My goal in this project was to build a fully functional pong-game using only primitive digital circuitry. I achieved this by building useful and compact integrated circuits and wiring complex strands of wires into simple and organized systems. I divided my project's functionality into several parts including display, controls, paddle logic, ball logic, directional logic, and collisions, which are all labeled accordingly. I was able divide a complex idea into several simple parts. Overall, I believe that my system is readable and flexible and hopefully to some, fun.

The key component of my project was my homemade 6p-Incrementer. This integrated circuit’s job was to act as a sort of for-loop by incrementing up or down a set of outputs. I achieved this through several SR-Flip-Flops that were daisy-chained together. This circuit is used in my paddle logic as well as in my ball logic.

My screen consists of several LCDs packed together and is controlled by external logic. The ball logic was constructed using two of my 6p-switchers, and a series of and-gates, each representing an LCD. The ball coordinates are mapped on an x-y coordinate system. All of the ball logic is controlled through direction pointing systems which are directed also by collision systems that utilize some randomization.

The paddle system is a much simpler system that utilized one 6p-switcher and basic user-input. This system is also mapped to the collisions system.