Bit Banging Project 2 – LED&KEY

Summary:
Implement all features of the LED&KEY by wiring it to an Arduino. You will also write the software needed to both read button presses as well as send the correct bits to the device to display numbers.

Required Components:

- Arduino **Uno**
- LED&KEY (device with 8 led segments & 8 buttons)
- Breadboard & wires
- Logic Analyzer (For software, use Logic 2, from saleae.com)

Make sure to research the different part numbers and datasheets.

Procedure:

1. Find and review data sheets or similar reference material for each of the components listed above.
2. Watch the video demonstration for this project, located at:
    1. https://www.youtube.com/watch?v=z662g-_jO-U
3. Interface with the LED&KEY by wiring it up to the Arduino (use the LED&KEY datasheet you found earlier)
4. Using the LED&KEY, create a decimal (base 10) counter that can count up to 9999.
    1. Use the right 4 LCD displays to show the current value of the counter.
    2. Use the right 4 buttons to increment the correlating values in the ones, tens, hundreds or thousands place. Cascade the value to the next LCD display if needed. Ie, adding 1 to 9 will put a 1 in the tens position and a 0 in the ones position.
    3. If the counter becomes greater than 9999, reset it to 0.
    4. Include a ‘debounce’ time so that LED&KEY is easy to increment and use.
    5. (Optional) Provide user feedback – Turn on the LED above the corresponding button during each button press.

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ISO Cover Sheet

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	Policy	Document No	Date	Version	1
	Quality Procedure	39910.1339870	01/23/2023		
X	Working Instruction			Pages w/o Cover	???
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Version	Date	Employee	Revision Summary
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