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ECPE 174

**Final Project Proposal**

Stopwatches are used constantly within society, as precision timing is needed for competition, testing, and infinitely many scenarios. We will attempt to recreate a digital stopwatch with a useful feature: an alarm. Originally, we planned to create a digital alarm clock. However, testing our alarm clock would be slow given the digital clock would change per minute. Therefore, with a digital stopwatch, our system would be changing every 1/100 of a second. Our digital stopwatch will use all four push buttons as inputs; one push button for enabling the alarm clock to change, one push button for changing seconds of the alarm clock, one push button for changing hundredths of seconds of the alarm clock, and one push button for resetting the value of the stopwatch. Of course, a toggle switch is used to view from alarm clock to stopwatch. The digital stopwatch will begin once a toggle switch is set to HIGH. The time for the digital stopwatch and alarm clock will output to the seven segment display, utilizing all 4 seven segment displays. When the stopwatch reaches the given alarm, the stopwatch will output a red LED, signifying the alarm is ON. The stopwatch will continue to run after the alarm, as this simulates a realistic stopwatch. Once the stopwatch has reached 9999 on the seven segment display, the system will stop, as this also simulates a realistic stopwatch reaching the maximum time the stopwatch can output. The entire project will be written in VHDL.

Schedule:

November 15th – Draw FSM, block diagram, timing diagram for stopwatch. Begin writing code for stopwatch and clock divider, without alarm.

November 22nd – Complete code for stopwatch with clock divider, without alarm. Begin writing code for the alarm.

November 29th – Code for the alarm should be completed. Include the code for the alarm in stopwatch design, should be hierarchical.

All deadlines must be met by specified dates. In between these dates, work on code to be prepared for given deadlines.

Roles:

Erich – Create stopwatch, and any components related to the stopwatch

Gilbert – Create memory, and any components related to the memory