Problem 1) Develop a stopwatch with the following features:

a) The stopwatch shall have a display in the format XXX.XX
b) The display shall display the elapsed time in decimal (as opposed to hex)
c) The display shall initially be set to 000.00.
d) When Key 1 is pressed, the time shall be reset to 000.00
e) When Key 0 is pressed and the timer is stopped, the timer shall begin running.
f) When Key 0 is pressed and the timer is running, the timer shall stop.

Note: Problem 2 is required if you are enrolled in ECE5623. For ECE4623 students, this problem is optional.

Problem 1) Develop an electronic lock with the following features:

a) The stopwatch shall have a six-character display.
b) When the system is initialized, the display shall read “LOCKED”
c) The system shall store a 10-bit binary passcode of your choosing.
d) When Key 1 is pressed, if the state of the switches equals the 10-bit passcode, the display shall change to “UNLOCK”.
e) When Key 1 is pressed, if the state of the switches does not equal the 10-bit passcode, the display shall change to “ALARM ”.
f) When Key 0 is pressed, the display shall read “LOCKED”.