Competition Rules for Arduino Challenges

Last Revised: February 25, 2020

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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.

If you have questions, please contact our Arduino Team at orcarduino@gmail.com.

Team Requirements

Each team must have one team captain who is responsible for making sure their team has fully read the rules of any challenges they are register in before competition day. The team captain is also responsible for corresponding with the ORC Arduino team if there be any questions. Each team must also have one assistant captain who will be responsible for approaching judges for any questions and/or clarifications about the rules on the day of the competition.

Any non-team member (team supervisor, parents, mentors, etc.) must act in an advisory role only. Otherwise, your results may be invalidated.

Teams may register for both Arduino challenges and are able to make use of the same robot for the Arduino challenges. Teams are expected to show up when it is their turn for a challenge, even if competing in both challenges. It strongly advised that teams have a dedicated team member periodically checking in on the competition areas to ensure they do not miss their challenges.

Approved Parts

Each team must build and program a robot before competition day. Teams will still be allowed to modify their programs on competition day given that it is not the team's their turn for a challenge.

The choice of robot is completely open to the user. Bonus points will be awarded in the presentation by teams that have constructed a custom robot. However, there are certain restrictions in acceptable components. The tables below list approved types of components. Teams can have one range finding sensor to find the distance to the obstacles, one line following sensor (or a pair) and one controller. So long as each component falls in this category it is acceptable.

Part Type	Examples
Range Finding Sensors	Ultrasonic Sensor Infrared Range Finder Time of Flight Sensor
Line Following Sensors	IR Reflectance Sensor
Controller	Arduino UNO Raspberry PI Mbed Beaglebone
Battery Pack	6AA

In addition to the parts above, the following parts are approved for the Search and Rescue Challenge ONLY:

Part Type	Examples
Color Sensors	ME COLOR SENSOR V1
Audio signalling device	Buzzer

Please note that the specific examples and store links given in the tables above are not binding. Specific decisions about chassis, motors and wheels are left to the contestants. The only restriction being the size. So long as the robot is not unreasonably slow, speed will make little difference.

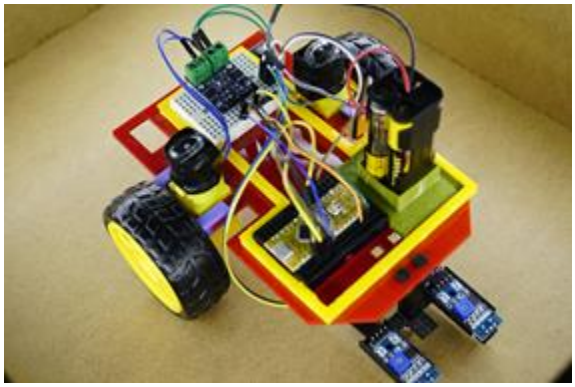
Size requirements
For the

Prebuilt Robots

For teams that do not wish to make their own robot, there is an option to buy a kit. In general, any prebuilt robot conforming to the above specifications will be allowed. Some prebuilt robots come with built in wireless modules so care must be taken to avoid making use of this functionality as wireless devices are prohibited.

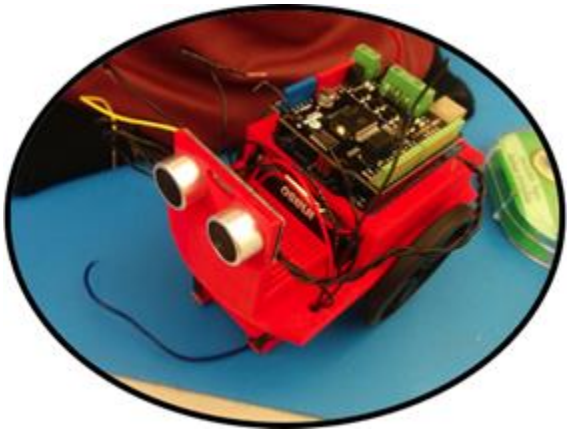
Recommended Robots

CARL Robotics Learning Platform



The CARL robot is a low-cost ($25) robot platform designed for high schools. They can be purchased at a2delectronics, which is an Ottawa based electronics supply shop. There are several different versions of CARL, all are acceptable.

ORC 3D Printed Robot



Above is an image of the robot that ORC was providing for the competition two years ago. This robot is still acceptable for teams that have them. The 3D print files and BOM are available on our website if you wish to make one. The team will be responsible for assembling this robot.

Makeblock mBot

This robot is a bit larger then what is ideal for the competition, but it is still useable. However, ensure the Bluetooth module is removed for the competition.

Pololu 3pi Robot

The Pololu 3pi lacks a range finding sensor; however, one can be easily soldered onto the front. The advantage of the 3pi is that it can turn in place, making it easier to program to turn around tight corners.