ECE 319H Lab 2

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Circuit Diagram
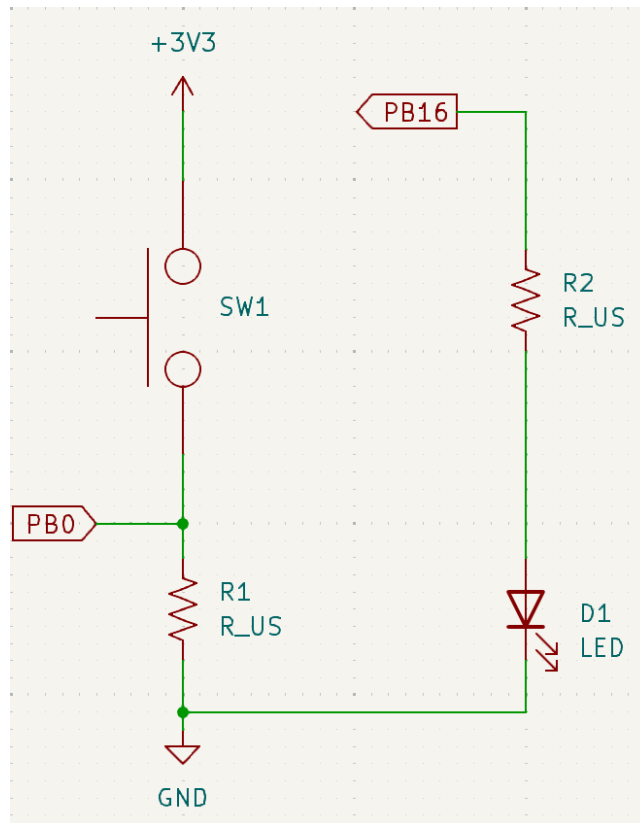

Figure 1: Circuit Diagram of Lab 2 (KiCad)

Estimated LED Voltage and Current

Parameter	Value	Units	Conditions
LED Voltage, V_d	1.7	volts	With switch not pressed (Calculated)
LED Current, I_d	2	mA	With switch not pressed (Calculated)

Table 1: Estimated Table

Switch measurements

Parameter	Value	Units	Conditions
Input Voltage on PB0	0	volts	With switch not pressed (measured with voltmeter)
Resistor current	0	mA	With switch not pressed (measured with ammeter)
Input Voltage on PB0	3.3	volts	With switch pressed (measured with voltmeter)
Resistor current	0.33	mA	With switch pressed (measured with ammeter)

Table 2: Switch measurements

LED Voltage and Current measurements

Parameter	Value	Units	Conditions
LED Voltage, V_d	0	volts	With LED off (measured with voltmeter)
LED Current, I_d	0	mA	With LED off (measured with ammeter)
LED Voltage, V_d	1.762	volts	With LED on (measured with voltmeter)
LED Current, I_d	2.8	mA	With LED on (measured with ammeter)
LED Power, $V_d \times I_d$	4.934	mW	With LED on (multiply two measurements)

Table 3: LED measurements.

Calculated current: $I_d = 20 \cdot V_d - 32 = 20 \cdot 1.762 - 32 = 3.24$

Logic Analyzer Image

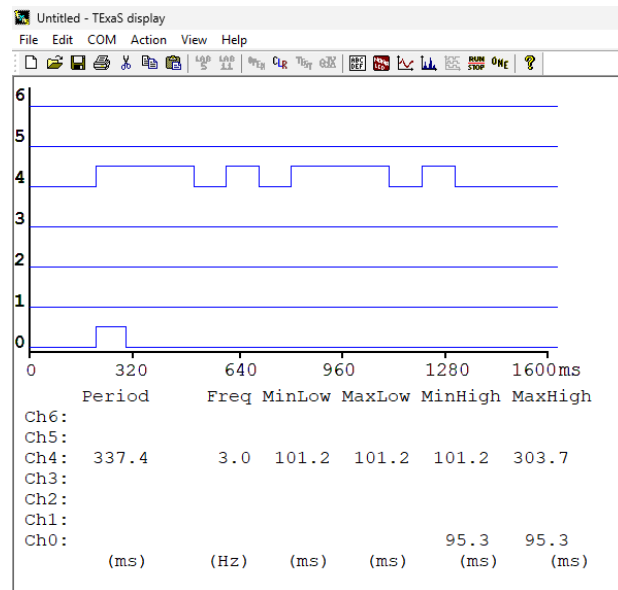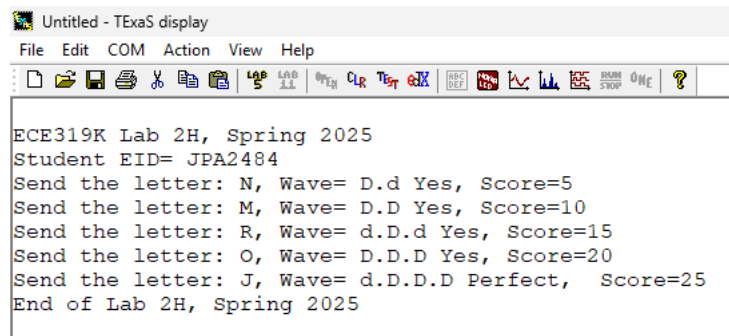Figure 2: Logic Analyzer showing one letter

Terminal window of autograder

Figure 3: Complete Autograder for Lab 2H