**Lab 2**

**Objective:**

- Create a circuit to evaluate switch bouncing
- Create a circuit using a Schmitt trigger that implements switch debouncing
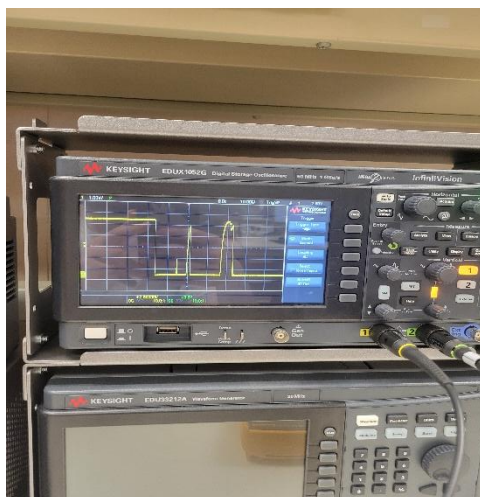- Create an MSP430 program that implements delay-based switch debouncing

**Lab Findings:**

Activity 1:

Using the oscilloscope using only a DIP switch, the oscilloscope shows that the switch is bouncing, reading multiple "low to high to low" blips showing that it is bouncing.
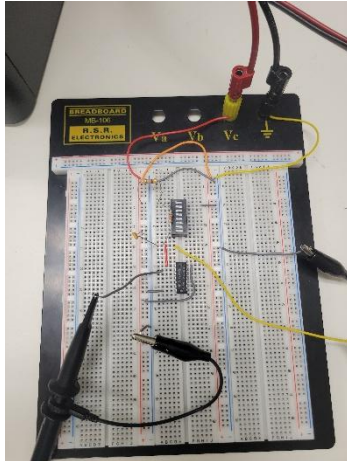
**Model:**
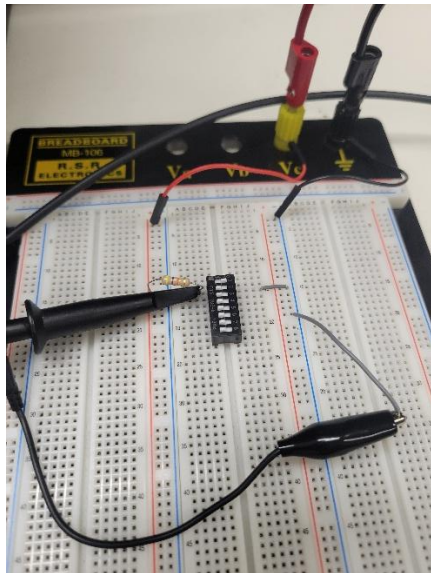


**Observation:**

Our observation on the oscilloscope shows when the switch is flipped, the output detects multiple blips from the input switch, which correctly corresponds with the "bouncing" of the voltages that is observed with mechanical switches.
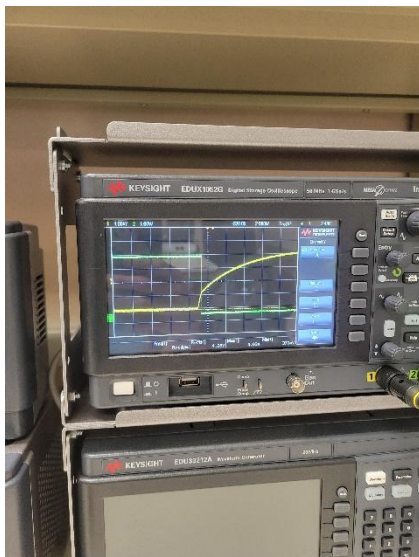
Using a Schmitt trigger to remove the "bouncing" created by the switch being flipped

**Model:**



**Observation:**



The oscilloscope shows that Schmitt trigger filtering out the bouncing showing only one voltage drop rather than a "bouncing" multiple voltage drops. I've also observed on the oscilloscope that the Schmitt trigger flips at 1.66 V. According to the electrical characteristics of the Schmitt trigger chip, at 5 V the

typical value for the Schmitt trigger to activate is 1.6 V which corresponds with the output number shown on the Oscilloscope.