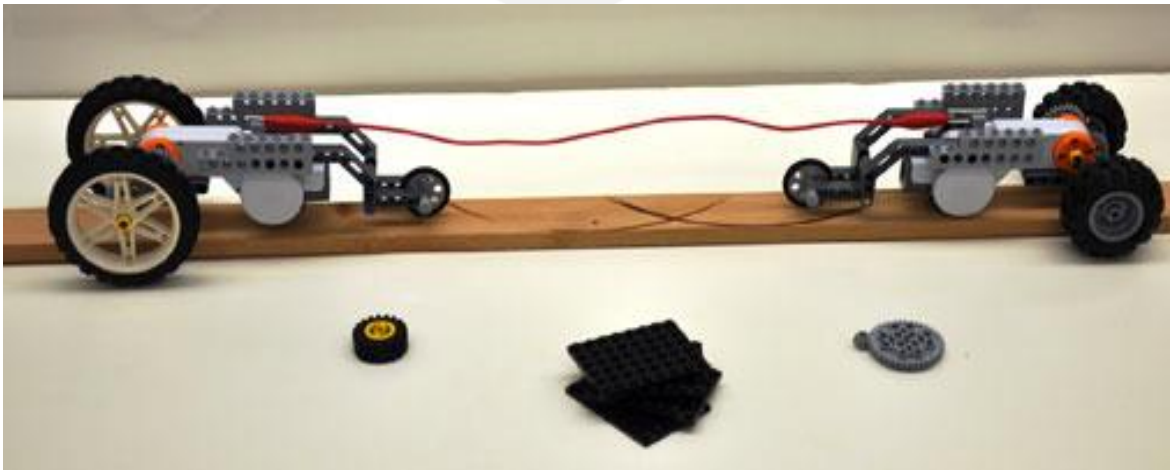


# Tug of Bots



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## 1. Problem statement

Use your Creative mind to design and build a robot that will pull another robot when connected with a string in a tug of war contest across a centre line.

## 2. Event Rules and Specifications

### 2.1 Machine Specification

- The machine should fit in a 25cm x 25cm x 20cm (Length x Width x Height) size of dimension box.
- The weight of the robot must not exceed 1kg.
- Readymade base of machine will not be allowed (Readymade wheels, Motor, battery, switch, wires can be used).
- The potential difference between any two points of circuit should not exceed 11.1V.
- The current in the circuit must not exceed 2A.
- The machine must contain a Tow-bar that allows tow string to be connected to them.
- A robot may have its own string to connect to the tow-string between the robots, which may be useful for some kind of reel-like device. However, this string and any hook or tow bar attached to it are considered to be part of the robot.
- There is no limitation on the number of motors and rpm of motors to be used.

## 2.2 Arena

1. The arena would be about 2m x 100cm.
2. The arena would contain a centreline marked with tape at the centre of the arena

## 2.3 Rules

- 1) Robots begin approximately 40 cm from the centreline (approx. 80 cm apart). The line may be marked with tape.
- 2) The tow-string should have slack (not tight) and should be centred. The string must be 80 cm long, with a mark at its midpoint.
- 3) Robots must be safe. A robot should not be a danger to competitors, other robots, or the competition arena. They should not have sharp parts, and should not have pieces that shoot or could fly off.
- 4) If any part of a robot crosses the centreline, or any part comes off a robot, that robot loses that round.
- 5) If, after 1 minute, no robot has crossed the centreline, the round is to be considered draw.
- 6) A robot must win 2 out of 3 trials.
- 7) In the case of a draw, where neither robot is successful in pulling the other across the line, the winner is determined by holding a tie-breaking round. In this round, the winner is determined by measuring the distance of each robot from the centreline at the end of the time limit. The robot closest to the line loses.
- 8) 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.
- 9) Competitors and spectators may not touch robots, the arena, or otherwise interfere during the match. They should not be close enough to the arena to interfere with sensors.

**Note – in some critical conditions the organizer can add/change the rule on the spot.**

### 3. Judging Criterion

- 1) A separate judge should be responsible for timing each round.
- 2) Delays: If a robot requires repairs or adjustments between rounds or matches, competitors must make those repairs as quickly as possible. Judges should not wait more than 2 minutes between rounds or matches beyond the amount of time it takes to set up each round.
- 3) Robots should win 2 out of 3 rounds. In the case of a draw, the lead judge should allow another round to determine the winner.

**All decisions taken by the organizing team will be deemed as final, and no more changes will be encouraged, thus holding the full authority to change any of the above rules as per circumstances.**

### 4. Resources

1. <https://www.youtube.com/watch?v=3TI93NDDpkQ>
2. <https://www.youtube.com/watch?v=Uh1Bsqlio6tM>