X Challenge

ROBO ~motion

LEGO® Tug of War

Last modified: 01.02.2024

1. General Information:

1.1. The purpose of the competition is to promote robotics, fun and fair-play competition.

2. Definitions:

2.1. General Definitions:

2.1.1. Team - a group of people consisting of Participants and Competitors who independently created at least one Robot or its algorithm, participating in the Competition. Due to the multiplicity of the Competition and its categories, the representation of the Team is limited to a maximum of 10 people (not including any guardian).

2.1.2. Constructor - the person or people participating in the competition who created the Robot in question.

2.1.3. Organizer - a person who supervises and influences the course of the Competition, wearing a name badge with the inscription Organizer.

2.1.4. Robot - a mechatronic device powered by electricity that moves autonomously and responds to its environment to a certain, noticeable degree.

2.1.5. Identical robots - robots, having a similar design and using similar algorithms. The final determination of the identity of robots is decided by the Chief Judge.

2.1.6. Judge - the person who supervises the competition on the day of the Competition.

2.1.7. Category Judge - a person who supervises the proper course of the categories entrusted to him, having a decisive vote on issues / disputes that are described in the regulations of the category.

2.1.8. Chief Judge - a person who supervises the proper course of the Competition taking place within the XChallenge, having a decisive and final say in issues/disputes both those described in the regulations of a given category and general regulations and those that are not included in the regulations of a given category or general regulations.

2.1.9. Participant - a person who takes an active, or passive part in the competition. It can be a competitor, judge, organizer or spectator.

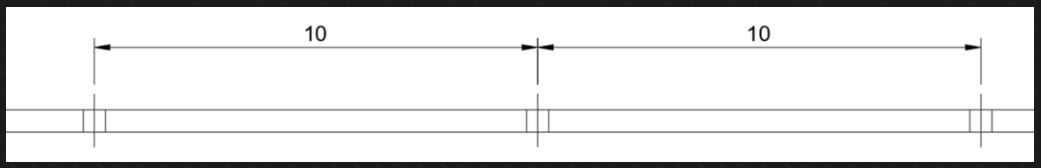
2.1.10. For the competitor, see Constructor.

2.2. Category Definitions:

2.2.1. Board - rectangular board with dimensions of 100cm by at least 262cm optionally surrounded by walls 10cm to 15cm high. The floor is white in color while in the middle there is a black line with a thickness of 19mm.

2.2.2. Half line - located in the center of the board, a black line 19mm thick.

2.2.3. Rope - a 100cm long rope terminated at both ends with an 8x80mm snap hook. There are three markers on the Rope, one in the middle of the rope and two 10cm away from the middle one located on either side of the middle marker. The diagram can be found below.



2.2.4. Round - a time-limited 2-minute clash between two robots.

3. Category Specification:

3.1. The goal of the category is to drag your opponent's robot to your side of the board.
3.2. The robots are positioned so that the center marker of the rope is above the halfway line during takeoff.
3.3. The duration of one round is a maximum of 2 minutes.
3.4. The result of a round must be unambiguous, the robot that pulls the opponent to its side wins (the round ends when half of the entire side rope marker is pulled over the rope or with the expiration of 2 minutes). In the event that both robots are on their zone at the end of the round, an additional round is held. If the additional round still does not clearly determine the winner then the robot lighter than the opponent wins.
3.5. The competition system works on an each-against-each-again basis, which means that each robot will compete against all opponents. In the case of a large number of interested parties, the Organizer reserves the right to conduct eliminations during which the Robots will be divided into groups. After the best robots are selected from the groups between them, finals will be played during which robots will fight on an each-against-all basis.
3.6. The final score is the sum of points (number of wins) earned during all rounds.
3.7. If one participant fails to appear for a round, his opponent wins the fight.
3.8. There is no limit to the number of competing robots of a given Team, however, one robot can participate in a maximum of 4 categories, with the proviso that in one category it can compete in a maximum of 2 competitions (for example, one robot can participate in Drag Race, LF Standard, LF Turbo Enhanced and Micro Sumo, however, it cannot simultaneously compete in Drag Race, LF Standard, LF Turbo and LF Turbo Enhanced).
3.9. No two Identical robots are allowed to compete in the competition.
3.10. The Organizer provides a table, chair and access to an electrical outlet to the Team. Other needs must be communicated to the Organizer via email by writing to xchallenge@dolinawiedzy.pl. The Organizer is not obliged to meet these needs, but is obliged to notify if they will be met
3.11. The robots can be viewed by participants throughout the competition, and Team members undertake to politely answer Participants' questions.

4. Specifications of the robot and the board:

4.1. The maximum dimensions of the robot are 40cm by 40cm (length by width) and a maximum height of 100cm. These are the starting dimensions and are subject to change after the round begins - the robot may spread its arms, etc.
4.2. The maximum weight of the robot is 5kg.
4.3. The dimensions and weight of the Robot will be verified by the Judge at the Arena.
4.4. There are no restrictions on modifications to the Robot's design and software. This means that both the design and software of the Robot can be modified during the Competition, however, it should be noted that the Robot after modifications must also meet all requirements for design limitations (e.g., size limitations, weight limitations).
4.5. The rope mount for the robot must be prepared at a height of 10cm with a tolerance of +/-1cm (the height of the mount must not change during the battle), the rope will be terminated with a snap hook (link to an example snap hook: https://www.obi.pl/hak-karabinczyka/lux-tools-karabinczyk-zakrecany-ocynkowany-8x80mm/p/6837520) and the participant himself must make it possible, through an appropriate robot construction, to attach this rope to the robot (it is recommended to use LEGO® Liftarm Frame no. 64179 for this purpose). The attachment for the rope must be in an easily accessible and visible place.
4.6. The board will be 100cm by at least 262cm, in the center of the board will be a half line of 19mm thickness.
4.7. There may be other lines and inscriptions on the board.
4.8. There will be no line on the board where the robot is supposed to move, or which will indicate the correct direction of travel. In order to maintain the correct direction of the robot during the round, it is recommended to use a gyroscope.
4.9. Robots must be made only from LEGO® bricks, motors and sensors. It is not allowed to use other elements in the robot (motors and sensors that are not produced by LEGO®, elements printed on 3D printers, etc.). It is reserved to use batteries in the construction, provided they are placed in LEGO® battery baskets (LEGO® battery box / LEGO® Hub). However, it is forbidden to add weight to the robot with batteries thrown into the robot in bulk. It is also noted that the battery cubes or baskets do not have to be used for their intended purpose - there is no requirement to connect motors/sensors to them, and they can only be used to add weight to the robot.

5. Rules of the games:

5.1. During a round, which lasts a maximum of 2 minutes, two robots try to pull their opponent to their side.
5.2. The round begins at the sign of the Judge.
5.3. The round ends when the time is up or when half of the entire rope side marker is pulled over the rope.
5.4. If during the round from the Robot falls off the rope attachment, such round will be repeated. If the situation repeats then the Robot from which the attachment has fallen off twice loses the round.

6. Litigation, Liability and Disqualification:

6.1. Any disputes related to the category described in these rules shall be decided by the Judge of the category.
6.2. Any disputes and situations not described in these Regulations shall be decided by the Chief Judge.
6.3. The competitor has the right to appeal the Judge's decision.
6.4. Responsibility for all actions of each member of the Team is borne by the Team.
6.5. In case of non-compliance with the rules of fair-play by one of the members of the Team, the Chief Judge has the right to impose a penalty on the Team in the form of disqualification.
6.6. In case of behavior of a member of the Team that violates: moral norms, good manners, human dignity, religious feelings or safety of the Participants, the Chief Judge has the right to impose a penalty on the Team in the form of disqualification.
6.7. Disqualification of a Team shall invalidate all results obtained by the Team on the day of the Competition.
6.8. The disqualified Team is required to return all prizes won on the day of the Competition.
6.9. The decision of the Chief Judge is final.
6.10. Preparation of all arenas (and their condition) is the responsibility of the Organizer, who appoints technical staff to maintain the condition of the arenas. The Competitor has no right to interfere with the condition of the arenas or to "clean" the arena on his own. However, the Competitor may request the Judge to clean the arena before his/her approach, then if the Judge finds, in such a situation, the need to clean the arena he/she shall summon the technical service responsible for the maintenance of the arenas. Otherwise, if the Judge determines that there is no such need the Competitor may begin his approach or abandon it altogether.
6.11. The organizer reserves the right to amend these regulations.

7. Registration for the Competition:

7.1. In order to participate in the XChallenge Competitions, it is necessary to create and activate an account on the xchallenge.pl platform by the date to be announced on XChallenge social media. This will be estimated to be September - October 2024. The next step, after creating an account, is to add to your account all the Robots with which the Participant wants to take part in the Competition. Once the Robots have been added to the account, the other constructors of the Robot can be added to each Robot. The registration process described in this section is necessary for each Constructor, Guardian and each Robot. Any Constructor or Robot that is not registered by this date in the registration process will not be allowed to participate in the XChallenge Competition as a Competitor.

7.2. In order to enter a given Competition and its category, it is necessary to confirm one's arrival on the day of the Competition at a specially designated point located near the main entrance. During the confirmation of arrival, the staff will verify the Participant in the system and issue the Participant with an entry package containing, among other things, a special named RFID tag, and verify which of the entered Robots have arrived ready for the Competition by confirming the arrival of each Robot. All Robots that are not confirmed in the system will not have the opportunity to be included in the final ranking, which is equivalent to not being able to win any place in the Competition.

8. Consents:

7.1. Registration of a Robot in the competition implies consent to the publication of basic information about it, i.e. the name of the Robot, the name of the Team, the name of the University or Institution, photos, videos and the place taken by the Organizers and Partners of the Competition without informing the Constructor or the Team.

Organizers:

RoboLAB
Local STEM Incubator

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