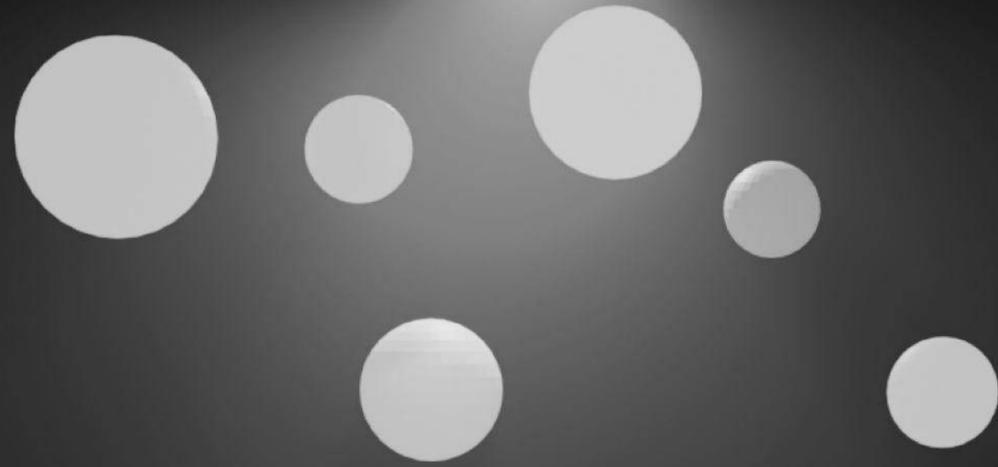


Emotional Connection Sofa

INTRODUCTION

This project explores the deeper emotional connection between humans and AI in the future. AI will become not just responders, but empathizers with the ability to perceive and provide emotional feedback. My design explores the bidirectional emotional connection between humans and AI through the image of a sofa, allowing the audience to generate new thinking about the relationship between humans and AI

VIDEO LINK: <https://youtu.be/1kPxxPhMsdA>

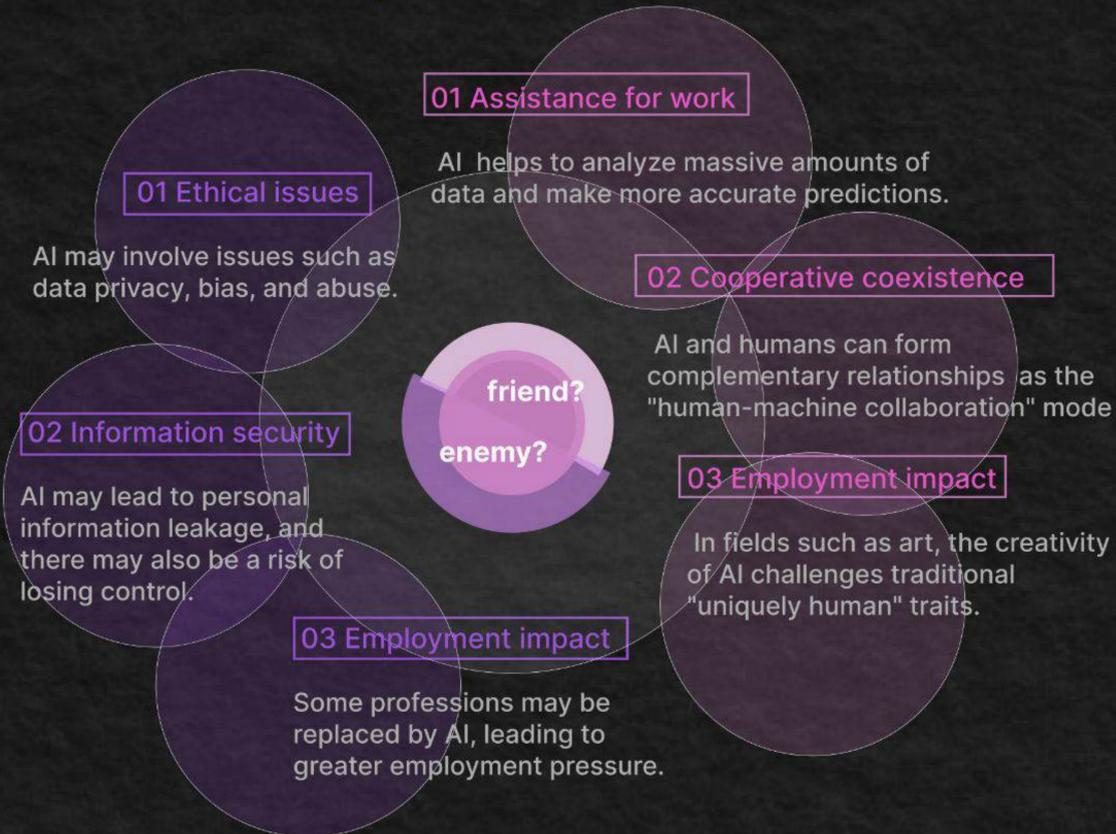


INSPIRATION

● Social phenomenon

Recently, with the social changes brought about by the development of AI technology, more and more people are choosing to speak to AI and even establish romantic relationships with AI. This social phenomenon has sparked a discussion about the relationship between humans and AI.

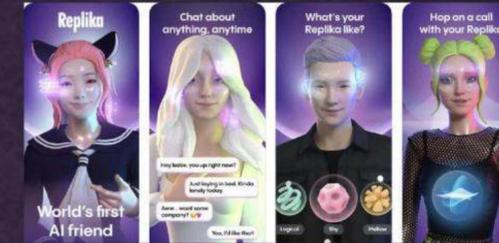
● The relationship between humans and AI



BACKGROUND

● Artificial intelligence chat software

Researchers at Stanford University found that many users of the AI chatbot Replika claimed that their chatbot prevented them from committing suicide.



The results of the report showed that 18.1% of people experienced therapeutic results while using the chatbot Replika, 23.6% saw positive life changes, and 3% said that their interaction with Replika made them abandon suicidal behavior.

81% believe that Replika is an intelligent device, 90% believe that Replika is similar to humans, and 62% believe that Replika is a piece of software.

● Literature research



In many literary works, people explore the possibility of emotional connection between humans and AI. In this movie, the protagonist heals real-life setbacks by falling in love with artificial intelligence. But the protagonist's friends believe that the protagonist is overly immersed in their relationship with artificial intelligence and **neglects real-life interpersonal relationships**.



In this game, even though robots exist as helpers for humans, many people still believe that they have taken up human living space. Robots can be beaten and abused at will, and their actions to fight for freedom and equality are suppressed. It seems that **there is an either or opposition between humans and robots**.

● How to establish a better relationship between humans and AI

What distinguishes humans from robots

soul?

Spiritual entities: without physical attributes, occupying no space, but capable of thinking, perception, will, etc.



body?

Material entity: has extension, can be measured and segmented, and operates mechanically.

Dualism is a philosophical theory proposed by French philosopher René Descartes (1596-1650) regarding the relationship between the mind and the body. He believes that the mind and body are two completely different entities, independent of each other but capable of interacting with each other.

For me, the key factor that distinguishes humans from robots is **emotions**. But this does not mean that robots are completely unable to understand emotions. By establishing emotional connections with robots, it may be possible to build more harmonious interpersonal relationships.

DEVELOPMENT TIMELINE

● The evolution of the relationship between man and machine

Mechanical tool stage

In the early days, technology emerged to serve the survival and prosperity of mankind. Technology is seen as a "tool". Human beings dominate science and technology, and science and technology serve human beings.

Automated machine stage

Technology is seen as a means to increase productivity and increase efficiency. Utilitarianism were the core values of the time, and human beings hoped to make their lives more convenient and create more value through technology.

Intelligent robot stage

At this stage, human beings gradually shifted from a simple tool relationship to a cooperative relationship with machines, and even began to endow technology with a certain degree of "intelligence" or "autonomy".

Human-machine symbiosis stage

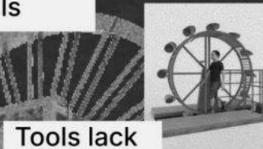
Robots are gradually moving towards the role of "human companions" or "emotional supporters". Humans are beginning to form some kind of "emotional connection" with robots, which is not only a work-level cooperation, but also involves psychological and emotional communication.

Mechanical tool stage

The concept of robots has not yet been formed, and humans mainly rely on simple mechanical devices to assist in labor. Typical technologies include waterwheels, levers, steam engines and other mechanical equipment. The goal is to reduce manual labor and improve productivity.



People manually use tools to achieve their goals



Tools lack autonomy

Automated machine stage

In the stage of automating machines, the Industrial Revolution promoted the automation of machinery, and machines began to replace some of the manual labor. Machines are still passively performing tasks and have no autonomous intelligence. The goal of this phase is to increase industrial productivity.



Machines simplify human labor



People are starting to worry about their jobs being replaced

Intelligent robot stage

In the intelligent robot stage, robots begin to have artificial intelligence (AI), speech recognition, machine learning, natural language processing and other capabilities. Robots have entered the service industry, medical care, home and other areas of daily life.



Machines act autonomously according to programs set by humans



Human and machine begin to form emotional connections

Human-machine symbiosis stage

In the human-machine symbiosis stage, the boundaries between robots and humans are blurred. Human-computer collaboration has entered a deeper level, such as the development of brain-computer interfaces, bionic human bodies, intelligent prosthetics and other technologies.



To be continue.....



Human and tools

human and assistants

human and companions

coexistence relationship

CONCEPT

● Ideas

In the future of rapid technological development and the rapid advancement of computer/robot technology, how can humans better adapt to new relationships, and how should we help humans and machines coexist more harmoniously?

problem to be solved :



In the future, more intelligent robots will emerge, with human like appearance and thinking, and **deeply involved in social life**

With the advancement of technology, people may become more **concerned** about the meaning of their **existence being replaced by machines**



How to establish emotional connection between human and robots?

reason of concern



distrust



heterogeneous



nervous



anxiety

ways to solve

basics of connection

the feeling of being seen and accepted
effective interactive communication

forms of connection

cozy space LED/real time
pleasant light
soft touch feeling

impact of connection

give people a sense of trust
promote mutual understanding

● Interview

How to shape such a space for communication?



Iris Female 22

Clouds symbolize an intangible yet always present connection

Female 20 **Ivy**



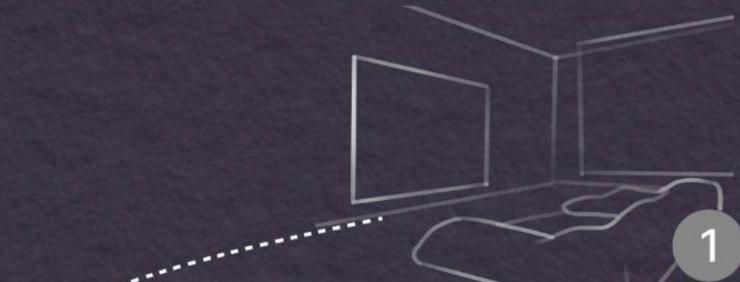
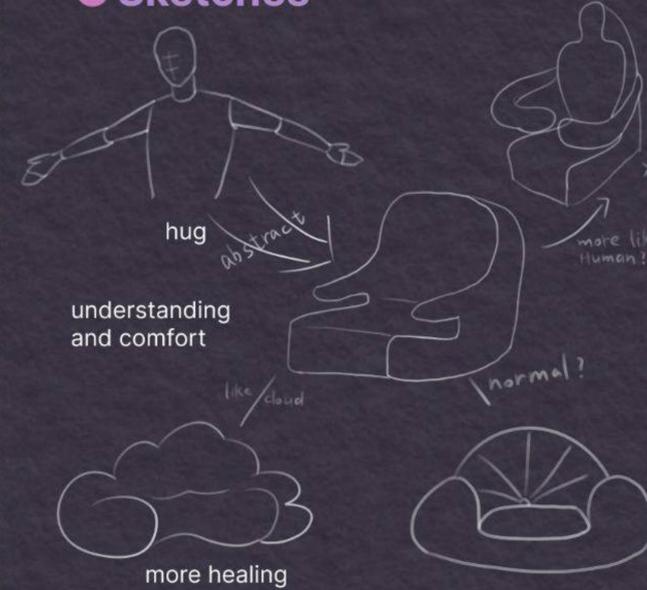
Embracing is the most direct expression of emotional trust



Alex Male 21

Plush has affinity, representing warmth and attachment

● Sketches



1 Firstly, the general form of this space has been envisioned. It mainly consists of a sofa and a projection screen, which are relatively dim



2 At first, the sofa was closer to a regular sofa, but it was only suitable for sitting and not for making more movements such as lying down



3 This shape may bring more affinity and healing to people, allowing them to use it more freely

The lighting changes in real-time based on detected emotions



Cheerful conversations with friends



A state of rest and relaxation



A quieter state of meditation

TECHNICAL TEST

I have conceived a short story that happened between a person and artificial intelligence, and made a movie using AI tools. This short film will be played in the space, and the audience's emotions will be detected during the playback



● Emotional testing

Purpose of the test

record the emotional fluctuations of the audience during the movie screening process

Test method

have the audience wear skin devices and play the video. Record audience emotional changes during video playback

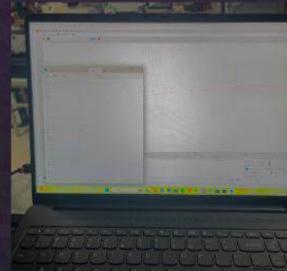
Process of the test



The audience wears a skin electric device and watches the film



Record the emotional data of the audience during the film



Analyze the recorded data and ask the audience to share their thoughts

Summary of the test

During the video playback, the audience's emotions went through a process from happiness to sadness. Overall, emotional changes are relatively gentle.

● Coding test

As the plot progresses, the audience's skin conductance data is recorded

When the protagonist and the robot become good friends:



When the protagonist and the robot become good friends:

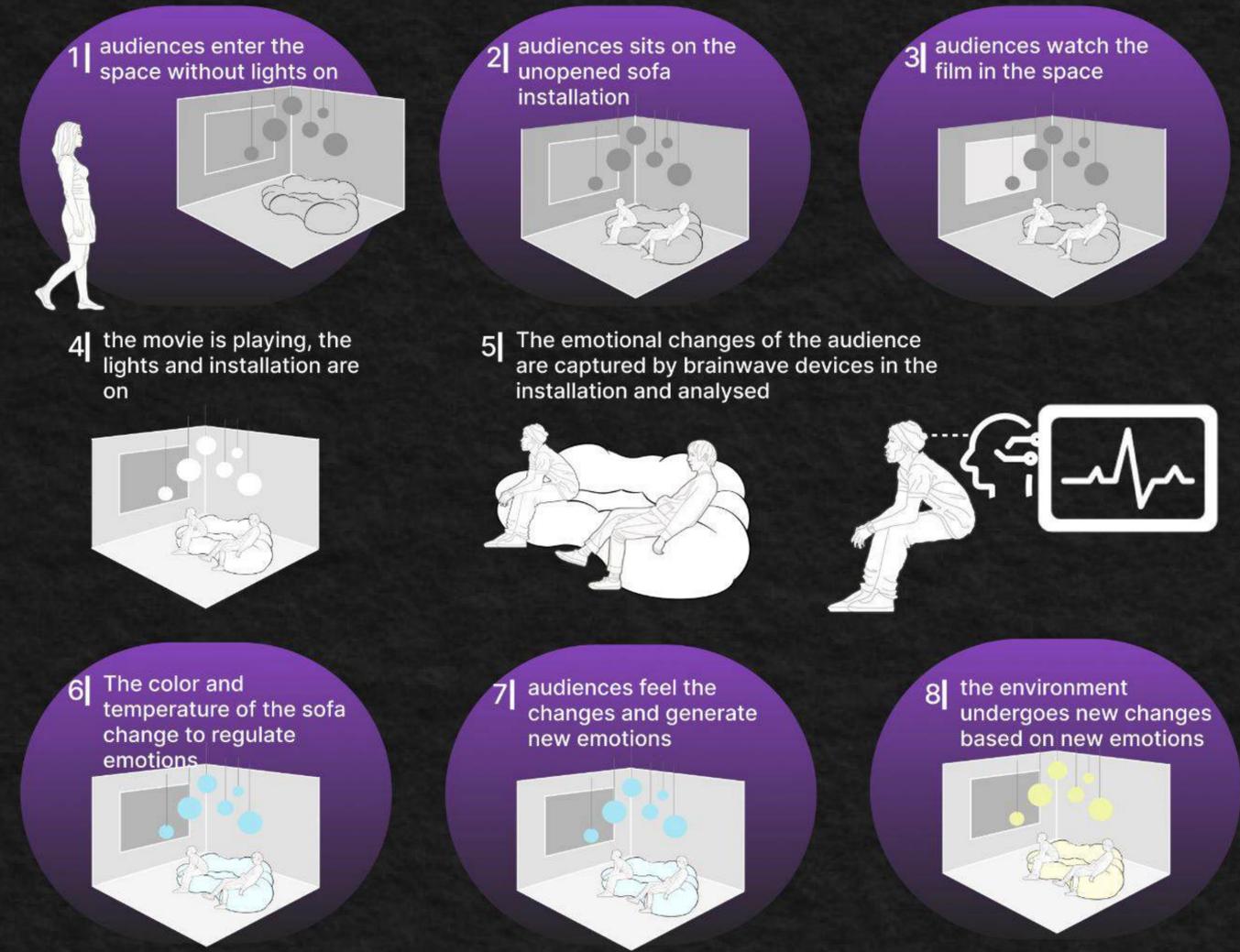


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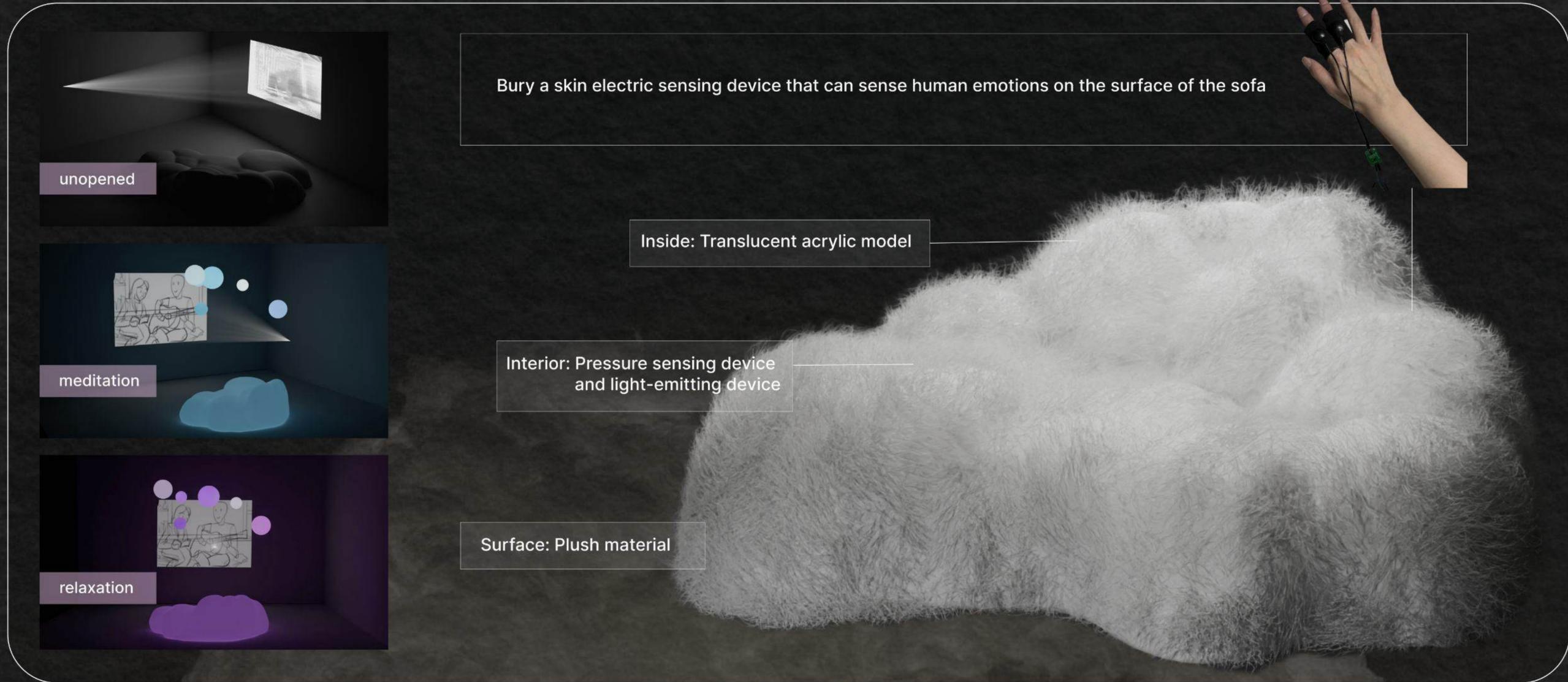
2  const int LED=13 ;
3  const int GSR=A0 ;
4  int threshold=0 ;
5  int sensorValue ;
6
7
8  void setup( ) {
9      long sum=0 ;
10     Serial.begin(9600) ;
11     pinMode( LED,OUTPUT ) ;
12     digitalWrite( LED,LOW ) ;
13     delay(1000) ;
14
15     for(int i=0 ; i<500 ; i++)
16     {
17         sensorValue=analogRead(GSR) ;
18         sum += sensorValue ;
19         delay(5) ;
20     }
21     threshold = sum/500 ;
22     Serial.print("threshold =") ;
23     Serial.println(threshold) ;
24 }
25
26 void loop( ){
27     int temp ;
28     sensorValue=analogRead(GSR) ;
29     Serial.print( "sensorValue=" ) ;
30     Serial.println( sensorValue ) ;
31     temp = threshold - sensorValue ;
32     if(abs(temp)>60)
33     {
34         sensorValue=analogRead(GSR);
35         temp = threshold - sensorValue;
36         if(abs(temp)>60){
37             digitalWrite(LED,HIGH);
38             Serial.println("Emotion Changes Detected!");
39             delay(3000);
40             digitalWrite(LED,LOW);
41             delay(1000);
42         }
43     }
44 }

```

STORY BOARD



VISUAL PRESENTATION



IMPLEMENTATION

● Material test



Surface material testing

Material: Cotton Sponge Plush Wool
My option: Cotton
reason: Cotton gives people the softest and most healing feeling



Inside material testing

Material: acrylic plastic-bottle
My option: acrylic
reason: Although plastic bottles are cheaper, acrylic can be shaped more accurate



Transparency test



Shaping test

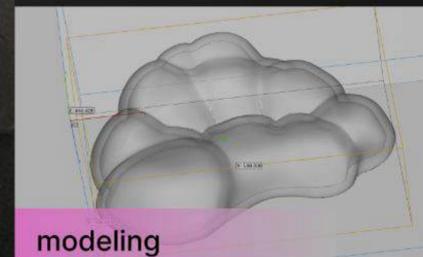


Load bearing test

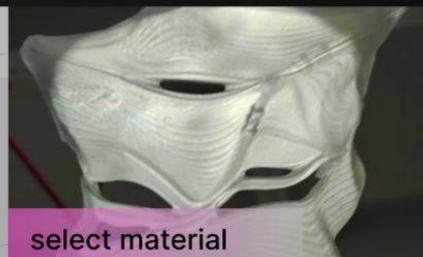
● Making process



3D print



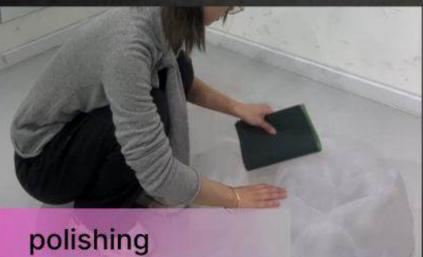
modeling



select material



receiving



polishing



1 Drill holes on the surface



2 Apply glue to the shell



3 Glue cotton to the surface



4 Arrange wires inside



5 Adjust the surface



6 Complete production

● Effect display



symbol: Creative Inspiration
percept: Purple has a surreal feel, mysterious and calm, and suitable for fantasy



symbol: sobriety rationality
percept: Blue gives a feeling of calmness and focus



symbol: warm vitality
percept: Yellow gives a sense of comfort and pleasure

FINAL OUTPUT

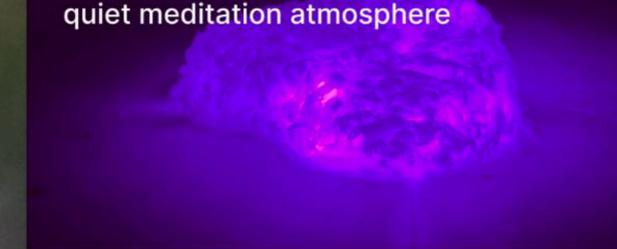
INTERACTION DETAILS

When the audience sits on the sofa and puts their hands into the fur electric device inside the sofa fluff, their emotions will be sensed. Next, the sofa will release light that is conducive to regulating this emotion and improving the mood of the audience.

Orange yellow lighting has the characteristics of warmth, vitality, and positivity, which can provide a soft social atmosphere



Purple light has the characteristics of calmness, mystery, and dreaminess, which can provide a quiet meditation atmosphere



Reflections

· Whose problem is this ?

This sofa specifically targets future urban dwellers with high emotional needs and low desire for expression. In their daily lives, they engage in substantial emotional labor and interpersonal coordination, creating a need for non-judgmental, low-threshold emotional feedback.

· Future optimization directions

Develop a multiplayer mode. When multiple people use it simultaneously, the halo can reflect the blending of emotions (such as merging colors), or gently indicate the differences in each person's emotions. This can transform the device from a tool for personal introspection into a medium that promotes non-verbal communication and enhances mutual understanding.

· How to ultimately better serve humanity

It points out a direction: technology should not be the answer to emotions, but rather a mirror or bridge that guides us in seeking answers. Future emotional design may need less anthropomorphic disguise and more honest care for human vulnerabilities.

