Extra Credit Lab: Reaction Timer
Code Due (via email): Monday, May 05
Demo Due: Wednesday, May 07

Lab Overview:
In this extra credit lab assignment, you will be designing a hardware button debouncing circuit to remove the bounce that is experienced with buttons and switches in digital systems. As illustrated below, most buttons do not provide a clean transition when the button is pressed, but experience bounce in which the button's value will fluctuate for a short duration before stabilizing the correct state.

The Debouncer circuit is a simple digital circuit that takes a button input, ButtonIn, and outputs a clean version of the button’s value, Debounced, that does not bounce when the button is pressed or released.

Lab Procedure & Demo
1. Design the Debouncer circuit and verify its correct functionality using the provided debounce tester component, DebounceTester_Sim, and testbench, Deboucer_TB. Further verify your design by integrating your Debouncer within the provided hardware tester design.

   Notes: No further information will be provided with respect to the provided code. Additional code may be necessary to complete the assignment. All questions should be addressed directly to the instructor.

2. You must submit your code for the Debouncer circuit via email to the instructor no later than Monday, May 05. You must also schedule a time to meet with the instructor to demonstrate the correct functionality of your Debouncer circuit by no later than Wednesday, May 07, during which time you must be able to accurately describe the functionality of your design in detail.

   Note: All points for the extra credit lab assignment will be based on your code implementation and your demonstration.