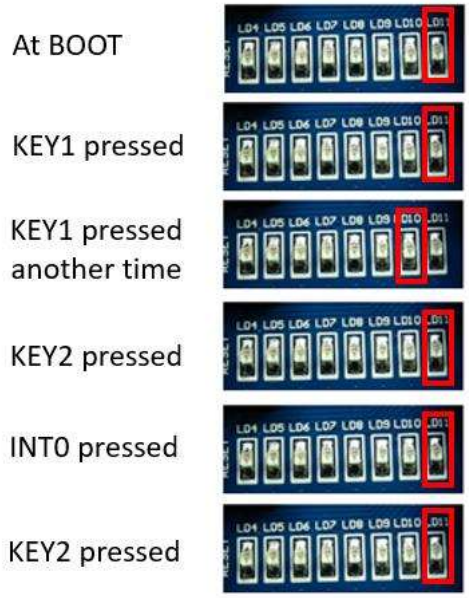
Architetture dei Sistemi di Elaborazione	Delivery date: Friday 10/12
Laboratory 8	Expected delivery of lab_08.zip must include: - zipped project folder of exercise 1 - this lab track completed and converted to pdf format.

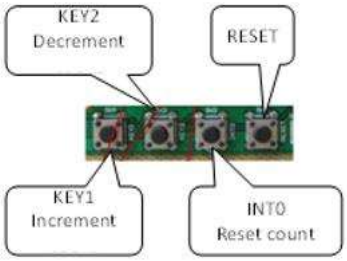
Solve the following problems by starting from the *sample_BUTTON_LED* project (open the file project from the uVision menu)

Exercise 1) Implement a system on the LANDTIGER board that displays the Fibonacci series on 8 LEDs. The software uses buttons to update the displayed value (either moving forward or backward) and LEDs to show the current value. Start by using emulation capabilities (later, flash your firmware on the board) to implement the following functionalities:

- at every KEY1 button pressure, move to the next value of the series. If the maximum value, i.e., 233, is already displayed, do nothing,
- at every KEY2 button pressure, move to the previous value of the series. If the minimum value, i.e., 1, is already displayed, do nothing,
- at INT0 pressure, reset the value to the initial 1 in the Fibonacci series.

LEDs show the current count in a binary representation.





HINT: It could be useful to use two global variables to keep track of the information about the series. For example, you could define two unsigned integer variables called "`uint8_t old_value`" and "`uint8_t curr_value`" in the `main` function, to be updated by the button interrupt handler execution.

Q1: Do you observe on the board any behavior that unexpectedly differs from the SW emulation? Please describe.

La differenza che si può notare tra la soluzione hardware e la sua emulazione in software si può riassumere nel button bouncing, uesto meccanismo infatti fa in modo che spesso al premeredi un bottono vengano registrati più pressioni. Nella soluzione hardware non possiamo fare niente e dobbiamo tenere conto di

questo effetto mentre usando l'emulatore possiamo disabilitare il button bouncing; in questo modo siamo sicuri che ogni pressione di un bottone venga registrata come un unico click.