

LABORATORY VII

BAE 5413

SPRING 2007

TITLE: Analysis of embedded microcontroller code

OBJECTIVE: To analyze and document the function of a circuit and microcontroller code.

REFERENCES: Texas Instruments eZ430-F2013 kit and documentation. "Single microcontroller pin senses ambient light, controls illumination", Loren Passmore, EDN Design Ideas, EDN, October 26, 2006, pp 110. (<http://www.edn.com/article/CA6382648.html?spacedesc=designideas&industryid=44217>).

PROCEDURE:

Loren Passmore provided the design idea noted in the references above in an article in EDN. Download the code and article. Read the article. Compile and test the code with your eZ430 device. (you will need to carefully setup a new project for the code and make sure you have selected the correct microcontroller in the general options and the correct debugger in the debug options).

Read the code and document what each function in the code does. In addition, document what each line of the code does. You will need to refer to the MSP430x2xx Users Guide to look at the register definitions for your MSP4302013 processor. This code uses the analog to digital converter (SD16_A) and watchdog timer for it's function. It would be prudent to read these sections of the User's Guide before trying to understand the code. The code also uses an interrupt to process the watchdog timer event. You may run the code to examine the actual function of the code. Provide a document that describes the codes functions. This document may be extensive documentation added to the code itself. The documentation should allow someone with no experience with the eZ430 to understand exactly what the code does without reading the article or the User's Guide.