CMPE 460 Exercise 2

UART Driver

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Performed: 1/21/2022

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TA: Xavier Brooks
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Your Signature: _____

Description

The focus of this laboratory exercise was to implement a basic UART driver for MSP432 devices. The driver was driven via polling the status of the peripheral device in order to send and receive data.

Part 2

After the ports and pins of the UART peripheral device were found, the next step was to initialize the device to work over a serial interface. A baud rate of 9600 was chosen to communicate with meaning a proper prescaler would need to be chosen to divide the input clock to the desired frequency of the peripheral.
With the `EUSCI_A0` device initialized, the transmission side was tested by transmitting a simple string across the UART.
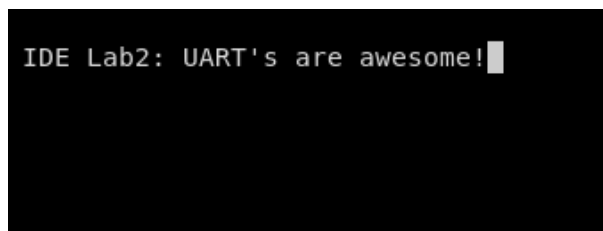

Figure 1: Screenshot of basic UART transmission on MSP432

Figure 1 shows the correct operation of the UART transmitter by properly printing the given string to the screen. Note that the newline characters work as intended by placing a newline before the sentence.

Part 3

Knowing that the transmission side of the UART is operational, the next step is to test the receiver. To do this, an echo program was made to take user input and print out the received bytes.
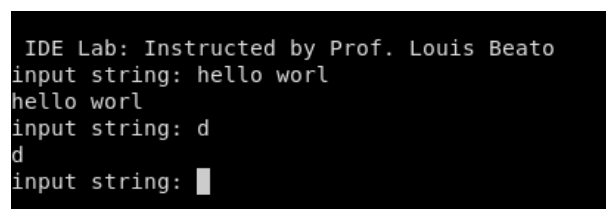

Figure 2: Screenshot of echo program user interface

Because the maximum number of characters is capped to 10 bytes as to not overfill our input buffer, attempting to input `hello world` will cause the input to break early and print the first 10 characters. Notice the second input string in Figure 2 is only a single character, this is also handled properly.

Exercise 2: UART Driver

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Pre-lab		Point Value	Points Earned	Comments
Pre-lab	UART Ports, Pins and Alt	10	16	XB 1/21/22
	SEL Register	10	10	XB 1/21/22

Demo		Point Value	Points Earned	Date
Demo	Part 2	15	15	XB 1/21/22
	Part 3	20	20	XB 1/21/22

To receive any grading credit students must earn points for both the demonstration and the report.

15