



# Institute of Computer Engineers of the Philippines

SEC Reg. No. 201120675

## Name of Event: Sumobot

*(Note: This guideline is intended for the National CpE Challenge. If the same will be used for Regional Competitions, necessary changes may do, if applicable).*

**Description:** Two robots compete in a head-to-head match following the basic system of traditional human sumo matches. Robots are to be fully autonomous and self-powered. Weapons of any sort that pose as a potential danger to robots and humans are strictly not allowed.

### THE COMPETING TEAM

1. Each participating region is entitled to send one team (the regional team's champion) composed of three (3) ICpEP student members regardless of year level endorsed by the ICpEP Regional Chapter President. Regions with twenty or more schools offering BSCpE program may send maximum of two (2) teams.
2. A registration fee of Php 1,500.00 per team shall be collected.
3. All team members must be currently enrolled in BSCpE program during the time competition.
4. The region assigns a faculty member who shall serve as coach. The coach is also the team's official representative and only authorized person to file a protest in behalf of the team.
5. List of participants (form provided on the last page) must be sent through email, [dion\\_tand@yahoo.com](mailto:dion_tand@yahoo.com), on or before **November 10, 2018** (for National Competition only). Late submission of entries shall not be accepted.

### THE BOARD OF JUDGES (BOJ) AND REFEREES

The BOJ shall be composed of three (3) representatives/staff from Hytec Power, Inc. (HPI). They will also serve as referees during the competition proper and shall convene to resolve any issue that may arise during the conduct of the competition.

### ROBOTS SPECIFICATION:

1. The robot has a maximum width and length of 20cm x 20 cm with a maximum weight of 1kg regardless of height.

| Height    | Width | Length | Weight |
|-----------|-------|--------|--------|
| Unlimited | 20 cm | 20 cm  | 1kg    |

2. A robot may expand in size after a match begins, but must not physically separate into pieces, and must remain a single centralized robot. Robots violating these restrictions shall lose the match. Screws, nuts, and other robot parts with a total mass of less than 5 grams falling off from a robot's body shall not cause the loss of match.
3. Robots must be autonomous. Any control mechanisms can be employed, as long as all components are contained within the robot and the mechanism does not interact with an external control system (human, machine, or otherwise).
4. Autonomous class robots must not start operating for a minimum of five seconds after initiation by the user.
5. The robot must have a name or number for registration purposes. Display this name or number on your robot to allow spectators and officials to identify your robot.

## **ROBOT RESTRICTION:**

1. Jamming devices, such as IR LEDs intended to saturate the opponents IR sensors, are not allowed.
2. 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 its operator. Normal pushes and bangs are not considered intent to damage.
3. Devices that can store liquid, powder, gas or other substances for throwing at the opponent are not allowed.
4. Any flaming devices are not allowed.
5. Devices that throw things at your opponent are not allowed.
6. 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.
7. Devices to increase down force, such as a vacuum pump or magnets, are only allowed in the 3 kg class. They are not allowed in all other classes.
8. 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. In general, edges with a radius of greater than .005", as would be obtained with an unsharpened .010" thick metal strip, should be ok. Judges or competition officials may require edges that they deem too sharp to be covered with a piece of tape.

## **HOW TO CARRY SUMO MATCHES**

1. One match shall consist of 3 rounds with 1 minute each round
2. A team receives a point when the team wins a round. The team with higher points at the end of the match wins.
3. The BOJ can choose to give extension rounds during a draw. A maximum of 2 extension rounds is allowed. Alternatively, the winner/loser of the match may be decided by BOJs, by means of weight, lots or rematch.
4. The decision of the BOJ to resolve a draw is final and cannot be appealed.

## **START, STOP, RESUME, END A MATCH**

**Start** - Upon the referee's instructions, the two teams bow to each other in the outer ring, approach the ring, and place a robot within their half of the ring on or behind the Shikiri line. (A robot or a part of a robot may not be placed beyond the front edge of the Shikiri line toward the opponent. 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.) When the referee announces the start of the round, the teams start their robots, and after a five second pause the robots may start operating. During these five seconds, players must clear out of the ring area. The robot does not start it consider as false start. The judges give another round to start the game.

**Stop, Resume** - The match stops and resumes when the referee announces so.

**End** - The match ends when the referee announces so. The two teams retrieve the robots from the ring area, and bow.

## **SCORING**

A point is a reward to the winner of a match.

1. When a robot moves before the 5 second delay requirement, the other robot gets the point.
2. When a robot does not move or spins around on the same location for 5 seconds, the other robot wins the point.
3. When the other robot falls off outside the ring. The robot that remained in the ring wins the point. This is valid even if NO CONTACT is made between the robots.
4. When a part of the robot falls off or separates from the body while in the ring, the other robot wins the point. {exception for nuts and screws}

5. When ALL the wheels of a robot are not touching the ring's surface, the other robot wins the point.
6. When all matches are completed and NO WINNER is found, the robot with the lighter weight gets the winning point.
7. When the player touches any part of the playing field or any robot in the game directly or indirectly during a match, the other robot wins the point.

### **DRAW**

1. When 65 seconds has lapsed into the round.
2. When the referee cannot decide on which robot fell first.
3. When during a contact, both robots are in a deadlock position and there is no progress in the position, after 10 seconds, a draw is called.

### **FALSE START**

When at the start of the round, the player accidentally was not able to properly put the robot ON, a False Start is called – NO points are called, the round is repeated. Referees observe false start carefully.

### **PENALTIES**

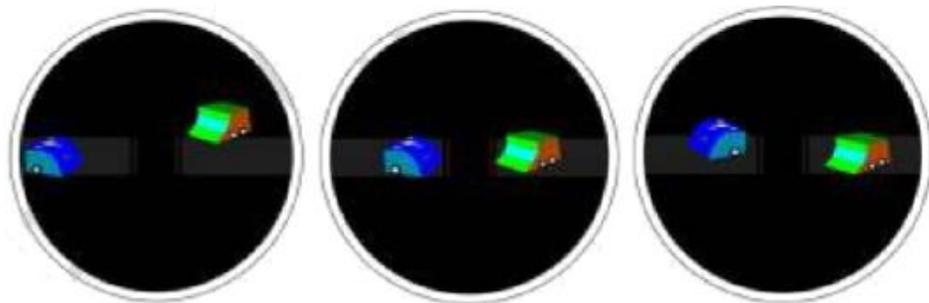
Sportsmanly conduct is expected from players. Any misconduct, foul language or intentional action to harm the opponent or the robot shall be dealt with by the table officials with the recommendation of the referee. Penalties can range from losing a round, a match or being banned.

### **DECLARING OBJECTIONS**

1. No objections shall be declared against the judges' decisions.
2. Before the match is over, the team leader or coach of the participating team can present objections to the BOJ, if there are any doubts in the exercise of these rules. Objections can be presented to the BOJs before the match is over.

### **SUMOBOT PLACING GUIDE**

#### **Valid Position**



#### **Invalid Position**

