Final Report Template

# A Brief Summary of the Design (< 1 page)

The brief summary should be a high level description of your robot. Explain briefly about the design by including which sensors are used and how they are necessary to accomplish the task at hand.

# Hardware Design

1. Take pictures of the parts you are talking about and explain the hardware as if you are showing your robot to someone in front of you. Definitely include other diagrams listed below, as hardware will definitely be difficult to clearly show with so many connections.
2. Circuit diagrams are neatly and clearly displayed. Hand drawings are not acceptable unless they are of pristine quality. Circuit diagrams have pin numbers, device names, and connection descriptions (wire-wrap, connector, etc…). It is better to split your circuit diagrams into smaller ones if you can. Use the PIC24F development board diagrams as a positive example.
3. A table with part numbers, approximate costs, and sources (stock room, sparkfun, etc..) are included. Another person should be able to find/buy all of your parts.
4. For pins on the microcontroller, make it clear how each pin is being used (debugging, PWM, ADC, power, oscillator, etc…)

# Software Design

1. Describe the **function** of your software in detail. A finite-state machine is preferred. It is better to split your program description into parts if you can do so easily. It is not important to exactly mirror the structure of your code. It is important to accurately describe the functionality of the code. For example, using one state-machine to describe how you interface with each device simplifies your description.
2. Describe the structure of your code as if you are handing the project to be continued by someone else. This would include file names and purposes. It would also include documentation of your functions and their intended use.
3. For any device used, please describe the configuration used in the project. For example: “The UART is configured in high speed mode with a baud rate of 115,200. Additionally, certain status bits are set to zero while the transmit mode is enabled. Etc…” It may be useful to include such things in a table.

# Formatted Code

1. **This is not a part of this report**. **This is about your final project code that you will turn in to the dropbox.**
2. Your code will be checked for basic software design principles.
   1. Functions should be named appropriately and included in external files.
   2. Defines should be used where necessary so that no “magic numbers” exist.
   3. All devices have an initialization function outside of the main loop.
   4. Functions are commented at the very least. It’s better to have lines within the function commented that are particularly hard to understand such as configuration bits.