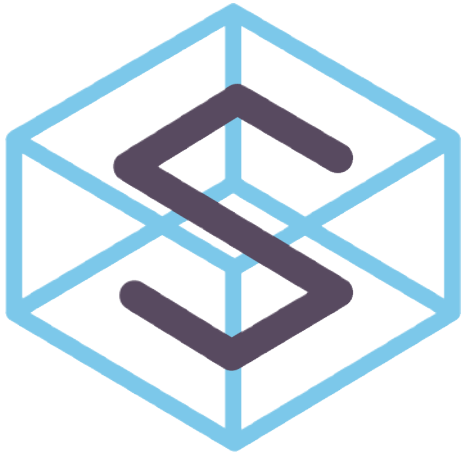
Presented by
Nikita Bhatnagar



SPACE

Behance Project Link:
https://www.behance.net/gallery/137228343/Space-An-intervention-for-claustrophobics-%28ongoing%29

RESEARCH AND ANALYSIS

INTRODUCTION

Claustrophobia is the fear of enclosed spaces where a person avoids the feared situations or endures them with intense anxiety and a desire to escape. It affects approximately 12.5 percent of the global population mostly females. Existing solutions do not address problems such as lack of knowledge of each individual's triggers and symptoms. The aim of the study was to understand the behavioural issues, causal factors and impact on claustrophobics while creating a solution which would help in coping with the fear and cater to their well-being. The study was conducted in Delhi and Mumbai with 73 participants taking an online survey and 27 participating in empathy interviews with various stakeholder groups such as claustrophobics, therapists, and family members. Journey maps were created to understand user reactions in various trigger locations and user testing with eight users validated the features of the solution. The study indicated the most dominant triggers were elevators (65 percent), MRI machines (56.5 percent) and tunnels (39.1 percent) and users tend to avoid these places resulting in missing out on experiences. Lack of acceptance and communication between loved ones and the community, reduces the confidence level of claustrophobics.

ONLINE SURVEY AND INTERVIEW INSIGHTS

While analysing the data, the following conclusions were drawn:

Negative connotation towards treatment

Claustrophobics refused treatment because they are hesitant to express themselves to a therapist because it makes them feel vulnerable, and there is no conclusive means to demonstrate the treatment's efficacy. Due to inadequate treatments, they avoid seeking help, which aggravated the intensity of the phobia and could result in the creation of new phobias like fear of the dark or fear of heights.

Genetic component associated with claustrophobia

The study observed 41.7% claustrophobic participants had family members who were claustrophobic. Past studies have indicated that the human GPM6A gene, age and gender also play a role in the occurrence of claustrophobia.

Lack of knowledge

The cause of the phobia was unclear for participants. Many said it arises from traumatic childhood events. Others believed that other underlying worries, such as fear of losing control or fear of death, may also play a role in the development of claustrophobia. As the reason is unknown, there is a lack of knowledge.

INTERVENTION POINTS

Keeping the product vision in mind, the problem areas were further divided into three aspects to solve the overarching problem statement. The following intervention points were considered:

These intervention points were the core of the conceptualising phase as concepts were ideated keeping them in mind. Along with these, existing therapy methods like cognitive behavioural therapy, hypnotherapy, and exposure therapy were also used while ideating solution.

Mindset of People

Changing the mindset of family members and friends that the claustrophobic is at fault

Claustrophobics' mindsets must be altered so that they can unconsciously let go of their fear, resulting in high emotional fitness and the ability to conquer their fear.

Coping Mechanism

Claustrophobics need a coping mechanism in the worst case of having a panic attack

Lack of knowledge/awareness

Bringing awareness about the various triggers and symptoms to accurately diagnose each individual (themselves or clinically)

Equipping loved ones with relevant knowledge about claustrophobia and overcoming panic attacks

MINIMUM VIABLE PRODUCT

Inculcating cognitive behavioural hypnotherapy with exposure therapy to tap into the subconscious mind to overcome the fear while also bridging the gap between loved ones

SPACE

FINAL CONCEPT

The proposed solution called 'SPACE' leverages experience design and IoT (internet of things). It has four components – an app that motivates the user with positive affirmations and showcases progress through Aura, a virtual representation of the user. A lamp assists in an experiential hypnosis session which is personalised for her specific triggers. A wearable to monitor her stress levels to provide immediate support in case of a panic attack and a stone to support her journey. User feedback was positive and appreciated the interaction of the lamp along with the sos feature of the wearable. The solution seeks to strengthen the users' ability to cope with the fear by targeting their subconscious mind so as to eradicate the fear from its core while also bridging the communication gap between families.

CONCEPT FLOW

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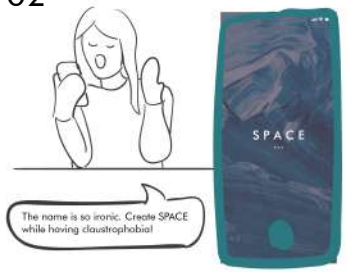

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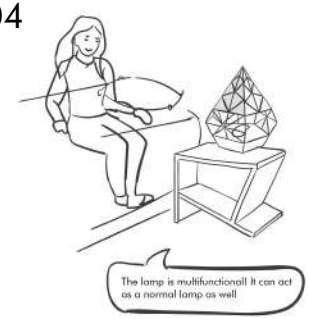

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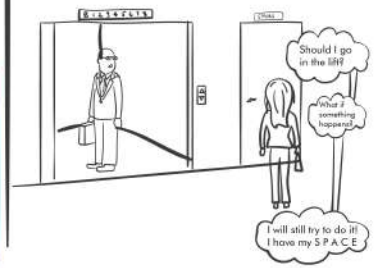

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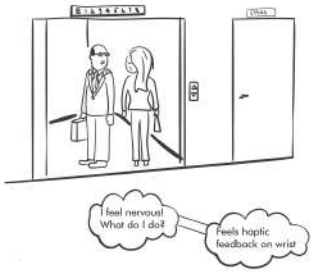

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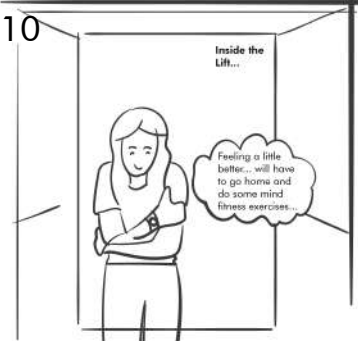

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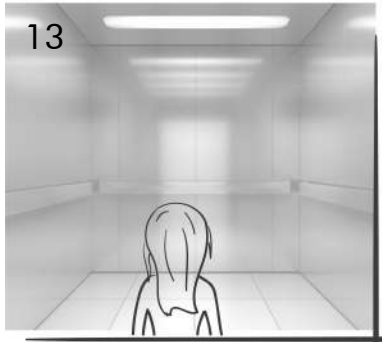

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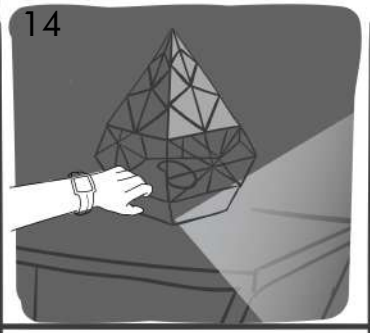

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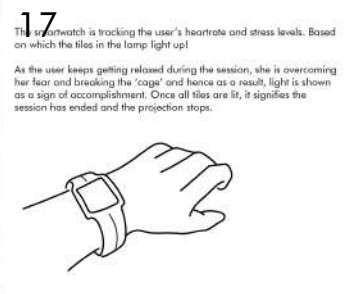

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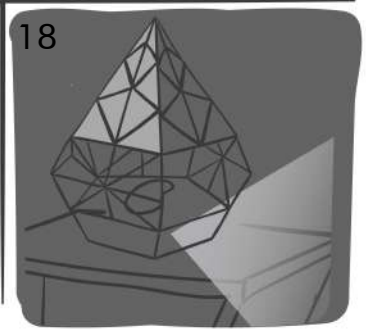

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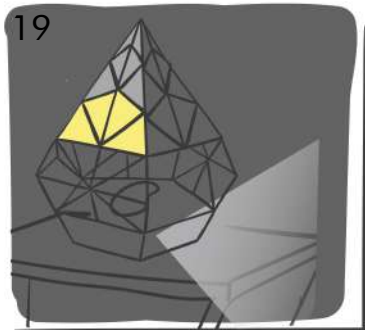

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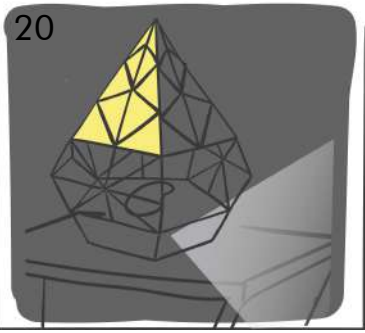

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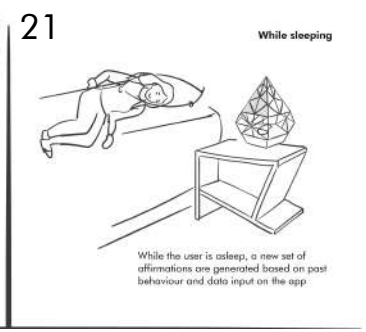
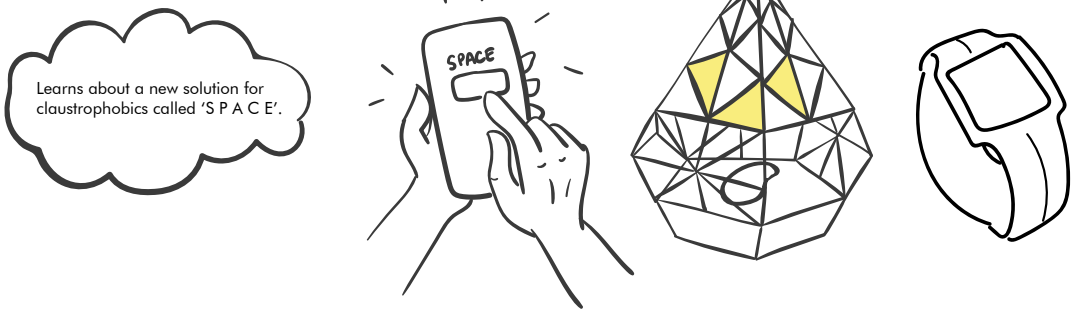


4 ESSENTIAL NODES OF THE SYSTEM

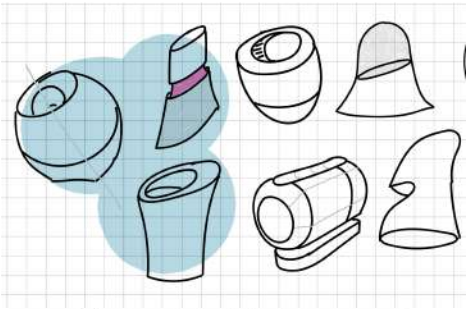


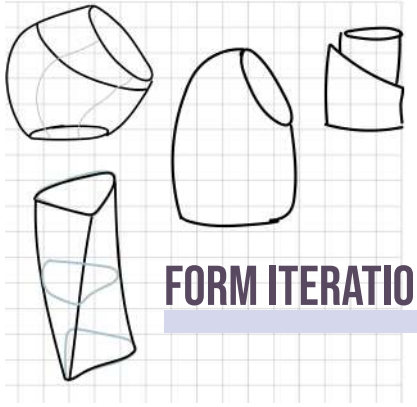
01

Product **Desk Lamp**

Metaphor **Cage**

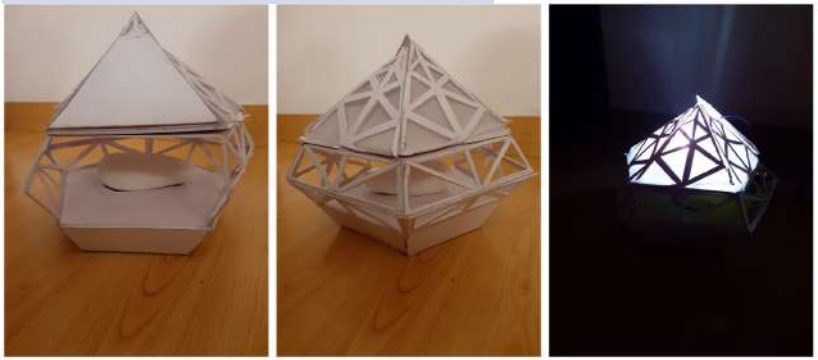
The lamp helps the user get over her fear by letting the user experience the triggers in the comfort of her room through a projection which makes them feel they are in that space. The lamp shape resembles a closed cage with triangular light panels which turn on gradually as the user progresses in the session to visually showcase her breaking free from the cage. During the mind fitness session, a projection of the trigger environment is projected on the nearest wall.

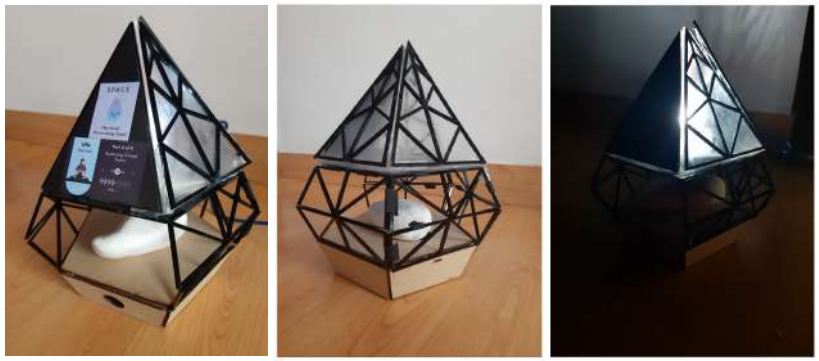




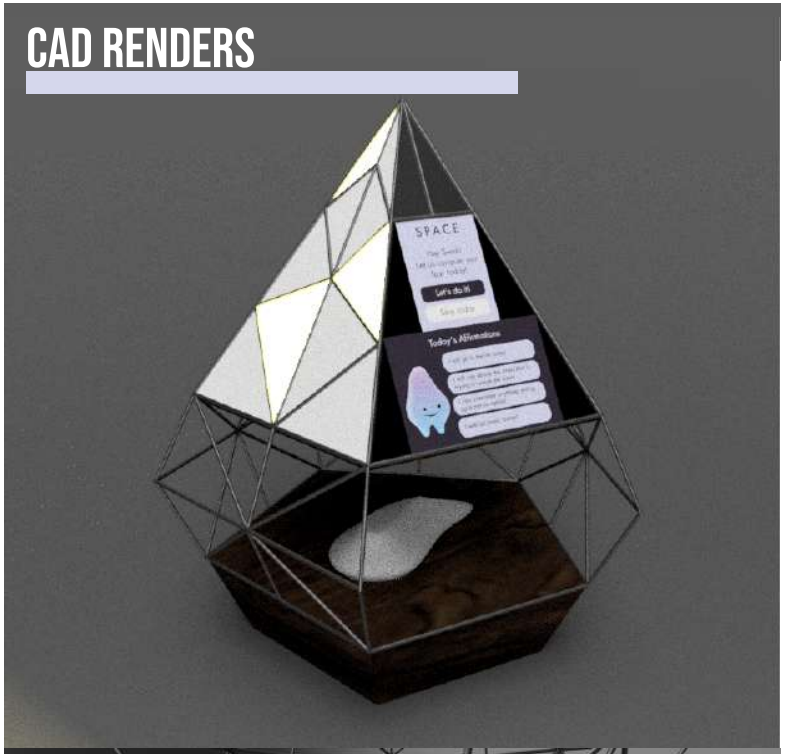
FORM ITERATIONS

PHYSICAL PROTOTYPES





CAD RENDERS



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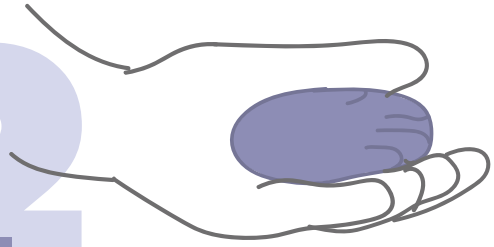


Product **Hand held device**

Metaphor **Holding hands and feeling the presence of someone with you**

The stone is nested inside the lamp. The user can use it while doing the mind fitness session as it provides comfort to hold because of the faint, relaxing haptic feedback which is triggered.

FORM ITERATIONS

PHYSICAL PROTOTYPES

USER TESTING INSIGHTS

LAMP AND STONE - HIGH FIDELITY PROTOTYPE

No. of Participants: 7

What worked	What did not work
• Form of the lamp was appreciated by all as it was very unique • Stone was comfortable to hold • Lamp shape gives a feeling of stability • Projection feature was the best	• Screen of the lamp did not have any major impact as the content could be viewed from the app or wearable • Strong, quick vibrations were not pleasant

User Comments

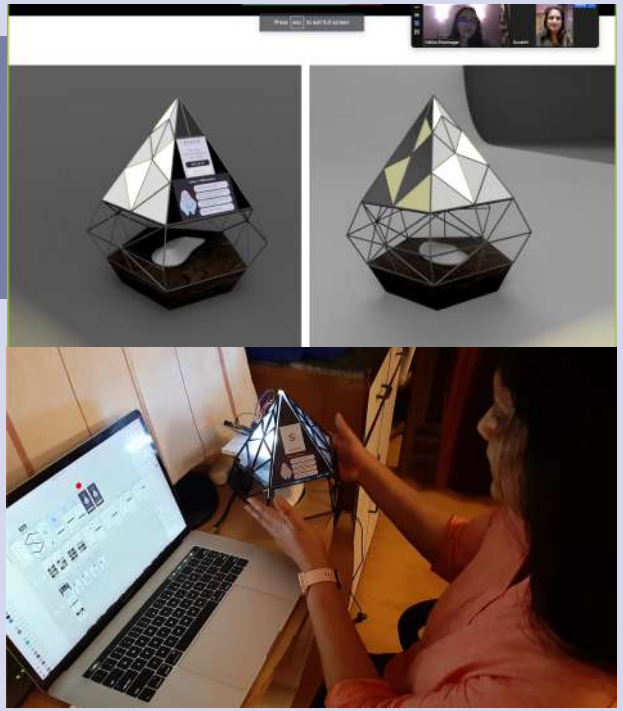
I can overcome my fear myself at home through this projection! It is so convenient

Lighting of the tiles based on my feelings makes me very happy when I look at it

Assist in overcoming phobia

Motivation to use

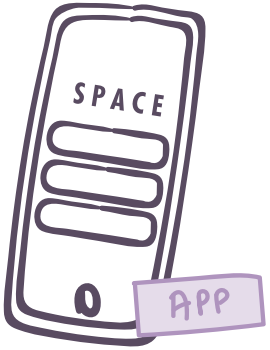
Learnability



03

Product **App**

The SPACE app motivates the user with its positive affirmations which are generated based on the data input by the user once she downloads the app. A character called "AURA" is created based on her answers which represents the user's feelings and acts as a guide in her journey. To target her subconscious mind, at the end of the day the user performs a mind fitness session which utilises various therapy methods like exposure therapy, hypnotherapy and cognitive behaviour therapy.

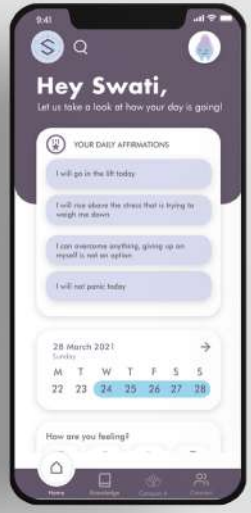


FEATURE	DESCRIPTION	FEATURE INTENT
Onboarding	Asks users to answer questions related to their phobia and details about their experience	The onboarding enables the app algorithm to learn about the users phobia so that it can provide customised suggestions for each user to target one's subconscious mind effectively.
Daily Affirmations	Positive affirmations in the beginning of the day which are based on the user's phobia and intensity level.	Tt would help start the day with a positive mindset. It would motivate the user throughout the day as well through prompts on the wearable and app.
Aura	A virtual representation of the user. It is created based on what the user does and feels. It acts as a guide as well so the user does not feel alone and constantly motivates the user. User can also 'talk' about their daily experiences to Aura as if they are talking to themselves.	This feature induces delight through the interactive sensorial session. It allows the user to experience the environment where they feel claustrophobic in the comfort of their room through a projection that the lamp generates. It also utilizes visual, auditory, and tactile senses.
Knowledge	Enables the user to learn more about claustrophobia and its symptoms, causes etc. A self-diagnostic test can also be taken by the user which can indicate signs of the phobia.	This feature would help the user gain more knowledge about the phobia and can also help the loved ones gain more knowledge so that they can help the claustrophobic in time of need.
Conquer it	Enables users to conquer their fear by doing mind fitness exercise at the end of the day. It utilises 3 therapies – cognitive behaviour therapy, hypnotherapy and exposure therapy. This segment of the app is connected to the lamp.	A guide for the user so she can constantly interact with someone and not feel alone.
Connect	Enables users to connect with their loved ones during time of need. It also assists the user to connect with the community of like-minded individuals facing same phobia.	This feature aims to build a sense of community for claustrophobics and also nudges the family members to connect with the claustrophobic.

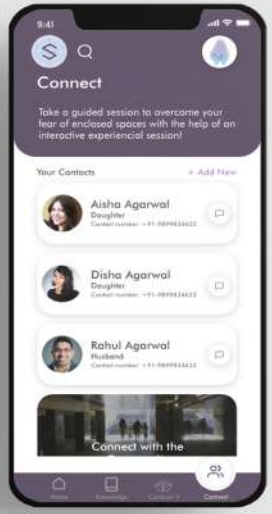
ADOBE XD SCREENS

APP - HIGH FIDELITY PROTOTYPE

POSITIVE AFFIRMATIONS BY AURA
these are shown everyday to the user

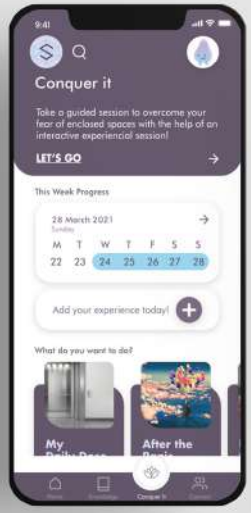


HOMEPAGE
showcases the key actions for the user to take

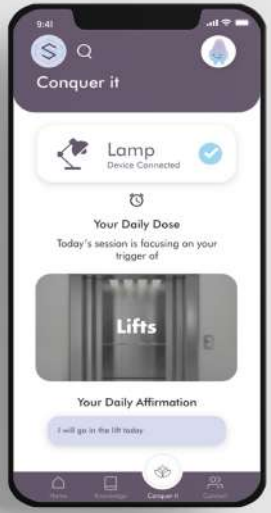


CONNECT
anonymously connect with members of the community with similar fear and learn how others are doing

KNOWLEDGE
details about causes, symptoms, triggers etc for the user to look at



CONQUER IT (CONQUER YOUR FEAR)
(mind fitness exercises can be viewed here)



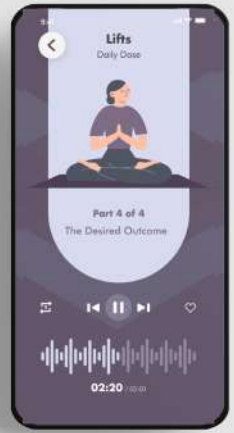
STARTING EXERCISE
(shows the trigger which will be used in the session)

HYPNOSIS SESSION 4 STAGES

ABSORB THE ATTENTION
STAGE 1

BYPASSING CRITICAL FACTOR
STAGE 2

ACTIVATE SUBCONSCIOUS RESPONSE
STAGE 3



THE DESIRED OUTCOME
STAGE 4

JOURNEY PROGRESS OF EACH TRIGGER LOCATION
each trigger has separate journeys which the user can view (Lift, MRI, Trains etc). Triggers based on onboarding data

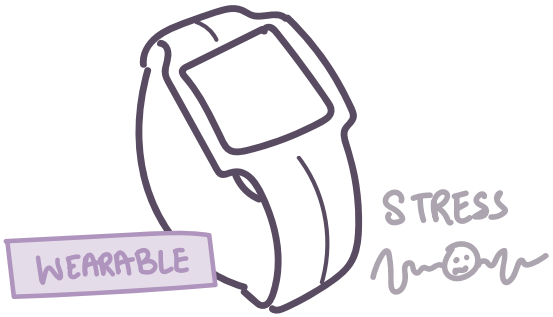
HIGHLIGHTING USER FEELINGS
in accordance to the phobia to showcase the impact on the user

USER EXPERIENCE
user can talk about her feelings and thoughts with Aura to show that she is not alone and Aura is helping her overcome her fear

04

Product **Wearable**

Metaphor **Hand holding/ Support**

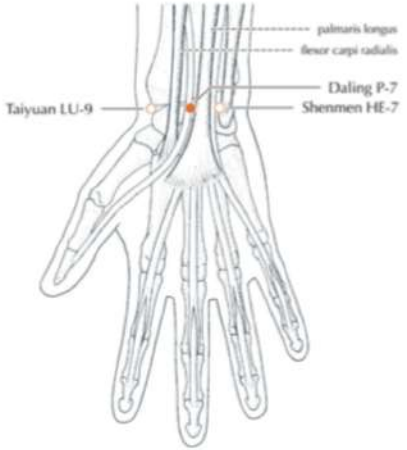


A wearable to monitor her stress levels to provide immediate support in case of a panic attack. Paper prototypes were made to test the concept and the form iterations were also tested out. In the end, the decision to use existing smartwatches was taken as it would be financially more viable.

A wrist wearable like a band or smartwatch was considered. This was selected because the wearable is worn close to a pressure point on the vagus nerve.

The vagus nerve is a cranial nerve that starts in the skull and connects many organs to the brain. It is a vital component of our neurological system that governs arousal. When we are in danger, worried, or fighting, we rely on our sympathetic nervous system to shun blood to our muscular system so that we can react swiftly. When we are safe, the vagus nerve signals the body to resume blood flow to the intestines, decrease the heart rate, relax respiration, and rest all systems (Hora, 2020).

According to research, vagal tone has a good clinical effect on digestion, IBS, depression, PTSD, and heart rate variability. Polyvagal stimulation is also beneficial in cases of trauma.



ADOBE XD SCREENS

WEARABLE - HIGH FIDELITY PROTOTYPE

ALERT ON HOMESCREEN
in case of increase in panic levels

DAILY AFFIRMATIONS PROMPTS
for quick view

STRESS LEVEL SLIDER
manual entry to add how the user is feeling

CONTACTS SCREEN
in case user wants to talk to loved ones while/after having a panic attack

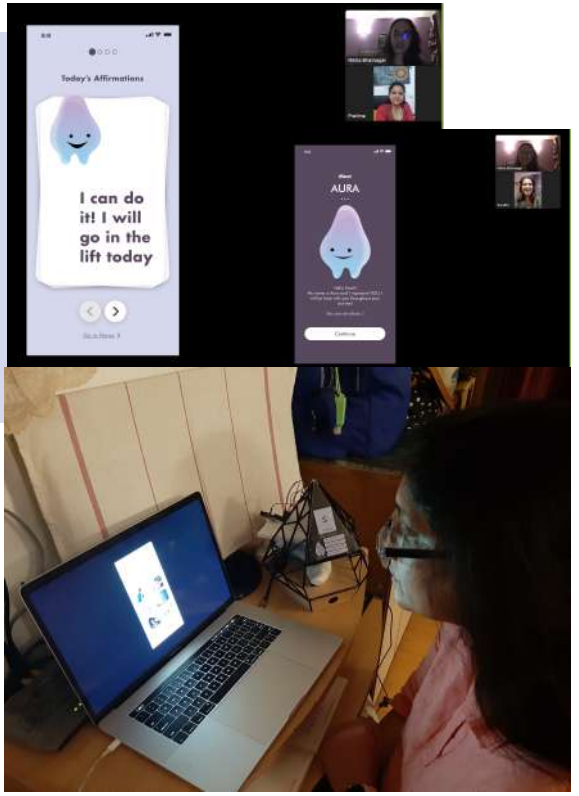
DISTRACTION EXERCISES
during a panic attack, distracting tasks can be performed

USER TESTING INSIGHTS

APP - HIGH FIDELITY PROTOTYPE

No. of Participants: 7

What worked	What did not work
• Appreciated the anonymous feel through Aura of connecting with the community • Really liked the concept of 'Aura' • The onboarding very nice as they felt someone took effort in getting to know them	• Slight confusion of navigating between community and my contacts • The term 'daily dose' was not understood easily



User Comments

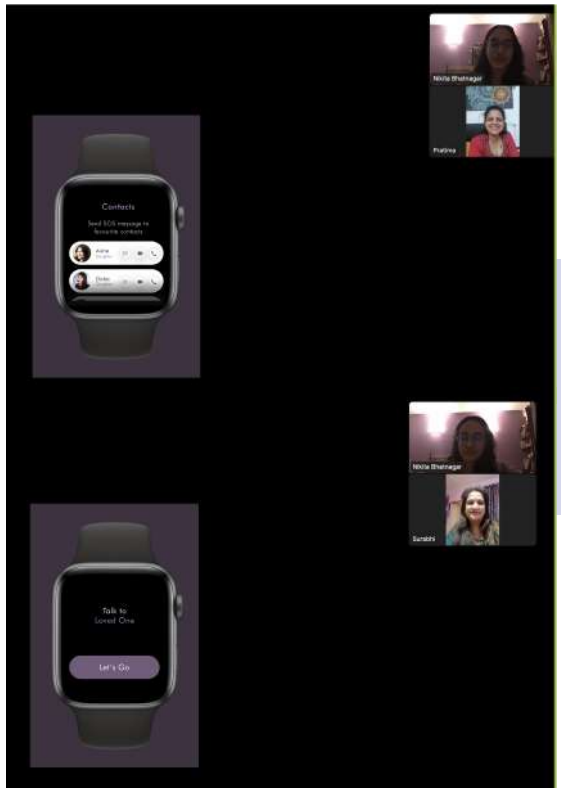
Aura is visually very relaxing, cute and friendly to look at. I automatically feel calm.

I would like to see what others are doing and how they are improving..

Assist in overcoming phobia

Motivation to use

Learnability



USER TESTING INSIGHTS

WEARABLE - HIGH FIDELITY PROTOTYPE

No. of Participants: 7

What worked	What did not work
• SOS message going immediately in case of panic attack was one of the most appreciated feature • Distracting games were nice	• Strong, quick vibrations were not pleasant

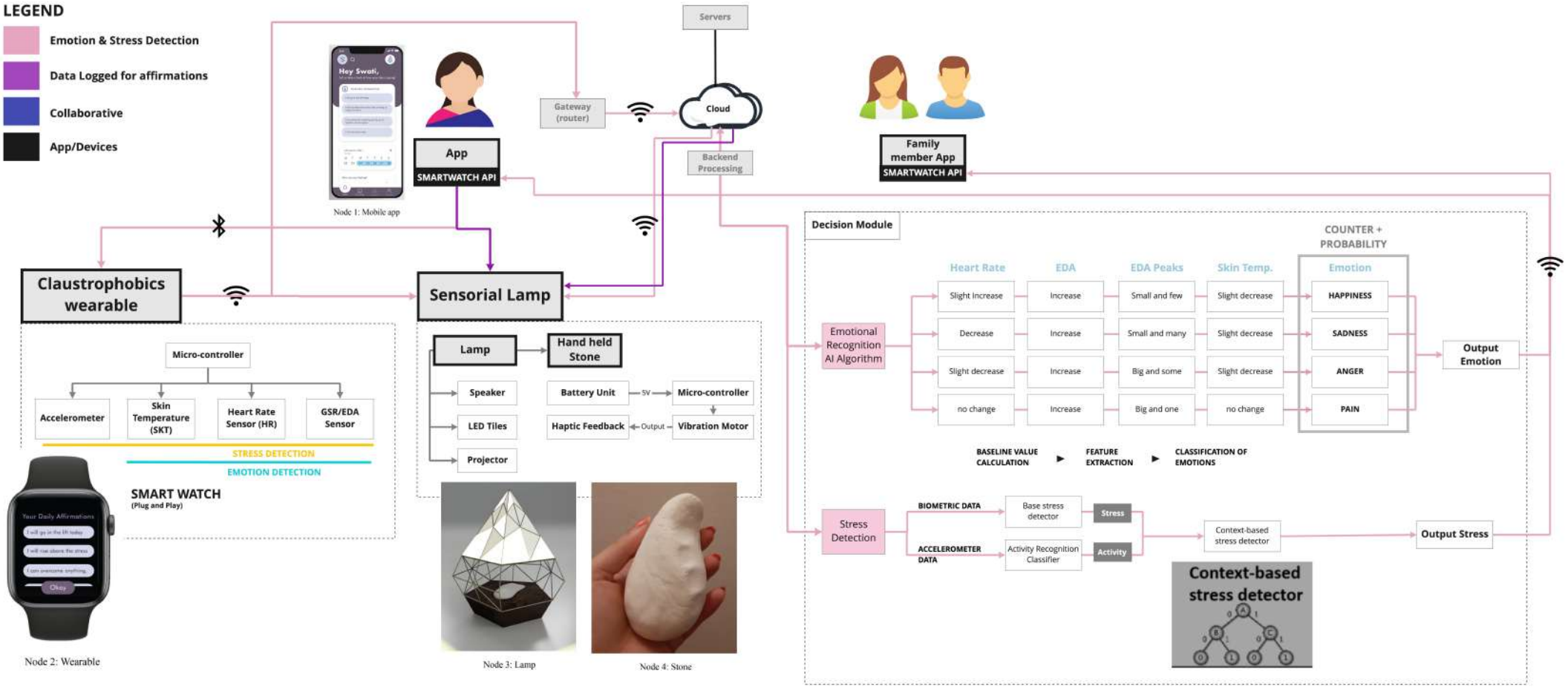
User Comments

I love how the watch sends message without me doing anything. During panic state I am not in the state to call anyone so the watch does that job which is very good.

Assist in overcoming phobia

Motivation to use

TECHNOLOGY PLAN



The working of the system was mapped out by making a technology plan of the entire system (Figure 12). It also highlights the backend processing of the stress and emotion detection algorithm which can be used along with the interconnection between each node.

Wearable

The biometric sensors of the watch track the Heart Rate Variability (HRV), Skin Temperature (ST) and Electrodermal Activity (EDA) to synthesize the physiological signals into tangible emotion and stress levels at a given time.

When the emotion or stress levels go beyond the calibrated baseline, a cue is provided to the user which act as a distraction. At the same time, a message is also sent to the selected contacts for their knowledge. The emotions detected are happiness, sadness, anger, and pain.

Lamp

The lamp has a projector, speaker and LED lights which are used during the hypnotherapy session. It can also be used as a normal lamp though.