ECE 461/561 –   
Embedded System Design  
Oscilloscope Project

# Overview

In this project you will develop code to implement a single-channel oscilloscope program which monitors the microphone (connected to channel ANI5) and displays the waveform on the LCD. When you make sounds (e.g. whistle, snap your fingers, jingle keys), the sound generated will be displayed on the LCD. Start with the LCDDemo project and modify it as needed.

# Stopwatch Program

Requirements:

* Use ADC one-shot select mode.
* System waits for a valid trigger condition to occur (i.e. the sound of snapping your fingers).
* System records 96 samples – this is the LCD screen width in pixels.
* System draws waveform on LCD and awaits new trigger.
* You may need to add delay loops to slow down the ADC sampling rate. The proper way to do this is with timers, but they haven’t been covered in the course yet.

Deliverables:

* Project directory, including source code and subdirectories.
* Demonstration of operation.

Extra Credit:

* Add a voltage-zoom and time-zoom capabilities, controlled by switches or potentiometer.
* Add Sonar range-finding capability, based on time delay between hearing snap (or clap) and echo. Sound travels at about 1100 f/s in air.