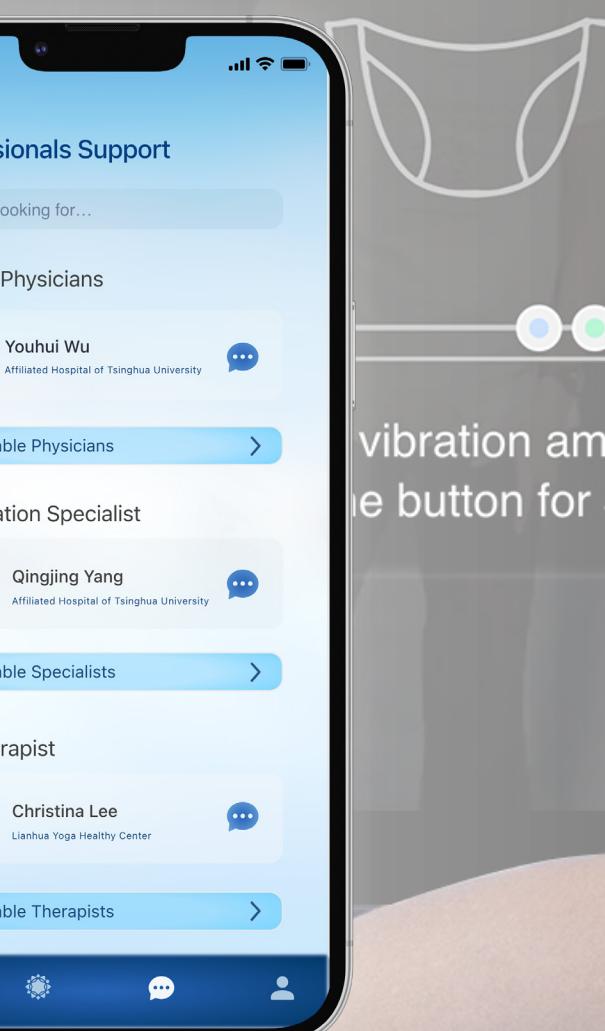
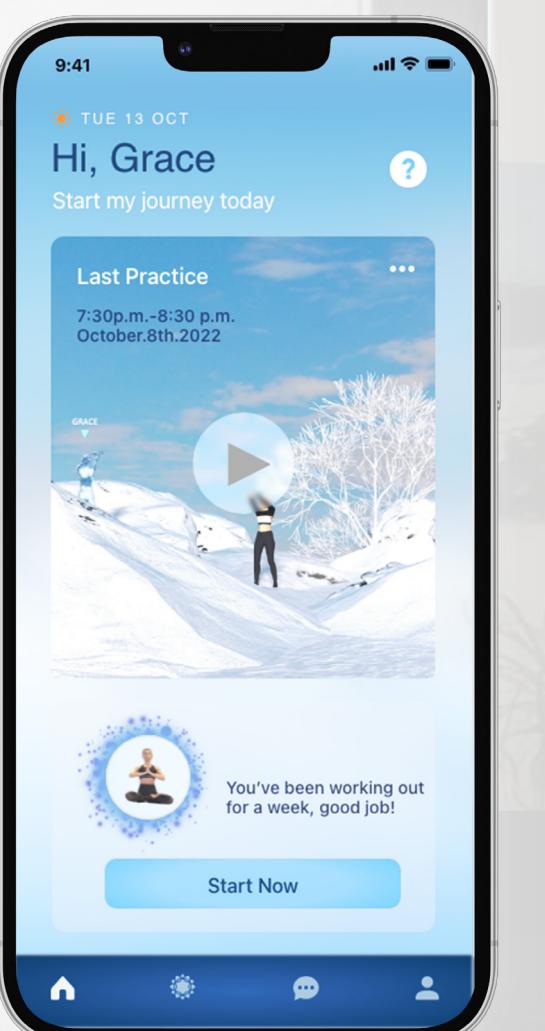


VIBRA NeuroTech



Timeline
3 months

Team

Research: Christina Yang & Yang Hu
Model Generative: Christina Yang & Yang Hu
UI Design: Yang Hu
Model Testing: Christina Yang

Inspiration

One of my favorite Chinese female signer: Beina Yao, was dead due to Breast Cancer a decade ago. Since then, I have been laid my eyes on this disease which represent 15.3% of all female cancer cases.

It's has been noticed that, with higher recovery rate from this type of cancer thanks to advanced medical development, there's not enough attention paid on aftercare for Breast Cancer survivors.

23% of today's cancer survivors are female Breast Cancer survivors. It is a large group of people that I could not take the attention away. Based on this, the research has been initiated.

RESEARCH: Scoping Framework

First, we created a territory map to better understand the complex yet interconnected Breast Cancer, rehabilitation system, and design opportunities are identified. The territory map helped us scope the project and get consensus between team members.

We put the patients at the center of this diagram because of their frequent interactions with stakeholders.

As our research progressed, we further focused on **Breast Cancer survivors** after surgery **with lymphedema** and the caused-side-effects on **yoga rehabilitating practices**.

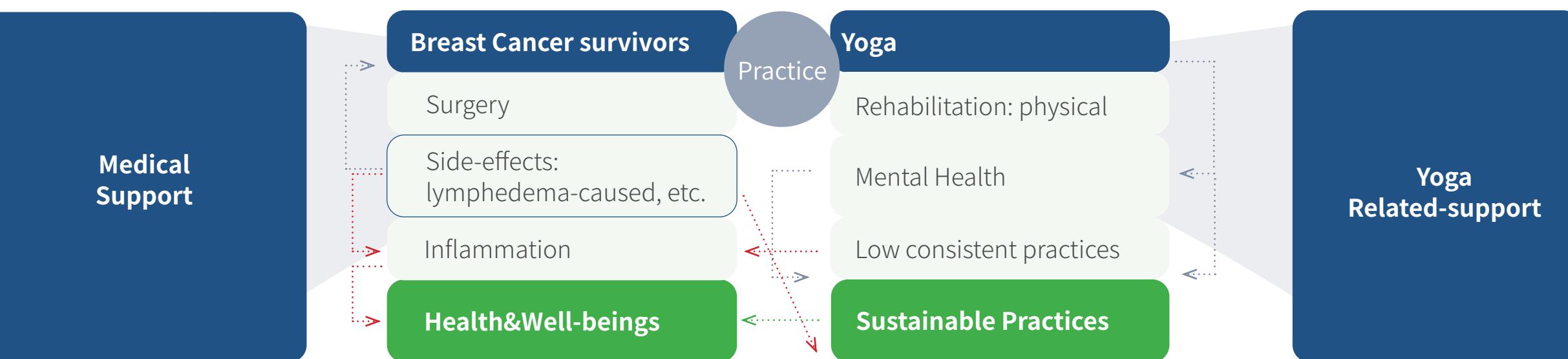
60% of the Yoga Practitioners surviving from Breast Cancer Survivors report shoulder-arm pain triggered by lymphedema.

- Breast Cancer survivors
- Yoga Teacher
- Doctor



EXPLORATION: Analysis & Surveys

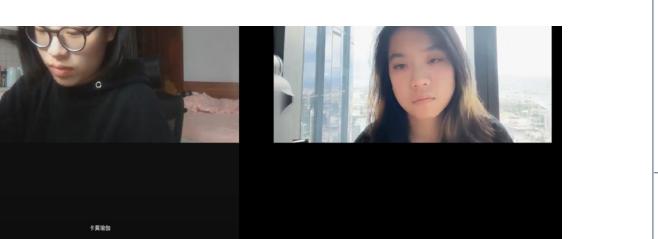
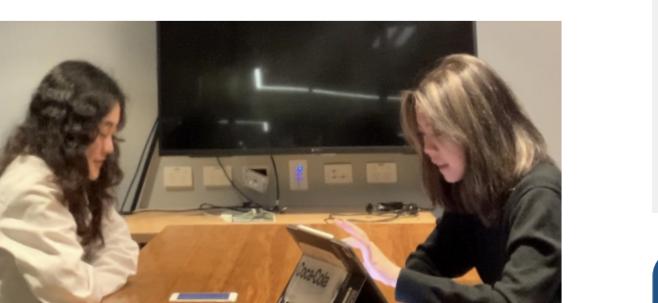
Analysis



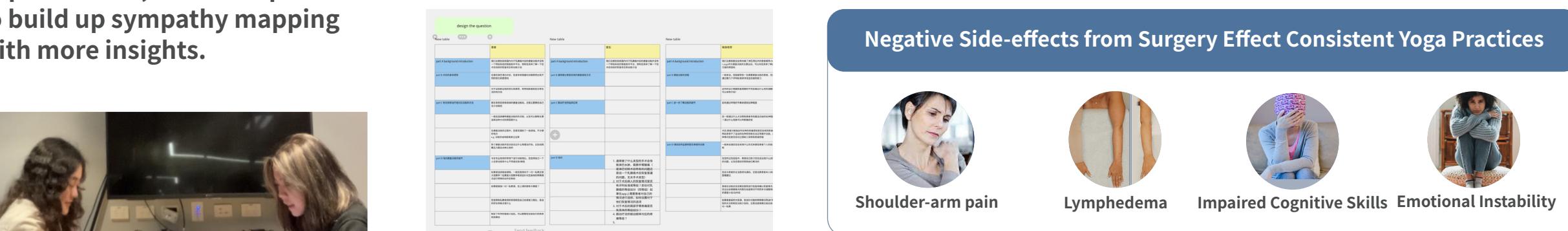
Interviews and Surveys

During the exploratory research phase, we conducted interviews& online questionnaires.

Interviews helped us better understand the problem space and identify design opportunities, which help us to build up sympathy mapping with more insights.



For more details, please view here:
https://drive.google.com/drive/folders/12qpH1DFg9x-6aXxFp9UmZwx8R_O_LKlxm?usp=sharing



Yoga Classes	Privacy	Community	Fatigue	Mental State	Guidance
Group Class Yoga	✗ Unwarranted, not confident to be involved	✓ responsive Q&A, sharing..	⊖ when difficult to be involved & follow	⊖ When difficult to be involved & follow	✗ unresponsive guidance
Private Class Yoga	✓ Yes	⊖ no companion while teacher is supportive	⊖ When concern about the cost	✗ Expensive cost	✓ Individual needs
Online Yoga Classes	✓ Yes	✓ Responsive Q&A, sharing..	⊖ Surgery related fatigue & no	✗ Might do it wrong without responsive	✗ unresponsive guidance

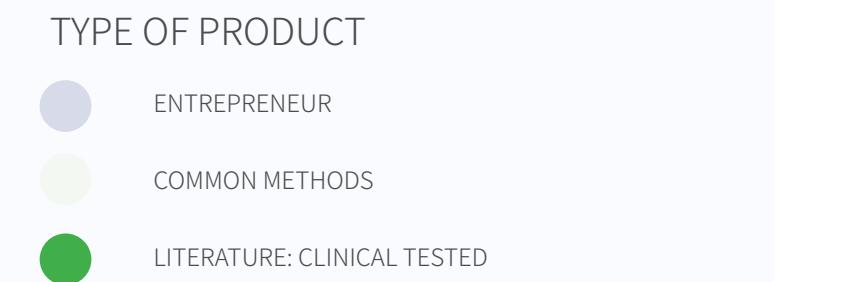
EXPLORATION: Current Solution & Case Study

What's on the market for sustaining Yoga practices for Breast Cancer Survivors

We also conducted the in-depth literature review and market research to understand the recent design and technology trend in:

1. Pain control/alleviation caused by surgery, especially focusing on lymphedema.

2. Yoga-related platform/products



Lymphedema-cased & Shoulder-arm Pain Control during Yoga Practices				
	Compression Garment	Whole Body Vibration	Local Body Vibration	Medication
Method	✓	✗		
Compression Garment	Maintain limb volume in the affected area during different stages of treatment	<ul style="list-style-type: none"> Uncomfortable wearing during sports Easily sweat: negative 		
Local Body Vibration	<ul style="list-style-type: none"> Portable vibrators directly over the muscle belly Neuromuscular adaptations for long-term durability & strength-gain 	More tests are needed		
Whole Body Vibration	<ul style="list-style-type: none"> Reduce musculoskeletal symptoms Cooperate with exercises plan&proven to reduce pain& stress 	<ul style="list-style-type: none"> Prohibitive cost Non-portability Inability to directly target a specific muscle group 		
Medication	A common treatment	Costy		

("Breast Cancer Arm Sleeves - medi USA", 2022) (de Sire et al., 2021) (Souron, Besson, Millet & Lapole, 2017)

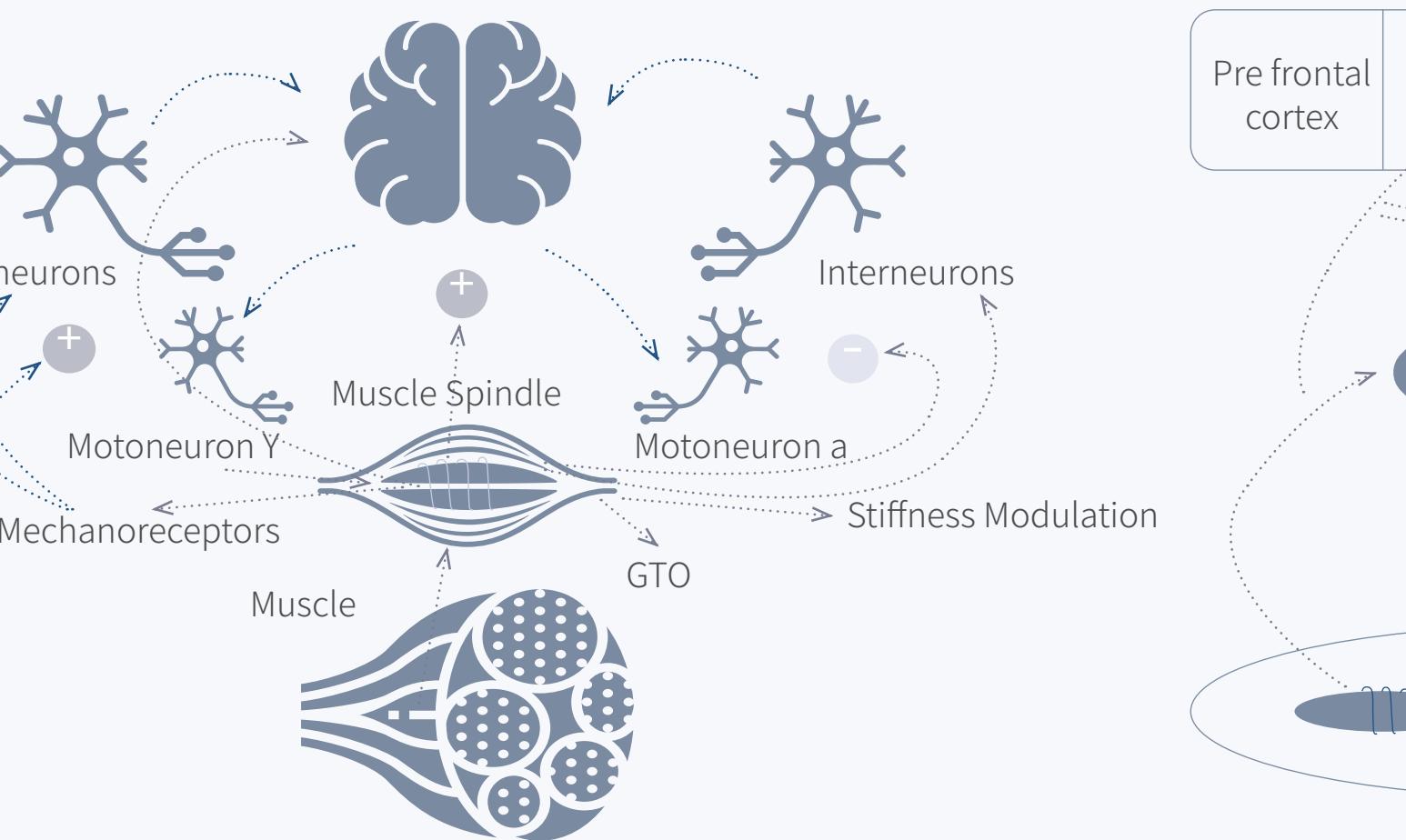
Research Case Study: Local Vibration Therapy

Local Vibration Therapy has been mainly used with healthy participants.

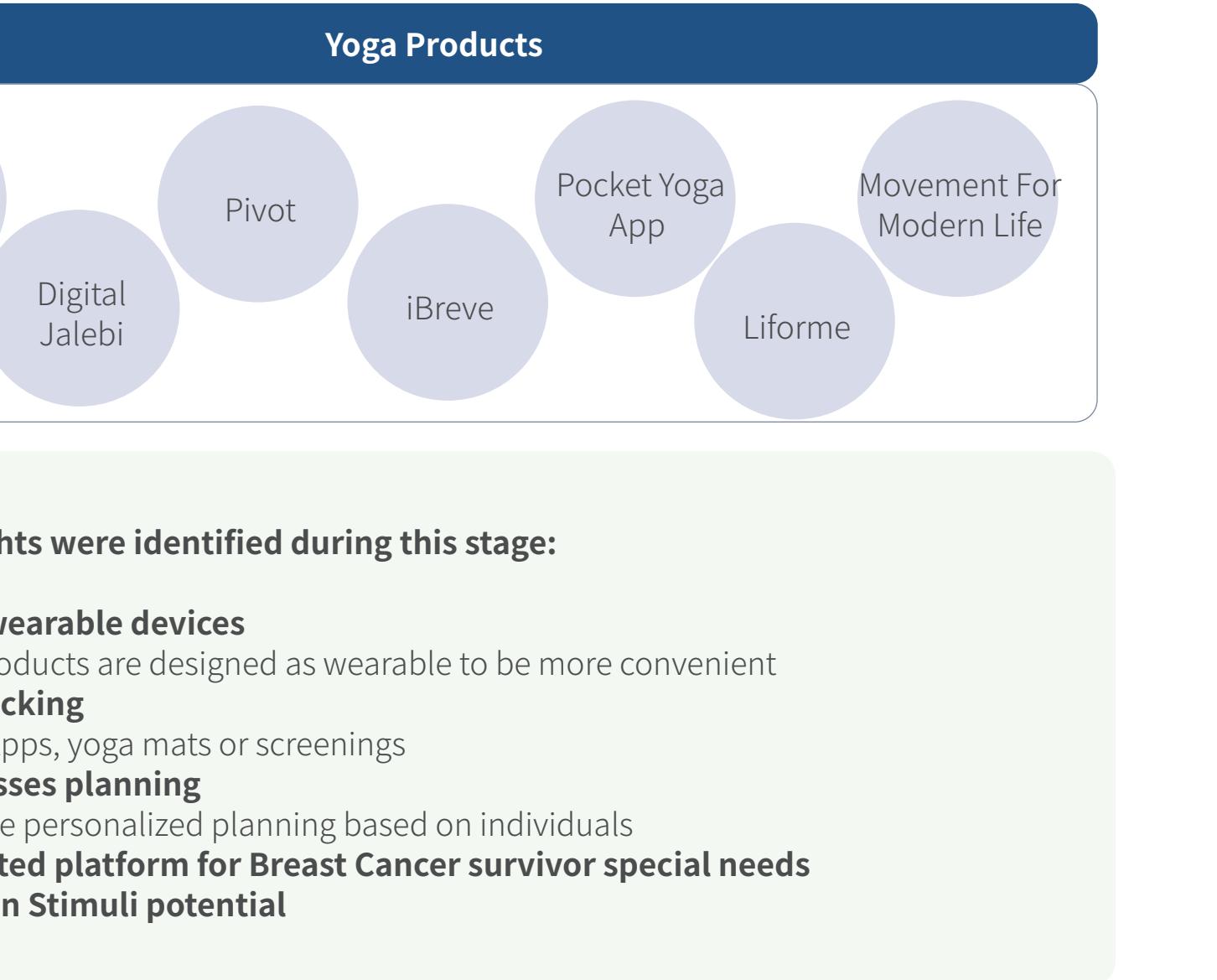
With case studies on Local Vibration Therapy which is scientifically proved to be a potential intervention for **alleviating shoulder-arm pain** triggered by lymphedema for Breast Cancer Survivors, with **missing products on the market**, we decided to focus with it.

Paper 01:

The principle of vibration is ascribed to tonic vibration stretch reflex, a specific involuntary reflex mechanism induced by the fast changes in the length of the muscle-tendon complex (see image 1).



(de Sire et al., 2021)



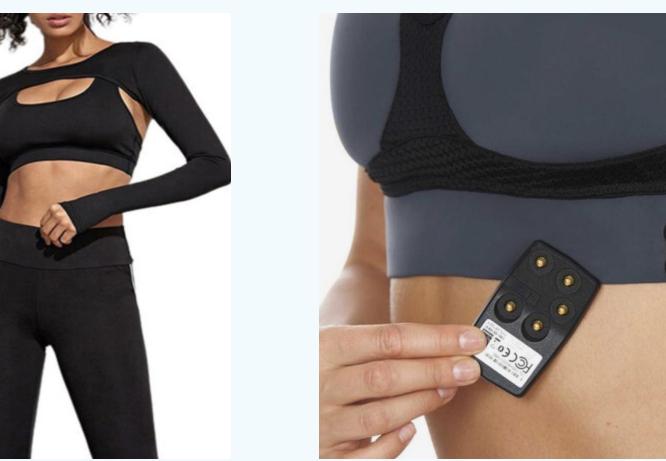
EARLY GENERATIVE: Diagram Synthesis

Based on pain points and creative ideas emerged in sympathy maps building, we went through design iterations and user journey involving storyboards.

The storyboard was useful in helping user-testings and critique the concept during speed-dating. The feedback became much more concrete and actionable. We then extracted pros and cons.

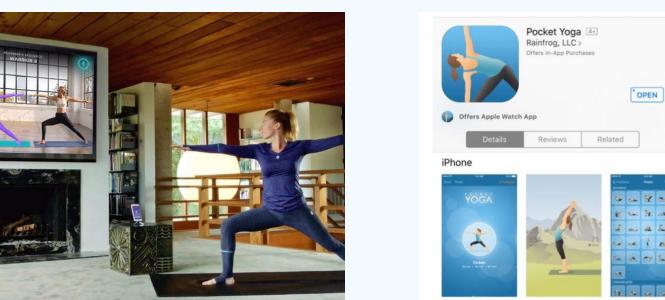
Yoga wear with Local Vibration Module

- + Vibration level is adjustable
- + Portable, comfortable to wear during yoga

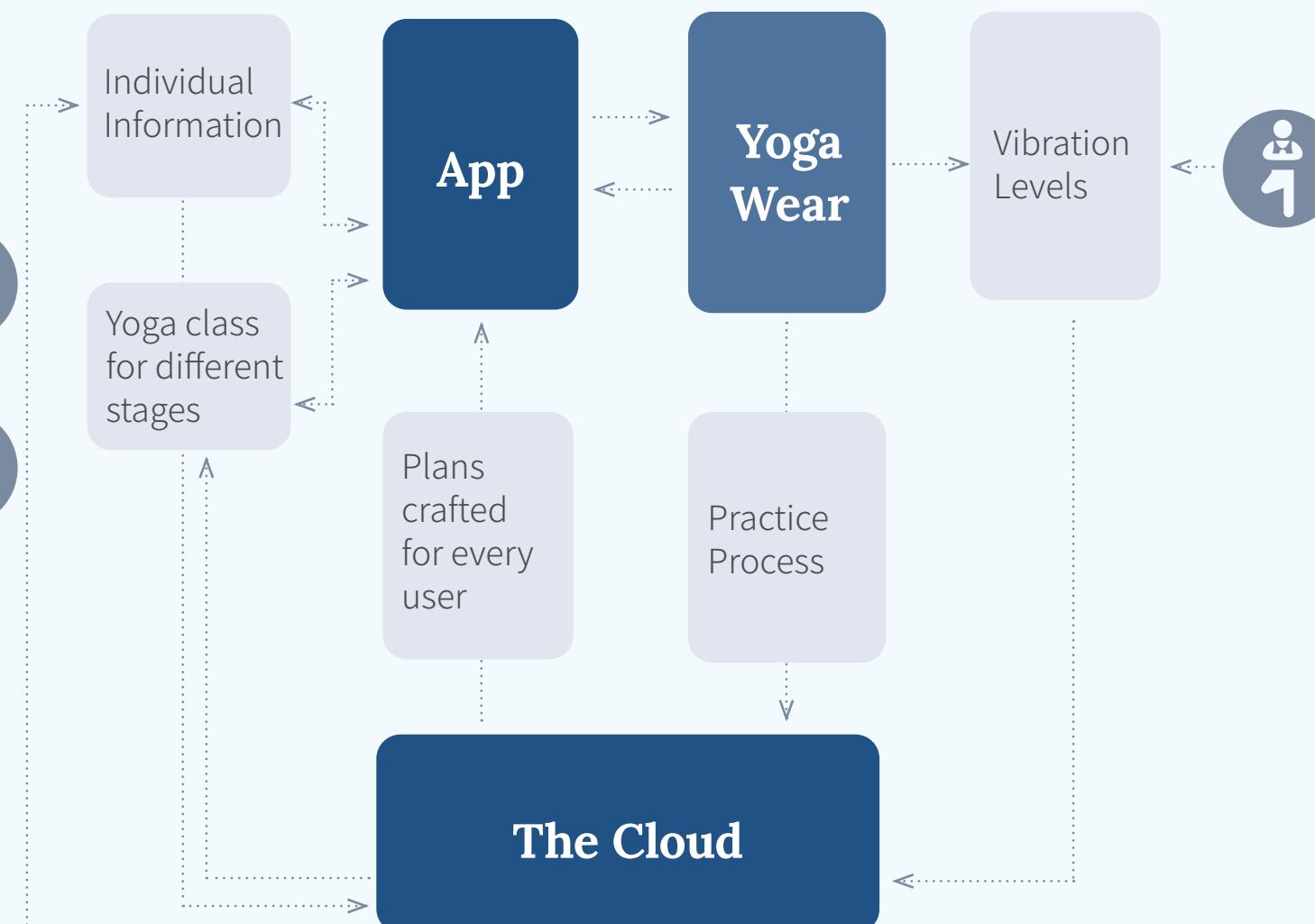


A Integrated Responsive Program

- + Planner for yoga rehabilitating practices based on individuals
- + Lineage platform for practitioners, doctors and yoga teachers
- + Platform to provide responsive support for yoga guide



Systematic Diagram



CONCEPTUALIZATION: Concept

Concept

Vibra Neurotech

We wish to empower health & well-beings of Breast Cancer Survivors through sustaining yoga practices.

Goal EUU Model

Through **alleviating shoulder-arm pain** during yoga rehabilitation caused by lymphedema from lymphadechotomy, we wish to **sustain the consistency of yoga practice** to positively intervene survivors' **motor skills & mental health**, in order to ultimately improve&empower the **health&well-beings of breast cancer survivors** with yoga activity.

Emotion

Reduce worries caused by uncertainty & lack of support

Usability

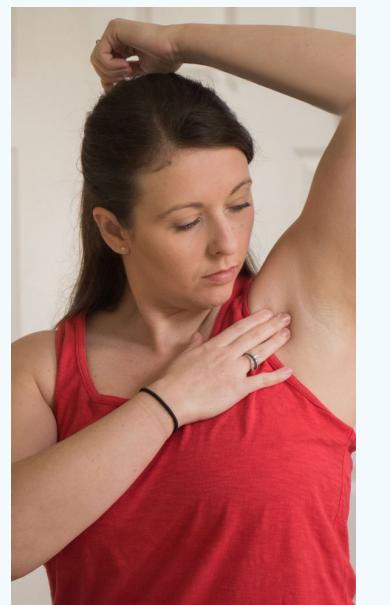
1. Improved accessibility of professional planned yoga practices
2. Sustain yoga practices by providing plans, community support & pain-controlled support

Usefulness

Integrated platform for target audiences & related medical professions, yoga tutors

Target Audience

Breast Cancer Survivors
After lymphadechotomy
Ready to process rehabilitating recovery



Persona 01

Zihui Yang
Age: 45
5 months after lymphadenectomy



Persona 02

Huiwu Zhang
Age: 56
8 months after lymphadenectomy

CONCEPTUALIZATION: Persona Development & User Flow

Persona 1



Behavior

Pain points

Opportunities

User Flow

Stage

Goal

Steps

"Private class is **too expensive** while the teacher is really professional and patient. It **worries me** much that I am in the **wrong poses** when **practicing alone**."

one month

two months

4 months

6 months & above

Zihui Stage

- Strong pain
- Can't manage daily stuff
- Lie on bed

Reliable

- Unstable mental state worrying recovery process

- Provide **reliable integrated plan** curated for individuals

- Start to operate daily stuff
- Look for rehabilitation

Supportive

- Rehabilitation in hospital is time-consuming in transportation

- Sign up for yoga classes in a yoga center nearby
- Planning

Accessible

- Private classes cost high
- Less engaging practice at home

- Regular check with doctor
- Yoga classes cope with recovery

Accurate

- Inaccurate communication between doctor and yoga tutor

- **Responsive and professional support** with **instructions** for home yoga practice

- Integrated platform to build **lineage connection between doctor & yoga tutor**

Persona 2



Behavior

Pain points

Opportunities

one month

Two

4 months

7 months & above

Huiwu Stage

- Strong pain
- Can't manage daily stuff
- Lie on bed

Assured

- Unstable mental state: worrying recovery process

- Sign up for yoga classes
- The pain disturb when practicing
- Tries compression garment

Comfortable

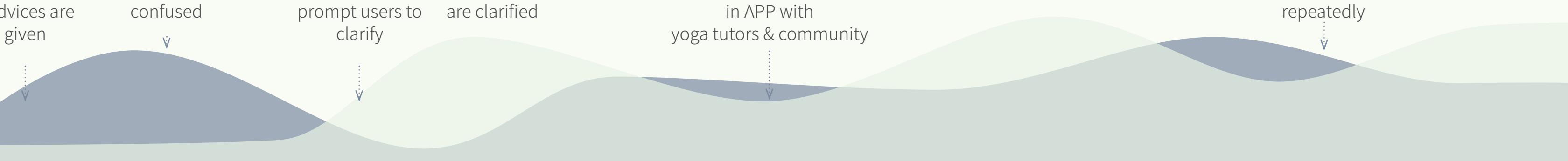
- Negative user experience from compression garment causes mental stress

- Platform support the **education for aftercare**

Sustainable

- Consistency matters for yoga rehabilitation
- Fatigue can be easily caused due to the pain and stress

- Provide **alternative support with improved user experience** for yoga practitioner
- From improving UX to **encourage consistent & engaging yoga practice**

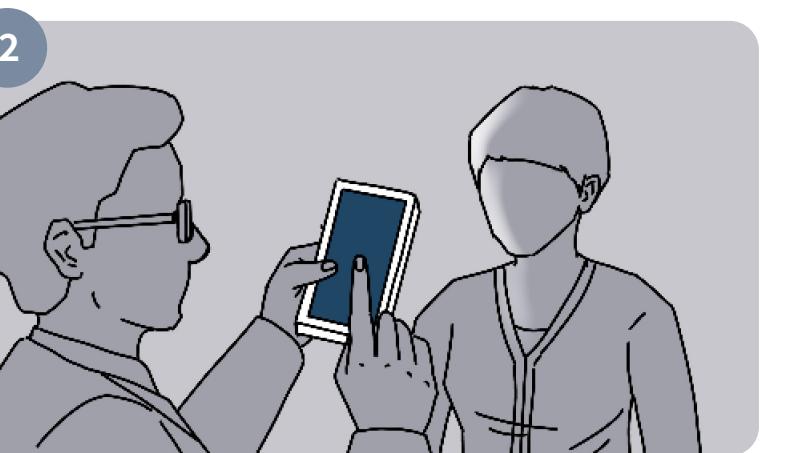


CONCEPTUALIZATION: Storyboarding

Storyboarding



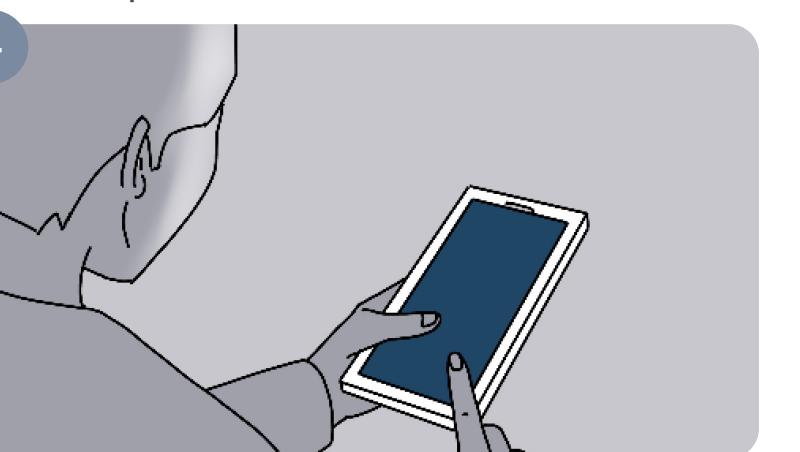
Rehabilitation started **confirmed by doctor**



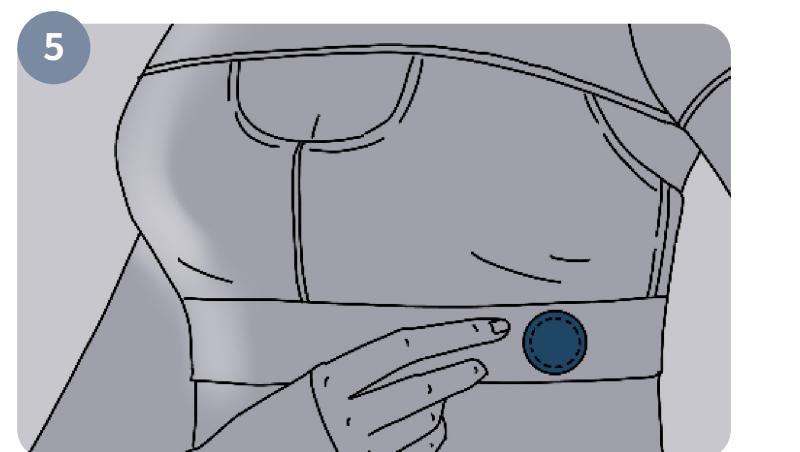
Please fill in the info on app for recommendation for yoga vibration amplitude.



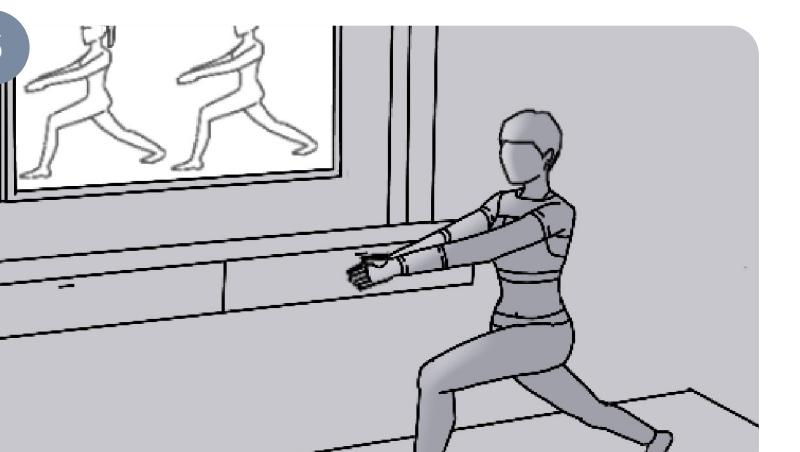
Vibra yoga wear **received by user**



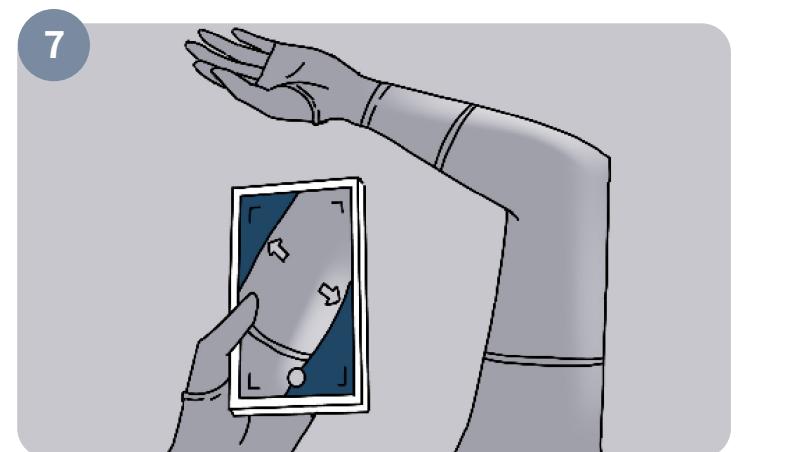
sign up on app and review



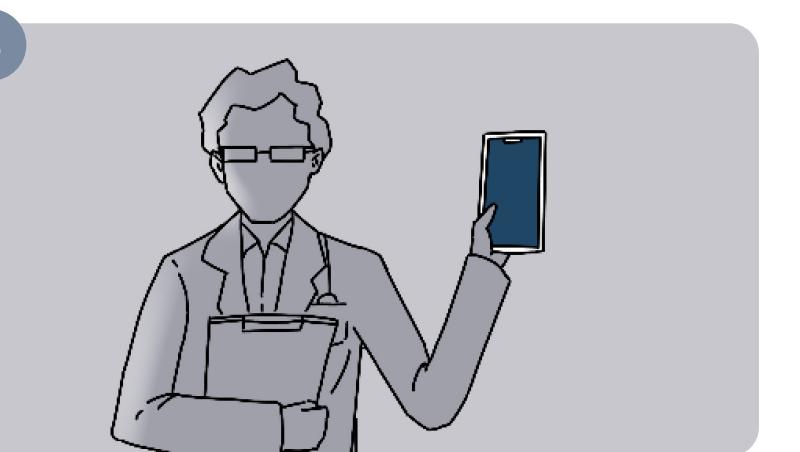
User **practice** with Vibra yoga wear



or practice **with others** in **immersive mode**



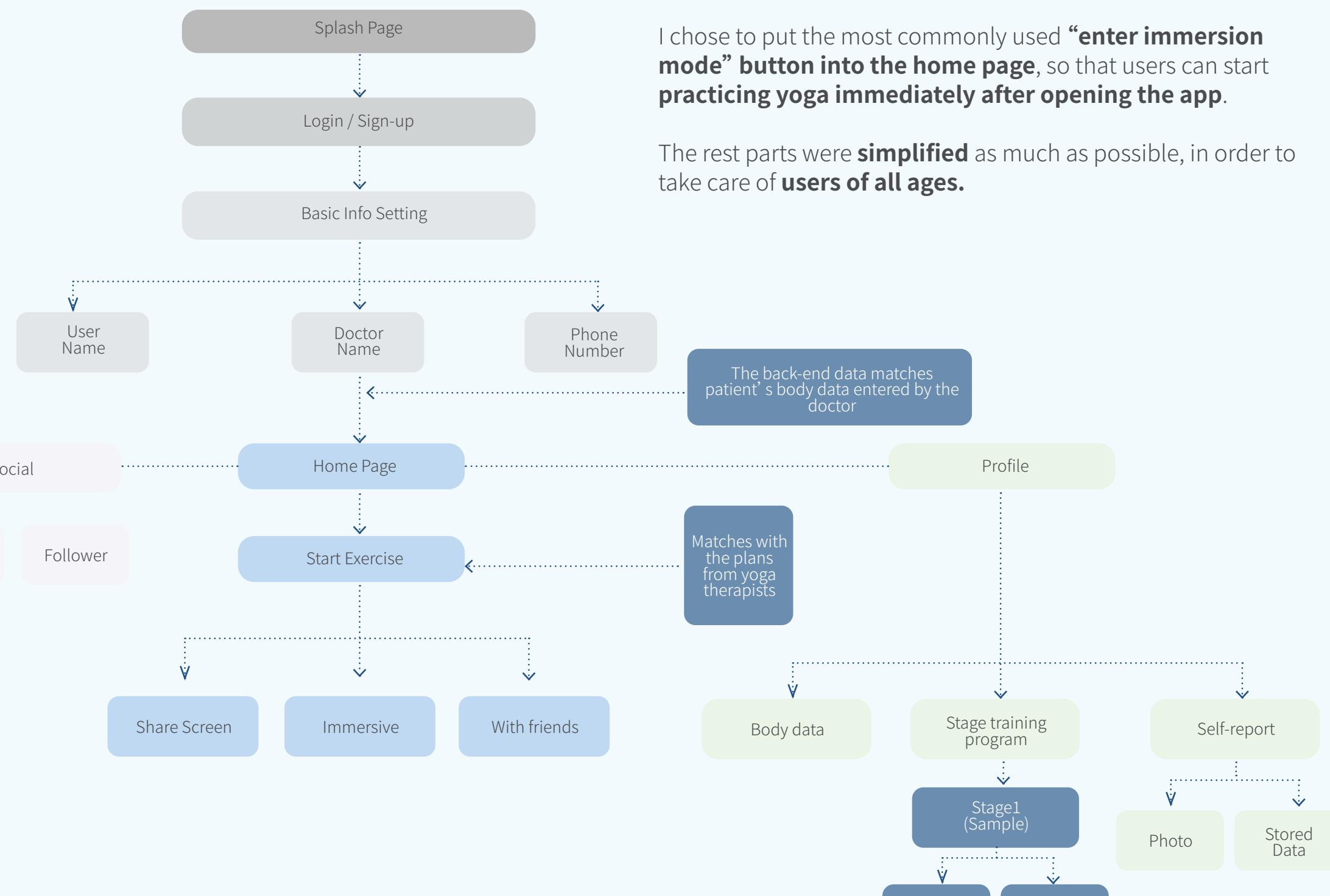
User use **tape measurement** for **updating rehabilitation progress**



tor gets the info over app
lates recommendations

INCEPTIONALIZATION: Diagram Structure & Lofi-prototype

e Map

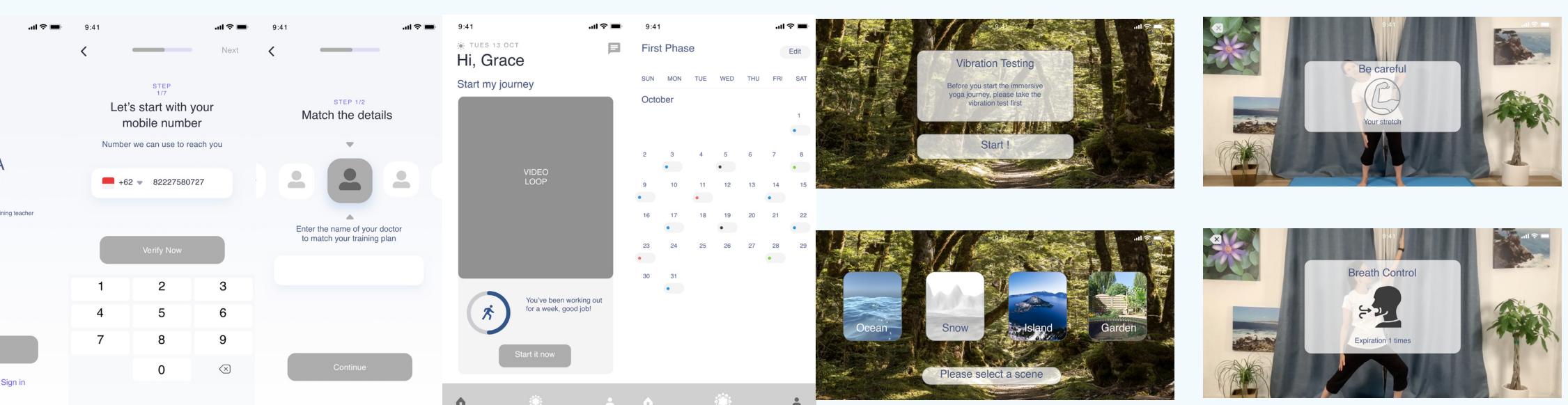


Through the arrangement of site map, I determined the basic functions of the app.

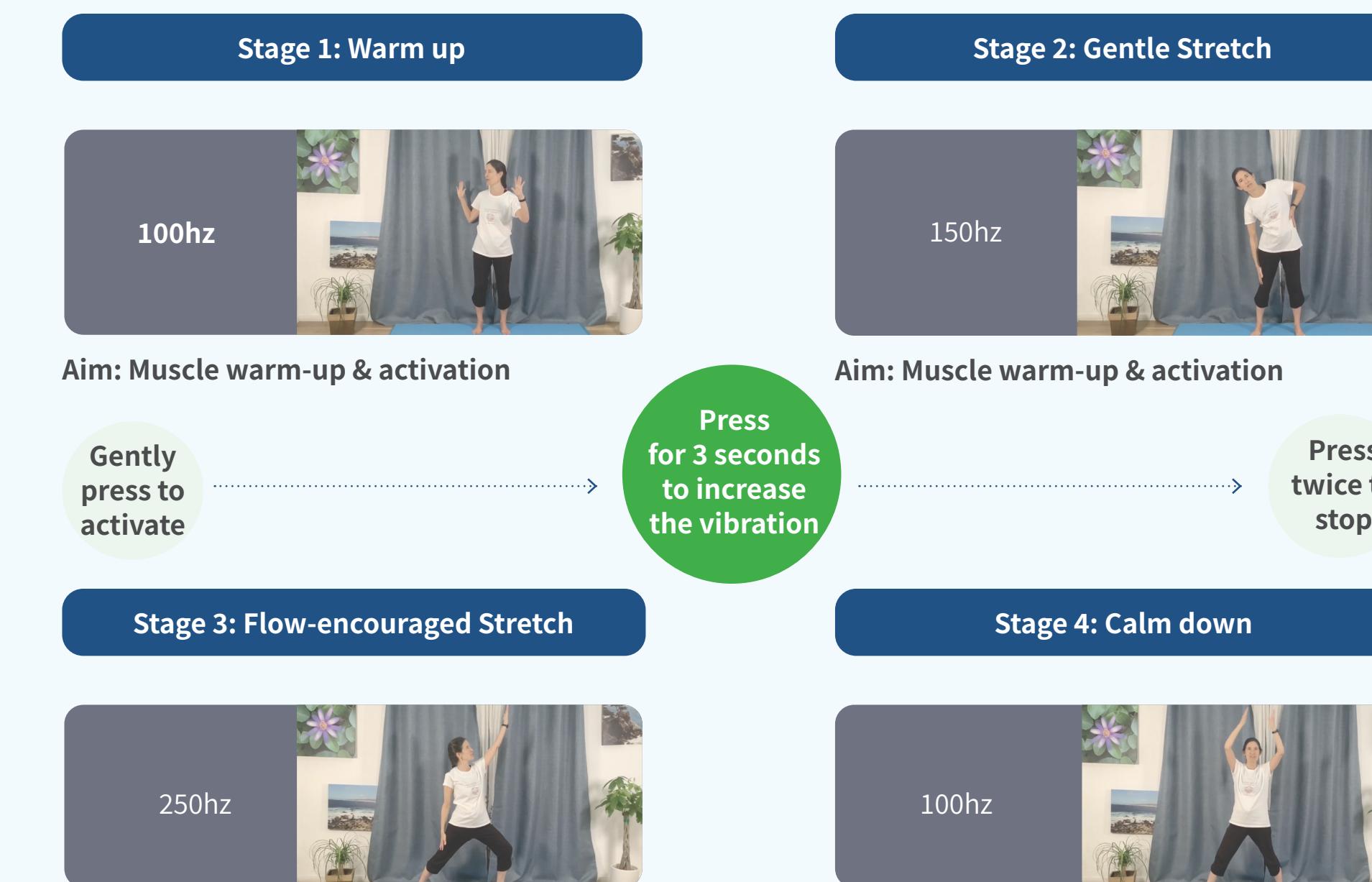
I chose to put the most commonly used “**enter immersion mode**” button into the home page, so that users can start practicing yoga immediately after opening the app.

The rest parts were **simplified** as much as possible, in order to take care of **users of all ages**.

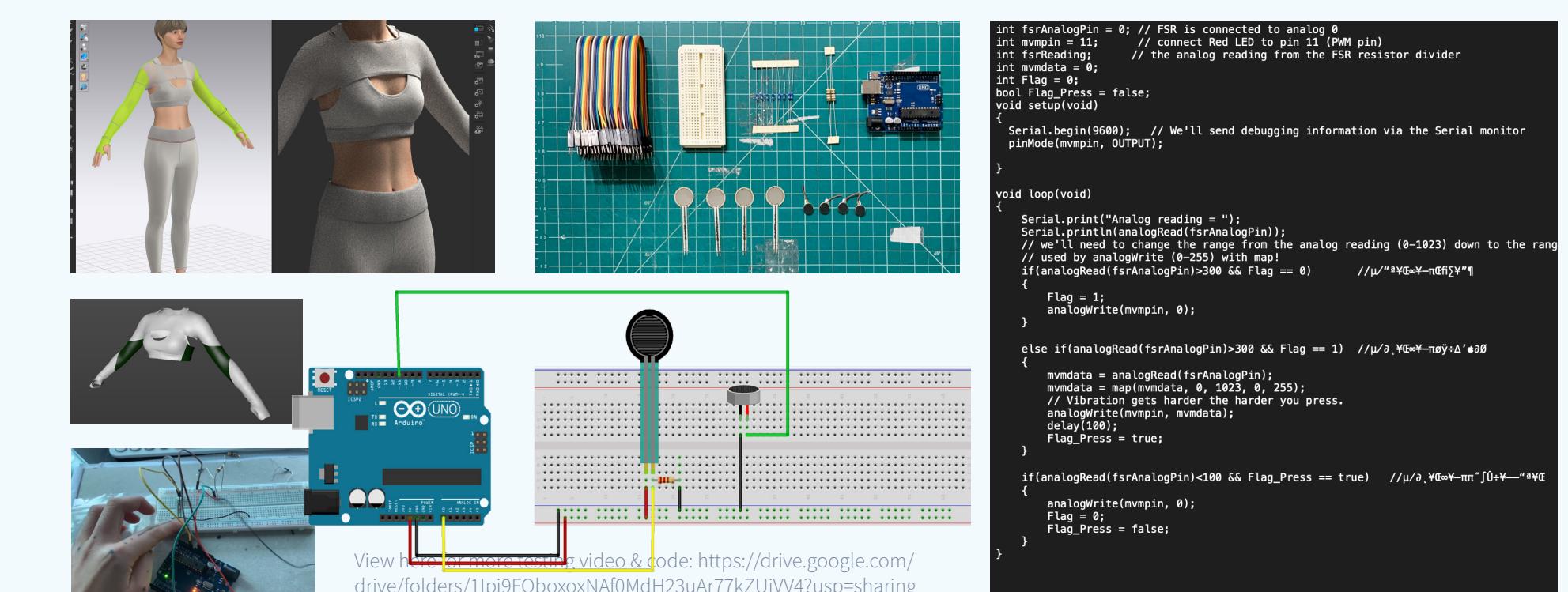
App Development



Yoga-wear Vibration Mechanism Diagram



Product Development



CONCEPTUALIZATION: Visual Identity

Type System

H1 Source Sans Variable

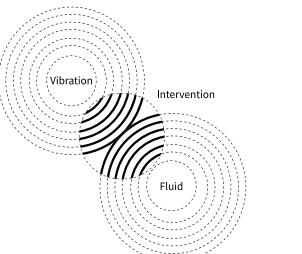
H2 Lucid Grand Regular

H3 PROXIMA NOVA

P Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh

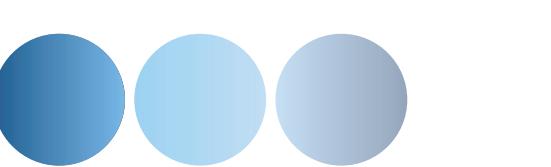
Logo

VIBRA
NeuroTech



Color System

Primary



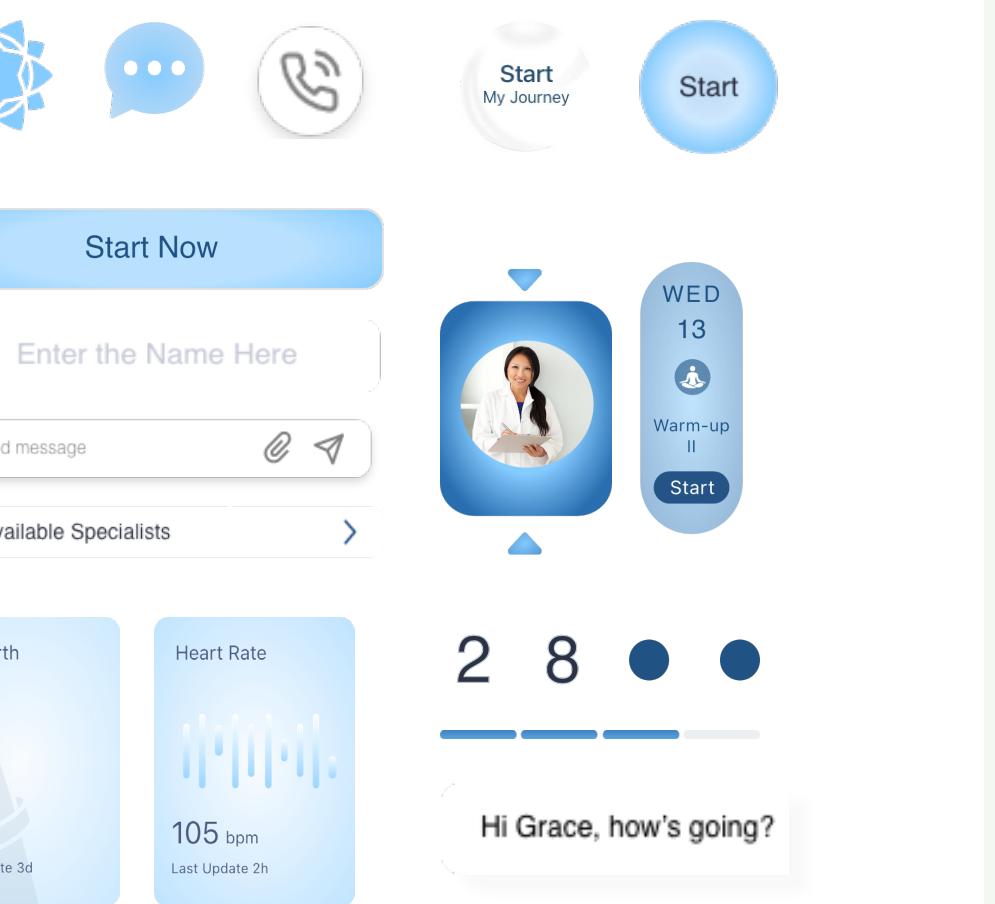
Grey



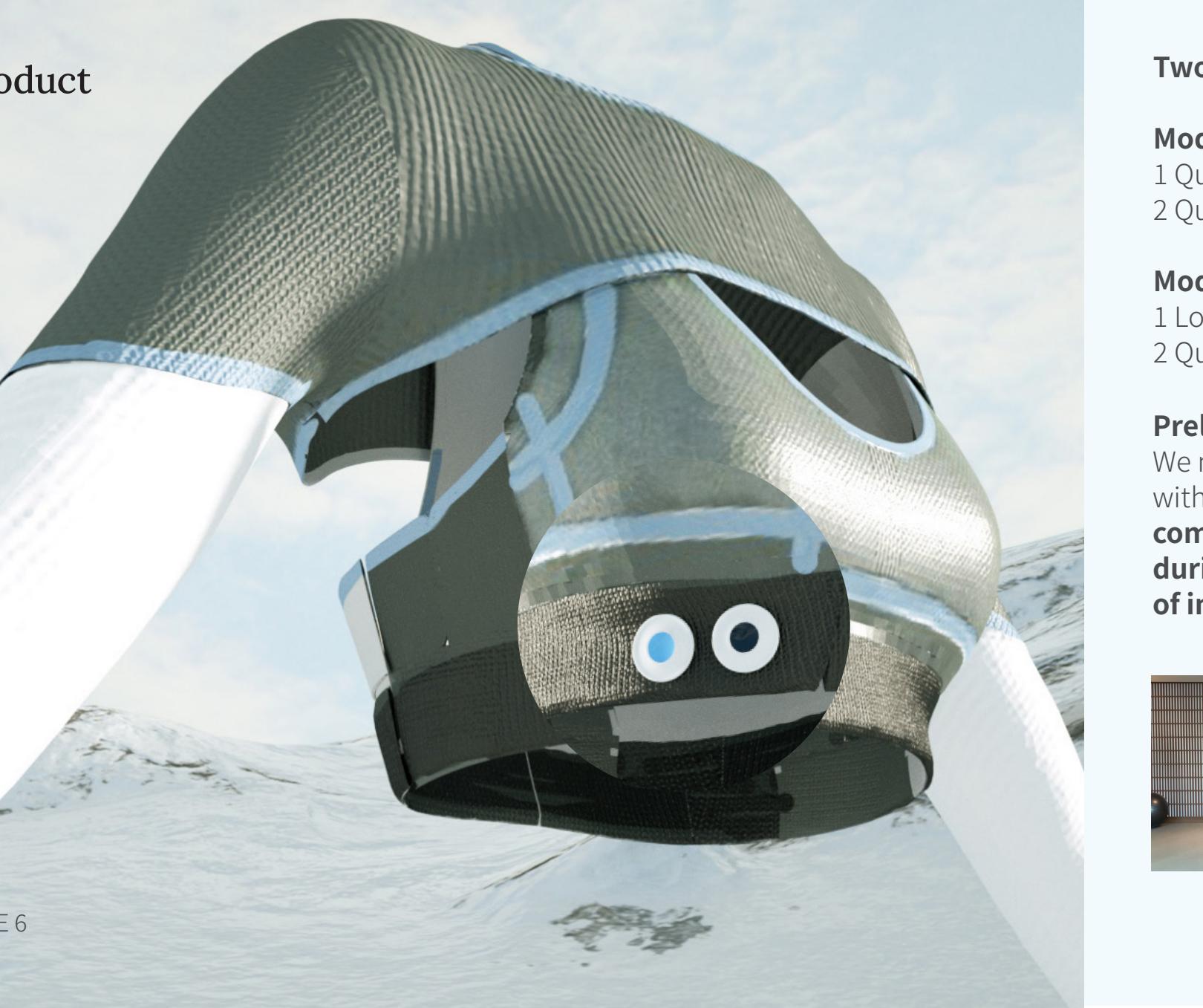
Final



UI Elements



Product



Two vibration modules on the side:

Module A: Basic vibration level maintenance

- 1 Quick tap: Vibration activated
- 2 Quick tap: Stop vibration

Module B: Vibration amplitude increase

- 1 Long tap: Increase vibration
- 2 Quick tap: Stop vibration

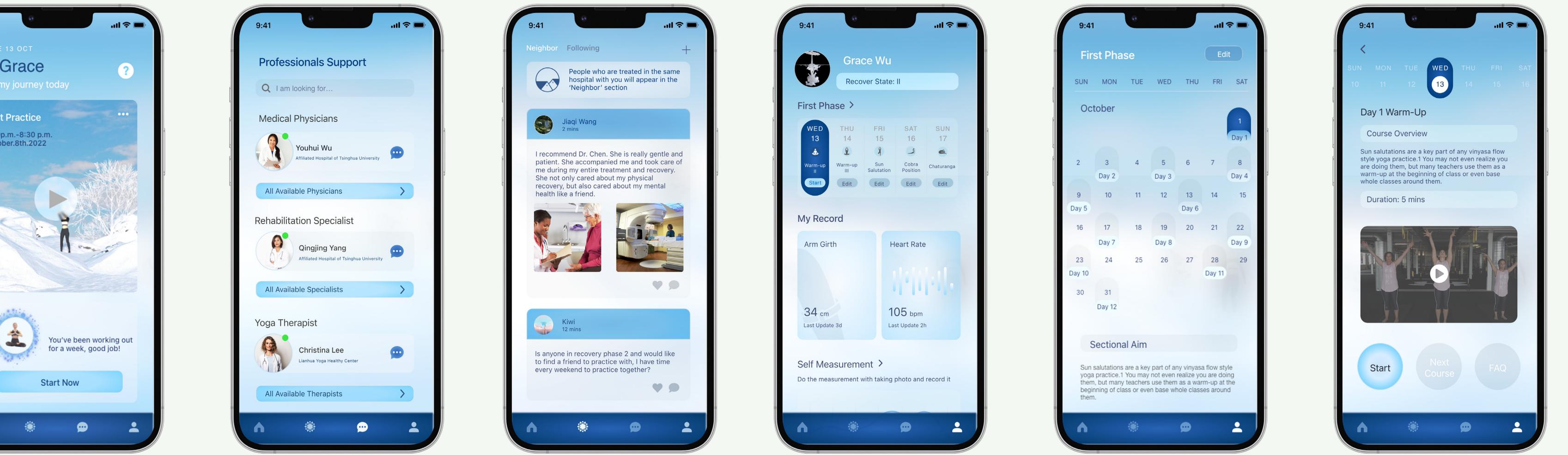
Preliminary user testing

We made a yoga-wear with same design with vibration module to test the **wearing comfortability, vibration level experience during yoga practices and user's success rate of activating vibration.**



CONCEPTUALIZATION: Hifi-mock-up

Hifi-generative Model (App)



Hifi-generative Model (App: Immersive)

