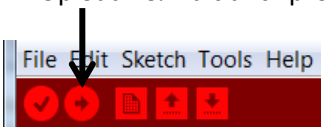
Getting Started Guide: FDC1004 with MSP430F5529 LaunchPad

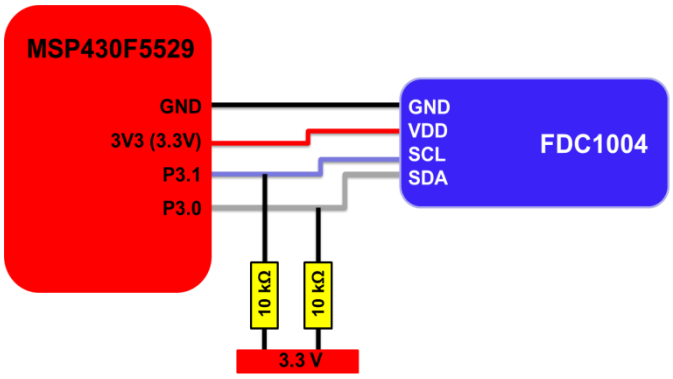
Energia & the Code

1. Download Energia - http://energia.nu/download/
2. Open Program in Energia – File -> Open -> *Select ".ino" file*
3. Plug in LaunchPad via USB and Connect
    i. Tools -> Board -> Launchpad w/ msp430f5529 (16MHz)
    ii. Tools -> Serial Port -> *Select one of the two COM ports* (if serial output is not shown once program is running, select the other COM port option)
4. Compile and Flash – Click the button "Upload" & wait until prompt says it has completed



5. Open Serial Monitor - Click the magnifying glass in the top right corner
6. Troubleshooting – if the program doesn't start right away either press the reset button or perform a power cycle on your LaunchPad.

Hardware – FDC1004



1. Solder 4 wires to the FDC1004 EVM
    a. GND
    b. VDD
    c. SCL
    d. SDA
2. Attach pull up resisters on SCL and SDA (> 8kΩ)
3. Attach wires from FDC1004 to the MSP430F5529 (as shown in diagram)

Understanding the Code

- The declarations at the top will simply include the needed library, define LED names, and set the I2C address for the FDC1004.
- The setup function will start the I2C communication, it will setup the serial output (9600 as the baud rate), and format the LEDs.
- The loop function will repeat infinitely taking a capacitance measurement from the left and right sensors on the EVM which corresponds to MEAS1 and MEAS4 respectively.
    - Flow of program:
        - Request value from register related to MEAS1
        - Perform calculation to turn MEAS1 register value into a capacitance value
        - Request value from register related to MEAS4
        - Perform calculation to turn MEAS4 register value into a capacitance value
        - Wait for 100 milliseconds to take next sample

Extra Resources

MSP430F5529 Datasheet - http://www.ti.com/lit/ds/symlink/msp430f5529.pdf

MSP430F5529 LaunchPad Wiki - http://processors.wiki.ti.com/index.php/MSP430F5529_LaunchPad

FDC1004 Datasheet - http://www.ti.com/lit/ds/symlink/fdc1004.pdf

FDC1004 EVM User's Guide - http://www.ti.com/lit/ug/snau163b/snau163b.pdf

Energia Assistance - http://energia.nu/reference/