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EC450 HW1  
Professor Giles  
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## EC450 Homework 1

### Implementation:

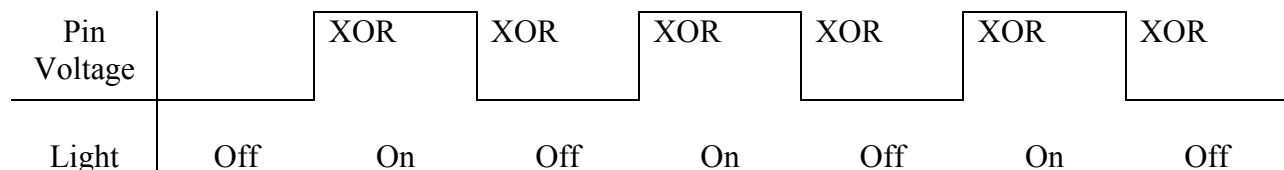
My overall strategy for the implementation of the SOS flasher was to treat the whole unit as a state machine. The states I defined as follows:

State:	Next State:	Description:
1	2	1 unit intervals; 3 short flashes for S
2	3	3 unit interval; short pause between S and O
3	4	3 unit intervals; 3 long flashes for O
4	5	3 unit interval; short pause between O and S
5	6	1 unit intervals; 3 short flashes for S
6	1	7 unit interval; long pause between cycles of SOS

A used a global variable **state** to keep track of system between WDT interrupts.

During periods where the light is blinking, I defined a **blink\_counter** to keep track of the number of blinks. This counter actually counts the number of times P1OUT is XORed with 1. To produce 3 blinks, P1OUT must be XORed with 1 a total of 6 times.

For example:



An XOR is required for each transition from on-off/off-on. During blinking periods, the interval used between WDT interrupts is the time between XORs. This time unit is defined by a global constant INTERRUPT\_UNIT, defined to be 30 interrupts. The intervals for short blinks, long blinks, and pauses are defined by the variables **short\_interval**, **long\_interval**, and **pause\_interval**, respectively. The short pause between SOS characters is equivalent to a **long\_interval** (3 interrupt units).

Once the required number of blinks is reached, the state is changed to the next state. During pauses the interval used is the length of the pause between blinking states. To count down until the next action during a WDT interrupt, the variable **interrupt\_counter** is used to count down the number of interrupts until the next action.

The only hardware used in this homework is the red LED built into the board. This LED is connected to pin P1.0 by a built-in jumper on the LaunchPad.