Block Diagram

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High Level Walk Through

Button checking occurs every clock cycle
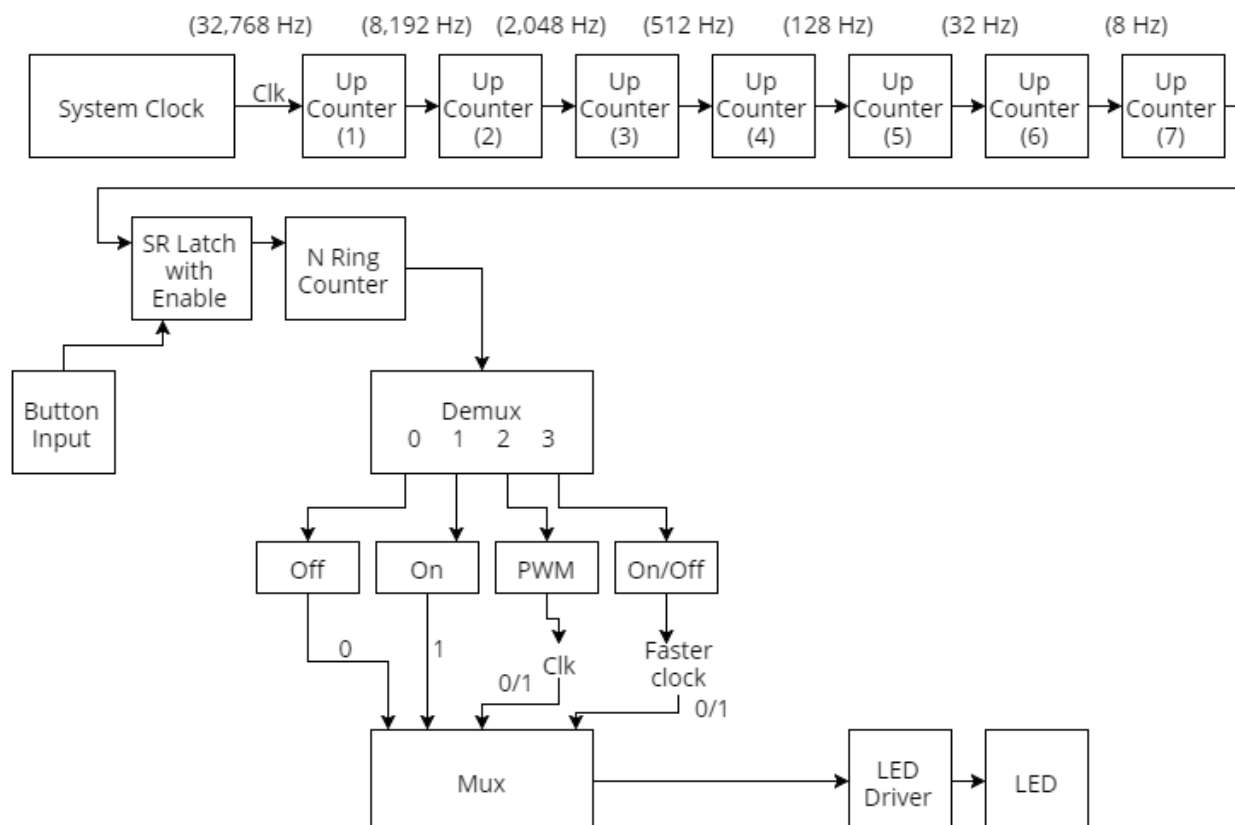User pushes button, debouncing occurs, system says button = on
Set state counter to state counter + 1
Set LED state to corresponding state counter
Repeat

Four Important Pieces

1. Timing
2. Button Push
3. State Select
4. LED Driving

External Resources

Up Counters: http://www.allaboutcircuits.com/textbook/digital/chpt-11/synchronous-counters/

Input Conditioning: https://www.acromag.com/page/signal-conditioning

Debouncing: http://www.ganssle.com/debouncing-pt2.htm