



RC SumoBot WeDo (Radio Controlled Sumo)

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RoboRAVE Greece

The slogan us : "Today's Play, Tomorrow's Pay."

1. General information

1.1 What is the RC SumoBot WeDo competitio.

The RC SumoBot WeDo competition is a unique robotics experience, inviting participants to design and program autonomous robot fighters.

This is a variation of SumoBot aimed at younger students and the robots are exclusively made from the educational kit Lego WeDo with remote control . In a circular arena, known as the Dojo , robots compete in dynamic Sumo - style battles , combining the creativity of design with the thrill of technological challenge.

In the arena, robotic fighters, aided by their handlers, demonstrate skill, strategy, and precision. The matches are spectacular and intense, as the robots try to outwit their opponents with tactical moves and clever programming. Although not designed for destruction, the robots are optimized for speed, power, and precision, providing a riveting spectacle.

The competition is the ideal choice for those who love robotics and technology, while providing the opportunity to combine technical knowledge with imagination.

1.2 Who can compete on a team?

The RC SumoBot WeDo has a single age category:

RC SumoBot WeDo :

- Ages 6-18(Elementary-Middle School) - Born 2012-2020

The matches are held against all teams, regardless of the age of the students on the team.

1.3 The specifications of the robot.

Robots must meet all of the following criteria to be eligible for participation:

1. The total cost of the robot should not exceed 1,500 euros.
2. Robots can only be built from processors in the educational kit Lego WeDo , while they can have building materials from any Lego kit .
3. The robot may be controlled via remote control but not via connection cables, only wirelessly.
4. The robot must fit into a frame measuring 25 cm x 18 cm, with no height restriction. After starting, they are allowed to expand by a maximum of 5 cm in any direction (length or width). The maximum weight of the robot must be 500 grams.
5. The use of mechanical parts that are intentionally disconnected from the robot or that could intentionally cause damage to another robot is prohibited.
 - o Moving parts are permitted as long as they are not dangerous.

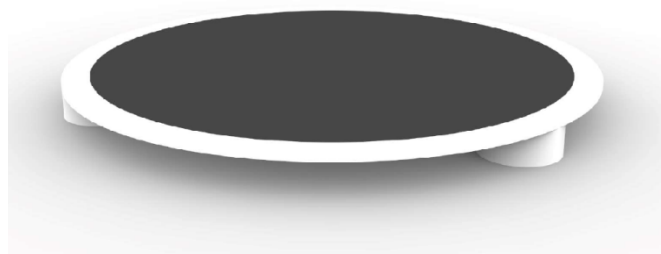
2. The race track

2.1 What are the track specifications?

SumoBot 's tracks have the following features:

1. The competition area is a black circle 100 cm (1m) in diameter, with a 5 cm wide white border around it. The competition area is called the dojo .
2. Dojos are made of 10-20mm thick MDF.
3. Each dojo is raised approximately 50-80mm off the ground using PVC pipes or wooden blocks in a tripod formation. It is recommended that the robots be sturdy enough to withstand a fall should they fall off the field.
4. A 1 meter exclusion zone will be marked with tape around the dojo . No one is allowed to enter this zone, so as not to interfere with the match by competitors or referees.
5. Dojos may have minor scratches or wear and tear. Teams should be aware of this and adjust accordingly on match day.

Examples of playing fields:



3. Competition procedure

3.1 How teams compete

Preparation for the Race:

1. At the beginning of the event, robots must be checked by judges to ensure they meet the requirements. After the check, a certification sticker will be affixed to the robot. If changes are made to the robot, it must be rechecked.

2. Teams will have 30 minutes at the competition venues to test and train with their robots.
3. Unlike other RoboRAVE challenges , RC SumoBot is structured in rounds. Each team is placed in a Group and competes against the other teams in the group during the competition. Teams and coaches can view their team and their opponents either in the competition or on the RoboRAVE website .
4. At the start of each Group , all participants will be guided by volunteers to the designated field with a referee for their first round of matches. Each match lasts up to 3 minutes, during which the robots try to dominate the playing field (dojo).

Start of the Round:

1. At the start of a match, the referee will start a 3-minute timer. Both teams must be on the field and ready to play during this time.
2. Teams will compete until a winner is determined in a best-of-3 scenario. Wins and losses are recorded separately for each match.
3. The round is completed and the teams prepare for the next round.

3.2 What are the rules of the competition?

The following rules are applied during official rounds of the competition by the referee:

1. The referee ensures that the team and robot comply with the rules. If the referee determines that the criteria are not met, the robot will have to be re-checked and the team will be forced to automatically forfeit the match.
2. Each match lasts up to 3 minutes, timed by the referee, and is the only time period during which the robot can score points. The game is played in a best-of-3 format on a field that complies with the rules of section 3.
3. At the beginning of each match, the referee counts down “3, 2, 1, PLACE.” At “PLACE,” the robots must be placed simultaneously on opposite sides of the playing field, on the perimeter white line.
 - o Robots can face in any direction.
 - o Robots must touch or protrude from the perimeter white line.
4. When both teams are ready, the referee counts down “3, 2, 1, SUMO.” In “SUMO,” teams must begin their routines and move at least 1 meter away from the tracks during the 3-second wait.
5. A match can only end under the following circumstances:
 - o If a robot falls off the edge of the field. A robot that has been knocked over but remains on the field continues the match normally.
 - o If the match lasts more than 3 minutes.
 - o If the two robots remain stationary for more than 10 seconds.
 - o If a contestant touches or interferes with the match, the referee will determine if a restart is required or if the other team will be awarded the win.
6. Only competitors may operate and intervene in the robot during the competition.

Remember:

"Players play, coaches guide, parents encourage."

4. The scoring of the event

4.1 How is grading done?

1. **Victory (1 point/match)** – The last robot remaining on the field during a match wins the victory. For example, if Robot A remains in the dojo while Robot B falls, Robot A wins .

2. **Defeat (0 points/match)** – The robot that first leaves the dojo and touches outside the boundary is recorded as a defeat.

- Robots can leave the dojo either pushed by an opponent or on their own.
- If both robots fall from the dojo , the team whose robot touches the ground first is declared the loser.

3. **Absence (1 point/match)** – If a team does not show up for the match, the present team wins the match round 2-0.

4. **Draw (0 points/match)** – If both robots remain in the dojo until the end of the match (3 minutes), the match is repeated. No victory or defeat is recorded and the match will be repeated.

4.2 Indicative scoring examples

Referees score each match based on the teams' performance in the matches.

Below is an example of a scoresheet from 4 different matches that could take place during a competition, recording the results of each match and the points each team earned.

Team 1	Wins	Points		Team 2	Wins	Points
Team A	☑☑☑	3p	vs	Team B	☒☒☒	0p
Team C	☑☒☒	1p	vs	Team D	☒☑☑	2p
Team E	☑☒☐	1p	vs	Team F	☒☑☐	1p
Team G	☑☑☑	3p	vs	Team H	☐☐☐	0p

- ☐ **A vs. B:** Team A won 3 matches, while team B lost all 3 matches .
- ☐ **C vs. D:** Team C won 1 match and lost 2, while team D won 2 matches and lost 1.
- ☐ **E vs. F:** Teams E and F won 1 match each, lost 1 each, while the remaining matches ended in a draw (they will need to play one more match).
- ☐ **G vs. H:** Team G won all 3 matches because team H did not show up for the match.

5. Qualification and winner selection

5.1 How do teams qualify for the next phase?

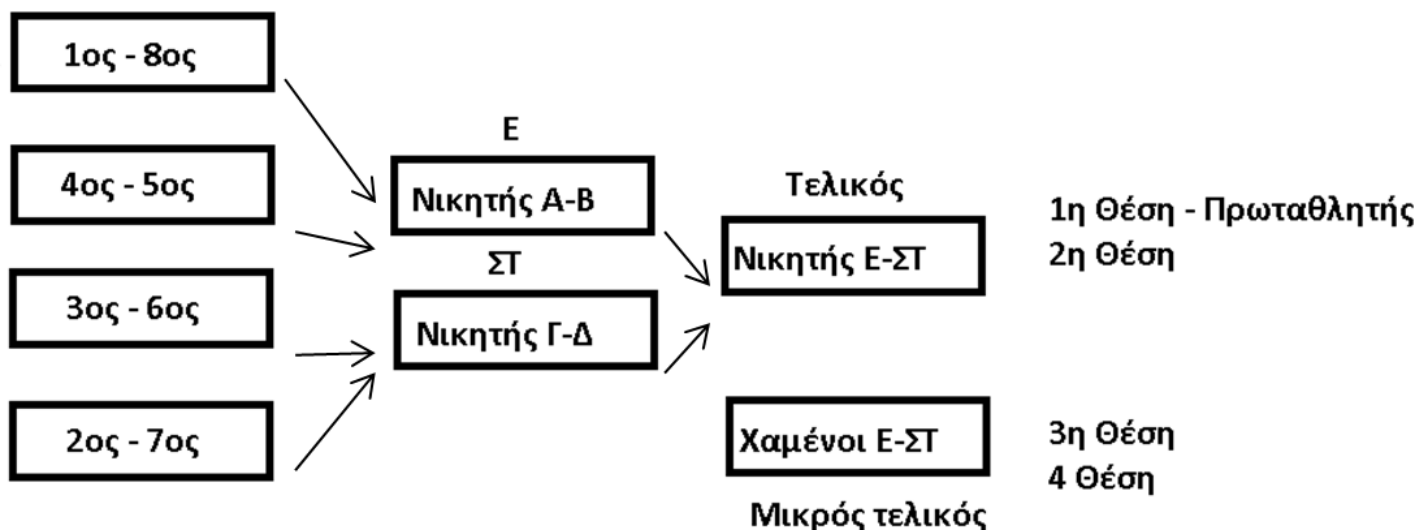
Finals are used in the official competition to determine the top teams in each category. In these matches, the best teams and robots are pitted against each other to determine the winner. The teams that advance to the RC SumoBot finals are determined as follows:

1. Teams will participate in official timed rounds on the day of the competition, within pre-defined groups. All teams in a group compete against other teams in the same group.
 - o An official round is considered any game conducted by a referee with a recorded score.
2. The total points a team accumulates in its group matches will be used to determine whether it will qualify for the finals.
3. The top teams from each group and category will advance to the finals, which will include 4 to 8 teams, depending on the number of groups and teams in the match. The number of teams qualifying from each group will be announced on the day of the match by the match referee.
4. The teams are ranked in the round robin phase as follows:
 - The team with the most points (wins) wins.
 - In case of a tie, a knockout match (best of 3) is held between the two tied teams. If three teams are tied, then a mini-league is held between the three teams.
5. If categories were merged due to a small number of teams, each category will have to conduct its finals as if it had not been merged.
 - o Teams from different categories must not compete against each other in the finals.
 - o Depending on the size of the category, an automatic win may result.

5.2 How the finals are held

The RC SumoBot finals are conducted according to the following rules:

1. The top teams from each division compete against each other in a knockout match out . The pairs are determined after the competition rounds, based on their scores:



2. Knockout matches are held using the best-of-five system. of three (until one team wins two)

3. The 4 remaining teams will compete in 2 additional matches. The winners will face off in the Grand Final for 1st and 2nd place, while the losers will compete for 3rd place.

SumoBot : A competition of strategy and robotic skill!