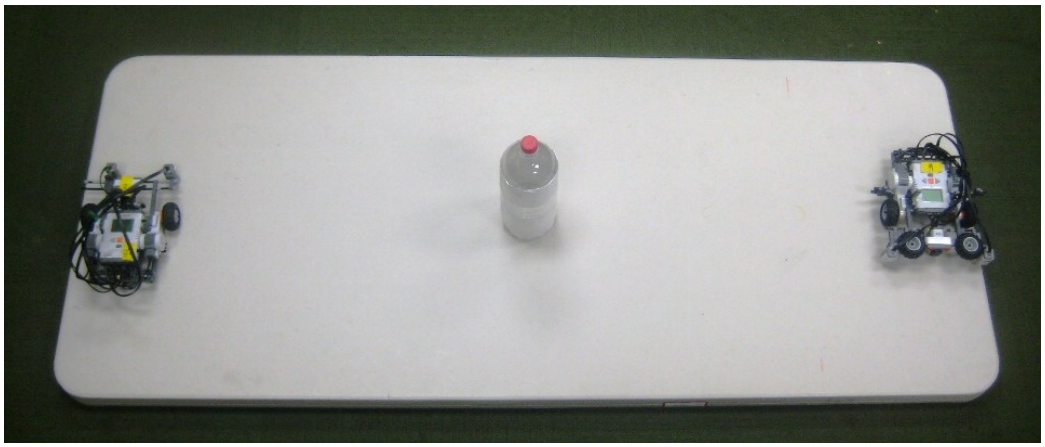
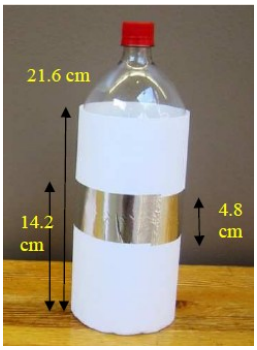
ROBOFEST Bottle RoboSumo™

4-30-12 (Significant Changes after 2-9-12 version)





The object of the game is to either be the first robot to push *intentionally* a 2 liter bottle (filled with 1 liter of water) off the table OR be the last robot remaining on the table. A robot is considered off the table *when any of its parts are touching the floor*, whether it was pushed off the table by the other robot or it fell off the table on its own.

Each robot must be 100% autonomous. No human control, signal, or remote computer control (teleoperation) is allowed.

Robot Requirements

	Jr. Division (Upper elementary & Middle School)	Sr. Division (High School)
Maximum robot mass	1 Kg	2 Kg
Maximum robot width, length, and height	25cm	35cm
	Robots may expand their dimensions automatically during the game.	
Number of robot controller per robot	One	Any
Traditional sensor types	Any unless it can be harmful to humans.	Any unless it can be harmful to humans.
On-board vision sensor system	Not allowed	Allowed. For example, an Android phone with a camera can be used as a vision system on the robot.
Number of sensors	Any	
Motor types	Any	
Number of motors	Any	
Robot kit	Any	
Material	Any. You may use tape, glue, rubber bands, etc. (However, you cannot glue/tape the robot to the sumo ring floor.) Vacuum or sticky tires are ***not*** allowed.	
Programming language	GUI based language recommended	Text base language recommended

Sumo Ring
One 30" x 72" plastic folding table (such as those found at http://www.buylifetime.com/Products/BLT/PID-22901.aspx) is used for the ring. The surface is light in color (almond or tan). The table is placed on a dark colored floor with the legs folded under.

Sumo Match Rules
The first robot to win two games wins the match. At the start of each game, the judge will announce

(1) the location of the robots on the table and
(2) the orientation of the robots

Immediately after the judge gives the signal to start the game, *each robot must wait at least **3** seconds before moving* and everyone must move at least 72" away from the table and may not approach the table until after the end of the game. During this wait time, the bottle will be placed approximately the same distance from each robot.

A maximum of 2 minutes are given for each game. At the judge's discretion, the judge *may* choose to restart a game ***or*** declare tie game if:

- Both robots at the same moment touch the space outside the table.
- It is not clear which robot pushed the bottle off the table.
- It is not clear which robot fell off the table first.
- NO progress has been made in a reasonable period of time.
- The robots fail to touch each other for a reasonable period of time.
- The robots are hopelessly entangled or otherwise deadlocked.
- BOTH robots fail to start.
- There is no winner after two minutes.

Judge may continue the game (*it becomes sumo*), if the bottle is dropped off the table *un*intentionally. For example, a robot does not have any sensor in the rear and the bottle is pushed off while backing up. Another example: The bottle is pushed off the table, as a result of the push by the opponent.

The Judge has all the discretion in making ANY-and-ALL final decisions for the cases not considered in these rules.

How to Schedule Matches and Determine Winners
The site host can choose single elimination, double elimination, or round-robin (all-play-all) tournament. Double elimination is recommended.

Also the following method could be possible:
First do the mock competition using only the bottle. Measure the time to push the bottle off the table. Based on the mock competition result, create single elimination tournament tree in such a way that best teams do not fight in early stage of the tournament (seeding).