Prelab for Lab #3: Keypad Scanning in C

Week of 11 February 2019

Pre-lab

Part A – Textbook Readings

1. Textbook `Chapter 14.9` to review keypad scanning

Part B – Prelab assignment

For this lab we will be interfacing with a keypad, which will be provided. You will need a breadboard and wires to connect to the keypad, so be sure to bring these to lab. If you have not obtained breadboards from a previous class, let me know and we have some. It's actually helpful to have two breadboards (due to the design of the board). I might be able to hand out an extra breadboard to everyone, but I need to check on that.

The prelab for this is fairly quick. We will be using some pins on GPIOA as inputs and GPIOE as outputs.

1. Configure Port A

We want to put Port A pins 1, 2, 3 and 5 as digital inputs. Note that these are also used by the joystick, but we will be using them as external connections. Set the GPIOA MODER register; remember that '00' indicates a digital input.

Register	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
MODER	MODER15		MODER14		MODER13		MODER12		MODER11		MODER10		MODER9		MODER8		MODER7		MODER6		MODER5		MODER4		MODER3		MODER2		MODER1		MODER0	
Mask																																
Value																																

Mask in hex:_____   Value in hex:_____

2. Configure Port E

We want to put Port E pins 10, 11, 12, and 13 as Digital Outputs. This is done in the GPIOE MODER register. Again, set this to binary 01 (digital output).

Register	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
MODER	MODER15		MODER14		MODER13		MODER12		MODER11		MODER10		MODER9		MODER8		MODER7		MODER6		MODER5		MODER4		MODER3		MODER2		MODER1		MODER0	
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Mask in hex:_____   Value in hex:_____