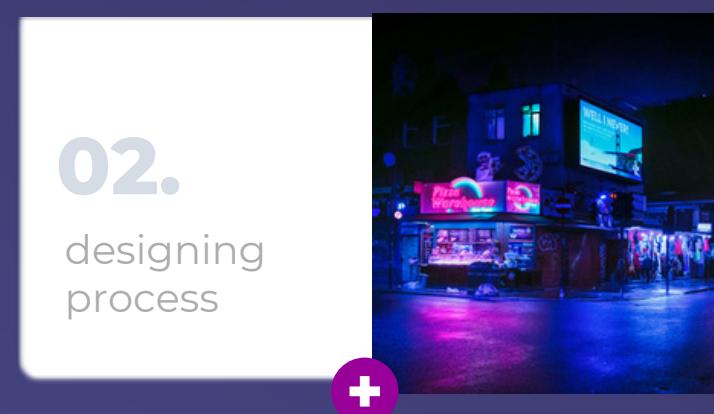
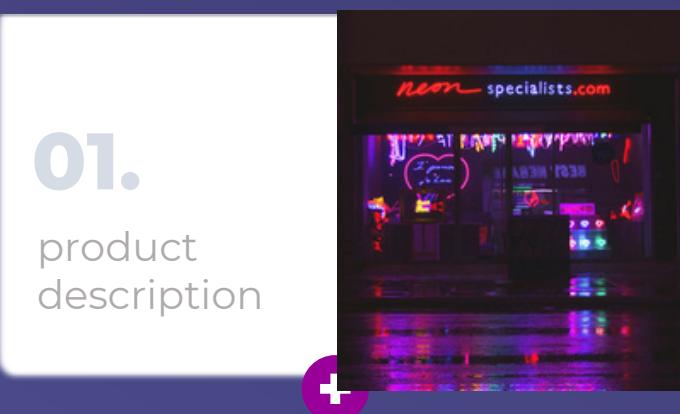
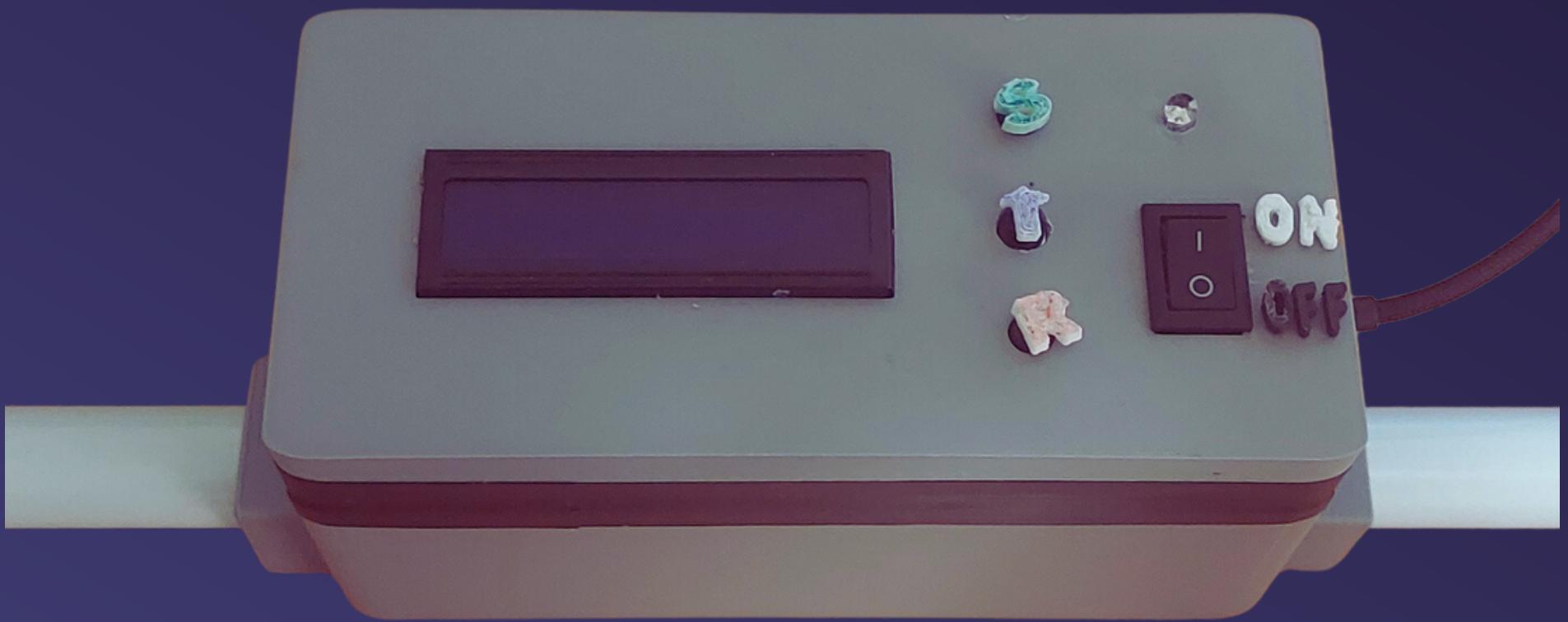




# FlexiTrainr Pro

FlexiTrainr Proisan intelligentproduct designed for sports rehabilitation of shoulder Problems.



01

02

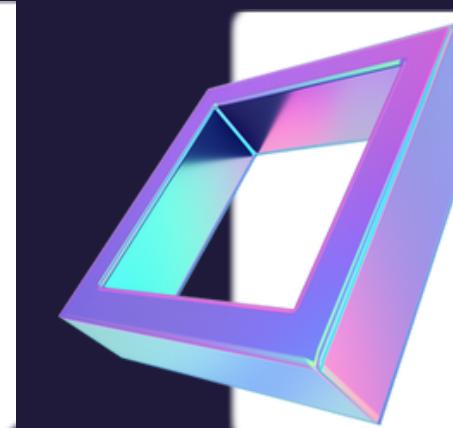
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- mapping
- storyboard

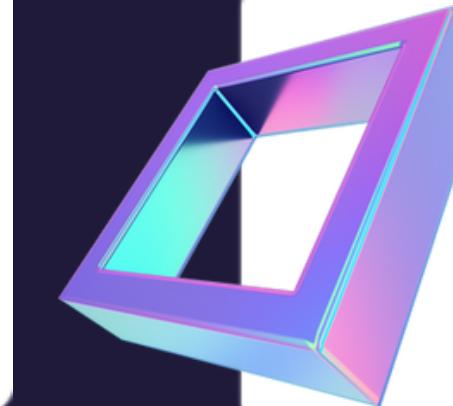
02.



**Product prototype**

- 3D Modeling
- Circuit diagram
- Product usage diagram

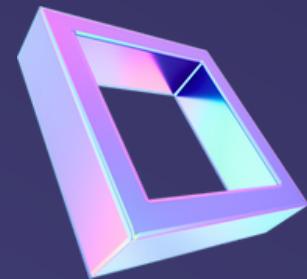
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**Product future outlook**

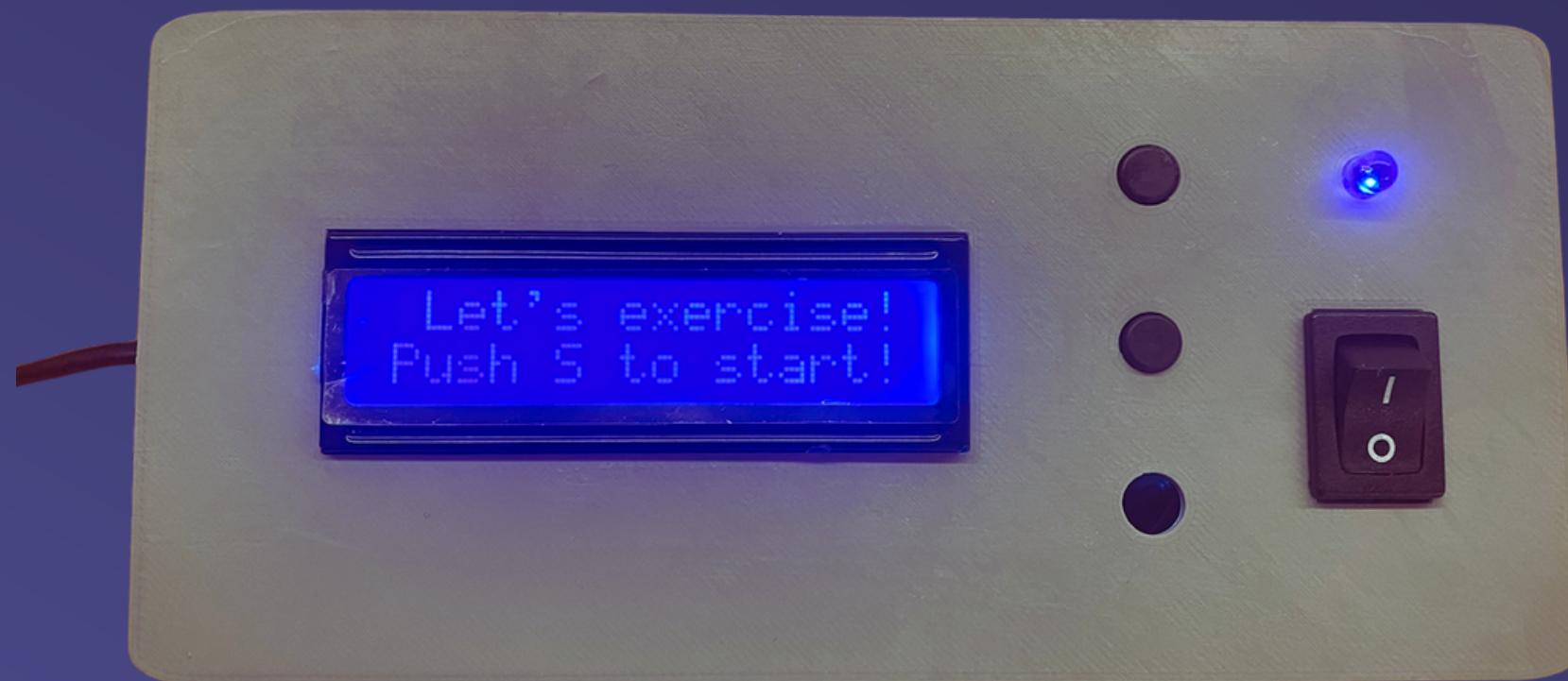
- App Prototyping Summaries
- wireframe diagram

04.



# 01.

## Product description



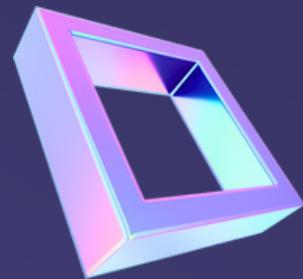
FlexiTrainer Pro is a smart device designed for physical rehabilitation in athletes after a shoulder injury. The interactivity guides older athletes through steps in the rehabilitation exercises while providing feedback on the status of where they are in the exercises and on the alerts for straying away from the exercise through visual and audio prompts.

01

02

03

04



# . Product description

Exploration using objects such as sticks in the rehabilitation process provides material engagement with the rehabilitation exercises while providing natural affordances to different ranges of motion. The electronics are intended to be embedded in the stick and pervasive to the user. Still, for demonstration purposes, the prototype shows the electronics box attached to the outside of the stick.

A human-centred design approach involves conducting user interviews with older adults engaged in some form of sports and conducting a P.A.C.T. and affinity analysis of the user information. Personas were developed to inform design criteria for creating a smart device for remote rehabilitation in older adults. The designed prototype meets the requirements of simplicity and ease of use - the device does not require any setups and installations, which is often the primary reason for the lack of uptake of technologies in older adults. The stick allows ease of storage, as the stick can be folded and stored away when not in use. Finally, research shows that using objects as props for exercises offers material affordances to older adults, helping them learn the exercises quickly and keep them motivated.

# 02.

## Designing process



- Mind mapping
- Storyboard

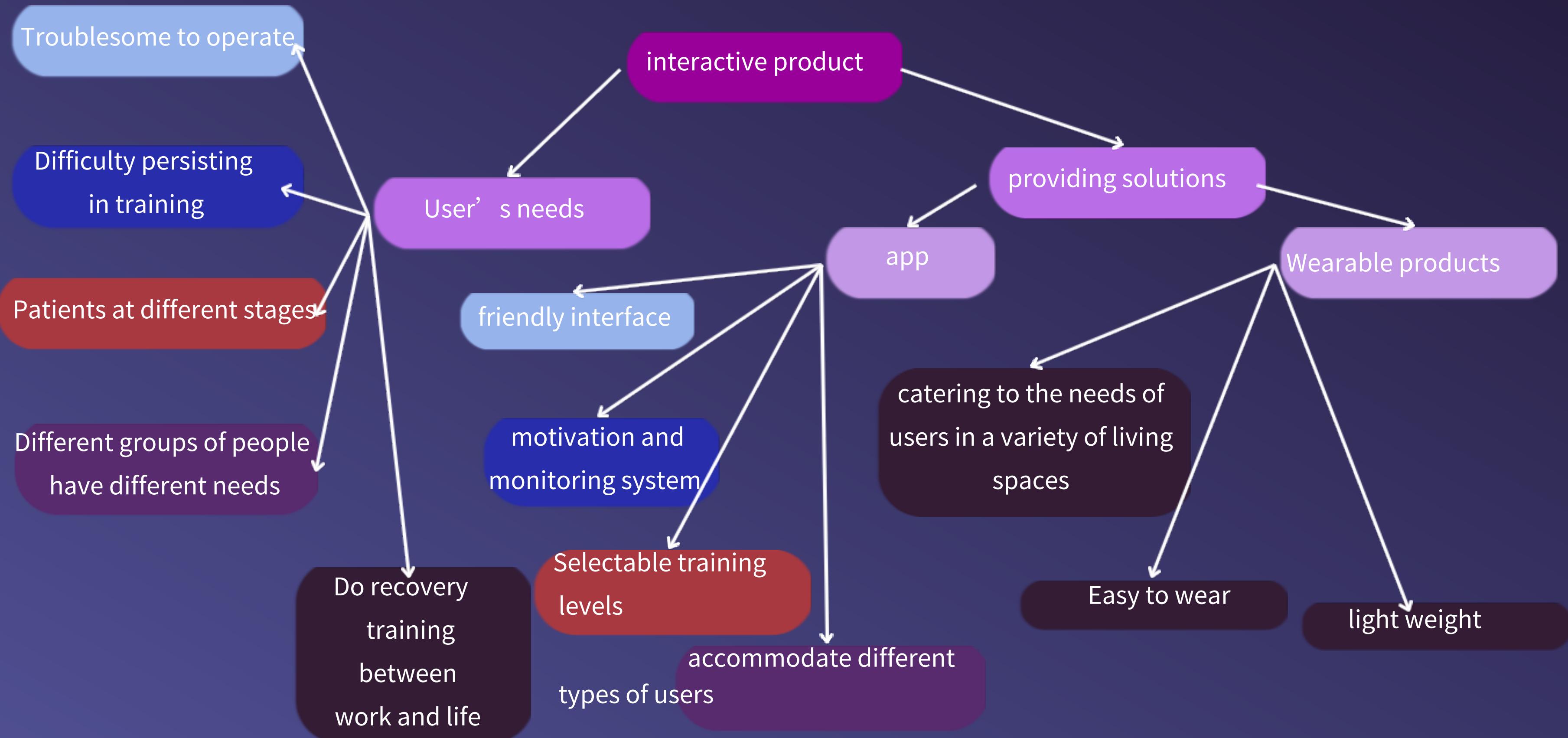
01

02

03

04

# Mind mapping



# Storyboard

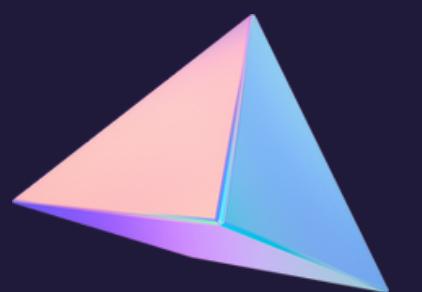
Jacob struggles with shoulder pain while working in the garden.



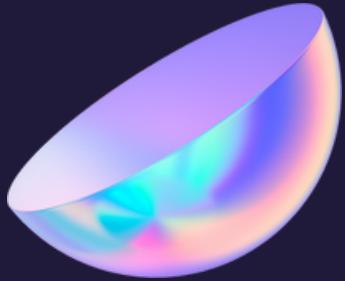
The display shows a report of his progress and the achievements he has earned, motivating him to keep working hard.



Jacob wore this device for the first time for rehab in a quiet corner of his home.

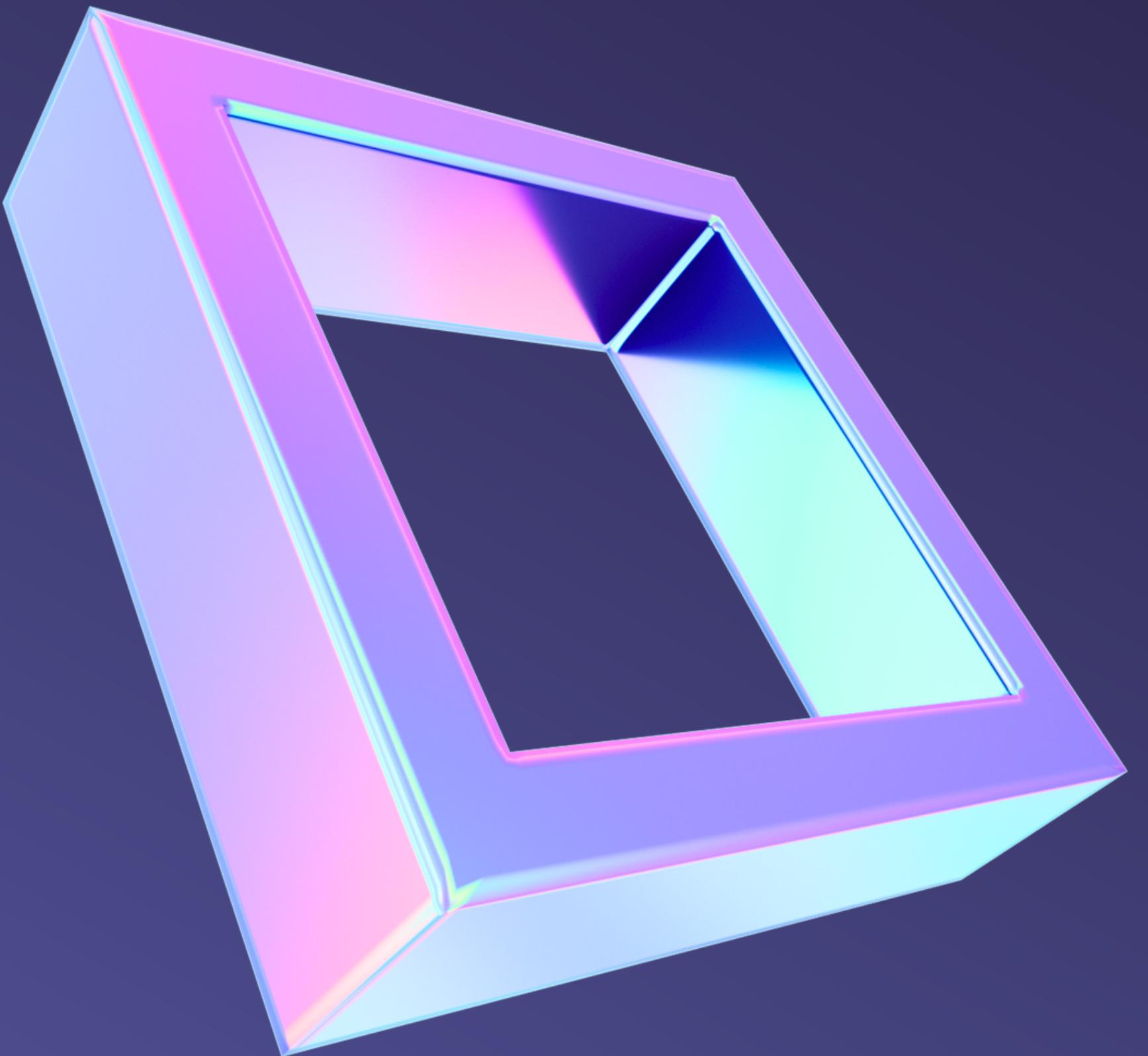


In the living room, Jacob's family shows him this rehabilitation device, explaining how it works.



Therapists can remotely view Jacob's training data and provide expert guidance and encouragement.





# 03. Product prototype

01

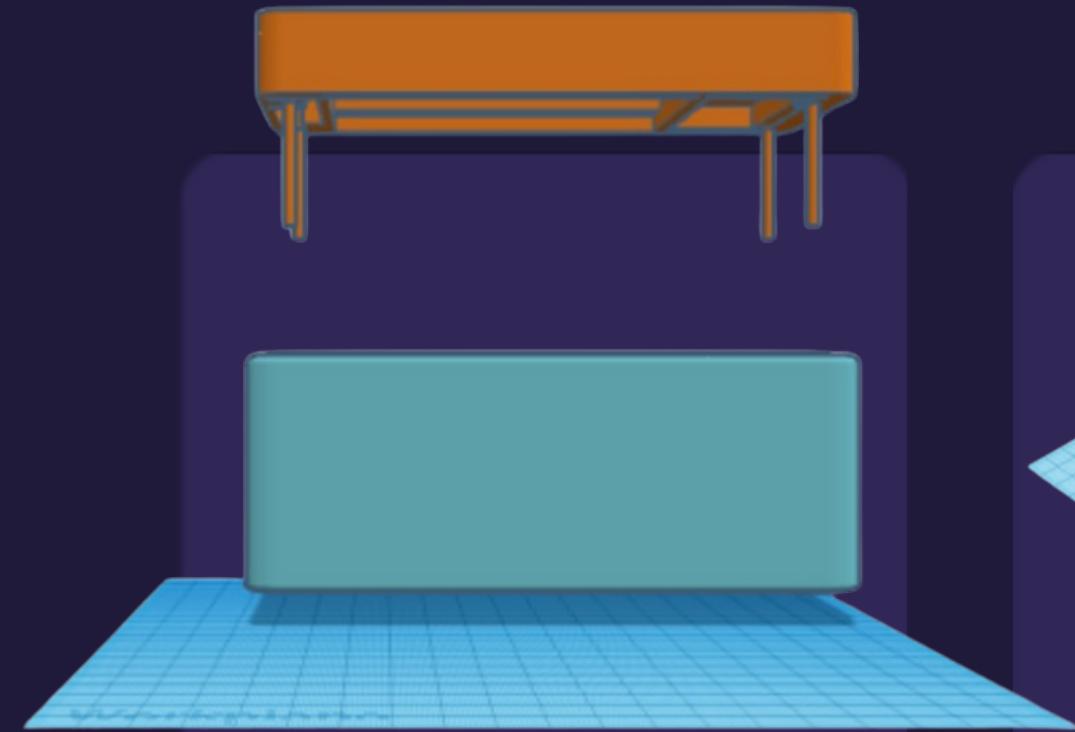
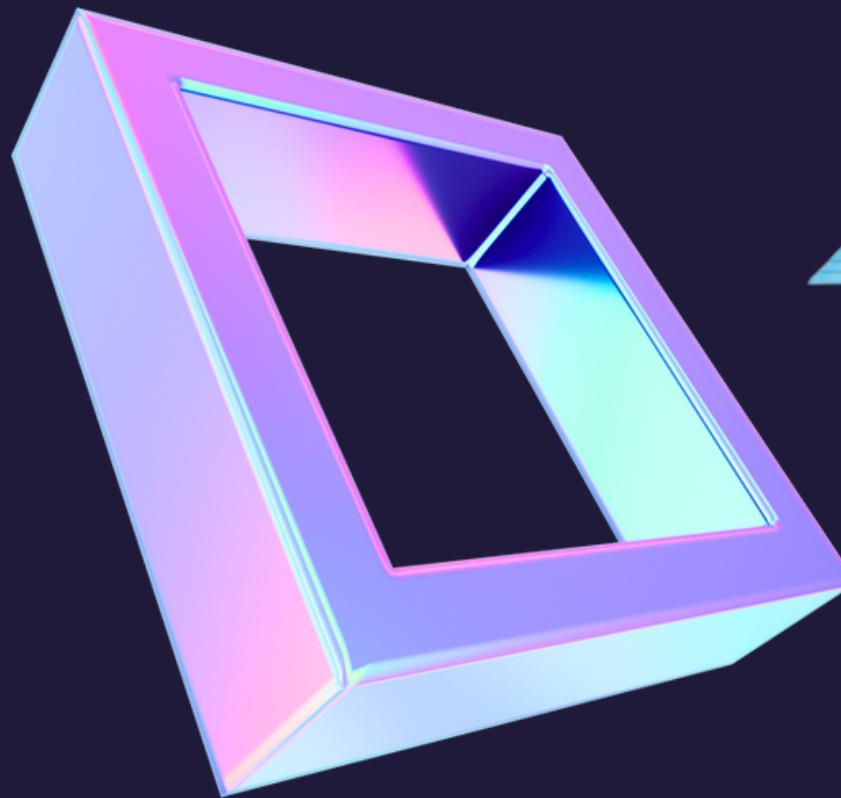
02

03

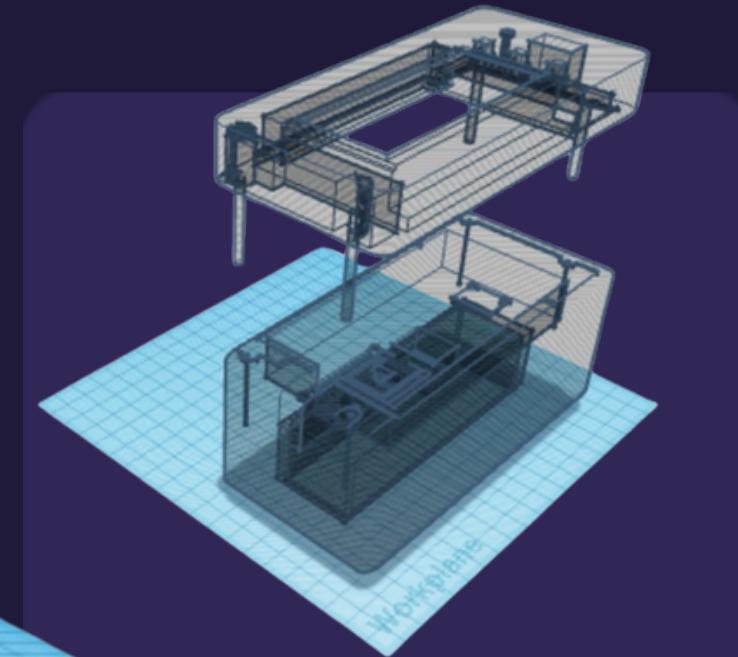
04

# 3D Modeling

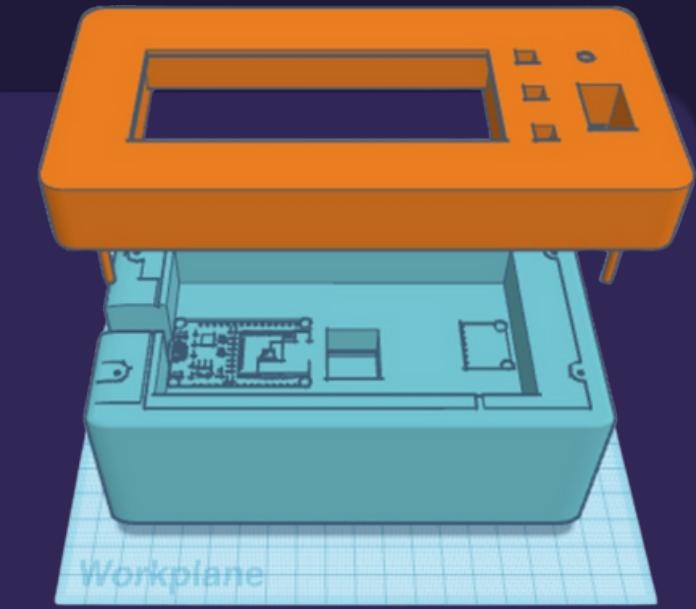
This product contains an ESP, an MPU , an RGB LED light, three buttons, an LCD, and a switch.



The product is divided  
into two parts: lid and  
body.



Perspective diagram.



The lid contains buttons,  
switches and lights, and  
has a display for user  
interaction.

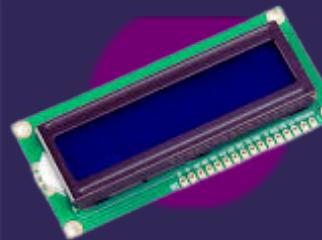


# Circuit diagram



## ESP

Transfer data to communicate between computer and user.



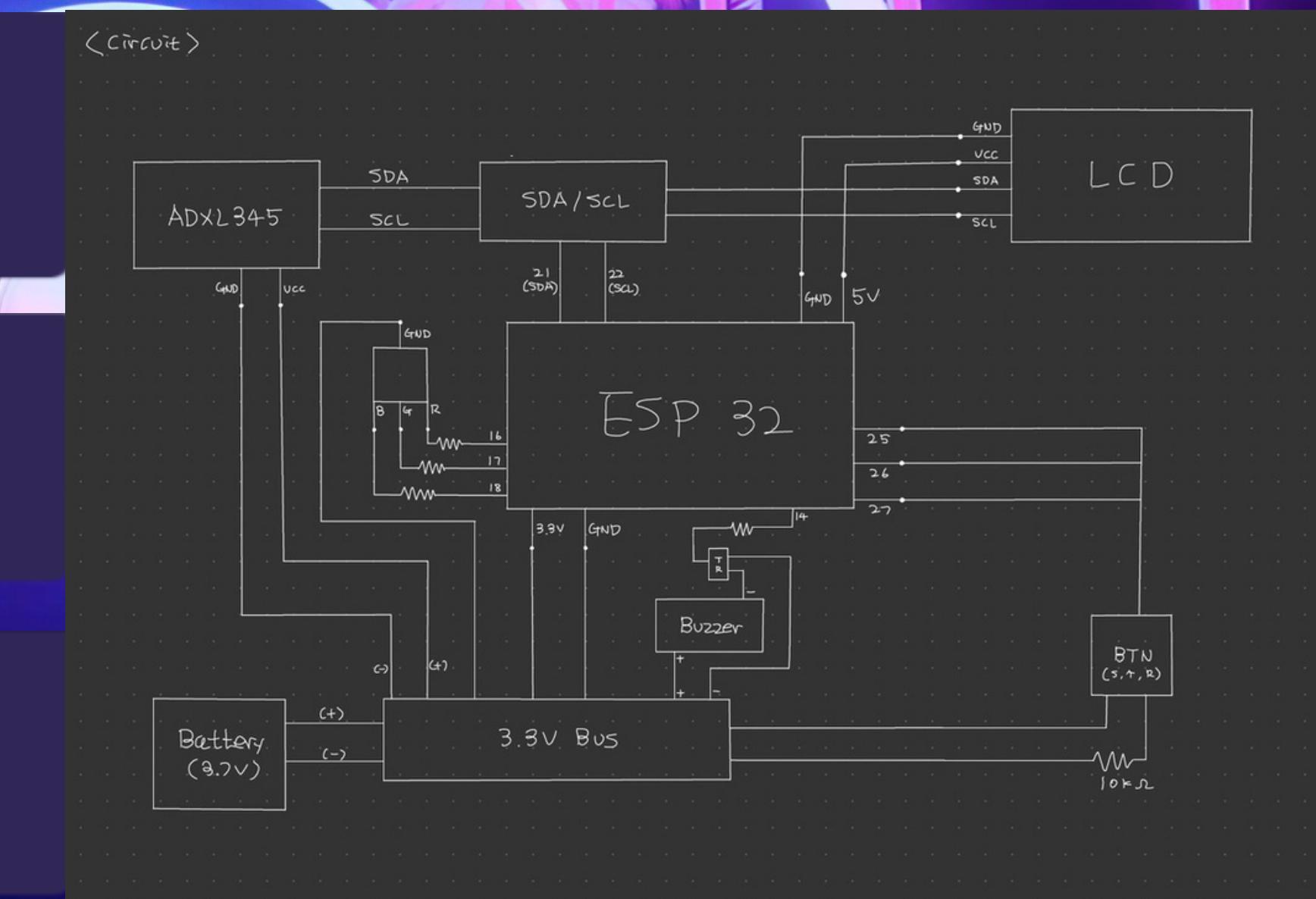
## LCD display

Interact directly with users through natural language.



## MPU

Measure and output the rate of change of rotational velocity or angular position over time along the X, Y, and Z axes.



# Product usage diagram

Before training begins



If the patient's movements are completely irregular, the red light will turn on.



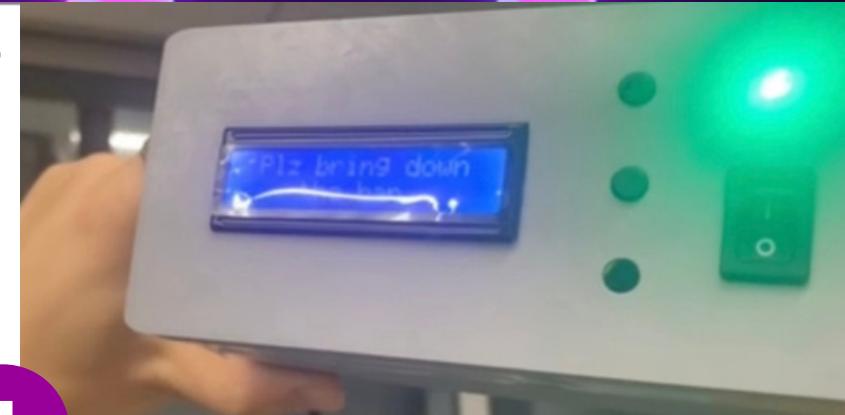
If an action standard can be reached to some extent, the yellow light will light up.

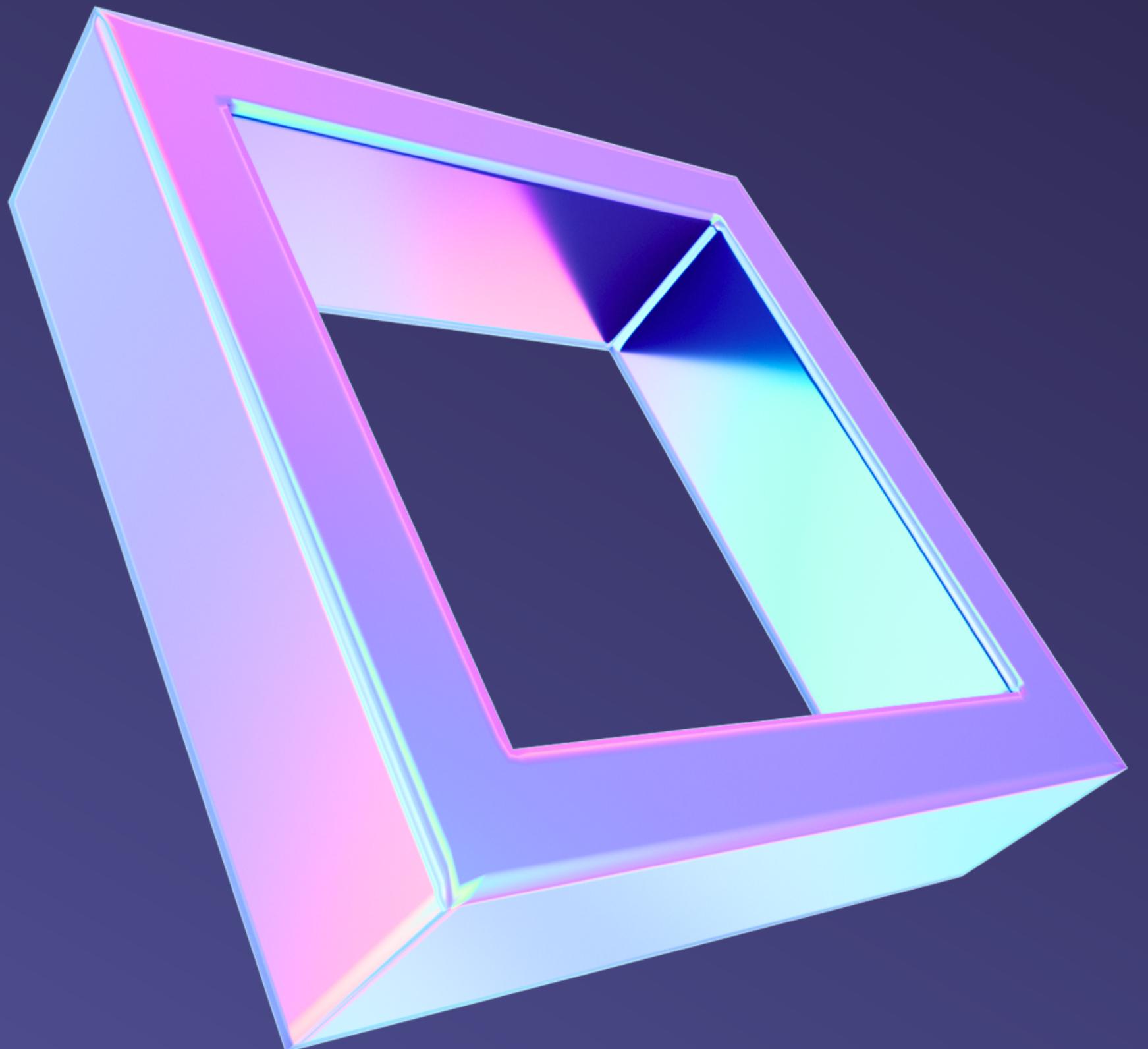


If the action is completely standard, the green light will light up.



After completing a set of actions, the prompt returns to the original position, and after completing five sets of actions, words of encouragement are displayed.





# 04.

# Product future outlook

01 02 03 04

# App Prototyping Summaries

## 1. App Introduction:

- Train anytime, anywhere.
- Accurate recovery status reflection.
- Visualized rehabilitation process.

## 2. Access Interface:

- Animated device-wearing guide.
- Device connection check.
- Selection of rehabilitation program with stage-specific exercises.
- Introduction of pet assistant for emotional support.
- Transition to main training interface.

# App Prototyping Summaries

## 3. Main Training Interface:

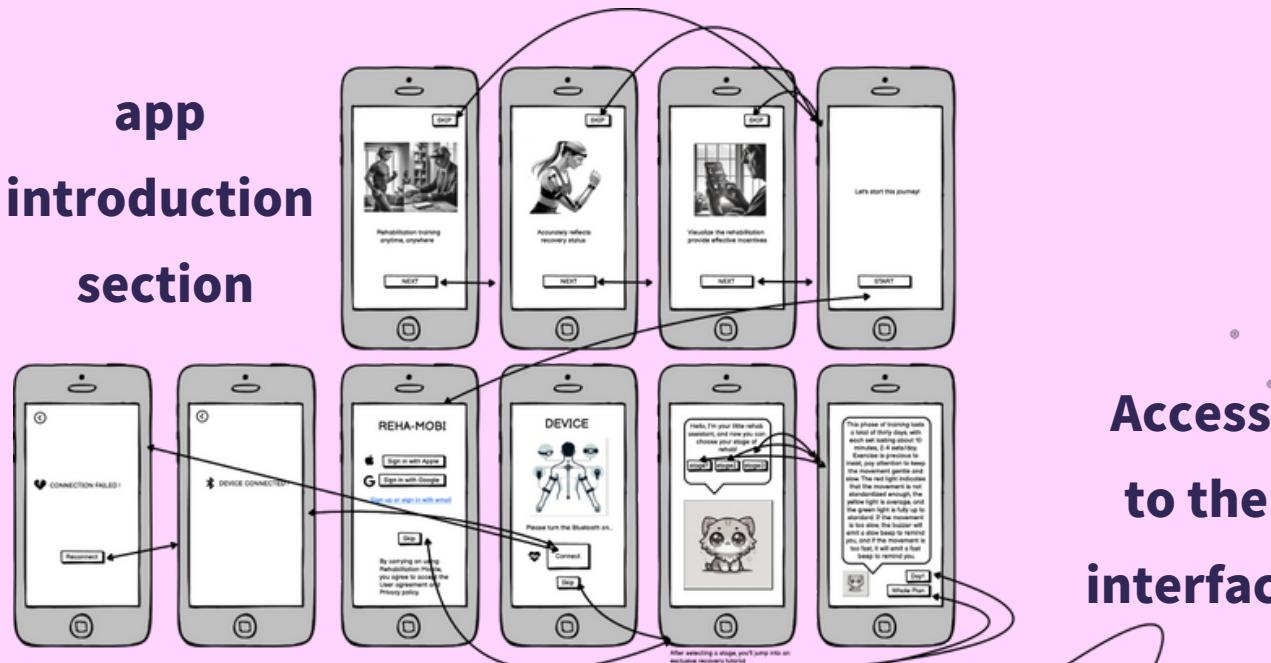
- Tutorial and music-guided rehabilitation exercises with time and set track.
- Detailed text and video explanations.
- Post-training summary with visualized data and progress ranking.
- Rewards (food) for training completion, feedable to pet assistant or shareable with friends.

## 4. Contacts and Feeding System:

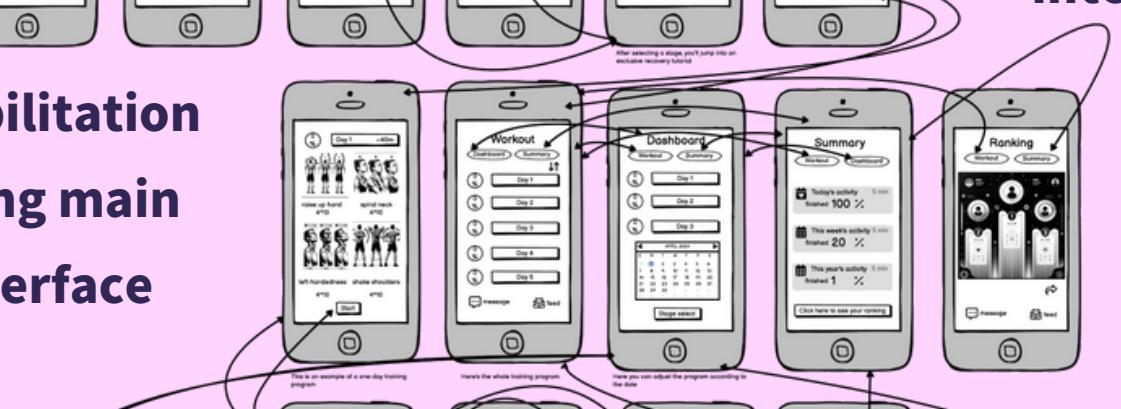
- Incentive system: Earn food for pet feeding after training completion.
- Pet provides rehabilitation tips after feeding.
- Storage for earned food.
- Invite and share with friends on the contact list.

# wireframe diagram

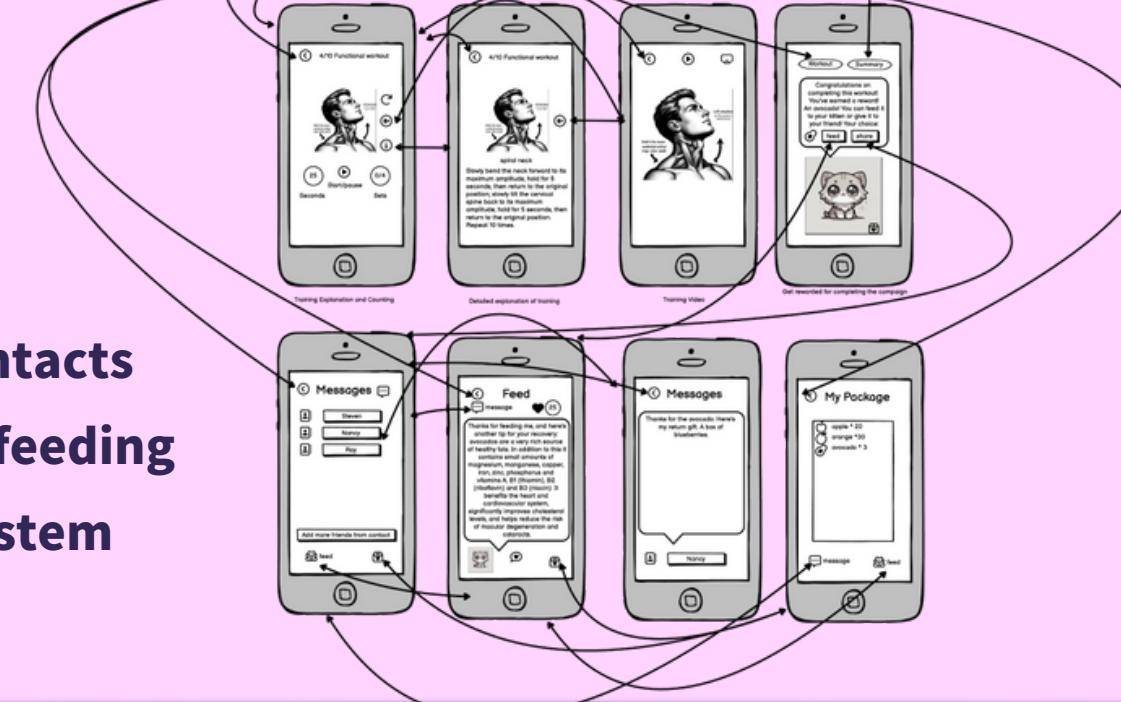
## app introduction section



## Rehabilitation training main interface



## Contacts and feeding system



## Access to the interface

# THANK YOU



Sylvie Ma  
Dave Kim

