Lab08

Experiment 1:

1 Implement Keyboard
- 1.1 Press 0/1/2/3/4/5/6/7/8/9 and show them in the seven-segment display. When a new number is pressed, the previous number is refreshed and over written.
- 1.2 Press a/s/m (addition/subtraction/multiplication) and show them in the seven-segment display as your own defined A/S/M pattern. When you press "Enter", refresh (turn off) the seven-segment display.

Result:

按的順序:0 -> 1 -> 2 -> 3 -> 4 -> 5 -> 6 -> 7 -> 8 -> 9 -> a(顯示 a) -> s(顯示 b) -> m(顯示 c) -> enter

https://lurl.cc/dEAyZ

Experiment 2:

2 Implement a single digit decimal adder using the keyboard as the input and display the results on the 7-segment display (The first two digit are the addend/augend, and the last two digits are the sum).

Result:

9+8=17

https://lurl.cc/qBRWr

Experiment 3:

3 Implement a two-digit decimal adder/subtractor/multiplier using the right-hand-side keyboard (inside the red block). You don't need to show all inputs and outputs at the same time in the 7-segment display. You just need to show inputs when they are pressed and show the results after "Enter" is pressed.

Result:

Add:

19+38=57

https://lurl.cc/CwUWj

Sub:

36-52=-16

https://lurl.cc/vmQhf

Mult:

99*99=9801

https://lurl.cc/rrMjX

Experiment 4:

4 Implement the "Caps" control in the keyboard. When you press A-Z and a-z in the keyboard, the ASCII code of the pressed key (letter) is shown on 7-bit LEDs.
- 4.1 Press "Caps Lock" key to change the status of capital/lower case on the keyboard. Use a led to indicate the status of capital/lowercase in the keyboard and show the ASSCII code of the pressed key one 7-bit LEDS.
- 4.2 Implement the combinational keys. When you press "Shift" and the letter keys at the

same time. The 7-bit LEDs will show the ASCII code of the uppercase/lowercase of the pressed letter when the “Caps Lock” is at the lowercase/uppercase status.

Result:

沒按 Caps lock(小寫):

a:97 A:65 b:98 B:66

https://lurl.cc/C1ZGt

按了一下 Caps lock(大寫):

A:65 a:97 B:66 b:98

https://lurl.cc/X489G