To: All Educational Toy Division Engineers

From: Claude Shannon
Vice President for Toy Development

Subject: Educational toy project reports (oral and written)

Date: April 1, 2019

The date for presenting and demonstrating your educational toy prototypes is fast approaching. We know that all engineering teams have been developing their concepts and preparing their prototypes, and we look forward to seeing the results. We would like to make sure that your design process and decisions, and your recommendations for the future of your projects, are clearly documented. We are therefore asking you to present your work orally and in writing. The purpose of this memo is to specify the goals and requirements for these two reports.

In any design project, two things of value may be created: first, the product design itself, and second, the enhanced experiences and skills of the team members, which will be valuable in future projects. We will ask you to report on both of these aspects.

We have asked you to come up with a vision for your proposed product as it would be manufactured and marketed, but we have only required you to implement a limited-functionality prototype. This report should cover both but should focus on the prototype. You must cover such subjects as:

- Motivation for this project and how it led to your final design vision;
- Original scope of the prototype;
- Development process, including notable successes, problems, and changes of scope;
- Final prototype result—what it is and isn't capable of, how well you succeeded in meeting your goals;
- Ideas for carrying out the remainder of the process and bringing this product to market.

Along with purely product-related issues, we would like to hear about how the project went. What obstacles did you have to overcome? What are the key lessons learned? What technical or project skills, tools or techniques
were important in the project? Of particular interest are project management, communication or teamwork strategies that were important in the project.

Note that these are content areas, not sections. The actual organization into sections is somewhat up to you, within the limits laid out below. All of these areas are important, and all of them need to have some attention paid to them. The ultimate “argument” of this report is that you did as well as you could, given the resources available to you and the obstacles you had to face. In some sense, the ultimate proof of this argument is that you have a working prototype, which you should be able to demo.

**Deliverables**

As described above, there are two deliverables, the oral presentation and the written report. Both are in formats that should be familiar by now.

**Oral Presentation**

As before, this will be presented as a team oral presentation using PowerPoint, Keynote, or a PDF (no presenting straight from Google Docs) and a brief demonstration of your product. A rough rule of thumb for timing is as follows:

- 11-12 minutes for presentation
- 3-4 minutes for a demo of your prototype
- 3-4 minutes for questions

This adds up to a maximum of 20 minutes per team, and we will need to enforce this limit fairly strictly. Every member of the team should help develop the presentation and present part of it. You must speak without written notes.

You team should bring a laptop with HDMI output (as well as any necessary adapters) to show your presentation, both to the rehearsal and to the actual presentation. Let us know if this poses a problem for your team. Your team should also bring your top.sof and .mif files on a USB flash drive, and a paper copy of your slides for the evaluators (three-slides-per-page format). Bring an initialized SD card if you need it in the demo.

We will provide a complete DE2-115 setup and a laptop to run Quartus. We will also provide a projector and document camera. The document camera can project a live picture of the DE2-115 board during your demo. During your demo, you can switch between showing the VGA/HDMI output from the DE2-115 and a live picture of your DE2-115 board.

Little Toy Blue hopes this presentation will be a serious, in-depth look at your project, process and outcomes, not a quick and dirty demo.
**Written Report**

The written project report is a 10-15 page document (approximately). It should follow the structure below:

- Front matter
  - Cover sheet (the equivalent of a memo header)
  - Executive summary (about one page long)
  - Table of contents
- Report proper (main body). See the bullet points above; you may treat these as an outline, or you may use another structure, as long as all of the above points are addressed.
- Attachments and appendices: code, schematics, test results, and any other kind of documentation that might be useful for your readers but that would be distracting in the main body of the report.

Remember the particulars of this format:

- A cover sheet with the team name, the team members' names, the recipients' names and the title of the project.
- Text is single-spaced, with an extra space between paragraphs and even more extra space between sections. Paragraphs are not indented.
- Sections and subsections should have titles and be numbered in decimal.
- Section titles should be bold; subsection titles are italicized; all titles should be left-aligned.

Some more format specs:

- The report should begin with an executive summary of about one page.
- Any graphics (tables, graphs, diagrams, photographs) should have a figure or a table number and a caption. Each graphic or table should be introduced, then shown, then explained. The graphic and caption are a single block, centered on the page. Text should not "flow around" the graphic block.
- Any references to sources should be cited in the text using APA format.
- Any material that you want to add that is not part of the main document should be titled and attached at the very end (after the references). These should all be listed as appendices in the table of contents.

Feel free to contact Dr. McCaffery or Mr. Montgomery with questions.

**Important Note**

This is a team assignment. Thus, you must work together, dividing up the work fairly, and each person on your team will receive the same grade on this report. Include the College of Engineering's Honor Pledge on the last page of the written
report assignment. This step is essential because work without the honor code cannot receive a grade. The Honor Pledge is: "I have neither given nor received unauthorized aid on this assignment, nor have I concealed any violations of the Honor Code." For the purposes of a team report, substitute "we" for "I."

On the written report, you should also include a table that includes each individual’s name, lists the work he/she contributed to the assignment, and indicates the percentage of the total work this amounted to. Note that if anyone does not do his or her share of the work, it's a violation of the Honor Code to receive credit for the assignment—and it's a violation to allow that person to receive credit. Therefore, submitting a report that includes an individual’s name, contribution, and percentage in this table is an act equivalent to “signing” the report if it were submitted in printed form; everyone should agree on this representation of his/her own work.

**Submission Details**

Your presentation and demonstration will take place on Saturday, April 20, 2019. Bring two printed copies of your slide notes to your presentation. After your team presentation, one member of the team should submit your slide deck to Canvas under TC7 (for grading).

Your report is due in Canvas under TC8 as a PDF on Monday, April 22, at 6 p.m. Submissions made after 11:59 p.m. will incur late days for each member of the team.