University of Pittsburgh
Department of Electrical and Computer Engineering
ECE 1895: Junior Design Fundamentals
Dr. Samuel Dickerson

Design Project 3: Project Final Report and Presentation

This document explains what needs to be included in your final report for design project #3. This document should be comprehensive and include detail about your design and design process. These reports should be detailed and contain plenty of images/media. Please note you have the option to write a traditional report OR create an online report using some other form of media (e.g. GitHub page, Blog post, etc).

In either case, your submission should include all of the information listed in the sections below. If you opt to do an online submission, you may opt to organize it in a way that is slightly different from what is listed below (e.g. change section titles or organization to a format that is better for wide distribution), just as long as all of the bullet points are addressed in someway.

Your reporting should include the follow sections:

Design Overview

In this section, you should provide a detailed description of your design.

- Start with a high-level description of your design and its purpose.
- Discuss the original design concepts that you considered (at a high level) and then your final design. This document is not only a description of the technical aspects of your design, but it is also a digest of your design process.
- Clearly explain how your project expands and builds on previous works (i.e. justifications for a 6-week project)
- Don't forget to cite your references and include images/schematics.

Preliminary Design Verification

Write a summary of preliminary testing results from your prototypes in this section. What did you to do verify your design before moving into the final production phase (e.g. breadboards, test programs, etc)? What steps did you take, if any, to determine the feasibility of your design? Explain your test plan, the procedures you use to test your design, the various subcomponents and the outcomes from those tests. Include photos of the initial, assembled prototype, and photos from any testing results if available. This includes verification of hardware, software and enclosures.

Design Implementation

In this section, you will explain the final design you arrived at. Include

- Include an overview of the overall system, described at a high level
- Include a listing of all the relevant subcomponents developed/used in creating the final software/hardware
- If there is anything else that is notable about your design, or design practices, please include it in this section. Discuss your design process in developing the system and any challenges that came about.

Design Testing

Write a summary of testing results from your final prototype in this section.

- Explain your test plan, the procedures you use to test your design and the outcomes from those test.
- Include photos of the assembled prototype, and photos from any testing results
- If you had unsuccessful attempts, include write-ups of those attempts and how you remedied those issues.
- Make sure to document your debugging process and any challenges that came about.
- If your design is not fully functional, make sure to include write-ups on WHY it is not functioning
- Include references to demonstration videos that you produce (e.g. youtube or videos uploaded to CANVAS) showing your design functioning. Video demonstration is required to be in either the report, or the final presentation.

Summary, Conclusions and Future Work

Write a brief summary of your project and your conclusions from this assignment. Include a detailed discussion of changes you would make to improve the design if you were to do another design iteration.

Final Presentation

- A final presentation is <u>required</u>. There are two options for presentation
    - In person demonstration to the instructor. For this option, you must coordinate a time with your instructor to demo you final product in person. A formal presentation is not required for this option.

    - A recorded video presentation. A presentation can be recorded and shared using a variety of formats (e.g. powerpoint voiceovers, video footage, zoom, etc)

        - The recorded presentation is more than just a demo, it should be a comprehensive presentation in which your design, and results, are fully

explained. Someone who is unfamiliar with your design should be able to grasp what you did, how you did it and what your results are.

- You must give special attention to highlighting the final results of your work. This will be especially important since your project may not be demonstrated in person. You should develop this presentation under the assumption that whatever is not seen/demonstrated/explained, will be assumed to be nonfunctional or not present

- The recorded presentation should not exceed 10 minutes.

Submission

Please upload the following files to Canvas

- A copy of your final report saved as a PDF document named **[LastName]_Final_Report.pdf**
  - If you opt to turn your report using an alternative format (e.g. GitHub page, blog post) then include a PDF printout of the relevant pages
- If you have other media that is part of your report (e.g. videos) include them, or links to them
- A copy of your final presentation saved as a PDF document or Powerpoint presentation named **[LastName]_Final_Presentation.--- (This is not required if you demonstrated in person)**
- A video recording of the final presentation
- A single zip file containing all your design files named **[LastName]_Final_Project_Files.zip** OR a link to the online repository that contains all of your design files
  - Structure this archive with **multiple folders** so that it is easily navigable. Include a separate folder for Software Design Files, Hardware design files, Enclosure design files and, if any other tools were used (e.g. simulation) make sure it include a folder for them.
  - At the top level of the archive, **include a README** file that explains the organization of the files in the project and the main files of interest, so that one can easily navigate the project and possibly reproduce it
  - If all relevant design materials are not submitted, your project will not be graded.