Name:_____ UIN: | | | | | | | | | | Section AB/BB: |

Presentations and Final Report

Final Report Guidelines

The Final Project Report is due at the end of your demonstration during the final (full) week of laboratory sessions. Refer back to the lab syllabus (in this packet) for more details.

Below is a general outline of what things would be found in a good final report. The report should be typed and all figures (graphs and schematics) generated electronically. Please note that the outline shown below provides a recommendation of what things should be found in a report but the order of the sections/subsections does not need to match this outline. The goal of your report should be to provide enough detail about your design and methodology so that another engineer could read your report and duplicate your design (or pick up where you left off).

One report must be submitted **by each team of two students**. If your design is one piece of a larger group project, the reports may be submitted as one large document but the separate "team of two" reports must be clearly marked corresponding to its authors. There is no minimum page requirement but a good final report is often around 5-10 pages long, including figures.

Suggested Report Outline

1) **Introduction**
   - ***Problem description***
     This should outline what goals your design must accomplish.
   - ***Design concept***
     Give an overview of your design. This should be at a pretty high level and give a basic idea of how your design accomplishes your goals. It should include how your systems gets its inputs, what processing of that data will occur, and what we (the observers) will see, hear, feel, smell, or taste (? ☺) when the task is completed.
2) **Analysis of Components**
   - ***Characterization of each sensor***

Notes:

Describe each sensor used in your design and what it does.
Include tables of measurements made, the experimental setup used to collect those measurements, and any graphs, linear curve-fits or mathematical characterizations that are relevant to your design. Your collected data should be voltages and not, for example, merely distance values kicked out by an Arduino library.

- ***Design considerations***
  Describe the design decisions that resulted from the characterization of your sensors. Did the behavior or sensitivity of the sensor affect where the sensor was placed on the vehicle? Did you need to change sensors because of an unexpected limitation on the first device? Even "failed" attempts are worthy of documentation!

3) Design Description

- ***Block diagram***
  Hierarchical graphical outline of your design. Each block in the diagram should represent a circuit or device.
- ***Circuit schematics***
  Schematics should correspond to blocks in the hierarchical diagram.
  If Arduino is used, block diagram of its functionality is required.
  A qualitative description of the circuit design should be included so that the circuit can be quickly and easily interpreted by the reader. (Please do not simply write a verbal description of how each circuit component is connected to each other component. This is neither useful nor worth any points.) By the way, signal "ground" has no business in your high-level block diagram…this is a common student mistake not to be repeated.
- **Physical/mechanical construction**
  Describe any relevant mechanical aspects of your design, e.g. how each sensor is mounted on the vehicle and where or the method used to mount a given actuator.
  Photographs of your vehicle/project are highly encouraged, especially if those photos are annotated with labels.

4) Conclusion

- ***Lessons learned***
  What unexpected obstacles did you encounter in your design process? How did you overcome them? Please note that this should only include lessons learned about your design, not your personal study habits.
- **Self-assessment**
  Make sure to directly address how well your design performed the tasks outlined in your introduction.

We *might* choose to make an example final report available to you for reference. Ask your TA.

Rubric to be used for your Final Project Demonstration

Keep this rubric in mind as you prepare for your demonstration. This is *not* the rubric used for grading your final report.

Final Demo Rubric

Project Title:

	Name	netID
Student #1		
Student #2		

Student #1	**Points Possible**	**Score Given**
Two-minute video (submitted in advance)	5	
Ability to explain in technical terms (language, course objectives)	5	
Use of the oscilloscope, other equipment (tech)	5	
Individual features (partial-functionality/troubleshooting)	5	
Full-system demo (functionality)	5	
Overall presentation appeal (planning, execution, equity)	5	
Extra Credit ("elegant solution")	Up to 5	
	Total (/30):	

Comments:	

Graded by: _____

Notes:

Notes:

Final Report Rubric

The final report rubric will look something like this:

Total = 40 pts

1. Introduction [5 pts]
    a. Problem description [2.5]
    b. Design concept [2.5]
2. Analysis of components [15 pts]
    a. Sensor characterization [7.5]
    b. Design considerations [7.5]
3. Design description [15 pts]
    a. Block diagram and explanation [5]
    b. Circuit schematic and explanation [5]
    c. Design considerations [5]
4. Conclusions [5 pts]
    a. Lessons learned [2.5]
    b. Self-assessment [2.5]

This Week…Project Demos!