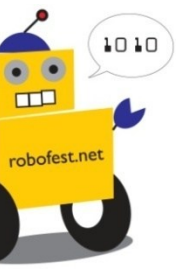


LAWRENCE TECHNOLOGICAL UNIVERSITY
ROBOFEST

**Hexapod (6 legged)
Robot Sumo Rules
for Robofest 2012**

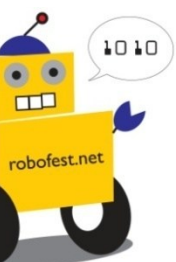
ROBOFEST
LAWRENCE TECHNOLOGICAL UNIVERSITY



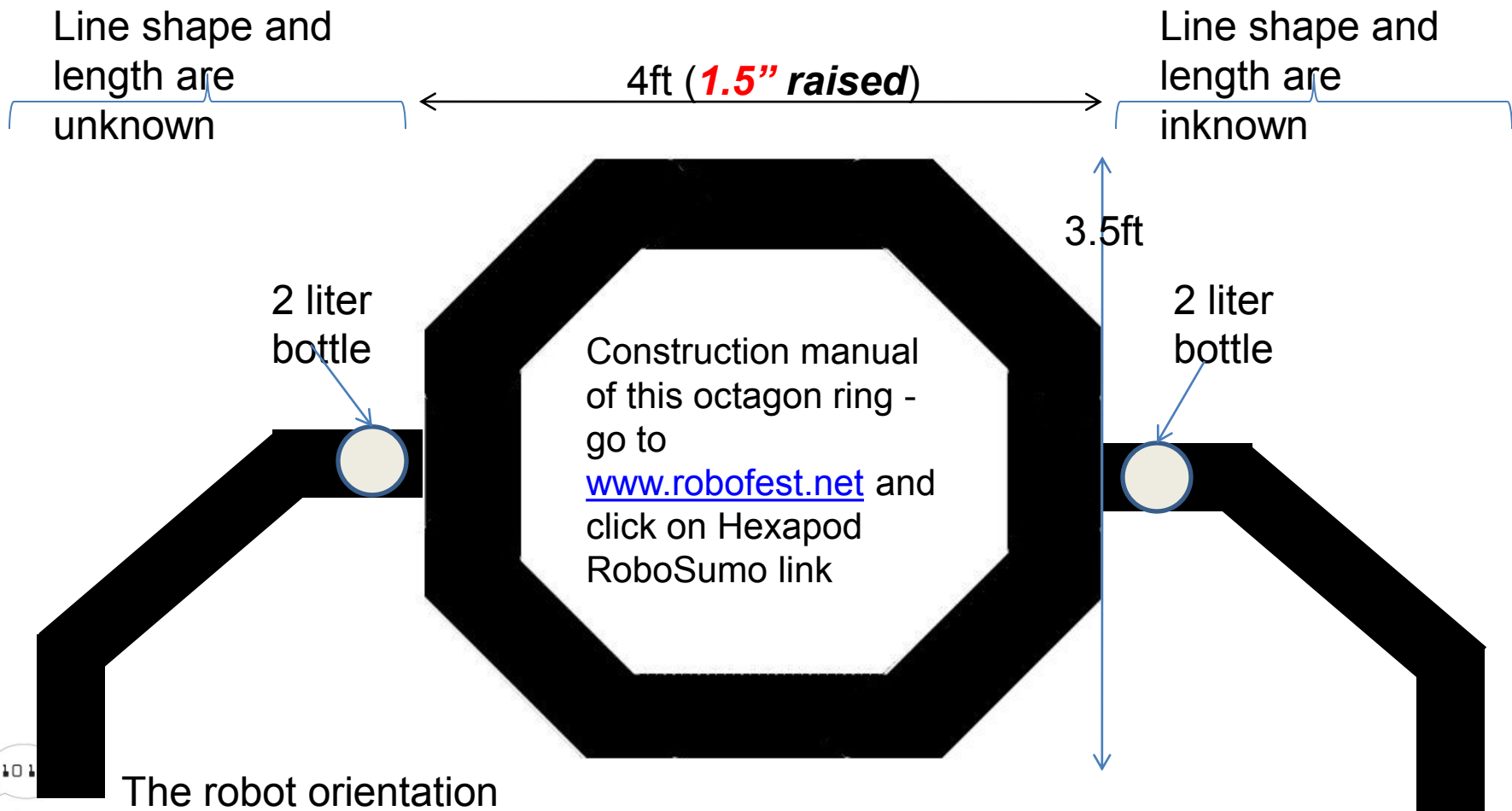
Little Robots, Big Missions
Autonomous Robot Competitions for Every Student

Robot Construction

- Using only parts provided by the BIOLOID premium kit
- To encourage creativity, tape and paper can be used (Updated 5-8)
- Each robot needs an ID tag with team name – tapes can be used only for the ID tag
- Even if there is no penalty of losing parts, it is highly recommended to tighten all the screws

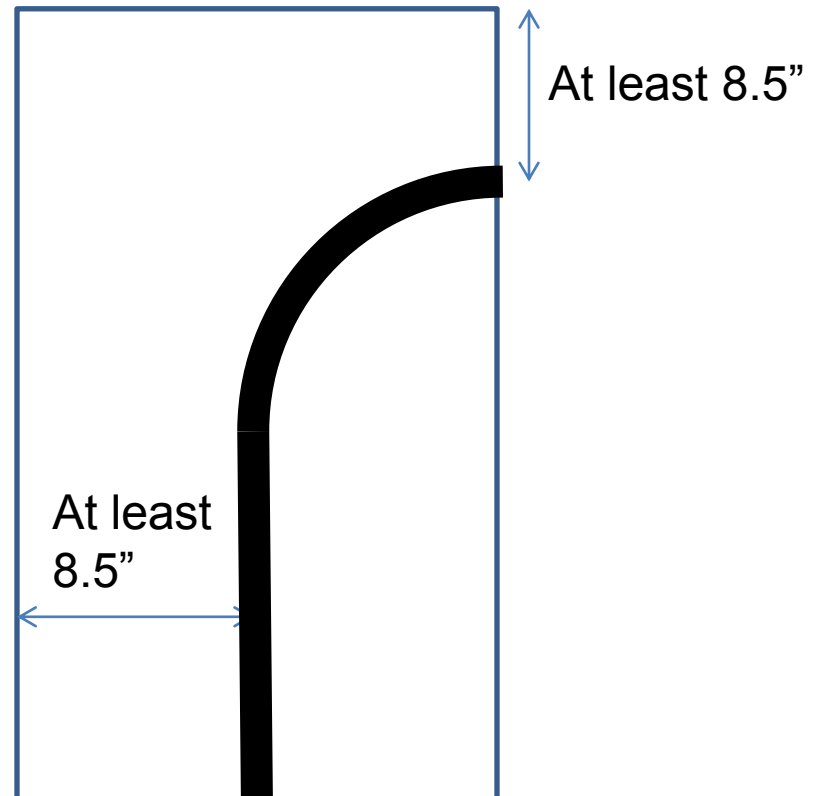


The Ring

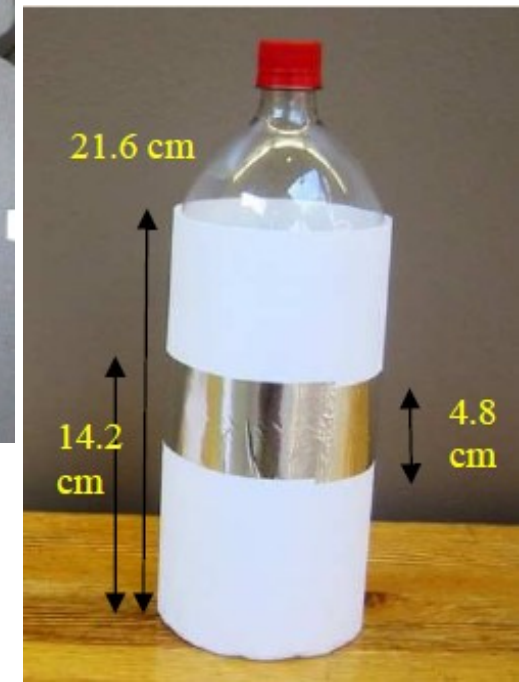


How to make the lines

- Use standard Robofest Game folding table(s) (6ft)
- Two (double) standard electrical tape: width = $\frac{3}{4}$ " x 2



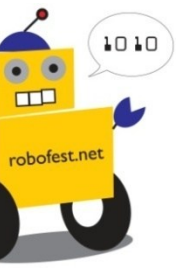
The ring – An example



2 liter bottle filled with
1 liter of water

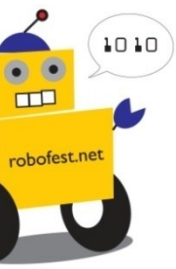
Rules

- Objective is to survive inside the octagon ring until 2 minutes expire
- A match consists of up to 3 games
- 2 minutes for each game
- A robot loses a game,
 - if 3 legs ***touch*** floor after climbing up the ring (*and the opponent is on the ring*),
 - If the robot is touch by the team human player, or
 - If the robot lays down on the ring for more than 2 seconds



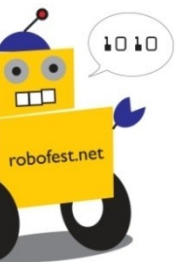
Definition of “laying down”

- The main middle section of the robot is touching the ground and is motionless for **two** seconds.
- *Each robot must seek active engagement of its opponent!*



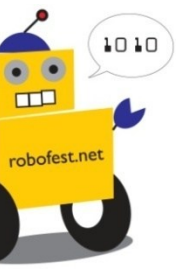
How to start the game (1)

- The judge will decide the starting side (west or east) at random.
- The judge will tell the exact location and starting orientation of the robot. (The IR sensor facing down will be on the line)
- Note: May 19, 2012 competition will allow 1 minute to adjust programs after announcing the above two conditions.



How to start the game (2)

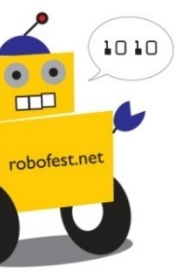
- Judge will give the signal to start the robot.
 - Human player will start the robot by pressing **the start** button. Teams are **not** allowed to press the start button before the judge says “go”
 - There must be *some delays* before starting the walking.
- After starting the robot each human player must move at least 6ft away from the ring
- The player is allowed to restart the robot without penalty *before* climbing up the ring –
updated 5-8-12



Definition of successful climbing up the ring

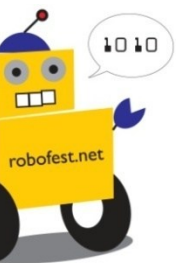
- The 2 liter bottle must be fallen down by the same side robot first *and*
- All 6 legs must be on the ring. (Black edge area is fine)

Q: what if the robot climbs up the ring without knock down the bottle? – Judge will ask restart



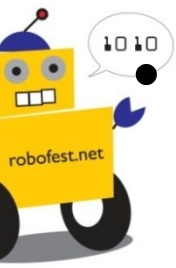
Tie Breakers

- Who successfully climbed up the ring first?
- Rematch without line following, if all 3 games are ties (For this case, teams may need to prepare a program for sumo only without line following part)



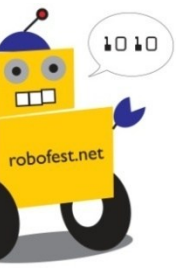
FAQs (1)

- Can a robot attack the opponent robot while it is climbing up the ring? **Yes. The robot that can follow the line and climb the ring quickly has higher chance of winning**
- Both robots could not climb up the ring for 3 games. How do we decide winners? **Rematch without line following. Judges will decide the initial orientations. Need to re-download sumo only program**
- Do we allow a robot to re-climb up the ring?
No



FAQs (2)

- Robot A climbed up first, then fell off the ring by itself. Robot B was not able to be on the ring at all. Who is the winner? **Robot A**
- Robot A climbed up first, then fell off the ring by itself. Robot B was able to be on the ring later. Is it necessary to continue the game? **Yes.** Who is the winner? **Watch if B can stay until 2 min expire. If it does, B is the winner. If not, A is the winner, since A climbed up first.**



Acknowledgement

- Sponsor - ROBOTIS Inc.

ROBOTIS

- Jinwook Kim, ROBOTIS Inc. - ideas about raised ring
- Gordon Stein – testing sumo programs for the first time and preparing instructions for sumo
- Joel Stein – construction of the octagon rings

