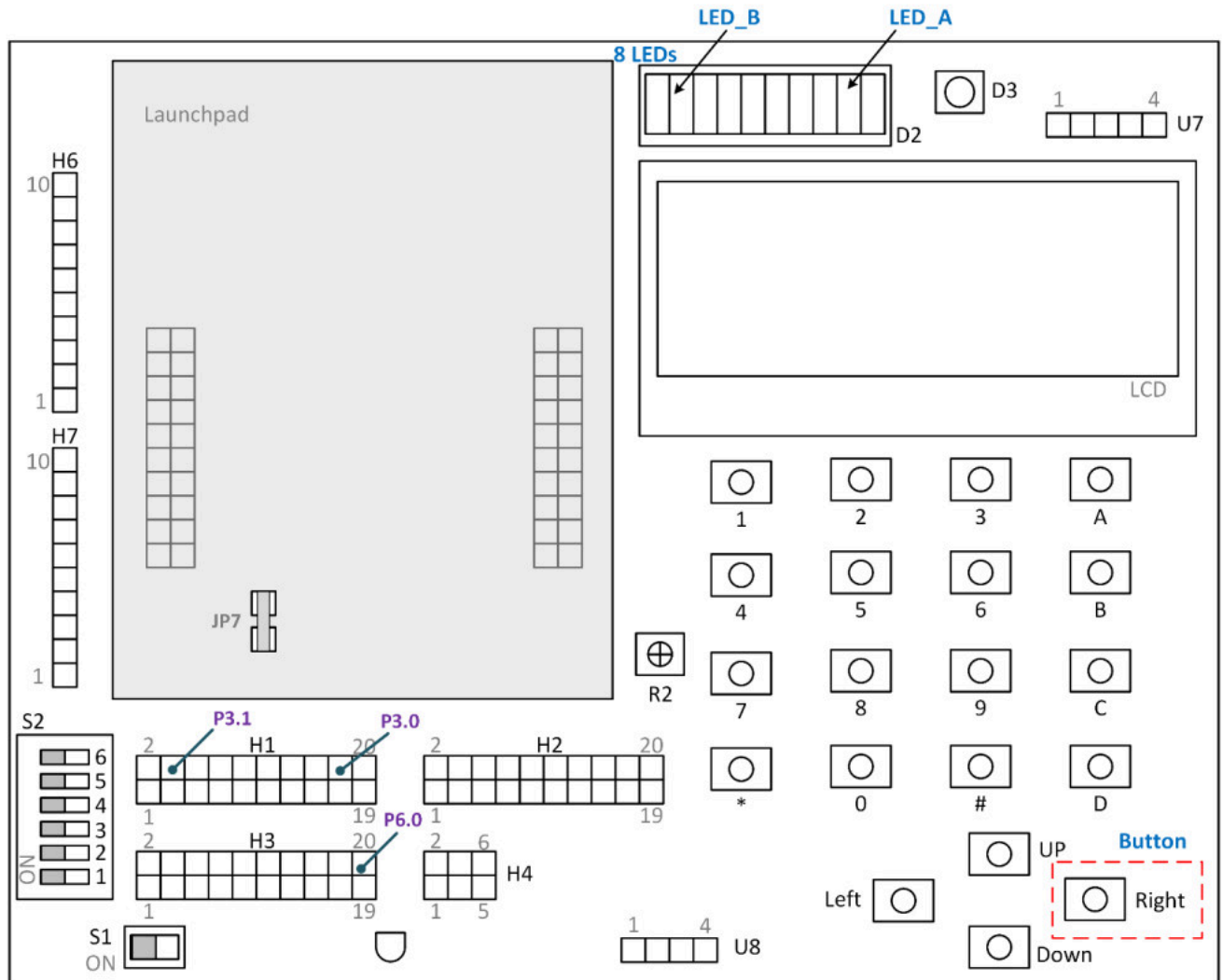


Lab2 description



System A

- For safety, please, remember and make sure to unplug your Launchpad from the USB port before making any hardware changes.
- The connection diagram is shown below. Connect your breadboard jumper wires. Students need to bring their own breadboard jumper wires to perform the laboratory tasks.
- For reference, 3 male-to-female breadboard jumper wires were used.



- For System A, students must write an assembly code for the following functions.
 - Execute an *adder* operation on two numbers of 14 and 32. The operation should be a word operation. Store the result in **R11**. ($R11 \leftarrow 14 + 32$)
 - Execute a *subtraction* operation on two numbers of 32 and 14 ($32 - 14$). The operation should be a word operation. Store the result in **R12**. ($R12 \leftarrow 32 - 14$)

- Execute a *subtraction* operation on two numbers of 14 and 32 (14-32). The operation should be a word operation. Store the result in **R13**. (R13←14-32)
- Write an assembly code to Implement the following equation:
 - $\sum_{k=2}^{21} (2k + 1)$
 - store the result in **R14**.
 - (Note) The code must implement this equation by using a loop. Do not just store the result on R14 without the loop implementation.
- Fill in the following table for four hexadecimal values of R11, R12, R13, and R14. Make sure to include this table in your lab report. The numbers should be in hexadecimal.

Register	Result (Hexadecimal)
R11	
R12	
R13	
R14	

System B

- For System B, students must write an assembly code for the following functions.
 - Blink the LED_A and LED_B on the BH board simultaneously while the button is pressed.
 - If the button is released, blinking should stop.
 - The blink function should keep repeating indefinitely.
 - The blinking duration must be between 0.5 seconds to 1 second.
- Make sure to complete the lab check-off assignment (Lab2-50X) posted on CANVAS before the given deadline. The code files should be submitted as a part of the lab check-off assignment. Laboratory assignment deadlines are 15 minutes before the end of your registered laboratory session.

Reference

- B. Hur, "Learning Embedded Systems with MSP430 FRAM microcontrollers", 2nd ed. 2023.