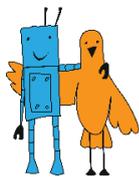


## «SUMO» CONTEST RULES «Humanoid Sumo robots» CATEGORY

*Version 1.0 dated July 20, 2017.*

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## 1. Requirements for the robots

General requirements for the robots are given in the general contest rules. There are the following additional requirements in the “Humanoid Sumo robots” class:

height - not exceed 50 cm;

width- not exceed 20 cm;

length-not exceed 20 cm;

mass-not exceed 3000 g.

Robot should be bipedal walking humanoid, which shifts its center of gravity to maintain balance while walking.

Robot should have the following parts:

the head

two hands

two foot.

Foot of the robot is defined as the part of a robot contacting with the surface of the arena (ground).

While walking one leg should rise from the floor, while the other hold the robot balanced. While walking leg of the robot that is balancing in the air should be flexed at the knee of no less than 90 degrees. A robot may not have a knee joint at all. The foot can be of any shape as long as the following conditions are met:

the maximum length (size) of the foot should be less than 50% of an outstretched leg of the robot;

the maximum length of the foot must be less than 20 cm;

the contour of the left and right foot should not intersect.

Leg length is defined as the distance between the place where the robot foot touches the ground and axis, linking up the leg with the corpus of the robot. When the robot stands or walks, rectangles circumscribed around the left and right foot should not intersect. Every hand in the outstretched position should not exceed the length of the outstretched leg.

## 2. Requirements for the sumo ring

General requirements for the robot are given in the general contest rules.

There are the following additional requirements in the category:

height – 5 cm;

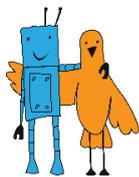
diameter - 154 cm;

width border - 5 cm;

minimum external space - 100 cm.

## 3. Order of the match

Order of the match are given in the general contest rules.



## 4. Match time

Match time is given in the general contest rules.

## 5. Awarding of points

All points for each round are summed up.

Round stops when robots don't touch each other for more than 15 seconds. This time can be increased to 45 seconds at the judge's option if the desire to fight is clearly visible.

One point is awarded to the robot taking a part in the “ Humanoid Sumo robots” class in the following cases:

- knockdown;
- fall;
- leaving the ring borders;
- knockout.

Knockdown occurs when a robot falls on the opponents ground. This case 2 points are added to the score of the opponent.

Fall happens when a robot falls by itself. This case one point is added to the score of the opponent.

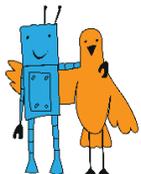
Leaving the ring borders occurs when any part of the robot touches the surface around the ring. Three points are added to the score of the opponent. Referee should allow the team which owns the robot to place it face down on the ring. If the robot doesn't manage to stand up in 10 seconds penalty is assigned.

Knockout occurs when a robot doesn't manage to stand up within 10 seconds or cannot move or go within 10 seconds. When the knockout is declared match is immediately ended and the victory at the match is awarded to the opponent.

The robot, which has more points wins the match.

If a tie on points, the judges vote for the winner, based on tactics, aggression and activity.

If robots do not gain any points, the referees may decide that there is no winner of the match.



## 6. Revision History

<b>№</b>	<b>Doc. No.</b>	<b>Date</b>	<b>Note</b>	<b>Previous version</b>	<b>Update version</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
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