

EE2920 Embedded Systems
Lab Practical Information

Lab practical information

Ground rules:

- Date/time: Week 9 - scheduled lab time
- 90 minutes in length
- Allowed resources:
 - o Textbook
 - o Class notes
 - o software you have written in part or in whole
 - o Examples from class/lab
 - o Documents posted on Blackboard or the course web page
- No internet access allowed – **wireless adapter must be turned off.** (Be sure to download any sources of info allowed before the exam.)
- No collaboration with others.

Items to be sure to bring:

- laptop with CCStudio, etc.
- laptop charger – no sharing of laptop chargers, bring your own.
- USB cable for programming MSP432 Launchpad
- MSP432 Launchpad, breadboard, and course kit of components, wires, etc
- Analog discovery if you do not want to use the lab scopes

Concepts (things you will need to understand and know how to do):

- LCD
 - o initialize and display information on LCD
 - o know how to change part of the LCD screen contents without changing the rest of it
- Object detection
 - o Detect object(s) in close proximity
- Timers
 - o Periodic mode for waveform generation
 - o PWM generation
 - o periodic interrupt
- A/D converter
 - o setup and perform conversions
 - o translate A/D value to voltage or other (e.g., temperature, etc.)
- Interrupts
 - o External source (e.g., switch)
 - o peripherals (e.g. A/D, timer)
 - o write ISRs
- GPIO
 - o Configure inputs, outputs
 - o Read inputs
 - o Write outputs
 - o Bit masking
- C coding
- Function – write and call
- Interface to LEDs, switches, potentiometers, ...