ECET 17900 Introduction to Digital Signals C

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Answer the following questions related to serial liquid crystal displays.

What are the steps required to display a message on the LCD (straight from lecture)?

1) uart_putchar(0xFE); // Command Indicator
2) uart_putchar(0x01); // Clear & home Command
3) _delay_ms(5); // need a small delay
4) PrintfC("Message!");

How are commands sent to a serial LCD? (what are the three steps, the functions, and values)?

1) uart_putchar(0xFE); States that a command will be coming
2) uart_putchar(0x01); Clear the command line for LCD
3) ...
4) PrintfC(" "); Send the command.

What function will you use in lab to place text on the serial LCD (the one you create in your LCD.c file)?

putstring_LCD()

What is ASCII data and why is it used?

ASCII is the American Standard Code for Information Exchange, which is used to represent letters. It allows us to use numbers to represent capital & lowercase letters

What is the address of the 1st character on line 1?

$0 \rightarrow 0_{10}$

What is the address of the 1st character on line 2?

$0x40 \rightarrow 64_{10}$

What is the actual command value to send the cursor to position 1 on line 2?

0x80+0x40 = ~~0xD0~~ 0xC0

How much time is required for the LCD to execute a command and how is this handled in the software?

0 - 1.64 ms. This is handled by using _delay_ms(5) to give the LCD plenty of time.

Provide the actual commands (function calls) for the following tasks:

Clear & Home the LCD: uart_putchar(0x01);

Turn the cursor on: uart_putchar(0x0E);

Turn the cursor on & blink: uart_putchar(0x0D);

Turn the cursor off: uart_putchar(0x0C);

Position the cursor at line 1: uart_putchar(0x04);

Position the cursor at line 2: uart_putchar(0xC0);