Computer Engineering Capstone Project

Assignment 4:

Prepare a final project report as outlined below. The final report is due by 5:00PM, Friday May 4th. Significant credit will be taken off for late reports. Project demonstrations MUST be completed by 5 PM, Tuesday, May 1st. NO EXCEPTIONS-NO KIDDING!

Final Project Report - Technical Section

This section of the report describes the implementation of your project design. While not intended to be such a detailed description that your implementation could be completely recreated from it, this section should cover all of the details of your design and how it progressed. All technical innovations of your design should be strongly highlighted. At a minimum, this section must include the following:

1. block diagram and description of the system architecture - independent of hardware or software implementation
2. block diagram and description of the system hardware
3. flow chart and description of the system software
4. revised budgets (power, cost, and any other you deem appropriate)
5. design report describing how each subsystem was designed and integrated into the full system
6. testing report describing how each individual subsystem was tested
7. description of the final testing results (the demonstration) and any follow-up done to correct problems
8. results of the risk management plan describing the anticipated problems that you ran into and if your proposed solution was adequate and any problems you encountered that you did not anticipate and how addressed them
9. printouts of all schematics (labeled) VHDL descriptions (commented), significant simulation results (labeled) and software code (commented)
10. pictures (in JPEG format) of the robot from the top, side, front, back, and oblique views. These pictures are to be taken in front of a background with minimal clutter.
11. a detailed list of tasks that each team member performed and the team’s opinion of the percentage of the total project work that each team member performed- this list will be used to apportion the final project grade.
12. A “users-guide” describing how to operate the robot if applicable
13. recommendations you may have on modifications to the project itself or the way it was managed (e.g. due dates, assignments, report requirements, etc.)
14. an electronic version of the report in Word format (another format may be accepted with the instructor’s pre-approval).
15. electronic forms of all figures, tables and pictures in the final report (e.g. Powerpoint and Excel for figures and tables, and JPEG for pictures).

Final Project Report - Business Plan

Imagine that you have decided that your design is innovative enough that you are going to attempt to develop and market a commercial version through your own start-up company. You need to develop some of the components of a business plan for your product. This information must be included in your final report. At a minimum, this section of the report must include the following:

1. A description of your product from a marketing perspective. Include a description of the product’s application, its innovative features, and the reasons that a buyer should purchase it. In this section, emphasize your product’s positive impact on the buyer’s profitability, human factors such worker’s as health and safety and time efficiency, and any positive environmental impact that the product may have.

2. Estimate the total cost of your product in a production version. Include costs for all components used in the design, estimates for any additional or modified parts that the production version might require, estimates, with justification, for the cost of labor required to manufacture and test the finished product. If you can not find the cost of a particular item, use your best judgment to make an estimate and include justification.
3. Estimate the cost to start-up the manufacturing of your product. Include the estimated cost you incurred to develop the current engineering prototype, the estimated cost to design the production prototype, and the estimated cost to setup a manufacturing facility. Use these costs to develop the wholesale price of your product vs. the number of products sold. Include a discussion of the number of products you feel you would have to sell to recover your costs and the likelihood of developing a sufficient market.

4. Discuss the manufacturability of your product. Include a description of the design changes that would be required to develop a manufacturable product. Describe the parts of your design that would be difficult or costly to assemble. Describe any potential problems you may have obtaining certain parts and how that might be addressed. Describe how you would perform production testing on your design and what potential problems you foresee (this is especially important!)