

■ Design theme

"Bitterness" for cancer patient

"Bitter" is a taste. It also represents physical and psychological pain. Today, the suffering of the most painful persons--**cancer patients** is **unspoken, understood and unrecorded**, causing people to fail to understand their pain, which is a **tragic fact for patients.**



"Sweetness" for cancer patient

"Sweet" that is gained by cancer patients in the anti-cancer process is **praiseworthy**. It's a pity that one can't comprehend the bittersweet journey of a cancer patient, causing them cannot derive strength and hope from it.



What will we do

We use **taste** to provide a new expression for cancer patients. Hopefully, cancer patients, as well as ordinary people, can gain something from it and eventually lead society to **reflect on "no sweet without sweat"**.



■ Design research

■ About cancer

Many reports of **positive and optimistic patients** have led society to believe that **psychological regulation of most patients is feasible and easy to achieve**. Ordinary people cannot understand the patient's pain.



Cancer patients in Chengdu come together to light up the light of life with art. The tenacity and optimism in life allowed them to get out of fear and find each other, "so we named the art troupe 'Light of Life.'"



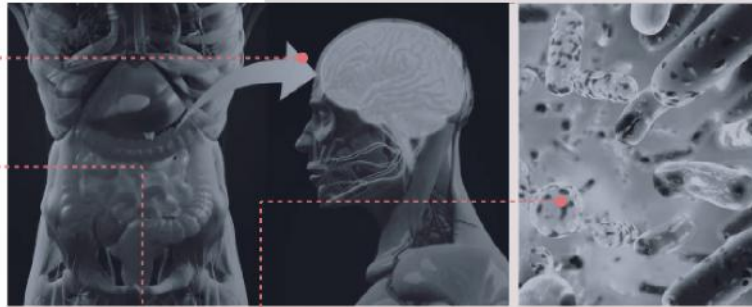
her boyfriend Xiao Tan came with flowers and proposed to her "3130 days, I don't want to wait"



I About bitterness

Gut = second brain

A new study by gastroenterologists at the University of California, Los Angeles (UCLA) found that the connection between the brain and the gut is linked to certain parts of the microbiome



Effects on mood

Our guts don't just convert food into energy, they also make up an entire ecosystem of neural networks and bacteria, allowing the two to communicate with each other and conduct information to our brains. This enteric nervous system can cause nervous tension and stomach discomfort when stressed, so in our digestive tract, up to 90% of cells will transmit information to the brain but they do not receive signals from the brain, making the intestinal situation more influential on the human body's emotional impact than the brain.



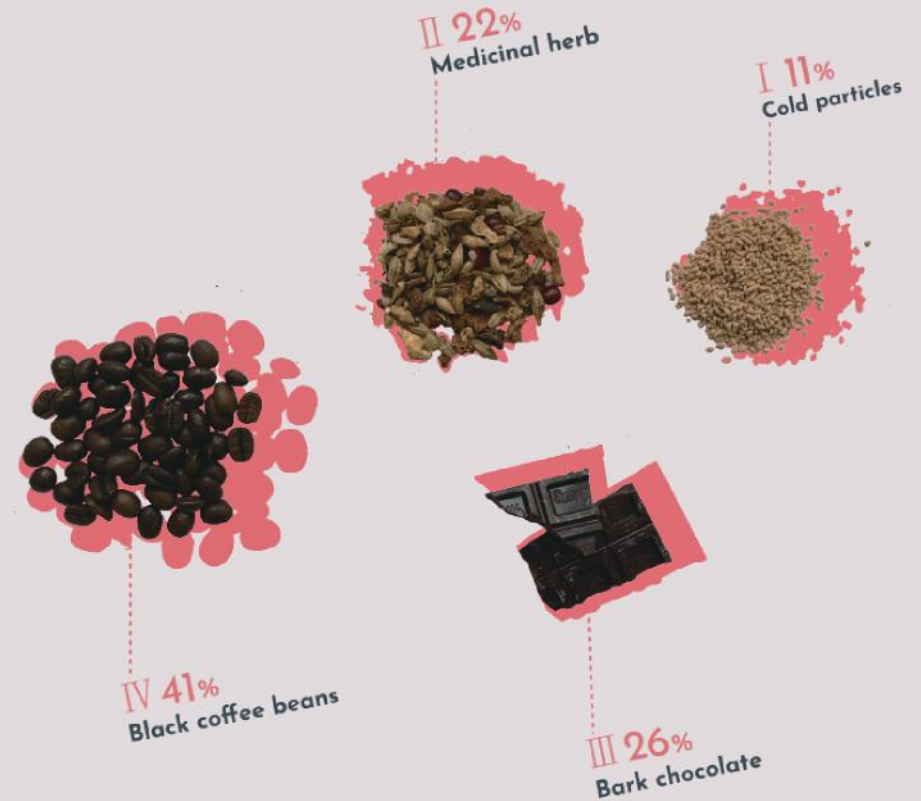
Taste and mood

Studies have shown that people whose diets contain a lot of grains (carbohydrates) have more Prevotella in their guts. Tasting a particular taste and producing a particular emotion secretes similar chemicals that connect them



My bitter experience

We divided the bitterness into 4 levels according to the tester's taste of the following bitter foods and the change in the tester's expression.



User research

Mr. Jiang

- 64
- Retired
- Qingdao
- Husband, father, brother
- Pancreatic cancer, stage II B
- Diagnosed in 2021.06

Before diagnosis



Goals

- Start a new career
- His child's success
- Happiness in old age

Frustrations

- Lack of money
- Unable to use electronic products
- Homesick

Personality

Ambitious

Sedate

Responsible

Extrovert

Sensing

Judging

Introvert

Intuition

Perceiving

After diagnosis



Goals

- A healthy body
- Rural life
- Family harmony

Frustrations

- Anxiety about a relapse
- Fear of family abandonment

Personality

Relieved

Treasure all

Detailed

“ Living in this world, one should have value, no matter to his family or society. Life is the process of realizing the value of life. ”

“ Our anxiety often comes from thinking too much, but feeling too little, experiencing too little, and knowing too little. ”

Problem and audience

What are the characteristics of cancer patients?

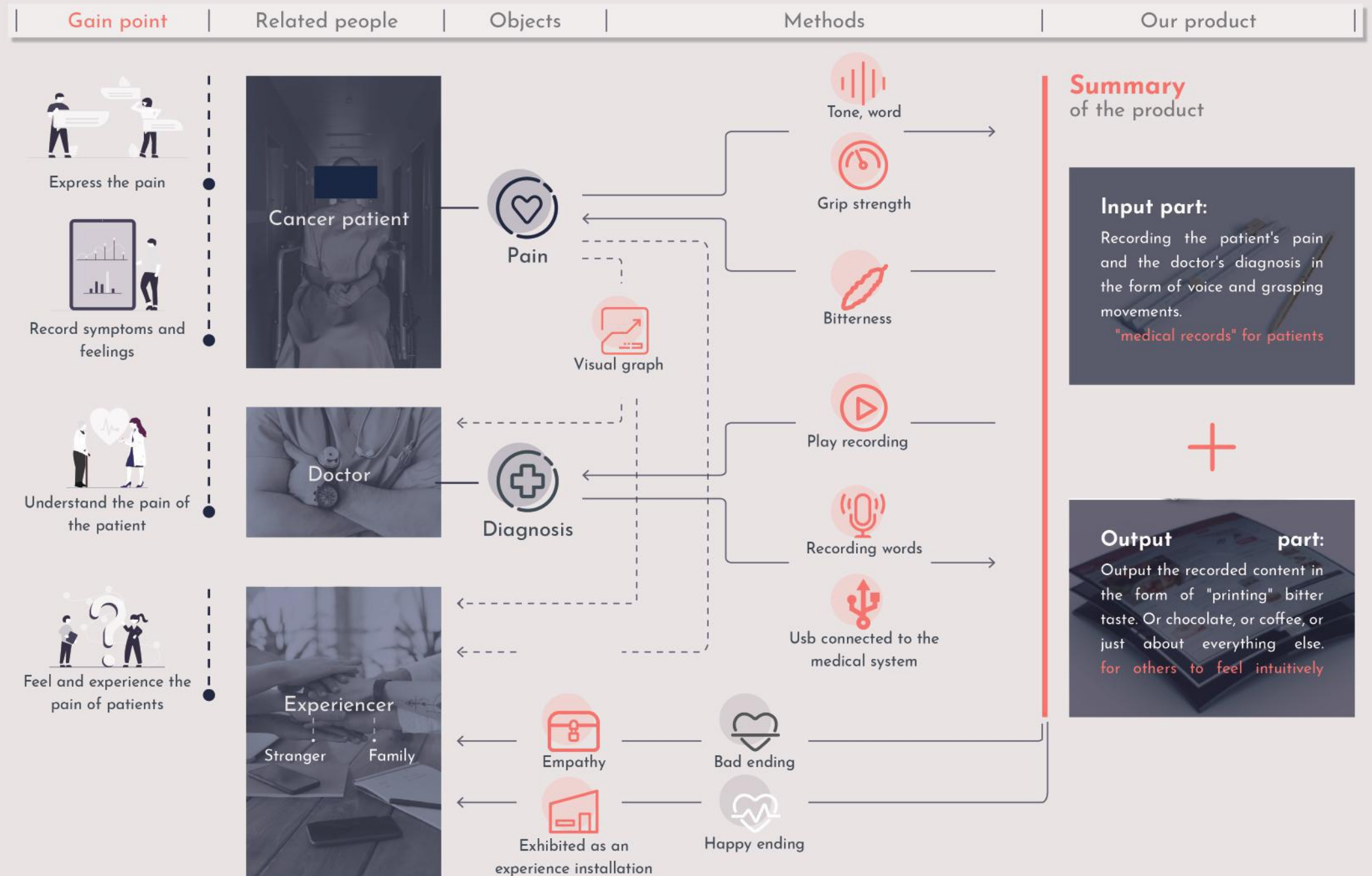


PROBLEM



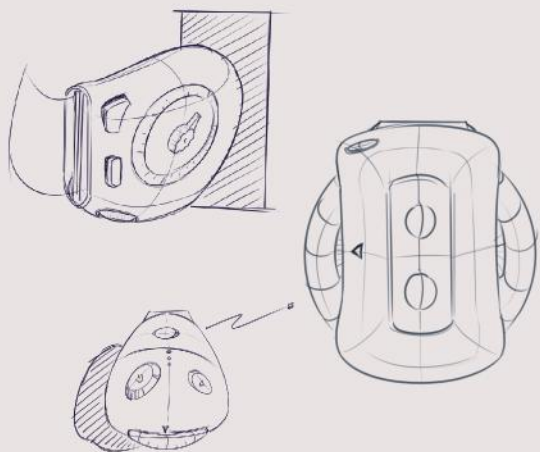
Help social groups understand the psychological pain experienced by cancer patients

Our design–use and interactive processes

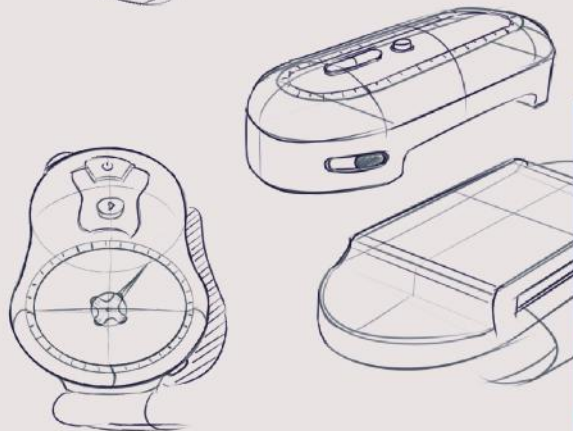
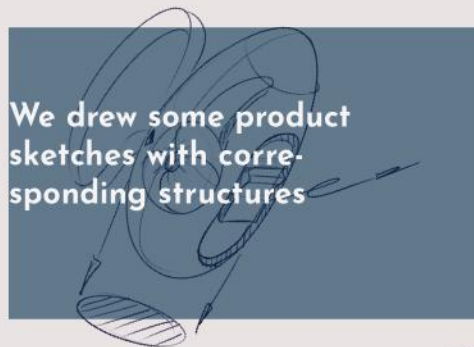


■ Preliminary sketch

■ Story board



We drew some product sketches with corresponding structures



scene1

Grandpa Wang was very depressed when he learned that he had cancer.



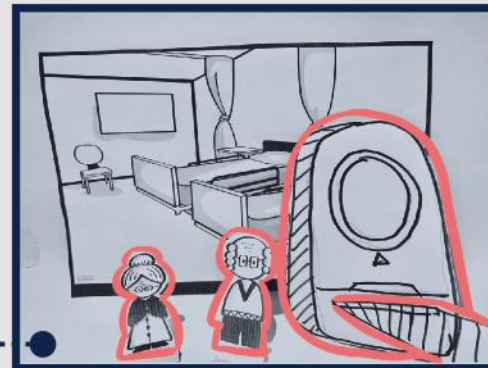
scene2

Grandpa Wang took the "Hppain" to the doctor and used it to record the doctor's advice and his mood changes.



scene3

After returning home, Grandpa Wang chose the progress bar to listen to the doctor's diagnosis.



scene4

Grandpa Wang told Grandma Li about his anti-cancer process and printed out his most painful stages for Grandma Li to taste.



scene5

Grandpa Wang donated his used products to the public welfare exhibition hall.



scene6

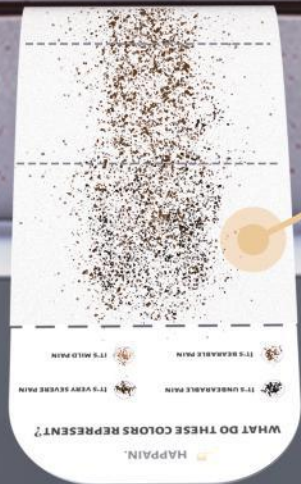
Aunt Zhao browsed the website to learn about the visiting activities and signed up to participate.



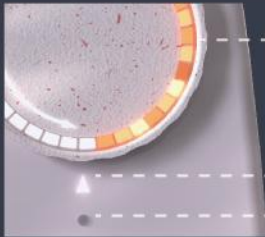
Recording part

Printing part

Bitter rice paper



Product details



process bar

The entire disk represents the storage capacity, which can be recorded 36 times.

indicating arrow

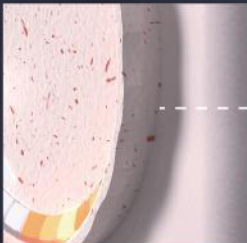
breathing light

Breath light flashes when holding or recording.

In order to prevent slip, the volume control button is indented

recording switch

volume control button



turntable

The edge of the turntable has grooves for easy pushing

Select the progress bar and press the button to print the pain.

exit

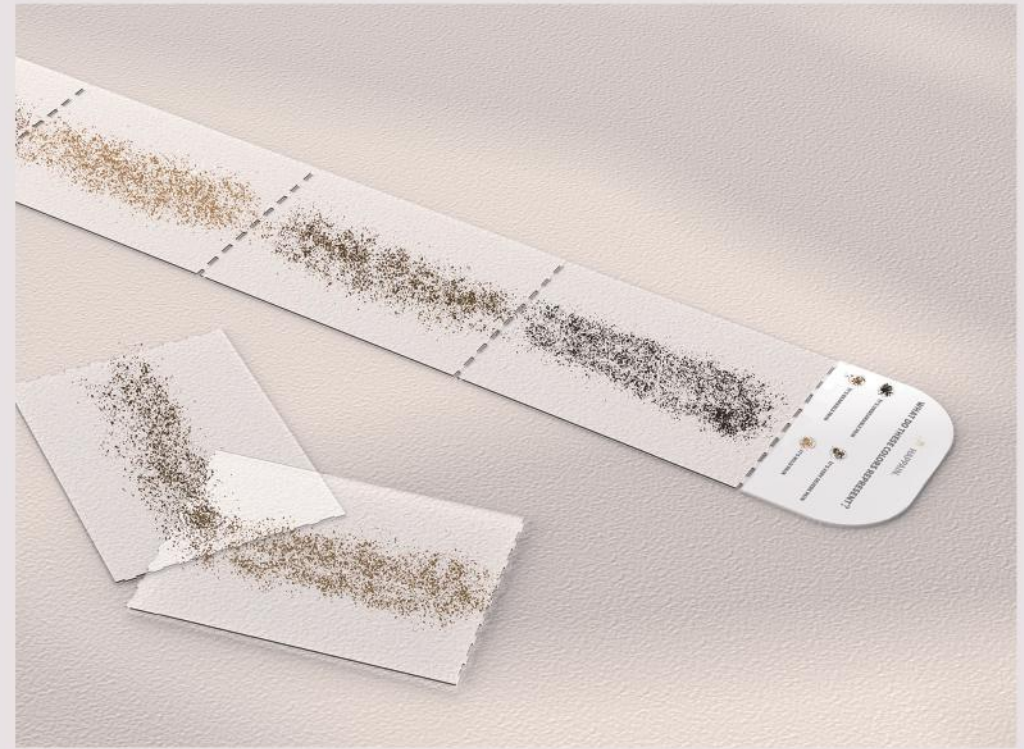
print button

logo



charging port

Print rendering



"We present pain through bitterness."



sticky rice paper



coffee powder

Using glutinous rice paper as a printing carrier, different degrees of pain are represented by the amount of coffee powder, forming a complete "pain record", which people can feel through tasting.

Prototype

Code Design

FSR pressure sensor

```
int fsrPin = 0;  
int fsrReading;
```

```
void setup(void) {  
  Serial.begin(9600);  
}
```

```
void loop() {  
  fsrReading = analogRead(fsrPin);  
  Serial.print("Analog reading = ");  
  Serial.print(fsrReading);  
  if (fsrReading < 10) {  
    Serial.println(" - No pressure");  
  } else if (fsrReading < 200) {  
    Serial.println(" - Light touch");  
  } else if (fsrReading < 500) {  
    Serial.println(" - Light squeeze");  
  } else if (fsrReading < 800) {  
    Serial.println(" - Medium squeeze");  
  } else {  
    Serial.println(" - Big squeeze");  
  }  
  delay(1000);  
}
```

Breathing led

Description

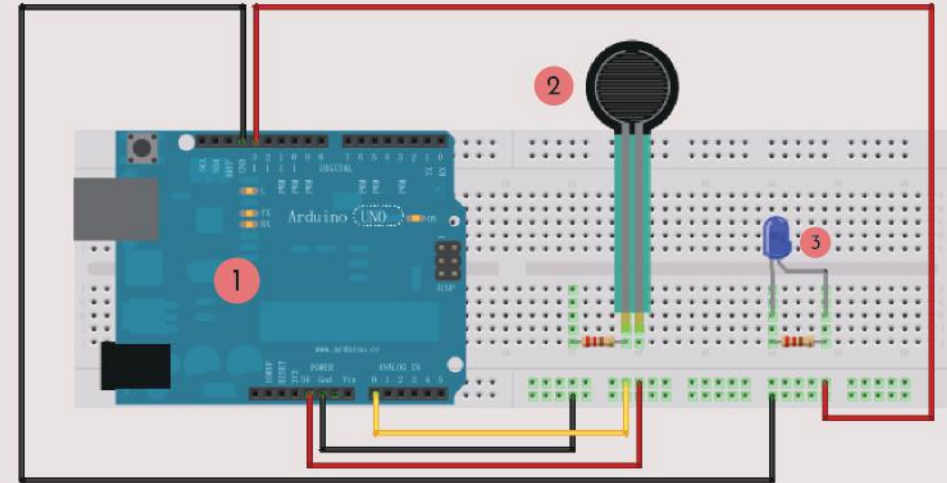
During recording, a breathing light is used to show that the recording is in progress.

When the patient grasps, use the pressure sensor to upload the patient's grip strength.

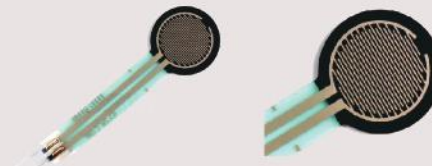
Use Arduino uno r3 and FSR pressure sensor and breathing led to achieve the above function.

```
int led = 13;  
  
void setup() {  
  pinMode(led,OUTPUT);  
}  
  
void loop() {  
  for(int i = 0; i <= 100; i++){  
    analogWrite(led, i);  
    delay(50);  
  }  
  for(int i = 50; i >= 0; i--){  
    analogWrite(led, i);  
    delay(50);  
  }  
}
```

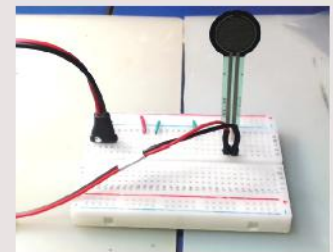
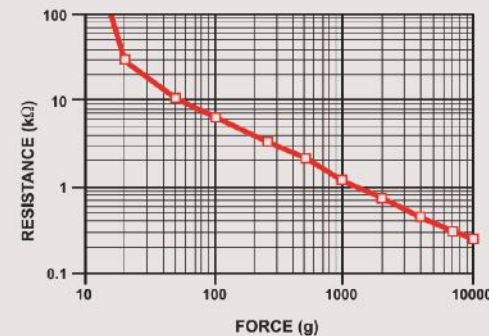
Testing



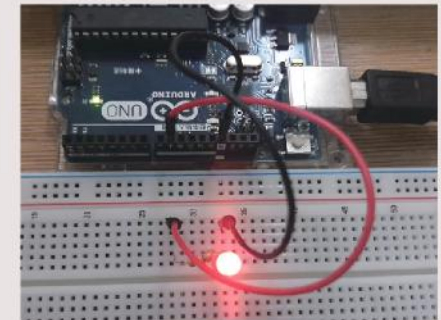
Principle



Fsr pressure sensor



Fsr pressure sensor

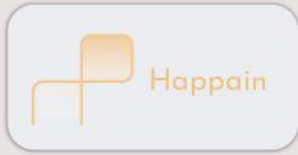


Breathing LED

Branding & Website



Happain



Name:

Happain

Slogan:

Happain is not just pain.

Brand concept:

"Record the pain, taste the pain and then, feel the pain." When pain has been expressed and understood well, one even feel happy.

Color:



#E9F0F2



#F2CC85



#F3E292

Font:

Aa

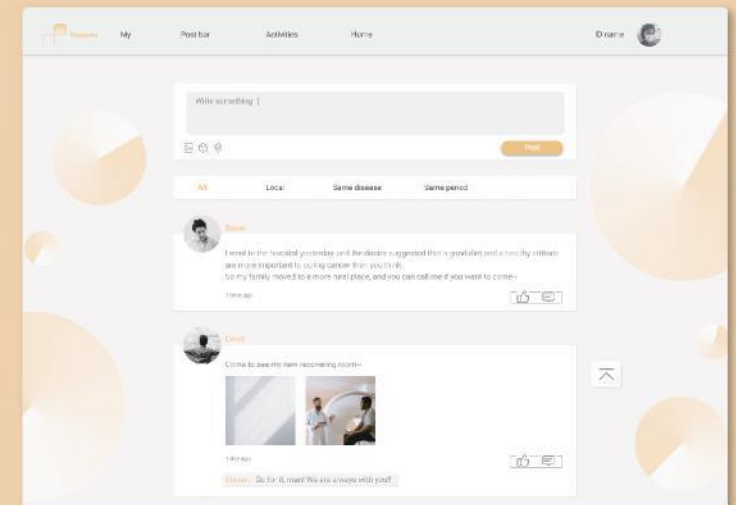
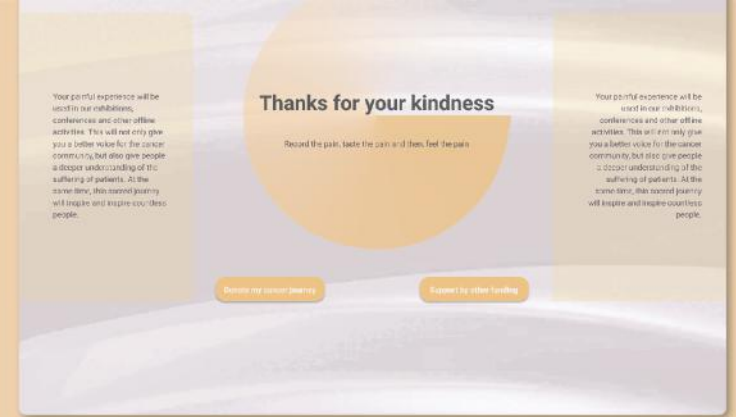
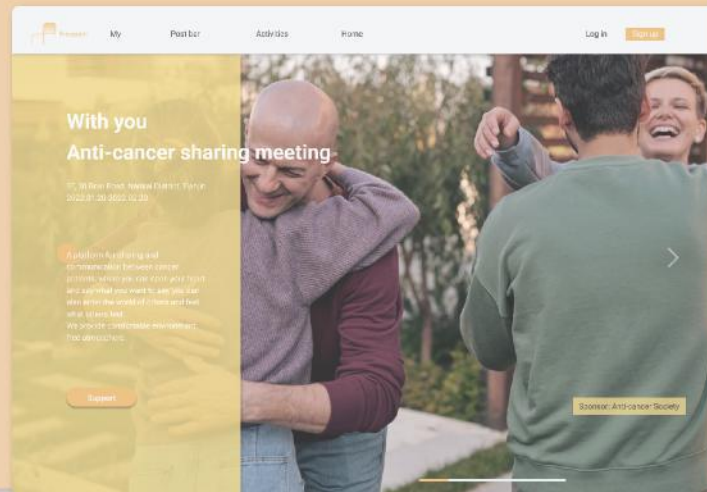
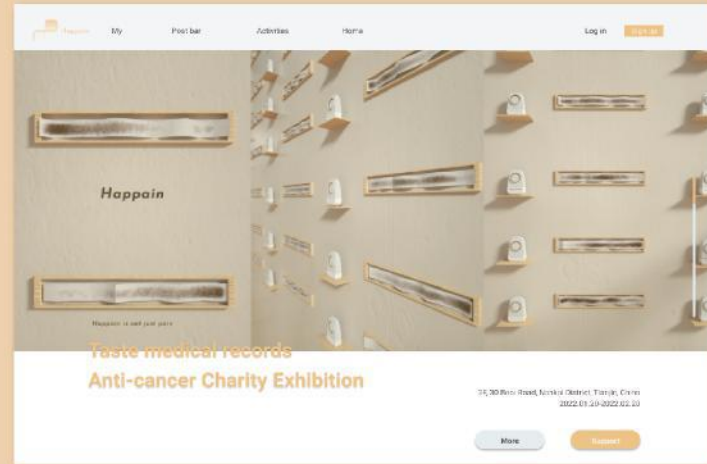
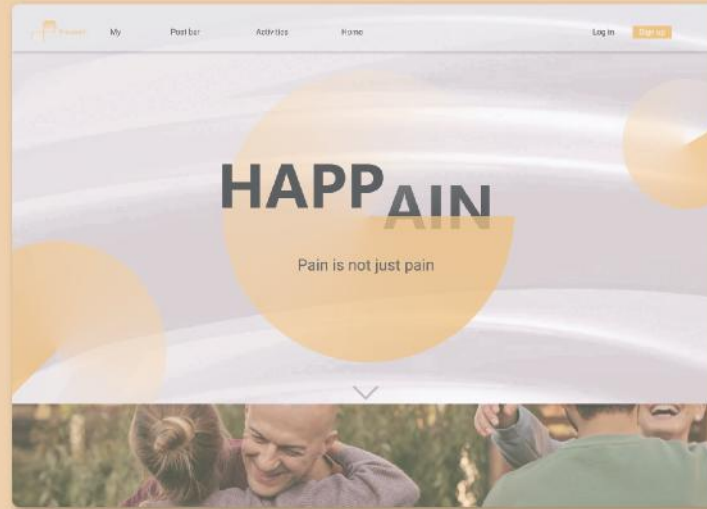
Text1 16pt

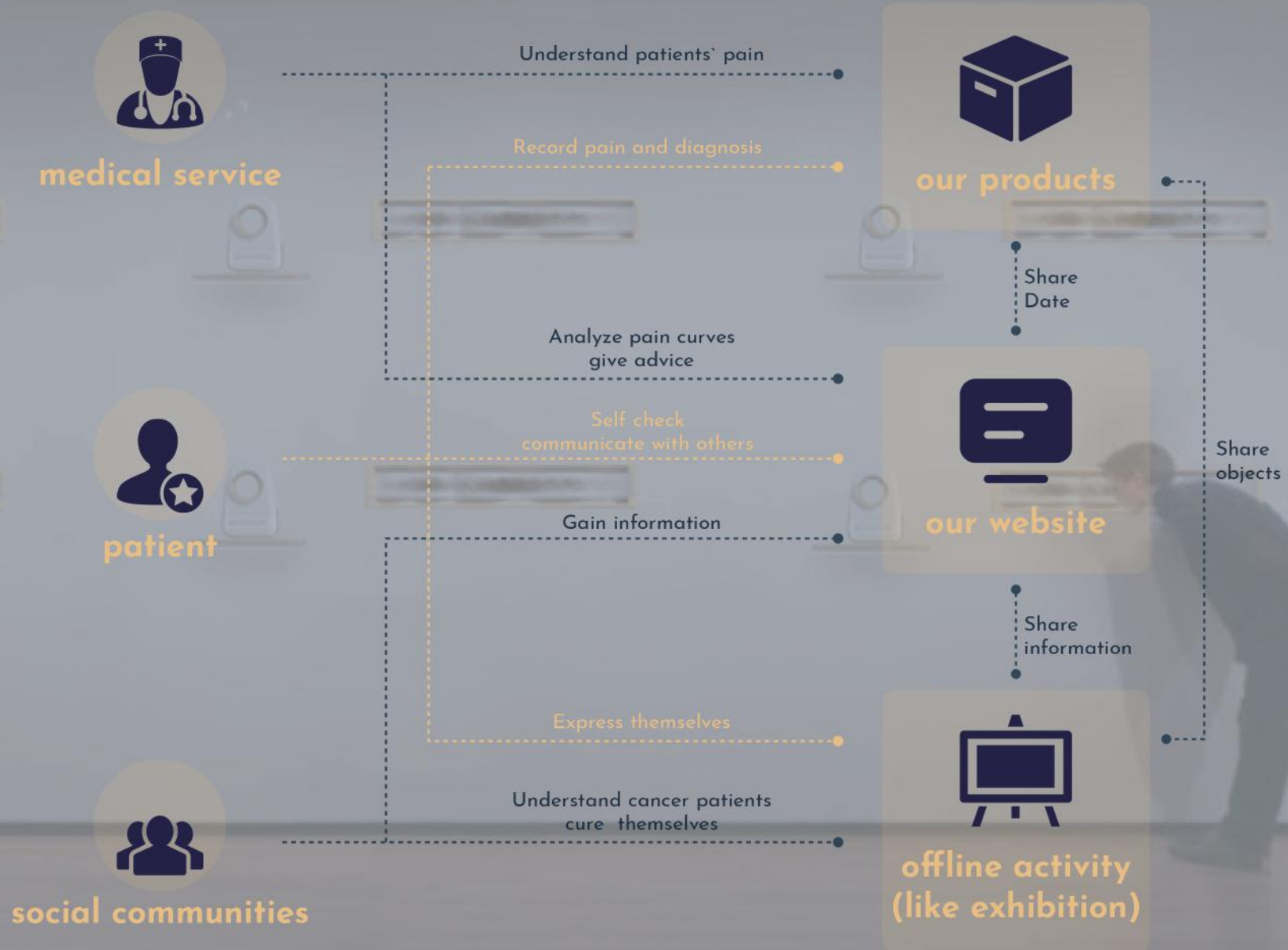
Text2 14pt

Text3 12pt

Aa Bb Cc Dd Ee

1 2 3 4 5





Public welfare exhibition



Happain is a pain
Record the pain
Taste the pain
Feel the pain

Detailed drawing of the exhibition



Happain
Happain is a pain paper



We printed out the degree of distress of the exhibited products on edible glutinous rice paper for visitors to taste

All visitors can spontaneously taste the printed "pain"

