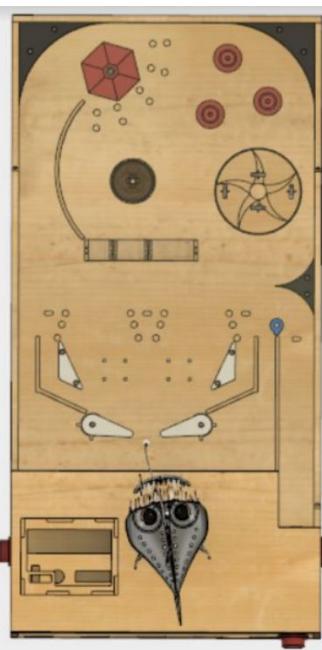
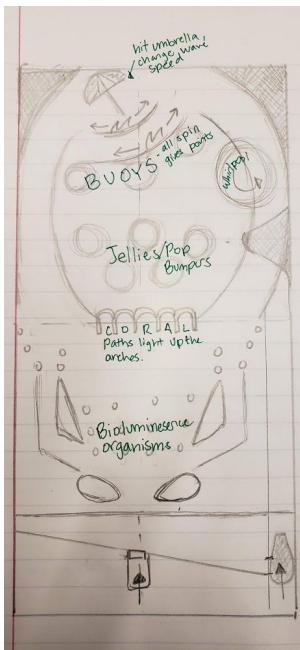
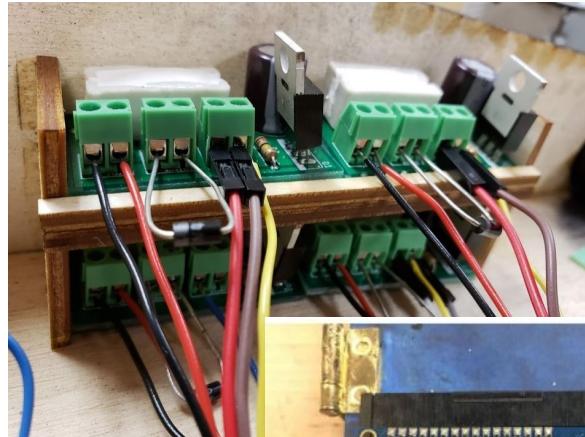


Pinball Machine

Laser Cutter, 3D Printer - June 2017

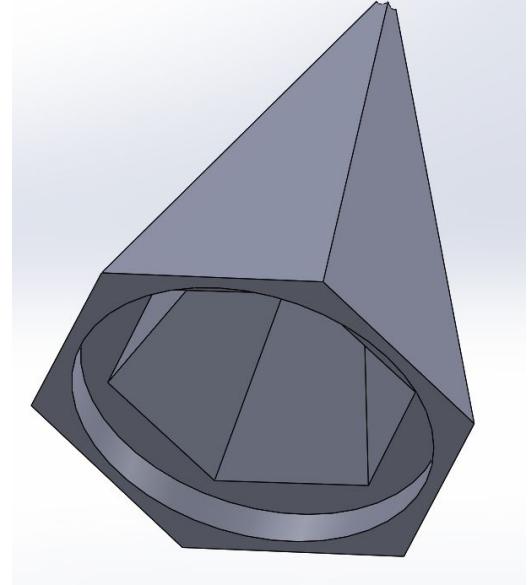
In this class we worked in partner groups to build a system in a rapid prototyping environment. For this project, we built around a deep sea theme implementing components that can be found in a pinball machine. My role in this project was modeling the system as a whole in Autodesk Fusion, and making sure components my partner and I built fit. These included the fittings for our PCBs (printed circuit board), Arduino, AC power brick, and components hidden in our lower frame. We planned out our playfield on paper, built a cardboard mock up, and prototyped components to ensure everything fit together.



Sims Simulator

<https://youtu.be/AzQp61fmH00> - March 2017

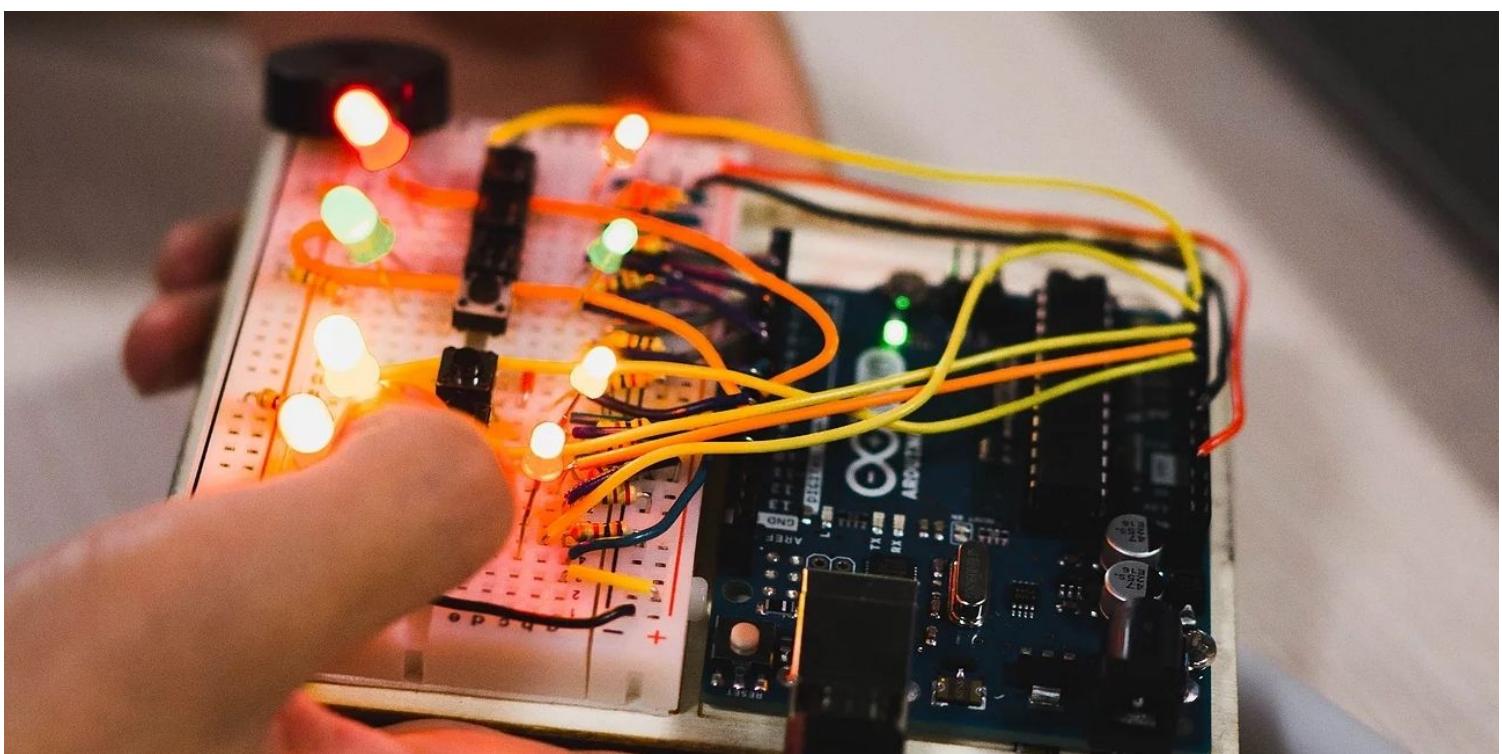
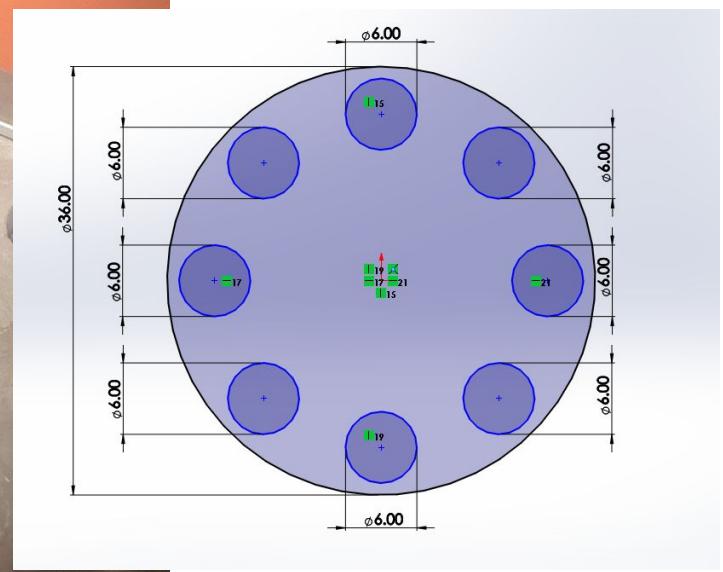
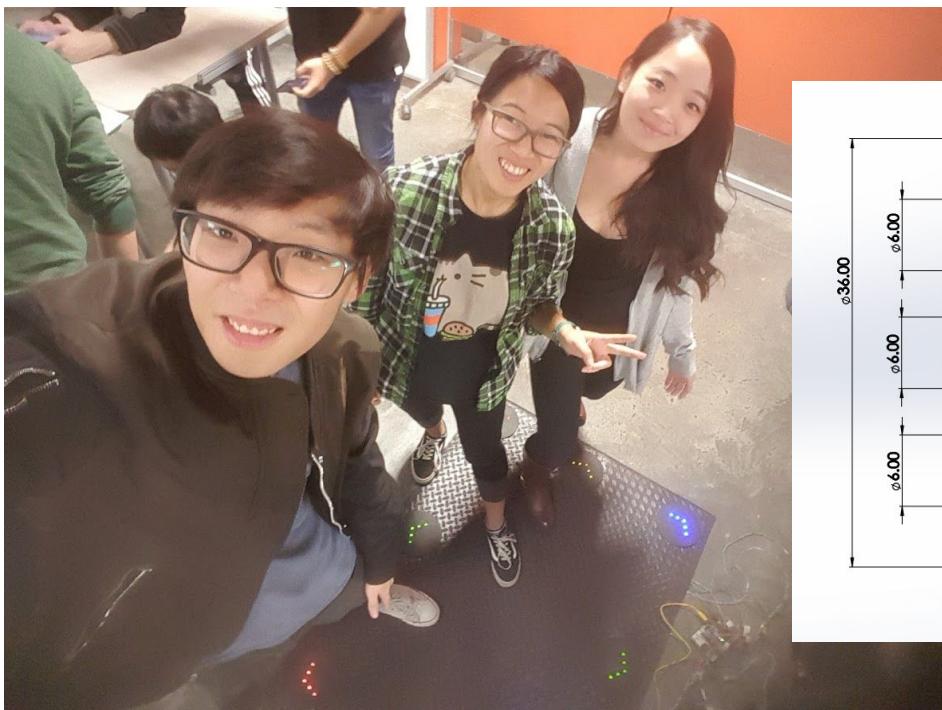
The purpose of this project was to bring the game Sims into a physical space to challenge the narrative of technology controlling our every actions. The plumbob (head attachment) was modeled in Solidworks and has an insert on each half for the LED ring lights. It is held into place with a headband that is hidden in my hair for the duration of the performance. The command unit is controlled with an Arduino which has commands such as "say hi" or "eat food" and each LED is representative of my individual "needs" the program is accounting for when weighing actions.



Ultimate Spider Spider Revolution

<https://vis147a.wixsite.com/spiderrevolution> - December 2017

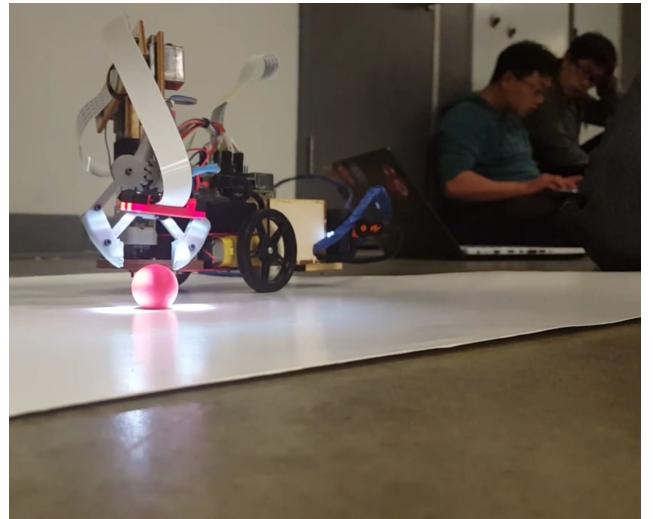
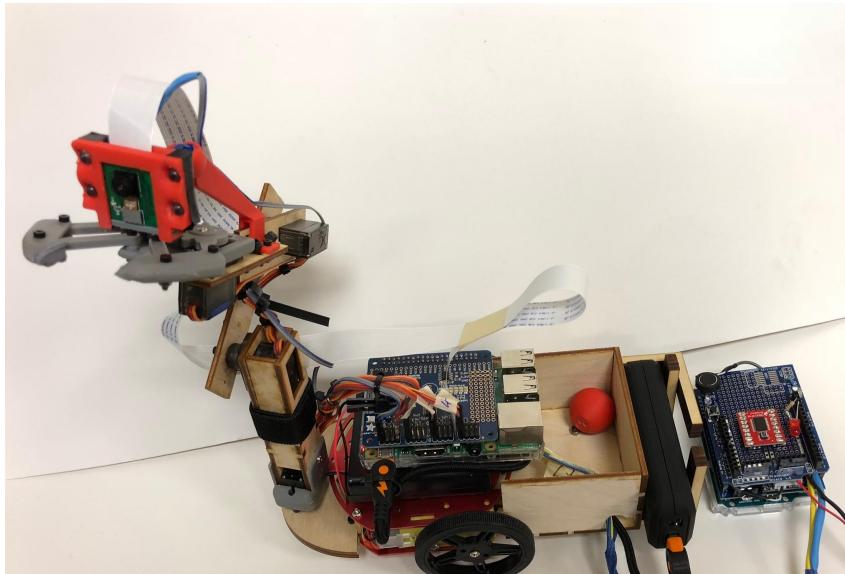
The purpose of this project was to build a toy for a child audience, where my team and I took inspiration from Dance Dance Revolution to create a product that encouraged movement in play. To play this game, one of the steps on our dance mat would light up randomly and would only turn off when pressed. My primary role was the implementation of Arduino to our electrical components. The steps were laser cut to fit the LEDs in flush with the surface of the $\frac{1}{4}$ " wood. As a team we assembled the LEDs in parallel, built our physical switch, and wired together our system.



Project A.R.A. (Automated Robotic Arm)

Laser Cutter, 3D Printer - December 2017

The purpose of this project was to build a robotic arm that would use technologies in image recognition and voice recognition. The project expands on smaller projects learned in the class, the robotic arm and OpenCV. Through voice recognition, the robotic arm could move along the cardinal directions. When it detects the target shape, it would pick up the object and store the object in its chassis. My role in this team was using Solidworks to build the camera mount that housed LEDs to help contrast our target object against flat surfaces. In addition, I worked with an Arduino to implement voice recognition and a demonstration could be seen [here](#).

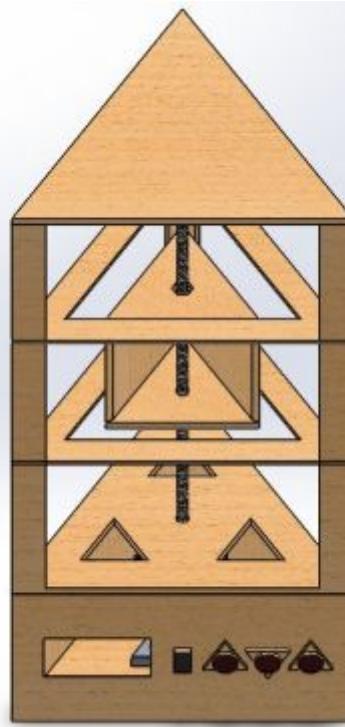
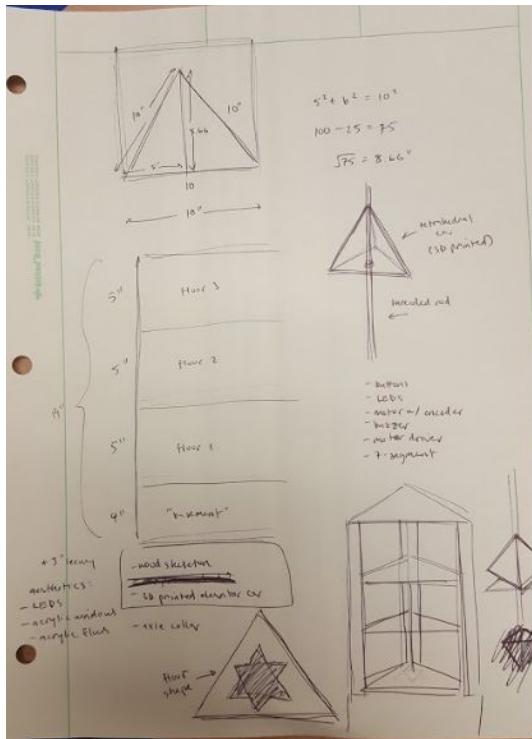
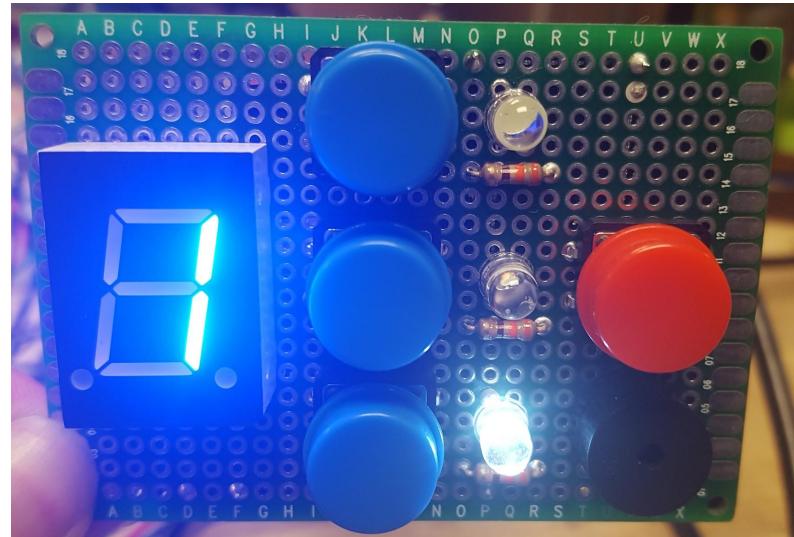
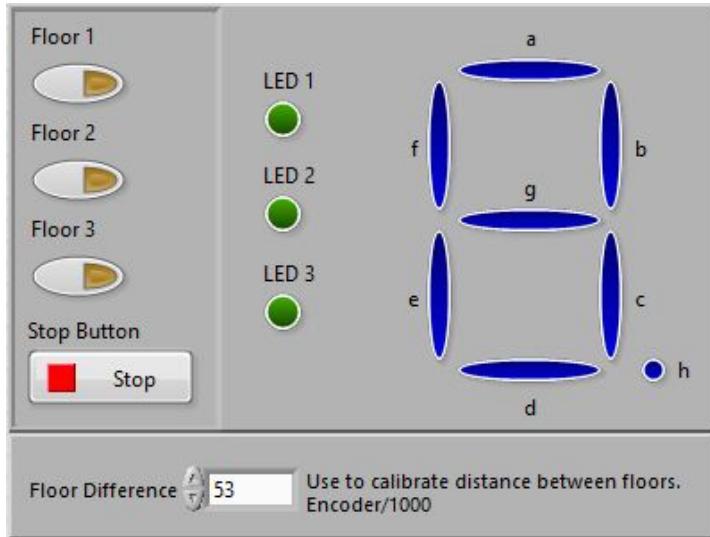


```
radius is 49.1002979120
----- 12 -- 6328.0 -----
ball detected
#? 12
area? 6328.0
y-axis: 335
x-axis: 407
radius is 49.1139526367
----- 11 -- 6246.0 -----
ball detected
#? 11
area? 6246.0
y-axis: 333
x-axis: 400
radius is 48.7298812866
----- 12 -- 6171.0 -----
ball detected
#? 12
area? 6171.0
y-axis: 333
x-axis: 402
```

Prototype Elevator

Laser Cutter, 3D Printer - December 2017

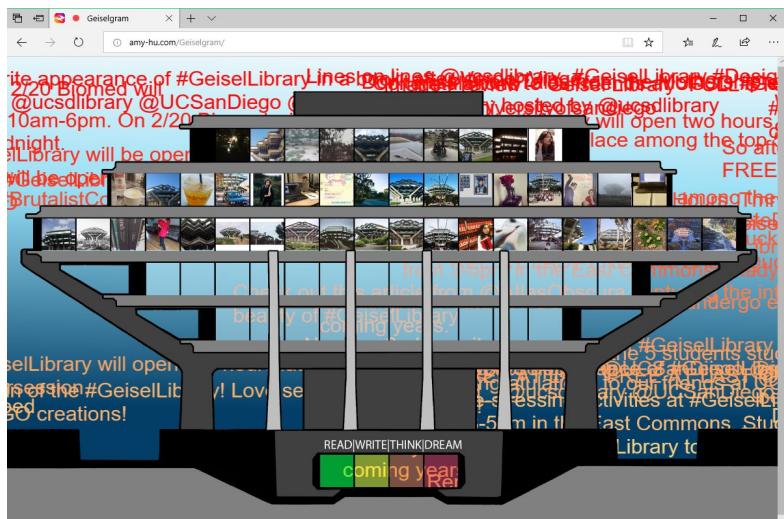
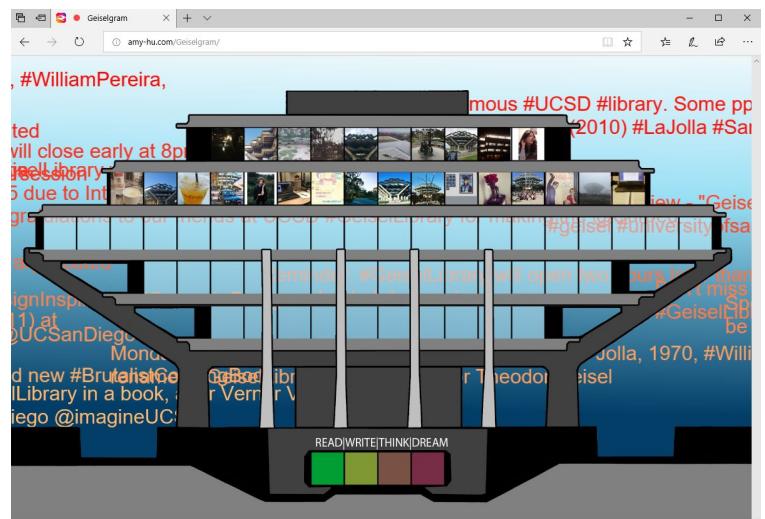
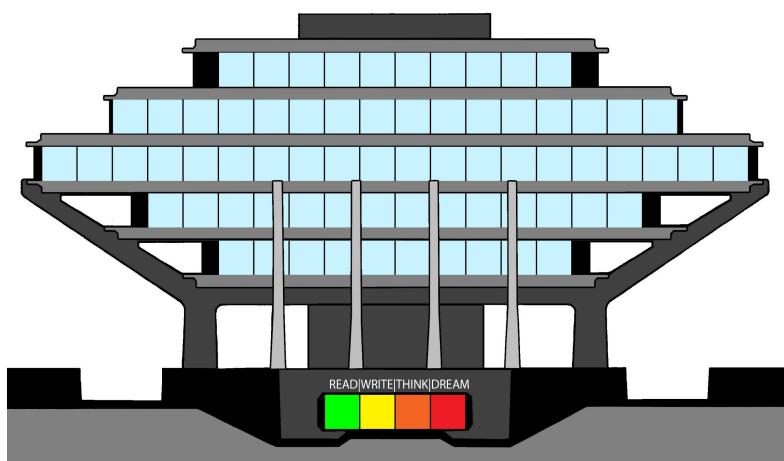
The Prototype Elevator was a team project where we modeled an elevator in Solidworks, built the design, and programed the cart in LabVIEW. My primary role was programming a solid state machine to determine which floor our cart was on and how our cart would move to the different floors dependent on where it is located. The design features a threaded rod to help with the stability of our cart and a triangular prism shape. In this project, we built a digital interface during the initial programming phase to simulate and implement each piece of our hardware into our final system.



Geiselgram

<http://amy-hu.com/Geiselgram/> - March 2017

Geisel Library is where many UC San Diego students go to study and complete their assignments. In this project I wanted to challenge the idea of how one interacts and sees a library space. As information is more readily available in digital formats, libraries become places where students meet with each other to study and socialize. The outline of Geisel was drawn in Photoshop. Through the use of HTML / CSS / Javascript, the program runs Twitter posts across the screen dependent on the microphone input of the device. In addition to that, the program will fill the windows of the library from top to bottom with photos from Instagram, as floors are less noisy the higher the level.



Mastery

Card Game - June 2014

Mastery is a card game developed in a partner team that was themed on the idea of school. We used ideas in game theory to build the game around our theme. My role in this project was designing the aesthetic of the game through Photoshop and learning how to use the software as a tool for my future projects. We showcased our project through playtesting with teachers and students at our school.

