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Lab 02 Report

ECE 2031 L10

10 September 2024

A graph with numbers and symbols

Description automatically generated with medium confidence

**Figure 1.** Karnaugh Map of “F” including three essential prime implicants. The derived Sum of Products expression is .

A diagram of a lab

Description automatically generated

**Figure 2.** Schematic that implements the expression using 74HCT00N NAND gate, SN74LS04N inverter, and SN74LS20N quad input NAND gate.

A white electronic board with wires and wires

Description automatically generated

**Figure 3.** Physical circuit implementation of schematic (shown above) with 4 position DIP switch to drive inputs. Breadboard is powered with 5V from DE10 board (wires going out on left). LED (right) used as an indicator for analyzing signals.

**A screen shot of a graph

Description automatically generated**

**Figure 4.** Screen capture of oscilloscope showing clean square waves on both channels indicating the probes are working.