



Technical Component - Arduino

Last Revised: 1 April 2017

Table of Contents

The Technical Component.....	2
Accommodations	2
Overview	3
Required Parts.....	3
Required Parts of the Presentation	4
Required Parts of the Display.....	4
Required Parts of the Report.....	5
Rubrics.....	6
Presentation Rubric.....	6
Display Rubric	7
Report Rubric	8
Frequently Asked Questions	9

Disclaimer

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

The Technical Component

The Technical Component will allow you and your team to show us your skills in terms of programming or software design concepts and documenting your team's progress.

You will be preparing a presentation, report, and display for the Technical Component. The part of the technical component with the best mark will be weighed at 15%, second best mark at 10%, and third best mark at 5%, for a total of 30% for the Technical Component.

Your team can submit/present the Technical Component in either English or French.

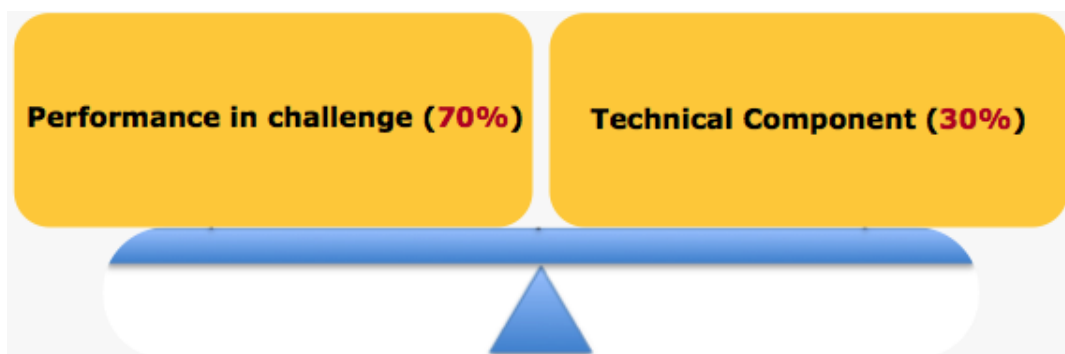


Figure 1: ORC Grading Scheme for Arduino Challenges.

For all Arduino challenges, the Technical Component will have a weight of 30% and your mark in challenge performance will have a weight of 70%. Out of the 70%, round robin performance will make up 20% of your final mark and elimination will make up 50% of your final mark. It is important to do well in **both** components because **final rankings do change based on your performance on both components.**

Accommodations

If you require accommodations on the Technical Component, please let us know at orcinfo@ieeeottawa.ca.

Overview

In the Technical Component, you and your team will show the following concepts and/or skills:

- Programming or Software design
- General design process
- Documentation / Journalizing
- Public speaking

You must submit the report in DOC, DOCX, ODT, PDF, or Google Docs format. If you send a report in a different format, we will not accept it. You must submit the report by **May 15th, 2017 at 10 pm** by sending an email to **orcrcpts@gmail.com**. You and your team will present with your display on competition day. Your display can be a tri-fold display or electronic (PowerPoint, Prezi, etc.). There will be no setup time. Thus, all electronic displays must be shown on a laptop, cellphone, or tablet. Your team will have 7 minutes to present, followed by questions from a panel of judges. The presentation, display, and report can be done in English or French.

Required Parts

For the presentation, your team can present in a number of formats: traditional presentation, skit, play, etc. **Be creative, have fun**, but do make sure your team includes all the required components on the next couple of pages. **If your team is registered in two challenges, you must prepare two reports.** Please ensure the title page indicates which challenge your report is about.

You do not have to present all the required components in the same order listed on the next couple of pages, but you must present them all.

You are free to include more than what we ask, but remember that **quality will matter more than quantity**. Your team will get higher marks for presenting well for 3 minutes than being uncoordinated for 5 minutes! Similarly, your team will get higher marks if they write an excellent 5-page report than if your team wrote a terrible 10-page report.

Your team will receive higher marks if the explanations are clear and of good quality. Moreover, your team should present clearly, write a report with proper spelling and grammar and allow all team members to talk during the presentation.

Required Parts of the Presentation

1. Introduce us to your team and robot
 - a. Team name, school/community group name, grade level
 - b. Registered challenges

2. Software design
 - a. Explain how your program works in a step-by-step action. Make sure to have a flowchart or screenshot of your program to explain.
 - b. Compare your current program to another program your team could have programmed, and explain why your current one is better, worse, or a bit of both.

Clarity and sharing talking time will count towards your marks!

Required Parts of the Display

1. Introduce us to your team
 - a. Team name, school/community group name, grade level
 - b. Photos & short biographies of team members
2. Photos of your robot
 - a. Multiple views (front, back, side, etc.)
 - b. Display some photos of your test runs with your robot (like show us when it turns, when it senses an obstacle, etc.)
3. Screenshot of your program
 - a. To be used during your presentation to judges to explain your code.

Your team must have your display for the presentation!

Required Parts of the Report

1. Title page
 - a. Team name, school/community group name, grade level
2. Software Design
 - a. Explain how your program works in a step-by-step action. Make sure that you include a screenshot of the program or a flowchart to help explain how your program works.
 - b. Compare your current program to at least one other program your team could have programmed, and explain why your current one is better, worse, or a bit of both.
3. Testing
 - a. Explain **at least** one milestone and one challenge your team encountered in preparing for the competition. These milestones and challenges can relate to the robot, your team, the programming, etc.
 - b. Talk about a few of the experiments you did to test your robot and how the test went.
4. Journal
 - a. Write us a summary of each meeting with a journal entry. In the journal entries, document what happened, any decisions made, accomplishments, setbacks, etc. Make sure to include a date for each meeting in your report.

Grammar and spelling do count, so please remember to be careful!

Rubrics

Presentation Rubric

Team Name		Comments
School or Community Group Name		
Challenge(s)		

Criterion	Points
<u>Introduction</u> <ul style="list-style-type: none">Team name, school/community group name, challenge(s), grade level (0.25 pts each, 1 pt total)	/1
<u>Software Design</u> <ul style="list-style-type: none">Step-by-step explanation of program with use of display (4 pts, <u>2 pts max if display not used</u>)At least one comparison of their program to other possibilities (1 pt)Explanation during comparison of their program to other possibilities (2 pts)	/7
<u>Other Presentation Criteria</u> <ul style="list-style-type: none">Clarity of presenters (2 pts)Dispersion of presenters during presentation (2 pts)Ability to answer questions from judges (2 pts)Use of display during the presentation (1 pt)	/7
<u>Bonus</u> <ul style="list-style-type: none">Team cheer (1 pt)	
TOTAL	/15

Display Rubric

Team Name		Comments
School or Community Group Name		
Challenge(s)		

Criterion	Points
<u>Team & Robot</u> <ul style="list-style-type: none"> • Biographies of team members (1 pt, if missing any names only deduct 0.5 pts) • Showcasing of robot (2 pt) • Photos of the results of tests performed (2 pts) 	/5
<u>Screenshot of final program</u> <ul style="list-style-type: none"> • Present on display (1 pt) 	/1
<u>Other Display Criteria</u> <ul style="list-style-type: none"> • Visual appeal (4 pts) • Spelling & Grammar (2 pts) • Present during presentation (1 pt) 	/7
TOTAL	/13

Report Rubric

Team Name		Comments
School or Community Group Name		
Challenge(s)		

Criterion	Points
<u>Title Page</u> <ul style="list-style-type: none"> Team name, school/community group name, challenge(s), grade level (0.25 pts each, 1 pt total) 	/1
<u>Software Design</u> <ul style="list-style-type: none"> Step-by-step explanation of program (4 pts) At least one comparison of their program to another possibility (1 pt) Explanation during comparison of their program to another possibility (2 pts) Screenshot of program or flowchart (1 pt) 	/8
<u>Testing</u> <ul style="list-style-type: none"> At least one milestone and one challenge (2 pts) Quality of explanations for the milestone and challenge (2 pts) Summary of tests and results (1 pts) 	/5
<u>Journal</u> <ul style="list-style-type: none"> Documentation of meetings, accomplishments, set-backs, etc. (2 pts) 	/2
<u>Other Report Criteria</u> <ul style="list-style-type: none"> Spelling and grammar (2 pts) Submitted using DOC, DOCX, ODT, PDF, or Google Doc format (1 pt) 	/3
<u>Late Submission Penalty</u> <ul style="list-style-type: none"> May 15th 10:01 PM to May 16th 11:59 PM (-1 pt) May 17th 12:00 AM to May 19th 11:59 PM (-5 pts) May 20th 12:00 AM to May 22nd 5:00 PM (-15 pts) Any day after May 22nd at 5:00 PM (- 20 pts) 	
<u>Bonus</u> <ul style="list-style-type: none"> Submission of program file with the report (1 pt) 	
TOTAL - Minimum of 0 pts	/19

Frequently Asked Questions

1. Does the team present twice if we are in two challenges?
 - No, the team presents once for 7 minutes.
2. What if I am in both a Lego and Arduino challenge?
 - Your team must make sure to present all criteria for both challenges.
3. When are the displays marked?
 - They are marked during your presentation, so they must be with you.
4. If we have an electronic display, can we present it using a projector?
 - No, electronic displays must be presented using a laptop, tablet, or similar electronic device.
5. How much setup time do we get?
 - Everything should be ready right before you enter the room. Once your team enters the room, you should simply place your display on a table or counter, then start presenting.
6. May I resubmit our team's report for marking?
 - No, we will mark the first copy we receive from your team.
7. If I made a typo in sending the report to the Reports Marking Committee, will I get the late submission penalty if I forward the email to you after the deadline?
 - Yes, so please ensure you send your report to orcrcpts@gmail.com.
8. If we are in two challenges, do we submit one or two reports?
 - Two separate reports please. Please ensure the title page also indicates which challenge your report is about so we can sort them more easily.
9. I cannot save in any of the formats you listed for the report, what do I do?
 - You can do your report on Google Drive and save it as a DOCX. There is also other free software you can download to save in the formats we have listed, like OpenOffice.

Please note, these are suggestions and not product endorsements. We are not responsible for any malware that you encounter while trying to find a solution for this problem.