**ENEL 384 Design Lab Report**

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The design I chose is displaying the number of days in a month in a 7-segment display. The startup display shows “384 Proj”. It will remain here until the user flips the start switch (SW15). Switch 0 to 3 determines which month the board will display. Since four switches equates to four bits and there’s only 12 months, I needed something that would produce an error message when the switch is above the number 12. For numbers 13 to 15, the board will display “Error.” At this point, I realized that I forgot about the number zero. So, I configured the zero state to display “Calendar”.

For my birth month, my special output is having half the LEDs to turn on for a moment and then the other half will turn on. I used pwm to turn down the strength of the LEDs. For the 7-segment display, I modified Dave’s code to fit my design. To have each one showing different displays, the counter’s frequency is set fast enough that only one display will be on at that time. Dave’s cathode mux is only configured for four displays so I increased it to eight. I also set up 8 new signals for each position. This way, I can configure each display separately. Leap year is also setup so that February’s output changes from 28 to 29.

Notes:

* SW15 is the start switch.
* SW4 is the leap year switch.
* SW0-3 are the month switch.
* I just realized that there are a lot more months with 31 days instead of 30.
* I wrote a “super secret code” just for fun