Fall 2019 Technical & Semester Report

<Project Name>

<Subteam>

<Name>

Summary

1 Writing Your Report

This end-of-semester report is composed of **TWO** parts. The **first** is a technical overview of your project, and the **second** is a qualitative reflection on the semester. There are two sections that will help you write the end-of-semester report. This LaTeXdocument is formatted in a way that should make it easy to add or remove sections when you write your report. There are examples in a third section titled **Templates** with common elements/commands. The steps for getting started with the document are detailed below. If you have any questions, feel free to contact Matt or Yash.

2 How to use this template

1. Open the **Cover.tex** file in the **ReportSections** folder and replace any < > tag with the real information. For example, replace <Name> with your name. There are only three tags to replace: Project Name, Subteam, and Name.

2. Open the **MyReport.tex** file in the **ReportSections** folder and populate that to create your report! If you need any additional libraries, add them to the top of the **Report.tex** file in the main directory (under **All Package Declarations)**.

3. When you are creating your report, you need to remove all of these guidelines and the templates from the report. Open **Report.tex** in the main directory and comment out (or delet) everything between **Template Content** and **End of Template Content**. Render the output and everything should have been automagically formatted without the templates/guidelines, leaving just your report. **Make sure that you remove the guidelines and templates before turning your report in**.

Other notes:

- Create a section for each distinct portion of your report. The table of contents is automatically populated for new sections.
- Make sure that you make your references correctly. See the template for example references
- Make sure you caption your figures correctly. See the template for example figures and captioning
- Equations and other symbols are easy to find online, so don't be afraid to use them!
- If you are providing code snippets, make sure you use the method outlined in the template.
- Put all of your images in the **Images** folder. When you reference them, keep in mind you need to put the folder name and then the image name (i.e. Images/<myphoto>.png). See the templates for an example.

3 CS/ECE (Technical) Report Guidelines

- **THIS REPORT IS DUE FRIDAY, DECEMBER 6 @ 11:59 PM. We cannot accept late reports.**
- The purpose of this report is to document all technical aspects of your work this semester.
- Your **GRADE** this semester will be based significantly on this technical report. This is your chance to show off all the cool stuff you've worked on this semester.
- This is where keeping up with your Confluence page and all of your hard work on design reviews pays off.
- Here is a rough outline of things to cover, but it should **not** be treated as a comprehensive list:
  - System Purpose
    - Why does your system need to exist?
    - What options did you consider?
  - System Requirements
    - Should derive some requirements from **System Purpose**
  - System Overview
    - Include a high level overview of execution flow/circuit elements
    - For **ECE**: Include schematics, board layouts (gerbers that were sent to fab), photos of completed boards (when possible), and detailed descriptions of firmware (if applicable). Include relevant code snippets that are **critical** for proper system function. Add references to the repository/repositories that contain your code/project files.
    - For **CS**: Include block diagrams, high level software architecture (search 'UML diagrams' for reference), integration strategies, and snapshots of GUI's or interactive elements. Include relevant code snippets that are **critical** to *functionality* or show compliance with design requirements. Add references to the repository/repositories that contain your code/project files.
  - Describe Setup/Startup
    - Explain the process of bringing the system to a functional state from a completely powered down state. You may assume that other systems are already setup and ready as long as you state your assumptions.
  - Describe Testing
    - Describe nominal system function
    - Describe tests to meet **System Requirements**
    - Describe how to validate functionality and test edge cases/possible points of failure
    - Possible failures and how to handle them

  - Provide any analysis you completed this semester to validate your design. Provide simulations/describe your testing environment if it exists. This differs from **'Describe Testing'** in the sense that the analysis should be **what you actually did to test the system** whereas the description may be a hypothetical setup. Overlap between this section and the previous one is expected (If your system is still in progress, you should have done at least *some* of the tests you listed. If your system is completed, you should have performed **all** of your hypothetical tests.)
  - Discuss system parents
  - Discuss system children
  - Discuss known issues and actions taken to correct them
    * It's completely fine if the issue could not be resolved as long as you provide an explanation.
    * Discuss other potential approaches to solve this issue.
  - Discuss any supply chain/material sourcing information for your system.
    * Vendor Information
    * Any sponsorship information and contacts at vendor
    * Any difficulties with sourcing or cost.

- See the **End of Semester** report section for guidelines on the reflection.
- Make sure to cite **all** papers or sources you referenced for your work this semester. Every equation and analysis should have a referenced source. This can be class textbooks and/or independent research papers. This is a requirement for for the the SA Cup Project Technical Report, so we should make sure to keep track of these papers.
- **A Note to Freshmen**: Feel free to talk about training outcomes, but no need to include screenshots or anything too long.

4 End of Semester (Reflection) Report Guidelines

This report should be a minimum of 1 page (single spaced) reflecting on what you did on the team this semester. You may include details such as:

- Your role on the team this semester
- Improvements made from the beginning of the semester to the end
- What you feel you were successful in
- What you feel you could improve on
- Hopes/goals for the team next semester

5 <Your First Section Here>