ENGR1202 – Computer Engineering Assignment

Assignment 3 – Switch input and LED Control

You will follow the lab exercise procedure below. Once you have run the exercise, demonstrate the working circuit and running software on the board to the lab TA and hand them the Lab Checkout sheet.

After you demonstrate the lab, write a short lab report (one page is fine). Submit ***ONE pdf document*** per group – upload it to Moodle. Make sure to include the group participant names in the document. Spelling and grammar COUNT in this graded assignment. Name the document:
ENGR1202-Assignment3-lastname1-lastname2.pdf
where lastname1 and lastname2 are the last names of the lab partners.

You can use the space in EPIC 2130/2132 for this lab work.

Materials needed:

- MSP430 board & cable (we provide)
- PC with Code Composer Studio (either you provide, or use the ones in EPIC2130)
- Breadboard and jumper wires (you provide)
- Special male to female jumper wires (we provide)
- LED (we provide)
- Slide Switch (we provide)
- 2 resistors (we provide)

Objective of lab

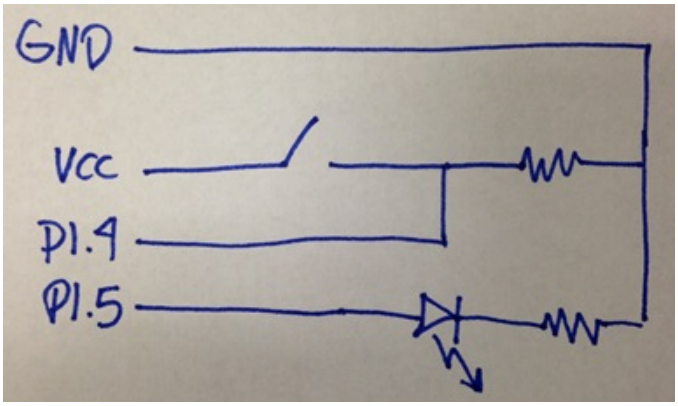
In this lab exercise you will program the MSP 430 board to light two LEDs when a two switches are manipulated. Specifically:

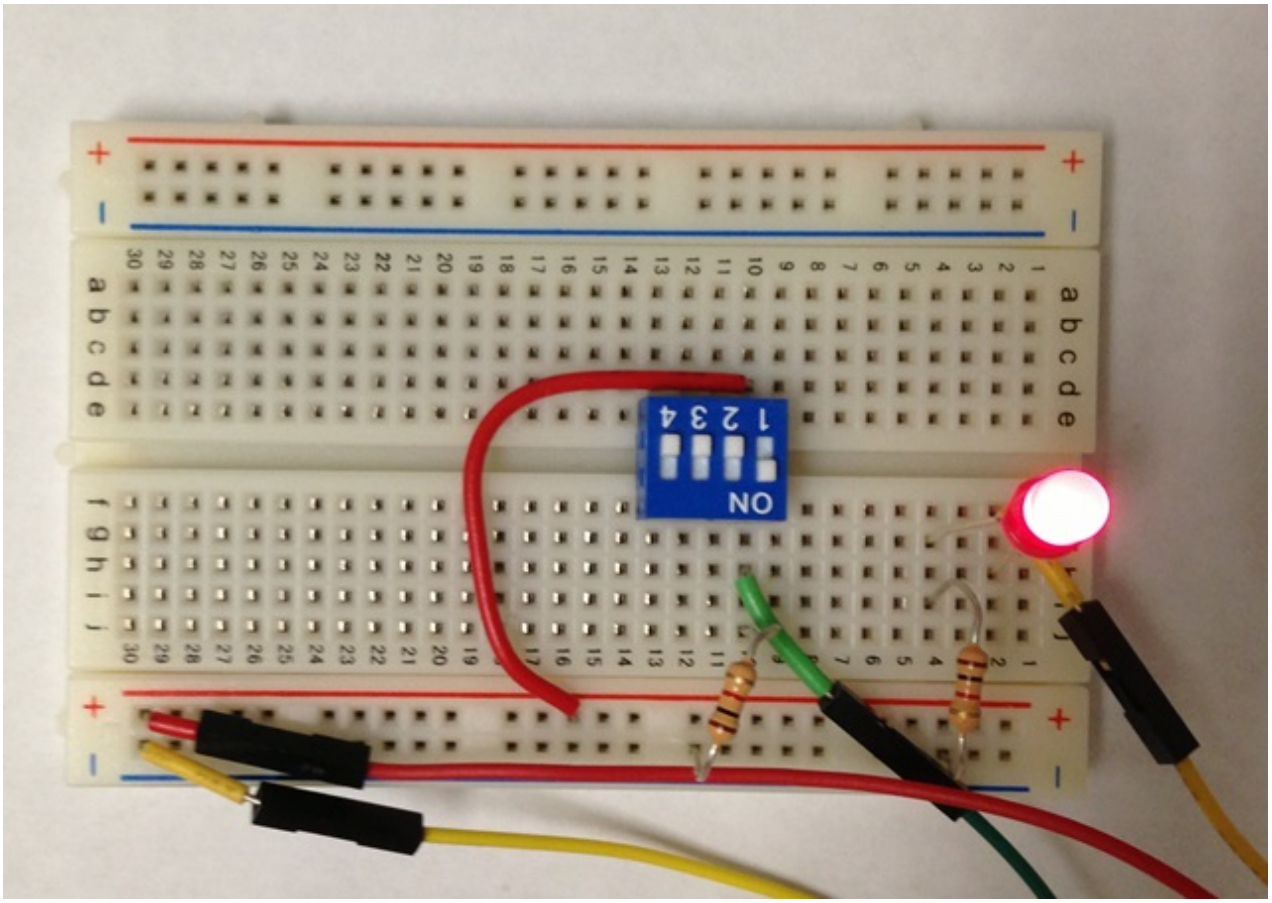
1. When on board SW2 is pressed, on board LED2 is NOT lit. When SW2 is NOT pressed, LED2 is lit.
2. When external SW3 (port 1.4) is slid to "ON", external LED3 is NOT lit. When external SW3 (port 1.4) is slid to "OFF", external LED3 is lit.

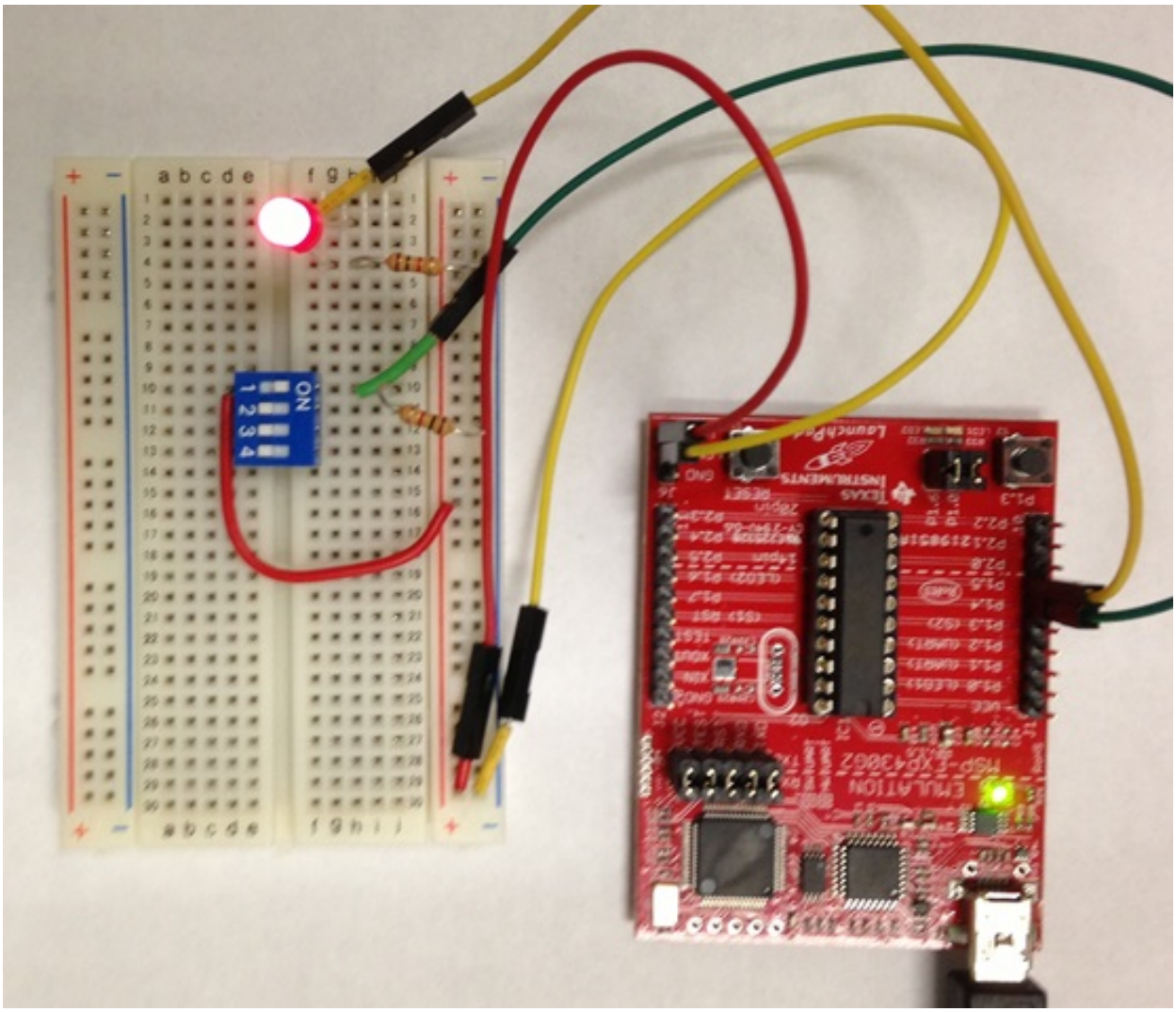
Your group must show/demonstrate the final circuit and answer any questions the TA has. During the lab check-out, hand in the lab check out form (include your names on it!). Note that there is partial credit for this lab – you can earn points for getting only the onboard switch and LED to work (without the external switch and LED).

Steps

1. You will follow the steps to create a project as described in Lab Assignment 2.
2. Write the code to turn on the board LED2 whenever SW2 is NOT pressed. This should run forever. (Hint: what instruction causes code to run "forever"? There will be only one line of code, an "if" statement, inside this run forever loop). Compile, download, and run this functionality.
3. Build the circuit described below, attach it to the board.
4. Add to the existing code the additional instructions to light external LED3 when external SW3 is slid to "OFF".


GND
Vcc
P1.4
P1.5


1 2 3 4
NO


a b c d e
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ON
1 2 3 4
TEXAS INSTRUMENTS
MSP-EXP430G2