

Project 2 Report  
ECE 2534 – Microcontrollers  
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**Report Summary:**

This report is an overview for the

**Project Description:**

The implementation of Project 2 outlined in this report was successful in implementing all required modules from the project description. Beginning with the initial game state, the editor begins with the stated color settings of white text on a black background, as well as the desired font size and type, and the correct location. In accordance with section 2.2 of the specification, the top pushbutton will also switch between edit and format modes.

Within edit mode, all text received is placed into a string and displayed on the Boosterpack LCD, as well as echoed onto the computer terminal. Only ten characters can be displayed at a time, and the string is cleared and moves back to the start of the line when an 11<sup>th</sup> character is added. A solid-line cursor is placed after the last character, or if there are already 10 characters in the string, at the beginning of the line. As an additional feature, the backspace command removes characters from the string and updates the cursor position.

In format mode, all of the desired manipulations are successfully implemented. Both the text and background color can be changed with the corresponding commands. The position of the text string can be adjusted using the “m” command, followed by two numbers and a letter to indicate direction. Additionally, the font size and type can be adjusted between size 12 and size 22, and the reset key will set everything back to the initial state the next time the string wraps past 10 characters.

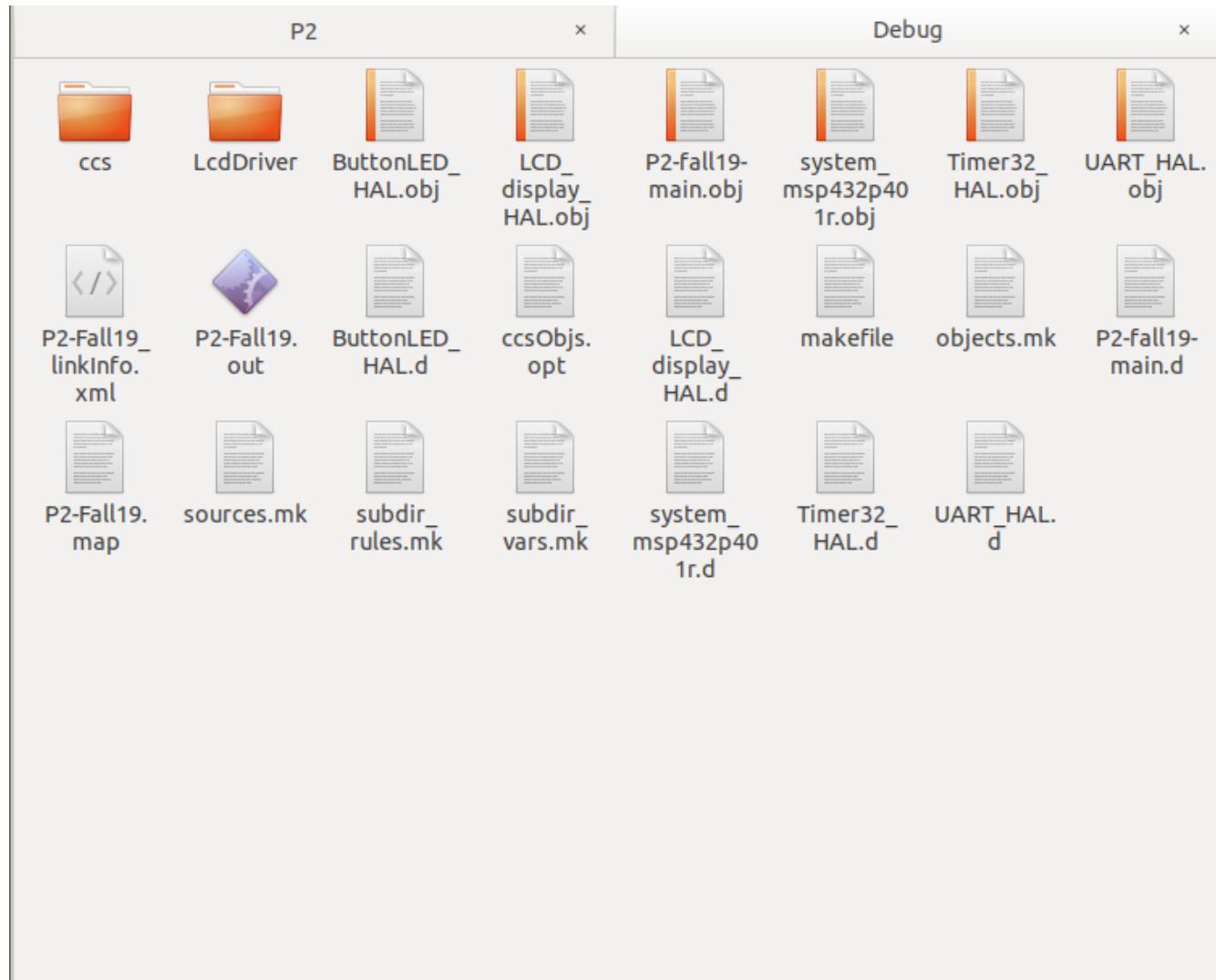
Finally, the UART Baud settings can be toggled using the bottom pushbutton, cycling between the four given states and wrapping back around to the beginning. The LED indicated the current baud setting.

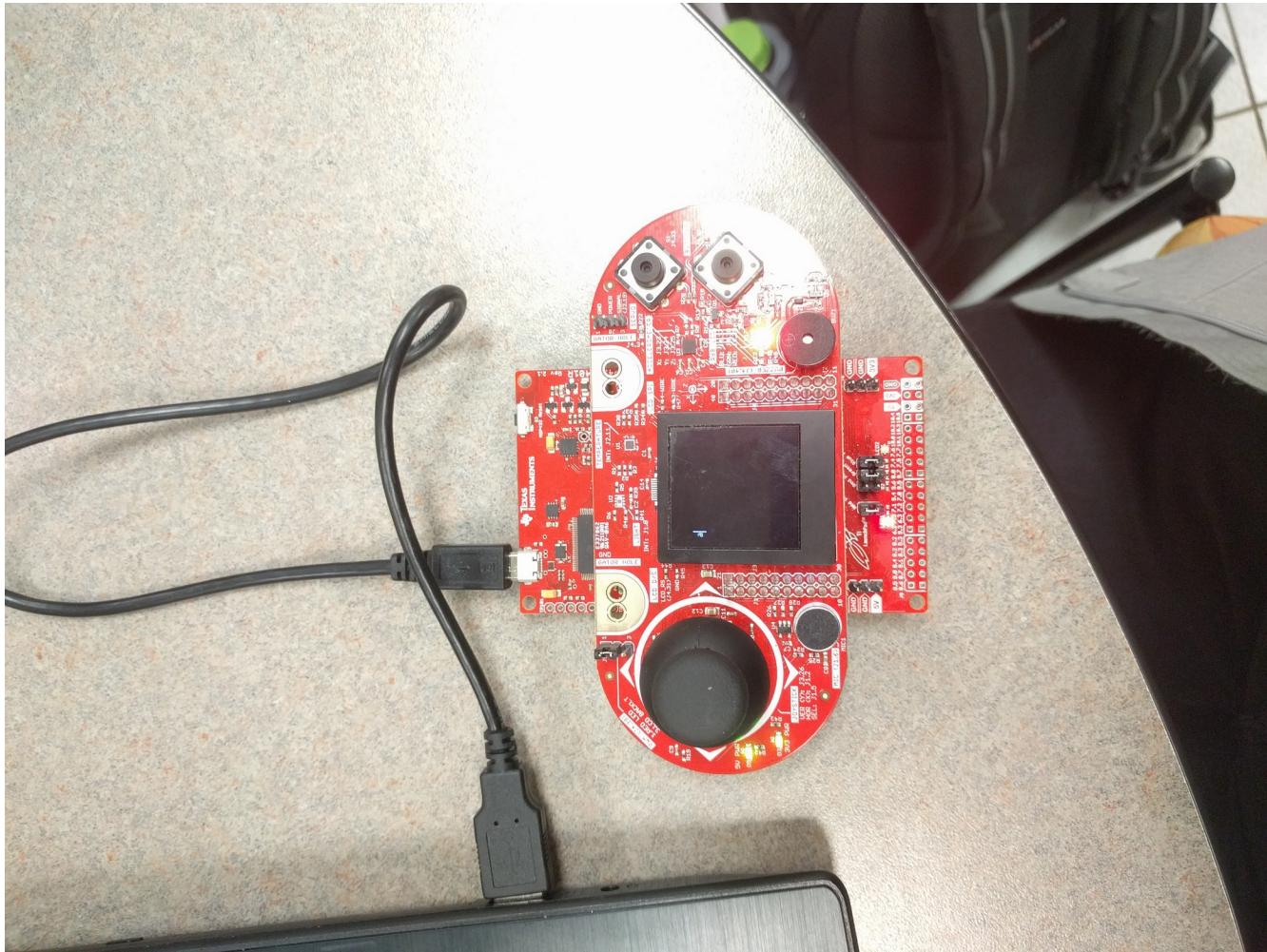
As mentioned previously, the only extra credit option implemented was the addition of an operational backspace key that removes characters from the string and updates the string and cursor, while preserving all string settings.

**Debug Folder:**

Within the debug folder there are .obj files, .d files, and a single .out file. The .obj files are used by the linker, while .d files are used by the compiler. Together they create the .out file, which is flashed to the board.

**Reference Images:**





*Figure 1: Default Configuration*

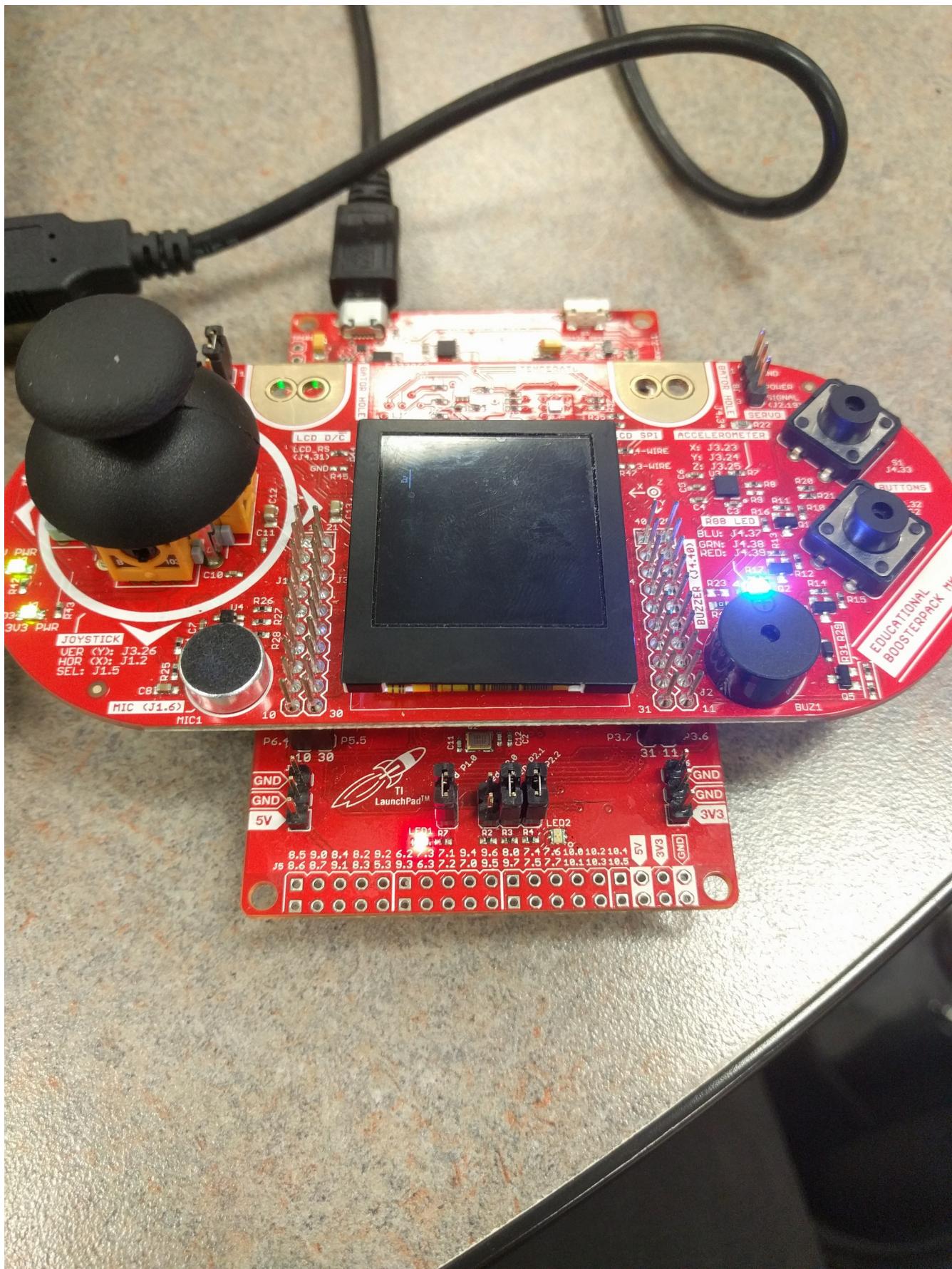


Figure 2: Changing Baud Rates

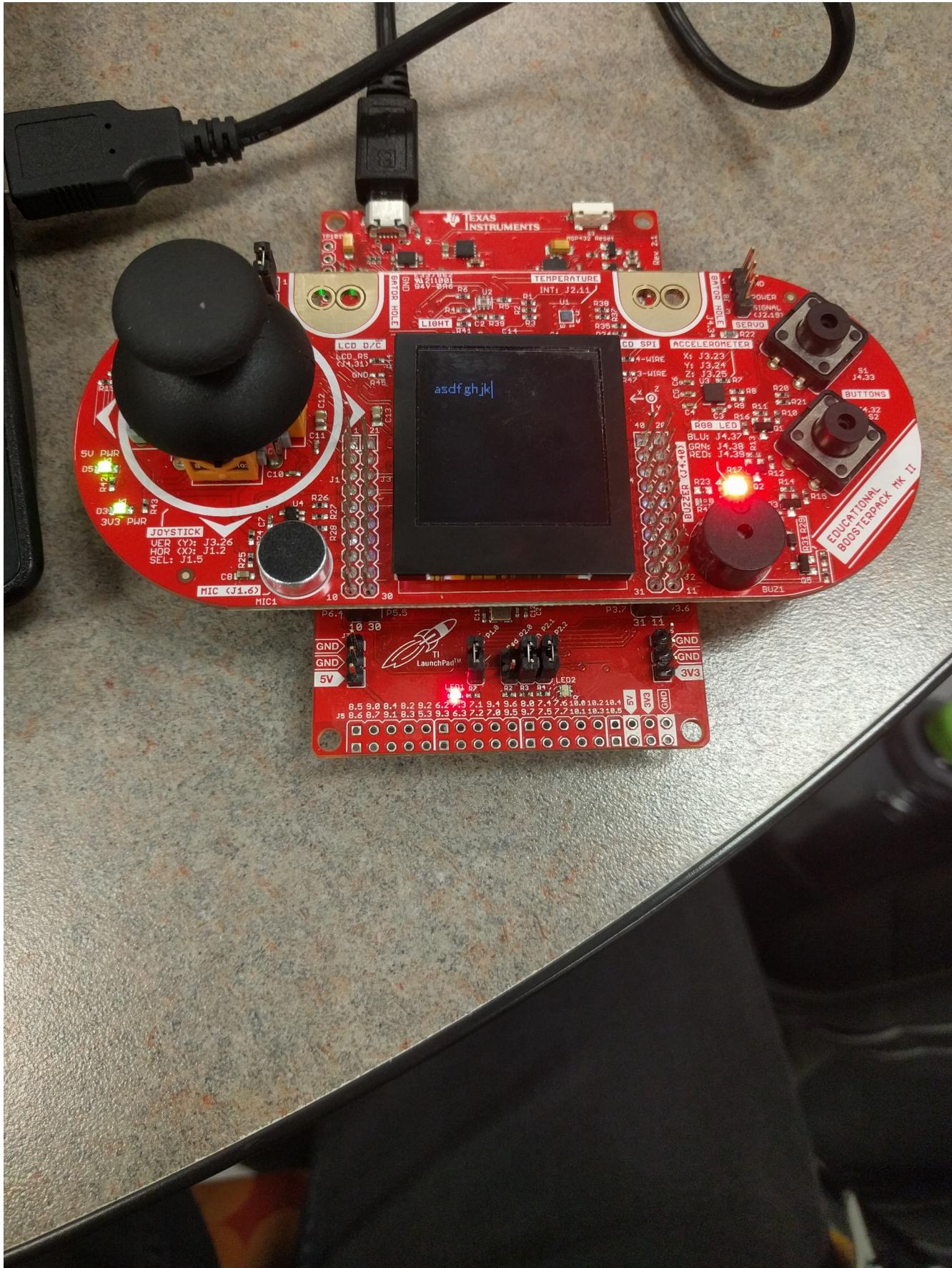


Figure 3: Sample Test with Cursor

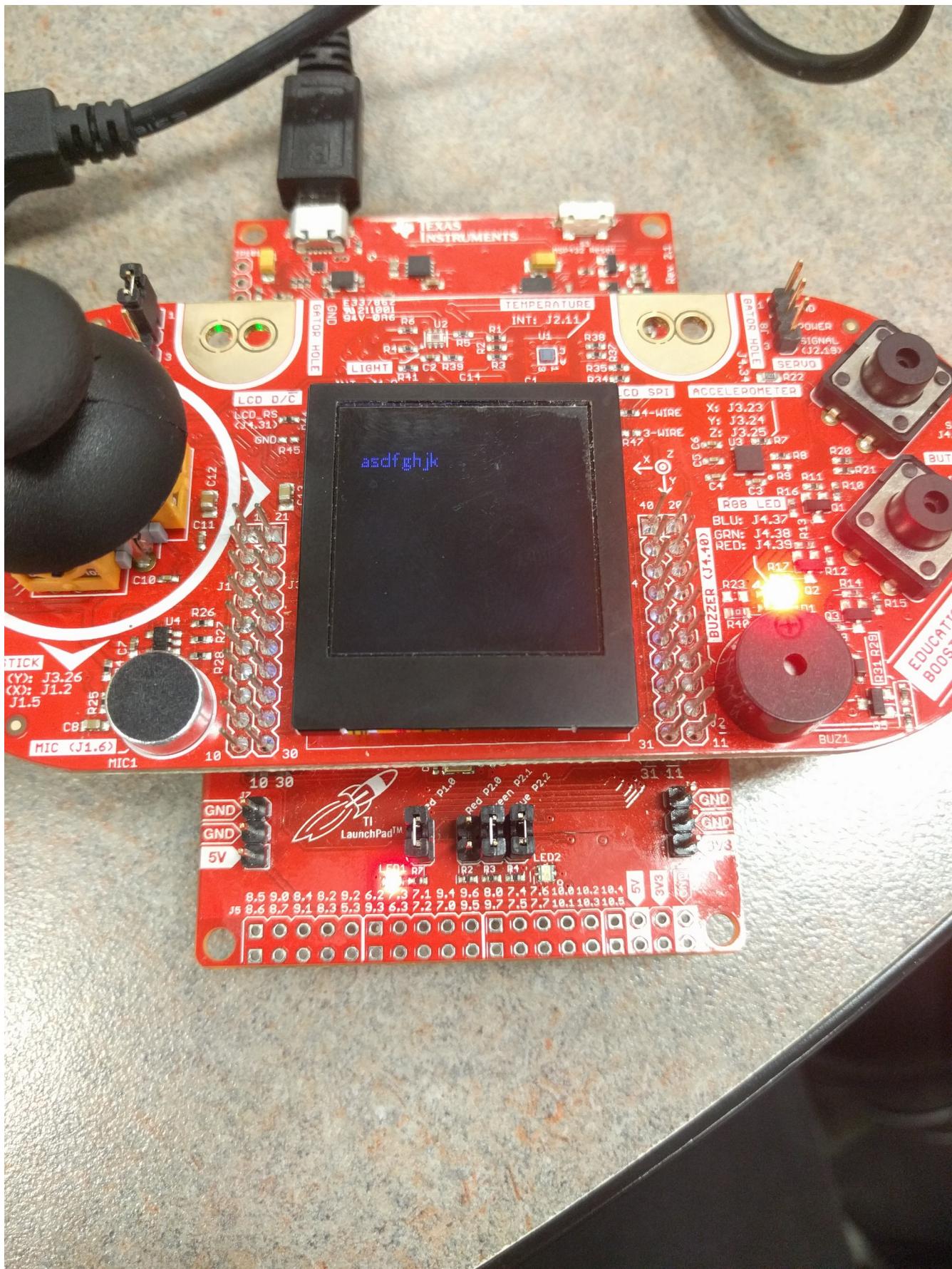


Figure 4: Changing Text Color



Figure 5: Changing Background Color