

Robot sumo wrestling is a contest where two or more robot contestants 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. The TCR competition uses half size robots.

Basic Rules

Robot Constraints

Autonomous class:

Each robot is to be totally autonomous. Once started, it cannot be controlled by the human operator.

Weight: The robots must weigh 1.5kg (3.3 lbs) or less.

Size: 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. It is not permissible for the robot to split into two or more disconnected pieces.

Control: Any means of self-contained control is acceptable.

Power: No combustible power sources are allowed -- such as combustion engines, rocket packs, or propane, most if not all robots use battery powered motors.

Sumo Ring Details: The sumo ring has a diameter of 75 cm (about 3 feet), and is raised 5cm (about 2 inches) above the floor. The color of the ring is black, with a 5cm wide white edge boundary.

Prohibited Items and Actions

A robot may not spray any material on the ring or on their opponent, or in any way deform the sumo ring. Robots are not allowed to incorporate any flying components or projectiles. You may not electromagnetically interfere with your opponent, or do anything that alters the function of the other robot or its sensors. Providing an environment which misleads the opponent's robot is allowed (for example, putting a black flap down over the white ring edge line, hoping the other robot will not detect the edge and fall off).

Allowed Items and Actions

A robot may use various forms of detection to locate the other robot (IR, sonar, touch...). 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 detectors, such as flooding the area with IR, touching the far side of the robot, 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.

Match Rules

Match: A sumo match consists of up to three bouts between two robots. The first robot to win two bouts wins the match. Depending on the number of contestants, some form of elimination will be used.

Start: At the start of the bout, one robot is placed on the sumo ring, anywhere behind their starting line. The second contestant then places their robot behind their starting line. For the next bout the order of placement is reversed.

Time: Each bout will last a maximum of 3 minutes. If after 3 minutes, both robots are still in the ring, the bout is stopped and judgement is made as to a winner or if a rematch of the bout is needed.

A referee signals the start of each bout. The operators will indicate to their robots the start of the bout. Each robot should have a 5 second delay after the operator pushes start before the robot starts to move.

If a robot does not move for 30 seconds or more, it loses the bout.

If both robots are locked up for 30 seconds with no clear progress being made, the bout is stopped, the robots are separated and the bout is restarted.

Tethered Class:

In the tethered class, each robot is controlled by a human operator either through an RF link or a wired link. The rules for the tethered class are the same as those for the autonomous class with these additions:

A robot may not damage another robots communication link. For example by cutting the tether line or jamming the RF link.

The tether line must have slack at all times. The robot may not be pulled by the tether.