

ASME at UCF

Rules Q/A: Jack Qualls and Jahnvi Bimji on Slack

SUMO BOTS

Overview

The goal of this project is to utilize the skills taught in the previous workshops to compete in a Robot Sumo Tournament. Teams will construct a robot that utilizes LIDAR, 3D printed parts, and CAD design.

Definition of the Sumo Match

A match is fought between two teams, each team having one or more contestants. Only one team member may approach the ring; other team members must watch from the audience. In accordance with the game rules each team competes on a Dohyo (sumo ring) with a robot that they have constructed themselves to the specifications. The match starts at the judge's command and continues for 3 minutes. The judge determines the winner of the match. Tie breakers will be determined as follows below.

Rules

1. **Dimension Specifications:** SUMO Bot must not exceed **8 in X 8 in X 8 in** and be fully autonomous. Robot must have at least 4 wheels.
2. **Design Requirements:** Sumo Bot must in some way utilize LIDAR and have at least 3 individual 3D printed parts.
3. **Design Restrictions:**

1. Jamming devices, such as IR LEDs intended to saturate the opponents IR sensors, are not allowed.

2. Parts that could break or damage the ring are not allowed. Do not use parts that are intended to damage the opponents robot or it's operator. Normal pushes and bangs are not considered intent to damage.
3. Devices that can store liquid, powder, gas or other substances for throwing at the opponent are not allowed.
4. Any flaming devices are not allowed.
5. Devices that throw things at your opponent are not allowed.
6. Sticky substances to improve traction are not allowed. Tires and other components of the robot in contact with the ring must not be able to pick up and hold a standard 3"x5" index card for more than two seconds.
7. All edges, including but not limited to the front scoop, must not be sharp enough to scratch or damage the ring, other robots, or players. In general, edges with a radius of greater than .005", as would be obtained with a unsharpened .010" thick metal strip, should be ok. Judges or competition officials may require edges that they deem too sharp to be covered with a piece of tape.

Source: <http://robogames.net/rules/all-sumo.php>

Competition Rules

All submissions will be entered into a randomized bracket system. Teams will have **3 minutes** to push their opponent out the circle (**Diameter : 30 inches**). After time has expired, the clock will continue to run until neither robot is touching the white outer ring. Tie breakers will be determined through points.

Point System

1. **(3 Point)** Flip the opponent onto their side or upside down.
2. **(1 Point)** Recovering from being flipped by your opponent.
3. **(1 Point)** Keep 2 of your opponent's wheels off the ground for 2 consecutive seconds.
4. **(2 Points)** Keep 3 of your opponent's wheels off the ground for 2 consecutive seconds.
5. **Note: These Rules do NOT stack. Therefore, if an opponent is flipped, you will not get the points for the wheels not touching the ground. Additionally, if 3 wheels leave the ground, you will not get the points for making 2 wheels hit the ground. (This will reset when all 4 wheels touch the ground.)**

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Opponent with the most points at the end of the allotted time will advance to the next round.