GLOBAL ROBOTICS CHALLENGE

RULE BOOK 2025

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TUG OF WAR

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1. Technical Introduction :

The Robot Tug of War Competition aims to develop design, construction, and programming skills through an exciting challenge that relies on engineering intelligence and strategy. Teams must design and build a robot using LEGO or non-LEGO to compete in a tug of war game, where the goal is either to pull the opponent's robot across the center line or to withstand until the end of the round time.

The tournament is held in an elimination format until the finals, with each match conducted face-to-face between two teams in an atmosphere of challenge and fun, testing the robots' strength on one side, and the teams' strategies and creativity on the other.

2. Team Composition:

- **Team Members: 2 to 4 Students, guided by a Coach.**
- **Age Categories:**
  - **Junior Category: Ages 7–12.**
    Allowed robots: EV3, Spike Prime, LEGO NXT.
  - **Senior Category: Ages 13–17.**
    Allowed robots: VEX or any type of robots (NON-LEGO).
  - **Adult Category: Ages 18 and above.**
    Allowed robots: VEX or any type of robots (NON-LEGO).

3. Playground:

- **Dimensions: Rectangular table, 244 cm × 120 cm.**
- **Center Line: 2 cm wide line separating both play zones.**
- **Starting Positions: Robots must start inside the designated boxes at opposite ends, facing each other directly.**
- **Pull Zone: Each robot must remain inside its own zone; entering the opponent's zone results in a penalty.**
- **Field Material: Plastic banner.**

4. Rope Specifications:

- **Length: 70 cm.**
- **Thickness: 5 mm.**
- **Material: Cotton.**
- **Attachment Method: The rope is tied to the robot using a hook through designated attachment points in the robot's design. These points must be safe and easily accessible to ensure the hook is properly fixed at the beginning of each match.**

5. Robot Specifications:

- **Dimensions: Must not exceed 25 cm × 25 cm.**
- **Weight: Maximum 3 kg.**
- **Pulling Mechanism: The robot must be designed to pull the rope from the front side (facing the opponent). The pulling force must come from the robot's front side to ensure a direct face-to-face tug-of-war.**
- **Attachment Point: Each robot must include a secure attachment point or mechanism at the front side, easily accessible for connecting the rope hook at the start of the match.**
- **Motors:**
  - ❖ **LEGO robots: Maximum of 4 motors.**
  - ❖ **Non-LEGO robots: No limit.**
- **Sensors: Optional.**
- **Modifications:**
  - ❖ **LEGO robots: LEGO parts only.**
  - ❖ **Non-LEGO robots: Any components allowed.**

6. Starting Positions:

- **Robots are placed behind the start line, 35 cm away from the center line.**
- **Robots must remain stationary before the start signal.**
- **After the start signal, robots must wait 5 seconds before starting to move.**

7. Power and Control:

- **Control: Robots operate autonomously with pre-programmed code. No manual or remote control is allowed during the match.**
- **Power Source: Batteries only.**

8. Match Duration:

- **Duration: Each round lasts a maximum of 2 minutes, with a total of 3 rounds per match.**
- **Stopping: After the time ends, robots must stop pulling.**
- **Winning: Achieved if a robot pulls its opponent across the center line.**

9. Scoring and Winner Determination:

- **Win: A round is won if a robot successfully pulls the opponent across the center line.**
- **If no robot pulls the other within time: The winner is the robot closest to the center line.**
- **If the hook attachment breaks during pulling: The other robot is automatically declared the round winner. However, the team may repair the hook after the round to continue in the next match.**
- **Draw: If no robot crosses the center line after 2 minutes and both remain in the same position relative to the line, the round is considered a draw.**
- **Points System:**
  - ❖ **Win = 3 points.**
  - ❖ **Draw = 1 point per team.**
  - ❖ **Loss = 0 points.**

10. Penalties:

- **Crossing into the opponent's zone, external interference, or committing any violation = Direct disqualification from the round (loss).**
- **Unfair play or attempting to disable the opponent illegally = Disqualification from the round.**

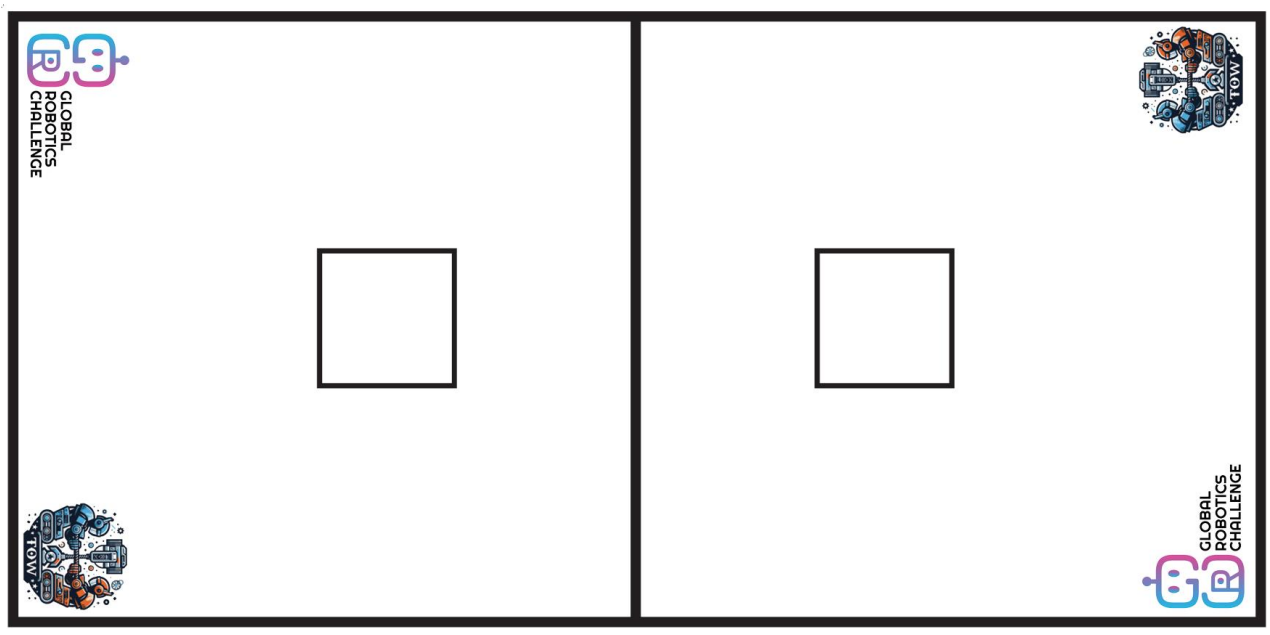
11. Safety and Sportsmanship:

- **All robots must be safe and free from sharp parts.**
- **Robots must be stable and secure during operation.**
- **All teams must demonstrate respect and sportsmanship. Any aggressive or unfair behavior may lead to penalties or disqualification from the competition.**

12. Notes:

To download the official competition field (ready to print):

https://drive.google.com/drive/folders/1VSD-whHtiEAEo3t_rKHtvRbfiJMgDBME?usp=sharing



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Good Luck.