

5. Sumo ESP32 Wireless Control MR Series

Level : Junior / Senior

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Sumo Ring (Dohyo)

Arena Structure	Shikiri Lines	Border Line
Height : 2.5 cm Diameter : 80 cm Material : wood	Width : 1 cm Length : 10 cm Separation : 10 cm	2.5 cm.



Prohibited Actions in Robot Construction

- **Must not use** any parts or equipment that, once installed, can cause damage to the Dohyo ring or the overall arena (both white and black areas), including the use of wheels coated or treated with oil or lubricating liquids.
- **Must not install** or use equipment containing liquids, powder, or dust, as well as air, that can be discharged toward the opponent's robot by any means.
- **Must not use** any equipment that, during normal operation, produces flames or combustion. Must not use any equipment capable of shooting, throwing, or launching parts from the robot toward the opponent.
- **Must not install** or use any equipment and tools that can secure the robot to the field floor and the Dohyo ring, whether it is glue, sticky rubber for surface adhesion, adhesive tape, stickers, or special devices used to support or create friction or resistance against the field floor, such as jet propulsion systems.

Robot Specifications

Must use the MR Series - Sumobot model ESP32 RC 500G kit only. Robot kits can be contacted at <https://web.facebook.com/pal.manawisut>.

1. The total net weight of the robot (robot body only) must not exceed 500 grams (robot + battery + weight plates only).
2. The robot can use a power source of two 3.7-volt batteries combined to 7.4 volts. The fully charged voltage capacity must not exceed 8.4 volts, verified by the numbers indicated on the battery label. If contested by other competing teams, the referees reserve the right to use a multimeter to check the batteries.
3. **Only 14500 batteries are allowed, brand not restricted.**
4. Regarding the robot's wheels, no equipment or tools of any kind that can fix the robot's feet to the field floor and leave a sticky residue on the competition field may be installed or used, such as double-sided adhesive tape, etc.
5. MR Series silicone wheels can be used as shown in the image below.



6. Must use MR Series motors/boards/robot chassis only (48:1 / 600 RPM motor).
7. Do not use any parts or equipment that, once installed, can cause damage to the opponent's robot.
8. Do not modify the MR Series robot chassis and strictly do not add any other materials. All proportions must remain completely original, except for weight plates which can be used as provided in the robot kit.

Competition Rules

1.1. Competition Format

1.1.1. One match consists of 3 rounds, with each round lasting 2 minutes.

1.1.2. The winner of the match is the team that achieves the best score across the 3 rounds, such as winning 2 out of 3 rounds. Winning each round awards **1 Yuko**. If neither team scores before time runs out, the match is considered a draw. If all 3 rounds are completed and no team has achieved 2 Yuko, the referees will make a decision as follows:

- [Case1](#) If both teams have 1 Yuko each (winning one round each) and there is 1 tied round, the team with the lighter weight will be the winner of that match (this case occurs frequently).

- **Example:**

Round 1: Team A wins

Round 2: Draw

Round 3: Team B wins

Decision: Decided by weighing; the team with the lighter weight will be the winner of that match.

- [Case2](#) If all 3 rounds are a draw, the team with the lighter weight will be the winner of that match (this case rarely occurs).
- [Case3](#) If 2 rounds are a draw and either team wins the remaining 1 round, that team is considered the winner of that match.

- **Example:**

Round 1: Draw

Round 2: Draw

Round 3: Team A wins

Decision: Team A is the winner of that match.

1.1.3. The competition will follow a **double-elimination** format, meaning a team is eliminated from the match after losing twice. Winning teams advance to the next match, continuing with a knockout format until the champion, 1st runner-up, and 2nd runner-up are determined as announced by the organizers.

Double Elimination is a tournament format where competitors must lose two matches to be eliminated from the competition, differing from single elimination where participants are eliminated immediately after a single loss. Competitors who lose their first match are moved to the "losers' bracket" and get a second chance.

Key Features:

Two Brackets: The competition is divided into two brackets: a winners' bracket for winners and a losers' bracket for those who have lost.

Second Chance: Losing in the winners' bracket does not result in immediate elimination; instead, teams drop down to the losers' bracket to find a way back to the finals.

Elimination: Competitors are officially eliminated from the competition only after losing for the second time (i.e., a loss in the losers' bracket).

The Finals: The double-elimination finals are decided by a matchup between the Winners Bracket champion and the Losers Bracket champion, with the Winners Bracket champion holding an advantage.

Winning Conditions:

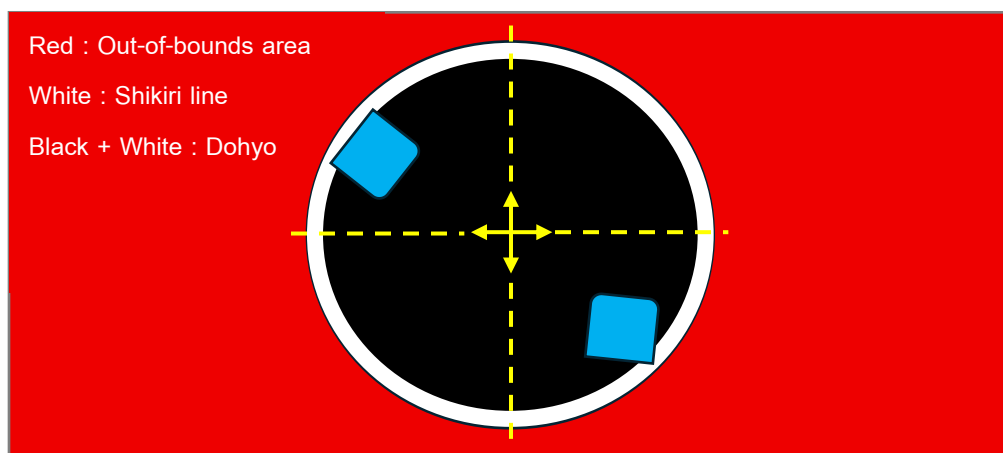
- **Winners Bracket Champion:** Winning the final match makes them the champion immediately.
- **Losers Bracket Champion:** Winning the first match triggers a "bracket reset," requiring them to play the Winners Bracket champion a second time to determine the overall champion.

Advantages: This format offers more flexibility, gives competitors a chance to recover from a defeat, ensures fairer competition, and reduces the risk posed by a single mistake.

*** If the upper bracket team loses in the finals, a second match will take place.**

1.2. Start of Competition / Restart / End of Competition

- 1.2.1** Upon the referee's signal, contestants must report to the field together, with 20–30 seconds provided for preparation. The referee will toss boundary markers onto the competition field. The boundary markers divide the field into 4 sections, with the robots placed on opposite sides within the designated areas, and at least one part of the robot must touch/overlap with the Shikiri line (white line), as shown in the example image.



- 1.2.2 To start the competition, contestants press the power buttons to turn on both the robot and the remote control. Movement testing of the robot is only allowed outside the field (during the preparation time). After the preparation time ends, the robot must be placed stationary on the field. The match begins only when the referee gives the start signal (the referee presses start on the timer).
- 1.2.3 From the second round onwards, the team that won the previous round must place their robot on the field overlapping the Shikiri line first, facing any side of the robot toward the opponent. Afterwards, the team that lost the previous round will place their robot on the field.
- 1.2.4 After submitting the robot for inspection, contestants cannot perform any further repairs until it is their turn to compete (with a 20–30 second preparation time). In the top 8 round, contestants are allowed to repair their robots only within the competition area; bringing in any equipment from external individuals is strictly prohibited.
- 1.2.5 The competition may only be stopped and restarted upon an official announcement by the referee.
- 1.2.6 The competition officially ends when the head referee makes the announcement, and contestants are required to remove their robots from the field

1.3. Yuko Scoring

- 1.3.1 A score of 1 Yuko is awarded when:
- One side manages to cause any part of the opponent's robot to touch the area outside the Dohyo, which is the out-of-bounds area. The side that achieves this first receives 1 Yuko.
 - When any part of the opponent's robot touches the area outside the Dohyo by itself, 1 Yuko is awarded to the opposing side.
 - When either team's robot malfunctions or shows no progress in movement for 5 seconds, the side that is still moving is the winner.
 - When Team A places their robot on the competition field and movement occurs before the referee gives the signal to press start on the timer, Team B will win immediately.
- 1.3.2 If the robot is still on the Shikiri line, it is not yet considered a score, and the match shall continue.
- 1.3.3 The match will stop when:
- Both robots grapple or lock together and there is no movement for 5 seconds (a draw).
 - If both robots touch the area outside the Dohyo and it is impossible to clearly determine who touched it first, the referee will order a rematch.

1.4. Rule Violations

1.4.1. Contestants who insult or look down upon the opponent, whether through verbal communication or physical gestures, will receive a warning exceeding 1 time (if a second instance occurs, it will result in an immediate forfeit for that match, making the other team the winner instantly).

1.4.2. Throwing or bringing any parts or equipment into the competition field area will result in an immediate match forfeit.

1.4.3. Changing the robot during the competition will result in immediate disqualification from the game, awarding 2 Yukos to the opposing team to declare them the winner.

1.4.4. Contestants leaving the competition area without notifying the referees or without staff accompanying them outside: Exceeding 1 warning (if a second instance occurs, it will result in an immediate match forfeit).

1.4.5. Communication or guidance from external individuals who are not contestants, or external individuals disturbing the referees or contestants during the match: Exceeding 1 warning (if a second instance occurs, the team under the supervision of that individual will be immediately forfeited for that match).

1.4.6. Contestants taking the robot out of the competition area during the match:

1.4.6.1. In case the robot is taken out of the area and an external person helps repair it or interacts with it:

- Result in a forfeit for the match the contestant is about to compete in, awarding 2 Yukos to the opponent as the winner.
- After being forfeited for the upcoming match, result in immediate disqualification from the competition.

1.4.6.2. In case the robot is taken out of the area without any external person helping to repair it or any interaction, such as repairing the robot independently outside the area:

- Receive 1 warning (if a second instance occurs, result in immediate disqualification from the competition).

1.5. Penalties

1.5.1. Contestants who violate the rules and regulations in clause 1.4 will be immediately forfeited for that match, with 2 Yukos instantly awarded to the opposing team, or they will be immediately disqualified from the game. The offender has no right to protest.

1.5.2. Contestants who cause damage to the competition field will be immediately disqualified from the competition.

1.5.3. Contestants who display inappropriate behavior regarding the awards received or cause physical, verbal, or mental harm to the referees will be immediately disqualified from the competition, and the next ranked team will be promoted to receive that award instead.

1.5.4. Team supervisors who cause physical, verbal, or mental harm to the referees or disrupt the judging committee will have all teams under their supervision immediately disqualified and forfeited, even if they have already won an award ranking.

1.5.5. If a team supervisor is involved in any wrongdoing, all teams under their supervision will be immediately disqualified from the competition under these rules.

1.5.6. **The decision of the committee is final and cannot be contested after the completion of the competition in that category.**