MESA DAY
CONTEST RULES 2014-2015

Robotics Sumo

Please contact Luke Laurie: mrlaurie@mac.com with comments on these rules.

LEVEL: Senior High School

TYPE OF CONTEST: Team

COMPOSITION OF TEAMS: 2-4 students per team

NUMBER OF TEAMS: 3 teams per Center

SPONSOR:

OVERVIEW: Sumo is a test of engineering design, as well as programming and strategy. Two robots try to push each other out of a circular ring.

MATERIALS:

Legal
LEGO RCX, NXT, VEX, or other robotic controllers
LEGO or other mechanical and structural components, which may include, but are not limited to: Plastic, metal, wood, rubber bands, string, wheels, gears and pulleys (note: metal components, such as VEX, though not illegal, may exceed weight requirements)

Illegal
Any components that may be hazardous to participants, the board, or other robots, including, but not limited to:
Sharp or pointed edges
Strong magnets
Liquids
Shooting parts
Any kind of flame or flammable component
Any kind of device or component that may interfere with the autonomous functioning of robots, including any kind of remote or jamming device
LEGO or other modular pieces may not be glued together.

The following materials will be provided by the Host Center:
- Sumo Board
- Stop watch
- Elimination Chart
- Balance capable of measuring 2kg with 1g or greater precision
- 30cm X 30cm Square

RULES:

1) Robots must be safe. A robot should not be a danger to competitors, other robots, or the competition ring. They should not have sharp parts, and should not have pieces that shoot or could fly off.

2) Sumo Board: The ring is a 36” Diameter board, ¾” thick, painted with an interior black circle 32" in diameter, with a 2" white border. (ring size may depend on material availability) The board must be placed on a level surface.

3) Competitors are randomly placed on a single elimination chart. Matches are announced by judges, competitors must be present (a minimum of one team member) at the time their match in order to compete. The winner of each match proceeds up the elimination chart, while those that lose matches are removed from contention.

4) Participants place their own robots in the ring. Robots begin on opposite sides of the ring, but may face any direction chosen by the builder. After each round, opponents switch sides.

5) After the judge announces “On your marks, get set, go,” Robots are triggered to begin by the competitors. However, Sumo Robots must wait <u>5 seconds</u> before moving.

6) A robot may push, shove, or knock over the other robot while attempting to push it out of the ring.

7) The robot that pushes another robot out of the ring is the winner. If both robots fall out of the ring, the first robot to fall out of the ring loses. If any part of a sumo robot touches the floor or table surface outside of the ring, that robot loses the round.

8) Each round, Sumo robots attempt to push each other out of the circle. Rounds are 1 minute. A robot that wins 2 out of 3 rounds is the winner, and will advance. If no robot has won after 1 minute the round is considered a draw. Judges may decide to do rounds over if there is a draw.

9) If robots become entangled, or stuck in a prolonged pushing match, the judge will halt the bout, and the robots will be restarted at their starting positions.

10) Competitors and spectators may not touch robots, the ring, or otherwise interfere during the match. No one should be within 1 meter of the Sumo ring, so as not to interfere with sensors. After triggering their robots to start, competitors should step back away from the ring.

11) Competitors (not adults or anyone else) may make minor repairs or adjustments to their robots between rounds, such as changing programs or moving adjustable components. However, competitors may not delay matches. Delaying a match may lead to forfeit.

JUDGING:

Checking Specifications:

1) Mass Limit: maximum 1000 grams

2) Length x Width Dimensions: maximum 30cm x 30cm-- use a pre-measured square to determine that each robot meets the dimensions for competition.

3) Robots must be safe. During prejudging, judges must determine if a robot could be a danger to competitors, other robots, or the competition ring. They should not have sharp parts, and should not have pieces that shoot or could fly off.

4) Judges must randomly place competitors on a single elimination chart, attempting to minimize the number of byes.

Running a Sumo Competition:

1) It is helpful to have multiple judges watching a match to help determine when a robot has left the ring.

2) A separate judge should be responsible for timing each round. If the round needs to be paused, because of the immobility of both robots, the timer should stop to allow the robots to be separated and repositioned.

3) Delays: If a robot requires repairs or adjustments between rounds or matches, competitors must make those repairs as quickly as possible. Judges should not wait more than 2 minutes between rounds or matches beyond the amount of time it takes to set up each round.

4) Robots should win 2 out of 3 rounds. In the case of a draw, the lead judge should allow another round to determine the winner.

AWARDS:

Awards are given for1st, 2nd and 3rd place teams.

ATTACHMENTS: TBD