

# Sumo

**Level:** Intermediate

**Number of robots:** 1 per participant

**Robot Weight:** 3.3lbs (1.5kg) or less

**Robot Dimensions:** At the start of a match the robot must fit into a square box of 15cm (6") to a side, with no height limitation. Parts of the robot may extend outside this region after a match has started.

**Robot Control:** Autonomous

**Number of robots competing per round:** Two

## Summary:

Robot sumo wrestling is a contest where two robots try to push each other out of a circular ring. The first robot to touch the floor outside of the ring loses. The last robot remaining in the ring wins.

## Event Rules:

**Prohibited Items and Actions:** Robots are not allowed to use any flying components or projectiles. Robots may not intentionally leave parts anywhere in the ring. It is at your opponent's discretion whether or not a piece of your robot is removed from the ring. Robots may not electromagnetically interfere with the other robot or its sensors. However, providing an environment which misleads the opponent's robot is allowed.

**Allowed Items and Actions:** A robot may use various forms of detection to locate the other robot (light sensor, touch sensor, rotation sensor, ultrasonic, etc.). It may also incorporate stealth technology to avoid detection by the other robot. Signals may be used to try to confuse the other robot's means of detection, such as flooding the area with light, touching the robot to mislead it, or convincing the other robot it is at the edge of the ring. Overt attempts to damage the opponent's robot, over and above the expected ramming and pushing, are not allowed. No rotating blades, flame-throwers, ion cannons or any other form of weapon are allowed!

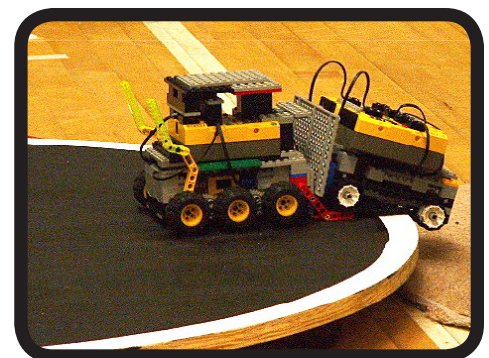
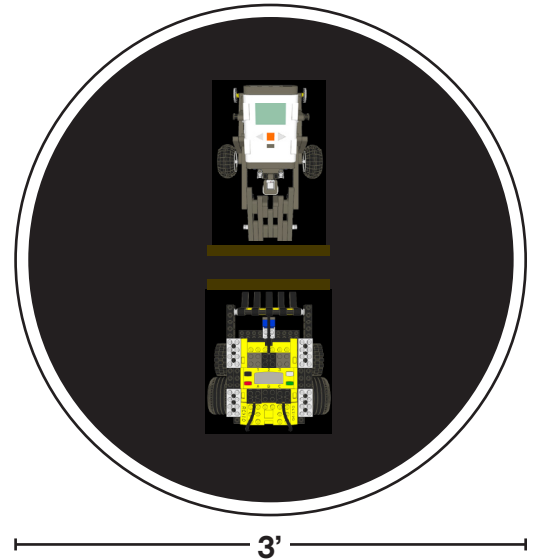
**Match Rules:** Each match will last a maximum of 3 minutes. If after 3 minutes, both robots are still in the ring, the match is stopped and judgment is made as to a winner or if a rematch is needed. If during the match the robots become entangled spinning around each other in circles (a.k.a. a death spiral), it is at the referees discretion to restart the match. No repairs to the robots are allowed in the event of a restart.

**Match Start:** A referee signals the start of each match. Each team will place their robot on one of the "shikiri" lines. These lines are centered in the ring spaced 3" apart from one another. A coin toss determines who will place their robot first. Placement is up to the team, the robots do not have to be facing each other but they will start with some part of themselves 3" away from their opponent. Each robot should have a 5 second delay after the operator starts their sumo program before the robot starts to move.

## Scoring:

A robot is considered to be OUT when it falls off the ring and touches the floor or is somehow disabled either through mechanical failure or programming fault. If the robot fails to move for longer than 15 seconds it is disqualified.

**Playing field:** The sumo ring has a diameter of 3 feet (about 75 cm), and is raised 2 inches (about 5cm) above the floor. The color of the ring is black, with a 1" wide white edge boundary. Alternatively you can simply make a circle of black tape on a light colored floor. Two Shikiri lines 3" apart from one another mark the starting point for each robot. The Shikiri lines can be virtual to minimize light sensor issues.



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