CPE100L Final Project Guidelines

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The deadline for submitting the proposals is at 8:00 pm Tuesday, Nov 12th.

Final presentation is on Dec 3rd (starts at 8:30 am), the order to do the presentation will be randomly selected. If you want to present your work earlier or later in the order, please let me know.

Notice:

It is highly suggested to come every Tuesday morning to do your project with your group members. I will put some boards in the lab at that time. If there is no enough boards, you can come to my office to ask for the board (TBE-B 310). You can also come during the night until 9 pm (borrow the board from Dr. Greg before 5pm and return it the next morning, since other labs are also using the boards) then you will have a longer time to do your design.

Please don't leave one or two of your group members alone doing the project, it is a group work!!!!

For the project, you may have to use **Verilog** (it is straight forward and easy, and also very popular nowadays, you will find out how powerful it is) to program your logic instead of using blocks. Tutorials and examples are provided on my website.

Some topics you may select:

1. Elevator Control System:

Basic specifications:

a. There are two elevators working together. If there is a customer press the button on the first floor, then the elevator unused will go down to serve the person. If both of them are serving someone else, then the one finish the job first will go down to serve the person on the first floor. Then similar principles to any person press the button on any of the four floors.

b. The door of the elevator will wait for 5 seconds after no people goes in or out. (There is an optical sensor at the door, so if there is no person comes in or out, the sensor won't give pulses or signals to the digital system).

c. Using switches to select which floor you are going to, and show the number on 7-segment display. (totally 4 floors).

d. Other specifications based on your experience of using any elevators.

2. The Clock

a. Using frequency dividers to divide the original clock frequency to the frequency you need. (Verilog and symbol is provided on my website)

b. Show the time on 7-segment LEDs.

3. The Calculator

a. Creating a binary (at least 6 bits) calculator to implement adding, subtracting and multiplying.

b. Using pins and keys to input the numbers, and show the decimal result on 7-segment LEDs.

4. Open Topics

You can create any control system that you think can be implemented on the DE2 board. There are plenty of examples online or in the attached CD disk with the DE2 board. You should also do some research on your topic and write a brief proposal before you start.