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EEC 172 – Embedded Systems

Lab 2 Report

This lab report was split into three parts, OLED Integration, Remote to Screen Typing and Inter-Processor Communication. First we were to modify and adapt the Adafruit! GFX library along with some 1351 code (built for a specific Arduino Board) to work with our TivaWare processor. This task proved hardest of the three for us as we made one small mistake while writing the code. While initializing our variables, ports and pins, we turned on SSI mode, and more specifically SSI Master Mode. However, we used the polarity and phase that we were given in class by the professor to set it to SSI Master Mode 2 instead of 0. The example code (for a different project) said 0, but we set it to two to try and match up with the polarity and phase. Unfortunately, we never bothered to check if that was alright, as it was the only problem, along with using the wrong clock, that stopped us from getting it to work on time. We had the first part done by Monday, the late day for part 1.

Part 2 was quite easy, and after a little bit of lab 1 code modification along with some ports to set up, we had this part working just fine. The hardest part was getting the text to display on the correct part of the screen. We went a little above the call of duty on this part by setting the letter that was still not permanent as black on a white background, and it would cycle through the different letters as you pressed the button. Once a timeout or different button was pressed, it would be locked into place as white text on a black background.

Part 3 wasn’t all that hard either, but it did cause a couple problems. We used UART1 to control inter-processor communication, and we had a hard time deciding whether to use one interrupt handler or two. In the end we decided to use only one, given that CharPut would simply send it to Tx rather than needing a handler for it. After that, we made sure that the interrupts stopped it from receiving text (printing to screen) while we were writing our own and vise-versa. Other than this, not many issues. Attached to the lab is the Saelae Logic Probe diagrams and our well commented code.