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Development Tools Tutorial and Lab Exercise

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Objective:

The purpose of this lab was to get us acquainted with the software development tools that are required for this course. These include Code Composer Studio (CCS), CCS UniFlash for flashing/programming the non-volatile memory and the TI Pin Mux tool to facilitate GPIO and UART configurations for the CC3200. The lab requires us to finish with a simple program based on a TI example code and the CC3200 Peripheral Driver APIs.

Design and Test Procedures:

Part 1: We were required to navigate through CCS and learn about how to import, build, debug, and run projects. It then gave us an overview of Simple mode, adding watch expressions, counting events and adding breakpoints, primarily to aid in debugging.

Part 2: We were required to copy the blinky project and modify it to the state diagram provided. To communicate with the hardware from CCS, we configured the GPIO pins of the CC3200 using the Pin Mux tool. Once we had the modified Pin Mux configuration, we imported the pin_mux_configuration '.c' and '.h' files to our working project in CCS. We then coded the state machine using a switch statement and the logical equivalencies of the original state diagram.

Problems Encountered:

We made the mistake of not assigning our switches variables and checking them while running the program. Because of this, we got stuck for quite some time unsure of why one of the buttons was forcing the ERROR state. As it turned out, our mistake was that we had swapped the definitions for which switch was which. After changing our variable assignments, the problem was resolved.

From this mistake, we learned about the value of debugging our code with expression assignments and stepping through with the debugger tool. This allowed us to see what the switch values were during the different states of the machine, which allowed us to see that they had replaced one another.

Conclusions:

This lab taught us the basics of how to use CSS and how to program/flash the ROM of the CC3200. We learned about some difficulties we are sure to encounter in future projects and how we can debug so we don't get stuck in the future.