**CMPE-110-Projects**

Doing projects is OPTIONAL to CMPE-110 students. It demonstrates how much students understand the class materials. The projects will cover the use of common passive components, transistors, diodes and amplifier circuit. The projects also cover the use of microcontrollers, analog-to-digital converter (ADC) or digital-to-analog converter (DAC).

Two or three people will be involved in a project (no more than three!!). Each person in a group will work on separated parts of the project which will be documented in a final report. The report should tell the specifications, functions of the projects. It also includes the explanation of how the circuit supposes to work.

The one who do the project will get 20 credits at max. These credits will be break down as:

+ 7 credits for demonstration. The final product MUST work!!!

+ 6 credits for the report

+ 7 credits for Q&A parts to see how much the students understand projects

Guidelines for the project reports (less than 10 pages):

1. **Abstract**: Write one paragraph (less than 300 words) about the project including: topic, purposes or functions of the project, the specs and outcome.
2. **Introduction**: Write one or two paragraphs about why the project is important (purposes), background of the project (who has done it previously), what makes your project different from other and the challenges you’ve faced during doing the projects
3. **Project Specs**: determine the overall goals of what you want to achieve.
4. **Project Justification**: explain the way you design your own project, the reasons to choose any specific components including your calculations or assessment of why to choose such components. This part will demonstrate your understanding on hard design, electronic component levels, and any knowledge in firmware design.
5. **Contribution**: A table to describe who do what basically. Keep in mind that the one who just does documenting or write reports will not be appreciated by the instructor. Everybody needs to contribute something on the project but not just writing the report. Therefore, everybody is expected to do project and write the report.
6. **Budget expenses**: Summary of how much money and how many hours you have spent for the project. This part will not affect your grade but I prefer to see the cheaper solution.
7. **Conclusion**: justify of how much you have done the project and lessons learnt.
8. **Appendix**: your source code. I will ask you to program the source code during demonstration.