VISION SYSTEMS SUMO

COMPETITION RULES

V7.0

Revision History

Issue	Date	Description
1	11/8/2005	Updated border width from 5cm to 10cm
2	12/8/2005	Added clarification on stop time to Article 14
3	15/8/2005	Added rules changes at Article 4, 8,10,11
4	17/8/2005	Changed start line specification to black pencil line
5	31/8/2005	Updated weight limit from 2kg to 3kg
6	14/12/06	Changed competition surface specification. Changed white edge line specification Changed start line specification
7	6/02/2007	Added vacuum device conditions in Article 5b

Chapter 1: Definition of a Match

Article 1 - Definition

A match involves two contestants in the sumo ring (*Dohyo*) according to the game rules (*rules*). The contest continues until a (*Yuko*) point is scored by one of the contestants. The referee will make the decision on when a point is scored.

Chapter 2: Sumo Ring (Dohyo) Specifications

Article 2 - Definition of the Dohyo Interior

The dohyo interior is defined as the dohyo area surrounded by and including the border line.

Article 3 - Dohyo

A dohyo is a circular melamine base with a thickness of 20mm and an outside diameter of 1.8m (including the white line). A hard black rubber sheet is attached to the top of the base.

- The starting lines ("Sikiri-Sen") are indicated as two brown lines with a width of 2 cm and a length of 20 cm. Each line is located 20 cm from the center of the Dohyo.
- The outer edge of the dohyo, the border line, is indicated as a white circular ring with a width of 5 cm "On the border" is defined as being within the interior of the dohyo.

Figure 1 : Competition Dohyo

Article 4 - Dohyo Exterior

The exterior area of a dohyo is any region beyond outside edge of the dohyo. Contact with the floor on the dohyo exterior is deemed out of the dohyo.

Chapter 3: Robot Specifications

Article 5 - Specifications

- The robot must be able to fit in a box with a width and depth of 20 cm. There are no restrictions on height.
- Weight (including accessories) must not exceed 3 kg.
- There are no restrictions on the type of control method used as long as the robot is autonomous.
- An autonomous robot should be designed to begin action no earlier than five seconds after the contestant presses the robot's start button.
- There are no restrictions on the type of microprocessor or the amount of memory used in the robot.

Article 6 - Restrictions on Robot Design

- The robot will not include a device that obstructs the control of the opponent's operation, such as a jamming device or strobe light or IR LEDs intended to saturate the opponents IR sensors.
- Parts that could break or damage the ring are not allowed. Do not use parts that are intended to damage the opponent’s robot or it's operator. Normal pushes and bangs are not considered intent to damage.
- The robot will not include a device that insufflates any liquid, powder, or gas.
- The robot will not include an inflaming device.
- The robot will not include a throwing device.
- Sticky substances to improve traction are not allowed. Tires and other components of the robot in contact with the ring must not be able to pick up and hold a standard 3"x5" index card for more than two seconds.
- All edges, including but not limited to the front scoop, must not be sharp enough to scratch or damage the ring, other robots, or players. Judges may require edges that they deem too sharp to be covered with a piece of tape.
- Remote control of the robot in any form is not allowed.

Article 6b – Vacuum Based Traction Mechanisms

- Robots employing a vacuum mechanism for enhanced traction must declare the use of the vacuum technology to the referee prior to the start of a bout.
- Robots that use a vacuum mechanism for enhanced traction may only employ the vacuum mechanism when competing against a robot fitted with vacuum based traction. When competing against robots without vacuum based traction, the vacuum mechanism must be disabled.

Chapter 4: Game Principles

Article 7 - Game Principles

- A game consists of three matches of three minutes each. The first contestant to win two Yuko points is the winner of the game.
- The contestant who has the most Yuko points at the end of the game will be judged as the winner.
- When neither contestant receives any Yuko points, or both contestants have one Yuko point, an extra three-minute match can be played. The first Yuko point awarded shall win the match. However, if after the three minute match there is no clear points winner and a no clear superiority exists, the winner will be decided by the judges.

Chapter 5: Game Procedure

Article 8 - Beginning of the Game

At the start of the match, the contestants enter the dohyo. The contestants put their robots on or behind their starting lines. No part of the robot can be placed in front of the starting line before the match begins. Note that is not required that a robot be placed directly behind the Shikiri line; it may be offset to the side, as long as it is behind an imaginary line collinear with the Shikiri line.

- A coin toss shall decide the order of contestants placing the robots. The loser of the coin toss must place their robot first. The winner of the coin toss may place their robot second.
- In subsequent rounds the winner of the previous round must place their robot first. The loser of the previous round may place their robot second.

- The contestant presses the start button on the robot at the referee's signal. The match begins five seconds after the referee's signal. The contestant exits the dohyo when the match begins.

Article 9 - End of the Game

The match ends when the referee calls the winner.

Article 10 - Game Cancellation and Rematches

A match will be stopped and a rematch will be started under the following conditions:

- The robots are locked together in such a way that no more action appears to be possible or they rotate in circles several times.
- Both robots exit the dohyo at the same time.
- Any other conditions under which the referee judges that no winner can be decided.
- In case of a rematch, maintenance of competing robots is prohibited until a the match is completed.

Chapter 6: Yuko (Effective) Points

Article 11 - Yuko

The following conditions are determined as Yuko (effective) points:

- When a robot ejects its opponent from the dohyo with a fair action.
- When the opponent's robot moves out of dohyo on its own (for any reason).
- When the opponent's robot is disqualified or has had more than one violation or 2 warnings.
- When two Yusei points are given.

Article 12 - Yusei

The following condition is determined as Yusei (advantage) points:

- When the opponent's robot gets stuck on the border line and cannot move off the border line on its own.

A Yuko point will be given when two Yusei points are given. A Yuko point will also be given when a Yusei point is given and the opponent has already been given a warning.

Chapter 7: Violations and Penalties

Article 13 - Warnings

A contestant who takes any of the following actions will receive a warning:

- The operator or any part of the operator enters the dohyo before the referee's call ends the match.
- Preparation for the restart of a match takes more than 30 seconds.
- A robot begins action (physical expansion or moving) within five seconds after the chief referee's start signal.
- Any other actions that may be deemed unfair occur.

When a contestant receives two warnings, the contestant's opponent will be awarded one Yuko point.

Article 14-Violations

Any of the following actions is determined as a violation, and the offender's opponent, or both robots, will get a Yuko point:

- A part (or parts) of the robot that exceeds a weight of 10 grams is separated and dropped from the robot.
- The robot stops moving on the dohyo. This is defined such that if a robot remains stopped for 5 seconds it will be declared as unwilling to fight. Movement is defined as traversing the arena.
- The robot emits smoke.

Chapter 8: Specifications of Robot Markings

Article 15- Marks on the Robot

- Some type of name or number, to identify the robot (as registered in the contest) must be easily readable on the robot's body, while the robot is in competition.
