Laboratory assignment six
Sensing buttons and shifting LEDs
EECS 203

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In this laboratory assignment, you will be writing an assembly language program to control the states of LEDs based on button presses.

Please show your work in your lab report.

1 Assignment

Please take advantage of the template code and references available on the course website. They will help you get started with assembly language programming. Links to the Linux and Windows PIC16C74A assembler and simulator can also be found at the course website. Be sure to properly debounce all button presses and releases.

1. Write an assembly language program for the PIC16C74A that does the following:

   (a) Upon reset, turn on only display LED 0.

   (b) When button S2 is pressed and released, shift the status of each LED to the left and clearing bit zero, e.g., 00000001 becomes 0000010 and 01101101 becomes 11011010.

   (c) When button S3 is pressed and released, shift the status of each LED to the left and setting bit zero, e.g., 00000001 becomes 0000011 and 01101101 becomes 11011011.

2. Assemble and simulate the program.

3. Bring a floppy disk for USB drive containing the assembly and hex files to your lab check. There, you will be shown how to write the program into the electrically programmable read-only memory (EPROM) of the PIC16C74A microcontroller and run your program on the prototyping board. It's O.K. to discuss the lab with your classmates but don't just copy their code.

2 Requirements

Please prepare a laboratory report. This report should contain the following information.

1. A problem statement or objective for the laboratory assignment.

2. The work you used in achieving this objective.

3. The listing for your assembly language program.

4. A brief discussion of how you verified that the implementation meets the requirements

5. Comments and observations, including perceived problems and strengths of this lab assignment (I do pay attention to these). It is fine for this section to be terse for this lab, however.

The lab will be graded as follows:

Component	Weight
Program functionality	4
Code organization	2
Observations/report	2
Showing work	2