

# Sumo Challenge Rules

## 1 Challenge Overview

The Sumo Challenge requires participants to design, build, and program a fully autonomous robot

## 2 Division & Age Requirements

- **Lego 1kg Division:** 2-4 player per team, with all members aged 13 years or younger.
- **Lego 3kg Division:** 2-4 player per team, with all members aged 18 years or younger.
- **Open 3kg Division:** 2-4 player per team, with all members aged 18 years or younger.

## 3 Robot Specifications

Category	LEGO 1 Kg Division	LEGO3 Kg Division	Open 3 Kg Division
<b>Robot Platform</b>	Standard LEGO components only. (≈\$1,500).	Standard LEGO components only. (≈\$1,500).	Unrestricted platform. (≈\$1,500).
<b>Robot Type</b>	Fully autonomous robot.	Fully autonomous robot.	Fully autonomous robot.
<b>Maximum Volume</b>	Base dimensions ≤25 cm × 18 cm (height unrestricted). Base orientation fixed pre/post-activation.	Base dimensions ≤25 cm × 18 cm (height unrestricted). Base orientation fixed pre/post-activation.	Base dimensions ≤25 cm × 18 cm (height unrestricted). Base orientation fixed pre/post-activation.
<b>Maximum Weight</b>	1 kg	3 kg	3 kg
<b>Controller Quantity</b>	Multiple controllers allowed.	Multiple controllers allowed.	Multiple controllers allowed.
<b>Sensor Type/Quantity</b>	Unrestricted.	Unrestricted.	Unrestricted.
<b>Drive Type</b>	Unrestricted.	Unrestricted.	Unrestricted.

Motors/Servos	Unrestricted.	Unrestricted.	Unrestricted.
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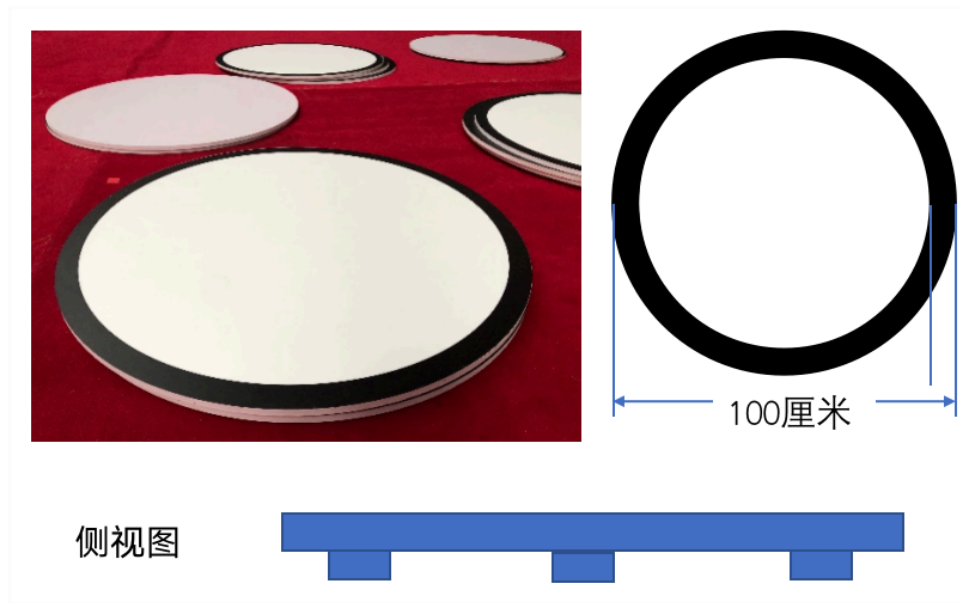
**Additional Rules:**

1. **Sharp Edges Prohibited:** Robots must not have any sharp edges.
2. **Destructive Mechanisms Banned:** Robots shall not incorporate structures designed to damage the arena or opposing robots. The use of liquids, powders, gases, nets, or rubber bands as offensive tools is strictly prohibited.
3. **Ramp Structures Permitted:** Robots may employ ramp structures to lift opponents.
4. **Thin Plate Restrictions:** Inserting thin plates beneath opposing robots or interfering with opponents' sensors through such means is prohibited.  
*Exception:* LEGO-built structures are exempt from this rule.
5. **Pressure-Enhancing Devices Forbidden:** Structures utilizing vacuum pumps, magnets, adhesives, suction cups, or similar pressure-enhancing mechanisms are disallowed.
6. **Friction Manipulation Prohibited:** Adhesive substances must not be used to increase traction.
7. **Claws/Sharp Anchoring Banned:** Robots cannot utilize claws, sharp edges, or pointed corners to anchor themselves to the arena.
8. **Cable Management Guidelines:** Zip ties or rubber bands may secure cables but must not serve as propulsion mechanisms.
9. **Frontal Identification Requirement:** A designated front-facing side must be clearly marked on the robot.

## 4 Field Specification

- **Material:** PVC foam board (Xuefu board), 1.7 cm thick.
- **Dimensions:** 100 cm diameter arena with 5 cm black border.

- **Supports:** Elevated 5 cm above ground, supported by blocks  $\geq 1$  cm from the edge.



## 5 Rules & Scoring

1. **Match Structure:** match during 2 minutes .
2. **Scoring:**
  - 10 point awarded for pushing the opponent off the arena.

## 6 Robot Check-in

Before earning valid points, robots must pass on-site referee inspection.

Requirements are as follows:

1. **Front Identification:** The robot must have a clearly marked front-facing side.
2. **Functional Demonstration:** From the designated starting position, the robot must demonstrate:
  - Edge detection and avoidance capabilities.
  - Opponent-searching program execution.
3. **Base Area Compliance:** The robot's base dimensions must not exceed **25 cm × 18 cm**.
4. **Weight Verification:** The robot's weight must comply with division-specific limits.
5. **On-Demand Checks:** Referees may inspect robots at any time during debugging or competition phases.