attempt, if it is impossible for a robot to continue the contest and / or if it loses the ability to move for 5 seconds (to be stipulated by the judge).
   3.3.3. After the time allotted to negotiate the maze is over (2 minutes).
   3.3.4. If a robot leaves the maze.
   3.3.5. After an attempt is stopped by a team member with a loud "STOP" command.
   3.3.6. If a robot tries to overcome one of the maze walls.
3.4. After an attempt is over, a contestant shall stop their robot upon the judge’s signal.
3.5. The time of an attempt shall be fixed in the score sheet by the judge.
3.6. Location of maze sections shall be varied for each following attempt.
3.7. The judges' decisions shall not be discussed, the objections shall not be expressed.
3.8. The appeal shall be sent to the Organizing Committee before the end of this type of contest. In the absence of representatives of the Organizing Committee, the appeal shall be sent to the judge of the contest.
4. Points
4.1. The judge shall disclose the shortest path of the maze prior to the start of the contest.
4.2. A robot gets 1 point for passing of each section corresponding to the shortest path route through the maze.

The trajectory of the maze negotiation from the start to the finish cell (max. 22 points)

The trajectory of the maze negotiation from the finish to the start cell (max. 22 points)
4.2. A robot can get a maximum of 44 points: 22 points for the negotiation of the maze from the start to the finish cell, and 22 points for the negotiation of the maze from the finish to the start cell.
4.3. A section shall be considered accomplished if a robot touches it with its whole supporting portion simultaneously.
4.4. The judge shall announce scores immediately after the accomplishment of each team’s attempt.

5. Requirements for Robot Operators
5.1. After the start signal, team members are not allowed to touch their robot or the maze. Any remote participation in robot operation, the control from a PC or by other means are forbidden. Any violation of these rules will constitute immediate disqualification from the contest and elimination.
5.2. A manifestation of disrespect to the judge and / or the opponent, expressed in writing, orally or otherwise shall be considered a violation. In case of abusive behavior, team members shall get the first warning, repeated abusive behavior may constitute disqualification from the contest.

6. Deciding the Winner
6.1. Each team shall be given two attempts to negotiate the maze (the number of attempts can be varied by the decision of the judges, but not fewer than two) in the category “Maze Solving.” The attempt with the shortest time and/or the best trajectory (the highest number of sections) of the maze negotiation shall be accounted, after all the attempts. When equal scores, the number of points shown in the other attempts may be taken into account, it may also be appointed an additional attempt with the changed maze for contestants with equal scores.
6.2. The team with the shortest time shall be declared the winner. If none of the robots copes with the negotiating the maze, the judges shall consider the time of the teams with the highest number of sections visited. The team with the shortest time

CONTEST ORDER FLEXIBILITY

1. Flexibility of the rules may take place when the number of contestants changes, which may have little effect on the content of the order, but its basic concepts should be followed.
2. Contest organizers can make changes or exceptions to the order before the event, after which they are constant throughout the event.
3. Participants shall be informed about changes or cancellation of the contest order in advance (no later than 15 minutes) prior to the contest.
4. Adjusted rules shall remain unchanged during the contest.

LIABILITY
1. Teams and competitors are personally responsible for the operability and safety of the robots, as well as they are responsible in accordance with the legislation of the Republic of Kazakhstan for any accidents caused by the actions of team members or their robots.

2. The organizers are not liable in the case of an accident or an emergency caused by the actions of team members or their equipment.

LINKS TO THE RESOURCES USED

1. www.robofinist.ru
2. www.myROBOT.ru
3. robolymp.ru
4. www.rus-robots.ru