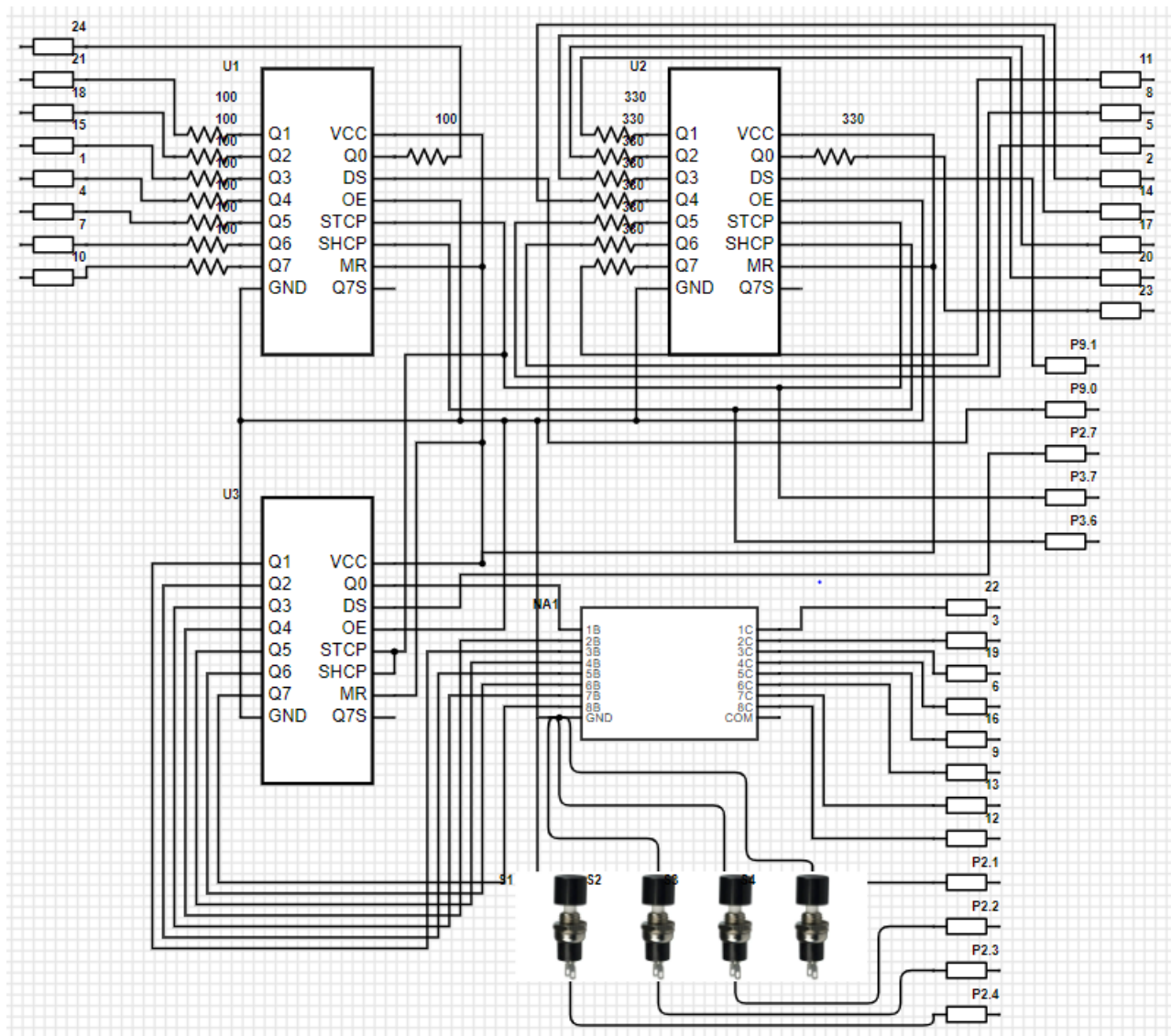


Kevin Tavara  
ECE-447-201  
04.06.2021

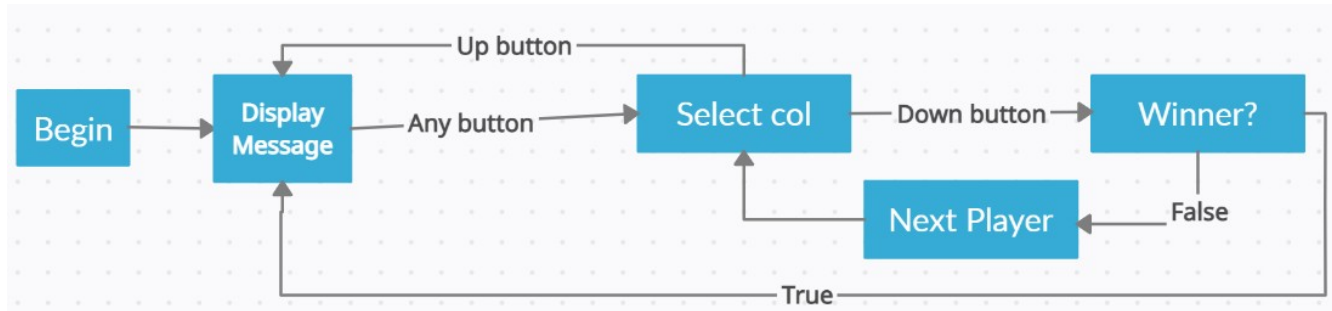
### Lab 5: Connect Four

**Introduction:** The purpose of this lab is to implement a connect four game on the LED matrix. The idea is that 4 buttons will control the game, one to end your turn, two to pick which column to put your piece in and one to drop that piece in place.

**Hardware Design:** I could not locate a footprint for the led matrix or buttons, I used several resistors set to the number of the pin to visualize the connections and I used resistors to visualize the pins on the MSP430 I hope this is acceptable and what you were looking for. As for the button I used resistors to visualize how they connect to the MSP430.



## Software Design:



**Conclusions:** I did not get the game to run unfortunately what I particular struggled with was changing 1 of the bits stored in the red and green players matrices I wanted to do something that would alter the one bit while leaving the rest as they were but it would either clear the matrix or not show no output.

## Questions:

- 1) For lab 5 I easily spent around 14+ hours on.
- 2) For labs 2-5 I probably spent 26+ hours on.
- 3) I want to say the LED matrix but honestly it's the poor examples provided in class, these examples only represent the simplest of cases and are almost of no use in most of the labs. The difficult part is the code and logic that isn't being taught well enough, not enough time in class is provided to go over complex code examples on the simple cases.
- 4) It would have been worth the effort really could not get this one to work, I'd like to see a solution if possible after the lab can no longer be turned in.
- 5) The labs were not very helpful for the midterm because the focus of the lab is always on 1 particular case. For example lab 4 focused on timers but I learned little to nothing about timers from the lab. On the midterm there were computations for timers, but in the lab 4 there was little need for computation because you were literally told to set divider to 1, set to continuous mode, set to set/reset mode. Like there was no thought process going into simply following instructions I'm not sure how the labs could be changed to be more helpful though.

**Demo Video:** <https://youtu.be/ZekDfs7vnvw>