Lab 2

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Prelab:

Diagram, schematic

Description automatically generated

Diagram

Description automatically generatedTimeline

Description automatically generatedDiagram, timeline

Description automatically generated with medium confidence

Purpose:

The purpose of lab 2 was to further acquaint ourselves to the tools of the lab(Multism and the breadboard) by making two level form circuits.

Lab Procedure:

We started the lab by using Multism to simulate our two level form circuits. We used the Word Generator that was set to an internal clocking frequency of 1KHz, an initial address of 0000, a final address of 000F, and a pattern that counted up. We also used the Logic Analyzer that was set to the same internal clocking frequency as the Word Generator and clocks per division to 2, then we connected the Word Generator to the Logic Analyzer with two inverters, three AND gates, and two OR gates for the first circuit and then two inverters, three OR gates, and two AND gates for the second circuit.

For the second part of the experiment, we used the breadboard, a hex inverter, two OR gates, two AND gates, wires, and LEDs to make both of the circuits(the LEDs were used to see the outputs of the circuits with a high output being LED on and a low output being LED off)

Multism screenshot-

Graphical user interface, application

Description automatically generated

Breadboard circuit-

A picture containing text, electronics

Description automatically generated

A picture containing text, electronics, circuit

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Conclusion:

In this lab, we further acquainted ourselves with Multism and the breadboard by making two level form circuits. The results of this lab proved that for the input combinations 0001, 0011, 1000, 1001, 1011, 1100, 1101, and 1111, there was a high output and for every other combination there was a low output. Even though the AND and OR gates were flipped across both circuits, they both had the same results for every input combination.

Finally, I believe physically constructing a circuit is more beneficial to my learning experience.

Observations:

The main observation I have to improve my performance on future experiments is just to keep making circuits by hand to get better at it and to always make sure I have everything plugged in correctly.