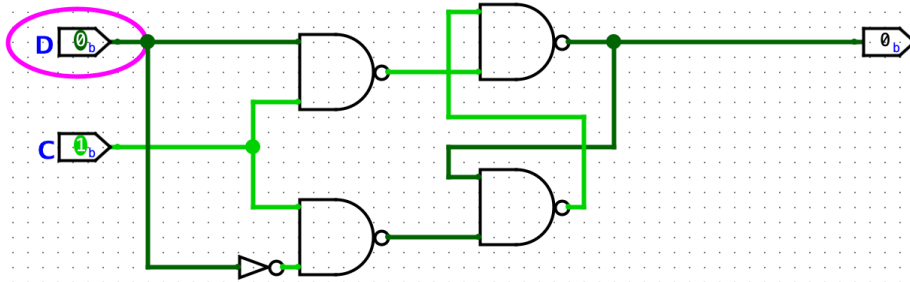# Lab 3
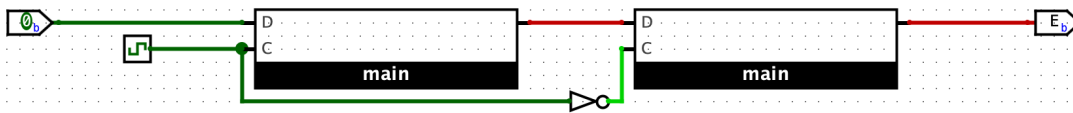Matthew Peterka 131008310

Problem 1.

First is the D-Latch:
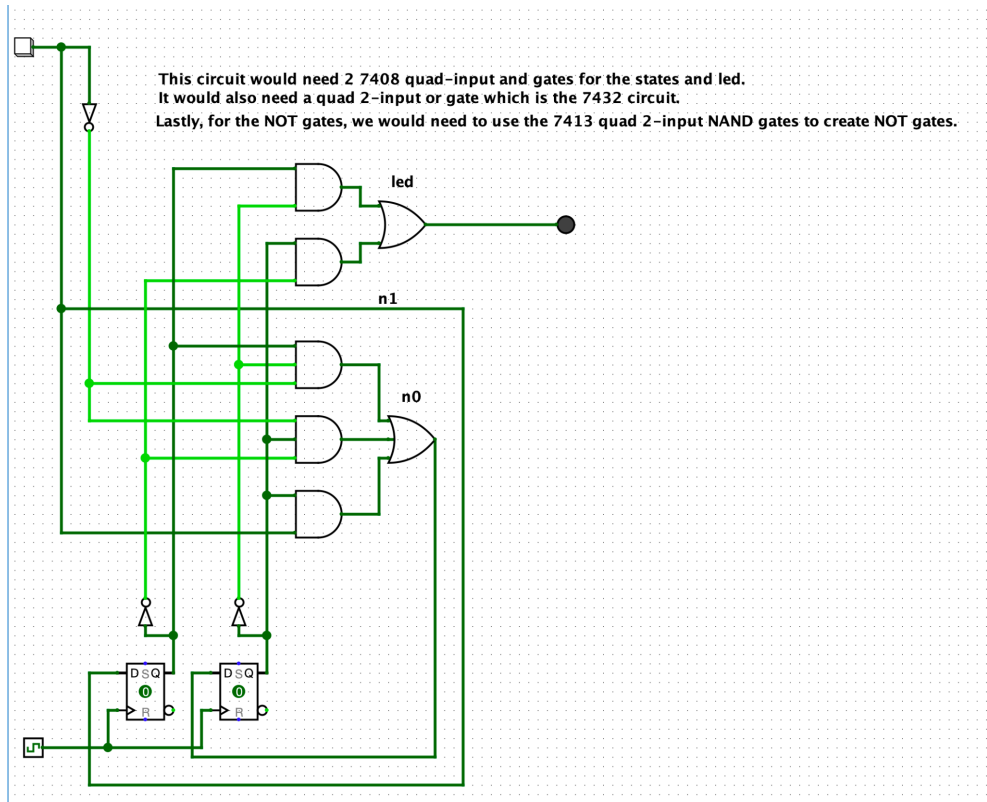
Next combining two D-Latches we get a D-Flip Flop:
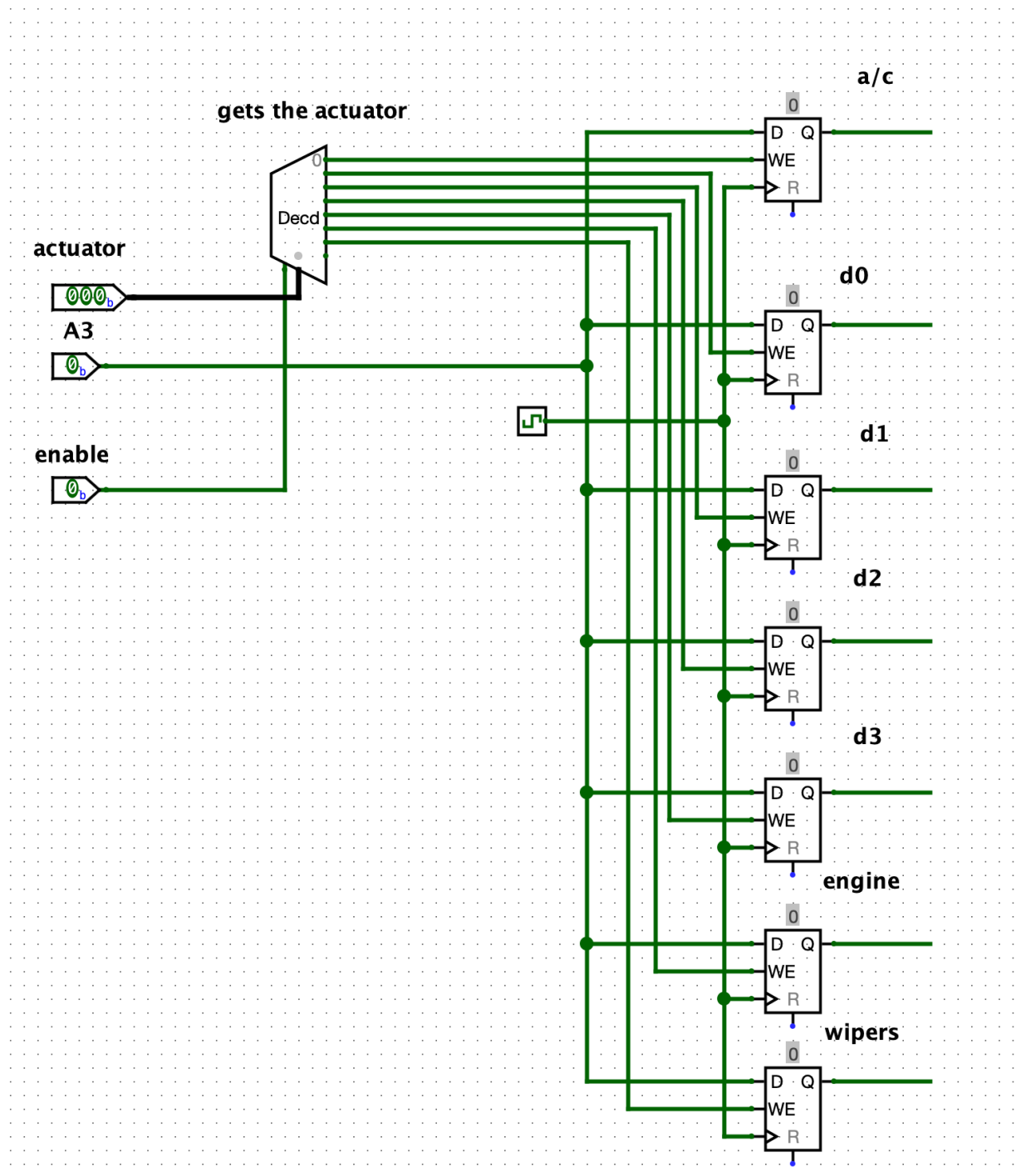
Problem 2.

    a. What is the meaning of "SPST" and "NO" in the context of electro-mechanical switches?

        i.   "NO" stands for normally open meaning the switch starts at the open state. "SPST stands for single pole single throw which means that is has two different positions, one being open and one being closed which can provide a sort of an on/off switch.

    b. Logic Circuit:

This circuit would need 2 7408 quad-input and gates for the states and led.
It would also need a quad 2-input or gate which is the 7432 circuit.
Lastly, for the NOT gates, we would need to use the 7413 quad 2-input NAND gates to create NOT gates.

led

n1

n0

Problem 3.
  a. Logic Circuit:

b. Timing Diagram: