



Sumo - Autonomous and R/C

Objective:

This contest pits your creation against another robot in a field of combat where brute strength and cat-like reflexes combine to create the ultimate battle! The challenge is to create a robot whose sole purpose is to push, throw, flip, drag, or otherwise move your opponent out of a five-foot diameter circular ring within three minutes.

Rules (abridged)

The event judge will apply the rules as they are written on <http://www.robotgames.ca> and have final say in regard to safety. The following is a version of the rules that excludes the technicalities of building, competing and judging.

Competitor Design Parameters:

The robots must fit within a 20cm x 20cm Square at the beginning of the round, but may expand to any size once the contest begins. The height of the robot is unlimited.

The robots must weigh 3kg or less. The entire robot must be capable of some form of movement across the ring surface... The robot may not attach itself to anything outside of the ring (with the exception of the operator's control cable).

Weight (including accessories) must not exceed 3kg (excluding the mass of the tether and remote control unit).

The robot must not include any part that fixes the robot to the Dohyo surface and prevents it from moving (such as suckers, glue and so on).

The robots must not contain any combustible, corrosive, or otherwise dangerous materials for safety reasons. No explosive compression or decompression, either internal or external is permitted.

The officials will disqualify any robot whose strategy or operation is considered too dangerous.

Intentional damage or interfering with the opponent's operator is not allowed.

When placed in their starting position the robots will be placed NOT FACING directly toward the competition.

Remote Controlled Robots:

These robots may be controlled from outside the ring by a single operator using radio control or tether control. (Tether control robots are those wired to an external control box). Tether controlled robots must not allow the control line to come in contact with the ring or competitor or be used to physically pull the controlled robot. Also, the main power supply for the robot must be in the robot body itself, not in the control unit. Any violation of this rule may cause the robot to be disqualified by the judges.

1. Tethered robots can now only be connected to the controller by a single length of 8conductor, CAT5 networking cable, minimum 240cm (~8 feet) long. No substitutes will be allowed.

(**Remote Controlled Robots** continued)

2. Competitor complaints regarding tethered robots being pulled back from the edge. Have prompted us to add this rule: A 20cm loop must be rubber-banded into the cable, so any undue tension on the cable will cause the loop to visibly shrink. If any action on the behalf of the operator causes his own loop to pop the rubber band off, he will have forfeited that round of the match.

The Competition Platform: The Sumo Ring

Robot Sumo wrestling takes place in a level circular ring exactly 5 feet in diameter with a white 2-inch border along the rings periphery. The surface of the ring is black arborite and sits roughly two inches above ground level.

Competition Procedure:

The robots are placed on the ring 1-foot apart and equal distance from the center of the ring. The robots are set down parallel to each other and facing opposite directions so that autonomous robots must actively search for the opponent and not merely "steamroller" straight forward.

When both contestants are ready, the ring judge will signal the start of the three-minute round at which time the robots may be activated (you may physically flick a switch on your robot). No movement must occur before the official start (no posturing).

The robots will proceed in combat until one unit is disabled or removed from the ring. If a bout is won before the three-minute round is up, the clock will be stopped and the robots replaced in their starting position for a second bout. There may be up to three bouts in a three minute round, with the winner being the robot that wins the most bouts in the round (to a maximum of 2 wins i.e. best 2 out of three). Each contestant is guaranteed a minimum of three rounds, and is awarded points per round on the following basis:

- The contestant wins the round: 2 points awarded.
- The contestant ties the round: 1 point awarded.
- The contestant loses the round: 0 points awarded.
- The contestants who accumulate the most points will make it to the finals where 1st, 2nd, and 3rd place will be decided by a round robin.

A robot is considered to be removed from the ring when any of its wheels or legs are over the edge and its center of mass begins to tip. A robot whose body hangs over the edge is not considered 'off' until it physically tips off the edge and touches outside the ring. Judgment of the ring officials is final.

Should one robot become disabled (flipped on it's back or side, for instance) and is unable to move, the ring officials will award that bout to the remaining robot and a new bout will begin if time permits.

If both robots are stuck in an entanglement or deadlock, then the clock will be stopped and the judges will ask the contestants if they want to restart the bout from the robots starting positions, Both players must agree to this, if not, the bout continues as normal.

At the end of each round, the contestants are responsible for making sure the ring is clean and ready for the next round to the satisfaction of the judges, or the contestant which produced the mess may be disqualified. This includes all debris, fluids, or marks remaining on the ring.

Have fun, be safe, and use good sportsmanship.