CS443/543 - Embedded Systems

Assignment #6
Fall 2025

The purpose of this assignment is to implement a "stopwatch" using your Arduino and Vanduino board. For this assignment, you cannot use the Arduino timer functions (i.e., `delay()`, `millis()` or `micros()`, etc.) timing functions. Instead, you must program the timer(s) that you use yourself.

The stopwatch should work as follows:

- When your sketch starts up, the 7-segment display should be blank. The stopwatch should be "turned on" when the left-most Vanduino button is pressed, at which time the display should show `0.`
- When the button is pressed again, the stopwatch should start. The display should show the elasped time in seconds.
- The stopwatch should be able to run up to 99 seconds.
- The stopwatch should stop when the button is pressed again. The display should show the elapsed time, to one-tenth of a second. If the elapsed time is less than 10 seconds, the display should show the entire time, in the form `x.x`. If the elapsed time is greater than 10 seconds, the display should first show the seconds (`xx.`), then after approximately one-quarter second, show the tenths digit (`.x`). The display should alternate between seconds and tenths every quarter second.
- Pressing the switch again should reset the display back to zero, ready to start again.
- If another button is pushed while the stopwatch is running, the current elapsed time should be stored. Once the stopwatch is stopped, this elapsed time should be displayed when that button is pushed, using the same format as the main display.