

Desert Disturbances

October 29, 2015 | David Utt

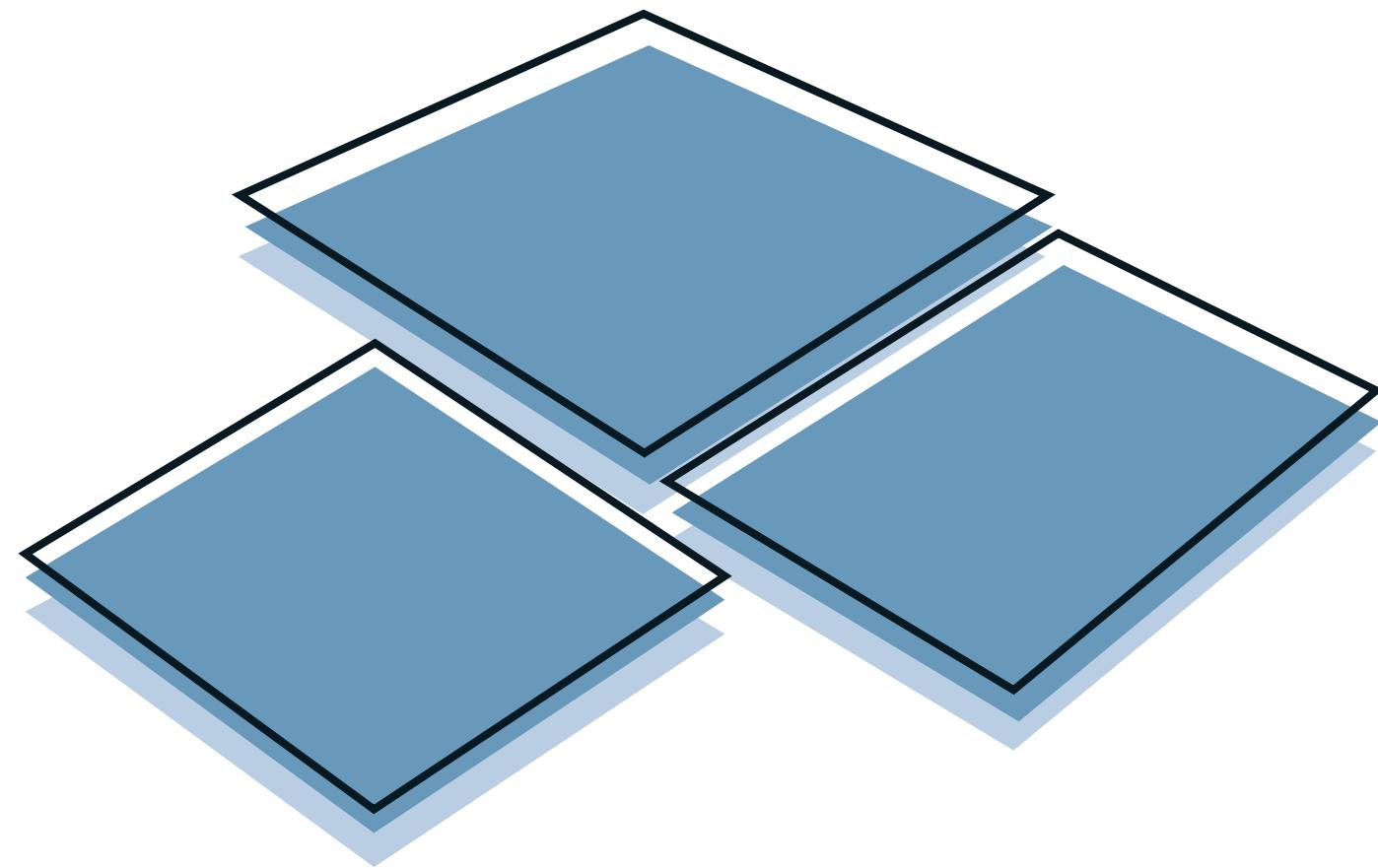
III Problems

I find that people in their day to day life underestimate the influence of their actions, even the simplest of choices can have strong impacts on the space around us. This is especially true with our relationship with the environment.

III Project Statement

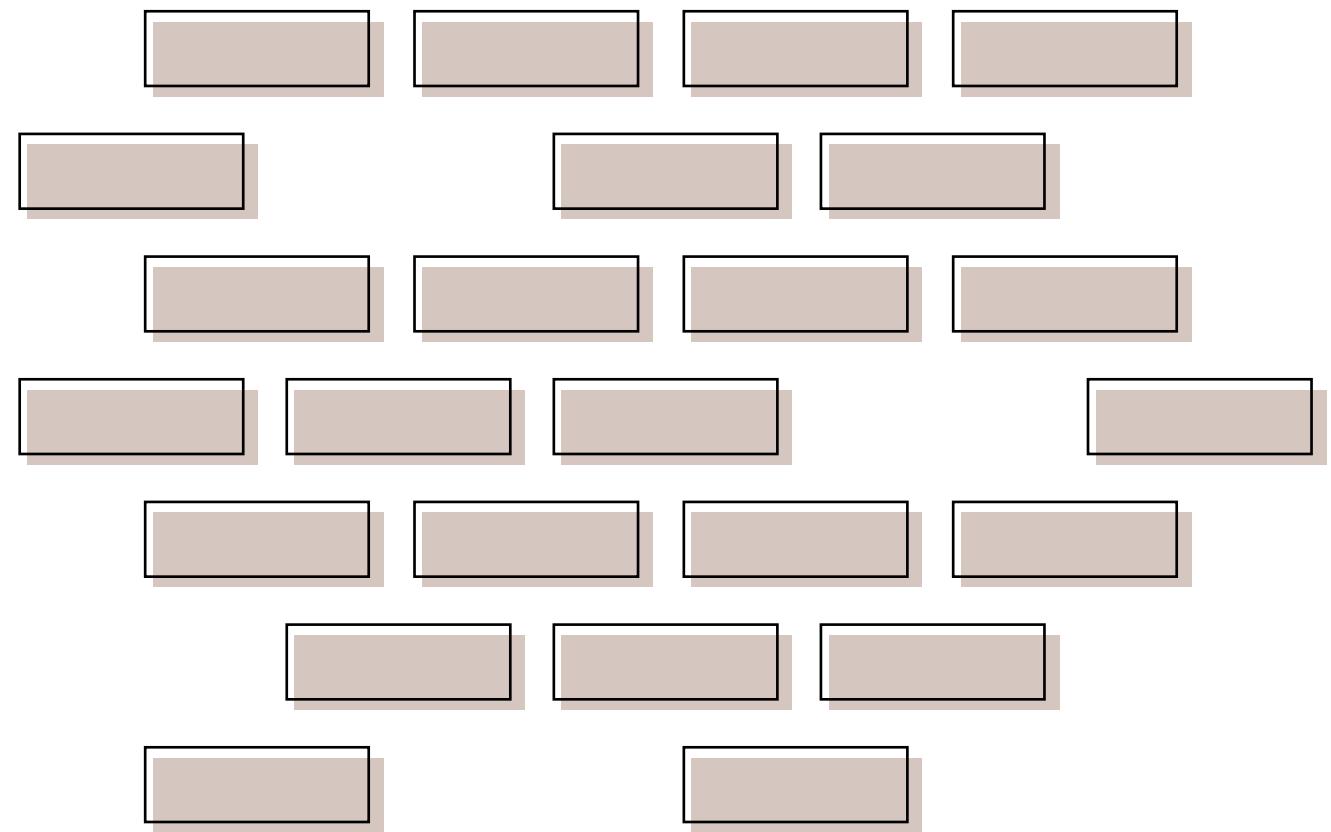
To increase people's mindfullness of this relationship. I'm developing an installation space for families where they interact in a dynamic nature experience. The space highlights people's interactions with nature and amplifies people's effect on space.

III Goals



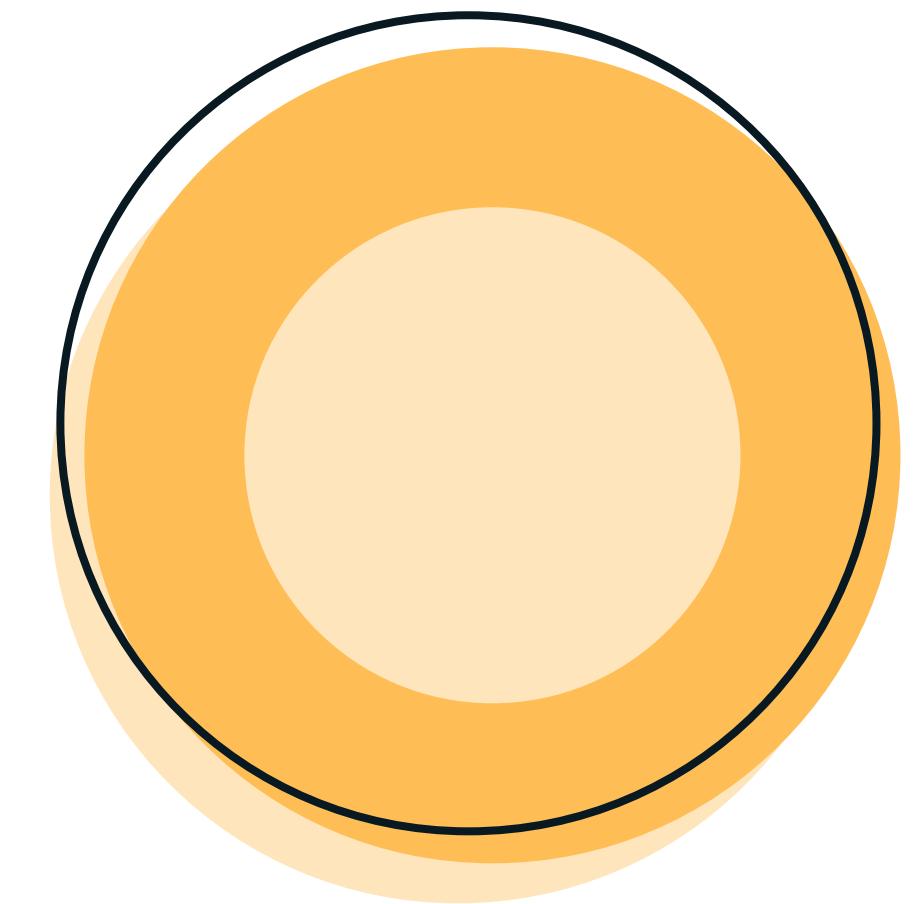
Engagement

Keeping the engagement to a unique set of capacitive panels will promote a new type of user engagement and will hopefully push users to discover what will be causing the changes



Sustainment

To promote new users and project worth it should be able to sustain itself without interaction. Like nature itself life will act alone and grow without people or outside influence.



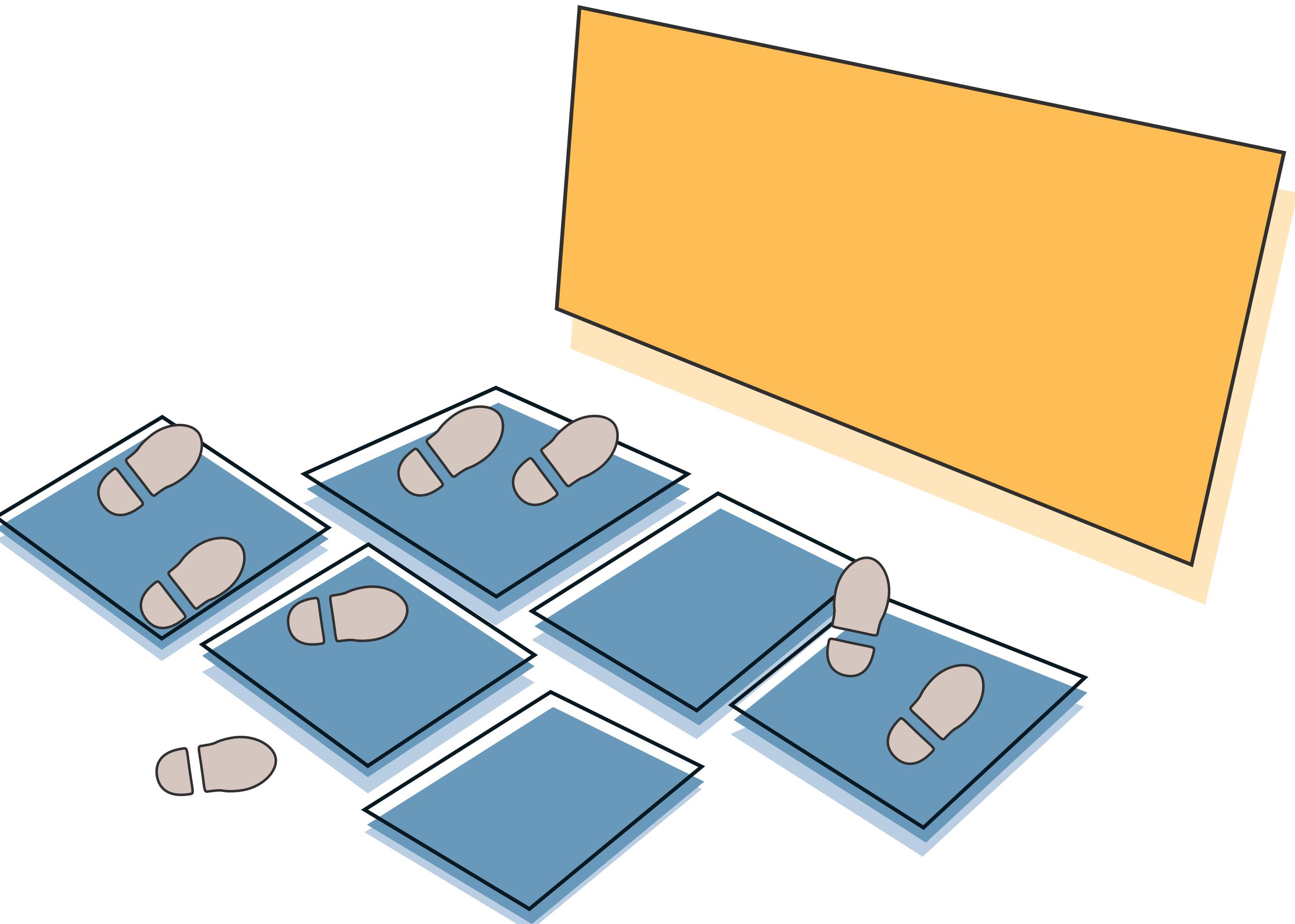
Mindfulness

A hidden benefit I plan to have with the project outside of it's visual and technical appeal, I want to try to promote some form of education of invasive species and user influence on spaces.

III Goals | Engagement

Originally built around the idea of foot based engagement this style of interaction has some unique benefits and consequences vs. using a gesture, voice or more commonly found system of interaction. For one it adds unique style not found with those other systems meaning users will have to discover the cause and play around with it.

- Encourage discovery keeping users engaged by finding new Interactions
- Incorporate simultaneous interactions do unique thing



III Goals | Sustainment

Outside of people interacting with it as I'm aware not everyone is going to be using it at once.

There are always slow periods I want to make sure that my system is able to run independent of outside input.

This is two-part in that I should both be able to attract people with some form of native actions. I.E Nature even without outside influence is still active just intermittently. Additionally the space itself (instillation) should have enough of a visual impact to attract enough people to want to engage with the space itself.

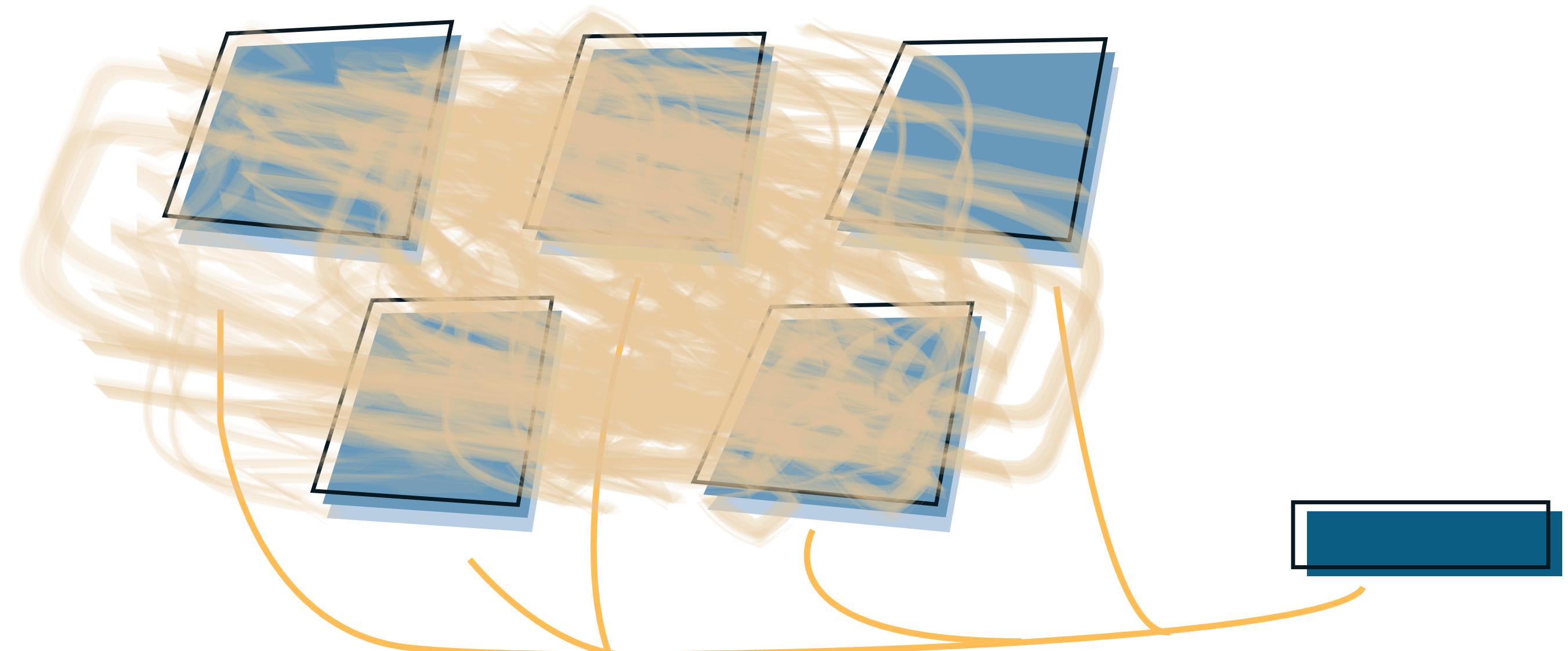


III Solution - Outcome

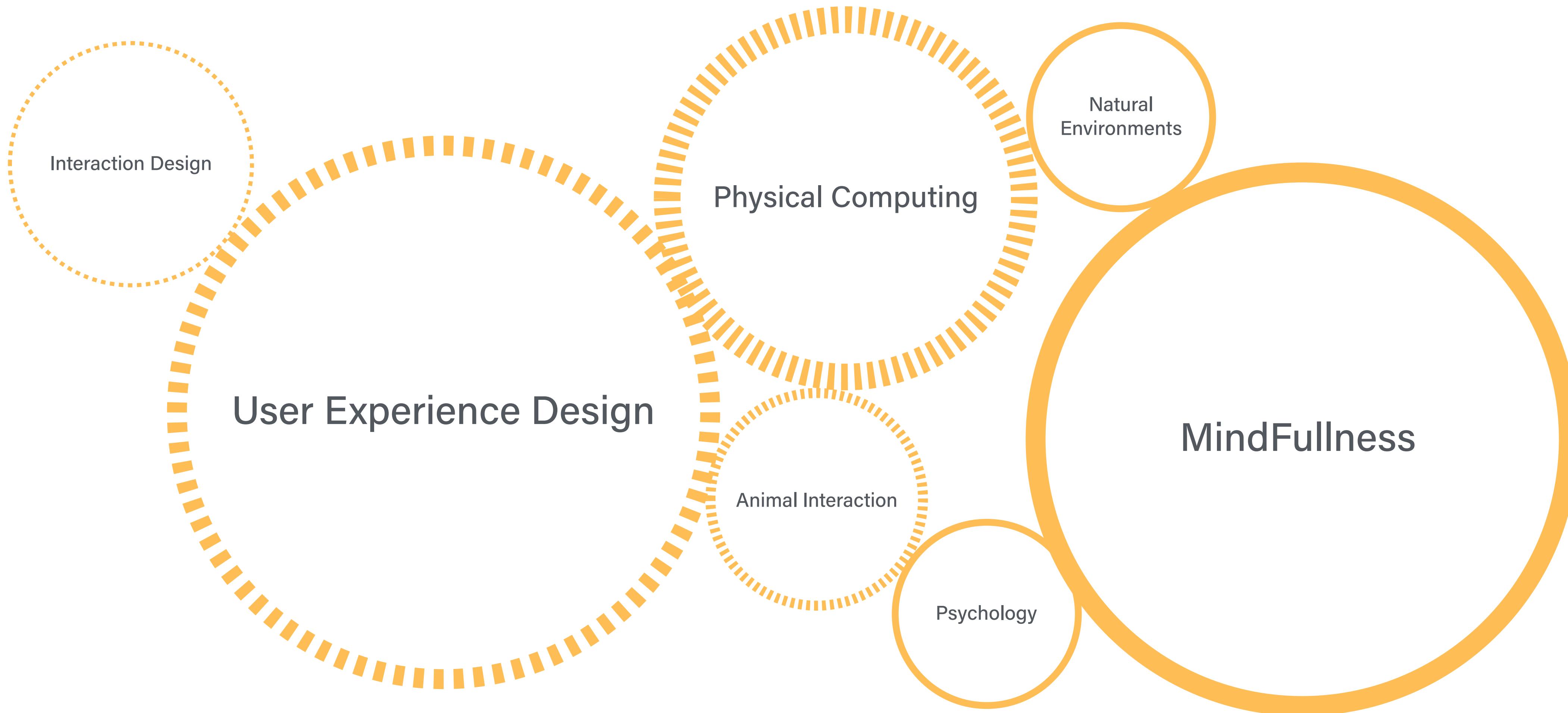
Combining all these aspects, The final goal is a fairly complex instillation piece using the foot based interaction to attract people with a complex video and interaction wall playing the scene out with both in tandem acting as the final project.

Enviroment Highlights:

Why I choose nature and Cayon because they are uniquely quiet yet alive, peopoles can change this and echo out like a pin drop in the ocean



III Domain Mapping



III Research Questions

- How do people currently interact with nature, as an individual person
- In what ways can we change or at least identify current behaviors in people
- How do animals react to people in their home environments
 - Does the type of environment matter?
- What metaphors or Behaviors demonstrates the themes of the piece

III Solution - Implementation

In terms of the development process and technology involved in the creation of the Desert Disturbances Instillation will be multifaceted involving all of my learned technologies as well as capabilities. This including both hardware and software developments.

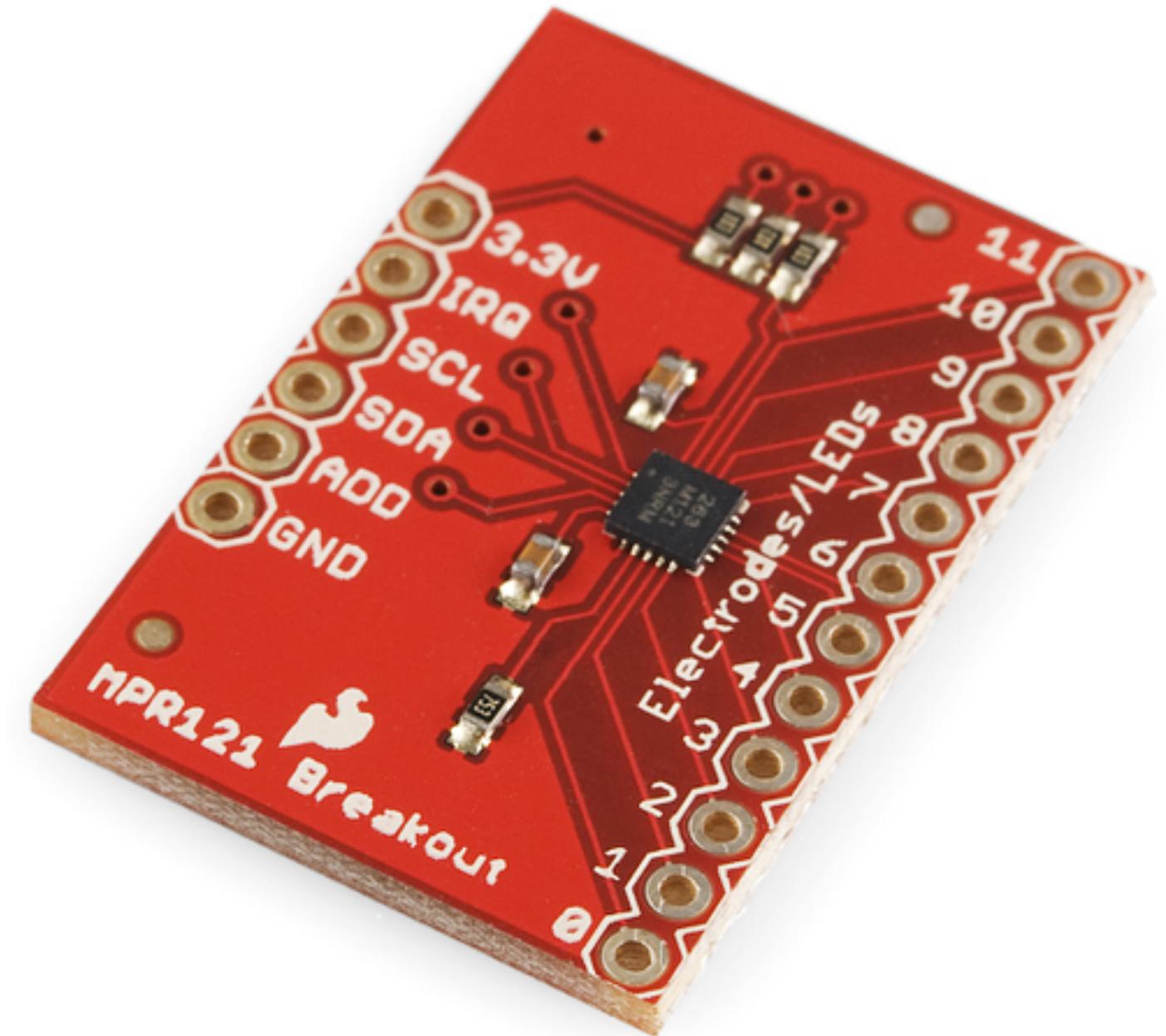
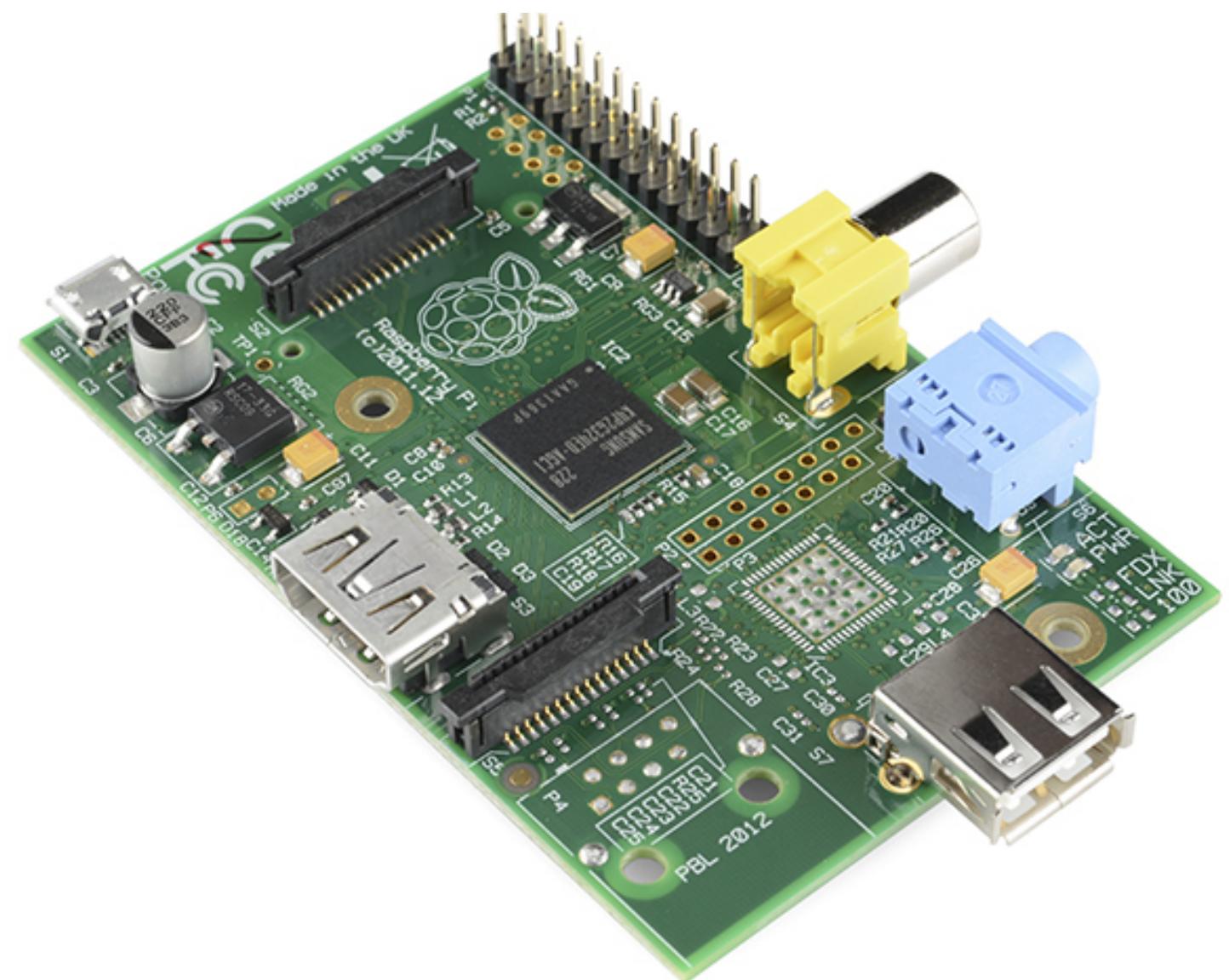
Breaking it down simply it will be in two parts (input and output) when describing the facets involved.

Input

- Arduino (MPR121 Pressure Sensor)
- Arduino Motion Detector
- Raspberry Pi

Output

- Adobe After Effects
- Adobe Illustrator
- P5JS

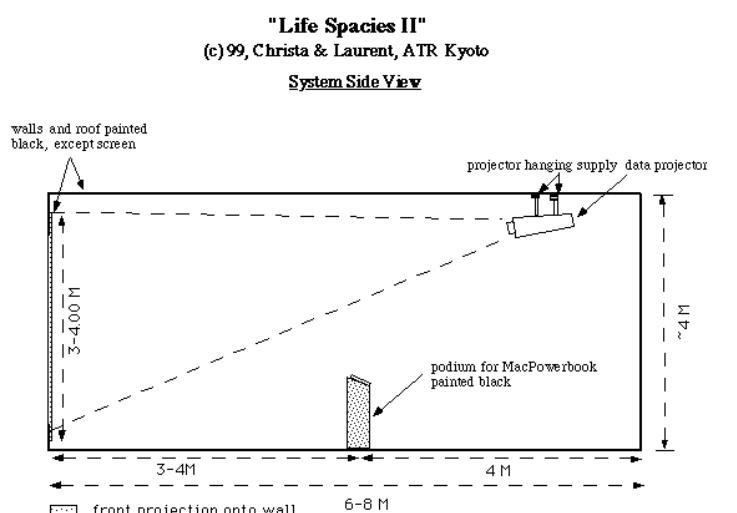
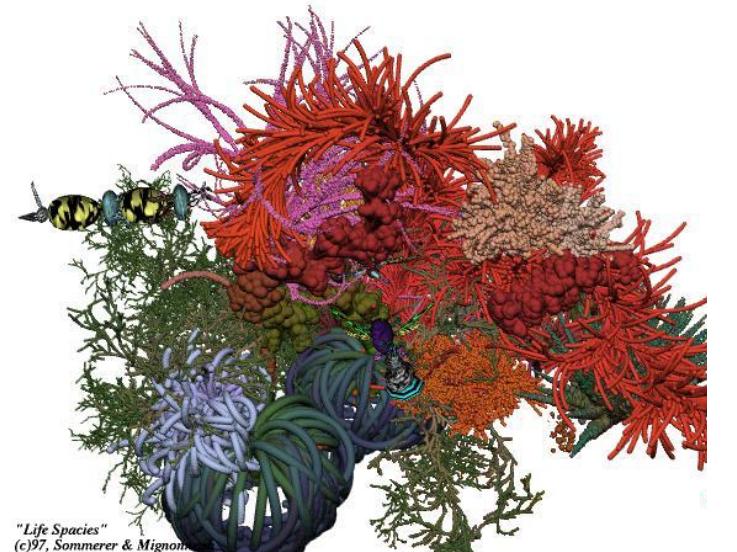


III Precedence

Life Species I & II - 1997

"Life Species" is an interaction and communication space, where remotely located visitors can interact with each other through evolutionary forms and images. "Life Species" enables visitors to integrate themselves into a 3 dimensional complex virtual world of artificial life organisms that react to the visitors body movement, motion and gestures. The artificial life creatures also communicate with each other.

A "Life Species" web page allows people all over the live in the "Life Species" environment at the ICC's museum, where the on-site visitors directly will interact with it.

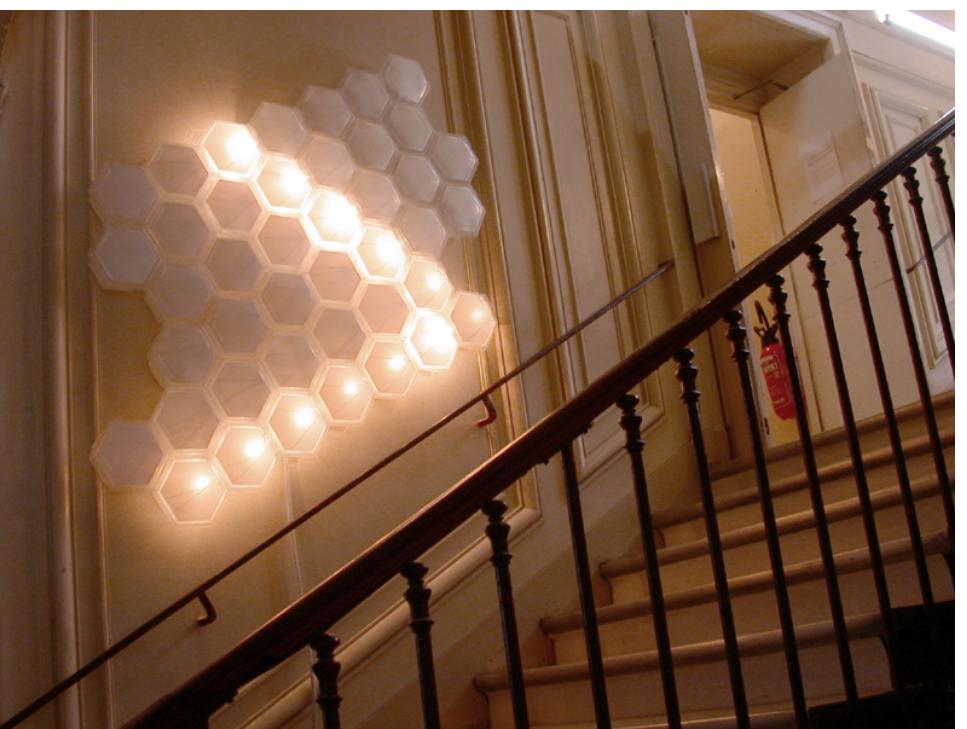


III Precedence

Hehe Light Wall -2014

An installation by Trienale Milanoff in Italy. Hehe is a modular light system that responds to touch: through the electromagnetic fields of the human body, much like how your Smartphone response to your touch. As people walk by various patterns generate based on energy output found around the space.

I included in for two reasons the first being I like that it can attract people due to it's almost mysterious nature in the form of what it lights up exactly. It isn't saying walk by, here's a picture but something a bit more personable an aspect I want to make sure my own project has on some level. Additionally Trienale Milano experiments with data gathering using not cameras or motion tracking but working off the electromagnetic fields we generate.



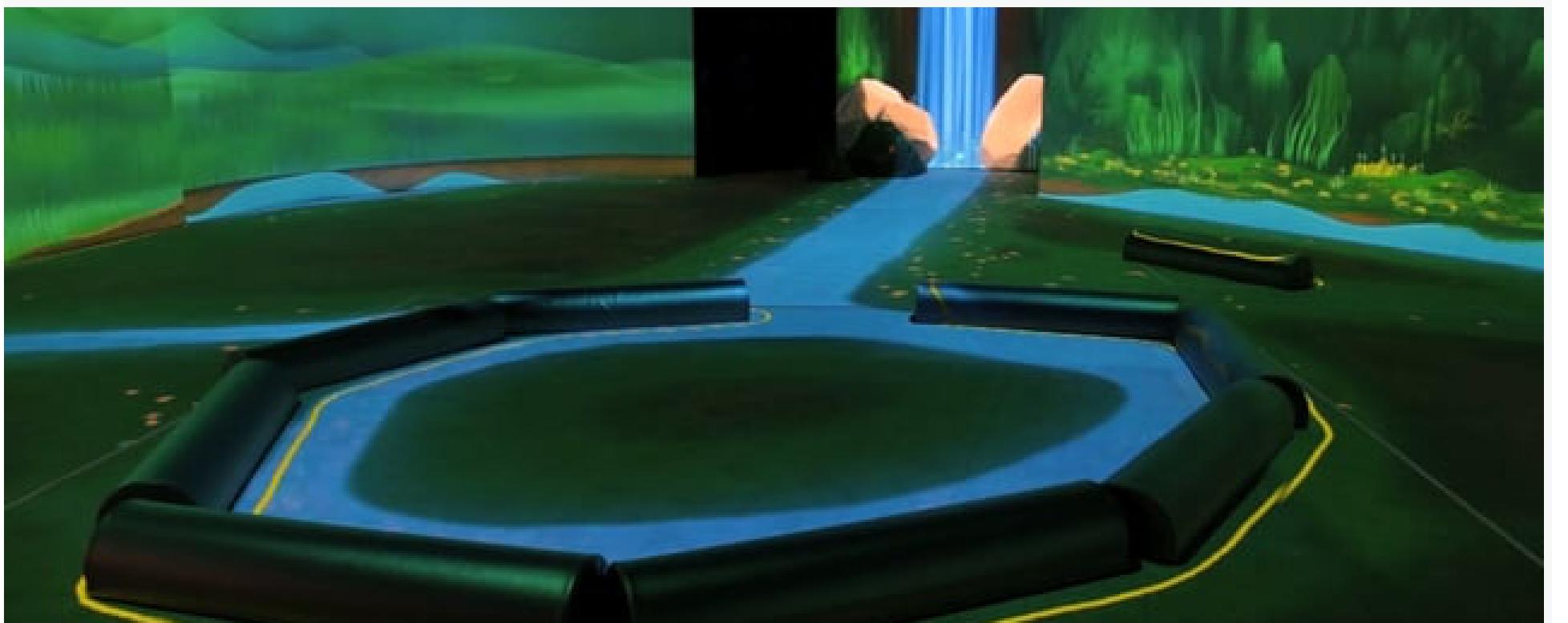
III Precedence

Connected Worlds - 2015

Found in the New York Hall of Science Exhibit
Connected Worlds is a exploration into a unique environment based instillation where visitors explore the interconnectedness of different environments.

As visitors explore and play, their actions — gestures, movements, decisions — have both short and long-term effects on the digital environments. These effects are based on core concepts of sustainability science including feedback loops, equilibrium in a dynamic environment.

- Learning through Impact with the space

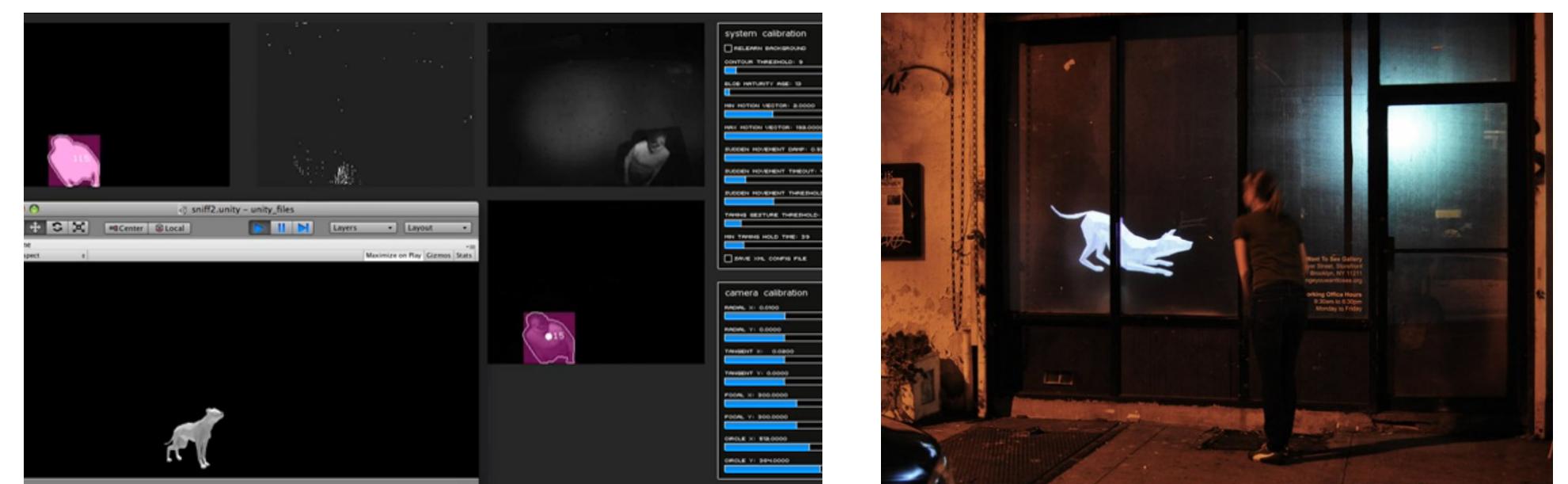
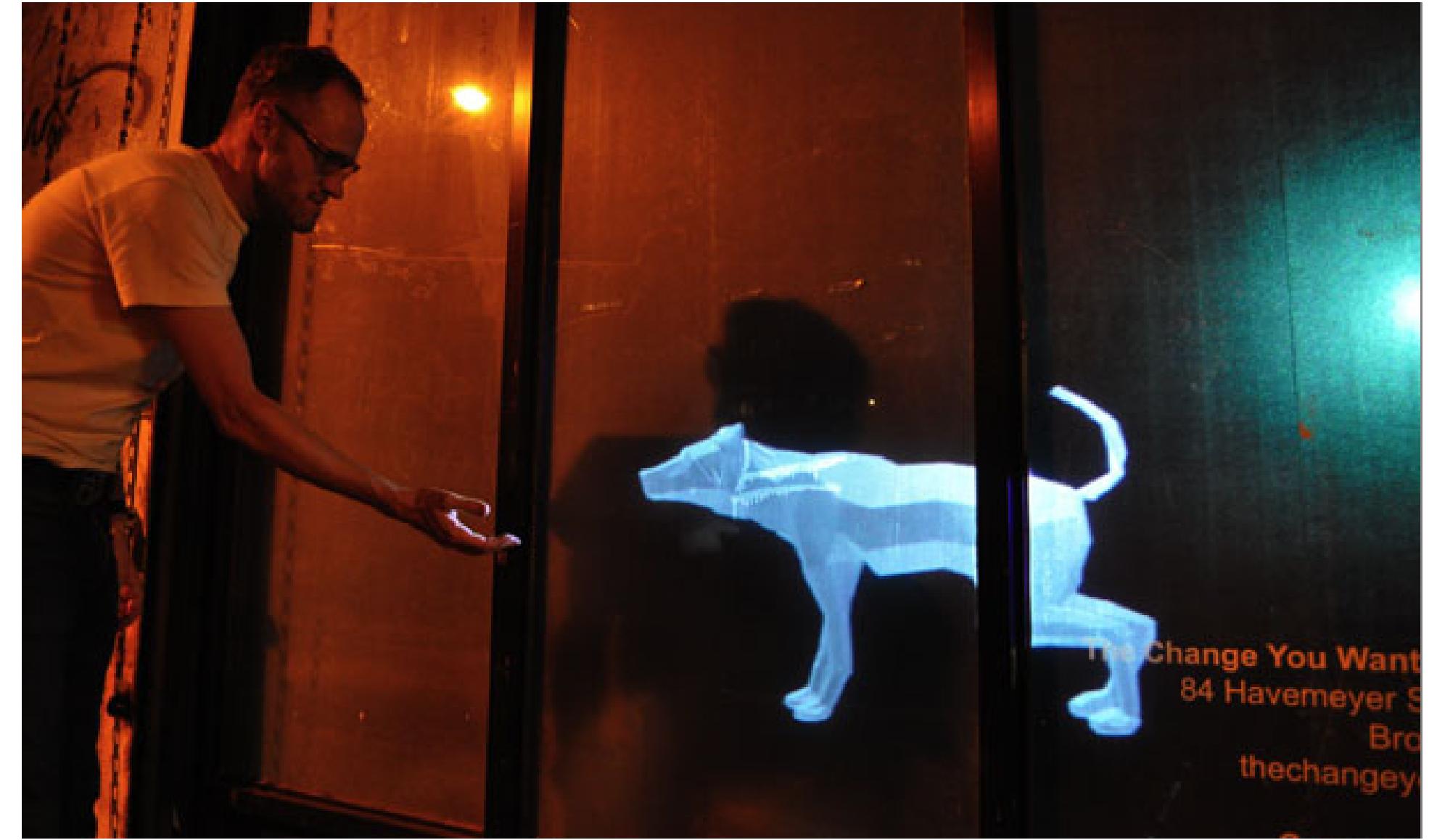


III Precedence

Sniff - 2009

Created by designer, Karolina Sobecka Sniff is an interactive installation using a projected dog as part of a gallery window. As you approach he will track you and try to get your attention to play with you. Surprise and he'll bark, hold out your hand and will sniff. All of which in an attempt to form new bonds with people redefining the virtual and real spaces. We commonly forget the line is disappearing.

The play between the virtual and physical is an incredible feat greatly blurring it's line. I'm also a big fan of it's ability to hide the different available interactions with common physical actions letting users explore them to find out what they are.



III Precedence

Journey - 2012

A unique experience based game by the company, ThatGameCompany Journey is an exploration into an undisturbed world with bright colorful landscapes of a mysterious mountain. The environment is both empty and inspiring, filling the world around you and your character. Either solo or with another person the levels of interaction with the world and other players are kept-ed to a minimum.

I'm a huge fan of the sense of silence you get from the game with the music. Any interaction you or another player creates in the space is echoing and bombastic compared to the environment. Also the unique art style and bold visuals adds lasting appeal vs. a more realistic visual design approach.

Echo chamber, Part of a system, interconnectedness



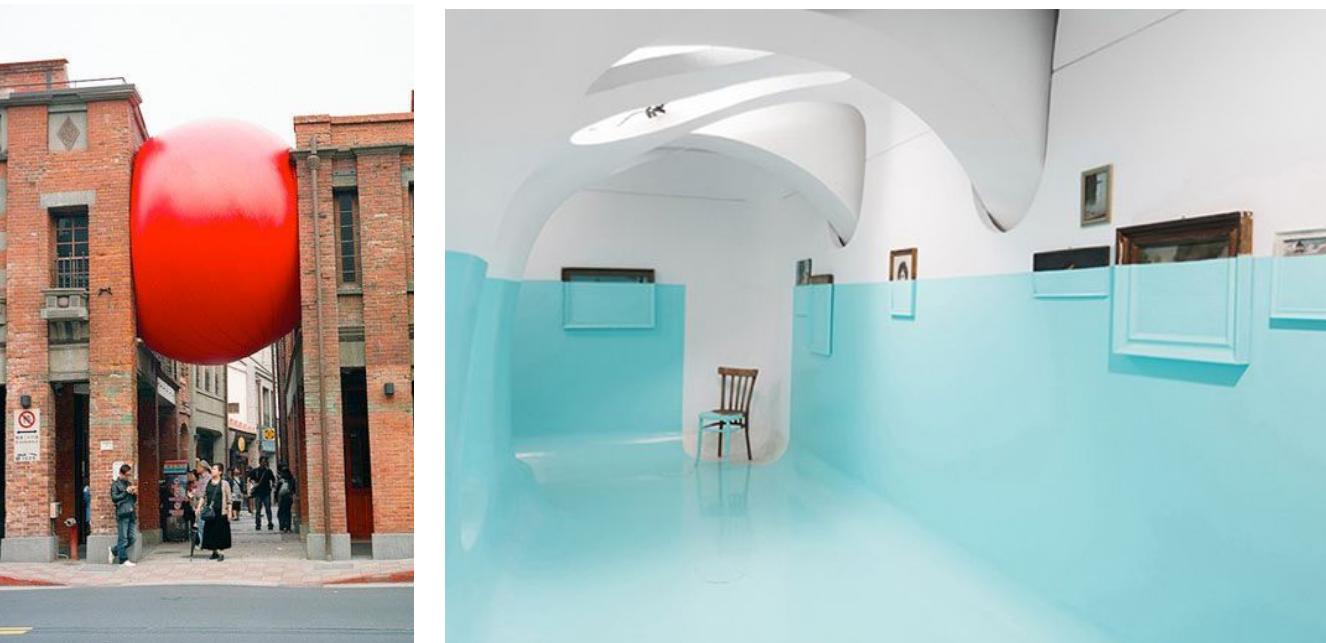
III Visual Design

When thinking about the visual design of the project I want to keep the idea of the vibrancy of nature, and build on it digital. This implying a good bit of color but also simplifying the forms for easier character designs and animations.

Keywords:

- Bold
- Pop
- Colorful
- Contrasting
- Layered
- Weighted
- Direct

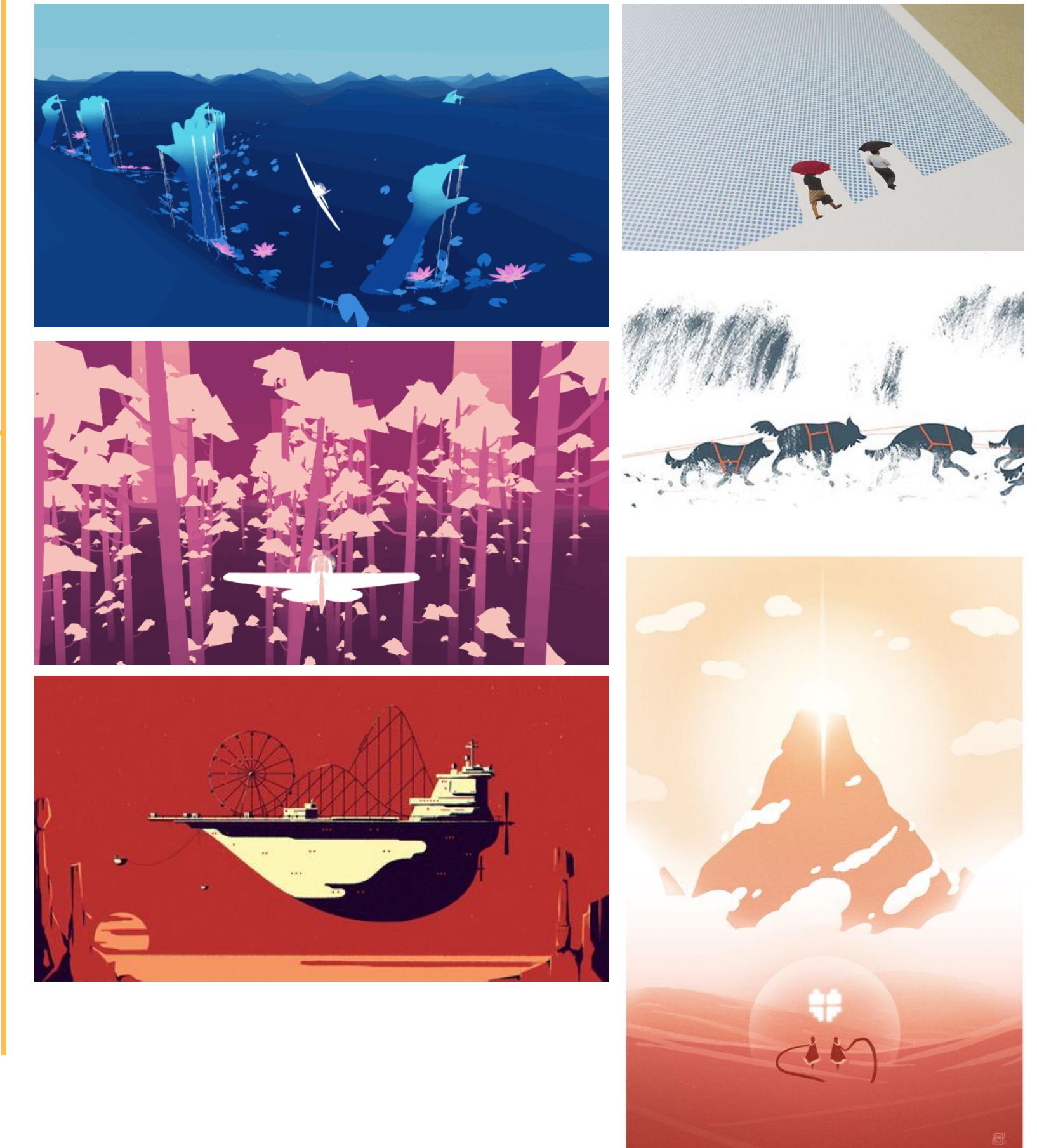
UI Elements



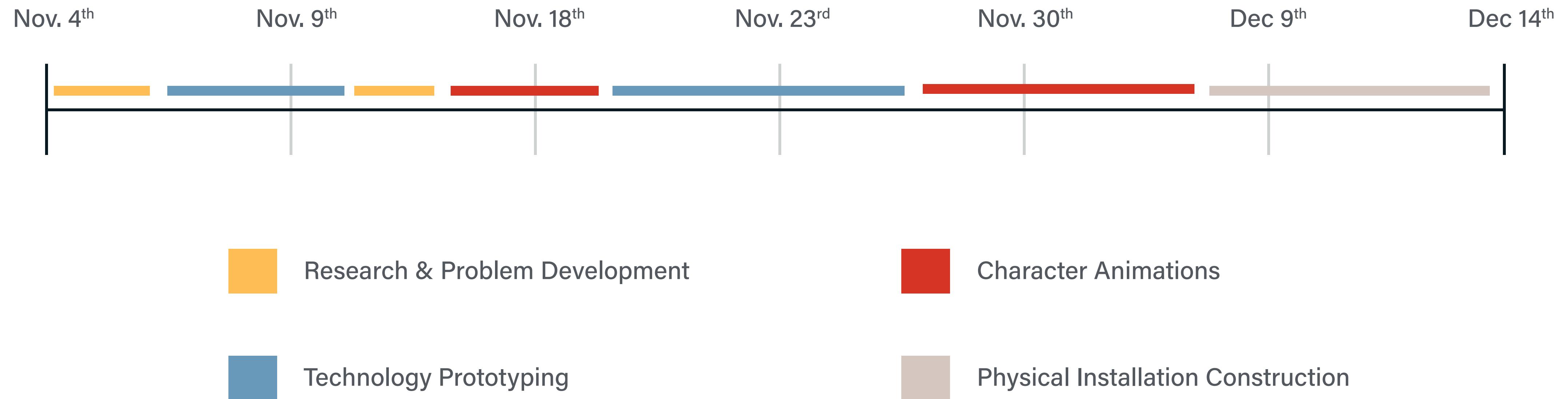
Typography



Image Reference



III Project Time-line

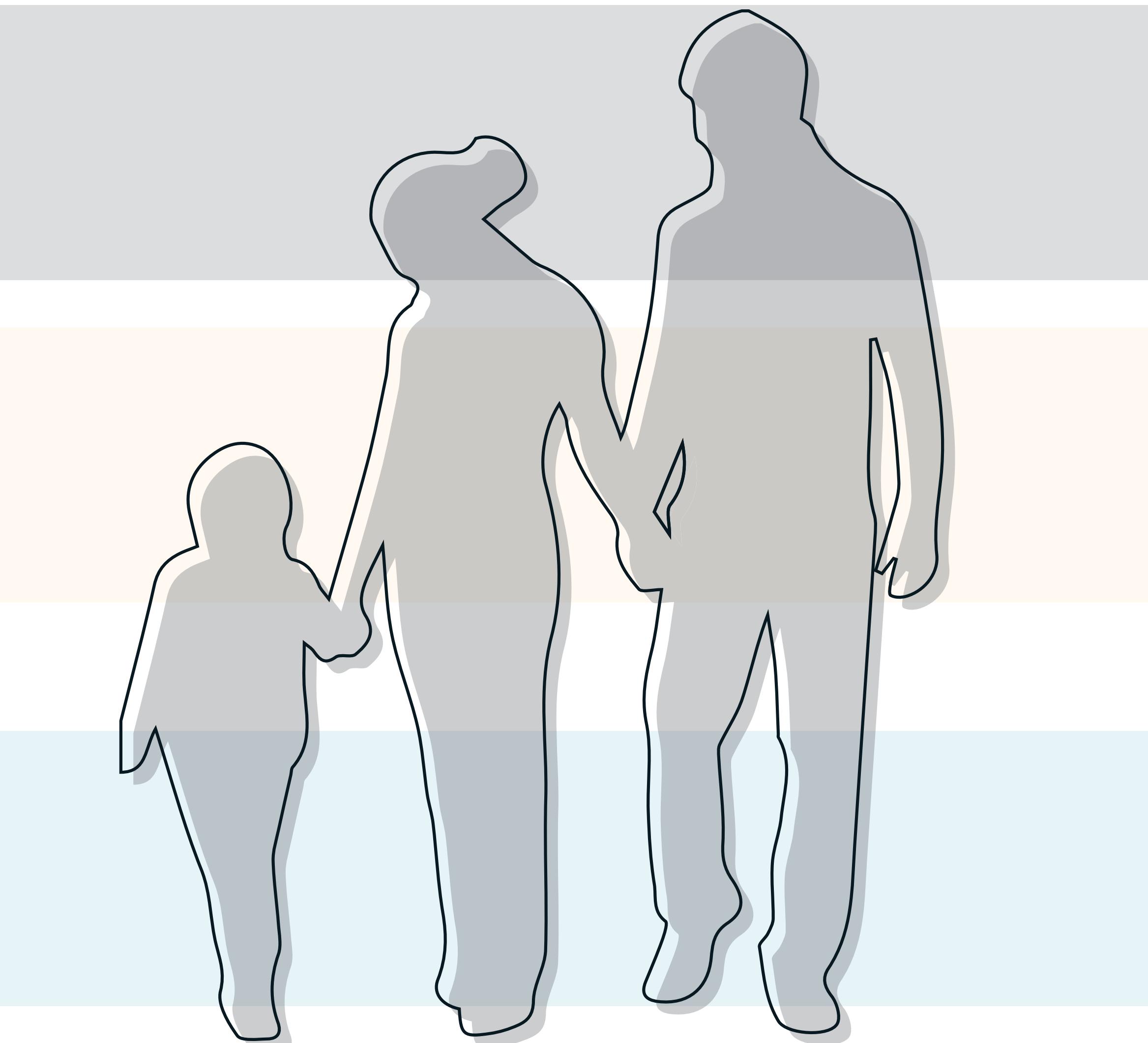


III Persona Development

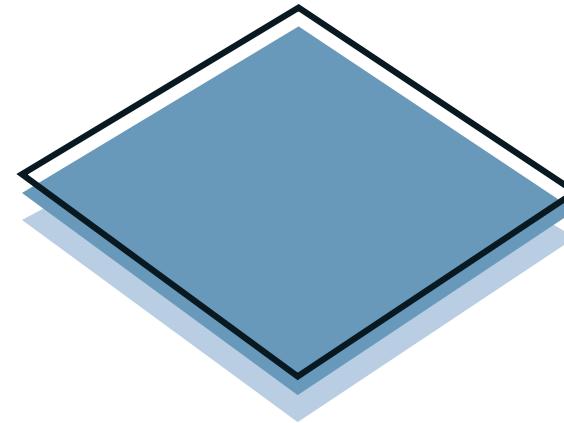
The Jackson Family

A Young Family from New York City would wanted to visit the Parsons PlayTest Even with there kid. This would be for both parents and adults where the project should be visually interesting to both and parents provide the extra education and encourage the feedback loop if needed.

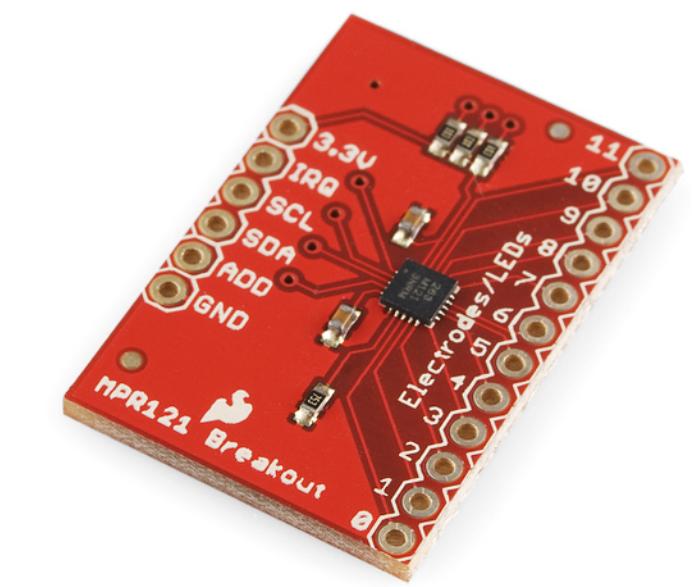
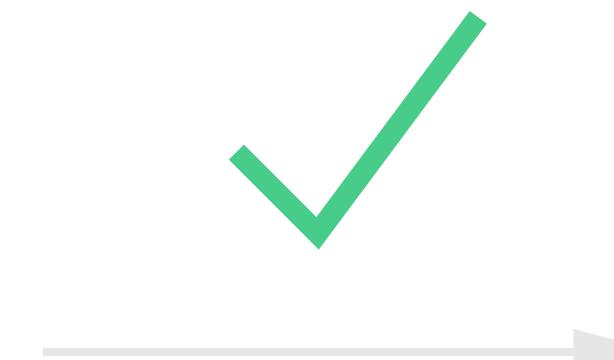
- I Family is a mix of adults from Lates 20's - Mid 30s and kids between 10 - 14. Who want to learn.
- II Works with teaching kids at that age as during the middle-highschool period they are learning about environments and biology, so this expands on that knowledge



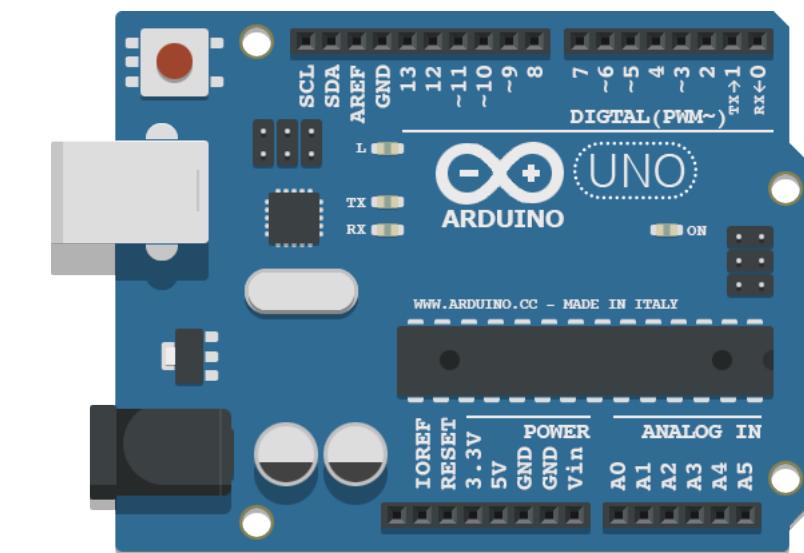
III Technology Map



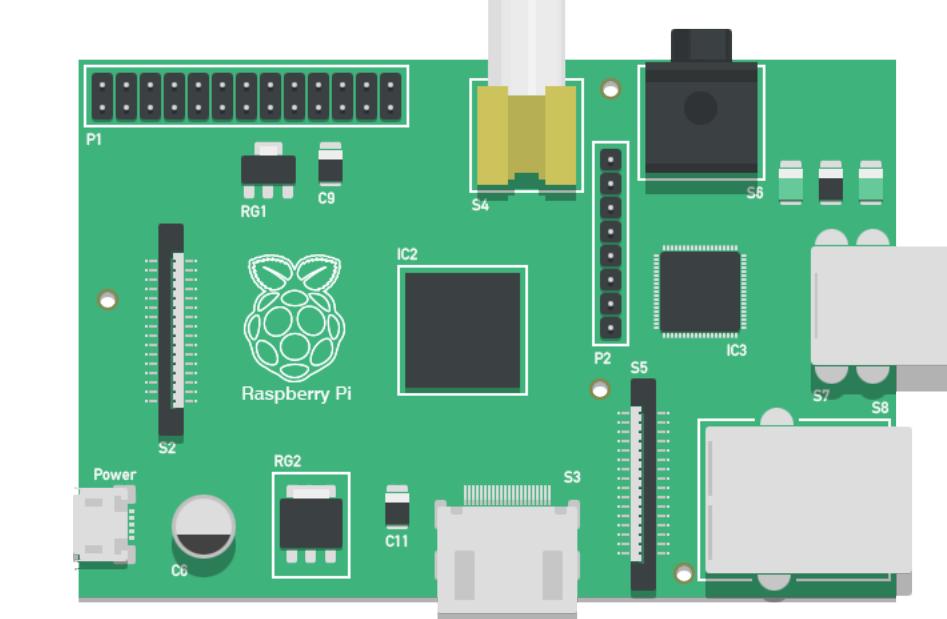
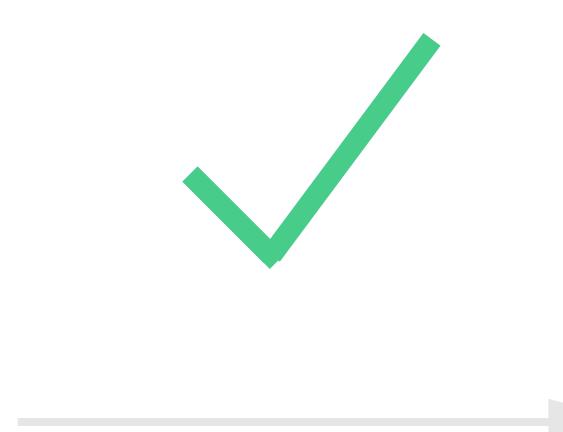
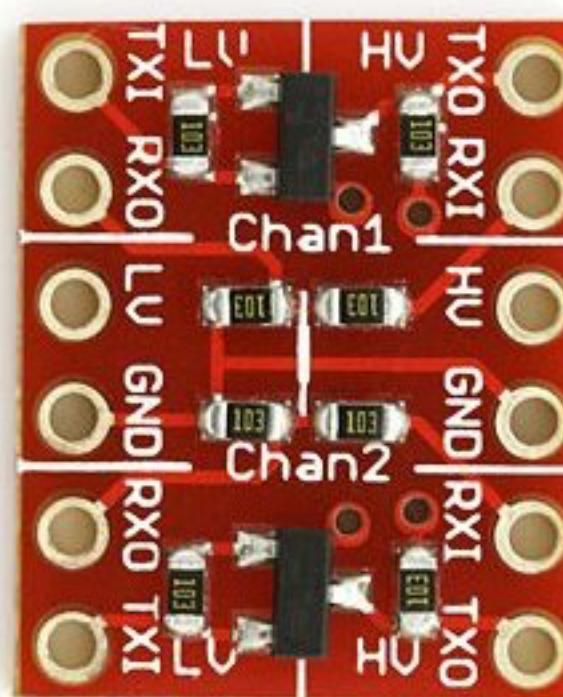
Touch Pad Panel



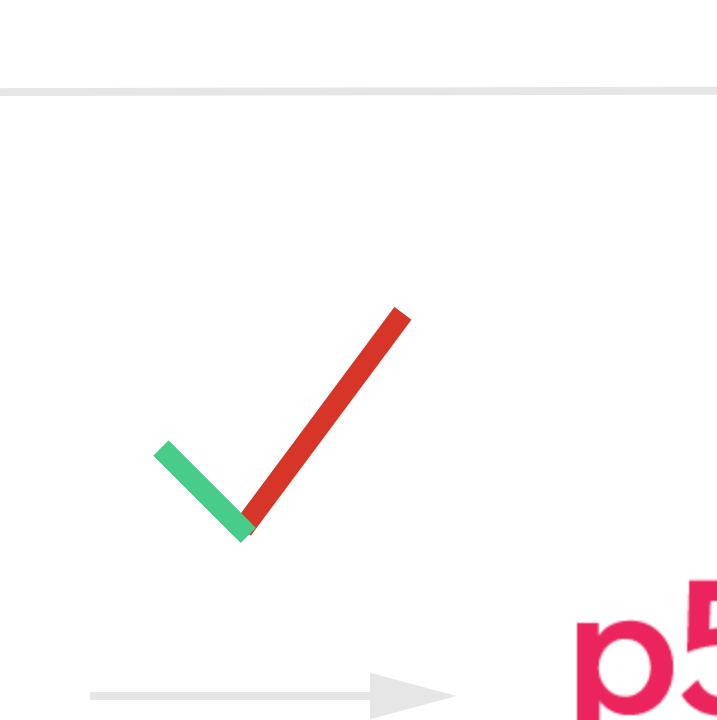
Adafruit MPR121 Capacitive Sensor



Arduino Serial Controller



Raspberry Pi (Server)



p5*JS
Processing creativity times JavaScript dynamism

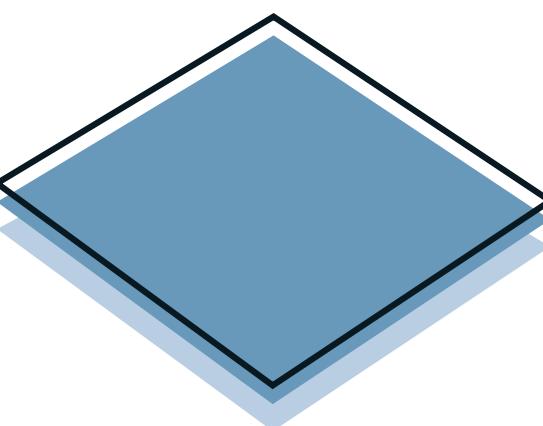
Logic Level Converter

P5JS (final output video)

III System Inputs

For this title system, to diversify the interactions that users will receive developing a unique feedback loop. Each title has 3 different reaction states. These reaction states are unique to each animal and the actions of other panels already happening.

- I User steps lightly on the panel activated a quick Positive action from an animal/enviroment
- II If another animal is in play while this panel is pressed will provide a unique combo action.
- III User steps harshly/stomps on the panel activates a dynamic negative reaction showing due to a lack of mindfulness in their actions.



TOUCH PANELS

Force sensitive material

User pressed softly on panel

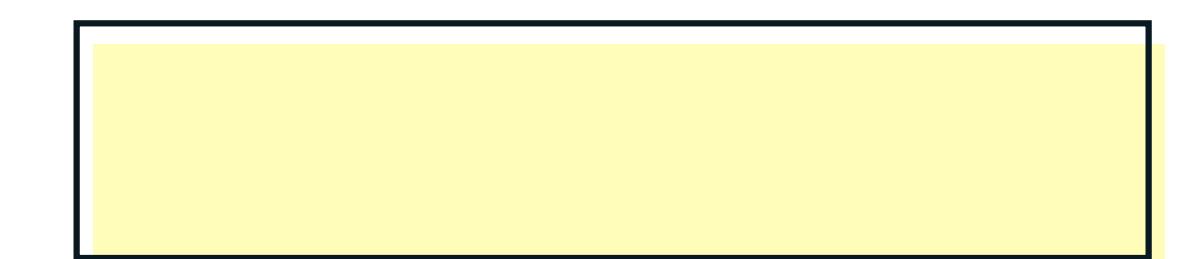
Another linked animal action is on

User pressed hard (stomped) on panel



POSITIVE ACTION STATE

Animals act with caution to action



Reaction Action State

animals react uniquely to others in scene



ALERT STATUS

Animals react negatively to harsh actions

III System Outputs

When the panels are presed, based on the pressure the user(s) step with that data will flow from the arduino - PI - Server - P5JS file.

In the final step, the P5JS file using P5.play each action trigger a new sprite comp in the file playing a animal state based on that data. These Sprites will be sized to their own space, thus allowing multiple tiles, actions, animals, and states to be on screen at one time. This gives the illusion of a fully developed and living desert cayon landscape.

POSITIVE STATUS



REACTION STATUS

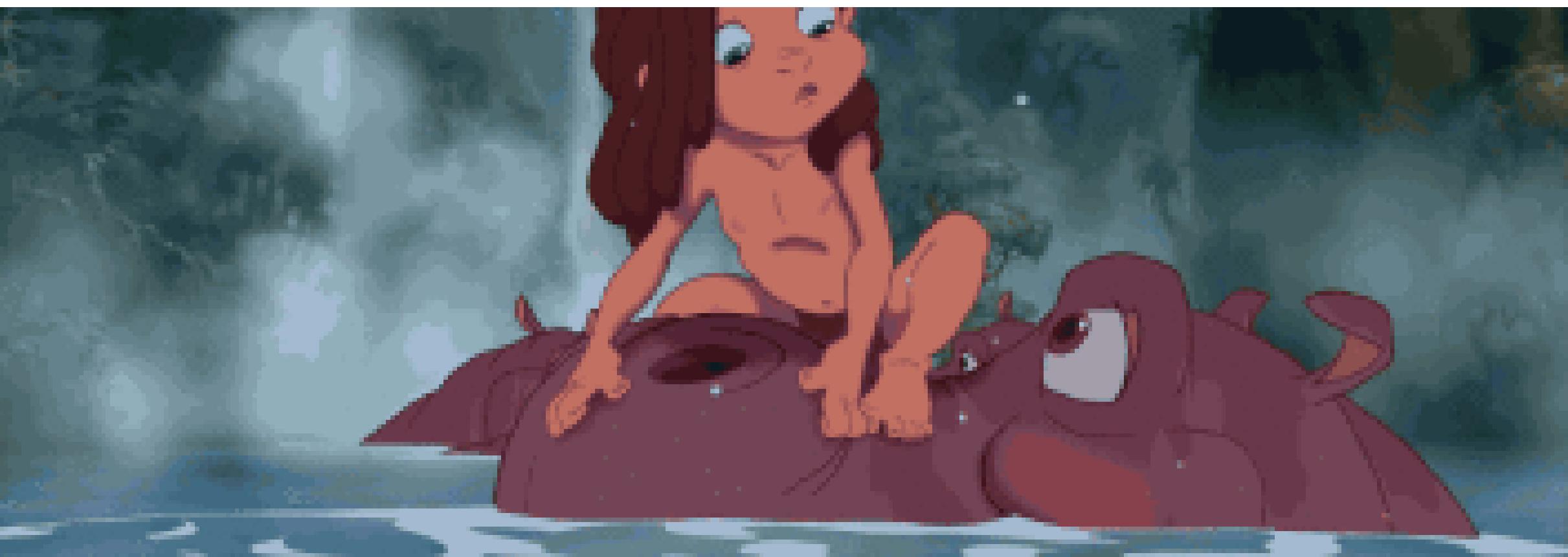
ALERT STATUS

What are the gestural mappings would be good that fit in this space.

III Disturbed State vs Natural State.

Demonstrating this idea of nature's sense of silence and undisturbed, vs how areas change when even small influences such as trails, and small changes I creating the space so it changes even when they first enter the installation space.

Without the influence of people the nature space will show much more wildlife roaming all over the space and be far more active. generally it shows this sense of "alive". When the motion tracker at the door is triggered, besides logging them, it actives a "disturbed state". Here animals will be limited to the space they travel and show less of them on the screen



III Wildlife Animals | Peccary



User pressed softly on panel

POKES ITS HEAD OUT

Animals act with caution to action

Another linked animal action is on

Digs it

animals react uniquely to others in scene

User pressed hard (stomped) on panel

ALERT STATUS

Animals react dynamically to load actions

III Wildlife Animals | Big Horn Sheep



User pressed softly on panel

POKES ITS HEAD OUT

Animals act with caution to action

Another linked animal action is on

Digs it

animals react uniquely to others in scene

User pressed hard (stomped) on panel

ALERT STATUS

Animals react dynamically to load actions

III Wildlife Animals | Mountain Lion



User pressed softly on panel

POKES ITS HEAD OUT

Animals act with caution to action

Another linked animal action is on

Digs it

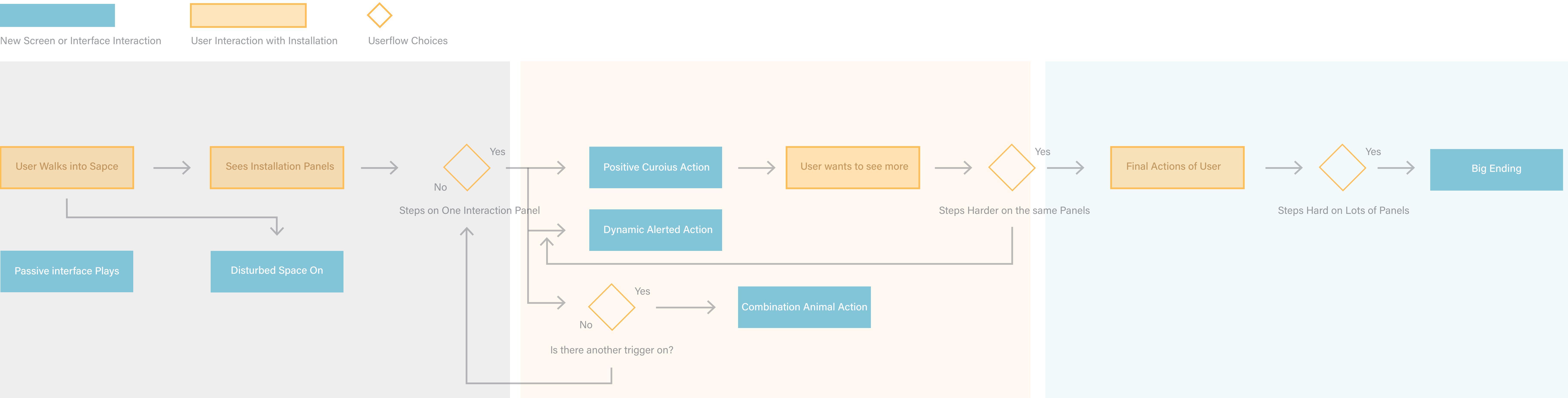
animals react uniquely to others in scene

User pressed hard (stomped) on panel

ALERT STATUS

Animals react dynamically to load actions

III User Flow

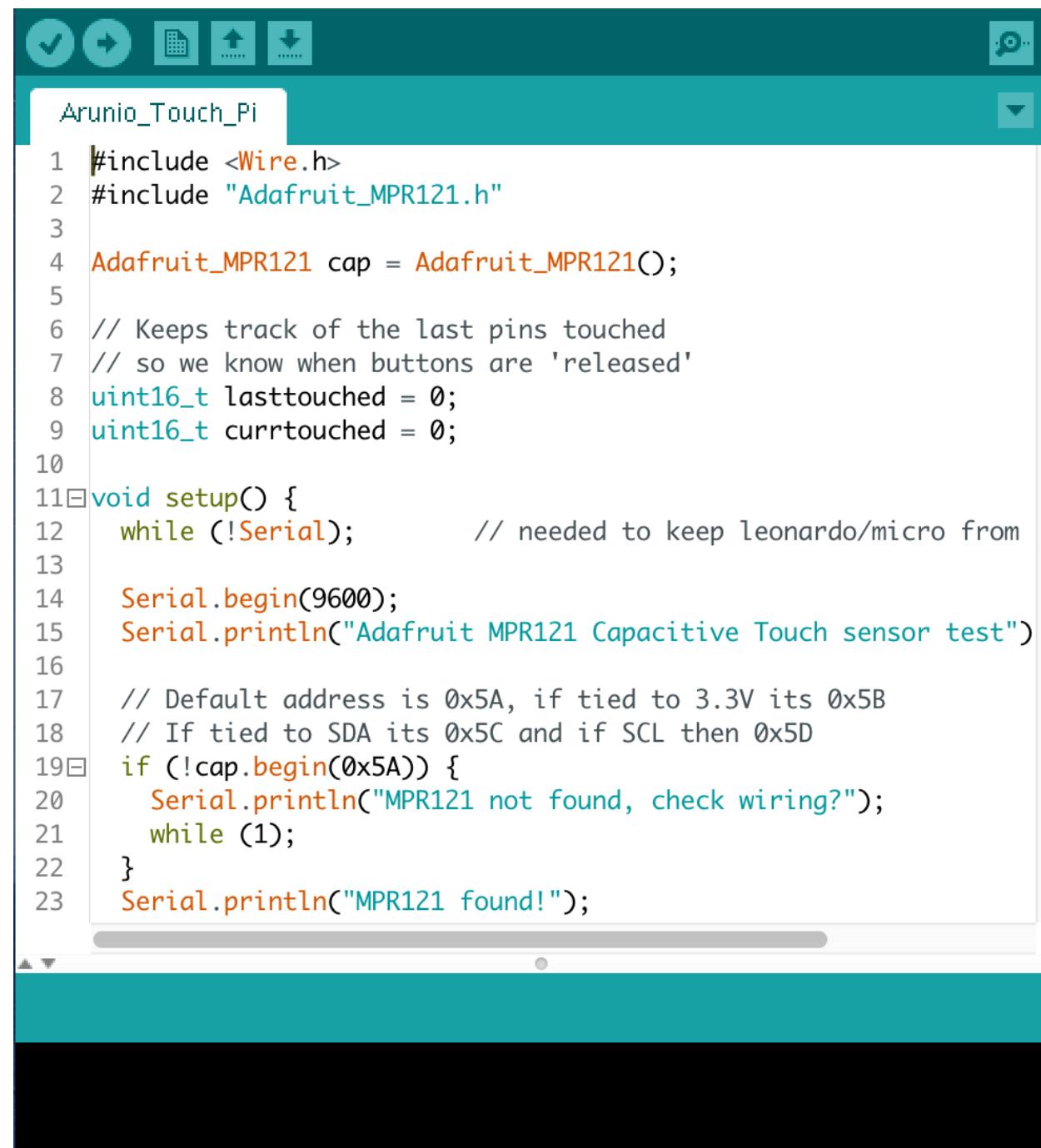


Thematic Segments : Disturbance & Silence, Awareness, Consequence

III Getting Physical Communication Data

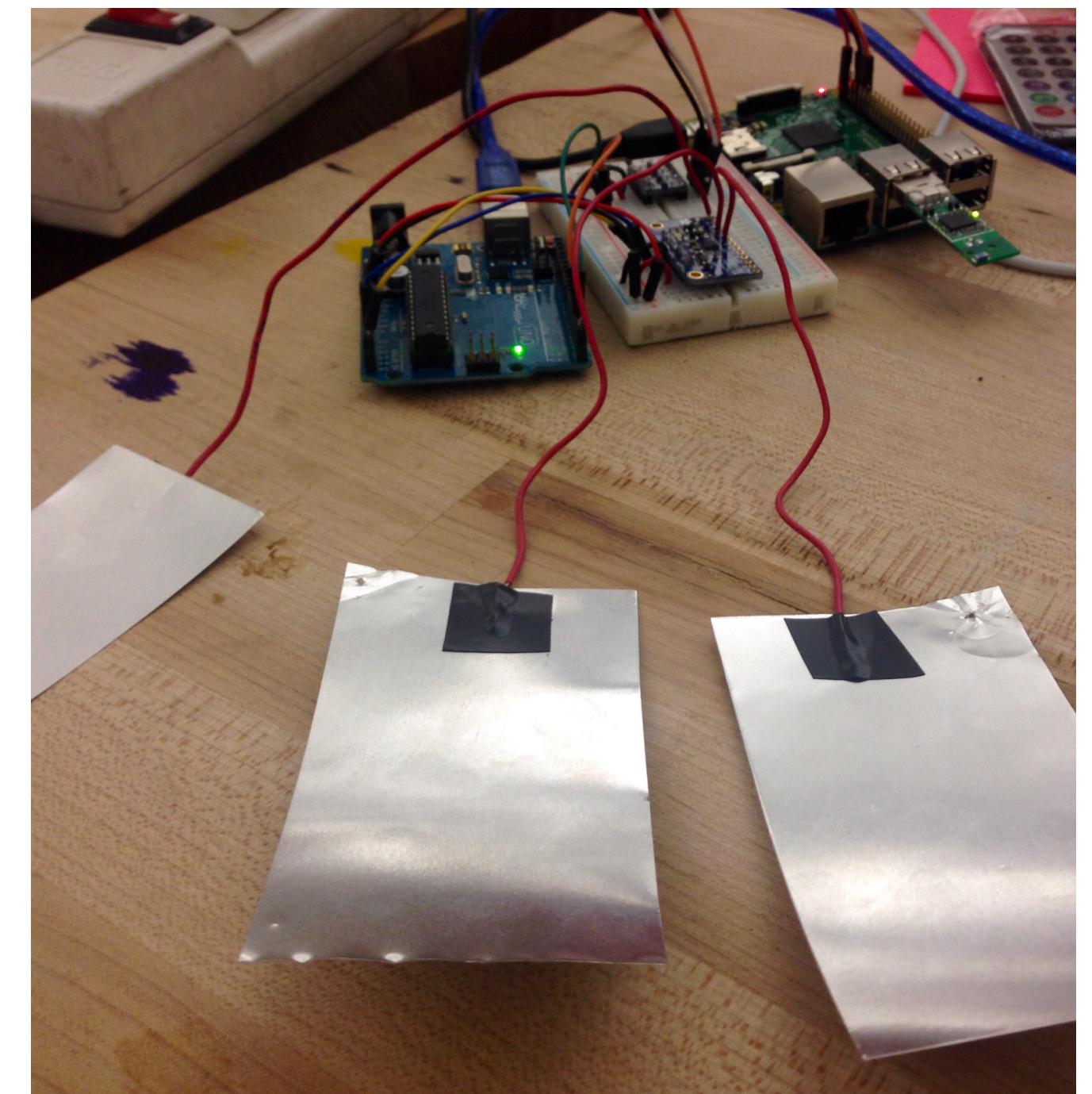
For getting the tracking data of people stepping around the space, I have a set of panels constructed of capacitive force sensitive material. Made of a combination of Velostat and heavy aluminum foil (to be housed) so it can withstand the pressure of people continually jumping and stomping around the place.

Right now I can track if they touched the panels and released from them, however in the coming week I am developing it to work with different amounts of pressure and resistance. Such as a light step vs. a not caring walk or stomp.



```
Arudino_Touch_Pi
1 #include <Wire.h>
2 #include "Adafruit_MPR121.h"
3
4 Adafruit_MPR121 cap = Adafruit_MPR121();
5
6 // Keeps track of the last pins touched
7 // so we know when buttons are 'released'
8 uint16_t lasttouched = 0;
9 uint16_t currtouched = 0;
10
11 void setup() {
12     while (!Serial); // needed to keep leonardo/micro from
13
14     Serial.begin(9600);
15     Serial.println("Adafruit MPR121 Capacitive Touch sensor test")
16
17     // Default address is 0x5A, if tied to 3.3V its 0x5B
18     // If tied to SDA its 0x5C and if SCL then 0x5D
19     if (!cap.begin(0x5A)) {
20         Serial.println("MPR121 not found, check wiring?");
21         while (1);
22     }
23     Serial.println("MPR121 found!");
```

Arduino Code to capture Serial Information



Corrolating physical build of interaction using force-sensitive heavy aluminum foil for prototype.

III Translation to Pi - Server Building

III Creating the P5JS File

