Once a Klaviyo, Always a Klaviyo

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Everyone moves on. Itâ€™s how you and I both got to where we work right this minute. Even though itâ€™s exciting to jump into a new gig, we leave behind friends, routines, lunch spots, things that are important to us, things that will be missed. Everyone moves on, but weâ€™ll come back to that. Right now though, I want to talk to you about **the Finger Game** and the role it has played in building and maintaining an engineering team.

Drinking culture at startups can be controversial, but done responsibly, it doesnâ€™t have to be. At Klaviyo, wrapping up the day with a cold beer has always been a component of our Friday wind-down-and-dip-into-the-weekend meeting called â€œBy the Numbersâ€ (as in, here is what happened last week at Klaviyo expressed numerically). After each team spends a few minutes sharing the things they built the week prior and our CEO steps up and sends us all off with a story from the week and a â€œHave a great weekend!â€, 3/4 of the crew filters out and heads home to start the weekend. That remaining 1/4 that stays though continues closing the books on a week of hard work by playing tabletop games, some Smash Bros., you get the idea. Occasionally though, one member of the team, weâ€™ll call him Justin, would propose playing the Finger Game.

Anyone who hasnâ€™t played this game might steer clear of it just based on its name, but its actually pretty innocuous. At its core, the Finger Game (or Fingers) is an elimination style game played with a cup that each player places a single finger on. If it is your turn, you count down from 3 and on the mark say a number between 0 and the number of total players. Simultaneously, all other players make a decision to keep their finger on the cup or remove it. If the number of players who kept their fingers on the cup match the number you guessed, you are out and â€œwinâ€�, then the next person goes. Thats it. Justin really likes this game, and is well known for his raucous celebration when he is able to peer into all the other playerâ€™s hearts and minds and guess their move correctly.

This is a lot said in an engineering blog post about **the Finger Game**, and doesnâ€™t really explain anything about building out an engineering team. So whatâ€™s up with this game youâ€™re probably thinking? Well, Justin sadly one day decided to pack up and move on to a new job that he was really excited to grow into. The job was in Seattle, Washington. Klaviyo HQ is in Boston, Massachusetts. Our entire team was excited for him, but it was a bittersweet time. Everyone moves on. About a year later we had a surprise for him though.

Some of the crew at Klaviyo shook the rust off of the same muscles that they used at the Boston Stupid Shit No One Needs & Terrible Ideas Hackathon and built a way to play **the Finger Game** with Justin from across the continent. One afternoon, we scheduled some time with Justin, sent him a shady link to a Heroku hobbyist Dyno, and started a video conference. Once Justin realized what we had made, he was thrilled and ready to play a round of the Finger Game before returning to work, since he was 3 hours earlier in his day than everyone at Klaviyo, and not ready to check

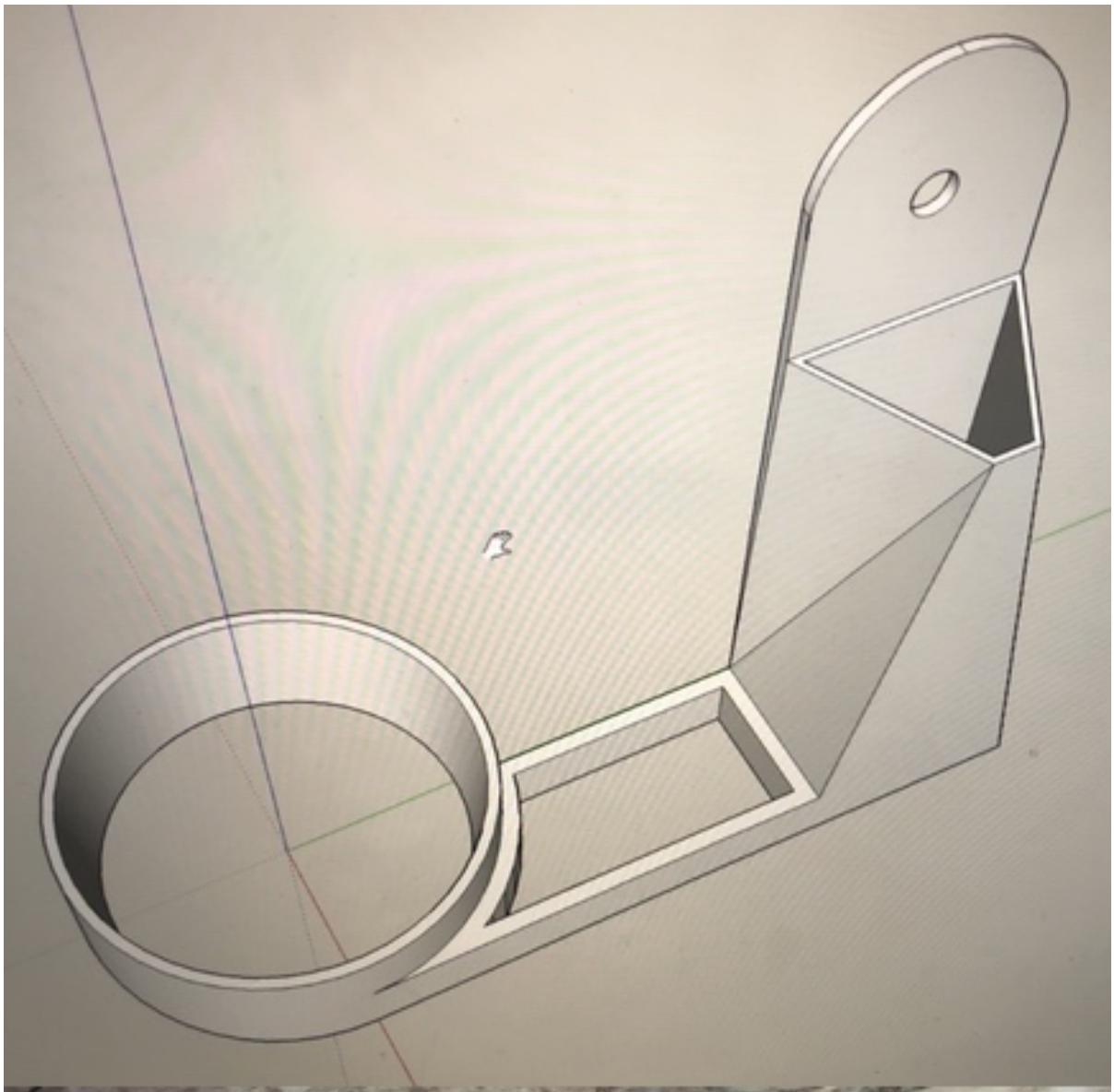
out for the weekend like the rest of us. Justin opened the link, the app connected to the hardware, and a giggle shot out of the Boston MacBookâ€™s speakers as Justin clicked his touchpad in Seattle and the tiny hand in Boston touched the rim of the cup that we all had our fingers on!

Notice the latency on the robot finger raise.

It worked surprisingly well for a freely hosted node.js app that relayed WebSocket requests between a browser and a USB connected Arduino that were 3,000 miles apart.

The whole [**Remote**] Finger Game consists of three main parts:

- A React web application that enables a remote player to issue commands to the analog finger.
- A node.js web application running in Heroku that is responsible for serving the browser based application as well as a messaging broker that utilizes WebSockets.
- An Arduino, NEMA17 stepper motor, and a 3D printed case / prosthetic to receive the client commands and touch the cup with the analog finger.



A SketchUp model and resulting 3D printed version.