ENEL599 Final Project Changelog

# Premise

I decided to make a pong gaming system using an LED display panel. The Arduino will output its display to a 32x16 p10-8s RGB LED panel. Player input can be gathered using two potentiometers which map their turn range to the paddle position for that player. Scored should be output to two 7-segment displays. A speaker or buzzer should beep when the ball hits a panel or goes out of bounds.

## Parts list

* RGB LED Panel P10-8s
* Arduino nano for panel driving
* Second Arduino for game simulation, player IO.
* 2x 7-segment display
* Shift register
* 5V 20W power supply.
* 2x 10kr Potentiometers with knobs

## Panel Driver Prototyping

After attempting to interact with the shift-registers in the display panel I decided that I would not have enough time to write my own driver code at this stage. I decided to use the Adafruit LEDMatrix library to drive the panel.

My initial prototype used a breadboard to connect the Arduino to the LED panel but encountering some instability issues I decided to move this section to a soldered prototyping board to eliminate inconsistent connections.

I ran a test to check if the line-select wires were incorrectly connected by lighting up each row of the display in order. I noticed some lines lighting up in the incorrect order so I swapped the line select pins in software, this resolves my image distortion.

## 7-Segent Display Prototyping

To display the scores, I wanted to use 7-segment displays driven by shift registers to minimize pin use on my Arduino. Using a second Arduino I wired up two displays, one for each shift register and chained the registers together.

After correcting some misplaced wires I was able to display numbers on the displays by mapping segment on/off states to bits in a byte and shifting this byte out into the registers.