

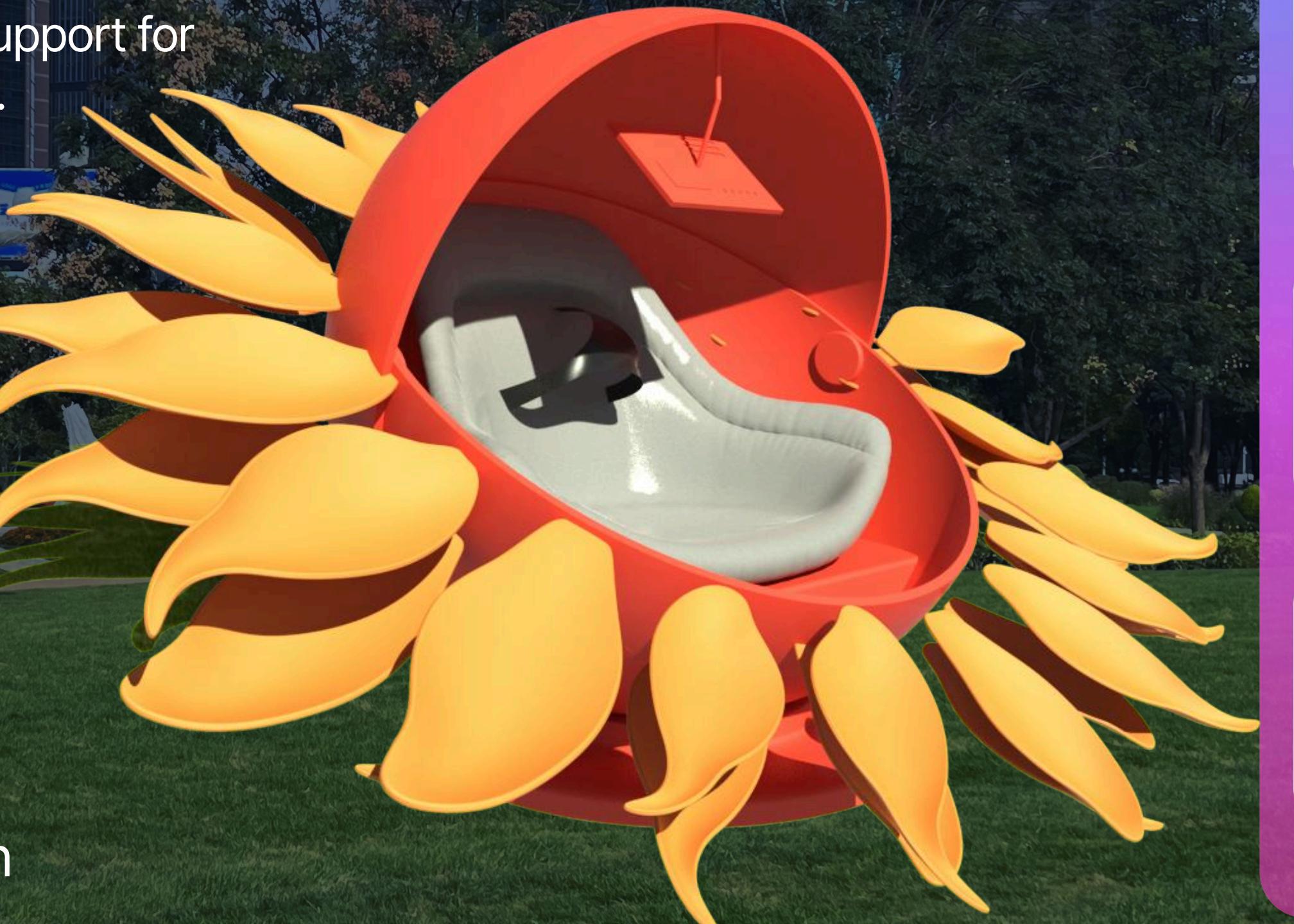
INDIVIDUAL PROJECT

# MOODFADE MACHINE

An interactive device designed to provide emotional support for people experiencing loneliness and emotional distress.

## Project Summary

The device monitors users' emotional and stress levels, offering a simulated "hug" experience to help alleviate loneliness and tension. Users connect to the device via a mobile app, engage in an emotional interaction, and receive a report on their emotional changes afterward. The device adapts to weather conditions, ensuring comfort and support in various environments.



User Experience Design / Interactive Design

TIME DURATION 9 WEEKS

help you find where

**Map**

[Read More](#)

connect the installation on the streets

**Connect**

[Read More](#)

check the history information

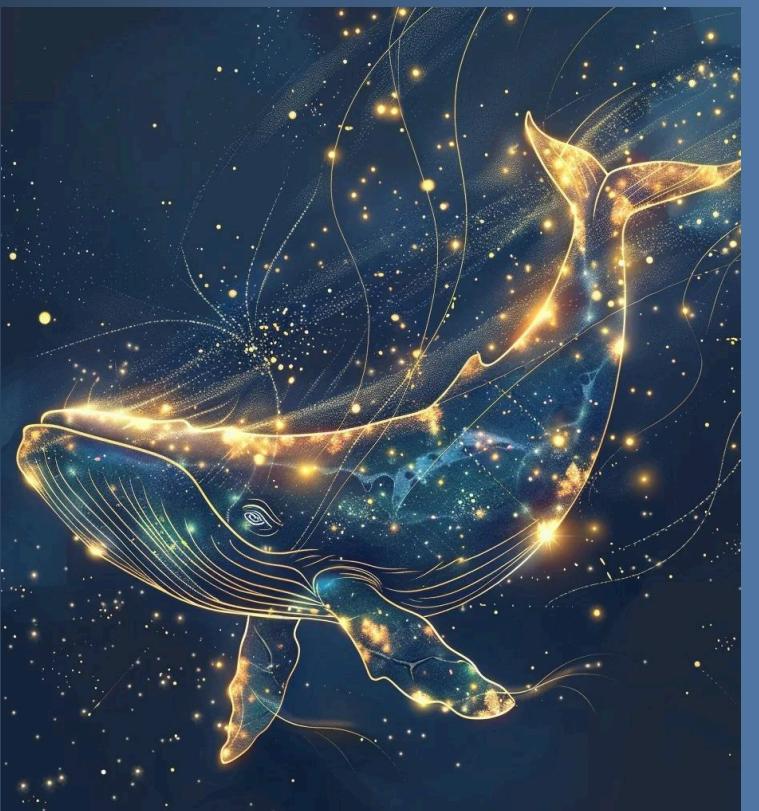
**Report**

[Read More](#)

## RATIONALE

A story of Lonely Whale.

In 1989, scientists detected a sound from the deep ocean, which turned out to be the call of a lonely whale. Its frequency, 52 Hz, is one that no other whale species can perceive. It travels alone, singing its solitary song, from the Pacific to the Atlantic. The ocean is vast, the world is immense, yet it remains forever unique and one of a kind.

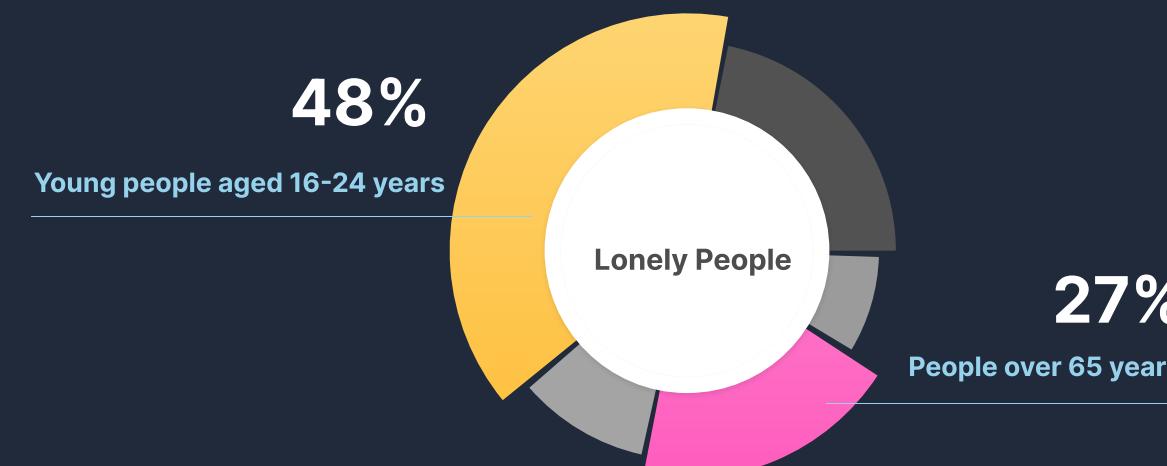


## THINKING

The unique frequency of this whale makes it imperceptible to other species. Similarly, in this world, lonely individuals often remain misunderstood and unnoticed by those around them.

## BACKGROUND RESEARCH

### Global Loneliness Index



The data shows that the largest two lonely groups are the elderly and the young, particularly those aged 14-26 years.

### REASONS

- 01** Social reasons: The process of urbanization has caused most young people to gather in big cities for study and work, which leads to a disconnection from the environment in which they were born.
- 02** Economic reasons: The development of the internet economy has made young people more inclined to socialize online and solve problems through virtual communication, resulting in a lack of face-to-face interaction in real-life settings.
- 03** Policy reasons: Due to the influence of the one-child policy, most families only have one child.



Teenagers

**" No one understands me."**



The Middle-Age

**" It feels like being lost like in the maze."**



The Adult

**" I need it as a rest, and it kind of refreshes myself."**



The Elderly

**" Embrace solitude."**

— Expressions From Lonely Group

## INTERVIEW

Do you feel lonely? In what situations do you feel lonely? How do you adjust loneliness, and how effective is it?

When you are feel lonely...	Situation	Behaviors	Efficiency
Luke / 25 Student MBTI: INFJ	Lost in love	<ul style="list-style-type: none"><li>• Play Games</li><li>• Movies / Books</li></ul>	<div style="display: flex; align-items: center;"><div style="flex-grow: 1;"></div><div style="font-size: small;">■ ■ ■ ■ ■</div></div>
Jane / 22 Student MBTI: ENFP	Came to a city by himself and had no friends	<ul style="list-style-type: none"><li>• Fishing</li><li>• Make a pig of oneself</li></ul>	<div style="display: flex; align-items: center;"><div style="flex-grow: 1;"></div><div style="font-size: small;">■ ■ ■ ■ ■</div></div>
Anna / 27 Student MBTI: INTP Study abroad	Rest by yourself, friends go to work	<ul style="list-style-type: none"><li>• Organize your clothes</li><li>• Cleaning house</li></ul>	<div style="display: flex; align-items: center;"><div style="flex-grow: 1;"></div><div style="font-size: small;">■ ■ ■ ■ ■</div></div>

## Conclusion

1. Most young people's actions to alleviate loneliness can only provide temporary relief and do not address the root causes of loneliness.
2. Prolonged loneliness can lead to mental health issues, as well as negative and disorganized thinking.
3. Most young people are willing to try different ways to address their mental health issues, as they yearn to establish connections with society.

## OBSERVATION

When people feel emotionally lonely, what do they do?



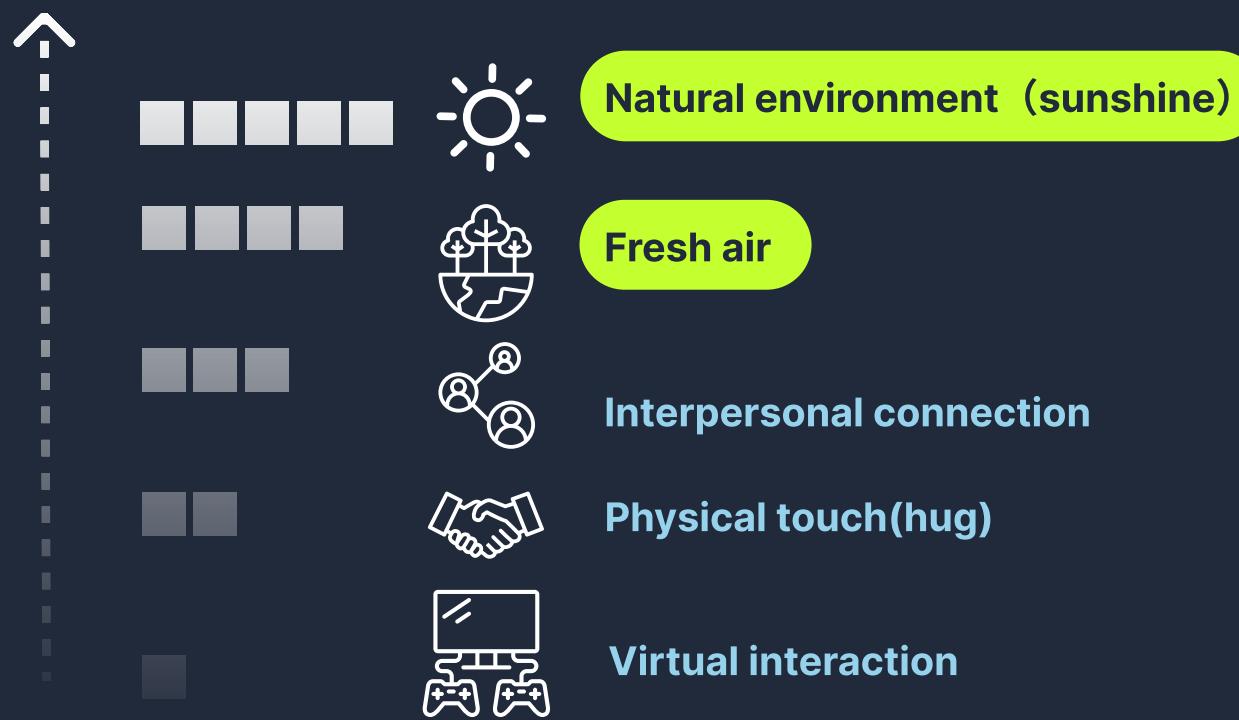
## Conclusion

The common thread across these observations is that people are often searching for ways to fill a void—whether through distraction, social interaction, or introspection. However, these methods tend to offer only temporary relief, not a deep sense of connection or emotional rejuvenation.

## IDEATION

When people find themselves feeling lonely, they often need external energy to help themselves, and this energy can be:

### Energy



## CONCEPT

### Target Audience:

- People who seek **genuine emotional comfort** and **energy replenishment**.
- Those experiencing **loneliness** in various forms, such as **social isolation** or **virtual escapism**.

### FUNCTION:

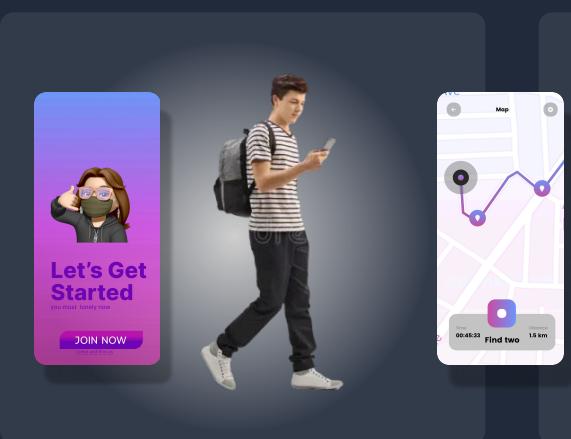
- To provide a space where users can **process** and **release negative emotions**.
- To help users feel **reconnected**, **refreshed**, and **emotionally healed**.

### PURPOSE:

- The design metaphorically "**swallows**" **negative emotions**, creating an experience of **emotional relief**.
- It offers **warmth, connection, and healing** through an **interactive** and **comforting environment**.

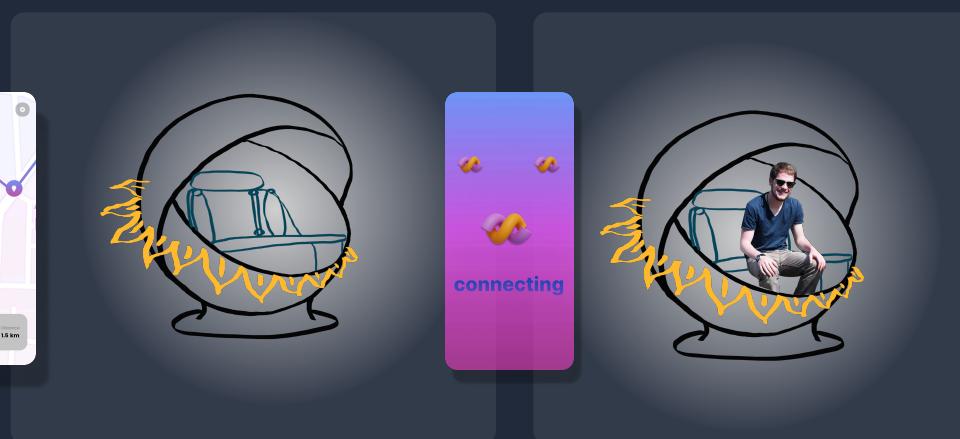
# STORYBOARD

Alert on the pushing Notification Find the way on the app



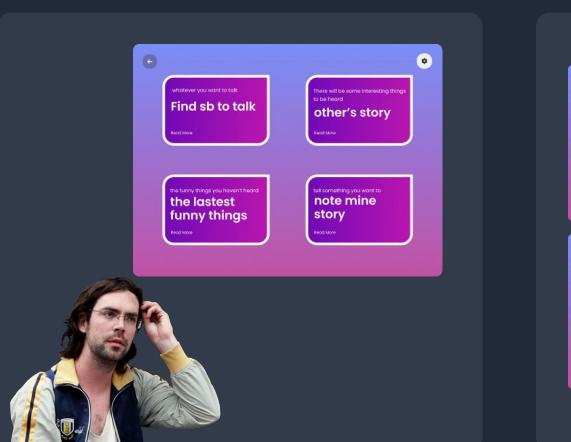
The App invite people who feel lonely to experience the MOODFADE MACHINE through mobile phone message push.

Enter the installation



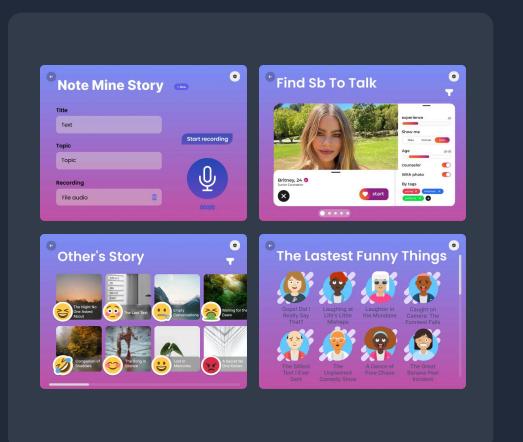
The user follows the map instructions to reach the device location. Once the user arrives at the device, the app automatically connects to it, ensuring the device is ready for interaction.

Experience the installation



once inside the device, IT will close. the experience will choose the preferred way to build contact through the interface;

Find a way to express



The device's screen offers four interactive modules: "The latest funny things," "Other's story," "Find sb to talk," and "note mine story." The experiencer can choose module based on their preferences.

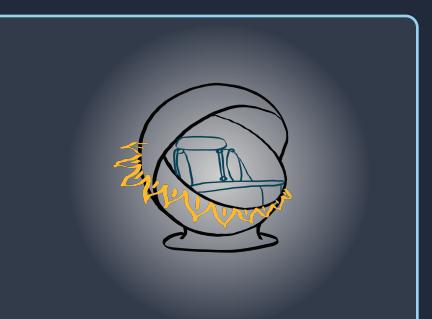
PATTERNS



Closing Pattern

When the device is closed, it will operate according to the rotation of the sun, just like a sunflower rotating around the sun to obtain energy; the metal material will reflect the surrounding environment and content;

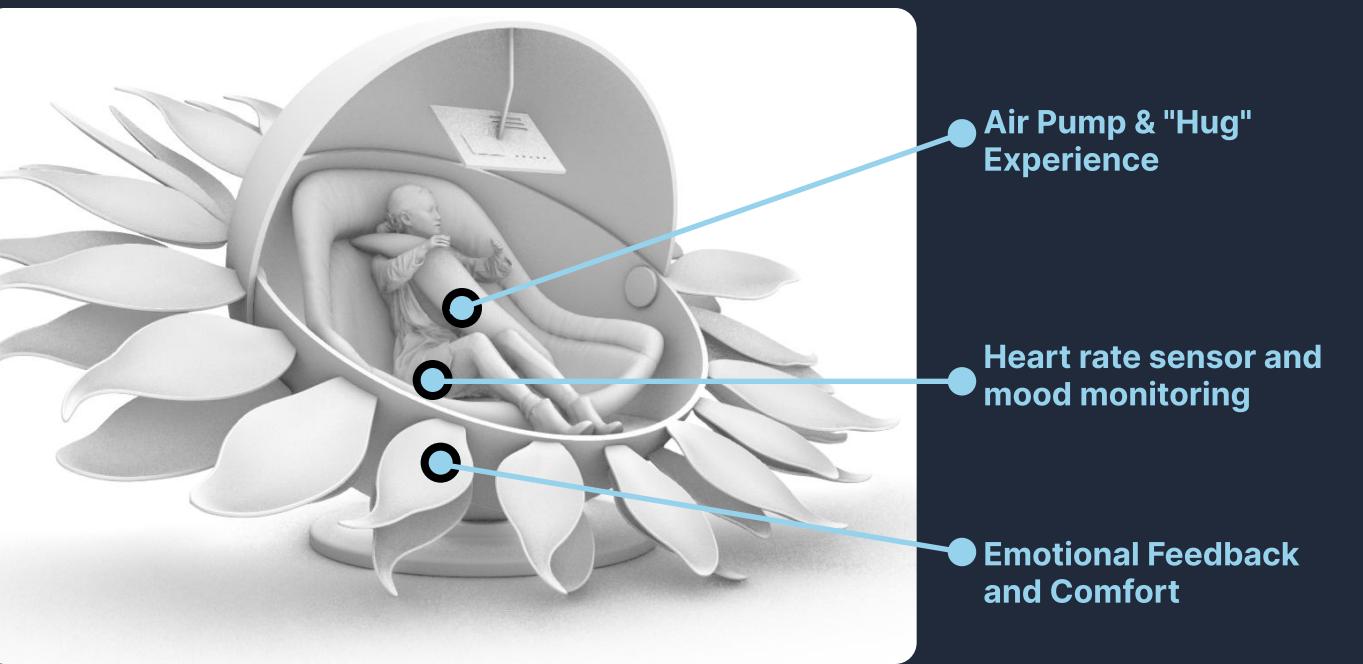
Opening Pattern



Experiencers can connect and open the device through their mobile phones and find a space of their own in a public environment;

# DESIGN DETAILS

## 3D MODELING



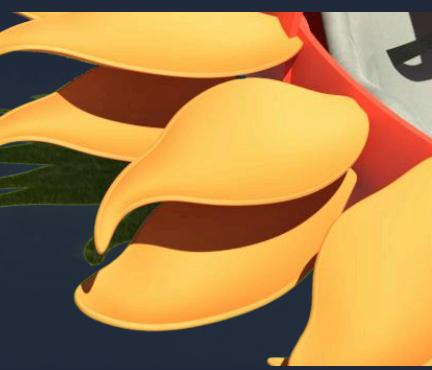
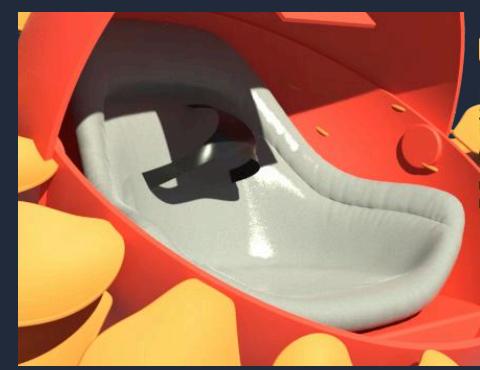
## Heart Rate Sensor and Emotion Monitoring

The heart rate sensor, positioned on the safety belt at the user's heart, continuously monitors emotional fluctuations and stress levels in real-time. This ensures that the device can respond appropriately to the individual's emotional state, offering personalized emotional feedback.

## Air Pump and "Hugging" Experience

When the sensor detects changes in emotion or stress, the air pump activates, gently enveloping the user, simulating a comforting hug. This provides emotional support and reassurance, creating a sense of security.

Emotional Feedback and Comfort



## TECHNOLOGY

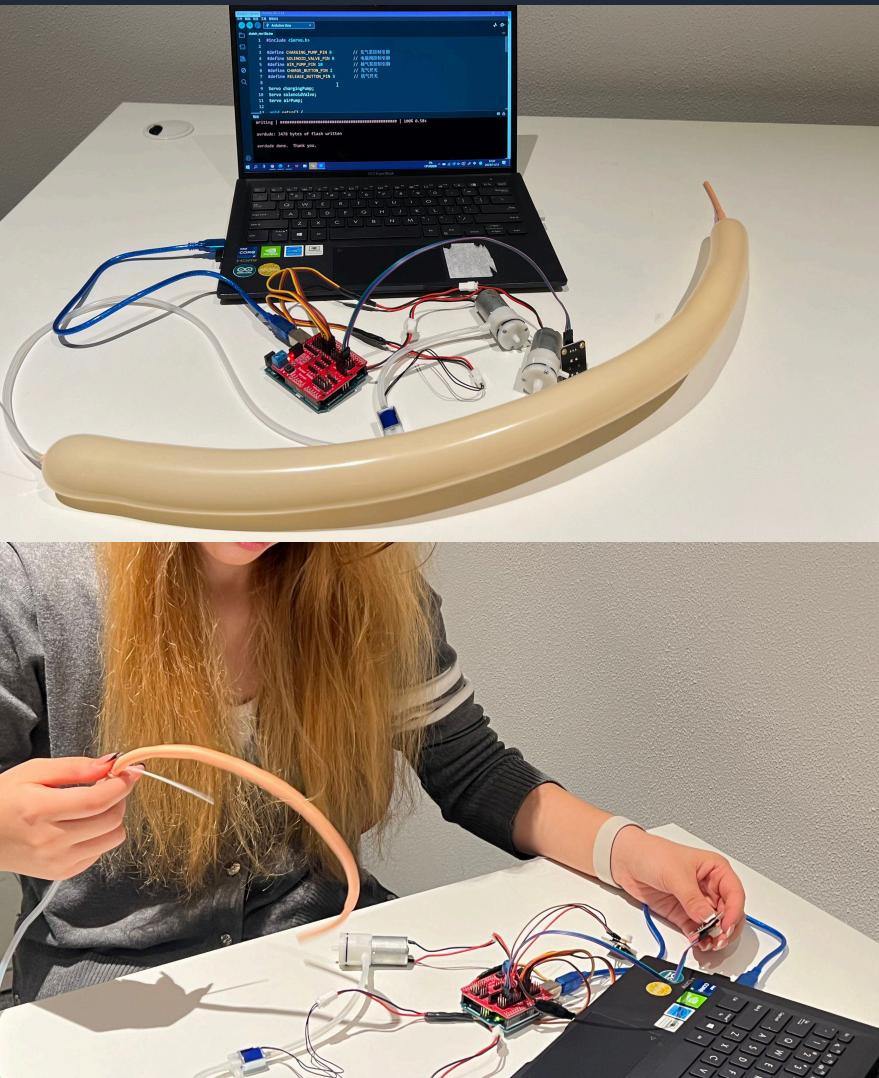
```
chargingPump.attach(CHARGING_PUMP_PIN);
solenoidValve.attach(SOLENOID_VALVE_PIN);
airPump.attach(AIR_PUMP_PIN);

chargingPump.write(0);      // 初始关闭充气泵
solenoidValve.write(0);    // 初始关闭电磁阀
airPump.write(0);          // 初始关闭抽气泵

}

void loop() {
  int heartRate = analogRead(HEART_SENSOR_PIN);
  Serial.print("当前心率值: ");
  Serial.println(heartRate);

  if (heartRate > HEART_RATE_THRESHOLD) {
    // 心率高于阈值，开启充气模式
    chargingPump.write(180);    // 充气泵打开
    solenoidValve.write(180);   // 电磁阀打开
    airPump.write(0);           // 关闭抽气泵
    Serial.println("气泵状态: 充气中");
  } else {
    // 心率低于阈值，开启放气模式
    chargingPump.write(0);     // 关闭充气泵
    solenoidValve.write(0);    // 关闭电磁阀
    airPump.write(180);        // 抽气泵打开
    Serial.println("气泵状态: 放气中");
  }
}
```





## Note Mine Story

Title  
Text

Topic  
Topic

Recording  
File audio

Start recording

00:00

## Find Sb To Talk

experience 20  
Show me Male Female Both  
Age 20-30  
counselor  
With photo  
By tags young kindness patience

Britney, 24 Junior Counselor

start

## The Lastest Funny Things

Oops! Did I Really Say That? Laughing at Life's Little Mishaps Laughter in the Mundane Caught on Camera: The Funniest Fails

The Silliest Text I Ever Sent The Unplanned Comedy Show A Dance of Pure Chaos The Great Banana Peel Incident



Derrick

🎂 2 Jan 1995 Teacher

Air Pump & "Hug" Experience: When the heart rate sensor detects a change in the user's mood or stress, the air pump device activates to wrap around the user's body, creating a feeling similar to being embraced, providing emotional support and comfort to the experiencer.



Ruben

🎂 22 Feb 1993 Nurse

I think the installation is very interactive. The interactive modules on the screen made me feel heard and understood. I especially enjoyed the "Others' Stories" section—it made me realize I'm not alone, and many others share similar feelings.



Randal

🎂 18 Nov 1990 IT Engineer

The entire experience felt like a brief emotional healing session. After leaving the device, I felt recharged, with a warmer and more positive mindset.

# FEEDBACK

# INDIVIDUAL PROJECT

# UNTITLED

Emotions are fluid and complex, and they cannot be simply categorized or defined. Each person's emotions are unique, and they cannot be confined to labels.

Video Link <https://youtu.be/RYJhKvkJ-ME>

## Project Summary

This project provides an emotional sanctuary for those who cry by transforming tears into a unique medium of emotional preservation and visualization. Centered on tear collection, the installation integrates the natural crystallization process with dynamic projection, turning emotions into visual art. Participants can encapsulate their tear crystals into resin keycaps, creating personalized mementos that deepen their connection to their emotions.

Time: 2024.6-2024.10

Size: 1.5\* 2\* 2 m. Adjustable

Medium: Interactive Installation

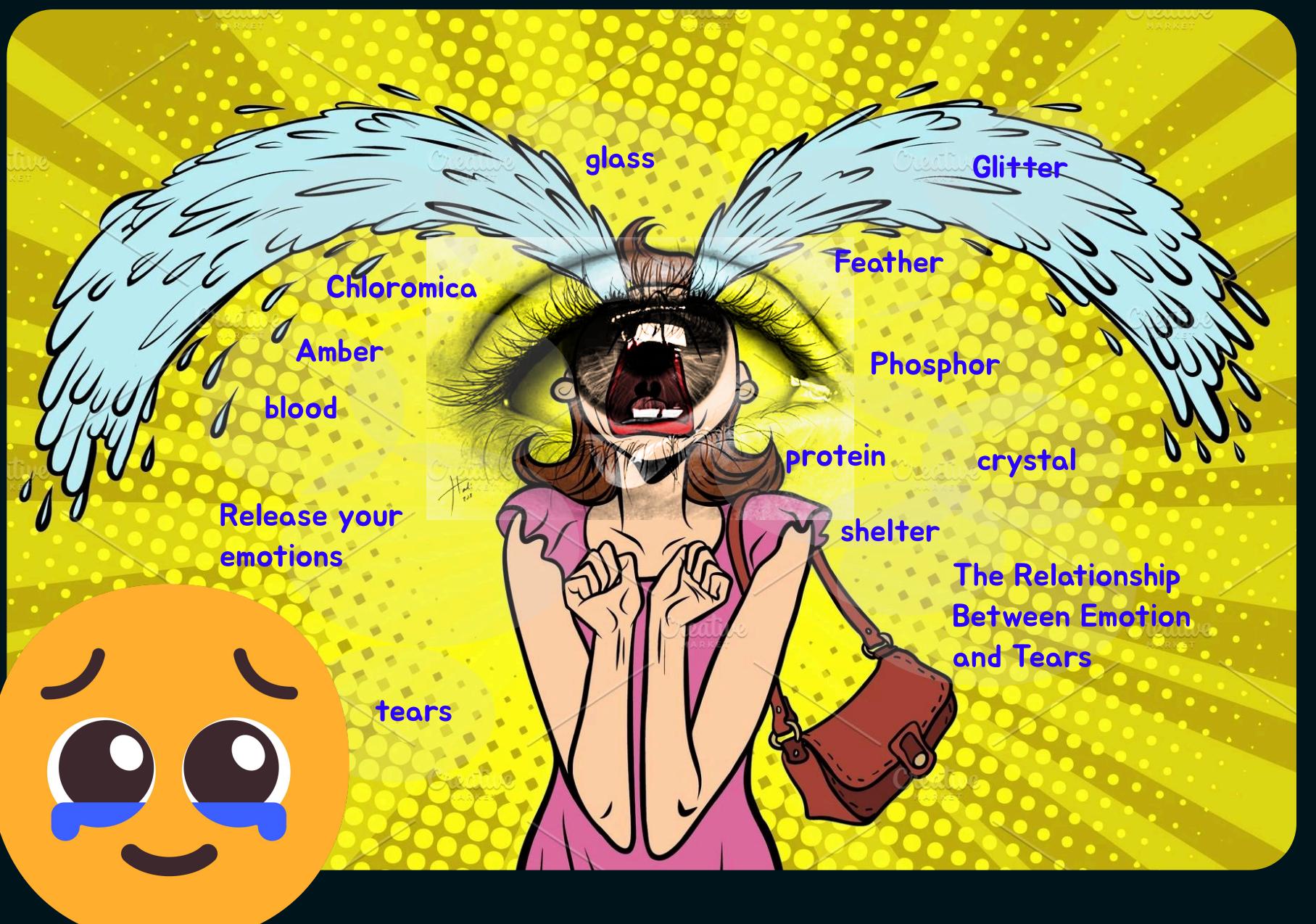
Design / Interactive design

# Background



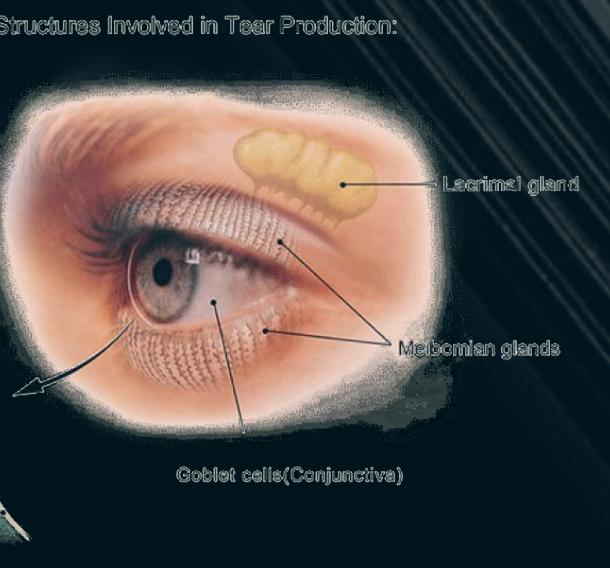
Every time you lower your head, there will be some tears dripping on the spectacle lenses. After a while, you will see some crystallization of tears.

## Mind Map



## Research How Are Tears Formed?

Image Source: National Institutes of Health (NIH)  
Tears spread across the cornea every time you blink in a thin film (tear film). They form in the lacrimal glands above the eyes and flow into the tear ducts (tiny tubes in the inner corners of the eyes). Then they make their way down through the nose. After this exciting journey, tears are either reabsorbed or they evaporate. The harder you cry, the more you can overload the tear drainage system. When this happens, tears flow more rapidly out of your eyes and nose.



## tears and blood

Tears Are Produced In The Lacrimal Glands That Are In The Outer Corners Of Your Eyelids With Contributing Components Coming From The Meibomian Glands (Producing Oil) And Goblet Cells Within The Underside Of The Lid (Producing Mucin). These Glands Produce Tears From Your Blood Plasma, Selecting Some Components But Not Others.

## Symbolic Meaning of Crystallized Tears

The crystallization process of tears symbolizes the "freezing" and preservation of emotions, as broken feelings gradually settle and solidify into a crystallized form. This process is both an emotional record and an opportunity for reflection and reevaluation of feelings.

## Why It's Good To Shed A Few Tears

The Experiment Conducted By American Biochemist William Frey II Found That The Protein Content In Emotional Tears Is 24% Higher Than That In Other Types Of Tears. These Proteins Also Contain Substances With Effects Similar To "Natural Painkillers." Additionally, Emotional Tears Contain A Large Amount Of Hormones, Such As Adrenocorticotropic Hormone And Encephalins, Which Are "Happy Hormones" That Can Help Alleviate Physical And Emotional Discomfort To Some Extent. Moreover, Crying Is An Unusual Activity That Involves Multiple Systems In The Body, Including The Respiratory, Circulatory, And Nervous Systems. It Helps Relax Emotions And Muscles, Thus Calming The Body And Stabilizing Emotions.

## 3 Types Of Tears



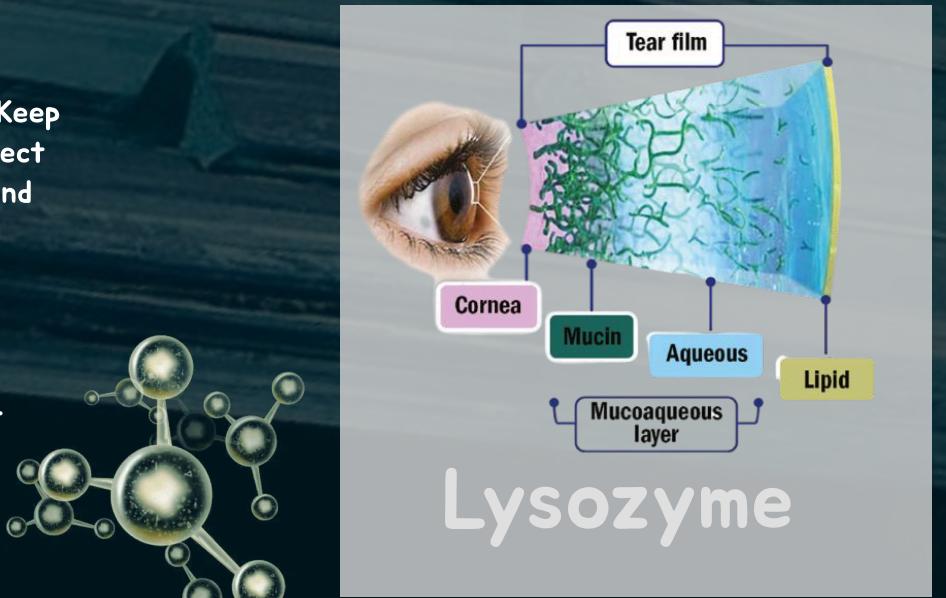
## Composition Of Tears

Water	98-99%
Lipid	1%
Electrolyte	0.9%
Enzyme	0.1%-0.2%
Metabolites	trace amounts
Mucin And Other Proteins	trace amounts

## the composition of basal tears and role in eye health

Tears Play An Important Role In Keeping Us Healthy. Tears Keep The Surface Of Our Eyeballs Clean And Moist And Help Protect Our Eyes From Damage. Tears Are Made Of Mucus, Water, And Oil, And Each Component Plays A Role In The Eye.

Our Tears Also Contain Natural Antibiotics Called Lysozymes. Lysozymes Help To Keep The Surface Of The Eye Healthy By Fighting Off Bacteria And Viruses.



## How To Hack Your Happy Hormones

- |  |  |
|--|--|
| <b>DOPAMINE</b><br>The Reward Chemical | <b>OXYTOCIN</b><br>The Love Hormone      |
| - Eating Food                          | - Socialising                            |
| - Achieving a Goal                     | - Physical Touch                         |
| - Complete a Task                      | - Petting Animals                        |
| - Self-Care Activities                 | - Helping Others                         |
| <b>ENDORPHINS</b><br>The Painkiller    | <b>SEROTONIN</b><br>The Mood Stabilizers |
| - Exercising                           | - Sun Exposure                           |
| - Listen to Music                      | - Be with Nature                         |
| - Watch a Movie                        | - Mindfulness                            |
| - Laughter                             | - Meditation                             |

# Conclusion

## Thoughts Bubble

The shape of each person's tear lump is different

With tears as the market currency,  
Where are the most valuable tears

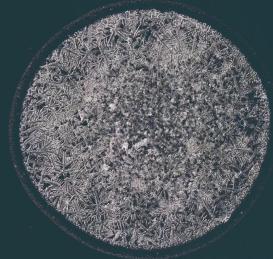
Every tear can be spliced together,  
As you add up,  
You can make a big one

## Symbolism Of Tears

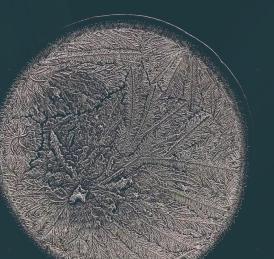
Sealing The Tears Into Keycaps Preserves These Emotional Fragments In A Way That Remains Accessible And Integrates Them Into Daily Life.

## Development

Different Crystalline Modeling Matrices



Tears Of Farewell



Tears Of Deep Despair



Tears Of Pain



Tears From Eating Hot Peppers



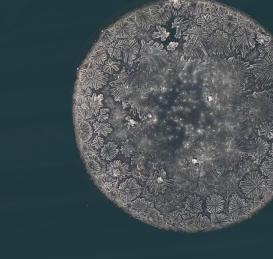
Tears While Looking At The Ventilator



The Mint Oil Stimulates The Tears That Flow Out.



Tears Shed While Cutting White Onions



Tears Left After Staring At A Fan For A Few Minutes.



Tears Of Sorrow



## 3Dmodel



Using 3D Modeling Technology, I Have Brought The Form Of Tear Crystals To Life, Presenting Them In A Unique Geometric Structure That Symbolizes The Transparency And Purity Of Tears While Also Reflecting The Complexity Of Emotions. The Delicate And Beautiful Crystalline Structure Transforms Tears From A Fragile, Fleeting Substance Into An Artistic Medium That Can Be Preserved And Contemplated For A Long Time.

## Emotional Interaction Between Tears And The Keyboard



The Keyboard Is A Vital Tool For Expression And Communication. And Keycaps Embedded With Tears Symbolize The Emotional Weight Carried With Each Keystroke.

The Encapsulated Tears Represent Past Emotions, While Typing Transforms These Feelings Into A Source Of Creative Energy. This Makes The Act Of Using The Keyboard Deeply Personal And Emotionally Meaningful.

## Material



Feather



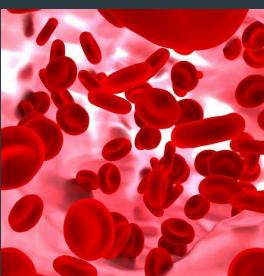
Phosphor



Amber



Ice Crack Pattern



Blood



Glass



Glitter

# STORYBOARD



Collecting Tears



Project the tears onto the wall using a projector, allowing people to observe and experience them.



Store them for preservation.



Drip the tears onto a microscope slide using a pipette.

# Interactive Design

## Materials Experiments

Ultraviolet Lamp

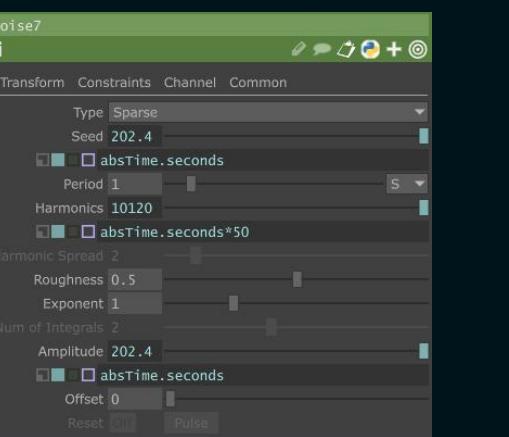


UV Glue

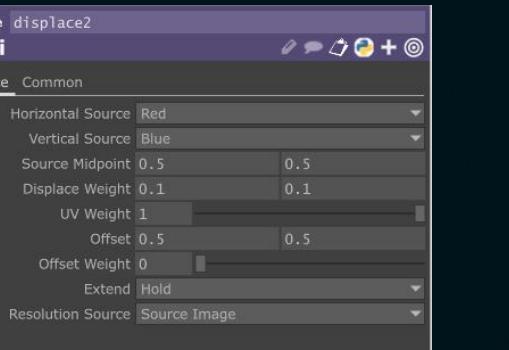
Keycaps

Mold

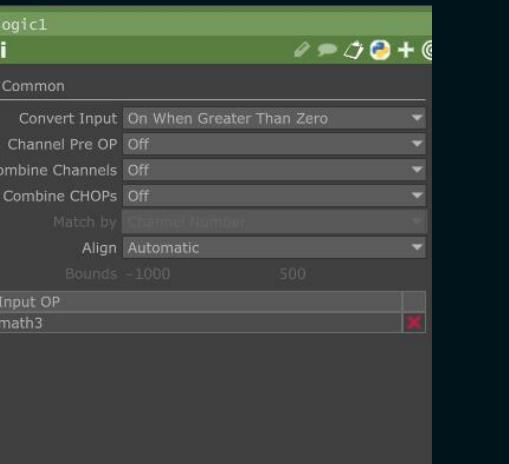
# Touchdesigner



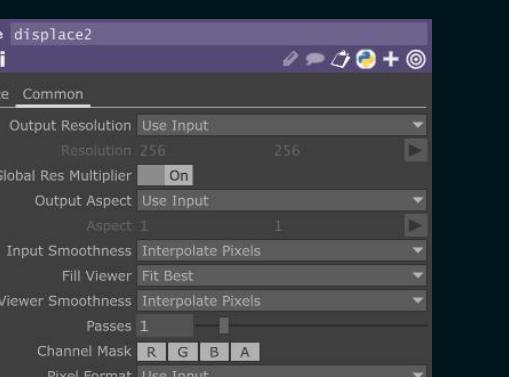
Make Tears Dynamic And Noisy



Let The Tear Pattern Have A Concave And Convex Three-Dimensional Effect

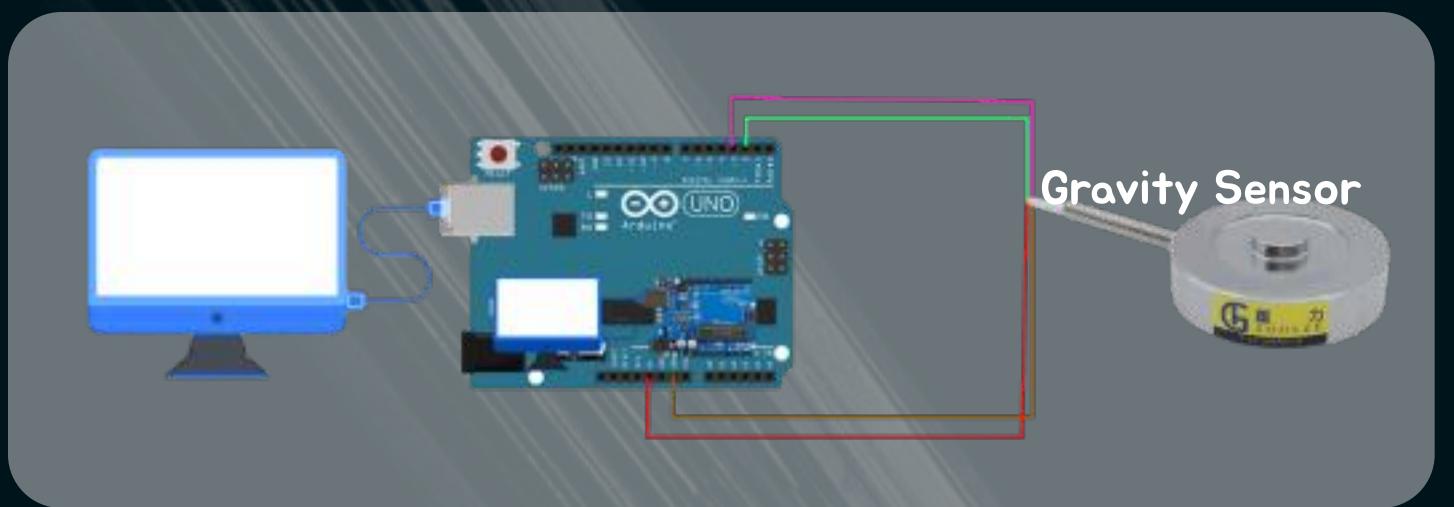


Logical Decision To Switch The Tear Pattern



Add Texture To The Tears

# Gravity Sensor



Gravity Sensor

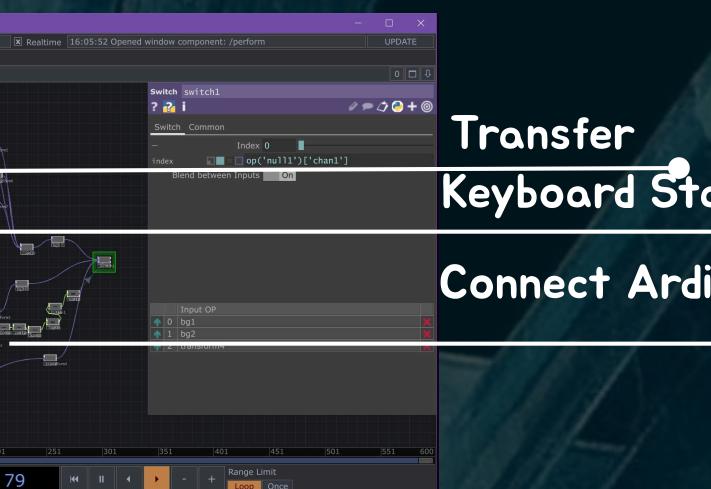
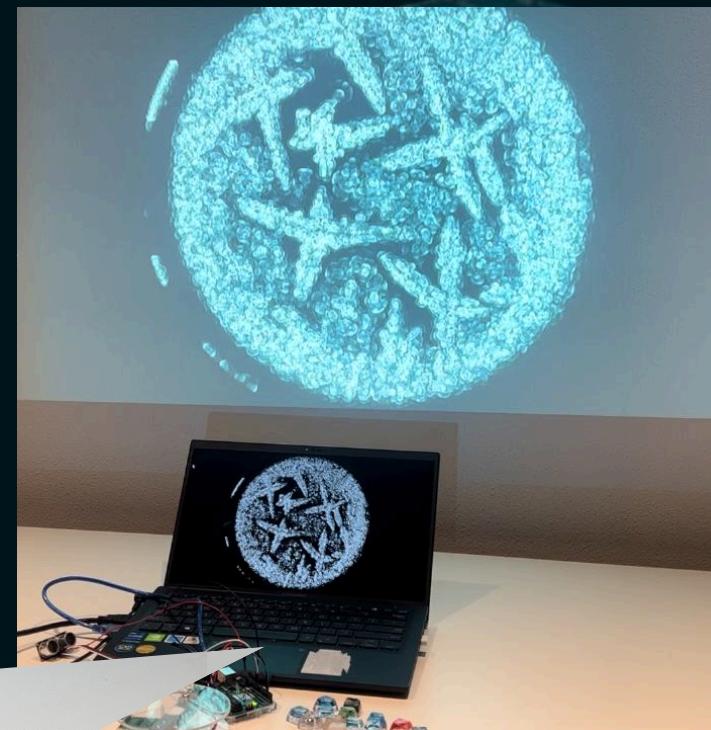
```
MassSensor_copy_20241127112744.ino
1 // Define pins
2 #define SCK_PIN 3
3 #define DT_PIN 2
4
5 HX711 scale;
6
7 void setup() {
8     Serial.begin(9600); // Initialize serial communication
9     scale.begin(DT_PIN, SCK_PIN); // Initialize HX711 with DT and SCK pins
10    scale.set_scale(); // Set the scale factor (calibrate this later)
11    scale.tare(); // Reset the scale to 0
12    Serial.println("Scale ready");
13 }
14
15 void loop() {
16     if (scale.is_ready()) { // Check if the scale is ready
17         long reading = scale.get_units(5); // Get an average reading
18         Serial.println(reading); // Print the reading
19     } else {
20         Serial.println("HX711 not found");
21     }
22 }
```

Capture The Signal From The Gravity Sensor

```
MassSensor_copy_20241127112744.ino
1 // Define pins
2 #define SCK_PIN 3
3 #define DT_PIN 2
4
5 HX711 scale;
6
7 void setup() {
8     Serial.begin(9600); // Initialize serial communication
9     scale.begin(DT_PIN, SCK_PIN); // Initialize HX711 with DT and SCK pins
10    scale.set_scale(); // Set the scale factor (calibrate this later)
11    scale.tare(); // Reset the scale to 0
12    Serial.println("Scale ready");
13 }
14
15 void loop() {
16     if (scale.is_ready()) { // Check if the scale is ready
17         long reading = scale.get_units(5); // Get an average reading
18         Serial.println(reading); // Print the reading
19     } else {
20         Serial.println("HX711 not found");
21     }
22 }
```

The Signal Transmitted By The Gravity Sensor To The TD Affects The Size Of The Object

# Device Structure

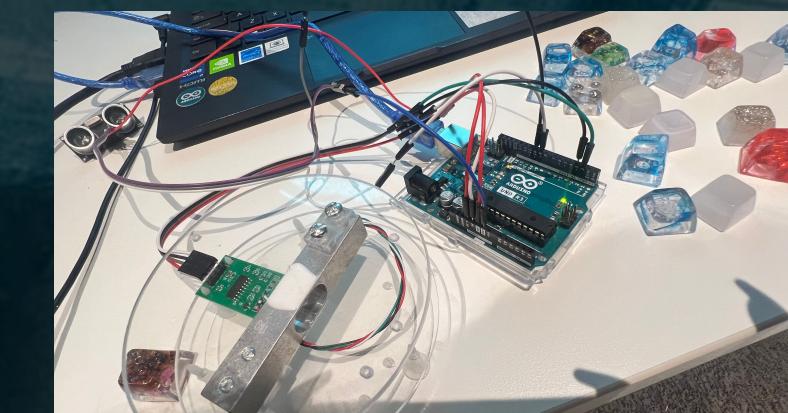
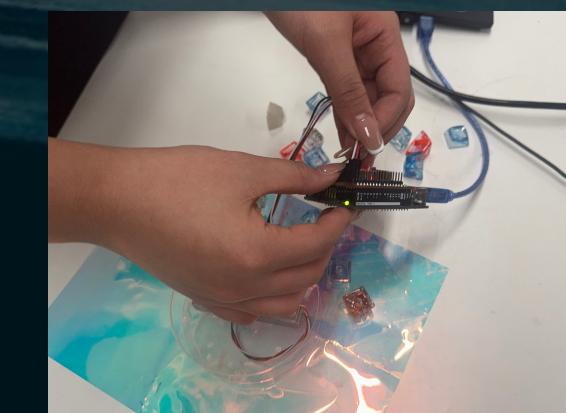


Picture

Add Noise

Transfer  
Keyboard Start

Connect Arduio



# Performance

## Audience Test

