

# Embedded Systems

## ENGT2303

### Lab Assignment 5

week 7

Equipment used: EyeBot boxes and interface boxes

#### EXPERIMENT 1 Digital Oscilloscope

Write a C program (or a C / assembly combination) to plot an analog input value.

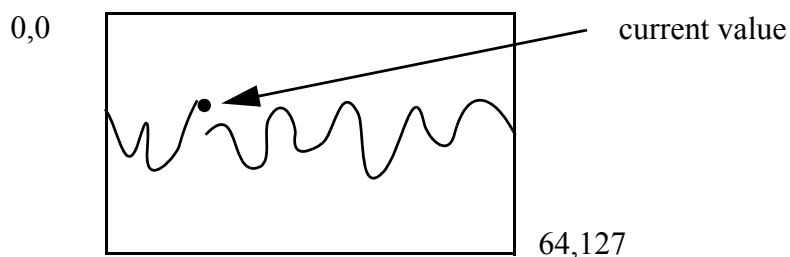
At program start, let the user choose an input channel via a menu button press. These should be: KEY1 = input 0 (microphone), KEY2 = input 2 (connect to potentiometer on interface box), KEY3 = input 4 (connect to potentiometer on interface box), KEY4 = exit.

Make sure to test the minimum and maximum values of the analog input, to use the full screen area for plotting.

Plot the analog signal versus time on the graphics LCD. The dimension of the LCD is 64 rows by 128 columns. For plotting use the function:

```
int LCDSetPixel (int row, int col, int val);
```

Maintain an array of the most recent 128 data values and start plotting data values from the leftmost column (0). When the rightmost column is reached (127), continue at the leftmost column (0) — but be sure to remove the column's old pixel before you plot the new value. This will result in an oscilloscope-like output.



#### Bonus point:

Plot two analog inputs at once, each using a fraction of the screen height.