CS 25000 Lab – Lab Safety and Digital Input Signals

Lab 01 – Measurements and Analysis Sheet

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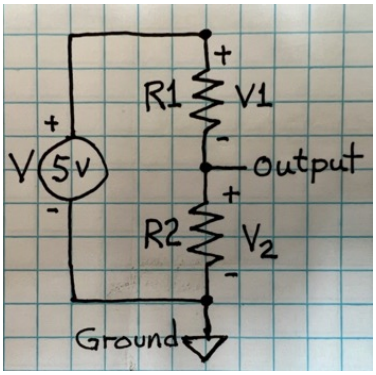
Record your Lab 01 circuit measurements and show your analysis of that data.

Table of Voltage measured between Output and Ground	*Voltage when Button not pushed*	*Voltage when Button is pushed*
Active High circuit	***-0.9***	***3.7***
Active Low circuit	***1.8***	***0***

Measure power supply voltage, V, at the LED leads and record here: 3.7 volts



Voltage at circuit point, Output = V2 = V x (R2 / (R1 + R2)).

Now, disconnect your breadboard from USB power. Make resistance measurements to fill this table.

R1 ohms	*R2 ohms*	*SW1 ohms, no push*	*SW1 ohms, pushed*	*SW2 ohms, no push*	*SW2 ohms, pushed*
9.85	***9.85***	***1.0***	***0.3***	***1.0***	***0.3***

Use your voltage and resistance measurements in the tables above to substitute into the equation for Output (a logic signal). Solve for the OFF and ON voltage values. See if your measurements of Output voltage are reasonably consistent with the equation results.

Output_SW1_OFF = V x (R2/(R1+R2)) = 5 x (9.85/(inf+9.85)) = 0

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Output_SW1_ON = 5 x (9.85/(0+9.85)) = 5

Output_SW2_OFF = 5 x (9.85/(inf+9.85)) = 0

Output_SW2_ON = 5 x (9.85/(0+9.85)) = 5