Lab 9 – Final Project

Overview
The final two weeks of this lab will be devoted to a project. You as the student can choose any project you would like, but your TA must approve it. This is to ensure your project is feasible. Three possible projects are explained below to give you some ideas. You can choose to do one of these projects if you would like.

Project Schedule
- Week 9 – Start Project
- Week 10 – Get help on Project
- Finals Week – Demonstrate Project at Special Time and Submit Code

Prelab
No Prelab this week.

Projects

Project 1 – Scrolling Marquee
The scrolling Marquee project uses the accelerometer to change what portion of a message is displayed on the LED array. The Marquee must scroll both ‘left’ and ‘right’ based on the direction the Wunderboard is tilted. The rate that the Marquee changes should be based on how far the Wunderboard is tilted (more tilt is faster). The display should change smoothly meaning that as it scrolls, you will be able to see parts of letters as they appear, the next letter should not just ‘appear.’ The message to display is your choice but should be at least 20 characters in length. An example video link can be found on the lab webpage.

Project 2 – Tetris-Style Game
In this game, a random block is dropped from above. As the block descends, it can be shifted left or right using two of the buttons on the Wunderboard. When the new block reaches the bottom or strikes another block already placed that block locks in place and a new random block is dropped. When one row is completely full it row should be removed and all the ‘locked’ blocks should be dropped down one level. An example video link can be found on the lab webpage.

If you want a real challenge, make the blocks rotatable and more than one row thick.

HINT: If you want to see if a block can move down, simple bitwise logical operations should be very useful.
HINT: You should have new blocks start at column 0 and ‘fall’ towards column 7.

Project 3 – Animated Movie
For project, you need to display a multicolor movie of at least 20 frames. You need to be able to display the movie forward and in slow motion. These features should be controlled by the slide switches on the Wunderboard. On other switch should allow the user to pause the movie. When this switch is flipped, the movie should pause, not reset to the original frame. An example video link can be found on the lab webpage.

Demonstrate and Submit code
When your code is submitted, it will be processed both to ensure it compiles and runs correctly and to evaluate its comments. The comments will be examined through the Doxygen output not inside of the code.
When ready, submit your source code to TEACH. Your c file should be named main.c

TEACH Assignment Name: Project

**Project Summary**

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