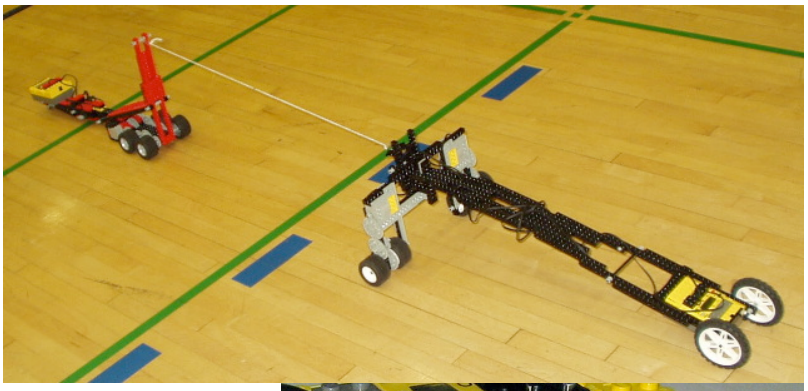
RoboChallenge Tug O' War Official Rules -updated 10-18-05

Overview:

RoboChallenge Tug O' War is a competition designed to teach students about the applications of force, motion, torque, and friction. Students build strong, sturdy robots that are designed to pull another robot when connected by a string. Tug O' War robots must be built to withstand internal and external forces. Robots have limited mass, and have some limits on design and materials allowed. Tug O' War has been a RoboChallenge competition since the year 2000.



Materials Allowed:

2 LEGO Motors, 1 RCX, LEGO bricks and elements

Rubber Bands, String, up to 1 paperclip

Wheels: any kind or number of wheels may be used, except for a maximum of 4 of the wide 2" diameter wheels.

Design Constraints:

1) Maximum Mass: 840 grams

2) A Tow-bar must allow the string to be connected with a paperclip.

3) No part of the robot can extend past the paperclip.

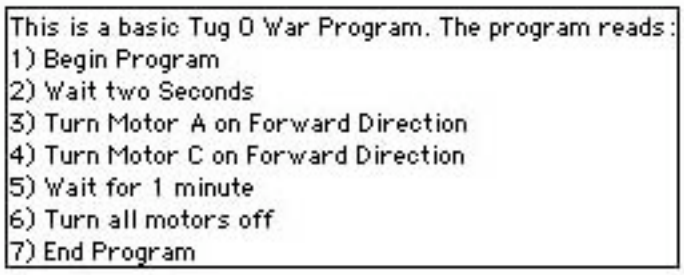
4) String and rubber bands may be used as structural or mechanical elements

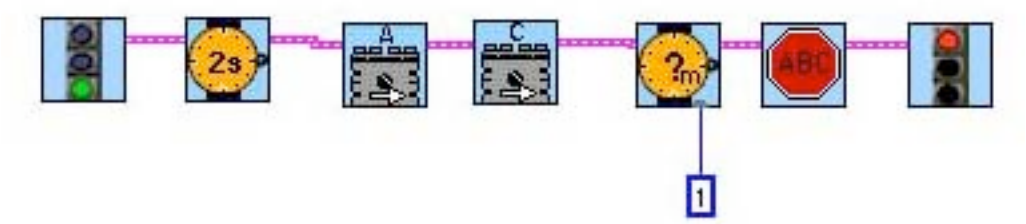
5) String may be used to extend the reach of the robot, along with a paperclip, but remember that any string used is considered to be PART OF THE ROBOT.

6) Wheels and other parts may not be treated with any fluids, glue or other substances.

Programming:

Only a basic program is required. The robot should wait 2 seconds before engaging the motors. Below is a an example ROBOLAB Program.





How to run a competition:

1) Robots begin approximately 1' from the centerline (2' apart)

2) The tow-string should have slack (not tight) and should be centered.

3) No part of the robot shall extend past the paperclip (towards the centerline) when the trial begins.

4) If any part of a robot crosses the centerline, that robot looses that trial.

5) If a robot becomes dismantled during a trial, it loses that trial (including decorative pieces, or any extension string or rubber bands used).

6) If for whatever reason the tow rope fails, the trial will be done again.

7) If after 1 minute, no robot has crossed the centerline, the trial is to be considered a draw.

8) A robot must win 2 out of 3 trials. (except in certain cases, where one win will determine the match. See below on settling draws.)

9) If the judge determines that a robot is incapable of pulling the other robot across the line (for example a robot can't move or pull at all), that robot will be disqualified.

10) In the case of a draw, where neither robot is successful in pulling the other across the line, the winner is determined in the third trial by measuring the distance of each robot from the centerline at the end of the time limit. Accurate measurement and sportsmanlike behavior is critical in this third trial. The robot closest to the line loses.