

ELEX 7820 Lab Project Guidelines – Draft 2

Start = Week of Oct 23, End = Week of Dec 4-8 (week before Final Exams)

Total = 7 weeks

Submit: Report and Demo to Instructor during Dec 4-8

Teams of Two (OK if in different sets)

Mandatory Items to be Incorporated	
SYS/BIOS RTOS - use of all thread-types: Hwi, Swi, Tsk, Idle	60 %
no floating-point datatypes (except possibly in initialization)	
CPU Utilization - measurement	
DSP – signal processing of some non-trivial complexity	
Real-time processing – keeping up with all samples, events	
Examples of Other Items that could be Incorporated	
Add-on boards, e.g. see TI website (I can arrange to purchase)	30 %
A-D	
D-A	
Ports: SPI, I2C, SCI	
Non-trivial use of: Semaphore(s) protecting shared resource	
Non-trivial use of: Semaphore(s) synchronizing code	
Non-trivial use of: Mailboxes, Queue(s)	
Standalone operation (i.e., no PC connected)	
Low power – addressing of this	
Reliable – addressing of this	
Multiple processors, e.g. two LaunchPads	

Creativity 10 %

Notes:

1. Try to have some creativity, but note that the priority is to show successful incorporation of the mandatory items; it is not necessary to come up with a highly creative idea, but creativity is a part of the marking.
2. Some teams might want to control the Quanser motors for their project. If so, you need to control two mechanically-ganged motors with one LaunchPad to effect two-dimensional motion in some creative way. I have more info on this. Also, you need to coordinate the sharing of motors between 7820 and 7720. There are only enough motors for no more than 8 teams. The other teams need to come up with their own project.
3. There are 31 students, so one person needs to work on their own. Any volunteers?