



RTC CUP COMPETITION REGULATIONS

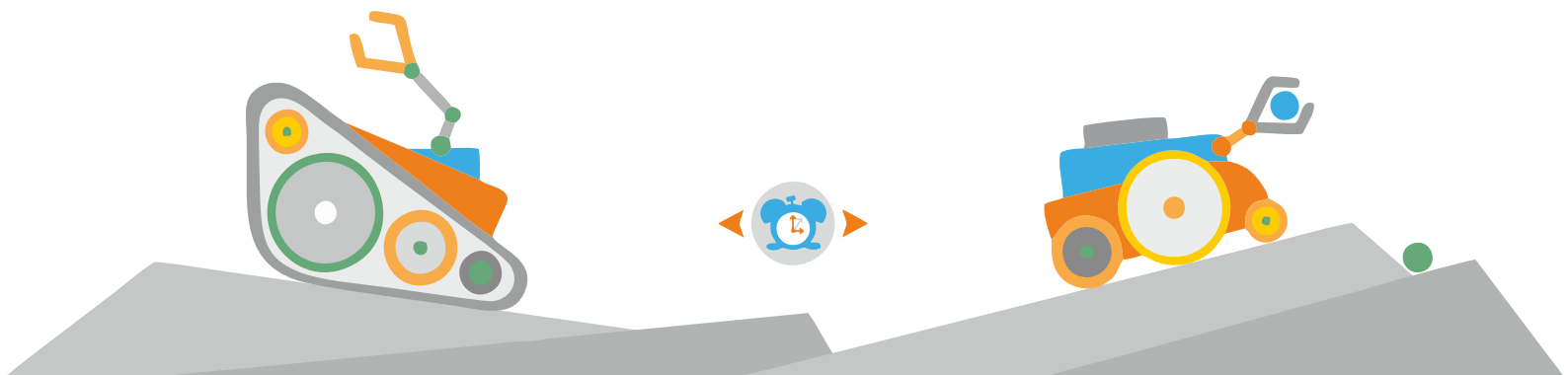
1. General Provisions

1.1. At the RTC CUP competition, the participants are presented with a polygon on which areas of varying complexity are modeled: from rugged terrain to the consequences of disasters such as earthquakes, tsunamis, landslides, mud falls and so on.

The purpose of the competition at such a training ground is to inspire and stimulate young robotics engineers to create robots that can work in extreme situations, completely replacing a person, or acting as an assistant.



1.2. At the RTC CUP competition, the robot must pass the largest number of landfill sections in the allotted time, performing the assigned tasks.



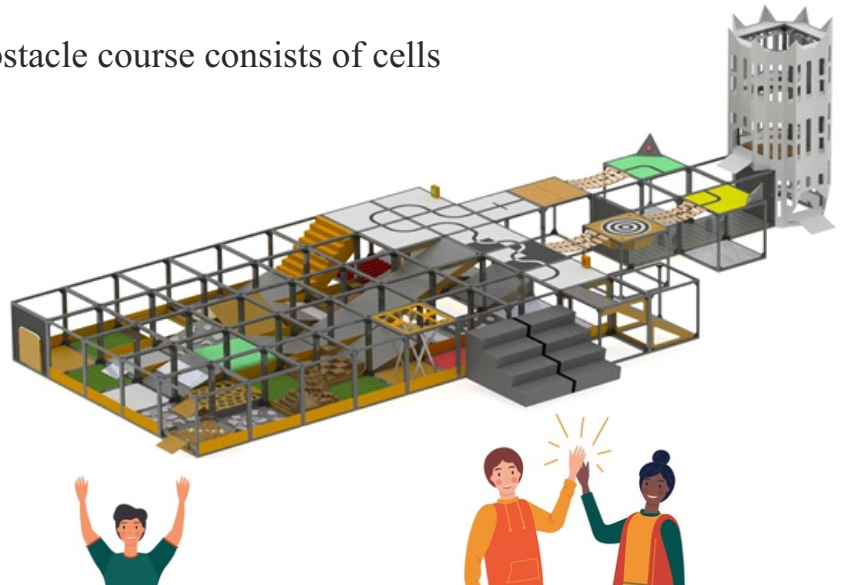
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2. Test Arena (Polygon)

2.1. The automated, reconfigurable obstacle course consists of cells enclosed by a metal profile.

2.2. The configuration of the polygon changes every competition and is not communicated to the participants in advance.



3. Requirements for the team. Nominations

3.1. The robot can only have one operator.

3.4. A team has the right to exhibit only one robot, and only in one nomination during the current competition.

3.2. One participant can only be involved in one team during the current competition.

3.5. The age of each team member must meet the nomination requirements.

3.3. It is allowed to change the robot operator between attempts (laps).

3.6. Competitions are held in two categories:

SEEKER

The operator can observe his robot directly.

Age: from 7 to 14 years old inclusive
two robots can pass the polygon from different teams at the same time!



EXTREME

The operator does not see the robot.
The control is carried out using the robot's video vision.

Age: 7 years old and older
there is one robot on the training ground!



* If the team members are 17 or more years old, then they are representatives of the older age category - "Extreme PRO". This means that there is a separate mandatory task for such teams. "Extreme" and "Extreme PRO" are awarded together (one trio of winners).



4. Requirements for the robot



Maximum weight - 10 kg



Power supply on board



Wireless control
(range - not less than 10 m)



Recommended dimensions - no more than
350x400x400 mm (HxLxW)

4.1. Basic requirements:



Any element base



Own wi-fi network

4.2. Allowed:



4.3. Is prohibited



IR remote



Harm to others
(communication interference, dangerous
structures)

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5. Course of the competition



30 minutes before the start of their attempt, the team must be near the range

5.1.



Each of the presented polygon cells is optional, the operator himself decides how to build his route

5.7.



The transfer of an attempt is possible no later than one attempt before arrival. Carrying over carries a penalty to the future outcome of the attempt

5.2.



For re-passing the cell, points are not awarded

5.8.

3/7

From the moment the participant is called, time starts to prepare for the start: "Seeker" - 3 minutes
"Extreme" - 7 minutes

5.3.



Only one team member can be on the site - operator

5.9.



10 minutes are allowed to try

5.4.



If you try to talk to the operator, the team is disqualified

5.10.



The competition consists of 2 attempts for each team. The best attempt goes to the final list of points

5.5.



Management intervention (repair) can be carried out by both the operator and any team member

5.11.



There are two start fields on the range. The first attempt starts from the specified start, and the second from the opposite

5.6.



Holding the enemy robot in any way for 20 seconds is considered stuck. Both robots move to the previous cells without penalty.

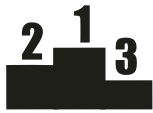
5.12.



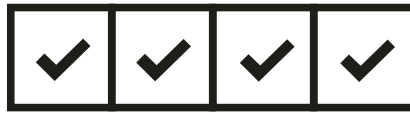
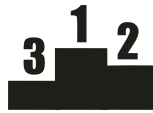
You can stay in one cell of the polygon for no more than 2 minutes. If the robot does not leave the cell, it is considered stuck and moves to the previous cell with an intrusion penalty.

5.13.

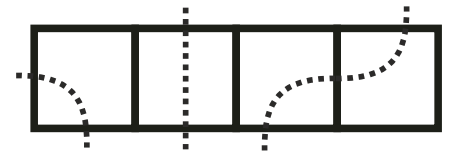
6. Assessment criteria



6.1. "Seeker" and "Extreme" are evaluated according to a single point system, but are awarded separately



6.2. Points are awarded for passing the polygon cells and completing tasks



6.3. A cell is counted if the robot entered it with its entire base, and left the other end (exception - dead-end cells)



6.4. If two teams have the same number of points, the team that completes the attempt in less time wins



6.5. In case the time is also the same, the team with the highest total score in two attempts wins.

7. required tasks

7.1. To get the results of an attempt into the offset, it is necessary to have and use:

Seeker

Extreme (to 16 years old inclusive)

7.1.1. functional sensors or manipulator (successful completion of any task using elements of autonomy or manipulator)

Extreme (17 years old and older)

7.1.2. functional sensors (successful completion of any task with the use of autonomy elements)

7.2. To demonstrate the operation of the manipulator, you must complete one of the following tasks:

- door opening (by yourself, by the handle)
- button press
- pipe rotation / extraction
- valve opening / closing
- wreck / ball / beacon capture
- the implementation of the revolution of the robot by the manipulator

7.3. To demonstrate how the sensors work, you must complete one of the following tasks:

- must complete one of the following tasks:
- line movement (one cell)
- autonomous wreck / beacon capture
- movement along the inner wall of the polygon (one cell) reading QR code by robot
- robot reading danger sign
- autonomous robot flip



8. Judging



8.1. At the end of the attempt, the operator signs the score sheet, agreeing with the results of the attempt.

8.2. The protocol is not intended for use by participants. It is forbidden to photograph or copy the protocol.



8.3. Control and summing up of the results is carried out by the panel of judges in accordance with the rules of the competition.

8.4. Appeals are accepted in handwritten form within an hour after the announcement of the results.

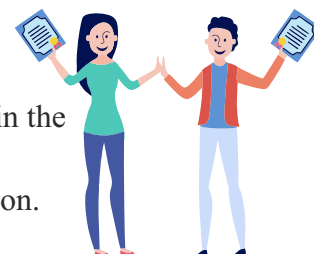


8.5. Disputes arising during the competition are resolved by the panel of judges on the spot.

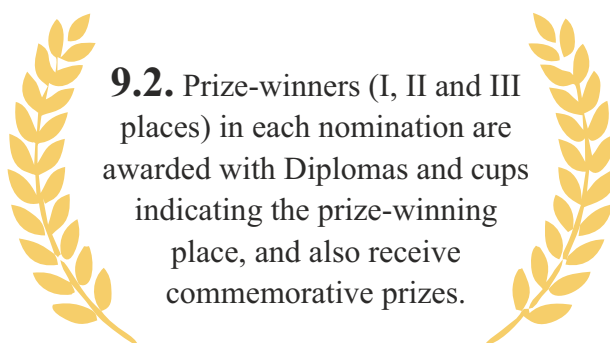
8.6. Participants must obey the decisions of the panel of judges.



9. Rewarding



9.1. Each participant in the competition receives a Diploma for participation.



9.2. Prize-winners (I, II and III places) in each nomination are awarded with Diplomas and cups indicating the prize-winning place, and also receive commemorative prizes.

9.3. Prize-winners of the qualifying stages of the competitions taking place throughout the year are automatically credited to the list of Finalists and take part in the RTC CUP: Final.



Read more about additional privileges for the winners of the RTC CUP: Final on our website cup.rtc.ru



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