RoboRAVE Greece

Today's Play, Tomorrow's Pay

SumoBot 1kg and 3 kg

Official manual 2026

RoboRAVE Greece

Our slogan is : "Today's Play, Tomorrow's Pay."

1. General information

1.1 What is the Lego SumoBot Competition?

The SumoBot competition is a unique robotics experience that challenges participants to design and program autonomous robot fighters. In a circular arena, known as the Dojo , the robots compete in dynamic Sumo -style battles , combining the creativity of design with the thrill of a technological challenge.

In the arena, robotic fighters 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, strength and precision, offering a riveting spectacle.

Robots can be built using any robotic kit.

1.2 Who can compete on a team?

The SumoBot competition has the following age categories:

Lego SumoBot 1kg:

- Ages 6-10(Elementary School) - Born 2016-2020
- Ages 11-14 (Middle School) – Born 2012-2015
- Ages 15-18 (High School) – Born 2008-2011

Lego SumoBot 3kg:

- Ages 15-18 (High School) – Born 2008-2011
- Ages over 18 (University) – Born 2007 and before.

Teams must consist of 2 to 4 members. Teams with more than 4 members will not be allowed to participate in the competition unless they register additional teams to comply with the regulations.

The category in which a team competes is determined by the age of its oldest member at the time of registration. Teams may choose to compete in a higher age category, but are not permitted to compete in a lower one.

In the event that a category has fewer than 5 entries, the organizer has the right to combine age categories.

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. The use of multiple sensors, motors and processing units is allowed.

3. The robot must be fully autonomous and not use remote control functions.
    - Devices such as remote controls or connection cables are not allowed to control the robot.
    - The robot's programs can be run from an external device, such as a laptop, provided that the device is not used during the competition.
4. Dimensions and weight of the robot:
    - The robot must fit into a frame measuring 25 cm x 20 cm, with no height restriction.
    - The maximum weight of the robot must be a maximum of 1 and 3 kg.
    - All movable parts (e.g. flags, calipers, ramps) must be fully contained within the original dimensions (25 cm x 20 cm) at the start and also during of the game.
    - It is not allowed to initially position the robot with its wheels in the air or at an angle, with the aim of artificially enlarging it in length or width (and taking advantage of the lack of a height limit) by dropping it onto the playing field.
5. The use of mechanical parts that are intentionally disconnected from the robot or that could intentionally cause damage to another robot is prohibited.
    - Moving parts are permitted as long as they are not dangerous.

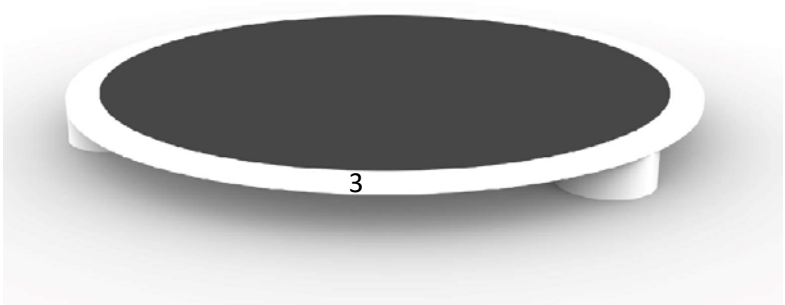
2. The race track

2.1 What are the track specifications?

SumoBot racing tracks have the following features:

1. The competition area is a black circle 100 cm (1m) in diameter for 1 kg. , and a black circle 154 cm (1,54 m) in diameter for 3 kg, 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 2-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. Match Procedure – SumoBot

3.1 How a Match Is Conducted

Robot Inspection before Matches

- All robots are inspected by the judges at the beginning of the event.
- Robots that meet the requirements receive a certification sticker.
- If any modification is made to the robot, a new inspection is required before it can compete again.

Robot Placement on the Arena

1. The referee announces:
   "3, 2, 1, PLACE"
2. At "PLACE", the robots:
   - Are placed simultaneously on opposite sides of the arena.
   - Must touch or slightly extend over the white boundary line.
   - Must have their backs facing the opponent robot and be facing their handler.
3. Moving the robots left or right is not allowed – the robots must be placed exactly opposite each other.

Match Start

1. When both teams are ready, the referee says:
   "3, 2, 1, SUMO"
2. At "SUMO":
   o Teams start their programs.
   o They move at least 1 meter away from the arena.
   o The robots must begin moving with a delay of at least 3 seconds.

3.2 How Points Are Awarded

Each pair of teams competes in three (3) matches.

- If a robot pushes the opponent out of the arena → it receives 1 win/point.
- If 2 minutes pass without a winner → no team receives a point.
- If someone touches or interferes with the match:
  o the referee decides on a restart, or
  o awards the win to the opposing team.
- A robot that has overturned but remains inside the arena continues the match normally.
- A robot that does not react to the opponent's movements is considered defeated and the win is awarded to the opponent.

Any intervention with the robot during the match is strictly prohibited.
Each match has a maximum duration of 2 minutes.

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4. Match Sheet – Score Recording

- On the day of the competition, each team receives its personal match sheet.
- The judges record the wins and stamp the sheet.
- After each round, teams must inform the secretariat so that the results are entered into the system.
- Each team is responsible for keeping its match sheet throughout the entire event.

Below is an example of a score sheet from 4 different matches that could take place during a competition, showing the recorded results of each match and the points collected by each team.

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 Teams Qualify for the Next Phase

• All teams compete in a **single group**, following a **round-robin** system.
• Teams are responsible for finding their own opponents and organizing their matches.
They may conduct **practice matches without scoring**.
When two teams agree to play an **official match**, they must notify the referee so that the match can be held officially.

• Each team must complete **10 official matches**.
• From these:
o the **2 worst matches are removed**
o and the remaining **8 matches count** toward the day's score.
• A team is **not allowed to compete more than once against the same opponent**.

Unsportsmanlike Conduct

If it is determined that two teams have conspired to manipulate the result of a match, **both teams receive zero points** for that match.

Qualification to the Final Round – SumoBot Finals

The final matches are held to determine the winner of the competition.

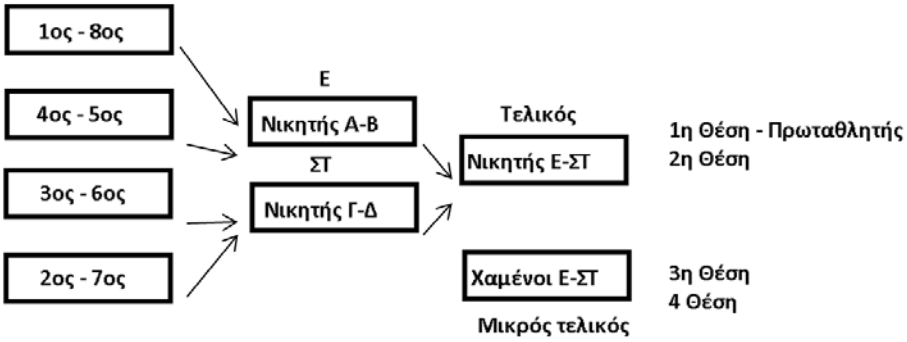
Qualification Procedure

1. The **total points** from the preliminary matches determine which teams qualify.
2. Between **4 and 8 teams** qualify for the finals, depending on the total number of participating teams.
   The exact number is announced on the day of the event by the referee.
3. Teams are ranked as follows:
   • The team with the **most wins** is ranked first (if a match ends with 3-0, the victorious team has 3 wins).
   • In case of a tie:
   ♣ between two teams → **knock-out match (best of 3)**
   ♣ between three teams → **mini round-robin** among the three teams.

5.2 How the Final Matches Are Conducted

The SumoBot finals are held according to the following rules:

1. The top teams from each category compete against each other in **knock-out matches**. The match-ups are determined based on their ranking during the preliminary rounds.



2. Knockout matches are held using the best-of-three system (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.

Lego SumoBot : A competition of strategy and robotic skill!