IEEE Ottawa Robotics Competition
Compétition de robotique d'Ottawa d'IEEE

Competition Rules for Lego Challenges

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Disclaimer

It is your responsibility to read and understand this document on a regular basis because we may update it from time to time.

Participation Rules

As a participant of the IEEE Ottawa Robotics Competition, **respect** your teammates, your supervisors, the volunteers organizing the event, and to all other attendees of any ORC event. Our goal is to allow you to **have fun** at the ORC while **learning** and **working together as a team** as you prepare for competition day.

Have fun and help each other out—it's all about participating!

Team Requirements

Your team must have **one** team captain and **one** assistant captain who will be responsible for approaching judges for any questions and/or clarifications about the rules (competition day only).

Any non-team member (team supervisor, parents, mentors, etc.) must act in an advisory role only. **Your team must do the work!** If any ORC judge finds out that a non-team member did the work for your team, your results may be invalidated.

For every challenge your team is registered in, there must be one robot (i.e. 2 challenges = 2 robots). Your team may register into up to two challenges.

Important note for teams in two challenges: Your team is expected to show up when it is your team's turn for a challenge. For that reason, you must have two robots if you wish to compete in two challenges.

The Technical Component

Your team must complete the Technical Component. This is where your team gets to show how well you understand your robot to our judges. The Technical Component includes a report, display, and presentation. Your team will have no time to work on the Technical Component on competition day, so your team must obey the deadlines or presentation time that we assign. **Please note that your team must put effort into the Technical Component because this can change your final ranking.**

The Robots

Your team must build and program a robot **before** competition day, but you will still be allowed to modify your programs on competition day. The conditions of the school will affect sensors, so your team should bring their laptops and programs to adjust your programs. Your team will be given practice time to calibrate your robots.

You may use any **LEGO® MINDSTORMS EV3 or NXT** kit and your robot must be built and programmed following the below specifications:

1. **Software:** Participants may use RoboLab v.2.5 or later, the LEGO MINDSTORMS NXT or EV3 v.1.0 or later, LeJOS, or RobotC to program their robots.

2. **Non-LEGO® and LEGO® pieces:** Your team can use any non-electronic Lego pieces from any Lego kit for robot construction. However, the LEGO® pieces must not be modified in any manner (i.e. not cut up, burned, etc.). Non-Lego pieces are not allowed, except for holding the drawing utensils in the IBM da Vinci Challenge or for the sole purpose of decorating the robot.

3. **Motors and Sensors:** Each robot may use **a maximum** number of the following motor and sensors (determined by part name and not by mode):
   - 3 motors (medium and/or large)
   - 2 touch sensors
   - 1 ultrasonic sensor **or** 1 infrared sensor
     (in proximity mode only—the infrared beacon may not be used)
   - 2 colour sensors **or** 2 light sensors **or** 1 of each type

4. **Programming Brick:** Only one NXT MINDSTORMS brick or EV3 MINDSTORMS brick may be used for robot construction.

5. **Robot Dimensions and Weight:** Maximum robot dimensions are 1 ft × 1 ft (30.48 cm × 30.48 cm) and the maximum robot weight is 1 kg, unless otherwise specified in the challenge rules. Judges will check your robot to make sure it meets our requirements throughout the day. If your robot changes dimensions while competing, judges may double check to see whether your robot still meets the requirements. This check does not apply when a part of robot falls off unintentionally while competing. For example, if parts were to fall off since two robots crashed into each other, judges will not double check dimensions.

6. **Remote Control:** Forms of remote control, such as Bluetooth, are not allowed, unless otherwise stated in a challenge. A robot must be autonomous and rely only on its original programming. Any actions your team may purposely do, like: clapping hands, issuing voice commands, Bluetooth, infrared remote, waving objects, etc., that causes a robot to begin behaving differently after the program has started is considered as human interference and is not allowed.

7. **Projectiles:** Projectiles in any shape or form are not allowed. Robots must not intentionally shoot out/up objects or put any objects down in the competition arena/area during a match.

8. The use of programming languages such as Python, C#, VB, etc., to program robots is permitted. Although winning is fun, the main goal of the competition is to learn. Team members should be the **only** ones writing the code.

9. Teams using written code (python, C#, VB, etc.) must print out and include it with their Technical Component. Judges may ask questions regarding the code to ensure the team programmed the robots.

If there are any exceptions or additions to the restrictions, they will be listed in each challenge. If you have any questions, please email the Lego Team at orclego@gmail.com.

If you are not sure about something, please ask!