Assignment Sheet: Design Report  
ECE 2031: Digital Design Laboratory

Length: 10 page maximum (body of the report)  
Point Distribution: 500 points; submit one report per group  

*Due Date: Monday, April 25th no later than 3:00pm  
*Submit paper directly to Kevin (VL E-276)

**Formatting:** Format this report the same way you formatted all other reports. Use the provided template. Include the Logbook (all members) in an Appendix.

**Description of Design Report:**

A project report is a document that describes the process of implementing a solution to a given problem, usually including some aspects of the design process (underlying theory, design alternatives, trade-offs, etc.), the implementation phase, the results, and the conclusion.

For the purpose of this course, organize the report into the following sections:

Abstract
- Summarizes the ENTIRE report, giving an overview of the project as a whole (1/2 page, 1 paragraph)  
- Tells the reader what you did, how you did it, and the RESULTS of the project  
- Used to index your paper; shown in search results so that readers know if your paper fits their needs

*Helpful Hints:* Remember to briefly summarize the problem you were trying to solve, and then summarize the solution you implemented. Whatever transpired during the final demo constitutes the results of your project. You might initially describe your results in the abstract as “very successful,” “moderately successful,” etc., but you would still briefly summarize what happened during the demo (i.e., “While the sonar interrupt worked as intended, the timer interrupt failed due to a software bug. As a result, the project was only moderately successful since that error prevented the robot from completing the demonstration.”)

Introduction (Bulleted items are not necessarily in the order in which the information would appear in the Intro)
- Define the problem being addressed  
- Briefly discuss the approach used to solve the problem—the one you actually used, even if different than your proposal  
- If the proposed approach was modified, briefly explain the differences  
- Summarize how well the project was accomplished (Did your demonstration meet the specifications outlined in your original proposal? If not, why not?)

*Helpful Hints:* In this section, your goal is to explain to the reader the details of the problem you had to solve and describe the approach that was implemented. This is where you justify your approach and convince the reader that your design is technically sound and feasible. The Introduction works to lay the foundation of the project, preparing the reader for the technical details that will be presented in the General Methodology and the Results sections of the document. You can provide figures in this section showing fundamental project information.

General Methodology
- Give a description of the steps you took to complete and test the design  
- Explain how the design was implemented (which design languages were used, which devices were taken from libraries or modified from other sources, how they were integrated and tested incrementally, etc.)  
- Present the methods for reaching the design objectives  
- Discuss any significant modifications that were made during the design process (you don’t need to present every change you made, just the most important ones)  
- Include a subsection called “Project Management” and show (or reference as an Appendix) your finalized Gantt Chart
Technical Results

- Present the results of the project based on test runs and your final demonstration
- Include relevant graphs, tables, and figures
- This section contains only hard facts

Conclusions

- Provide your overall conclusions of your design relating to the original purpose of the project
- Make any recommendations you feel appropriate (recommendations must pertain to YOUR work and how future engineers might use it; this report is not the place to tell us that “if only we had more time, more help from the TAs, more competent team members” we could have had a better project)
- In retrospect, how could you have optimized your design? What would you do differently if you had to revisit this project in the future? What are the strengths of your design?

Helpful Hints: We will be grading your ability to think critically about your project, including the technical aspects, the design, and the design process. The Conclusions section is NOT a summary of the report. It is the place to discuss, analyze, critique, and evaluate the overall design.

Additional Requirements

1. Include the Logbook as an Appendix. Put the Brainstorming Sheets first (all members), the Consensus Forms next (chronological), and include the Individual Logs last (put each individual member’s Individual Logs together chronologically, so that all of Student #1’s forms are first, then Student #2’s, etc.).

2. You do not need to put page numbers on the Appendices since much of what you include will be original documents in hardcopy form.

3. If your team has decided to assign various sections of the report to individual members, be sure that the tone, style, and content in each section is consistent. You are aiming for a cohesive document.

4. Each member of the team should proofread and edit the report to ensure a polished document with accurate content.

5. All members must fill out and sign the evaluation sheet (stapled to the front of the report). Otherwise, the document will NOT be graded, which will result in all members receiving a failing grade on the assignment.