CANADA **2020**

World Robot Olympiad 2020-X

OPEN CATEGORY

GENERAL RULES

Version: September 1st, 2020

WRO International Premium Partners

LEGO education

JUNIPER NETWORKS

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Introduction

Robotics is a wonderful platform for learning 21st century skills. Solving robotic challenges encourages innovation and develops creativity and problems solving skills in students. Because robotics crosses multiple curricular subjects, students must learn and apply their knowledge of science, technology, engineering, math, and computer programming.

The most rewarding part of designing robots is that students have fun. They work together as a team, discovering their own solutions. Coaches guide them along the way, then step back to allow them their own victories and losses. Students thrive in this supportive and immersive environment, and learning occurs as naturally as breathing air.

At the end of the day, at the end of a fair competition, students can say they did their best, they learned, and they had fun.

Open Category Rules

1. Material

The size and content of the booth are not restricted.

2. Regulations about the robot

There is no restriction on materials and software. Teams using mainly LEGO controllers are eligible to win the LEGO Education creativity award.

3. Competition

3.1. Teams must publish a video of their project (maximum 2minutes) on social media and submit the public link to the organizers before the deadline (November 1st). Team members shall be speaking on the video with their own voice. WRO recommends speaking in English or adding subtitles in English to facilitate judging.

3.2. Teams must decorate the booth with one or more posters with the minimum dimension of 120cm×90cm. The poster(s) should introduce the robot project to the viewers.

4. Live Interviews

4.1. A panel of international judges will pre-select a fixed number of projects in advance for live interviews during the event, based on submitted videos.

4.2. Zoom interviews will be scheduled during the event in front of the panel of judges.

4.3. Interviews will be live streamed.

4.4. The judging will be executed in three age groups: Elementary, Junior, and Senior.

4.5. Teams will be allocated approximately 10minutes for judgment: 5minutes to explain and demonstrate the robot, remaining 2-5 minutes to respond to questions from the judges.

4.6. Official language for all presentations is English. Interpreters are not allowed.

5. Fairness

5.1. By competing in WRO, teams and coaches accept the WRO Guiding Principles that can be found at: https://wro-association.org/competition/wro-ethics-code/

5.2. Every team needs to digitally sign the WRO Ethics Code at registration.

6. Judging Criteria for Open Category

Category	Criteria	Points
1. Project (Total Points: 50)	**1. Creativity** - The project is original, worthwhile and shows creative thinking / innovative and imaginative design / interesting and divergent interpretation and implementation.	**10**
	2. Quality of Solution - The project is well-thought out and is a good solution to the problem. The solution supports the theme of the WRO season.	**15**
	~~**3. Research & Report** - It is clear that research was done. The report is a good summary of the project: the problems - solutions - process - findings - team - task.~~	**15**
	4. Entertainment Value - The project has a certain "WOW" factor - looks fun, captures the attention of viewers - makes you want to see it again or learn more about it.	**10**
2. Programming (Total Points: 45)	**1. Automation** - The project uses appropriate inputs from sensors to run specific routines and clearly demonstrates automation in the completing of the tasks.	**15**
	2. Good Logic - The programming options used make sense, work reliably, are relevant in terms of their use, complexity and design.	**15**
	3. Complexity - The project uses multiple languages, sensors or controllers and incorporates more advanced / complex algorithms, structure and design.	**15**
3. Engineering Design (Total Points: 45)	**1. Technical Understanding** - Team members are able to produce clear, precise, and convincing explanations about each step of the mechanical and programming process.	**15**
	2. Engineering Concepts -The project shows evidence and good use of engineering concepts and team members are able to explain the concepts and need for use.	**10**
	3. Mechanical Efficiency - Parts and energy have been used efficiently - evidence of proper use of mechanical concepts / principles (gears/pulleys/levers/wheels & axles)	**10**
	4. Structural Stability - The project (robots and structures) are strong, sturdy and the demonstration can be run repeatedly - parts don't detach - little need for repairs.	**5**
	5. Aesthetics - The mechanical elements have aesthetic appeal, there is evidence that the team went out of their way to make the project look as professional as possible.	**5**
4. Presentation (Total Points: 40)	**1. Successful Demonstration** - A demo of the capabilities was completed, there is a sense that it could reliably be repeated and that preparation and practice have taken place.	**15**
	2. Communication & Reasoning Skills - The team were able to present their project idea in an interesting way - how it works - why they chose it - why it has relevance.	**10**
	3. Quick Thinking - The team are able to easily answer questions about their project. They were also able to deal with any problems that arose during the presentation.	**5**
	4. Posters and Decorations - The materials used to communicate the project to others are clear, concise, relevant, neatly prepared and engaging - Min 1 x (120 x 90).	**5**
	5. Project Video - Only marks for videos provided on time. The video is a good pitch for the project - presenting the problem, the solution and the team.	**5**
5. Teamwork (Total Points: 20)	**1. Unified Learning Outcome** - There is evidence that team members have internalized knowledge and understanding of the subject matter pertaining to their project.	**10**
	2. Inclusiveness - The team are able to demonstrate that all members played an important role in the development, construction and presentation of their project.	**5**
	3. Team Spirit - The team display positive energy, good cohesiveness, value one another and are enthusiastic and excited about sharing their project with others.	**5**
	Maximum Points	200

***Projects that are clearly not within the theme will receive a score of 0. Judges are requested to score each category from 0 to 10 with 10 being maximum. (A score of 9 to a criteria worth 25 points is equivalent to 22.5 points, etc.)**