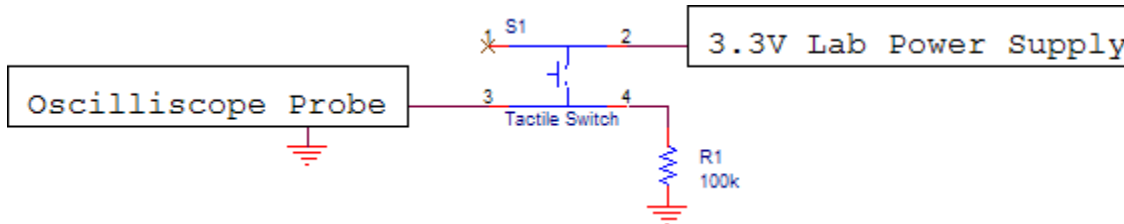


## Switch Bounce (1-16-08) - K.S.

Summary: Signal transitions were observed from our tactile buttons to deem whether switch debounce hardware was necessary. After experimentation, bounce was not observed from the switches, thus no hardware is needed. Additionally, the microcontroller uses a polling routine to observe buttons. If an interrupt based routine was used, switch bounce would be a larger concern.

Hardware Setup:



High to low transition when releasing button was observed using oscilloscope

Oscilloscope Setup:

- 500 us/div
- No Delay
- Single Trigger
  - Trigger Level = 1.125 volts, negative going transition

Experiments

NB - No Bounce Observed

MN - Minimal Noise observed at transition, noise did not produce a full transition from high to low

EXP #1: Button was pressed for 1 second and released

Trial	BUTTON # 1	BUTTON # 2
1	NB	NB
2	NB	MN
3	NB	NB
4	NB	NB
5	NB	NB

EXP #2: Button was tapped quickly

Trial	BUTTON #1	BUTTON #2
1	NB	NB
2	NB	NB
3	NB	NB
4	NB	NB

5	MN	NB
---	----	----