CPSC 331: Original Design Project

In this project, you will combine all of the techniques that we have studied into one project on the Altera UP1 Education Board. Specific requirements follow.

1. You must use either the MAX 7000 or FLEX 10K device on the UP1 Education Board.

2. Your design must have at least 3 major components, at least one of which is specified using the graphic editor, and at least one of which is specified using VHDL and the graphic editor. (One component may contain the other two).

3. Your design must contain at least one state machine. (This component will probably be specified using VHDL).

4. You must use at least one push-button or DIP switch and at least 1 LED or 7-segment display. You can use a keyboard instead of a pushbutton or DIP switch, or a monitor instead of the LED or 7-segment display if you choose. Information is in Chapter 9 for a VGA monitor, and Chapter 10 for a keyboard.

When you finish, turn in:

1. An overview of your design and any major design decisions that you made, including how your design meets the requirements above.

2. Printouts of the major components of the design.

3. Annotated simulations showing the full operation of your project, plus any simulations of individual components that are necessary to demonstrate more fully how each one works.

4. A description of what is particularly interesting in your design and what you had to learn about to make it work.

5. A printout of the "top-level" graphical overview of the design, with a signature from me that I saw the demonstration. (Although projects will be officially demonstrated on Tuesday, I would be happy to look at your demonstrations earlier!)

You will also make a 10-minute presentation (excluding demo) of your design. Your presentation should include items 1-4 listed above. Given 10 minutes, you might not have time to cover every detail of the design, so you should emphasize the most interesting or difficult parts.