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Logic and Design

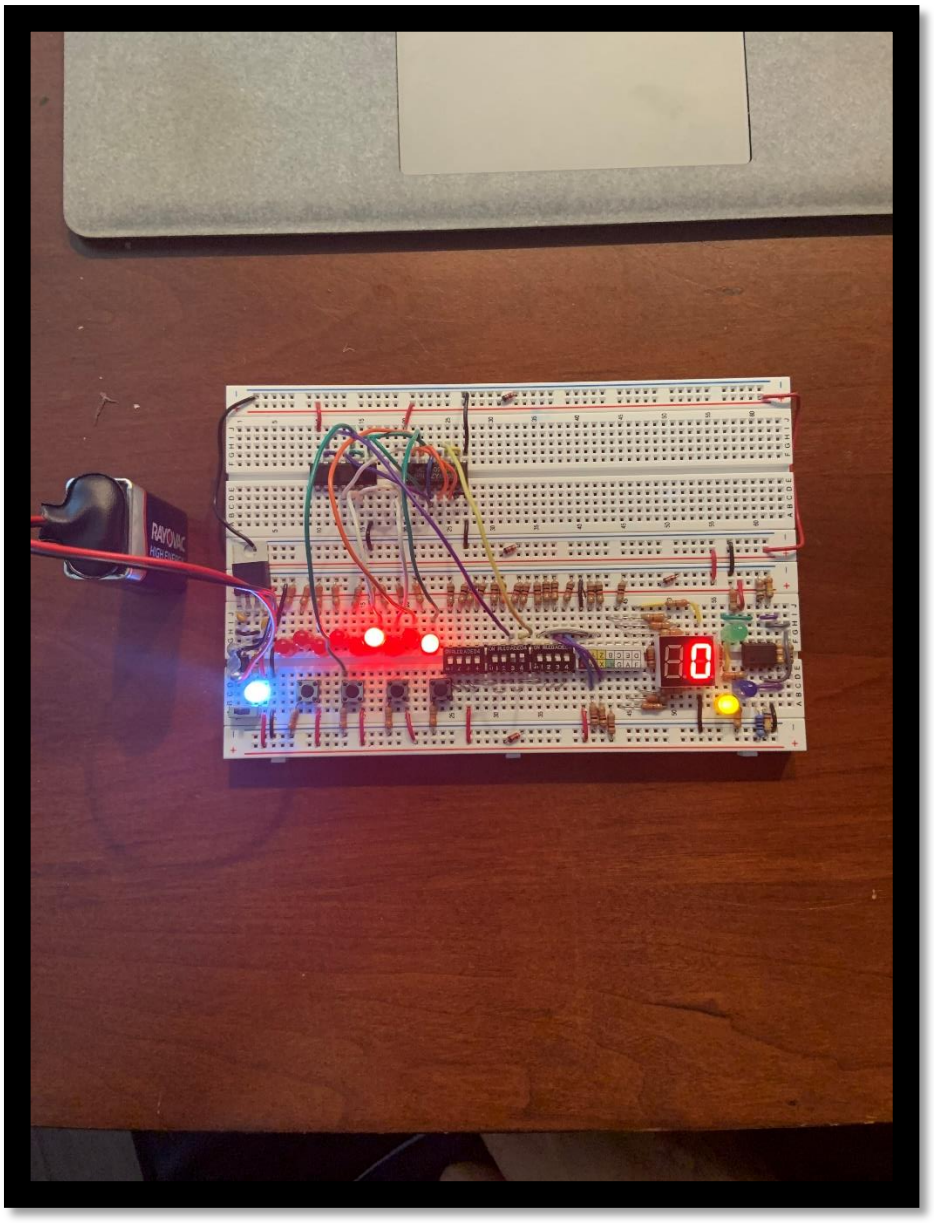
Lab 4

Quartus II

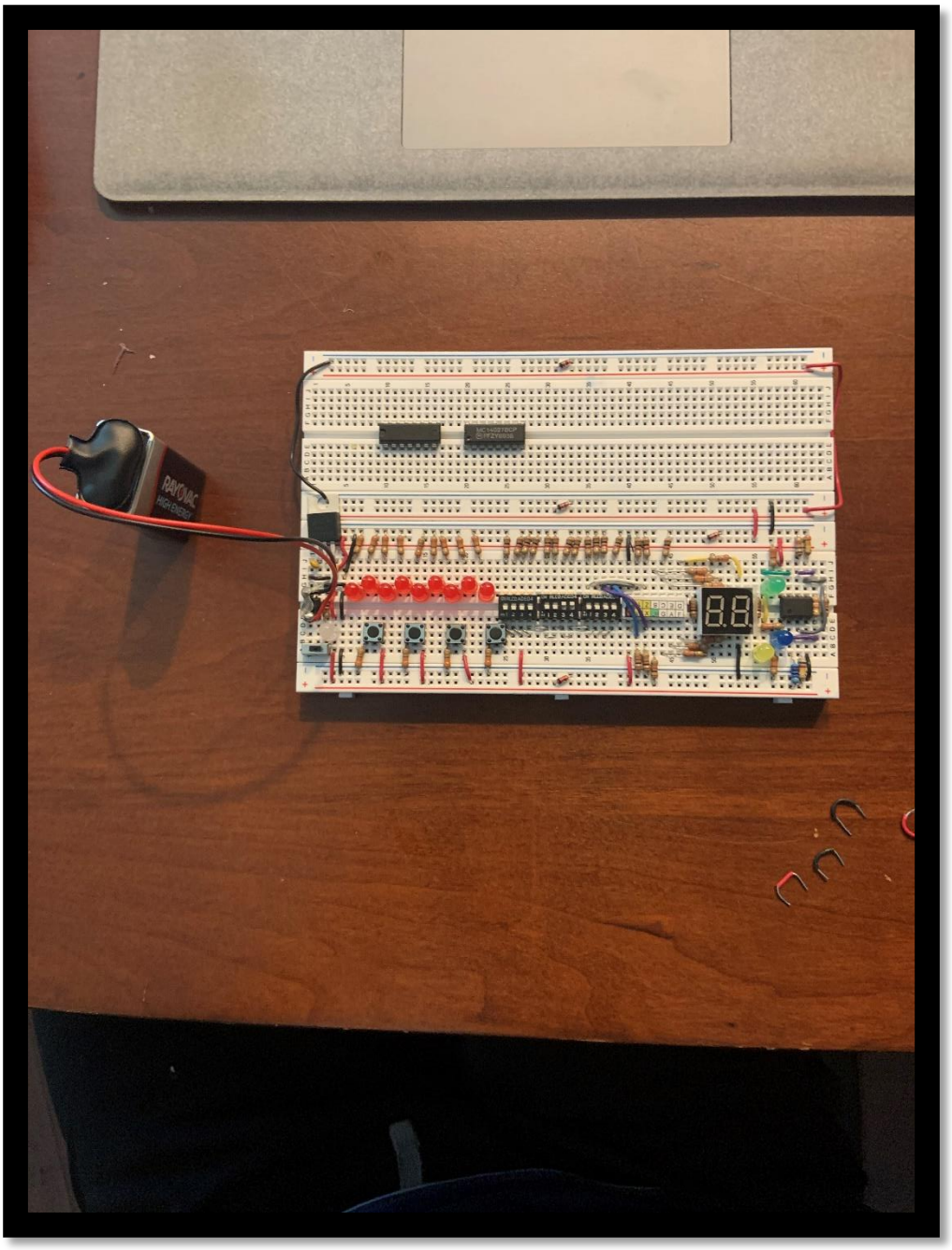
Click on the pdf picture to look at course work

Lab4.pdf

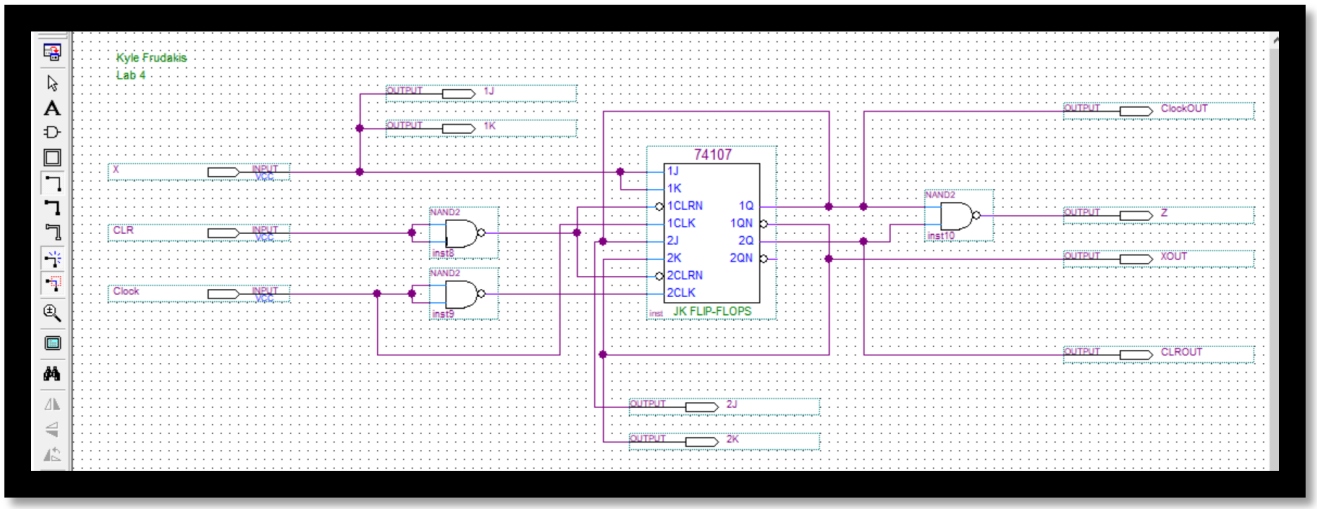
Here is my breadboard with the wiring for lab 4. I used a 7400 NAND chip along with the famous 4027 JK chip. Building this required a lot of understanding of what I am even doing. To simulate the clock, I used a button to do that.
From left to right on the LEDs: Z, Q_2, Q_1, X



Here is a picture of just the chips and no wiring. This circuit was very cost efficient.



Using Quartus II, I was able to test my circuit and show multiple outputs. The only ones that really matter are the OUT outputs. The rest are merely to explain how things happen within the circuit. Quartus does not have the 4027 chip so I utilized the 74107 which has a "reset" instead of "clear".



This is the waveform from Quartus II. This gives a visual of what is going on in the circuit. The value of X is the same as 1J and 1K (observe circuit above)