

Swete Gesaed, Geofferoed to Tham Hungrum.

Inspired by alchemy and mysticism, I sought to restructure food in an entirely new way. Following a literature review on pica, I designed a generative visual solution—an AR game that allows players to explore their unique substances through interaction.

A Generative AR Solution Simulating Alchemy

INSPIRATION



Anthropology of food

A sub-discipline of anthropology that connects an ethnographic and historical perspective with contemporary social issues in food production and consumption systems.

Food Disorder

Pica

Bulimia

Geophagia

Amylophagia

Cryptopyrophagia

Tabacophagia

Plumbophagia

Lignophagia

Geotrophophagia



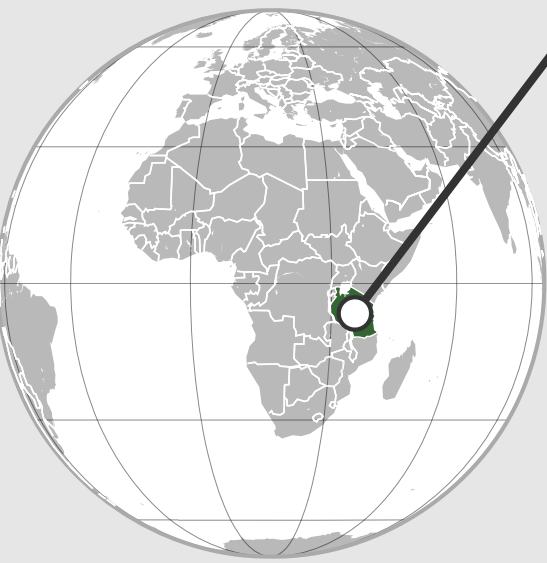
STUDY & REVIEW

References: M.S. Bhatia, Jaswinder Kaur. Pica as a Culture Bound Syndrome. Delhi Psychiatry Journal 2014, 17:(1), p.144-147.

Pica is generally regarded in numerous studies as an external manifestation of a psychological disorder, whereas some anthropologists consider “pica” to be a culturally bonding behavior, one that more vividly reflects local beliefs, social structures, cognitive levels, and more.

Here are some examples of why people in different regions incorporate so-called “non-conventional foods” into their daily menus.

Pica Case A



Tanzania, Africa

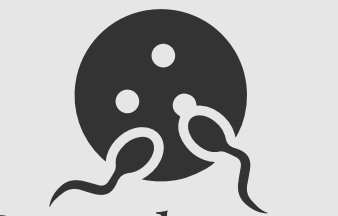


“Chagga” Women



Soil

for



Reproduction

Pica Case B



Georgia Piedmont area, USA

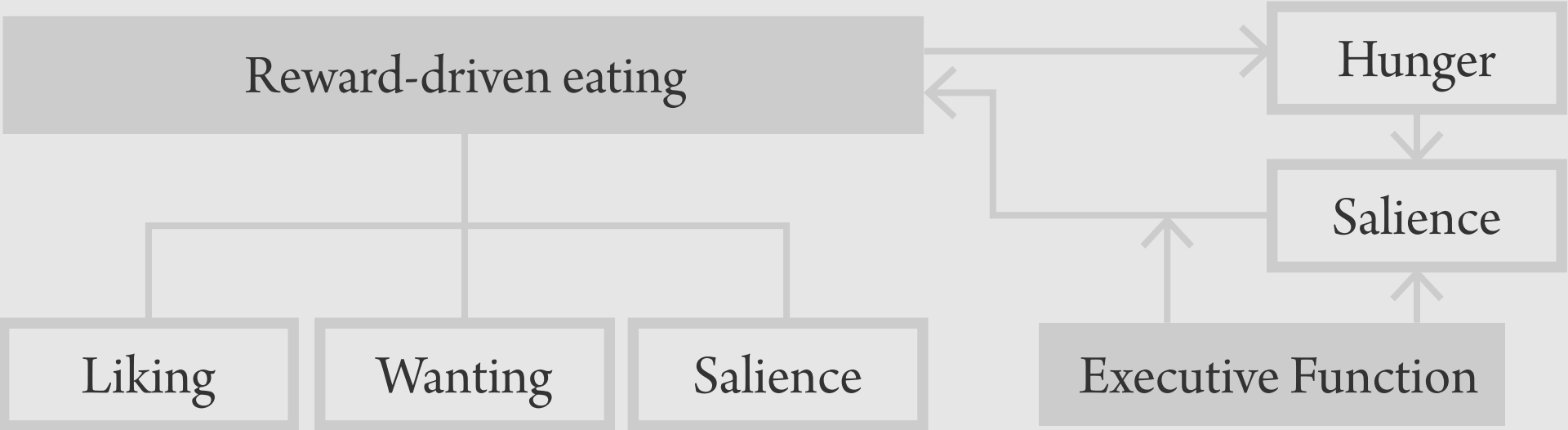


Kaolin
(white clay or chalk)



Baby!

So... what exactly do people gain from the act of eating?



Pica Case C

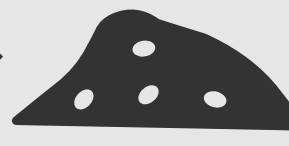


Many rural parts of India, Asia



Pregnant
Females

eat



mud, clay,
ash, lime

for



positive health or
spiritual effects

Pica Case D



Some tribes in Peru, Africa

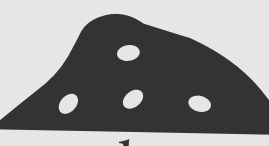


potatoes

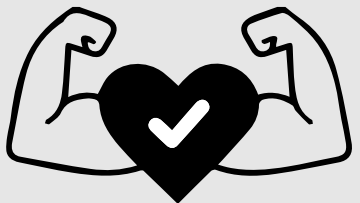
in



toxins



clay



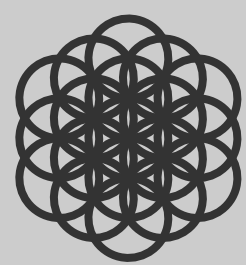
healthy
diet

PROTOTYPE

I expanded the narrow definition of food to encompass a broader concept of everything—since unconventional foods are labeled as “pica,” why should we restrict ourselves to a narrow definition of food?

Subsequently, I designed a multi-classification system constructed from eight parameters to generate everything, both food and beyond.

References



Esotericism



Judaism



Voodoo



Alchemy



Astrology



Sacrifice

Building



“food”

deconstruct



factors / aspects

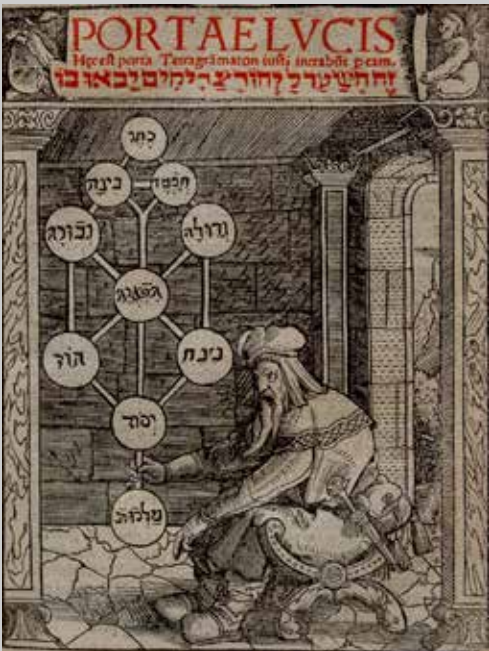
reconstruct



new food

Fake Kabbalah

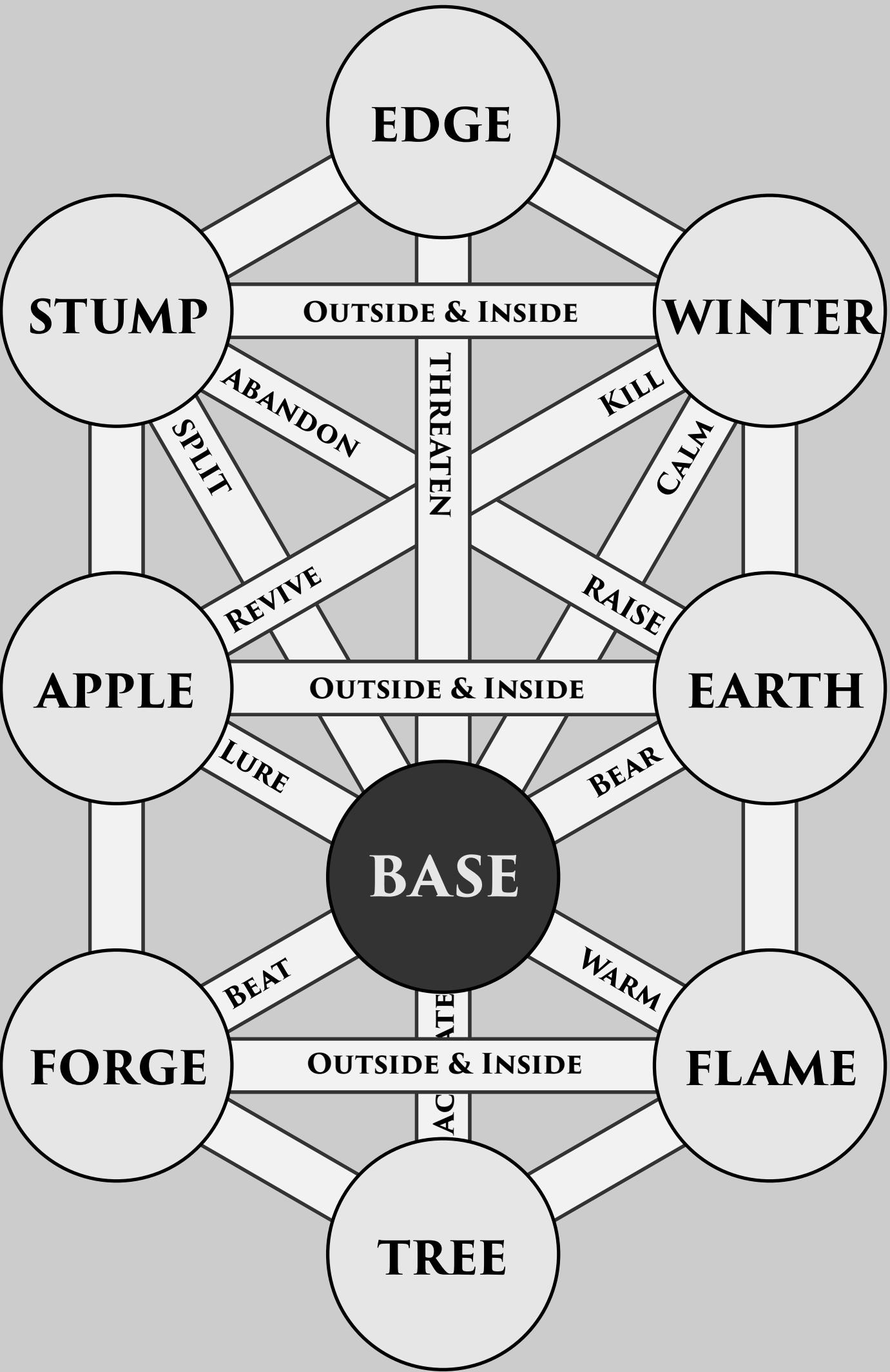
Inspired by the ten sefirot in the Tree of Life from Kabbalah, I created a similar diagram to represent the process of creation and the interrelation between elements in all things.



Shaarei Ora, Gikatilla

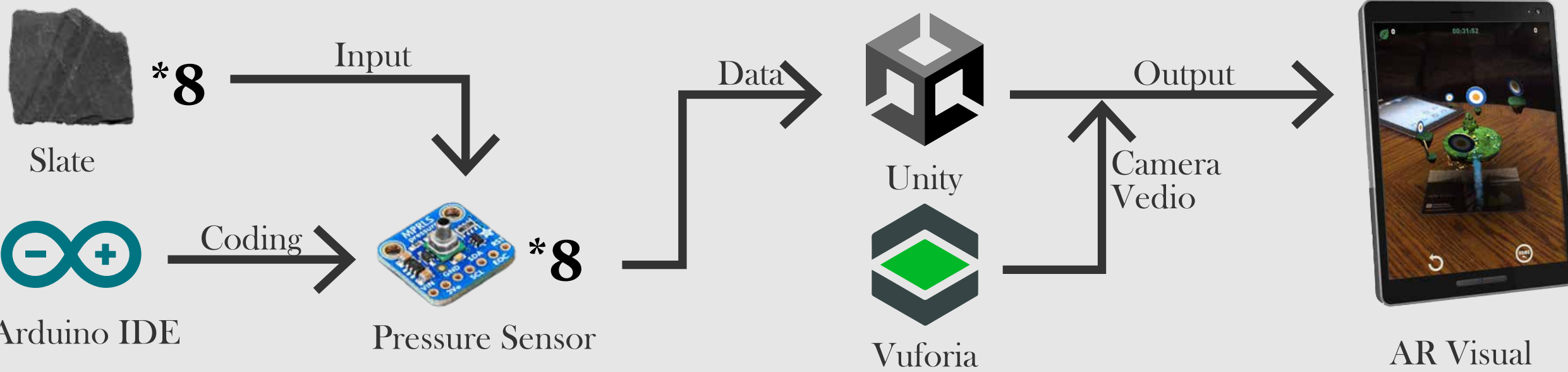
Tree Simulating

The eight parameters (in the diagram below) are not chosen randomly but often possess opposing attributes, such as being complementary or acting as each other’s inverse processes.



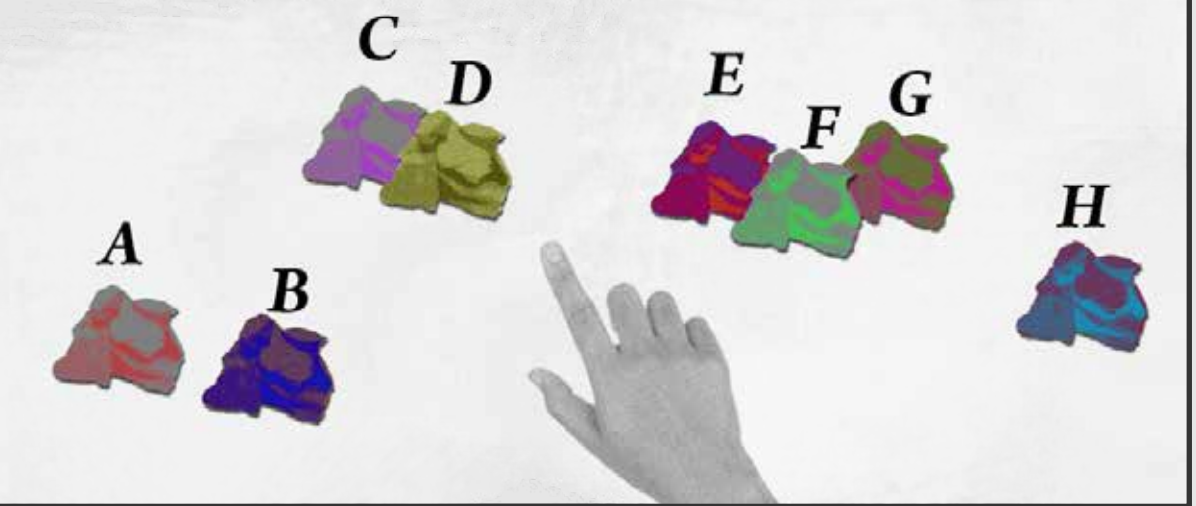
DESIGN ROUTE

Solution & Technical Stack

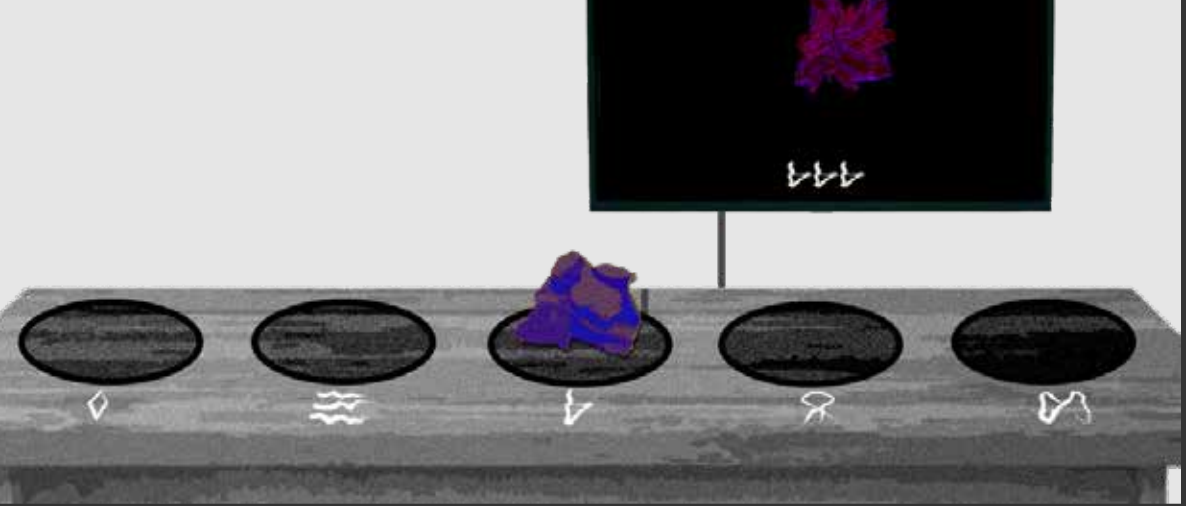


Experience Flow

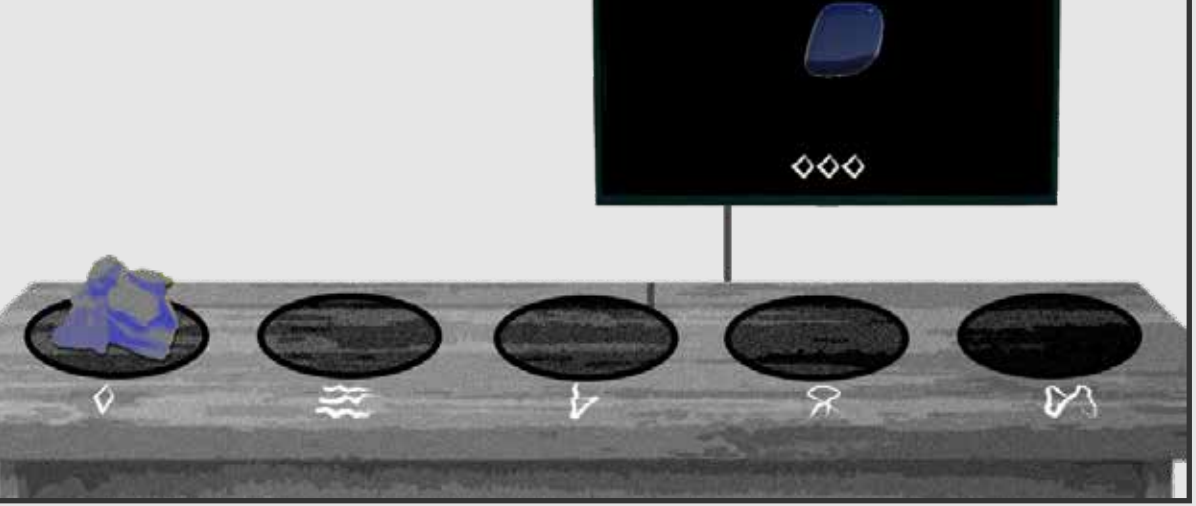
ACT.1 Pick your slate



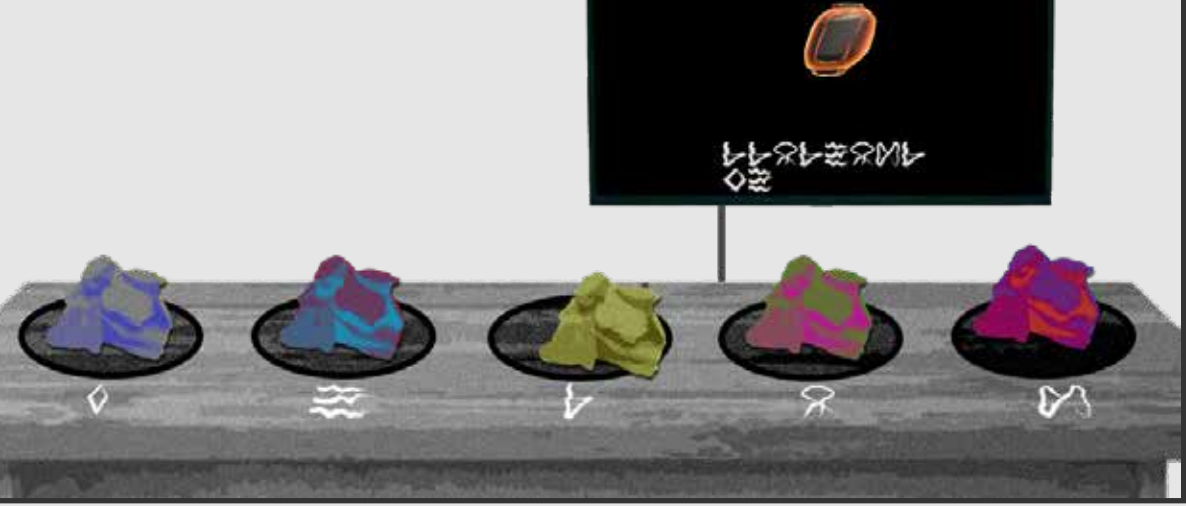
ACT.2 Place & Watch



ACT.3 Switch & Explore



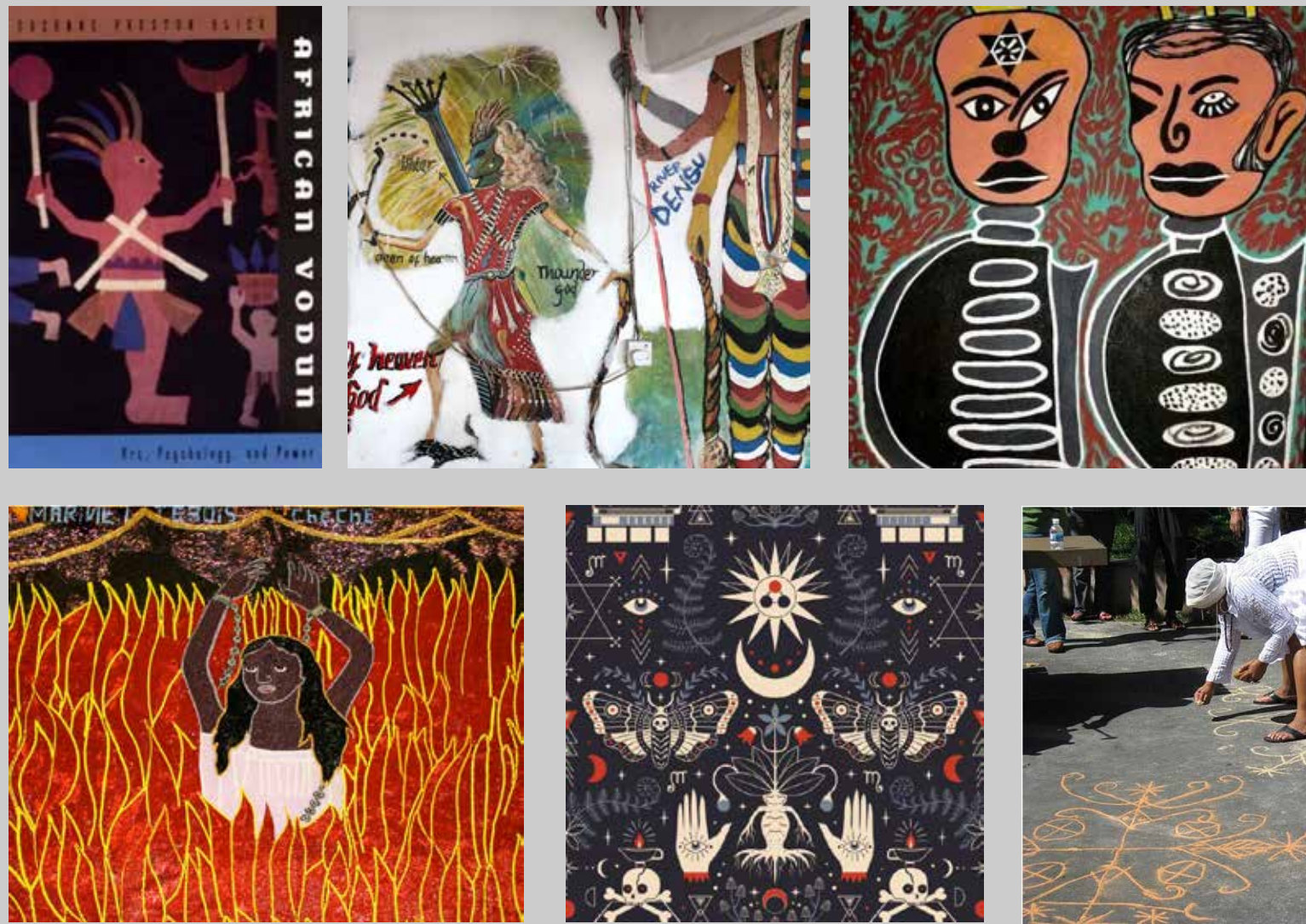
ACT.4 Design yourself!



VISUAL ROUTE

Mood Board

Key Visual: flat design, semiotics, brushstroke



Materials: slate, weaving, cloth



Symbol Design

ASPECT	ORIGIN	SYMBOL
FLAME		
WINTER		
TREE		
FORGE		
APPLE		
EARTH		
STUMP		
EDGE		

SLATE PROTOTYPE DESIGN

In addition to the symbols representing the aspect, the design of the slate considered three main components: the primary graphic, color, and background dynamics. They share common characteristics: a primary graphic conveying the same content as the symbol, rough-edged outlines and shadows, and added brushstrokes with a hue jitter effect.



FLAME

Key Graphics: bonfire
Key Color:

BG Dynamics: tear



WINTER

Key Graphics: ice torch
Key Color:

BG Dynamics: moon



EARTH

Key Graphics: Ouroboros
Key Color:

BG Dynamics: flow



EDGE

Key Graphics: sword
Key Color:

BG Dynamics: down



TREE

Key Graphics: tree
Key Color:

BG Dynamics: up



FORGE

Key Graphics: hammer
Key Color:

BG Dynamics: smash



STUMP

Key Graphics: tree stump
Key Color:

BG Dynamics: explode



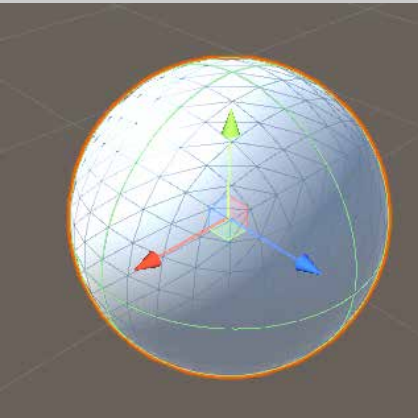
APPLE

Key Graphics: branch and apple
Key Color:

BG Dynamics: drunk

GENERATIVE DESIGN

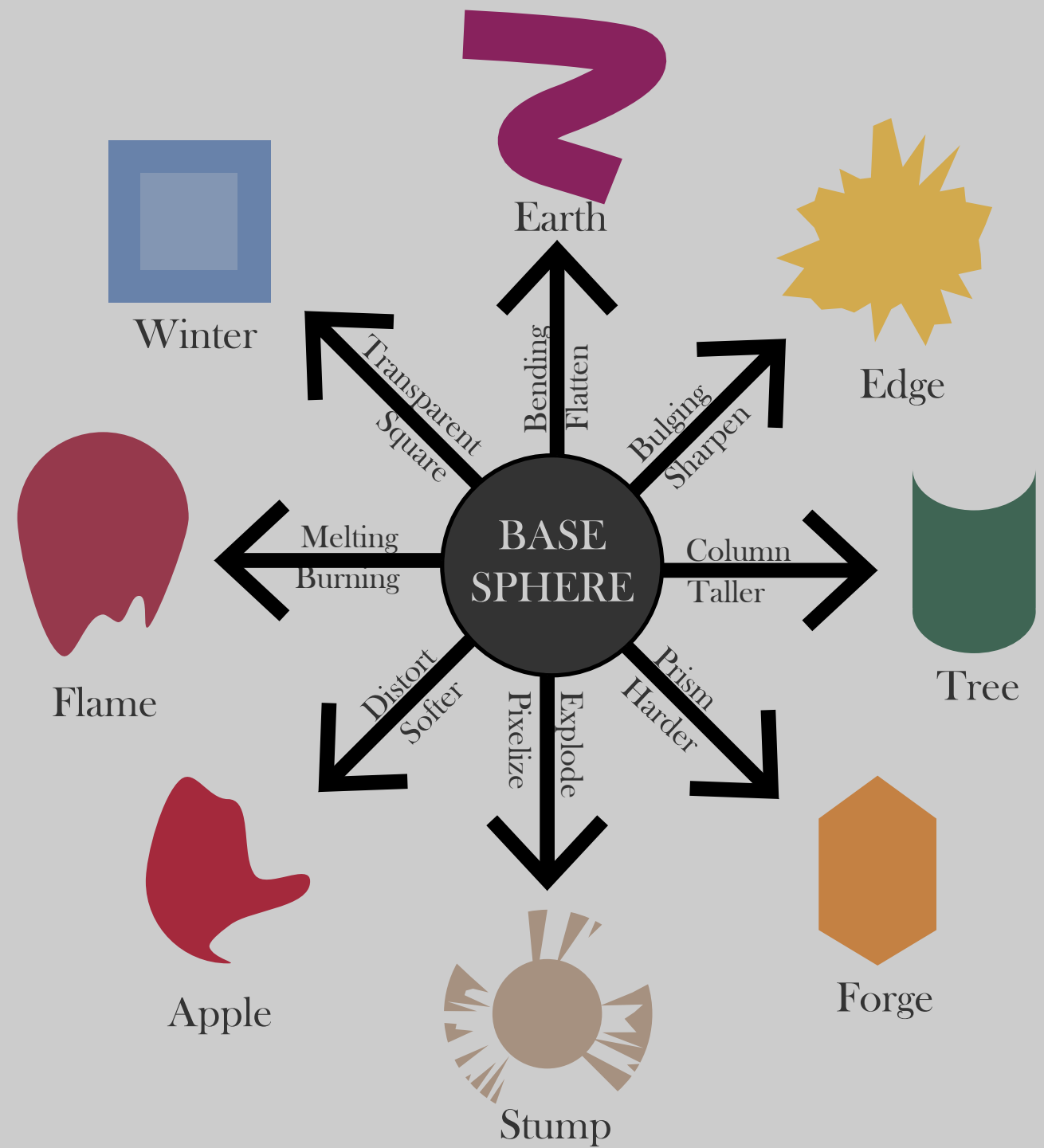
Generative Route



The default sphere in Unity serves as the starting point for my generative design.

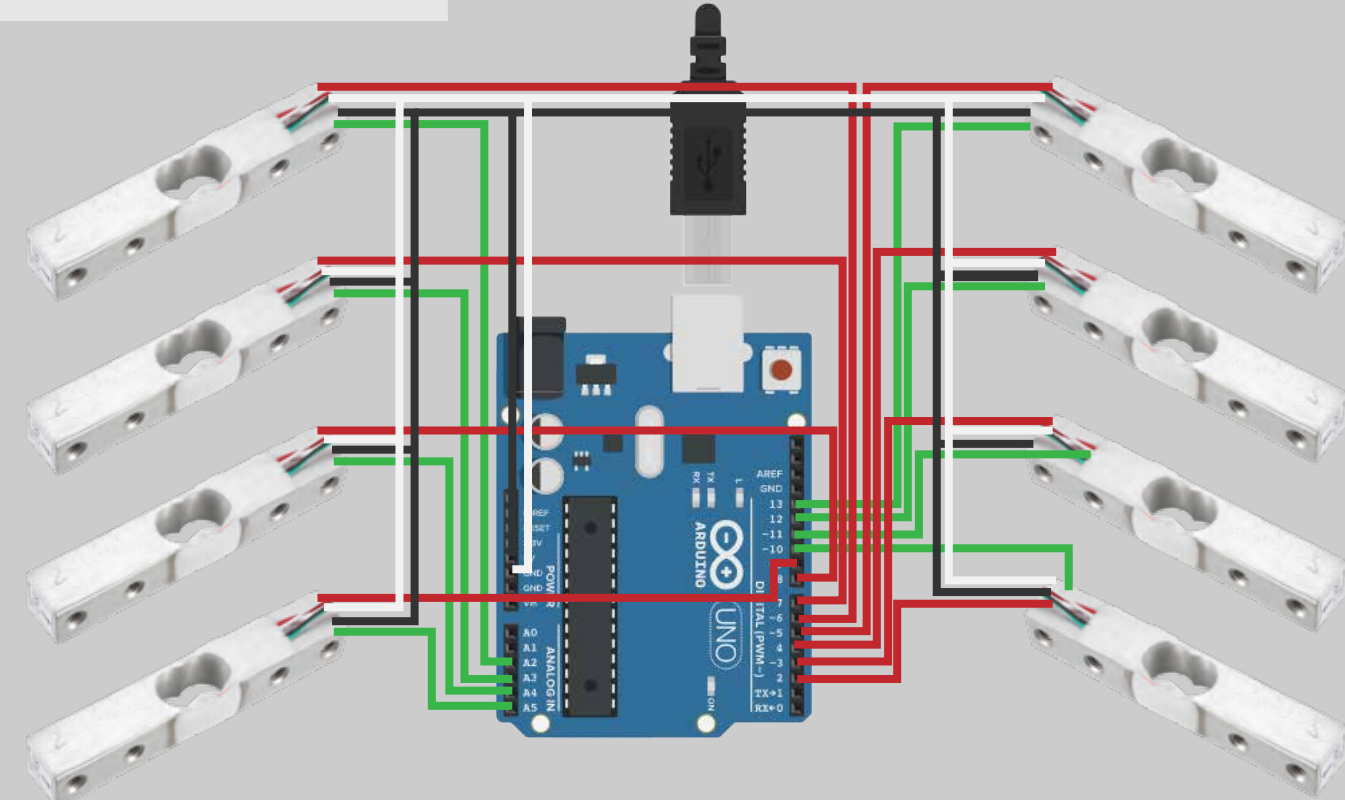
Based on different aspect values, I use scripts to modify its appearance across three aspects: mesh, material, and post-processing. The basic modification characteristics are shown in the diagram below.

Main Modification of Different Aspects



Hardware

Circuit Diagram



Arduino IDE Coding

```
#include <HX711.h>
#define NUM_SENSORS 8
const int DOUT_PINS[] = {2, 3, 4, 5, 6, 7, 8, 9}, CLK_PINS[] = {10, 11, 12, 13, A0, A1, A2, A3};
HX711 scales[NUM_SENSORS];
float calibration_factors[] = {385, 385, 385, 385, 385, 385, 385, 385};
void setup()
{
  Serial.begin(9600);
  for (int i = 0; i < NUM_SENSORS; i++)
  {
    scales[i].begin(DOUT_PINS[i], CLK_PINS[i]);
    scales[i].set_scale(calibration_factors[i]);
    scales[i].tare();
  }
}
void loop()
{
  delay(2000);
  for (int i = 0; i < NUM_SENSORS; i++)
  {
    Serial.print(scales[i].get_units(1), 2);
    Serial.print(i < NUM_SENSORS - 1 ? ", " : "\n");
  }
}
```

Unity Project

👉 Source code on GitHub

Project Tree

Assets

Editor

- Migration
- Vuforia

Fullscreen

- Editor

Materials

- Textures

Renderer

- Glitch
- OilPainting
- Pixelation
- Toon

Resources

Scenes

Scripts

- Aspects

Settings

StreamingAssets

- Vuforia

TextMesh Pro

- Documentation
- Fonts
- Resources
- Shaders
- Sprites

UI

Script Snippet

```
// AspectManager.cs
using System;
using System.Collections.Generic;
using System.Linq;
using UnityEngine;
using UnityEngine.Rendering;
using UnityEngine.Rendering.Universal;

public class AspectManager
{
    private List<IAAspect> aspects = new List<IAAspect>();

    public void AddAspect(IAAspect aspect)
    {
        aspects.Add(aspect);
    }

    public void ClearAspects()
    {
        aspects.Clear();
    }

    public void ApplyMeshEffects(ref Vector3[] vertices, float radius)
    {
        // Sort aspects by priority
        var activeAspects = aspects.Where(a => a.Priority > 1).OrderByDescending(a => a.Priority);

        foreach (var aspect in activeAspects)
        {
            aspect.ApplyMeshEffect(ref vertices, radius);
        }
    }

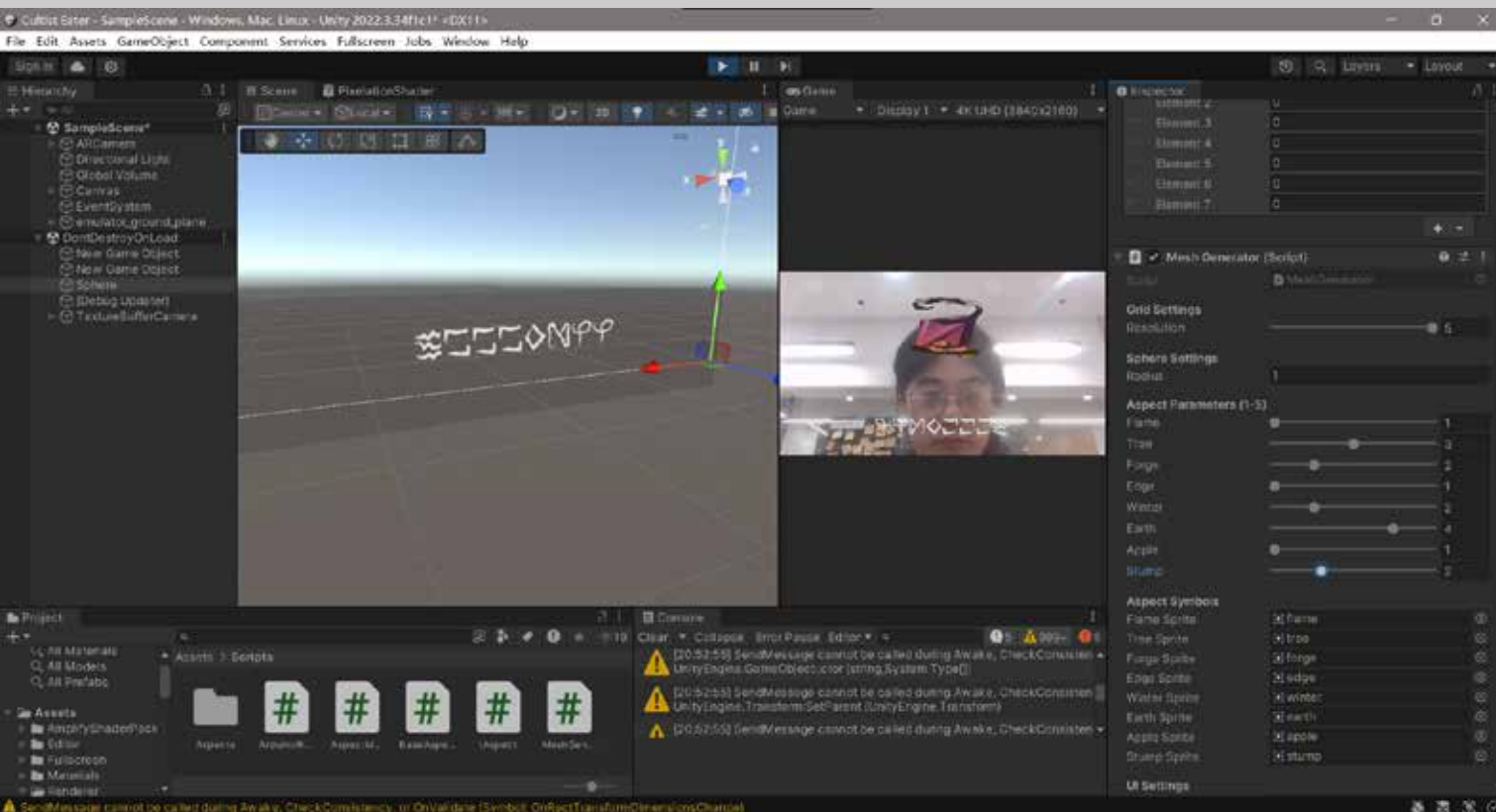
    public Material GetHighestPriorityMaterial()
    {
        var activeAspect = aspects.Where(a => a.Priority > 1).OrderByDescending(a => a.Priority).FirstOrDefault();
        return activeAspect?.GetMaterial();
    }

    public void ApplyRenderingEffects()
    {
        foreach (var aspect in aspects.OrderByDescending(a => a.Priority))
        {
            aspect.ApplyRenderingEffect();
        }
    }

    public void InstantiateEffects(Transform parent)
    {
        foreach (var aspect in aspects)
        {
            if (aspect is FlameAspect flameAspect)
            {
                flameAspect.InstantiateEffects(parent);
            }
            // Handle other aspects with effects
        }
    }

    public void ClearEffects()
    {
        foreach (var aspect in aspects)
        {
            if (aspect is FlameAspect flameAspect)
            {
                flameAspect.ClearEffects();
            }
            // Handle other aspects with effects
        }
    }
}
```

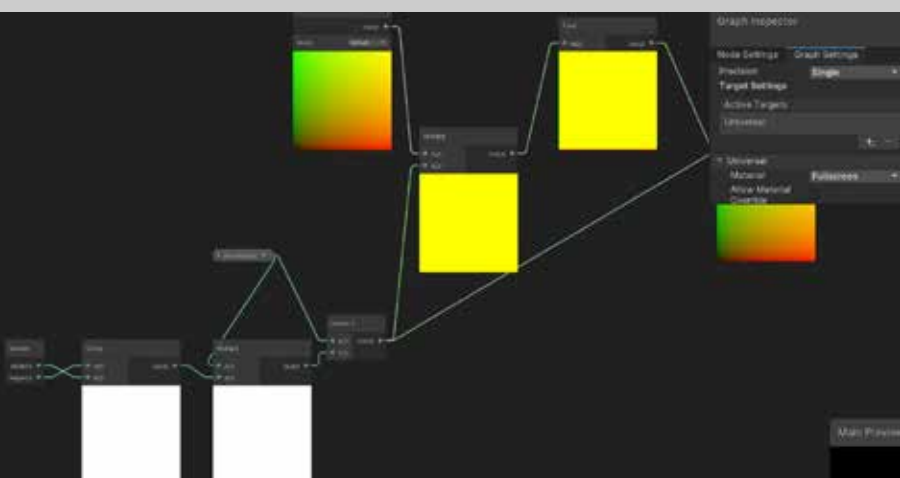
Test Scene



Hierarchy

- SampleScene*
- ARCamera
- Directional Light
- Global Volume
- Canvas
- EventSystem
- Sphere

Shader Graph



ASSEMBLE & TEST

Painting on slates

I used paint and brushes to color the slate by hand to replicate the design drafts, as technical limitations prevented the realization of UV printing.

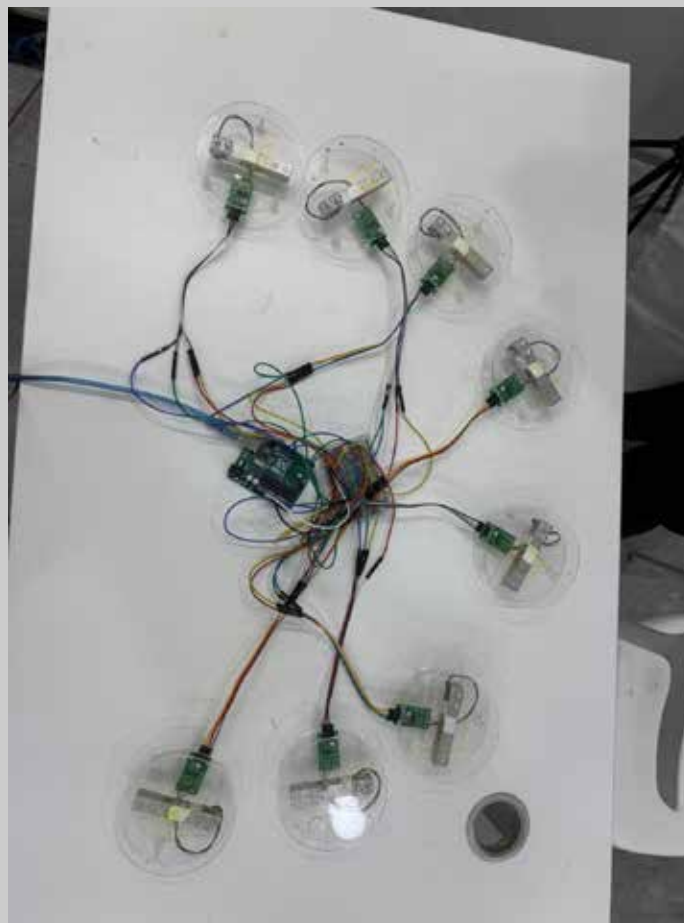
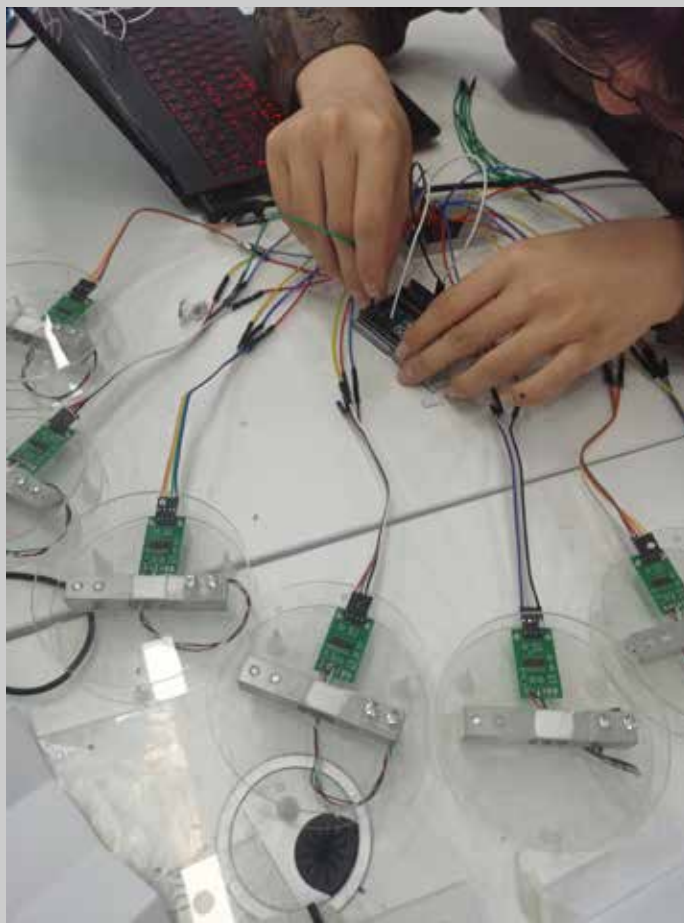


Tablecloth Customization

The tablecloth design also follows a consistent design language, with a visual center created to focus attention on the procedurally generated sphere.



Usability Test



Exhibition View

