

sentoms™

by Shani Abass

Text mostly adapted from self-written article **Chronic(ling) Pain: Creating Dynamic, Customizable, Modular Icons For Describing Abstract Physical Symptoms**, due to be published in the UXPA's UX Magazine in Q4 2023.

overview

sentoms™ are customizable multimedia pain icons that can be used by those living with chronic, abstract pain symptoms to communicate more effectively with their healthcare providers.

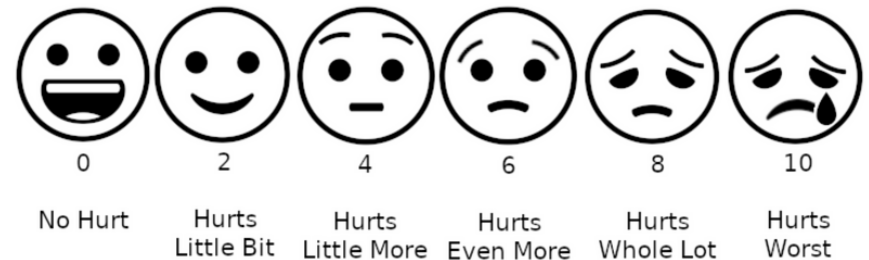
[Video Summary](#)

background

This project was inspired by my experiences with chronic pain as a teenager. I woke up one day with random, abstract pain sensations, including sharp pain, tingling, burning, and numbness that persist now.

I found it very difficult to verbally communicate these alien sensations to my doctors, and often found they would repeat back completely different symptoms from what I had described. Conventional icons and scales also lacked the specificity needed to accurately describe my symptoms. To this day, I have not received a formal diagnosis or treatment plan.



I therefore delved into the exploration of how color, shapes, motion, and sound could enhance the effectiveness of icons used to represent pain.



pain diary

To begin with, over four weeks I maintained a 'pain diary,' dedicating around 60 seconds daily to sketching out any pain I experienced on Adobe Illustrator. This time constraint aimed to capture my instinctive use of colors, shapes, and gestures.

Once I completed the 'pain diary,' I distilled the various gestures down to icons representing ten common types of 'pain': burning, cramps, dull ache, freezing, migraine, neuralgia, numbness, stabbing, throbbing, and tingling. I then integrated sound effects and motion and distributed the icons to 20 participants with chronic pain via a digital questionnaire for user research purposes.

<p>Monday, January 11th Dull nerve pain down left arm and tingling, a few moments of a sharp prickly feeling</p> 	<p>Tuesday, January 12th Tingly pain down back, thighs, and knees</p> 	<p>Wednesday, January 13th Very sharp pain in left ear and left side of face, left nerve pain and tingling around jaw</p> 	<p>Thursday, January 14th Mittled pain - mostly just tight nerve pain down left side of body</p> 	<p>Friday, January 15th Nerve pain under left shoulder, causing down side of elbow</p> 	<p>Saturday, January 16th Nerve down left side of body including left arm, particularly bad in hand</p> 	<p>Sunday, January 17th Really intense tingling, burning, freezing, nerve pain, and weakness down left side of body, from neck to foot</p> 
<p>Monday, January 18th Prickly/stabbing pain in both knees, dull nerve pain down left side of body</p> 	<p>Tuesday, January 19th Really intense jaw pain and burning, spasms, particularly bad in left corner</p> 	<p>Wednesday, January 20th Nerve pain in left shoulder, running down side of elbow</p> 	<p>Thursday, January 21st General muscular backache, with tingling sensation towards lower back</p> 	<p>Friday, January 22nd Nerve pain in left shoulder, side of chest and arm, with radiating to elbow</p> 	<p>Saturday, January 23rd Right nerve pain around arm, side of elbow, and down left arm, especially elbow</p> 	<p>Sunday, January 24th Sharp pain in left shoulder, left arm, both odd and jelly like</p> 
<p>Monday, January 25th Intense tension headache on left side of head</p> 	<p>Tuesday, January 26th Light tingling pain down back of thigh</p> 	<p>Wednesday, January 27th Migraine/nerve headaches and dizziness</p> 	<p>Thursday, January 28th Nerve pain and weakness in left shoulder and arm</p> 	<p>Friday, January 29th Nerve pain and weakness down left side of body, toes twitching</p> 	<p>Saturday, January 30th Nerve pain down left leg, with random sharp, stabbing pains</p> 	<p>Sunday, January 31st Sharp pain in heel of right foot</p> 
<p>Monday, February 1st Burning sensation in left shoulder</p> 	<p>Tuesday, February 2nd Mild stomach cramps</p> 	<p>Wednesday, February 3rd Stomach pain</p> 	<p>Thursday, February 4th Numbness in left foot</p> 	<p>Friday, February 5th Intense pain in right elbow/bony bone area</p> 	<p>Saturday, February 6th Intense, sharp, throbbing tingling in toes and heels of both feet</p> 	<p>Sunday, February 7th Fuzzy knee pain and tingling</p> 
<p>Monday, February 8th Mild nerve pain in lower stomach</p> 	<p>Tuesday, February 9th Intense pain in left ear, drum</p> 	<p>Wednesday, February 10th Pain in right hand/foot after falling, initial weakness of pain followed by tingling</p> 	<p>Thursday, February 11th Muscle tightness and nerve pain in lower right back</p> 	<p>Friday, February 12th Intense pain and pressure around right eye and right side of nose</p> 	<p>Saturday, February 13th Intense, sharp, throbbing pain around left leg and wrist</p> 	<p>Sunday, February 14th Really intense, sharp pain on left side of body, under left arm</p> 

user research

The participants' task was to assess the accuracy of my drafted icons and propose edits if needed. The results reinforced my thesis in several ways.

Accuracy ratings were nearly evenly split, and the suggested adjustments from those who found the icons inaccurate varied widely. These findings strongly indicated that words alone were insufficient for describing "pain," as the same term could have multiple interpretations and lead to misdiagnosis.

"Relating to people with struggles always helps."



"I get impatient and easily irritated when in pain."

"Blue is definitely relaxing, along with any serene, gentle classical music."

"I use sleep meditation and nature soundscapes to get out of my body."



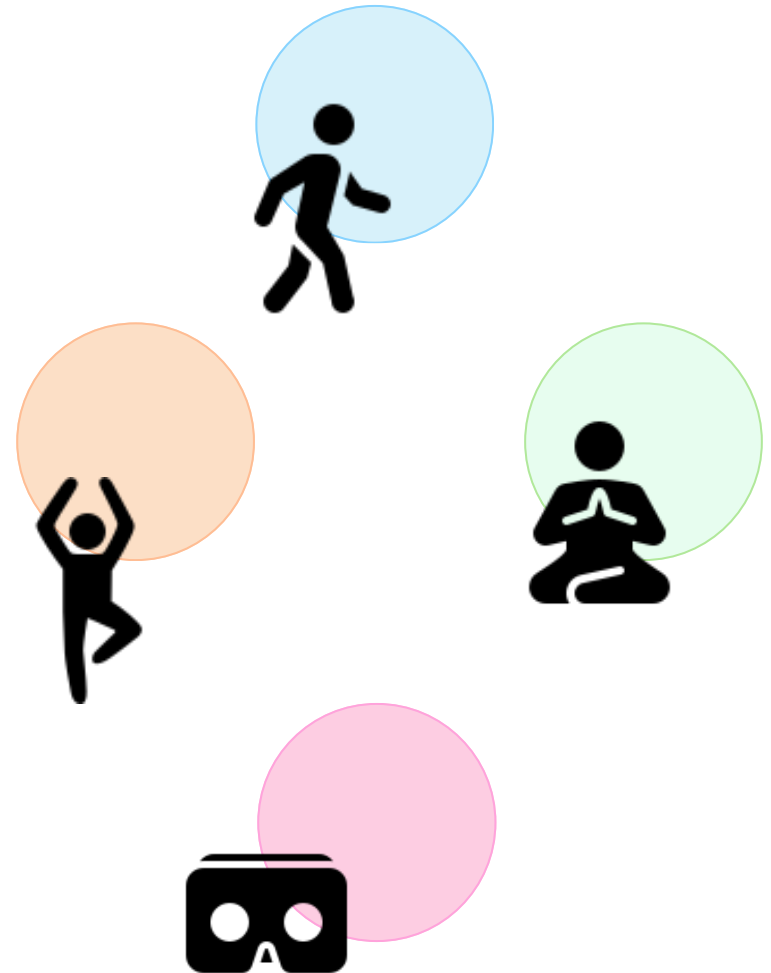
"Shades of pink calm me down."

"More shaking..."
"More pulsating..."



The questionnaire also included questions covering participants' general experiences with chronic pain and symptoms, their experiences with diagnosis and clinicians more broadly, their current treatment plans and activities they would be willing to try, and colors and sounds that relieved their pain.

Following the synthesis of my user research findings, I moved forward with designing a sample set of multimedia icons. However, I now recognized the need for added customization, including the names, visuals, and sounds of the icons to accommodate further nuance and specificity.



naming and branding

For project naming, I settled on 'sentoms™' - a portmanteau of 'sensory' and 'symptoms.'

The logo incorporates the Work Sans font, chosen for its web-safe readability, particularly important when users are in pain and need quick access to information. This font also adds character without being overly complex. The color scheme for the logo and brand stems from feedback received during user research, with participants finding these colors calming and pain-distracting.

Overall, the brand identity aims for a friendly and soothing aesthetic, avoiding clinical or pain-evoking associations.

sentoms™



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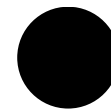
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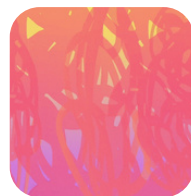
sentoms™: dynamic icons [Video Link](#)

Below are refined versions of the sentoms™ icons, crafted based on some of the responses from the user research questionnaire.

Despite recognizing the need for customization, I still chose to create starting icons that could be heavily modified rather than making users create icons from scratch. This was to make the process less overwhelming and arduous, especially as users would be in discomfort when using the icons to log symptoms and may also have limited dexterity, patience, or stamina.



burning



cramps



dull ache



freezing



migraine



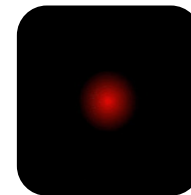
neuralgia



numbness



stabbing



throbbing



tingling

sentoms™: static icons

I also created static versions of the icons, designed for situations where motion is impractical, such as print materials or mapping symptoms on a 3D model of a patient's body.



burning



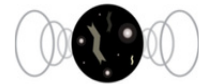
cramps



dull ache



freezing



migraine



neuralgia



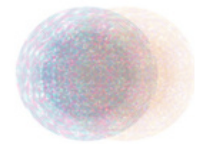
numbness



stabbing



throbbing



tingling

sentoms™ CP: mobile app

[Video Link](#)

sentoms™ CP serves as the functional proof of concept for the sentoms™ icons.

It is a mobile application enabling patients to create and tailor sentoms™, log their pain symptoms using the icons, and view the icons mapped onto a 3D model. Because the app allows users to change the visual intensity of sentoms™ through color, shape, motion, and sound, it is easy to see progress and relief at a glance as the icons are edited and logged over time, enabling meaningful clinical conversations to take place and motivating users to continue with their prescribed treatment plans.

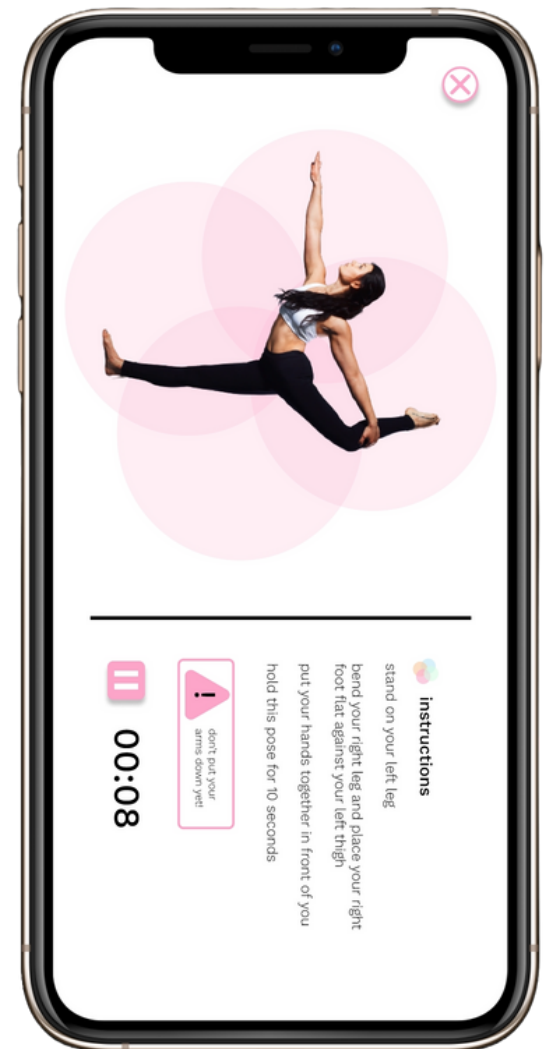
The app also provides users with access to additional resources, including general information about chronic pain (curated by HCPs), chronic pain case studies, direct messaging with HCPs, and personalized physical and therapeutic exercise plans designed by HCPs to alleviate pain symptoms.

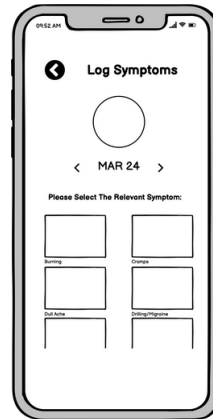
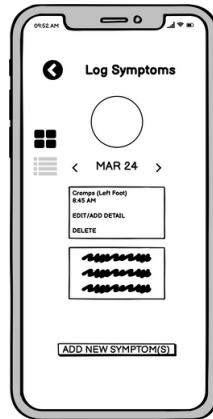
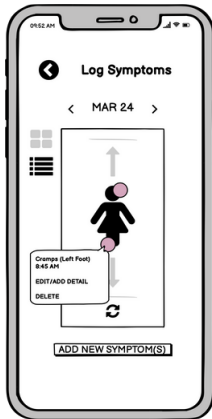
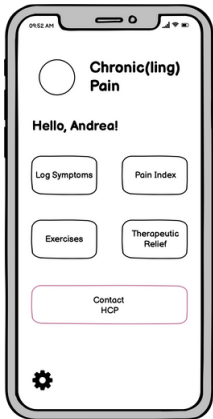
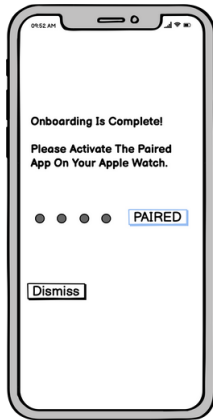
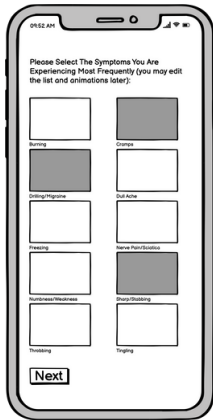
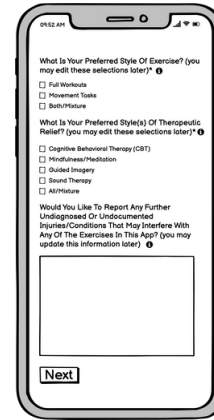
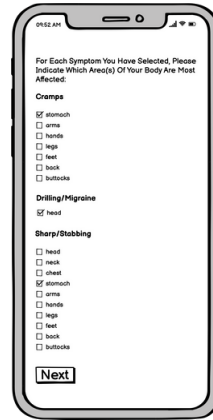
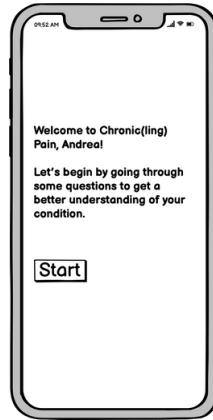
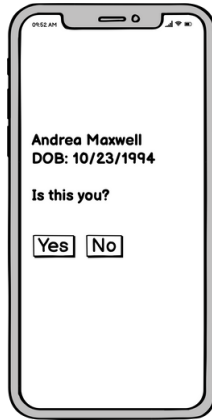
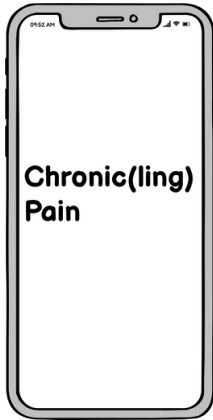


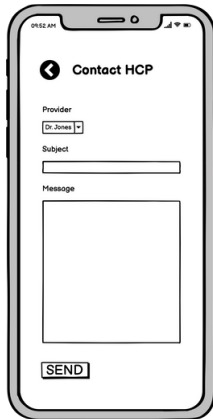
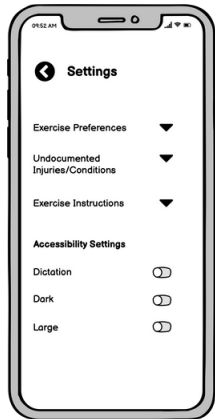
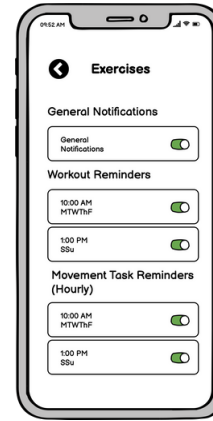
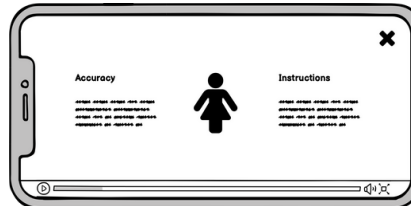
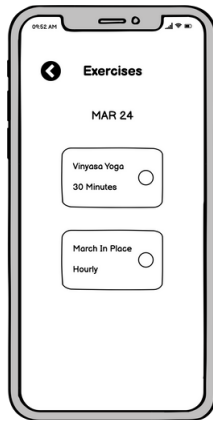
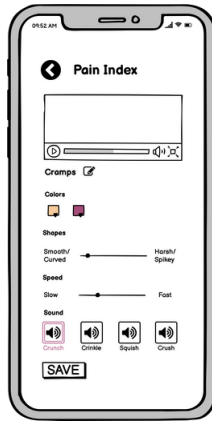
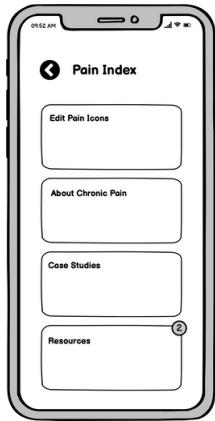
Users have two options when it comes to exercises: the To-Do List and the Exercise Bank. The To-Do list is the set of exercises curated by the user's HCP, and daily reminders can also be set.

The Exercise Bank is the full range of exercises available, broken down into which symptoms or conditions they are recommended for. Exercises that are comparable to the exercises on the To-Do List are marked as 'fulfills to-do list', meaning that users can do these exercises instead of the prescribed ones if they find them more comfortable or enjoyable, and the original exercises on the To-Do List will still be checked off.

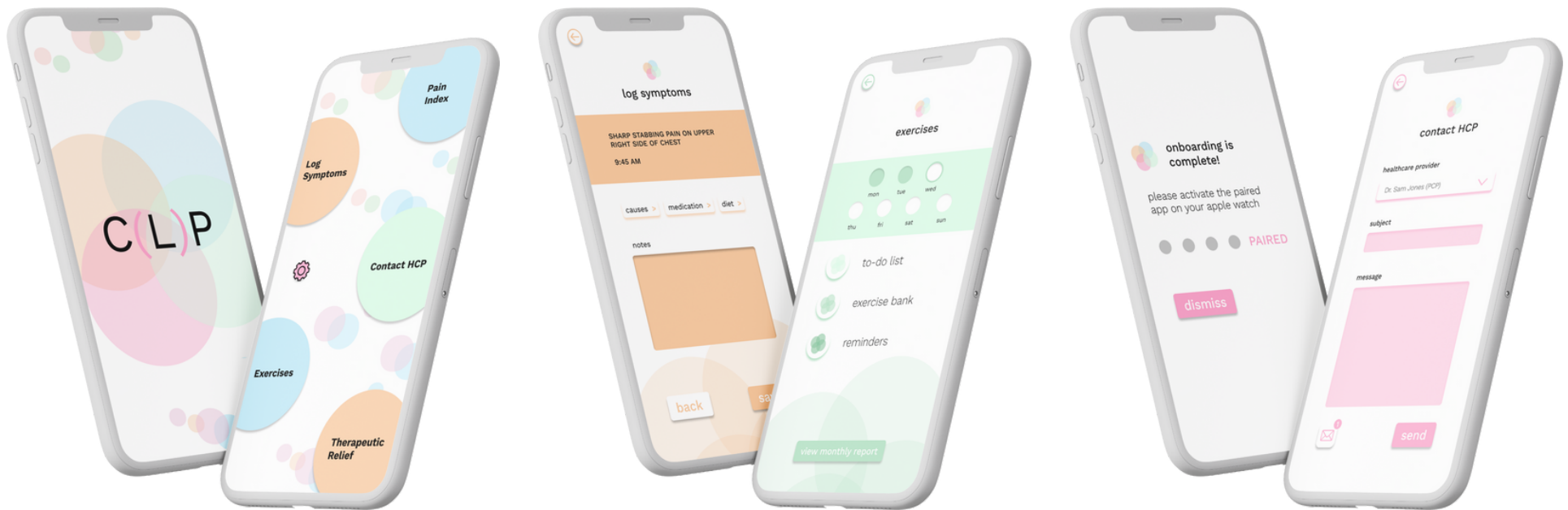
Examples of prescribed physical exercises include yoga, pilates, and walking in place, while therapeutic exercises include meditation, guided imagery, sound therapy, and CBT. I included both types of exercises as my research (both primary and secondary) showed that while many doctors focus on the physical aspect, many patients also experience associated feelings of hopelessness, depression, anxiety, and a general lack of motivation, which can be overlooked.







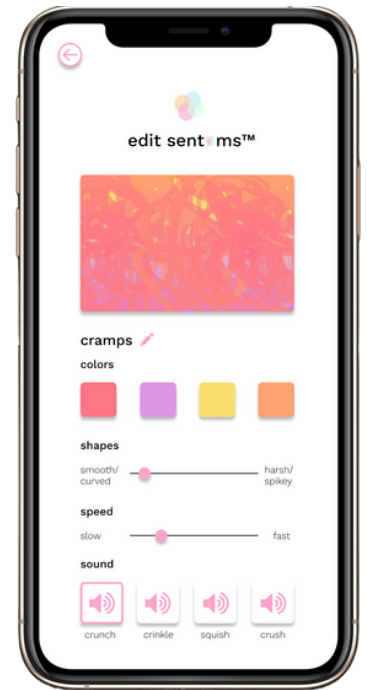
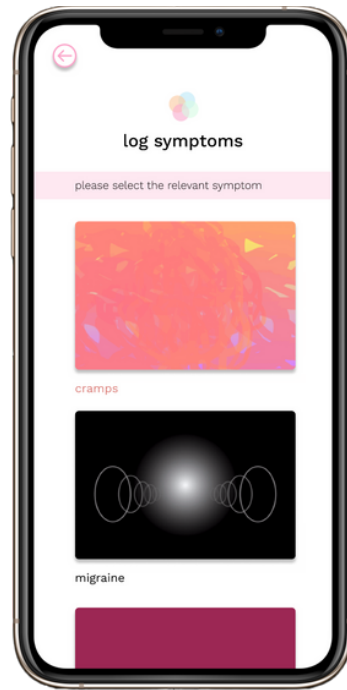
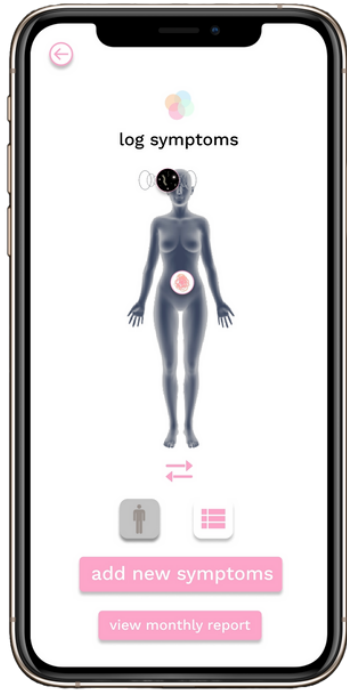
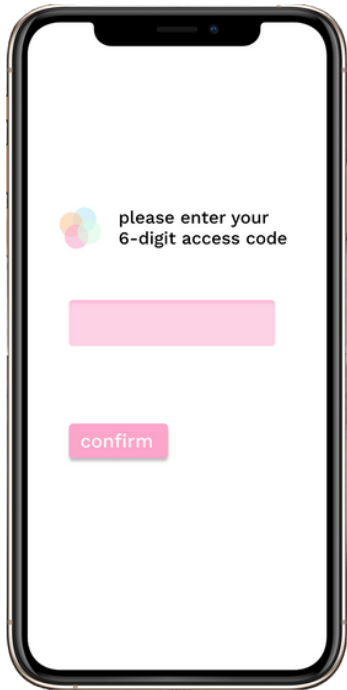
Multiple rounds of visual design refinement took place. Initial attempts aimed for a cheerful, positive aesthetic to avoid triggering reminders of pain. However, feedback led to simplifying decorative elements and allowing users to choose a single color for the entire application instead of extensive color coding.

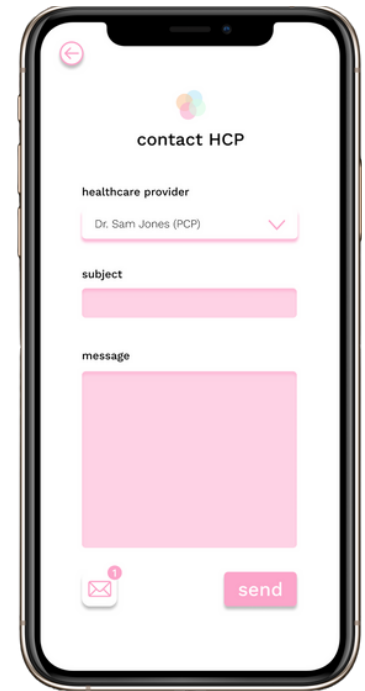
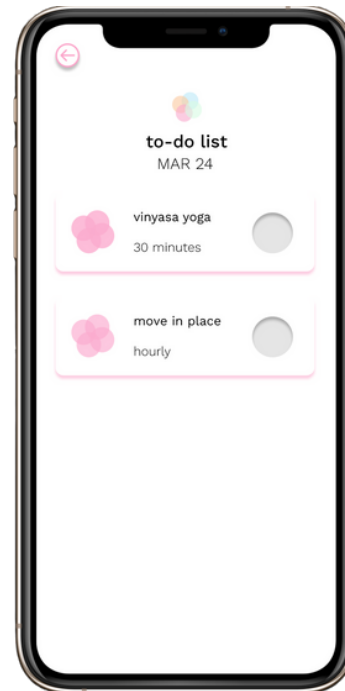
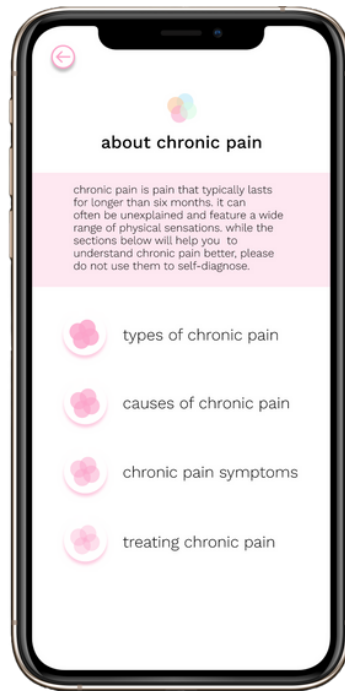
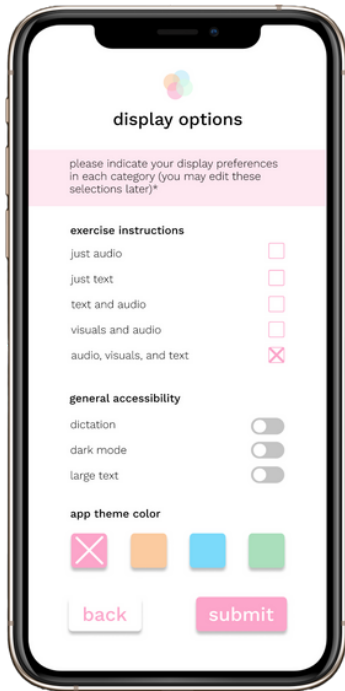


iteration 1

iteration 2

iteration 3





sentoms™ CP: wearable app

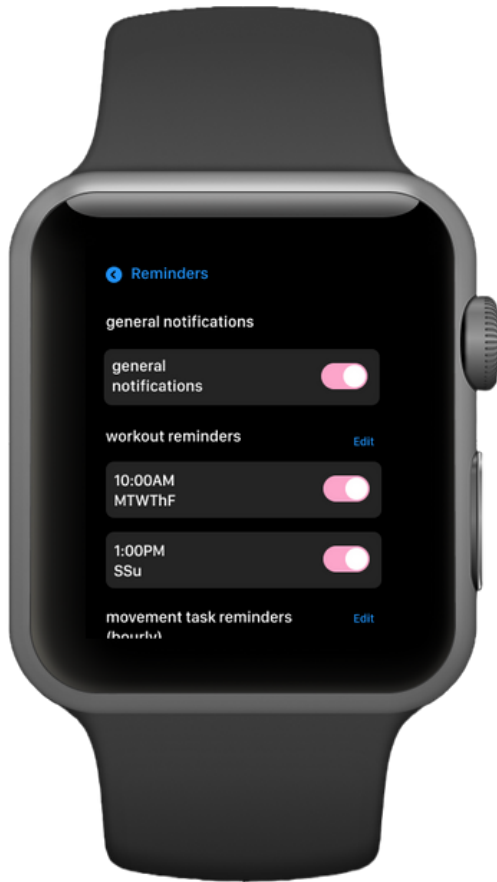
[Video Link](#)

The mobile app can seamlessly integrate with a wearable/smartwatch app, enhancing user convenience in symptom tracking and exercise monitoring. This addition was prompted by user research responses emphasizing the motivation gained from tracking progress and achieving specific goals.

Allowing users to witness improved accuracy in prescribed activities, as well as a general increase in physical activity over time, boosts morale. As HCPs can monitor app data, patients can also be held accountable for their adherence to treatment plans, and these plans can be adjusted more accurately when necessary.







Future of the Project and Broader Applications

Ongoing work focuses on refining and eventually converting the dynamic icons into fully editable modules, utilizing a creative coding library such as p5.js or a vector animation code format such as Lottie. I also looking to involve larger groups of individuals living with chronic pain for further research and testing.

These icons also have the potential to be used in educational campaigns, serving to educate the general public about what individuals with chronic pain may be experiencing, even when their condition is not immediately obvious.

Beyond chronic pain, this concept can empower individuals with cultural, social, language, and class barriers, as well as groups like children and those with non-verbal autism, to effectively describe any abstract symptoms they may be encountering in a clinical setting.

