Physics 335, Spring Quarter 2013
Electric Circuits II

Homework #7: Final-project proposal
Due Thursday May 23 in class
You'll need to submit & pass this before you can proceed with the final-project lab.

First, look at the companion document describing the final-project lab: You and your lab partner should print out and submit this filled-out form; you both will submit one form. Ensure this printed-out and filled-in form is submitted with your Homework #7. Note there are also hardware and software block diagrams you'll staple to this form. In rare cases, you can work without a partner or in a team of three: for this, please see the instructor beforehand. This proposal should be neatly written and carefully thought-out.

A. Names of lab partners

Name 1: _____

Name 2: _____

Note: You're expected to work with a partner. For exceptions, see the instructor beforehand for approval.

B. Fill in below the title and abstract of the project.

Title: _____

Abstract:

C. Block diagram of circuit

Attach to this form a block diagram of your circuit. This should show how external output and input lines are connected to the PIC. This is a block diagram: the idea is to show how the external circuitry connects to the microcontroller architecture. It's not a detailed circuit diagram. Hint: See, for example, fig. 9.63 in the textbook; notice how the functionality and pin-count and data-bus flow is shown. Details like bypassing capacitors and Vss chip connections are assumed.

D. Block diagram of software

Attach to this form a block diagram of the software. This should not be the actual assembly code, rather is should show the functionality of the software. For instance: where are program loops, when are inputs checked and bits sent to the output? What initializations are done? Hint: See, for example, fig. 11.19 in the textbook; notice how boxes and arrows, plus text labels, give you the structure of the software.

E. In the space below, provide a brief description of how the circuit and software works. Your text might start with “When the circuit is first powered up, …”. This is not a repeat of the abstract: It’s a description of how the hardware and software works as a system. What happens with the hardware and software when a button is pushed, for instance? (You might say, “When switch 1 is depressed, this grounds pin RB3. This generates an interrupt in the software which …”.

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