CS M152A Lab 4

Creative Project

Your Final Project will be an open-ended project in which you will show what you have learned throughout the quarter.

Introduction

For your final project, you will design, implement, and demo a circuit for a project of your own choosing. Your project must utilize the FPGA board and must be approved by your TA. Your TA may add requirements to your project idea to ensure it meets class standards. You will be graded on the initial project idea proposal, the creativity of your ideas, the complexity of the end result, the quality of your design, and the project write-up.

Formal Project Proposal

The first draft of the project proposal is due the **second lab session of Week 6**.

Your project proposal shall have clear description of what you propose to design. Describe its functions and requirements as clearly as explaining to another classmate.

The proposal shall contain a correctness rubric that breaks up the project's demonstration into multiple parts. Your project will be graded according to the rubric that's agreed by you and your TA.

Proposal Feedback

Your project will be reviewed by the TA(s). You will receive a set of feedback by the **second lab session of Week 7**. Your proposal will receive a difficulty mark and a creativity mark, which are part of the project grade. The difficulty mark is a number between 0 and 10. The creative mark is a number between 0 and 5.

Revised Project Proposal

The revised proposal is due the **first lab session of Week 8**. This is an opportunity for you to improve your creativity and difficulty marks, and incorporate the feedback from your TA. Be advised that by increasing the difficulty of the project, you run the risk of not finishing it on time, or failing the correctiveness rubric, thereby hurting your final grade.

Lab Write Up

You will submit a lab write up in the same general format as lab 2 and 3. Your write up will be graded on clarity of the implementation description, and simulation and test description.

The lab write up is due the **second lab session of Week 10**.

Project Demo

The last day to demonstrate your project to your TA is the **second lab session of Week 10**.

Project Ideas

- Elevator Controller
- Whack-A-Mole
- Slot Machine
- Several types of simple games that can be implemented with LEDs, buttons, and the UART port controller
- Designing an 8-bit microprocessor with instruction set including Data Transfer instructions, Mathematical operations, Program Flow instructions and Special Operations (NOP, END, WAIT, ...)
- Designing a floating point unit
- Blackjack game (Twenty-one)
- Calculator
- Vending Machine controller
- Improved version of lab 1, lab 2, and lab 3

This is a non-exclusive list; you are free to propose ideas outside of this list as long as the proposal is clear, shows creativity, and meets the minimum difficulty requirement.