SPACE: A DESIGN-BASED STUDY TO ASSIST CLAUSTROPHOBICS IN OVERCOMING THEIR FEARS

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A Project Report Submitted In Partial Fulfillment of the Requirements for the Degree of Bachelor of Design
(Humanising Technology)

By
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April 2022

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Guided by
Dr. Shreya Maulik

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Declaration

I, **Nikita Bhatnagar** hereby declare that this project report entitled **Space: A design-based study to Assist Claustrophobics in Overcoming their Fear** is an original work and has not been submitted elsewhere for a degree. Throughout this documentation, wherever contributions of others are involved, every endeavour was made to acknowledge this clearly with due reference to literature. This work is submitted for meeting the partial fulfillment for the degree of Bachelor of Design in SVKM'S-NMIMS, School of Design.

Date: 28th March, 2022

Signature of the Student

Certificate of Approval

The project entitled **Space: A design-based study to Assist Claustrophobics in Overcoming their Fears** submitted by **Nikita Bhatnagar** is approved for the partial fulfillment of the requirement for the degree of Bachelors of Design at SVKM'S-NMIMS, School of Design.

Guide **Dr. Shreya Maulik** Jury_____

Director **Prof. Manisha Phadke** Jury_____

Jury_____

Acknowledgement

This project would not have been possible without the kind support and guidance of various individuals who contributed in helping me execute the project. I would like to begin by extending my heartly gratitude to the people without whom this study would not have been possible.

Firstly, I would like to sincerely thank NMIMS School of Design and our Dean Prof. Manisha Phadke for giving me the opportunity to explore a subject of my passion in the mental health domain.

I am extremely grateful for the guidance received by my mentor, Dr. Shreya Maulik throughout the study. The support, encouragement and advice provided by her and all guides of NMIMS School of Design have immensely helped me and I am deeply grateful to them.

Lastly, I would like to extend my heartfelt thanks to the participants. I would like to thank them dedicating their time in the study, patience, openness and willingness to share their personal opinions and experiences.

SUMMARY

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.

The proposed solution called 'SPACE' leverages experience design and IoT (internet of things). It has three 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. 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.

CONTENTS

RESEARCH

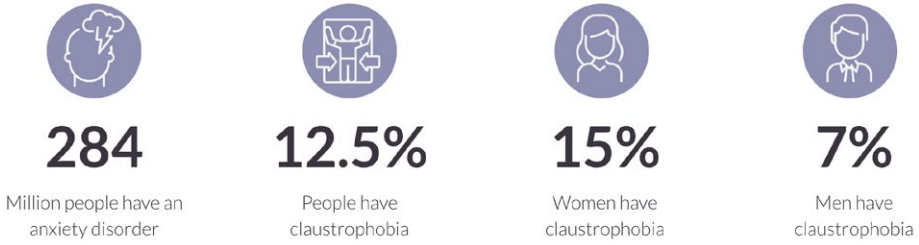
SECONDARY & PRIMARY RESEARCH

The purpose of this phase was to understand and apply critical design thinking tools, both Primary and Secondary in nature, to collect data. This process began with the use of Mind Mapping as a tool to map the various aspects of claustrophobia.

The landscape of the domain was understood by reading various published papers and articles. These articles, papers and journals were related but not limiting to the topic of claustrophobia. It also focused on understanding behaviour patterns, genetics, gender-based personality factors, and emotional intelligence to understand the causal factors for claustrophobia.

SECONDARY RESEARCH

Mental health disorders are complex and around 792 million people lived with a psychological well-being disorder which is more than 10.7 per cent of the global population (Dattani et al., 2021). The mental-health crisis has had a massive impact, with anxiety disorders being the most common. In 2017, an estimated 284 million people worldwide suffered from an anxiety disorder. Around 63 per cent (179 million) were females and the remaining 37 per cent (105 million) were males (Dattani et al., 2021). According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) separation anxiety disorder, social anxiety disorder, panic disorder, specific phobias, among others are some types of anxiety disorders.



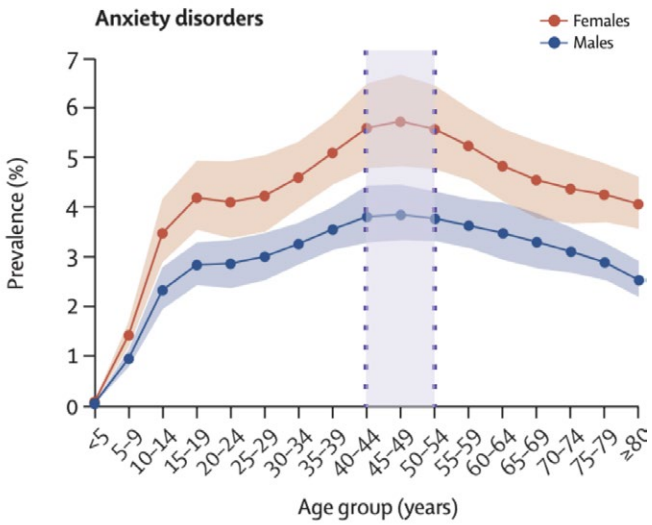
Claustrophobia is a specific phobia under anxiety disorders that is defined as the fear of being confined in an enclosed space and not being able to control or escape from whatever may occur when trapped. Until recently, it was hardly mentioned in the phobia literature (Perry, 2012) but this debilitating experience affects 12.5% of the global population with the majority of them being females (Vadakkan & Siddiqui, 2021). This fear can interfere with daily life and has been identified as one of the most impairing (Hull & Dash, 2021). It can impact claustrophobics by having severe anxiety and panic attacks in locations like lifts, airplanes, washrooms etc. Moreover, it also interferes with one's personal life by causing them to alter their choices by avoiding the specific triggers (Perry, 2012). Unidentified triggers result from a lack of knowledge about each individual's triggers and symptoms. There are no specific underlying variables, making diagnosis difficult and users emotionally weak to cope with their fear (Sufferfeldt et al., 2011).

While claustrophobia is not a disability, it may be extremely detrimental in terms of restricting employment alternatives, career growth, leisure, and significantly impacting both personal and professional relationships. Claustrophobia can cause feelings of humiliation and depression, as well as a loss of self-confidence and self-esteem. Hence, addressing this issue would help solve the cascading problems currently as well as in the future.

Claustrophobia can have a detrimental impact on a person's behaviour, causing substantial problems on both a personal and social level.

TARGET AUDIENCE

Claustrophobia, a kind of anxiety condition, affects 12.5 percent of the global population, with women being the most affected (Vadakkan & Siddiqui, 2021). Females are more susceptible to this phobia, and the impact is greater in the 40-55 age group, as seen in the figure (Figure 3).



This is because previous research has shown that the more a person is exposed to locations, the more their fear grows. A recent study found that being female, entering the MRI scanner head first, and having a past unfavourable experience with the test appear to correspond with an increase in claustrophobic symptoms (Ray, 2015). Furthermore, because men and women have different personality traits, males are able to deal better than females. This was confirmed in primary research, where psychologists saw more female patients than male patients. As a result, the target audience selected for this study is women aged 40 to 60 years.

IMPACT ON DAILY LIFE

Claustrophobia can have a detrimental impact on a person's behaviour, causing substantial problems on both a personal and social level. Anxiety is frequently related to having unrealistic expectations and setting goals that are unlikely to be met. This leads to lower self-esteem and a greater sensitivity to stressors that cause anxiety and depression emotions (Rajput et al., 2020). Every individual has a varied sense of personal space or near space which acts as triggers for people depending on the severity of the phobia (Lourenco et al., 2011) . The thought of thinking about a situation could be a trigger as well. Some common triggers include lifts, tunnels, planes, changing rooms, tube trains, revolving doors etc.

One of the most incapacitating and disruptive phobias is claustrophobia. Despite this, the vast majority of claustrophobia victims do not consider treatment. According to research, just 7.8% of people with claustrophobia seek professional care, with the main reason being that they are afraid to face the fear and relive it (Insightful Counselling & Training Pte. Ltd. Singapore, 2021).

> **Avoiding danger is no safer in the long run than outright exposure.**
>
> **- Helen Keller**

CAUSES OF CLAUSTROPHOBIA

Claustrophobia can be caused by a variety of circumstances and situations. Despite the minimal study, the following are some of the causal factors of this crippling phobia:

Genetics

A single gene defect in the human GPM6A gene can induce claustrophobia (Vadakkan & Siddiqui, 2021), which encodes a stress-regulated neuronal protein that is present in the amygdala and central nervous system. Individuals who have claustrophobia are more likely to have these gene mutations than those without this phobia (A El-Kordi, 2013).

Past experience or Classical conditioning

Individuals who had a traumatic experience in childhood may begin to make associations with related situations or objects in adulthood.

Observational Learning

When loved ones live with family members or guardians who have this specific fear, it can have an impact on their thought process because the state of anxiety can be more than just unsettling for them, and it may contribute to the onset of claustrophobia as they associate that place with a negative feeling (René, 2017).

EXISTING SOLUTIONS

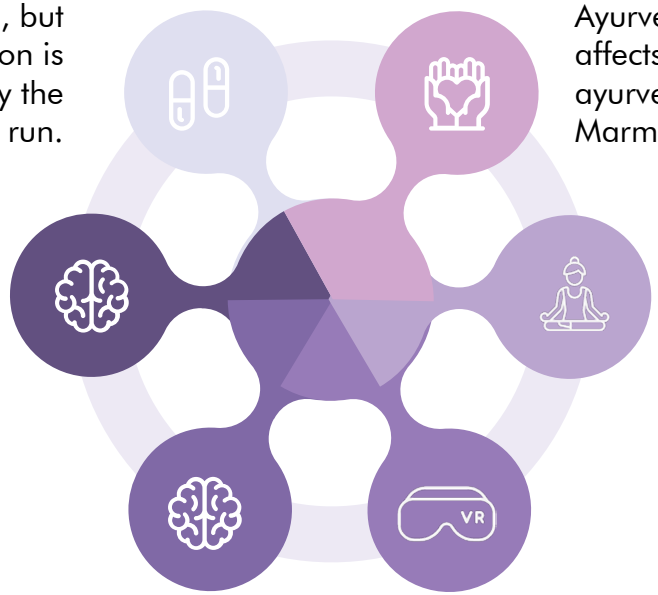
Various methods of therapy and medications are used as a treatment for phobias but each has its drawbacks which result in a lack of treatment.

MEDICATION

Medication can effectively control symptoms, but the effects fade rapidly once the medication is stopped, and it does not cure the illness, only the symptoms, which is ineffective in the long run.

AYURVEDA

Ayurvedic marma therapy is similar to acupressure and affects 107 main points of our organism. Drawback of ayurveda is that if an injury occurs to these lethal Marma points then it can lead to instant death.



CBT AND REBT [1]

Traditional psychotherapy is time-consuming and expensive and solely relies on being present with a therapist who helps the user talk about the negative thoughts that drive the fear and learn ways to overcome them.

MEDITATION AND SELF HELP

Using meditation or doing yoga to relax the mind and body.

HYPNOTHERAPY

A technique used to induce a relaxed state where the hypnotherapist may use progressive muscular relaxation with suggestions of relaxation.

VIRTUAL REALITY

The user experiences computer simulations of elevators or MRI machines in a virtual space. As the people are afraid of being exposed to closed environments and the headset confines the user and makes them nauseous and dizzy, they avoid going for such therapy.

[1] Rational Emotive Behavioural Therapy (REBT) and Cognitive Behavioural Therapy (CBT)

SYMPTOMS AND EFFECTS

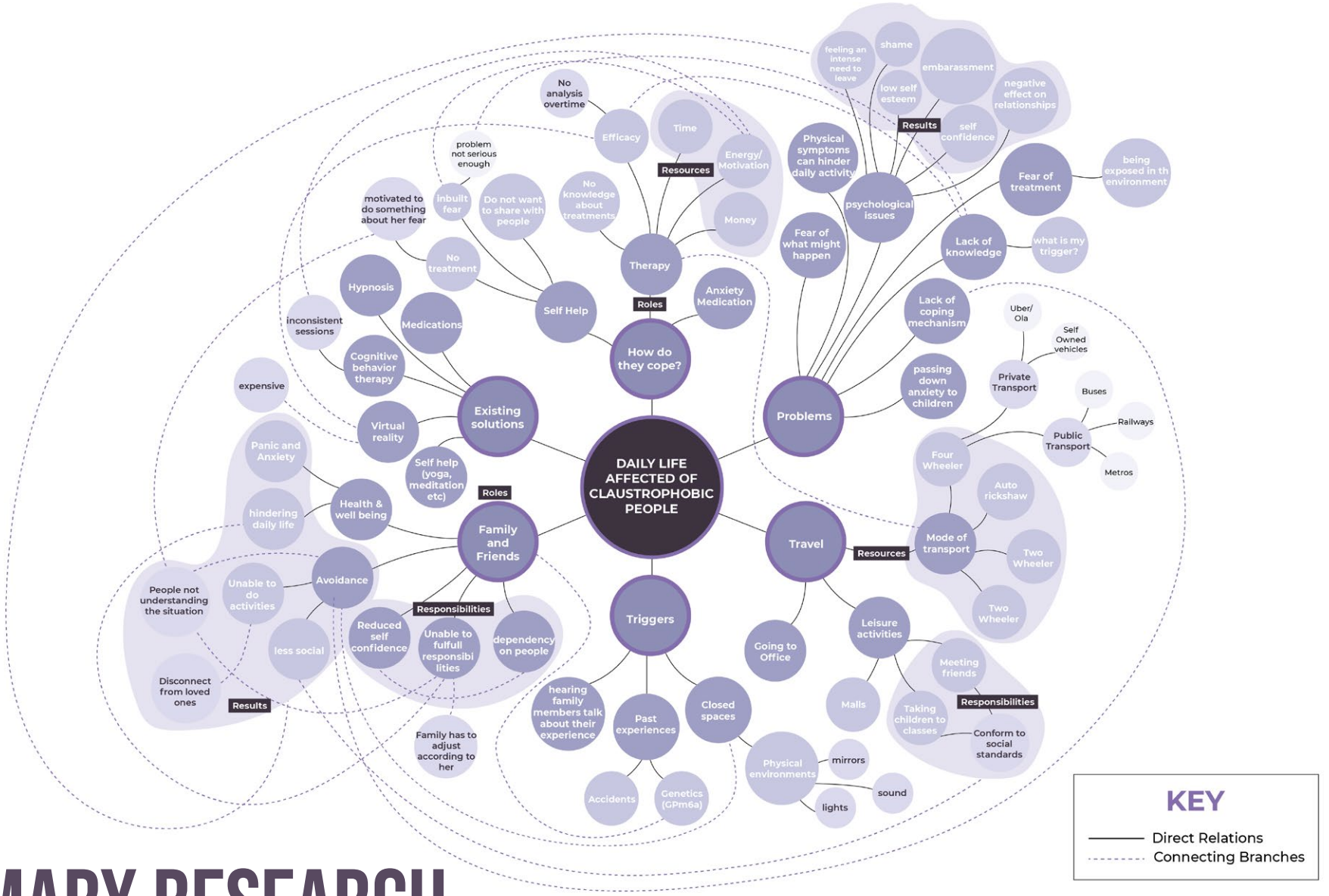
Every person, including claustrophobics, have their sense of comfortable personal space. This perceived comfortable space varies depending on the severity of your phobia. There are several triggers associated with claustrophobia. Avoidance isn't the most effective way of dealing with that, although being aware of potentially triggering situations can help you cope better with the symptoms.

Many different situations or feelings can trigger claustrophobia. Even thinking about certain situations without exposure to them could be a trigger. Common triggers of claustrophobia include lifts, tunnels, subway trains, public toilets, cars, shop changing rooms, planes, MRI machines among many more.

There are several symptoms associated with claustrophobia. However, most of these symptoms vary for each individual. While some individuals only experience mild anxiety in such situations, they may also cause severe panic attacks for others. Claustrophobia can also cause some psychological symptoms such as:

- Going out of one's way to avoid potentially confined spaces
- Distressing thoughts and sensations that cause signs of panic
- Loss of control
- Feeling of dread
- Feeling faint
- Feeling like one's going to die
- Feel like the walls are closing in on you

Panic attacks are common among people with claustrophobia. They can be very frightening and distressing. But claustrophobia can also cause physical symptoms, such as:

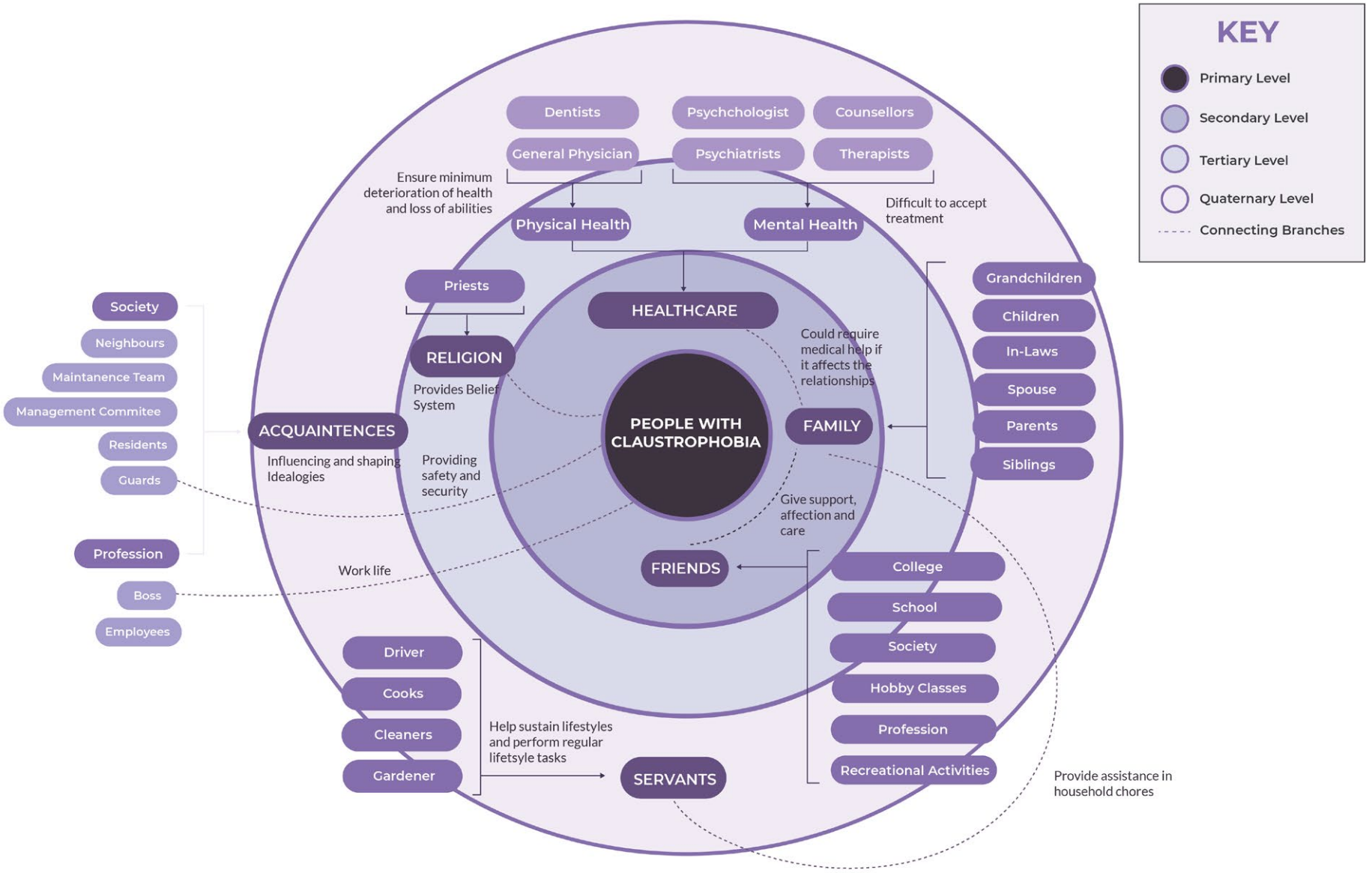


PRIMARY RESEARCH

After a thorough research in the domain, an ecosystem map helped in curating research and finding patterns between each segment which lead to unique insights. This opened up avenues and highlighted issues which were points of discussion for primary research.

STAKEHOLDER MAP

The stakeholder map helped in defining the primary, secondary as well as tertiary stakeholders in contact with the claustrophobic people.



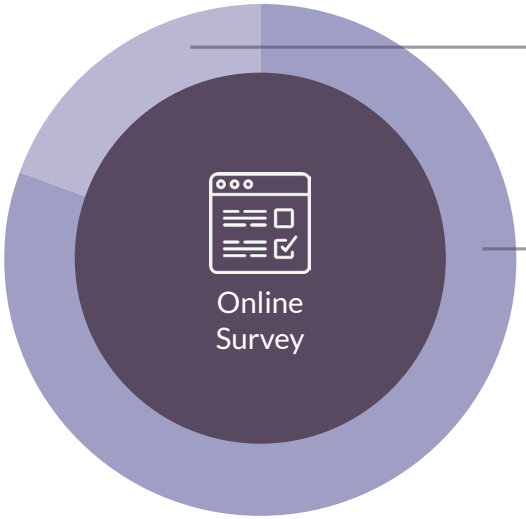
DEMOGRAPHY

A survey and an empathy interview were conducted where a direct approach was used to collect the data in the cities of Gurgaon and Mumbai. The primary participants in the study were claustrophobic women (aged 40-60) and claustrophobic young adults (18-25 years).

After gathering research for both primary groups, claustrophobic women aged 40 to 60 years were chosen as the impact was greater because females are more prone to anxiety disorders due to a variety of biological and psychosocial differences. As a result of their increased exposure, a larger audience is subjected to more attacks.

Previous studies have also reported that women suffer from anxiety disorders at nearly twice the rate of men, according to a 2016 study published in the journal Brain and Behaviour (Remes et al., 2016).

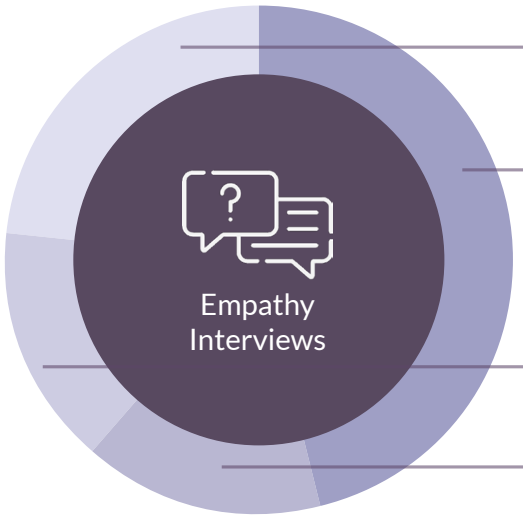
Secondary stakeholders were family members and psychologists and therapists. Within each stakeholder group, the participants were selected based on random convenience sampling to gain a holistic understanding of each group. 73 users had participated in the online survey and 27 users were interviewed to gather insightful data. The details of the stakeholders are shown below.



Male
19.1%

Female
80.9%

Total: **73 Participants**



Family Members
6 participants

Claustrophobic Women
12 participants

Claustrophobic Youth
4 participants

Psychiatrists & Therapists
5 participants

Total: **27 Participants**

INSIGHTS

ONLINE SURVEY INSIGHTS

The online survey provided with quantitative data that lead to a deeper understanding of users' preferences and views on claustrophobia. Key insights which were identified from the survey were:

- The most common locations where people felt claustrophobic were lifts and MRI scans (Figure 1). An interesting aspect was that people also felt trapped in a crowded space even if the space was not completely closed. This was because their personal space was blocked by the crowd which made them panic.

- 41.7% users had family members who were claustrophobic (Figure 2).

- Negative mindset of people towards getting professional treatment as it was looked down upon if you went to visit a therapist for mental health issues.

- Most users were unaware of the cause of their fear.

- Physical symptoms like difficulty in breathing was the most common among users along with being nervous (Figure 3).

- Physical factors like light, sound etc also played an important role in the perception of space (Figure 4).

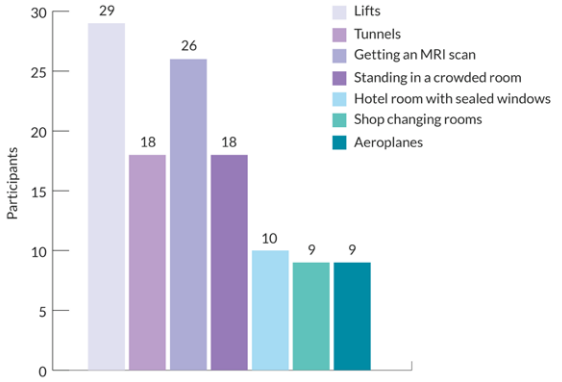


Figure 1: Common Locations where the phobia is triggered

Figure 2: Claustrophobic family members

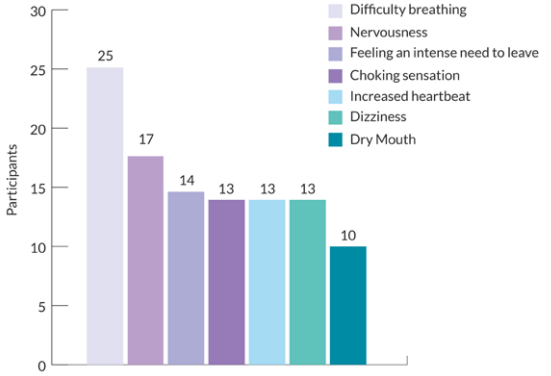


Figure 3: Common symptoms

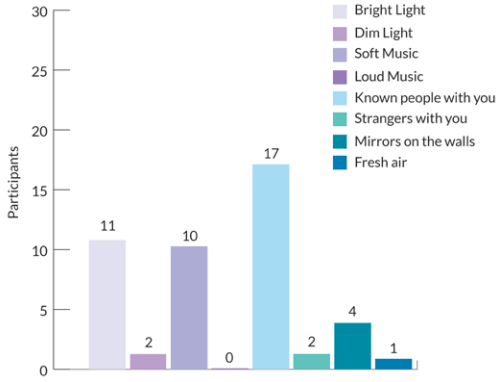
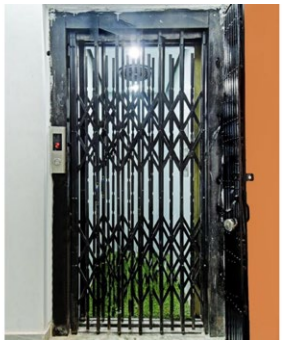
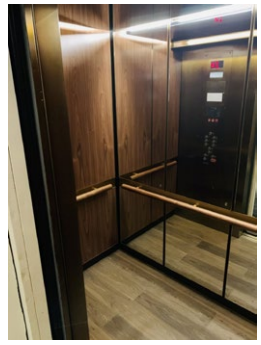


Figure 4: Physical factors that play a role

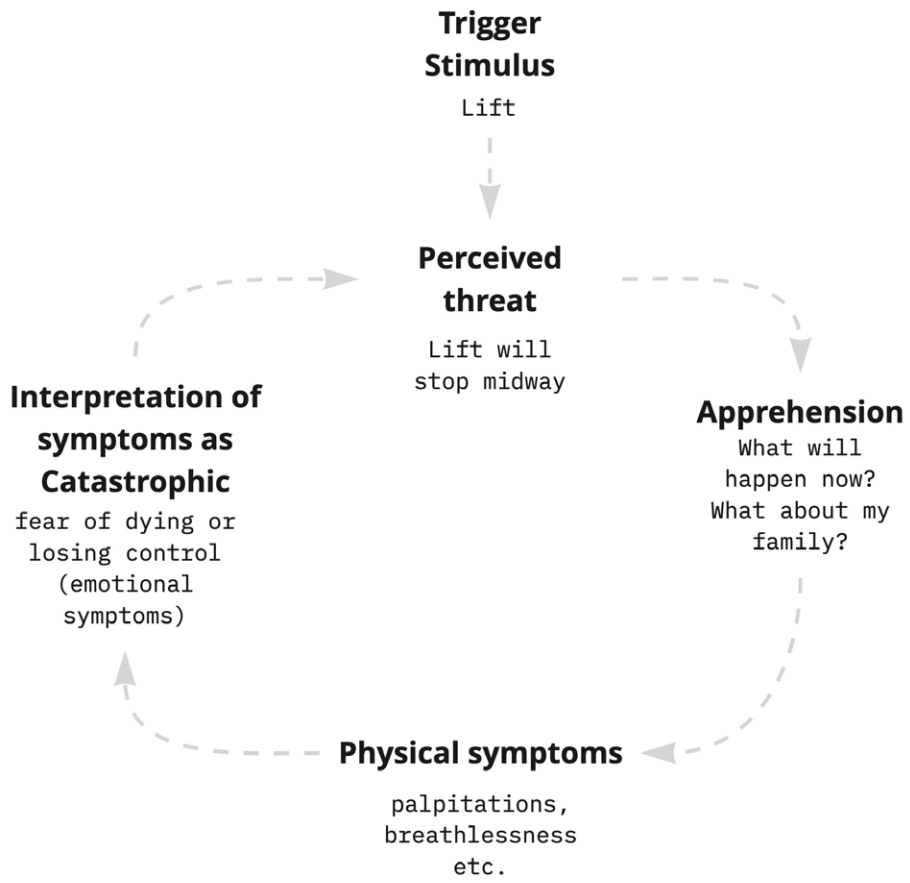


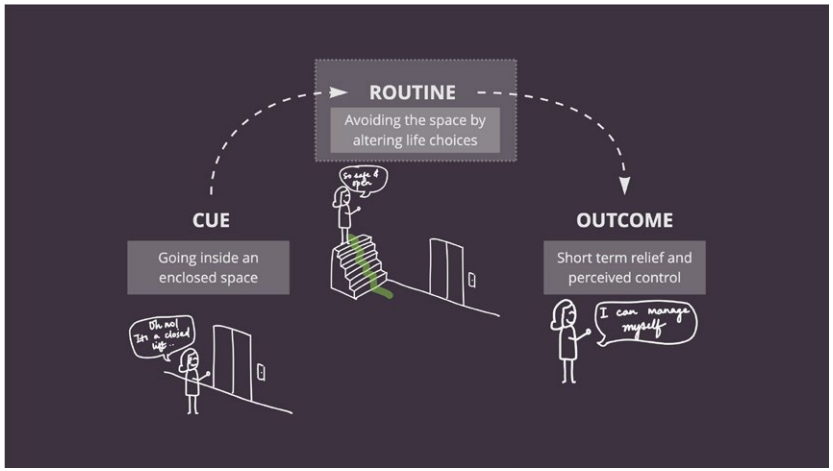


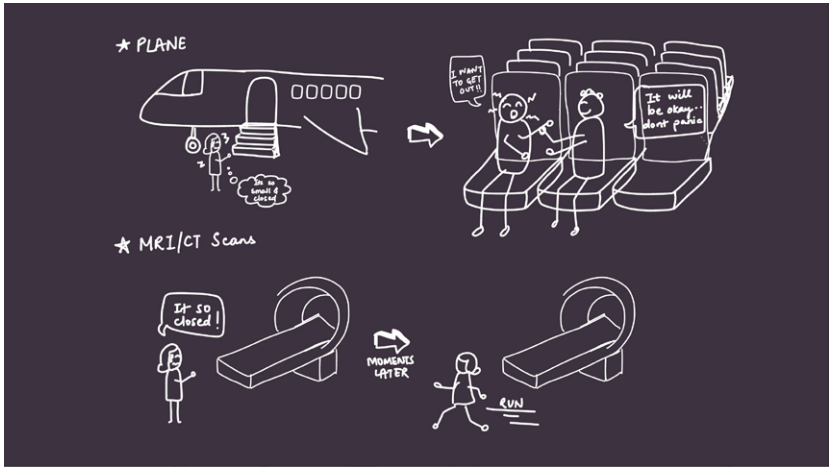
SCENARIO BREAKDOWN

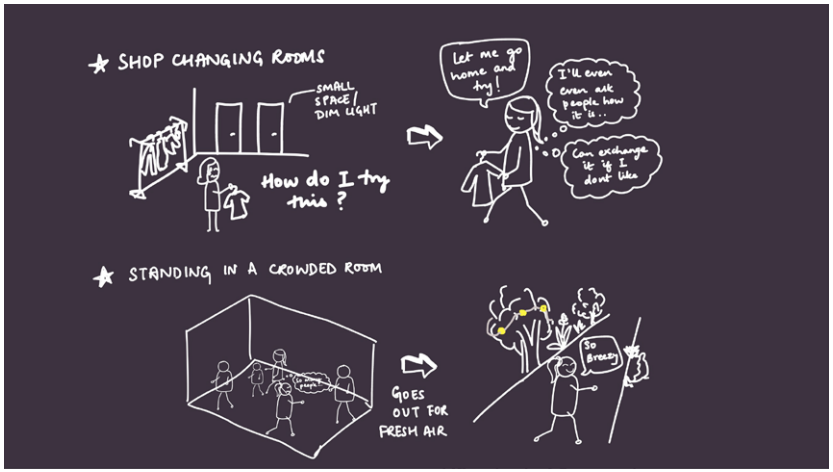
Taking the example of the trigger of a lift. The scenerio was broken down to understand the thoughts of the user at the moment.

First, the location is the trigger (lift), once the user recognises the threat which could be lift stopping midway then that leads to overthinking further about what may happen. This overthinking action leads to physical symptoms which increase and then the user interprets the symptoms as catastrophic like the fear of dying etc.









GROUPING DATA TO FIND PROBLEMS AND INSIGHTS

EMPATHY INTERVIEW INSIGHTS

The empathy interviews conducted helped further streamline the data and paved the path for the synthesis of insights that were critical in conceptualising a solution to the claustrophobia problem. While analysing the data, the following conclusions were drawn:

01

Negative connotation towards treatment

During interviews, users felt that treatment was related with something concrete, such as an illness. As claustrophobia is an internal dread, they think that a therapist or an outsider cannot assist them. Recent studies indicated that the user is hesitant to initiate therapy since most treatment choices require the user to address the feared environment in some way making them feel terrified (Hull & Dash, 2021).

02

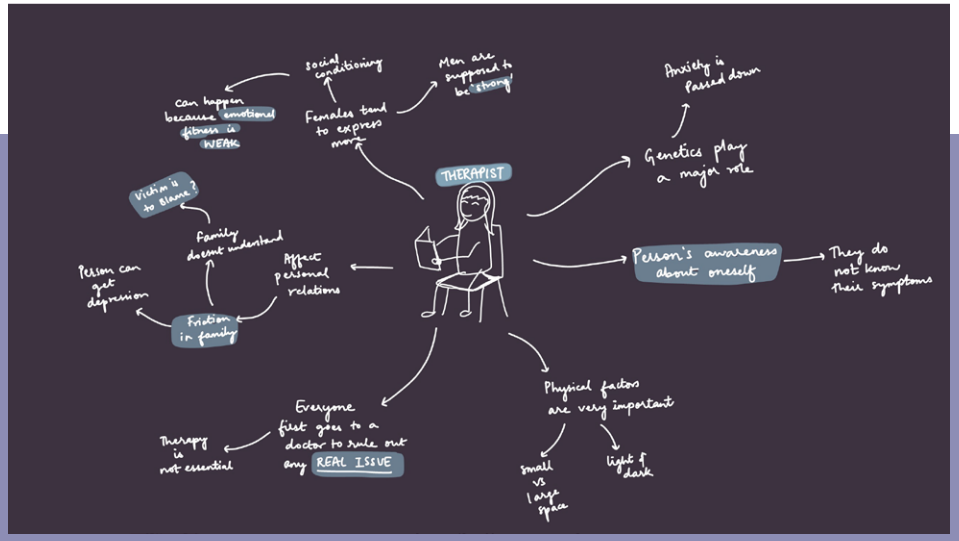
Altering daily life results in feeling embarrassed and guilty

Claustrophobia can also lead to a disconnection from loved ones as she may not be able to do certain activities which the family would desire causing them to alter their choices and making the claustrophobic person guilty of not being able to participate in activities they desired.

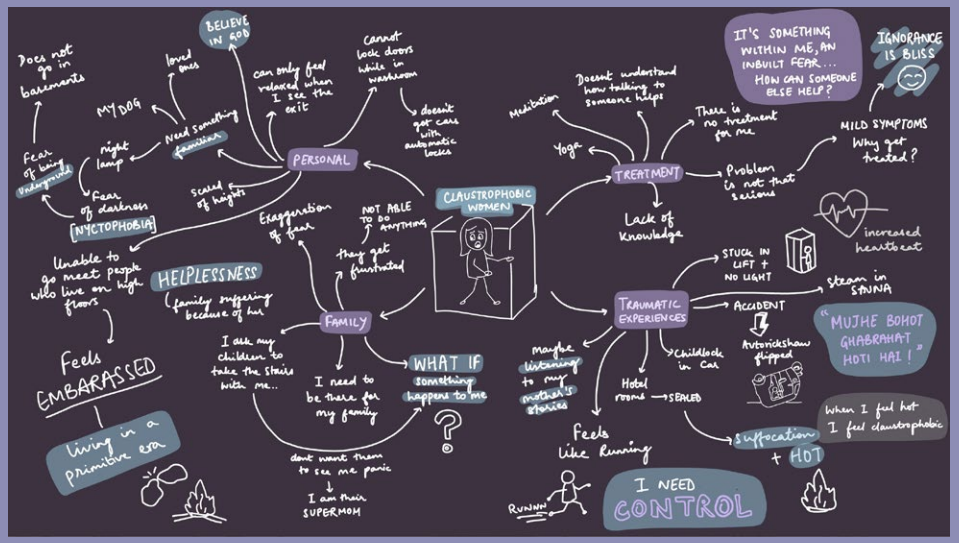
03

Genetic component associated with claustrophobia

As individuals who have claustrophobia are more likely to have the human GPM6A gene than those without this phobia, their children can also have claustrophobia. This can happen by either passing down the gene to the child or the child witnessing the parent in a state of anxiety as children look to their parents for information about how to interpret ambiguous situations.



Thoughts from Therapist



Thoughts from Claustrophobic Women

Perception of space

04

Lack of control when they enter a space

The first thing a user does when they enter a constrained environment is seeking an exit. They do this in order to be able to escape if something goes wrong. If they cannot locate one, they begin to fear. During empathy interviews, physical stimuli like that as light and sound were revealed to have a vital impact in the perception of space (Figure 5.2).

05

Lack of knowledge about causes and symptoms

Most users were unaware of the cause of their fear. Researchers are not clear what causes claustrophobia. Many people feel it arises from traumatic childhood events. Others believe it is caused by a specific gene that is present at birth, or that other underlying worries, such as fear of losing control or fear of death, may also play a role in the development of claustrophobia (Fritscher & Susman, 2021).

06

Personal space resulting in panic

People felt trapped in a crowded space even if the space was not completely closed, which was an intriguing aspect. This was due to the crowd obstructing their personal space, which caused them to panic.

GAP ANALYSIS

	Current State	Ideal State	Gap
01	Claustrophobics cannot go visit relatives or friends who live on higher floors as they cannot go inside lifts	Without any hindrance and thought be able to go about their daily life	**Unable to cope** with their fear
02	Claustrophobics aren't aware of their fear and hence feel there is something wrong with them	One should know where their fear is triggered so that they can seek treatment for it	There is a **lack of knowledge about the triggers and symptoms** of each individual
03	The current solutions solely rely on a therapist or psychiatrist. Claustrophobics do not want to seek treatment as it is something 'internal' and only 'I can cure it'	They should accept treatment regardless of any external influence	Claustrophobics do not want to be vulnerable in front of people and hence **do not accept** that they are claustrophobic and **not seek treatment**
04	Friends and family are not very understanding and have to adjust to the situation	Loved ones live a life without having to 'adjust'	**Loved ones do not understand the situation** and blame the claustrophobic as they have to change their lifestyle
05	Claustrophobics are not aware of how their fear started. It could be genetics, learned behaviour or past experience	Each individual should be aware of the cause	There are **no definitive causal factors**
06	The people who go for therapy treat only some triggers whereas there can be various triggers. The treatment is not affective to cure the fear	The treatment should irradicate the fear from their minds so that it does not come back again	**Unable to assess the efficacy** of the treatment
07	Claustrophobics let their mind get affected by the environment which results in their fear getting triggered	Even when they are present in a closed space, they should be able to control their fear themselves and overcome the symptoms	Claustrophobics have **weak emotional fitness**

PROBLEM STATEMENT

Claustrophobic women (40-60 years) need to strengthen the ability to cope with her fear so that she can lead a healthy lifestyle.

PRODUCT VISION

To create an interactive experience for claustrophobics with a focus on triggering one's subconscious mind by having the power to control their fear in a safe space which will strengthen their ability to cope with fear.

IDEATION

BRAINSTORMING AND CONCEPTUALISING

The conceptualising phase was mostly concerned with articulating ideas. To accurately portray the research, it was critical to correlate the user's emotions with their behaviours and thoughts throughout the procedure in order to detect behavioural patterns. Multiple brainstorming ideas were grouped to form holistic concepts sketches which helped visualise the solution concept as a whole and analyse the feasibility and viability of the solution.

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

THERAPIES UTILISED

During ideation, existing therapies were studied and the following were incorporated in the solutions.

Cognitive behavioural therapy (CBT)

Cognitive behavioural therapy (CBT) is a common type of talk therapy (psychotherapy). CBT helps become aware of inaccurate or negative thinking so one can view challenging situations more clearly and respond to them in a more effective way (Staff, 2019).

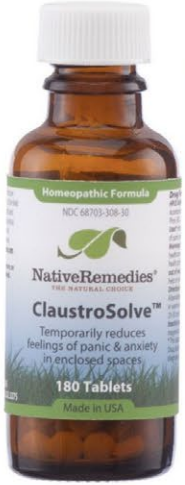
Hypnotherapy

Hypnotherapy offers the potential to help treat medical conditions without the need for invasive therapies or additional medications. Therapists consider hypnotherapy a safe treatment option. While it may not work for everyone, hypnotherapy is what's known as a complementary therapy and hence the solution utilises a combination of methods (Legg, 2019).

Exposure Therapy

Exposure therapy is a type of therapy that helps people overcome things, activities, or situations that cause fear or anxiety. As discussed in the research phase, people have a tendency to avoid situations they're afraid of. According to the American Psychological Association, the idea behind exposure therapy is exposing people to stimuli that cause distress in a safe environment helps them decrease avoidance and overcome their fear (Saripalli, 2021).

MOODBOARD OF EXISTING SOLUTIONS



COGNITIVE BEHAVIORAL THERAPY

BREATHING

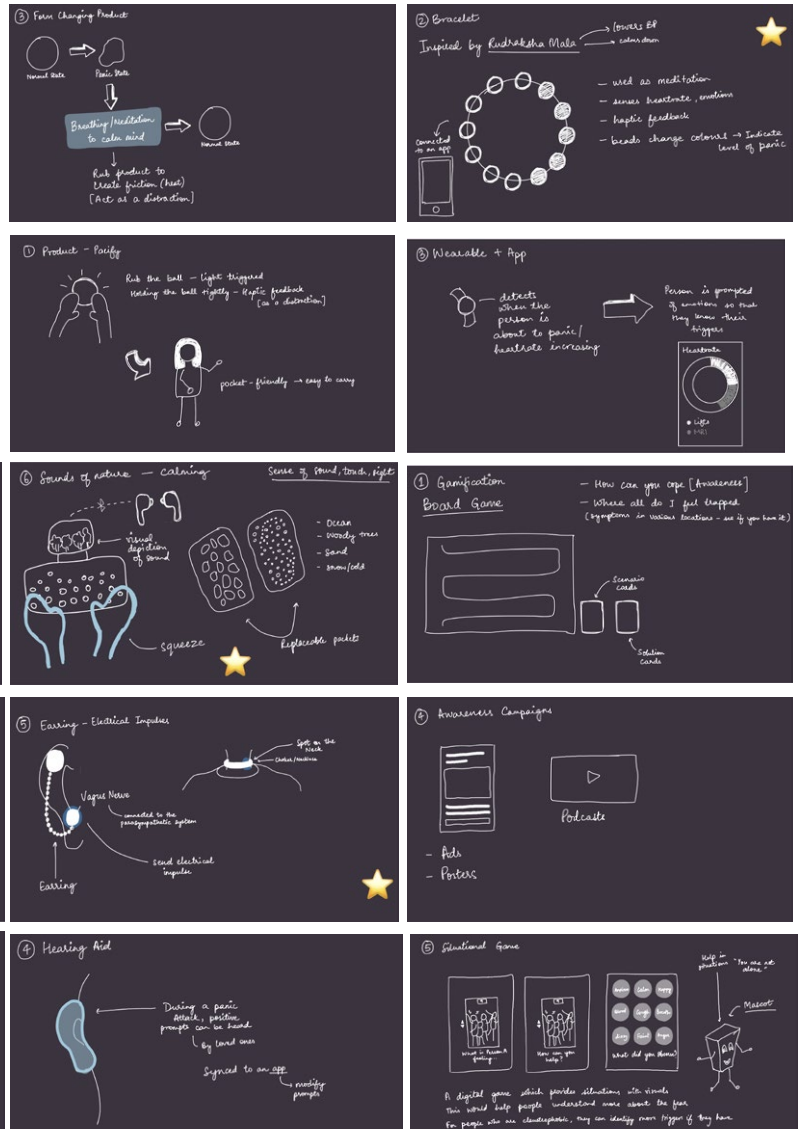
VIRTUAL REALITY

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

BRAINSTORMING

Rapid brainstorming sessions were done on the three themes which were then tested with the users to understand which one the users preferred and why. Post which, the concepts with a positive response were grouped by analysing the features into a single concept which solves the problem. This helped visualise the solution concept as a whole and analyse the feasibility and viability of the solution. The following are few brainstorming ideas.



INITIAL CONCEPTS

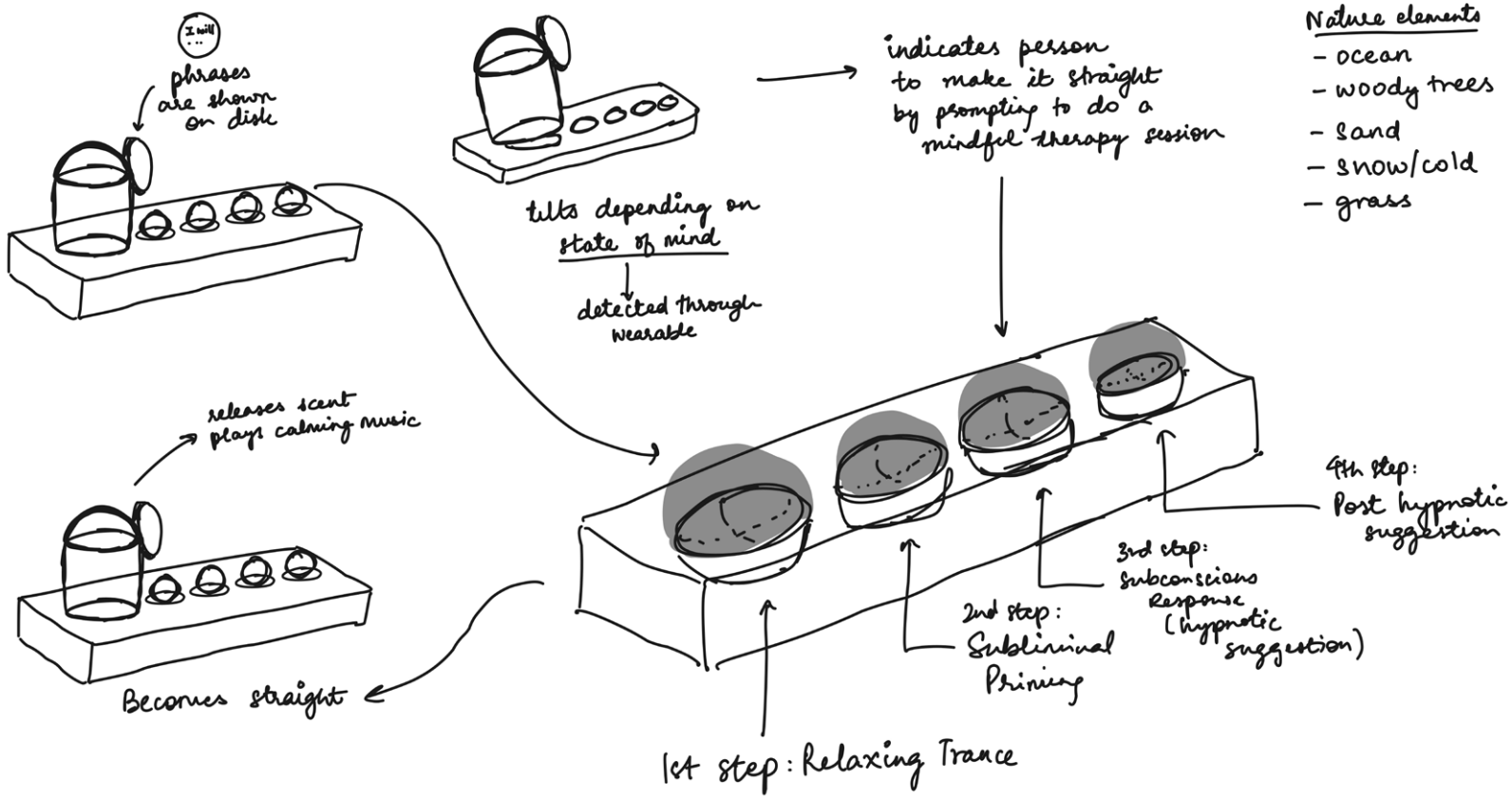
IDEATION AND INITIAL UT

Brainstorming led to many diverging ideas that all were focusing on the three intervention points mentioned earlier. The concepts were tested with users. The brainstorming session yielded the following features, which were then used to shape further concepts.

1. Including the concept of self-therapy for the subconscious mind
2. Positive affirmations to start the day
3. Panic tracker and distraction activity
4. Seamless integration into the daily lives of the users

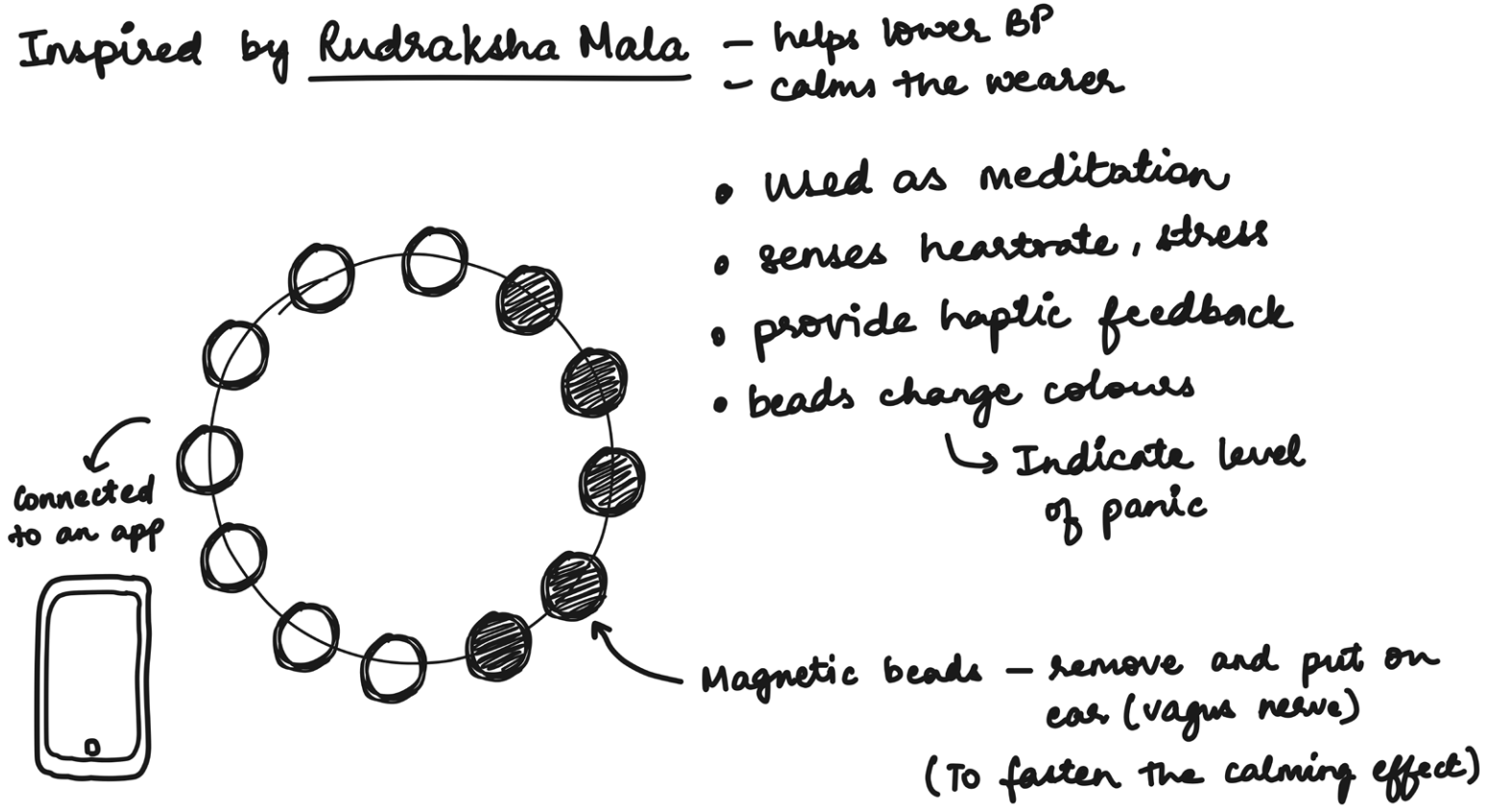
01 HYPNOTHERAPY PRODUCT

This concept targets the subconscious mind by using the hypnotherapy process. As there are 4 stages to tap into the mind, this concept has divided those stages into 4 aspects of the product where each focuses on the relelvant method. Positive affirmations are shown on the main product screen and the 4 spheres are stages of the therapy.



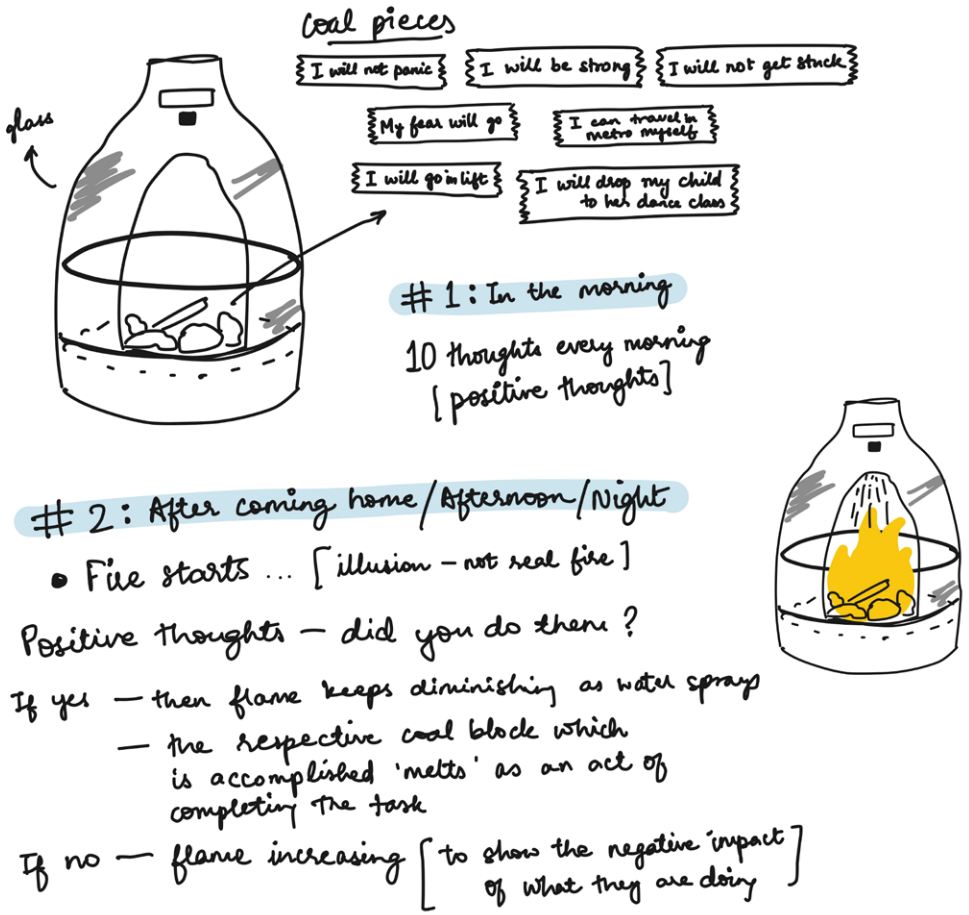
02 PANIC BRACELET

Inspired by the rudraksha mala. It is believed that the Rudraksha bead acts like a protective guard that safeguards its wearer from negative energies. This wearable aims to calm the user in case of a panic attack by providing calming haptic feedback. The beads also indicate the stress level of the user which can indicate priot to an attack



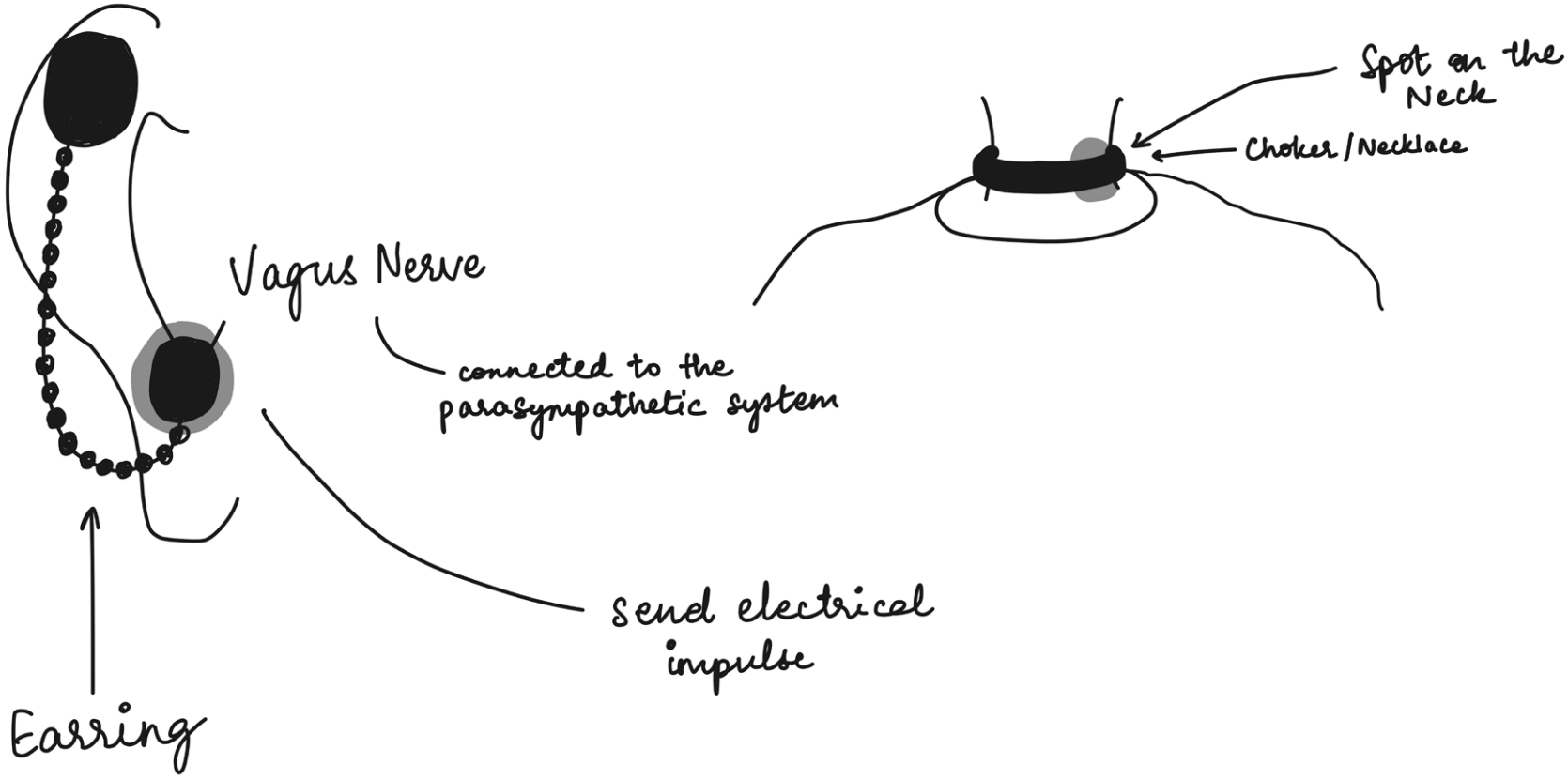
03 SELF-THERAPY DESK PIECE

A desk piece which showcases positive affirmations as coal pieces. At the end of the day, the coal pieces ignite a fire simulation where the intensity of the flame showcases if the user followed the affirmations or not. The user can also do a therapy session with the desk piece and as the user is doing that, the fire diminishes to show how the user is overcoming the negative feelings.



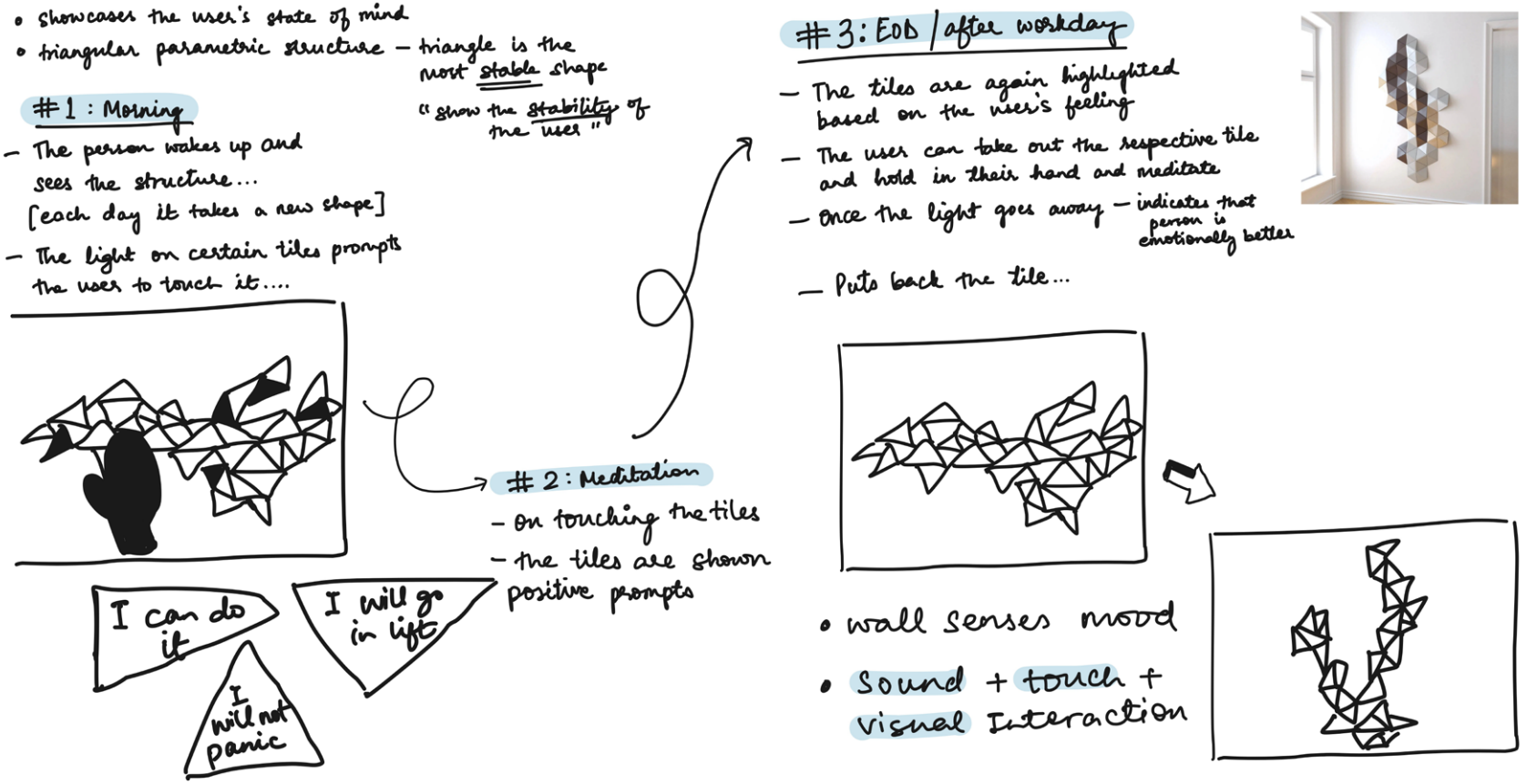
04 EARRING FOR ELECTRICAL IMPULSES

This solution aims to calm the user when they have a panic attack. As there is a nerve calles vagus nerve which helps the user relax, an earring or a neckpiece which touches the vagus point on the skin and provide haptic feedback can help reduce the panic.



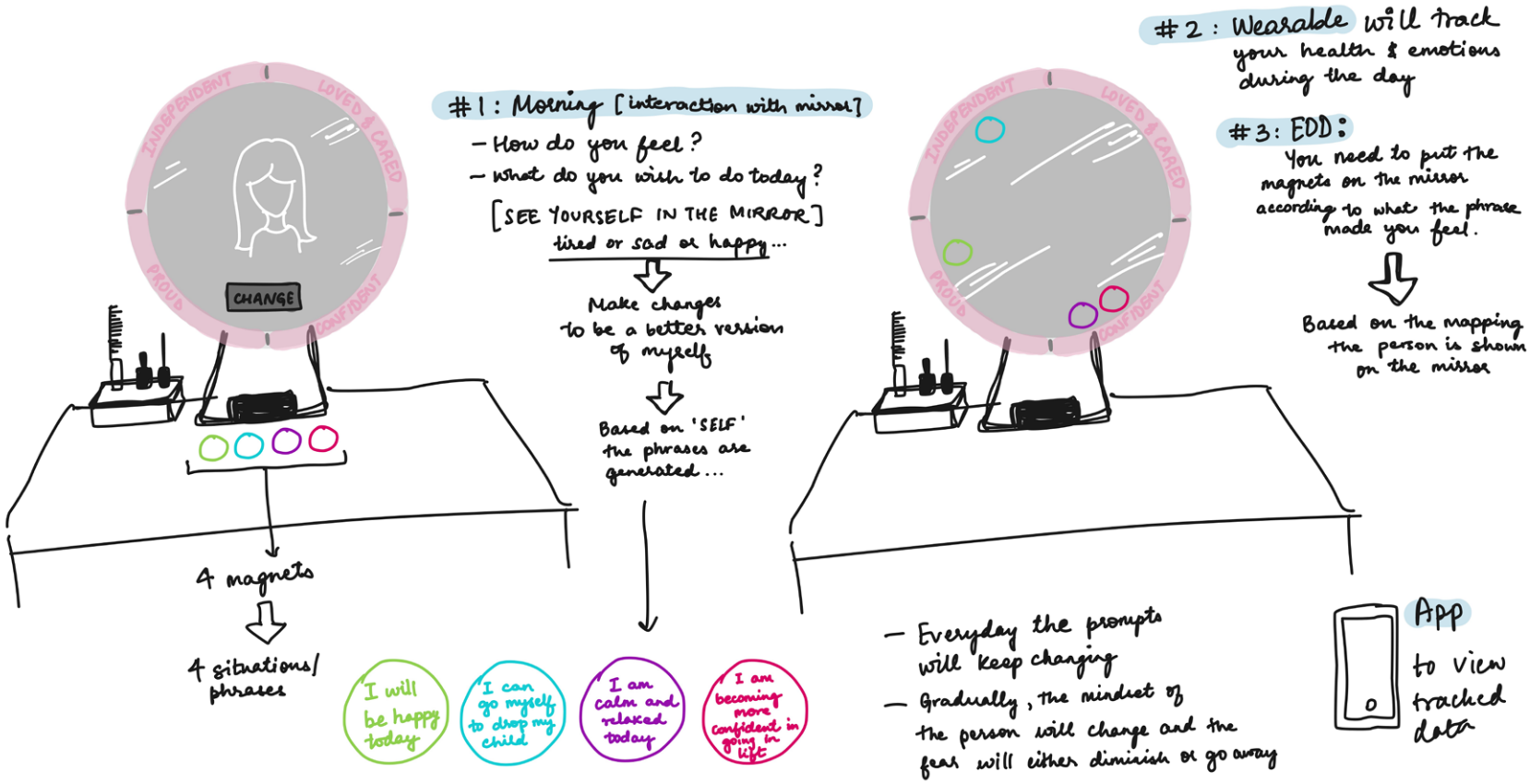
05 INTERACTIVE WALL ART

Interactive tiles showcase the user's feeling in the form of a wall art. The tiles have phrases which light up. The user has to go and touch the tile for the phrase to be visible. Towards the end of the day, the tile changes its shape according to what the user is feeling. This makes the user retrospect on the activities they did due to which the shape changed.



06 DESK MIRROR OF IDEAL SELF

A desk mirror to show the user the impact of claustrophobia on oneself. The user can talk to the mirror as if talking to a friend and share their feelings. 4 magnets represent 4 feelings and they are generated based on the user's feelings. At the end of the day, the user can place the magnets on the mirror under the themes of - independence, love and cared, confidence and proud. This activity is like a self-reflection of the user about what the phrase made them feel.



USER TESTING

No. of Participants: 5

COMPARISON

	EFFORT	IMPACT	SOLVING HOLISTIC PROBLEM
Hypnotherapy Product			
Panic Bracelet - Rudraksha band			
Self Therapy Desk Piece			
Earring			
Interactive Wall Art			
Desk Mirror			

LOW FIDELITY PROTOTYPING

SHORTLISTED CONCEPTS AND USER TESTING

Based on initial user testing results, two concepts have been taken ahead and detailed out further. Prototyping is an experimental process where the design is implemented into tangible forms of varying degrees of fidelity to capture design concepts and test on users. Low-fidelity prototyping was done in order to understand the functioning of the basic working of the concept solution and its representation.

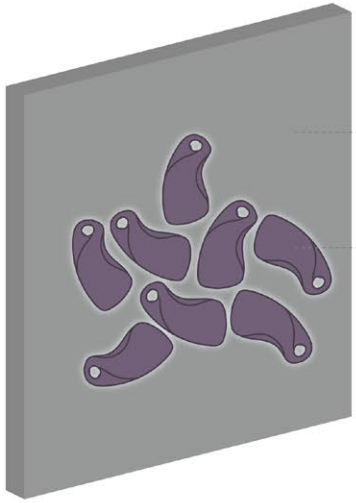
INTERACTIVE WALL ART

SHORTLISTED CONCEPT #1

Assist claustrophobics to overcome their fear by showcasing the consequence of their phobia on their emotional state of mind.

Product **Sensorial Tile**

Concept **To show the consequence of claustrophobia on their daily emotions**

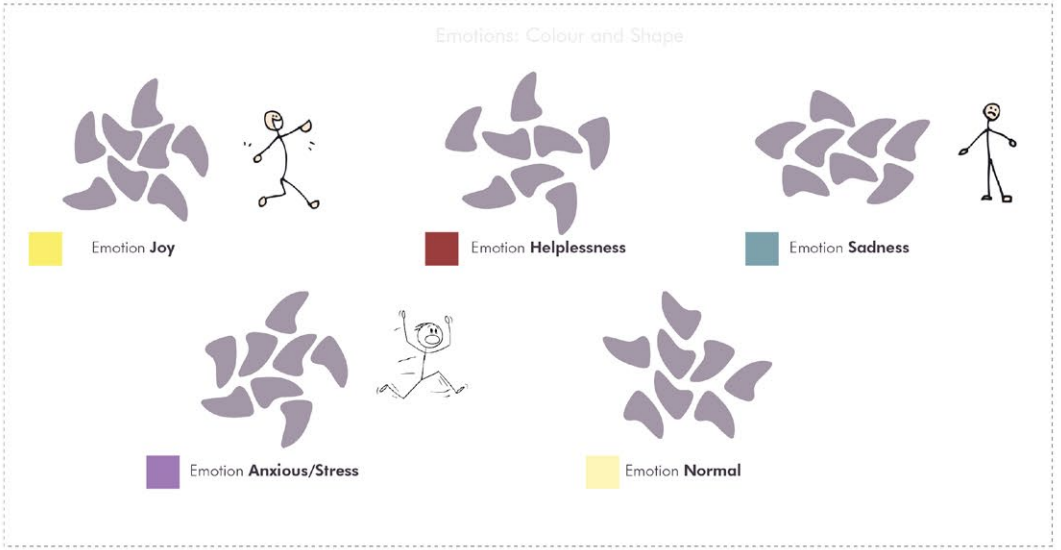


Frame to mount tiles

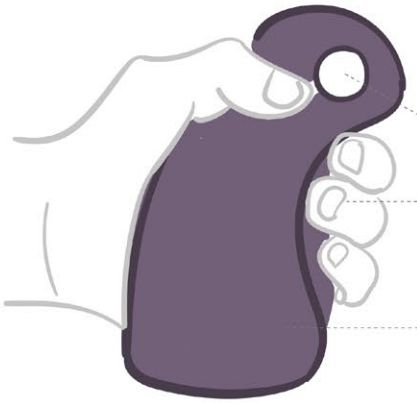
circuit concealed inside

Tile with LED screen

changes shape and colour according to the emotion



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

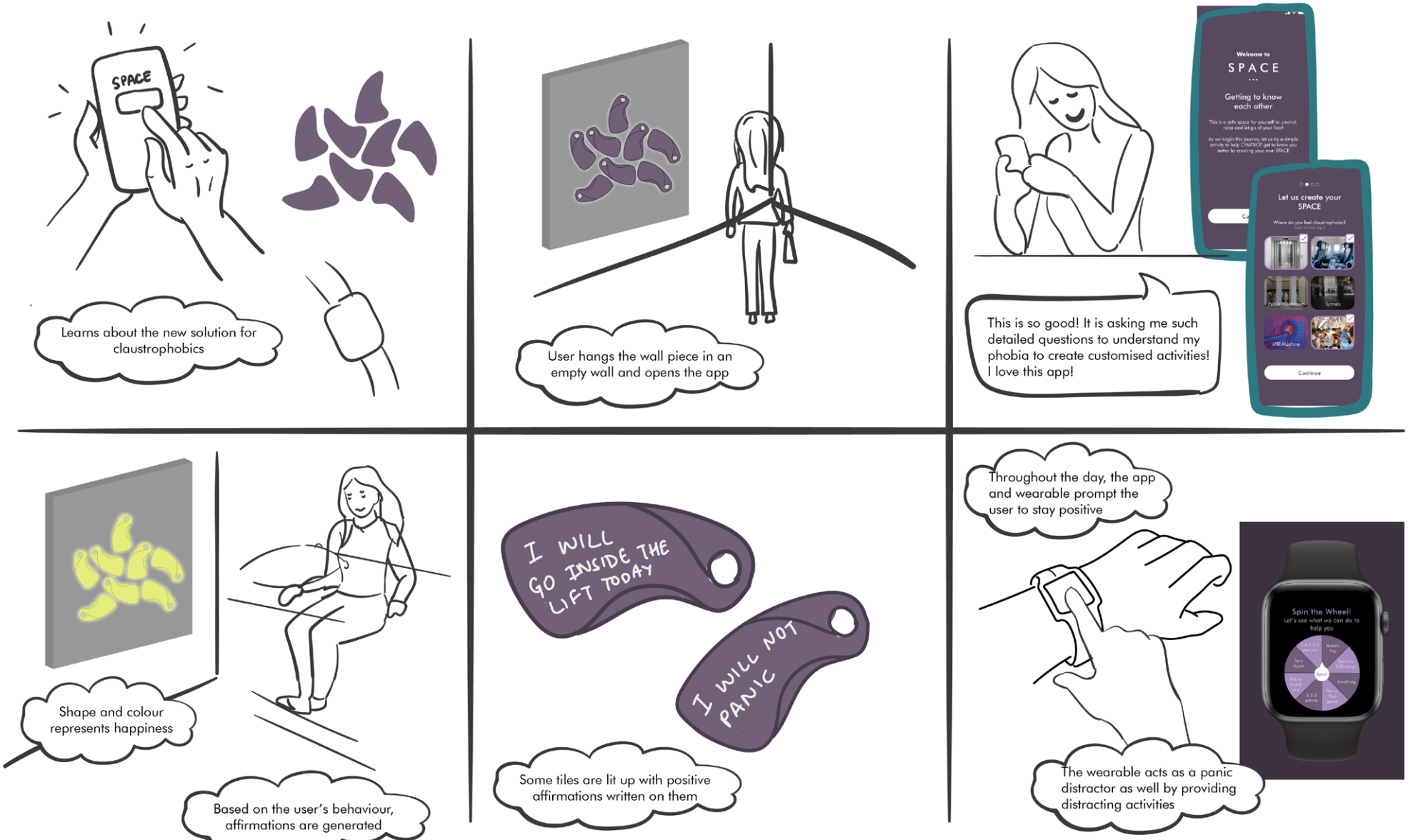


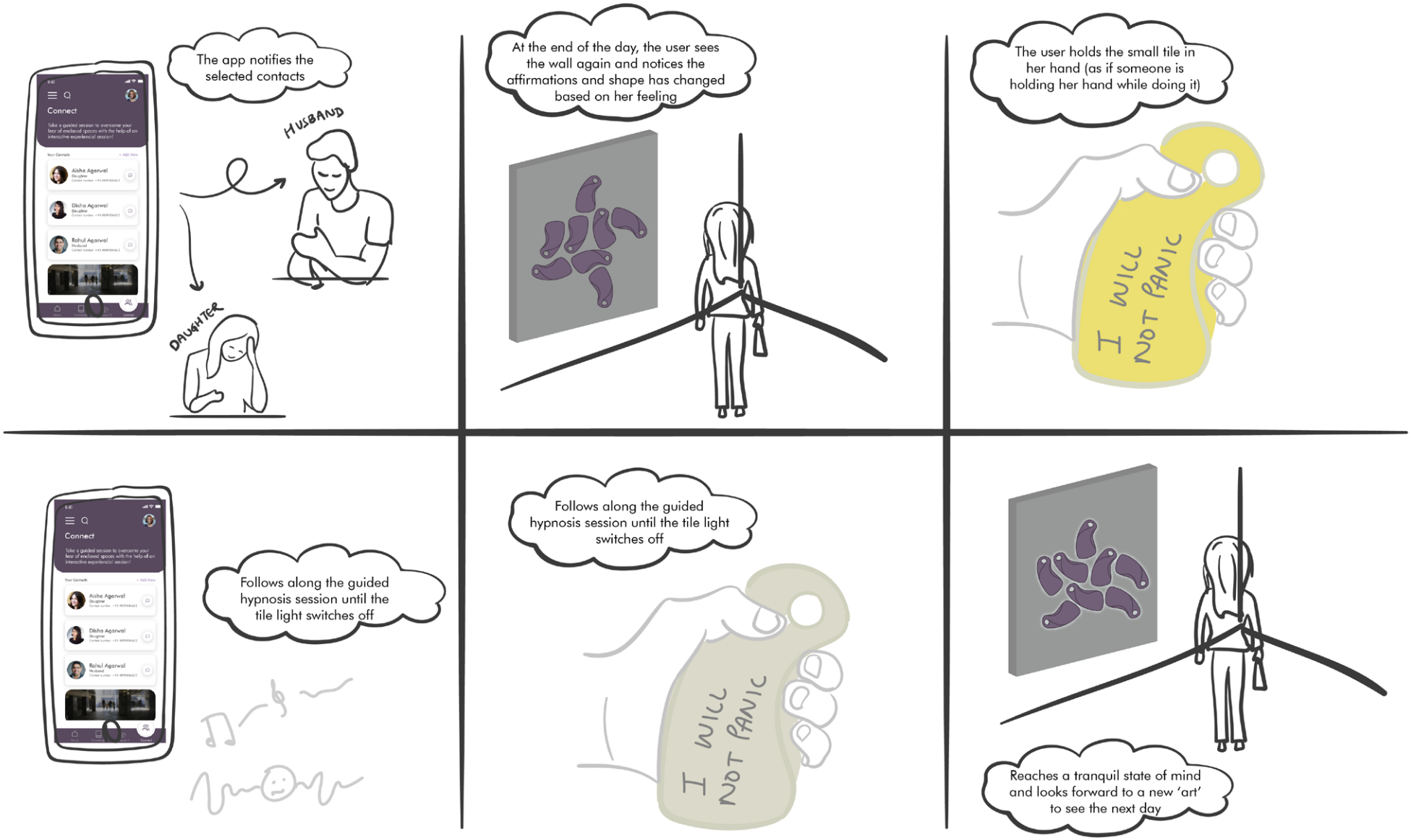
Ergonomic design

comfortable grip to hold and perform the exercise

Tile - Hand held meditation device

changes shape and colour according to the emotion


SPACE
Learns about the new solution for claustrophobics
User hangs the wall piece in an empty wall and opens the app
Welcome to
SPACE
Getting to know each other
Let us create your SPACE
Continue
This is so good! It is asking me such detailed questions to understand my phobia to create customised activities! I love this app!
Shape and colour represents happiness
Based on the user's behaviour, affirmations are generated
I WILL GO INSIDE THE LIFT TODAY
I WILL NOT PANIC
Some tiles are lit up with positive affirmations written on them
Throughout the day, the app and wearable prompt the user to stay positive
Spin the Wheel!
Let's see what we can do to help you
The wearable acts as a panic distractor as well by providing distracting activities


Connect
Take a guided session to overcome your fear of enclosed spaces with the help of an interactive experience! session!
Your Contacts
+ Add New
Aisha Agarwal
Daughter
Disha Agarwal
Daughter
Rahul Agarwal
Husband
The app notifies the selected contacts
HUSBAND
DAUGHTER
At the end of the day, the user sees the wall again and notices the affirmations and shape has changed based on her feeling
The user holds the small tile in her hand (as if someone is holding her hand while doing it)
I WILL NOT PANIC
Connect
Take a guided session to overcome your fear of enclosed spaces with the help of an interactive experience! session!
Your Contacts
+ Add New
Aisha Agarwal
Daughter
Disha Agarwal
Daughter
Rahul Agarwal
Husband
Follows along the guided hypnosis session until the tile light switches off
Follows along the guided hypnosis session until the tile light switches off
I WILL NOT PANIC
Reaches a tranquil state of mind and looks forward to a new 'art' to see the next day

Claustrophobic Women

"I need to get over my fear for the sake of my child.. but how??!"

Goal

Overcome fear of enclosed spaces by strengthening their mindset

Trigger

Hindering daily activities which result in negative feelings

Afraid that her children will get affected as well

Entry Point

Comes across an advertisment about an interactive product

Family/Friends recommend the service

Action

Onboarding

User places the product on their desk

Opens the mobile app of the service

User proceeds with the onboarding on the mobile app

- Walkthrough of the app is provided
- Prompted to sync the product and wearable on the app

Suggestive questions are asked and user has to select the most appropriate answer

- **System**: Helps the app to provide customised actions later

Based on her responses, a profile is created which she can view anytime

The app has 5 segments which can be viewed on the homepage

App has **4 main functions**:

Aura: Virtual representation which acts as a guide

Conquer it: a mind fitness daily guided session

Knowledge: learn information about her specific triggers, symptoms, solutions etc.

Connect: share progress with loved ones, notify in case of a panic attack, family learning about the phobia etc

Tasks

The user inputs her schedule for the next day on the app

- **System**: While the user is sleeping, the algorithm creates phrases based on the tasks for the day
- The shape of the panels change as well according to the ideal state of the user

In the morning, the user can see the wall piece has a new shape

- **User Feeling**: A good start to the day makes the user positive and happy
- The shape of the structure represents happiness to someone who looks at it (throught the shape and colour)

Some tiles are lit up with positive phrases written on them

Throughout the day, the app and wearable prompt the user to stay positive

- **System**: The wearable tracks the users heartrate, skin temperature, GSR, location

In case of a panic attack due to the phobia

The wearable acts as a panic distractor

- On the wearable's screen, the user is prompted small tasks like pop the bubbles, spot the difference etc (small 10 second games)

The app notifies the selected contacts

- **User Feeling**: Sense of accomplishment (even if the user sees progress they feel satisfied)

Tasks

At the end of the day, the user sees the wall again and notices the phrases

- Based on how many phrases she completed, her progress is mapped out
- ! phrase completed - Anxiety
- 2 phrases completed - Sadness
- 3 phrases completed - Neutral
- 4 phrases completed - Happiness
- 5 phrases completed - Joy

The light of the phrases which she has completed turn off. The ones she could not accomplish remain on

- **User Feeling**: Sense of accomplishment (even if the user sees progress they feel satisfied)

While performing mental fitness exercises

The user takes out the lighted tile and performs mind fitness exercise

- This would be suggested to the user to do daily for better results
- A projection appears on the walls of the room
- These projections would resemble the place according to the triggers the user had input during the onboarding of the app (lifts, planes, washroom, MRI etc)

The user holds the small tile in her hand (as if someone is holding her hand while doing it)

Follows along the guided hypnosis session until the tile light switches off

- The app would guide the user into a subconscious trance state of mind with the help of audio
- **4 step process:**
- 1. Absorb the attention
- 2. Bypassing the Critical Factor
- 3. Activate the subconscious response
- 4. Post-hypnotic suggestion

Reaches a tranquil state of mind and looks forward to a new 'art' to see the next day

- On the app, the user is shown how the session has helped in achieving her goal
- **User Feeling**: Calm and composed Relaxed mind which would also help in a good night's sleep
- Doing this regularly would help the user gain control over undesired behaviors and help cope better with the fear

DESIGN OF USER TESTING

To test the concept and its effect on users, three types of tests were conducted as follows:

No. of Participants: 7

Colour Test

Correlation of colour to emotions

Emotion Form Validation

The 5 feelings were validated on basis of what the shape represented

Tile Form

Ergonomic to hold in hand while meditation

USER TESTING INSIGHTS

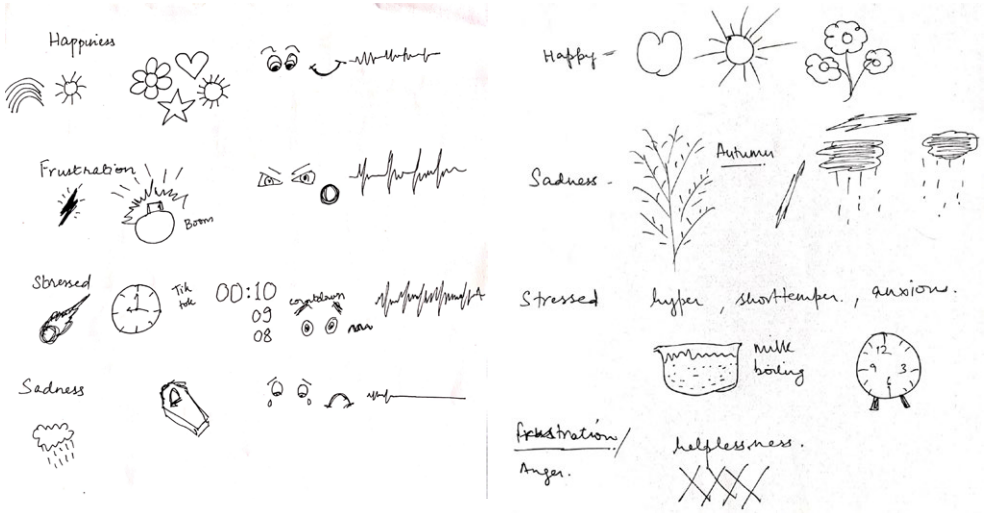
What worked:
The tile moving and changing shape daily was interesting
Elongated structure was preferred for happiness

What did not work:
Understanding the shapes in accordance with the emotions was difficult it first
Not very sure about how willing she would be to have a wall in her house to show her feeling

Recommendations:
Adding colour for emotions will be easy to distinguish
Instead of anger, replace with helplessness

FORM TO EMOTION

Understanding the shapes in accordance with the emotions was difficult it first but the colour made it distinguishable

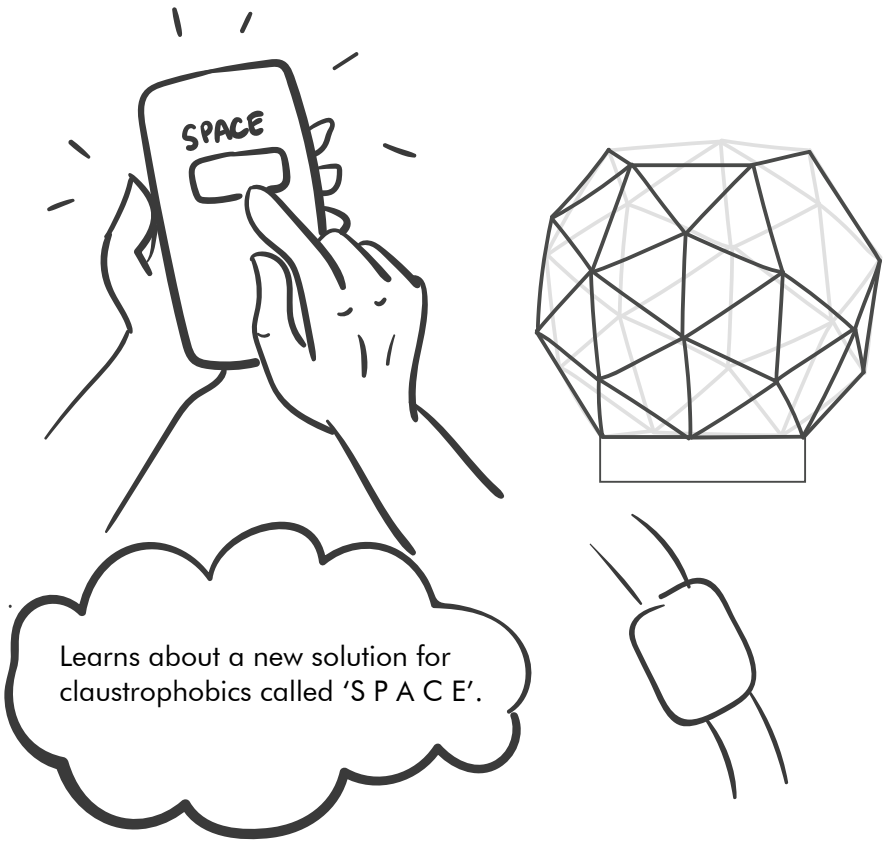


FEELINGS AND SHAPES

The users were asked to draw shapes or objects which they felt resonated with the emotion. Elongated structure was preferred for happiness and sharp for anger.

FEELINGS AND SHAPES

Rounded edges were preferred as they were comfortable to hold. Would like some sort of gripping as well.



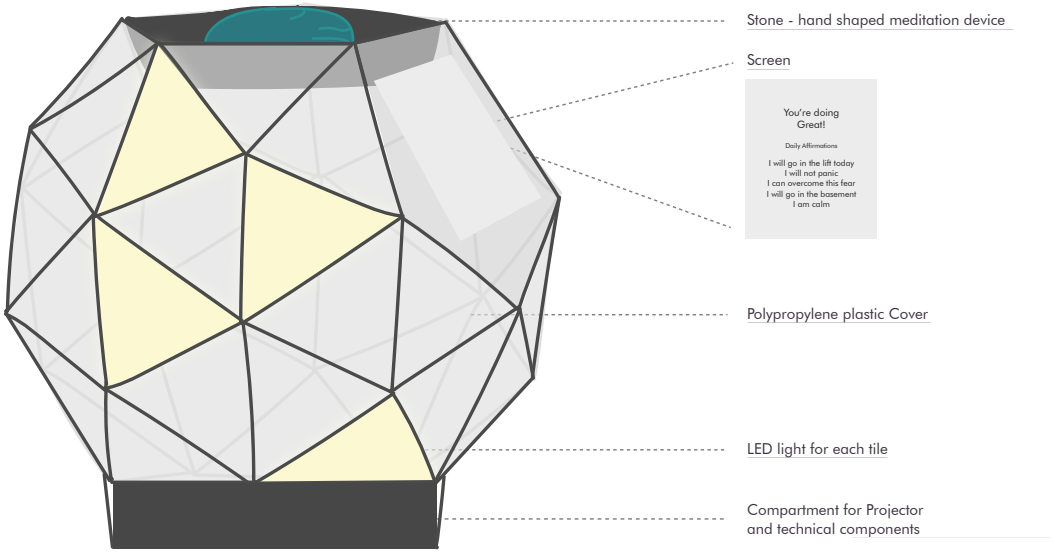
EXPERIENTIAL LAMP

SHORTLISTED CONCEPT #1

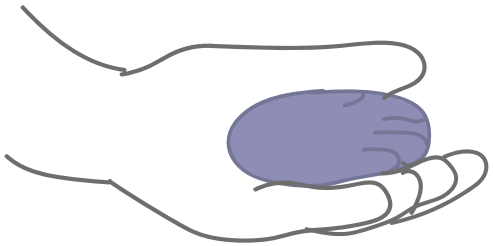
Assist claustrophobics to overcome their fear by targeting their subconscious mind to eradicate the fear by having the power to control what they think and do. While also helping the family be empathetic of her situation to assist in her journey of gaining her self confidence and fulfilling her responsibilities.

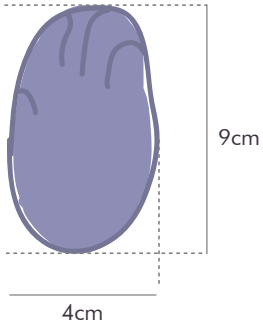
Product **Lamp**

Concept **To target the subconscious mind and irradicate the fear by doing mindful exercises**



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





Claustrophobic Women

"I need to get over my fear for the sake of my child.. but how??!"

Goal

Overcome fear of enclosed spaces by strengthening their mindset

Trigger

Hindering daily activities which result in negative feelings

Afraid that her children will get affected as well

Entry Point

Comes across an advertisment about an interactive product

Family/Friends recommend the service

Action

Onboarding

User places the product on their desk

Opens the mobile app of the service

User proceeds with the onboarding on the mobile app

- Walkthrough of the app is provided
- Prompted to sync the product and wearable on the app

Suggestive questions are asked and user has to select the most appropriate answer

- **System**: Helps the app to provide customised actions later

Based on her responses, a profile is created which she can view anytime

The app has 5 segments which can be viewed on the homepage

App has **4 main functions**:

Aura: Virtual representation which acts as a guide

Conquer it: a mind fitness daily guided session

Knowledge: learn information about her specific triggers, symptoms, solutions etc.

Connect: share progress with loved ones, notify in case of a panic attack, family learning about the phobia etc

Tasks

In the morning, the user can see the affirmations on the product screen

- **User Feeling**: A good start to the day makes the user positive and happy
- **System**: While the user is sleeping, the algorithm creates phrases based on the tasks for the day

User can view affirmations from the app as well

Throughout the day, the app and wearable prompt the user to stay positive

- **System**: The wearable tracks the users heartrate, skin temperature, GSR, location

In case of a panic attack due to the phobia

The wearable acts as a panic distractor

- On the wearable's screen, the user is prompted small tasks like pop the bubbles, spot the difference etc (small 10 second games)

The app notifies the selected contacts

At the end of the day, the user is shown the affirmations and if she followed them or not

- **User Feeling**: Sense of accomplishment (even if the user sees progress they feel satisfied)

Tasks

At the end of the day, the user is prompted to do her mind fitness activity to conquer her fear

- This would be suggested to the user to do daily for better results

While performing mental fitness exercises

In the lamp, a small stone is there which the user can pick up during the session

During the session, a projection appears on the walls of the room

- These projections would resemble the place according to the triggers the user had input during the onboarding of the app (lifts, planes, washroom, MRI etc)

The user holds the small device in her hand (as if someone is holding her hand while doing it)

- The device would also have haptic feedback to enhance the experience

Follows along the guided hypnosis session

- The lamp also guides the user into a subconscious trance state of mind with the help of audio

4 step process:

1. Absorb the attention
2. Bypassing the Critical Factor
3. Activate the subconscious response
4. Post-hypnotic suggestion

Reaches a tranquil state of mind

- On the app, the user is shown how the session has helped in achieving her goal
- **User Feeling**: Calm and composed Relaxed mind which would also help in a good night's sleep

Doing this regularly would help the user gain control over undesired behaviors and help cope better with the fear

DESIGN OF USER TESTING

To test the concept and its effect on users, three types of tests were conducted as follows:

No. of Participants: 7

Interface Design

To be able to easily navigate the ui

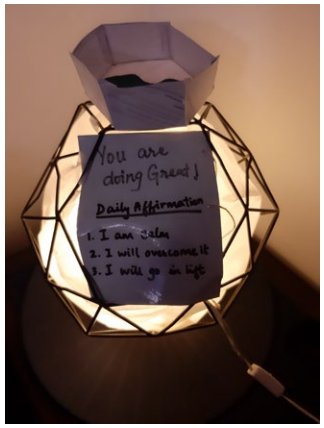
Lamp Form Design

Preference of design to keep at home

Stone Form Design

Ergonomic to hold in hand while meditation

USER TESTING INSIGHTS



LAMP

What worked:

• Really liked the name of the solution as well as the concept of the 'cage' and light interaction

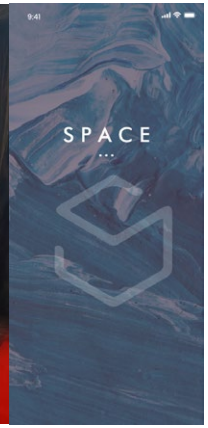
• Wider, flat base for stability was appreciated

What did not work:

• Were concerned about how room environment would play a role in the projection

Recommendations:

• The therapy should be done whenever I want and not just at end of day.



MOBILE APPLICATION

What worked:

• The segment of 'conquer' and 'connect' was appealing

• Adding contacts was appreciated by all

• Liked the onboarding questions to get to know the user. (though it could be short slightly or split into phases)

What did not work:

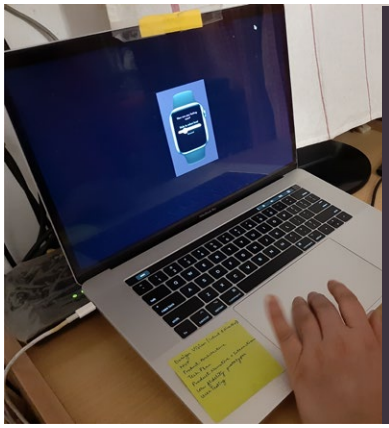
• Could not relate with 'Streaks'

• Session screen to have duration and part written more prominently

• Terminology of 'do' was not clear

Recommendations:

• Showing a calendar instead of streaks and not just at end of day.



WEARABLE

What worked:

• Slim design with big screen for visibility
Using existing smartwatch would reduce cost

What did not work:

• Most users did not want any protruding structures

• Users did not like 'spin the wheel' functionality as they did not have control of the activity

Recommendations:

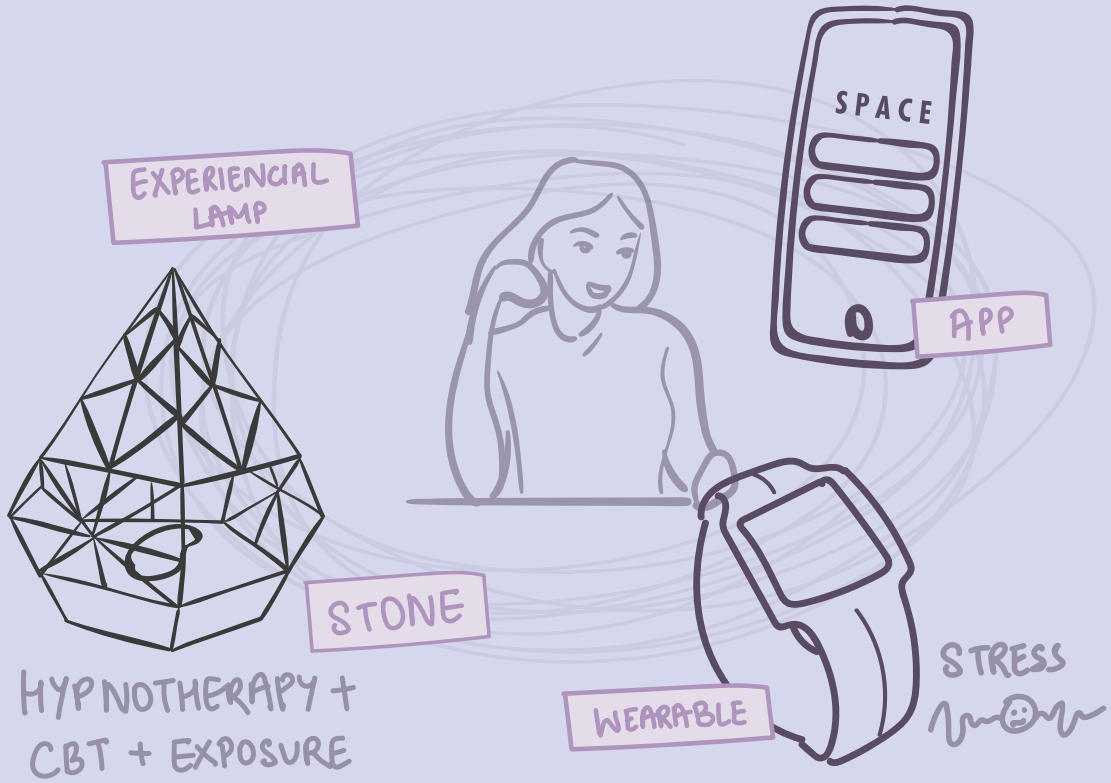
• Would like to have an interchangeable strap

USER TESTING

No. of Participants: 7

COMPARISON

	EXPERIENTIAL LAMP	SENSORIAL TILE
What Worked	Overall experience motivated the user to work towards overcoming the phobia Really liked the projection aspect of the trigger	The tile moving and changing shape daily was interesting Elongated structure was preferred for happiness
What did not work	Were concerned about how room environment would play a role in the projection	Understanding the shapes in accordance with the emotions was difficult it first Not very sure about how willing she would be to have a wall in her house to show her feeling
Recommendations	The therapy should be done whenever I want and not just at end of day	Adding colour for emotions will be easy to distinguish Instead of anger, would prefer to have helplessness
Participants Preference	5 out of 7 preferred this concept	2 out of 7 preferred this concept



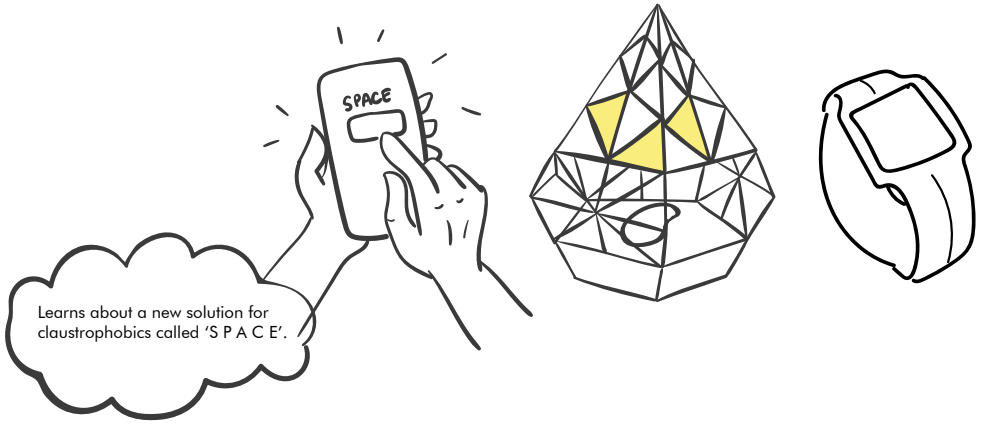
SPACE

FINAL CONCEPT

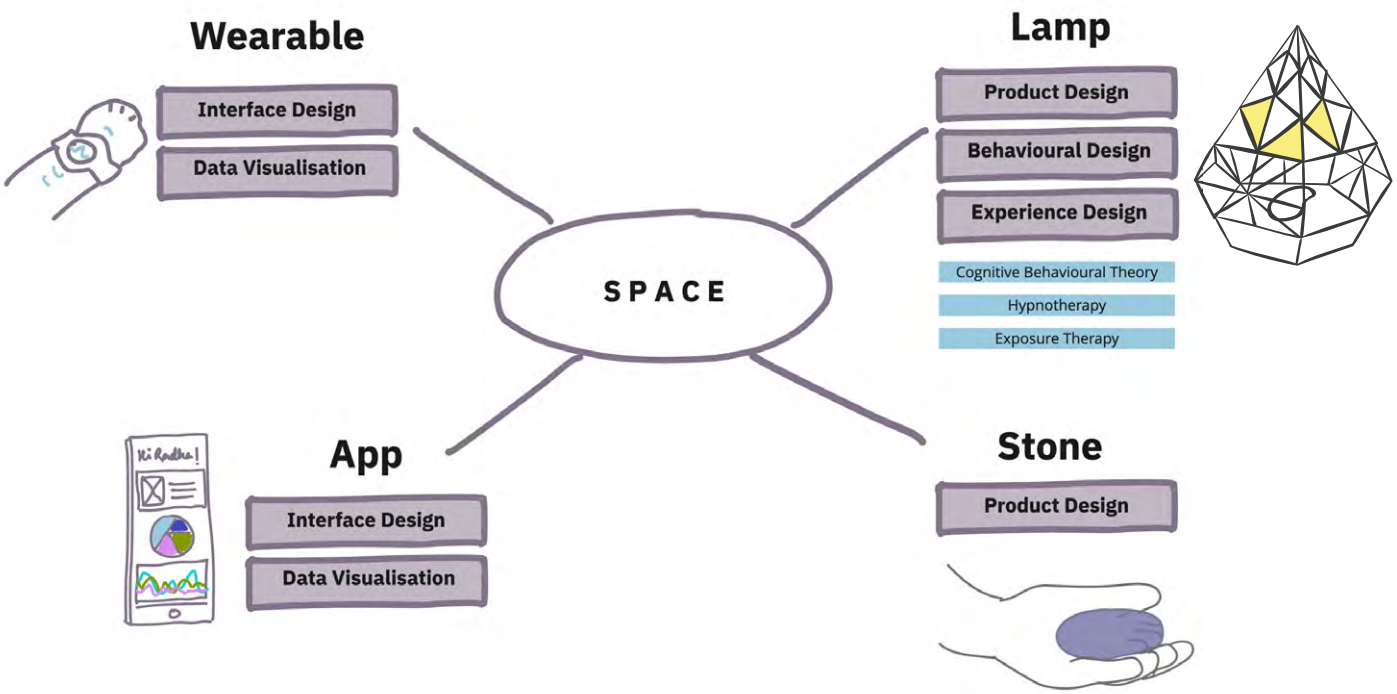
Assist claustrophobics to overcome their fear by targeting their subconscious mind to eradicate the fear by having the power to control what they think and do. While also helping the family be empathetic of her situation to assist in her journey of gaining her self confidence and fulfilling her responsibilities.

WHAT IS THE CONCEPT?

Taking all findings into consideration, the concept of an experiential lamp was developed and detailed out. The solution called 'SPACE' aims to assist claustrophobics to overcome their fear by targeting their subconscious mind to eradicate the fear by having the power to control what they think and do. While also helping the family be empathetic of her situation to assist in her journey of gaining her self confidence and fulfilling her responsibilities.



4 ESSENTIAL NODES OF THE SYSTEM

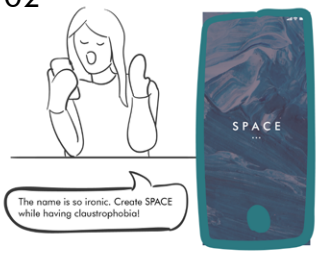


The solution includes an app that gives positive affirmations while also tracking the user's emotional well-being. Loved ones can also be connected and gain knowledge about claustrophobia via the app. She wears a smartwatch that monitors her emotions and stress levels throughout the day, providing her with insights into her everyday activities. It also helps her if she has a panic attack and is advised to engage in diverting tasks. Finally, an interactive lamp that guides the user through an experiential session to tap into the user's subconscious mind via exposure therapy and cognitive behavioural hypnotherapy. The solution components are illustrated in the figure.

CONCEPT FLOW

01

02



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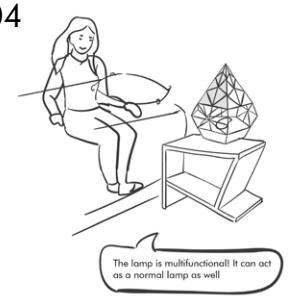

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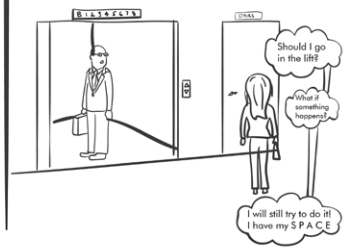

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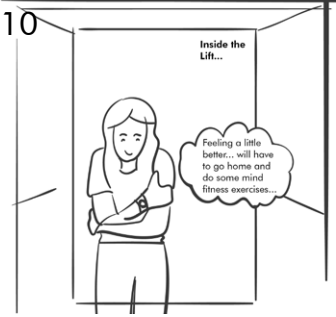

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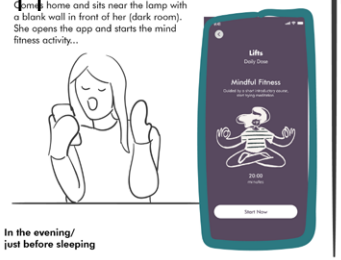

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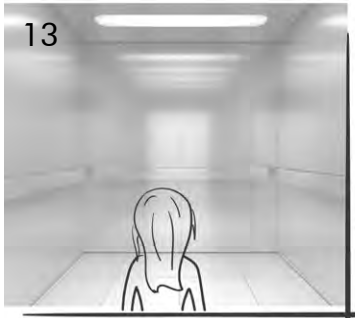

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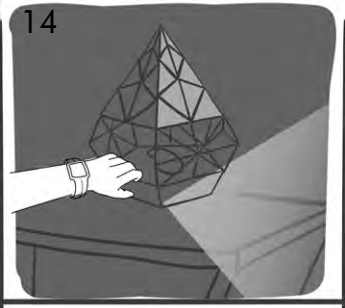

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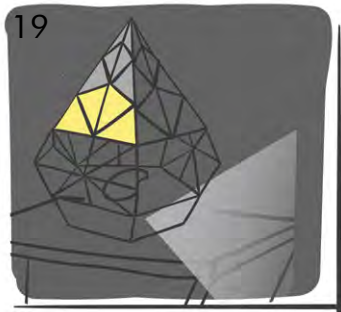

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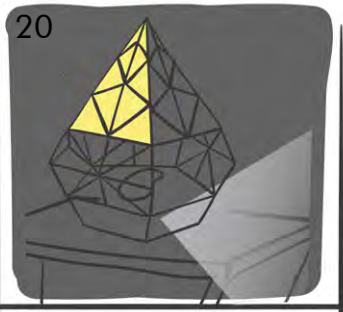

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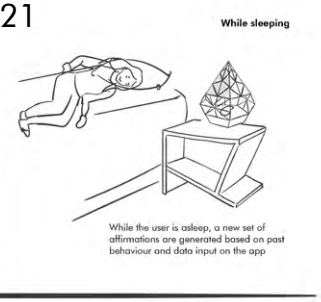


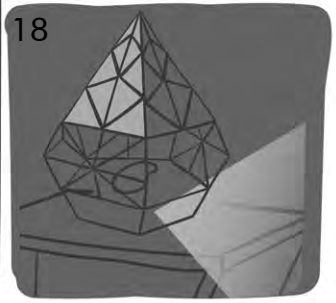
16

17

The smartwatch is tracking the user's heartrate and stress levels. Based on which the tiles in the lamp light up!

As the user keeps getting relaxed during the session, she is overcoming her fear and breaking the 'cage' and hence as a result, light is shown as a sign of accomplishment. Once all tiles are lit, it signifies the session has ended and the projection stops.

18



LOW FIDELITY PROTOTYPING

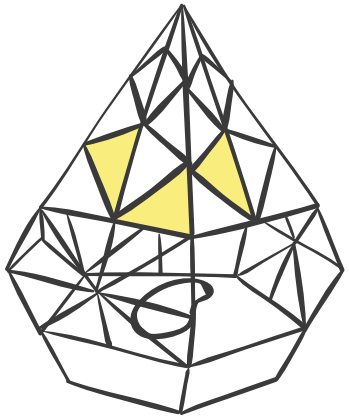
FINAL CONCEPT - SPACE

01

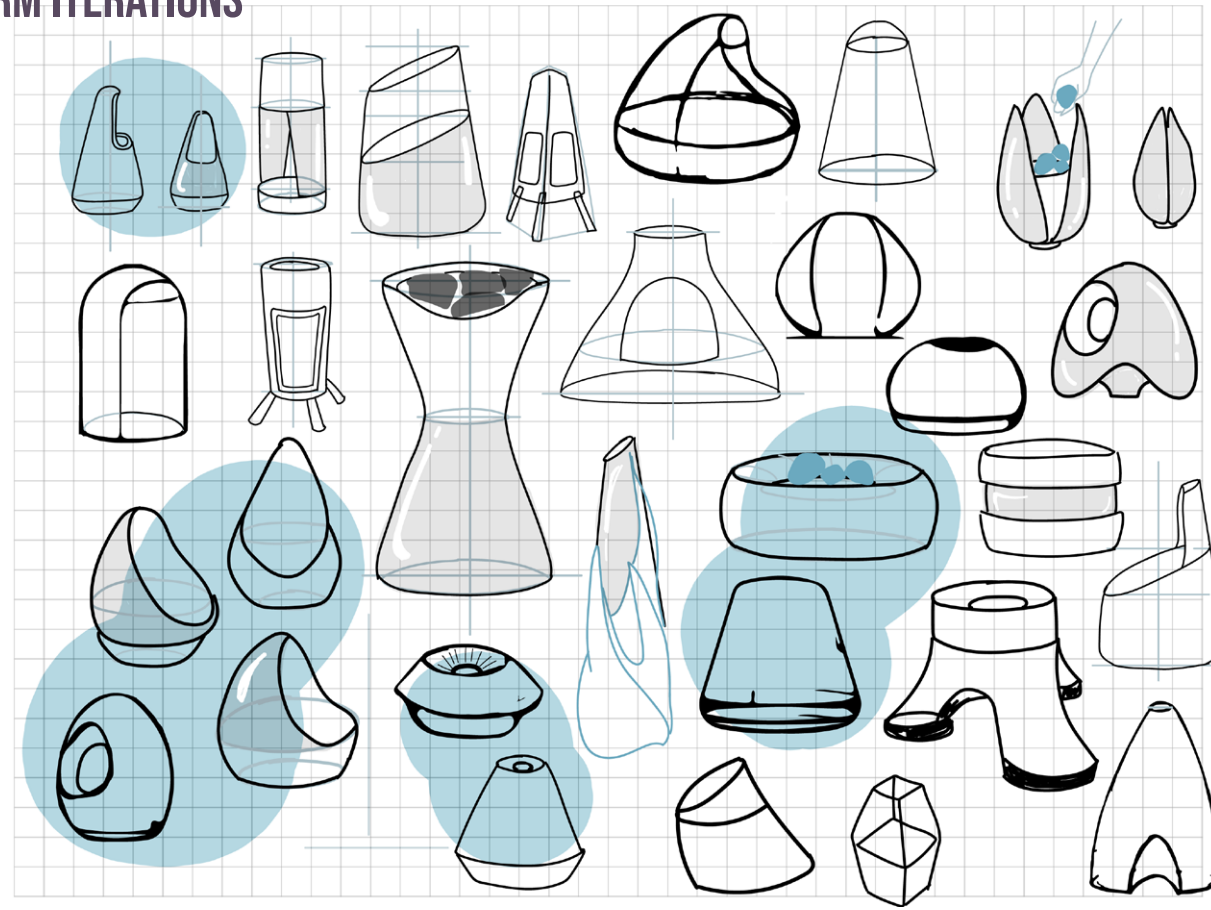
Product **Desk Lamp**

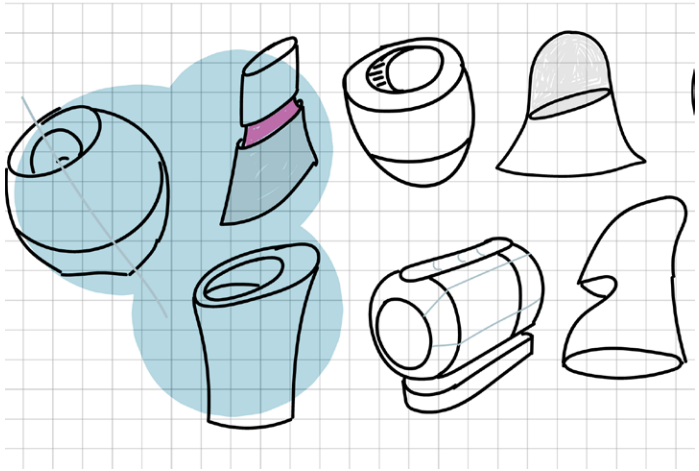
Metaphor **Cage**

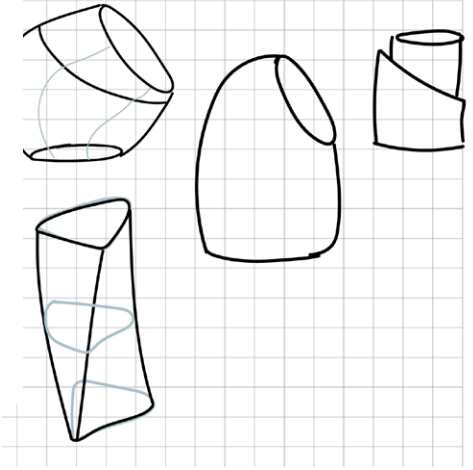
The lamp helps the user get over her fear by letting the user experience the triggers in the comfort of her room through a projection which makes them feel they are in that space. The lamp shape resembles a closed cage with triangular light panels which turn on gradually as the user progresses in the 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.

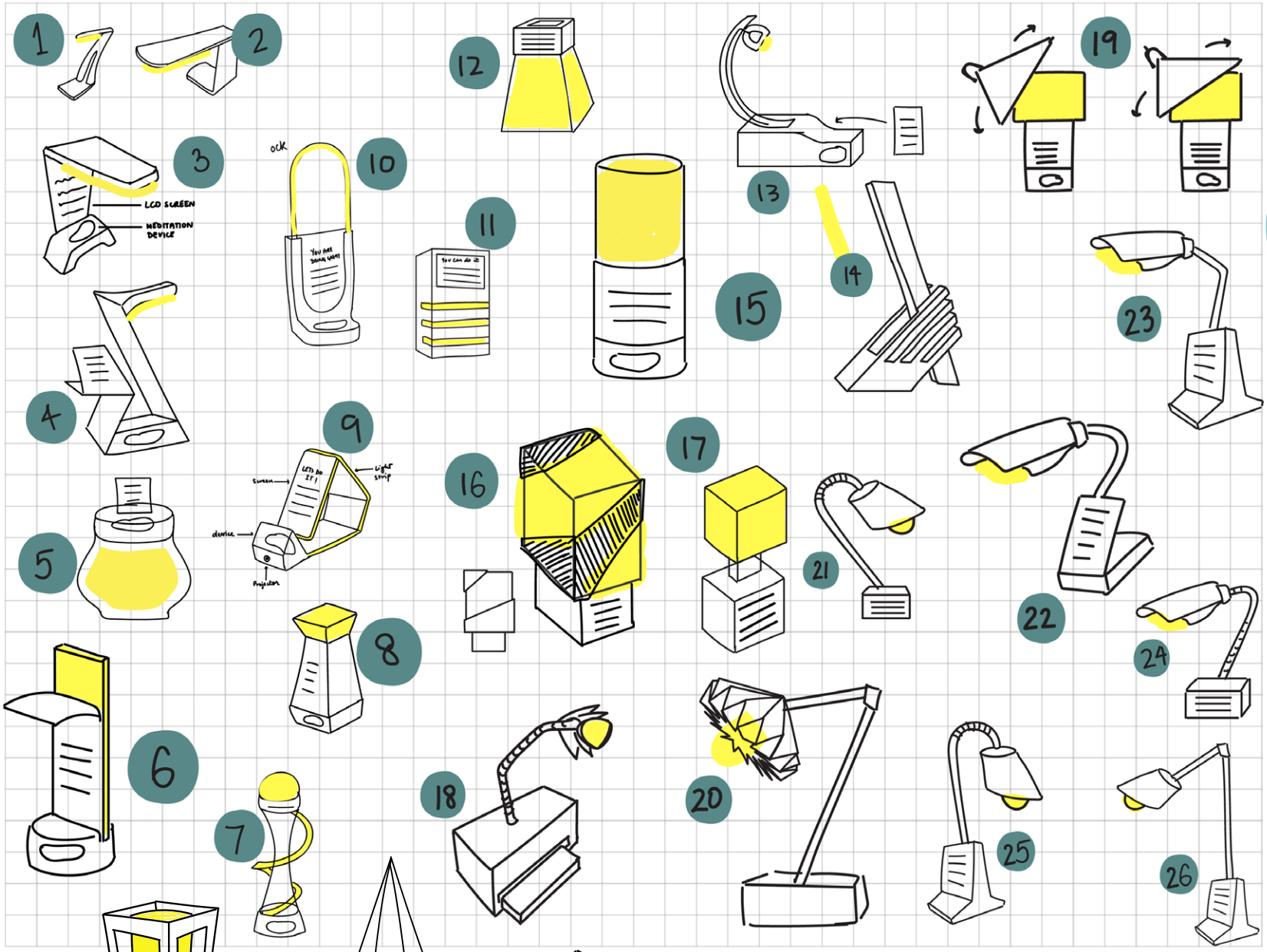


FORM ITERATIONS





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LCD SCREEN
MEDITATION DEVICE
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6
7
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Screen
Light strip
device
Projector
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USER TESTING INSIGHTS

LAMP - LOW FIDELITY PROTOTYPE

No. of Participants: 7

The form was iterated by making quick prototypes using paper and green foam models of the sketches.

What worked:

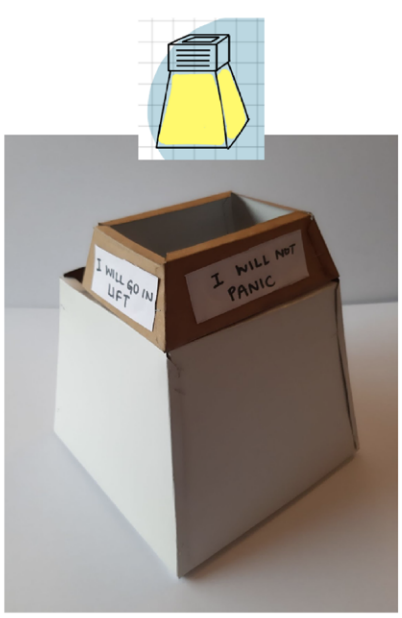
- The users preferred to have a unique form as it was a lamp which would be kept on the table and people in the house can see it.
- Projection of the triggers was appreciated by all users
- Appreciated the multifunctionality aspect of the product (lamp and therapy).

What did not work:

- Were concerned about how room environment would play a role in the projection

Recommendations:

- The therapy should be done whenever I want and not just at end of day.



4/7 preferred a wider base for stability

"Want a lot of light from the lamp"

1/7 would keep this in the room

"It does not look very stable"

2/7 would keep this in the room

"It is very boxy. Not appealing to the eye"

5/7 would use this daily

"Interesting structure"

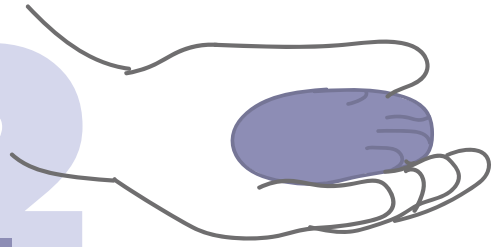
3/7 would use this daily

"It is a good form but light is less"

2/7 would use this daily

"Seems unstable"

02



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.

USER TESTING INSIGHTS

STONE - LOW FIDELITY PROTOTYPE

No. of Participants: 7

The form was iterated by making quick prototypes using green foam models.

What worked:
• The users preferred to have a comforting form which was a curved elongated structure

What did not work:
• Hash ridges and random shapes were not comfortable

Recommendations:
• A slight grip on the stone would be better to hold the stone securely
• Combining the grip of option 3 and ergonomic form of optio 4 would be ideal

Option 1

0/7 would hold this

"Not smooth to hold, pointed edges"

Option 2

1/7 would hold this

"Seems unstable and rigid"

Option 3

4/7 would hold this

"Rigid and stable, somewhat comfortable"

Option 4

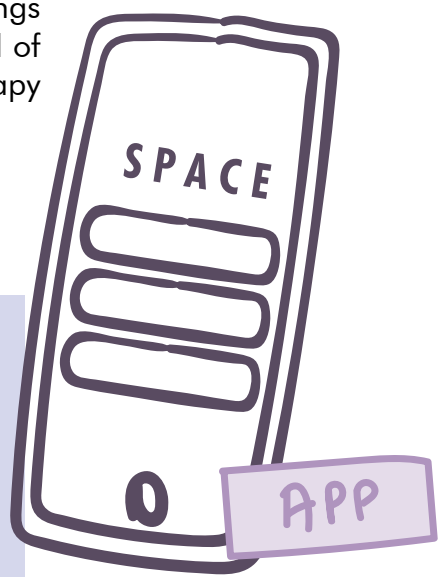
6/7 would hold this

"Comforting, content and blissful. Curvy forms match hand curves"

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.



Mind Fitness Session

The session has four main stages –

Stage 1 – Absorb Attention

In order to absorb attention, the Aura's voice simply guides the user to capture the attention and focus. This is done by using voice tonality. Once this is achieved, the next stage begins.

Stage 2 – Bypass the Critical Faculty

The Critical Faculty is the part of the mind that uses logic and reasoning to disbelieve. By suspending disbelief, Aura assists the user in lowering their resistance to hypnotic trance. This enables the user to respond subconsciously. The unconscious mind is more receptive to hypnotic suggestions and metaphors after the Critical Faculty has been bypassed (Watts, 2021).

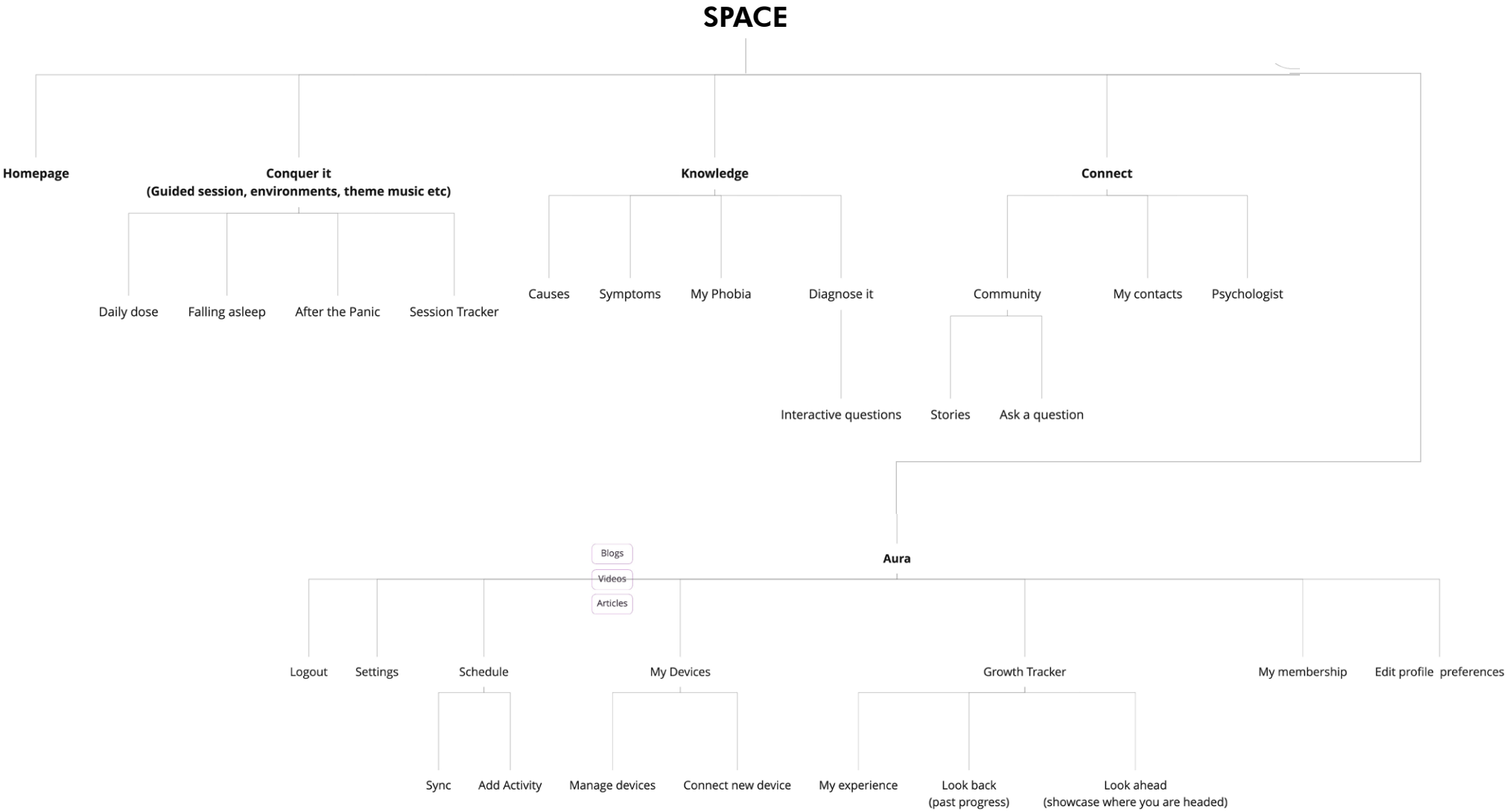
Stage 3 – Activate an Unconscious Response

These responses are generated subconsciously and occur even when the user is not aware of them. This form of unconscious response includes a visible shudder when the user imagines themself in a closed environment. These bodily manifestations are the unconscious mind's reaction to the thoughts and images that Aura helped the user create.

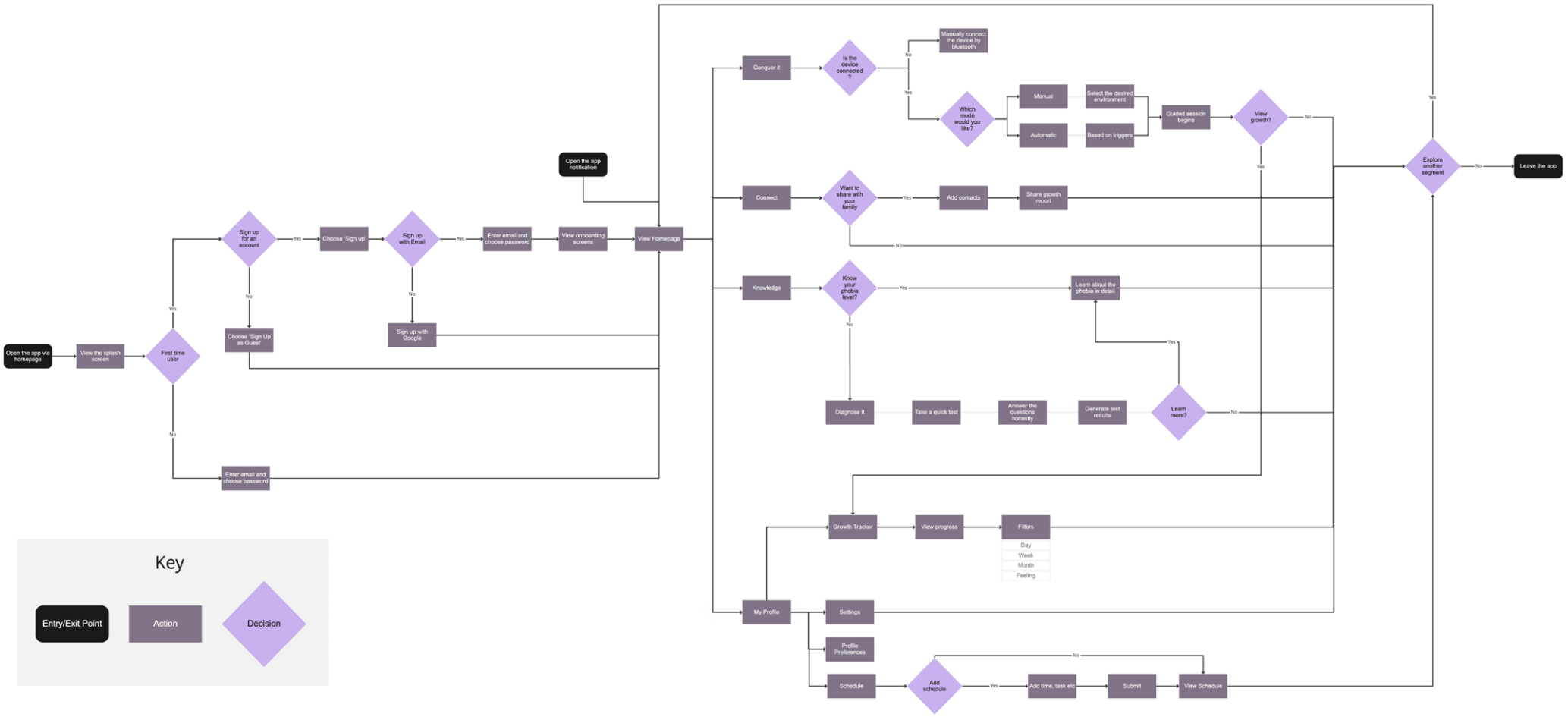
Stage 4 – Leading the Unconscious To Desired Outcome

Hypnotic Suggestions are usually given in the form of commands and can be used to produce an immediate or post-hypnotic effect. Metaphors are narratives which are carefully constructed and delivered that help the unconscious mind become more resourceful, resulting in a more desirable outcome (Support, 2019).

INFORMATION ARCHITECTURE



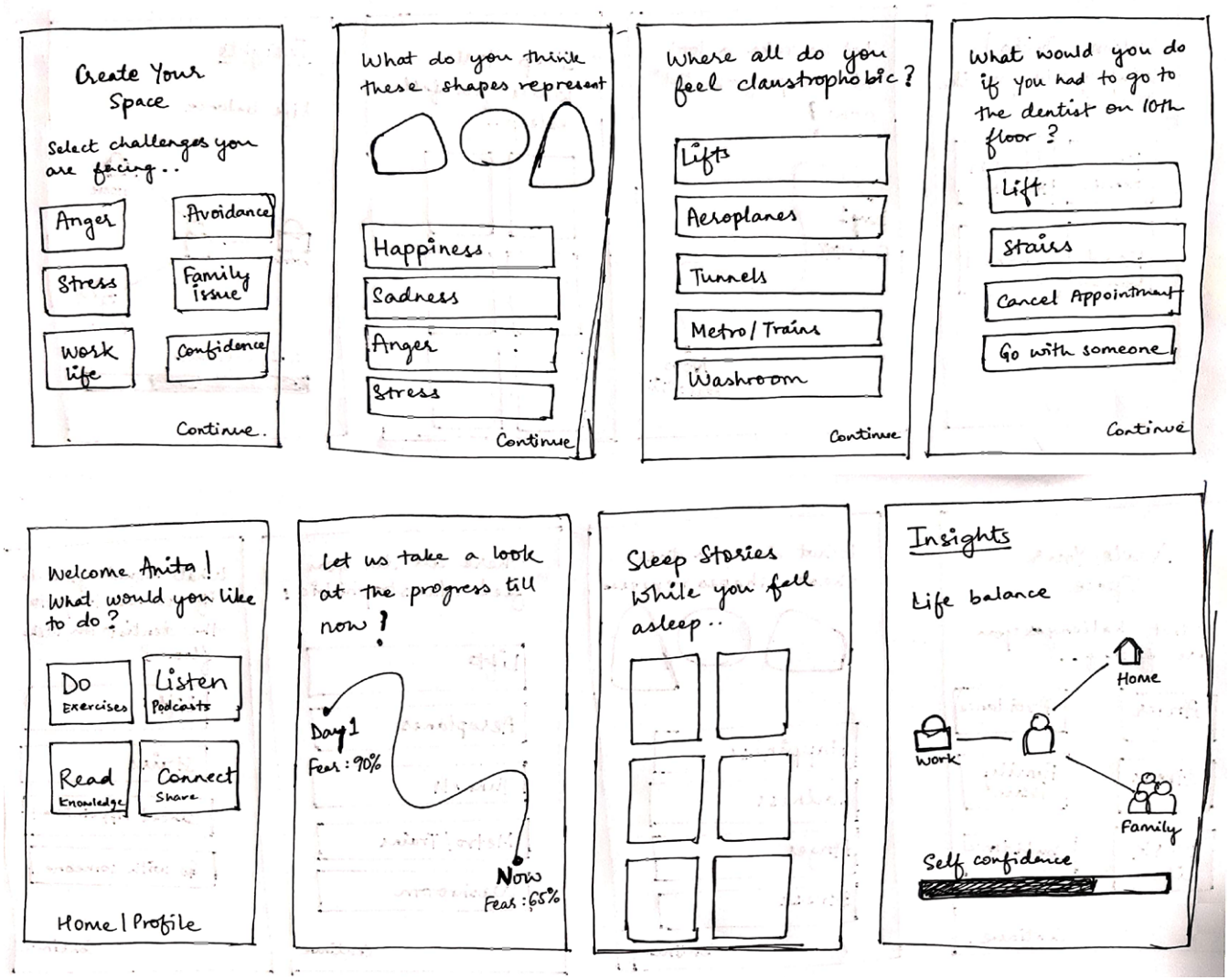
APP USER FLOW



PAPER PROTOTYPES

APP - LOW FIDELITY PROTOTYPE

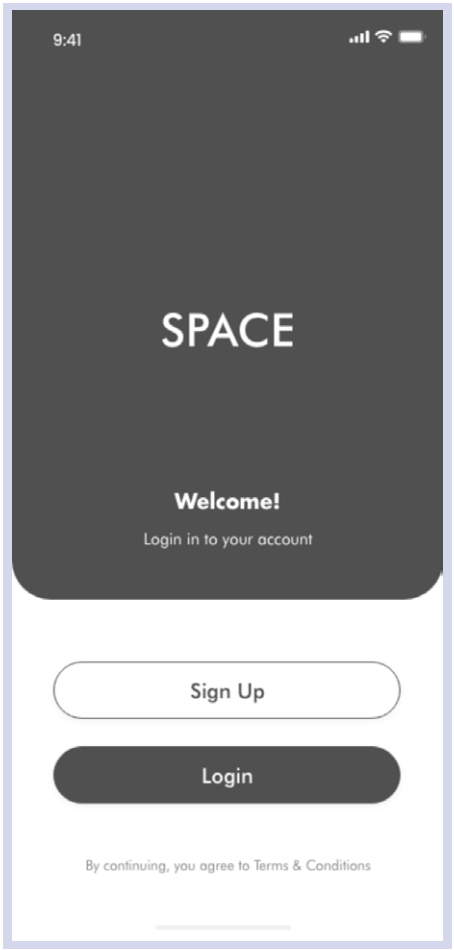
Various ways of depicting the concept of claustrophobia was ideated with the help of paper prototypes. Having an elaborate onboarding prcess would help the app algorithm to learn about the user and provide personalised suggestions.

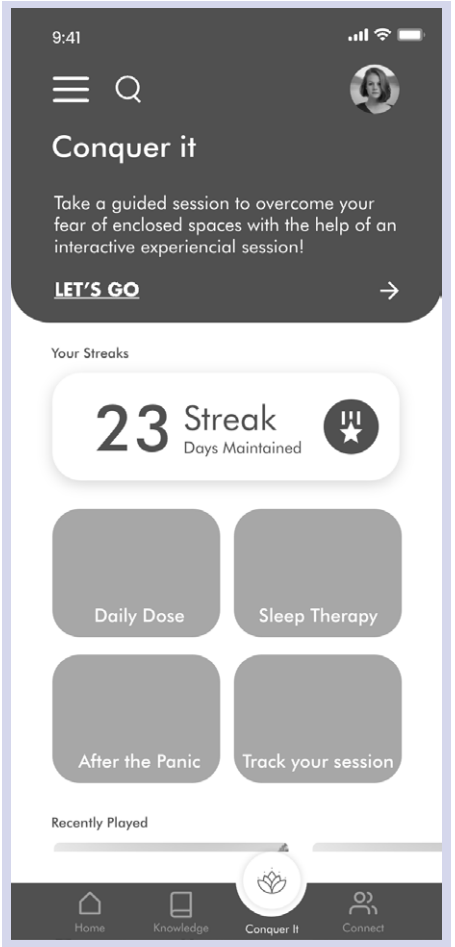


WIREFRAMES

APP - LOW FIDELITY PROTOTYPE

Low fidelity designs were made after paper prototypes and were then tested with users.





USER TESTING INSIGHTS

APP - LOW FIDELITY PROTOTYPE

MOBILE APPLICATION

What worked:

• Appreciated the overall app design

What did not work:

• Could not relate with 'Streaks'

• Session screen to have duration and part written more prominently

• Onboarding screens were quite long

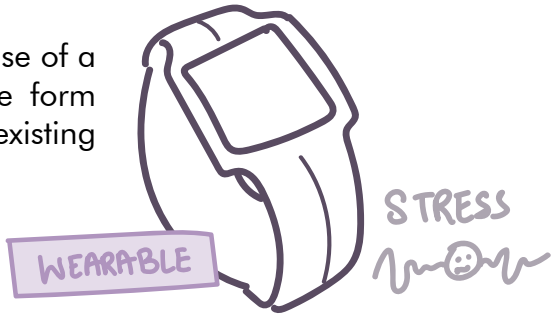
Recommendations:

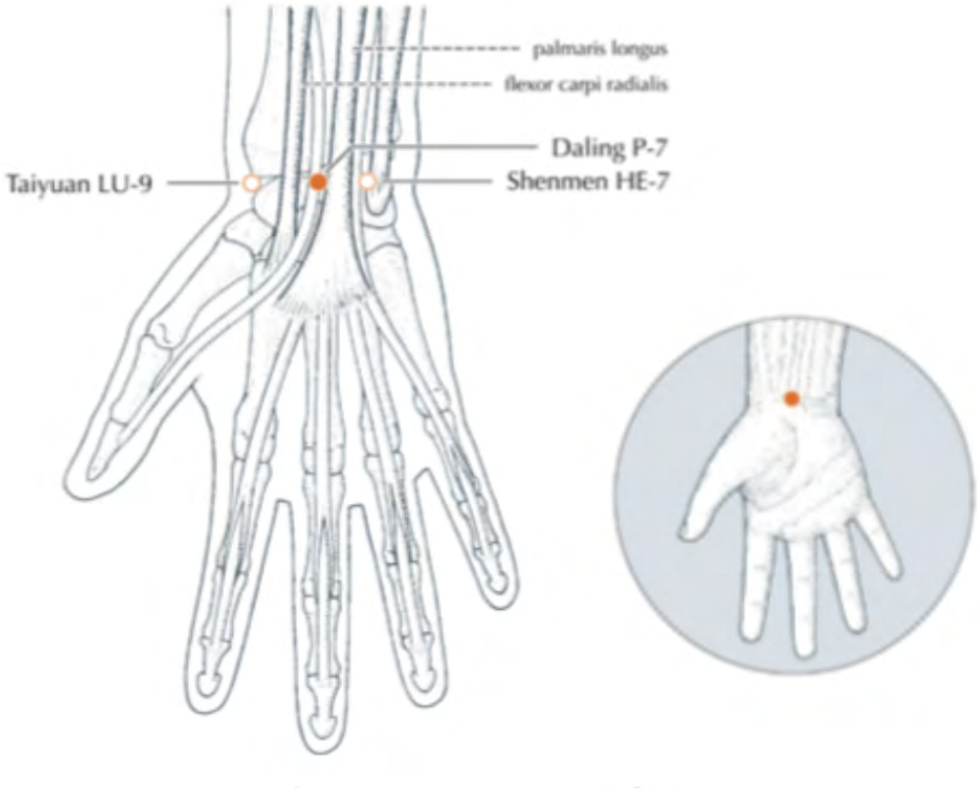
• Showing a calendar instead of streaks

04

Product **Wearable**

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.



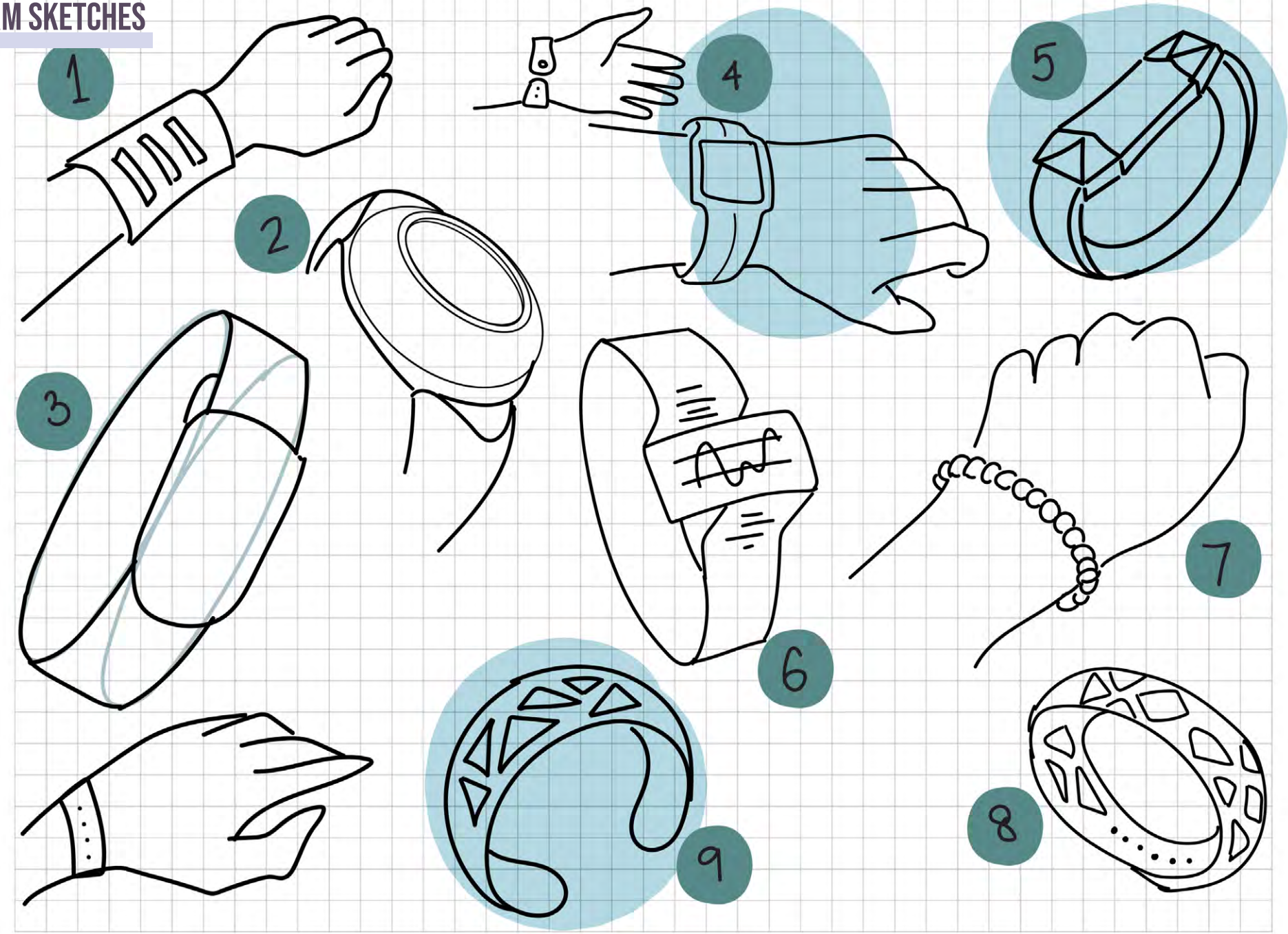


A wrist wearable like a band or smartwatch was considered. This was selected because the wearable is worn close to a pressure point on the vagus nerve.

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 shunt 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.

FORM SKETCHES



USER TESTING INSIGHTS

WEARABLE - LOW FIDELITY PROTOTYPE

No. of Participants: 7

4/7 would wear this OCCASIONALLY
"Unique design but no interface"

What worked:
• Really liked the concept of tapping on the tile to distract their mind from the panic.

What did not work:
• Protruding structures were not very comfortable to wear.
• Would not want other people to see the colour of tile changing because they are getting stressed

1/7 would wear this OCCASIONALLY
"Sleek design but interface size is small to read text"

What worked:
• The simple elegent form was appreciated

What did not work:
• Small screen to read the content
• There was no distracting element

6/7 would wear this DAILY
"Comfortable, regular smart watch"

What worked:
• The simple elegent form was appreciated
• Smartwatch they own already, so would not have to buy a secondary wearable

What did not work:
• There was no distracting element

HIGH FIDELITY PROTOTYPING

FINAL CONCEPT - SPACE

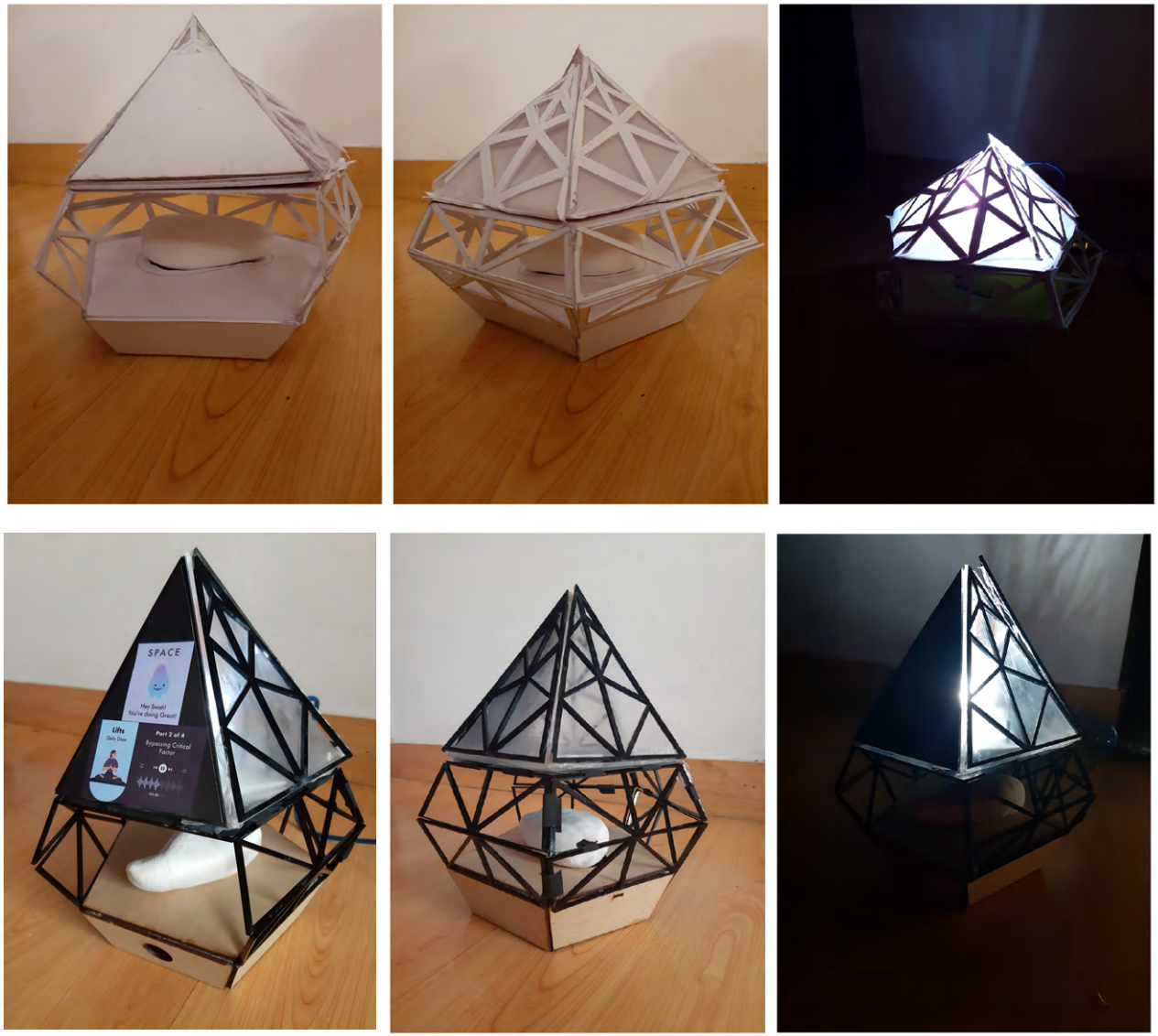
NODE 01

LAMP

PHYSICAL PROTOTYPES

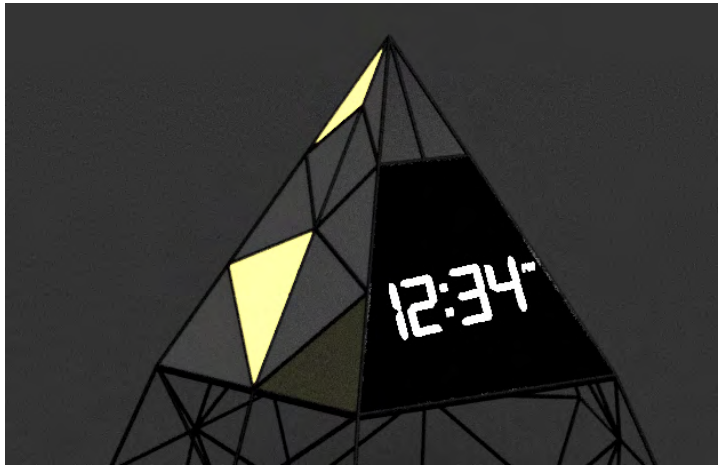
The form was iterated based on user feedback. The design is of a Pentagonal pyramid structure which resembles a cage. It has 5 sides where 4 sides have triangular tiles from where light emits and the 5th side is where an LED screen is placed for the user to see the affirmations and Aura.

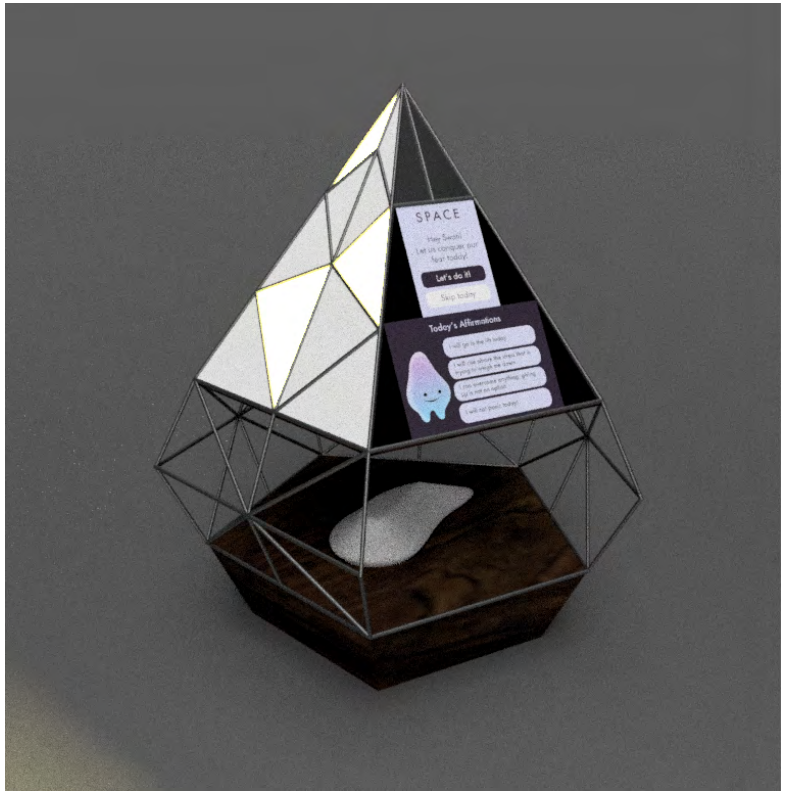
The first iteration was made with sunboard and then it was refined further by laser cutting MDF for the base and black acrylic sheet for the top.

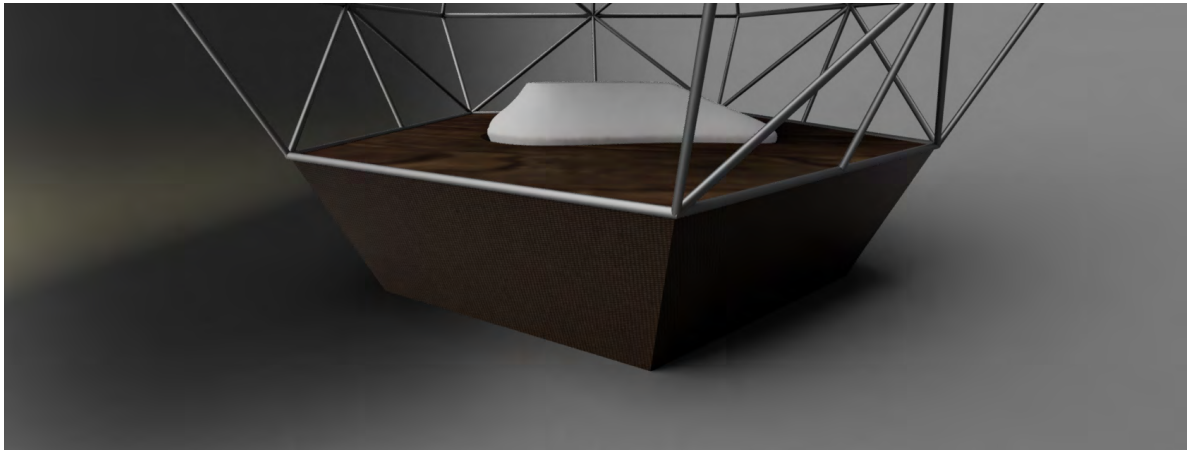


CAD RENDERS

The design was then made into a CAD model of the product which was created using Autodesk Fusion 360.





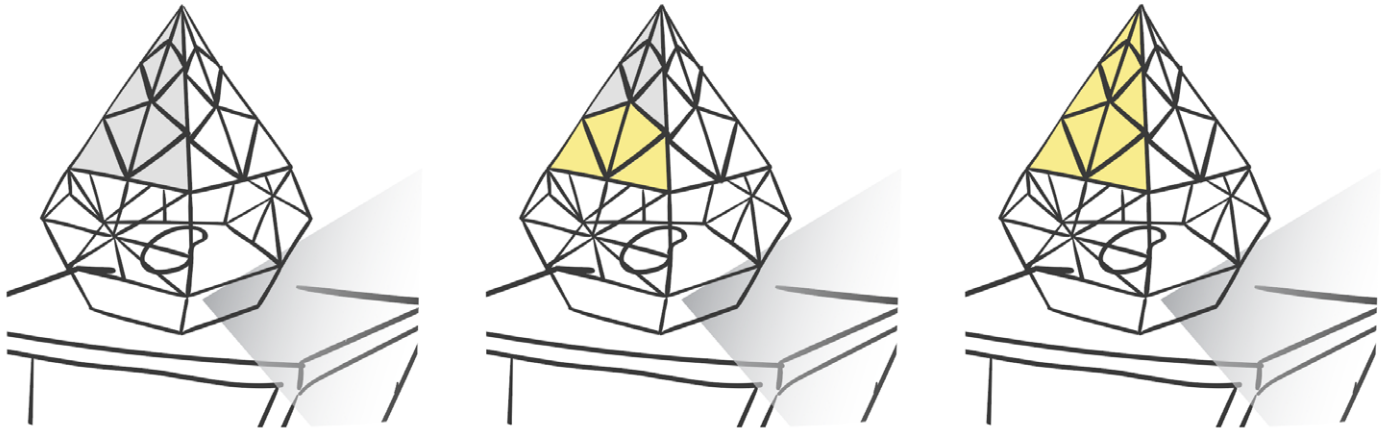


MOTIVATING LIGHTING

LAMP FEATURES #1

The light from the tiles on the lamp, which begin to light up, shows them the instantaneous action of what they are doing. The intensification of the light represents the user breaking free from the cage and conquering their fear.

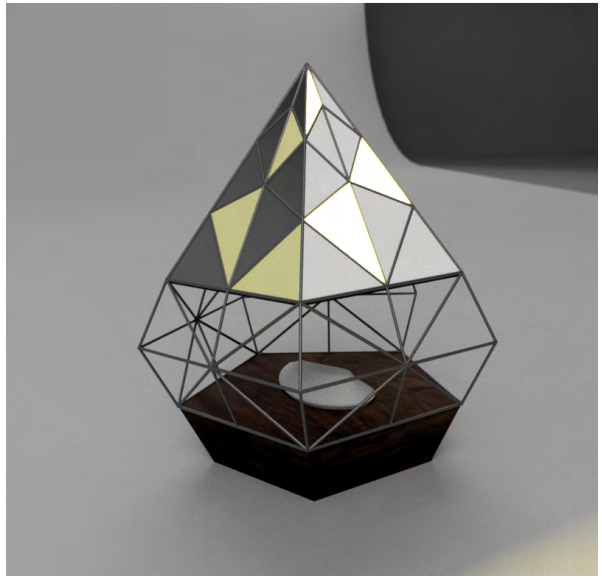
Light slowly starts to increase



Before the experience starts

During the experience

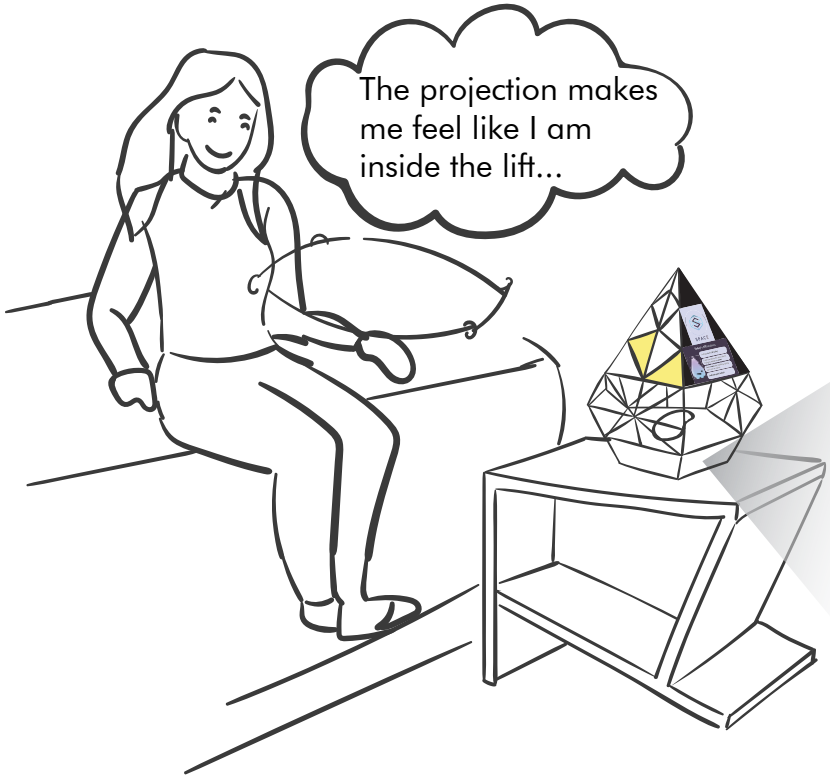
End of experience



PERSONALISED ENVIRONMENT EXPERIENCE

LAMP FEATURES #2

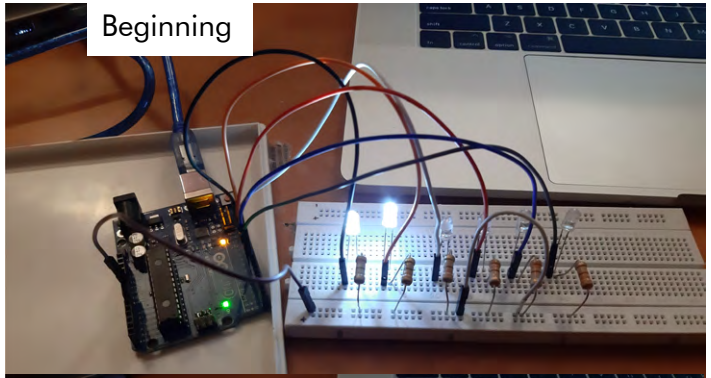
Based on the users answers from the onboarding, the app identifies the various triggers that the user is afraid of facing. These triggers are then projected from the lamp during the mind fitness session.

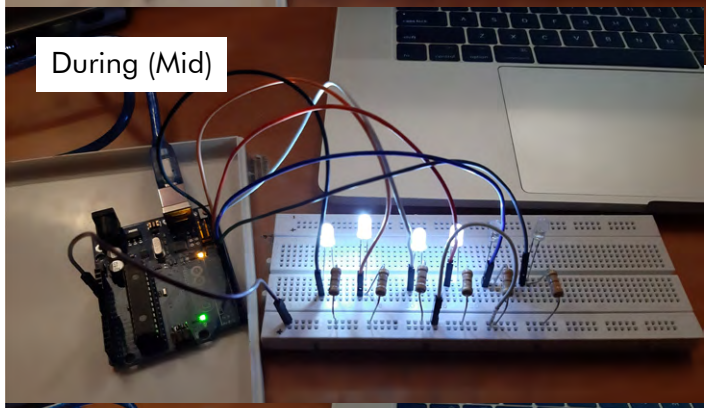


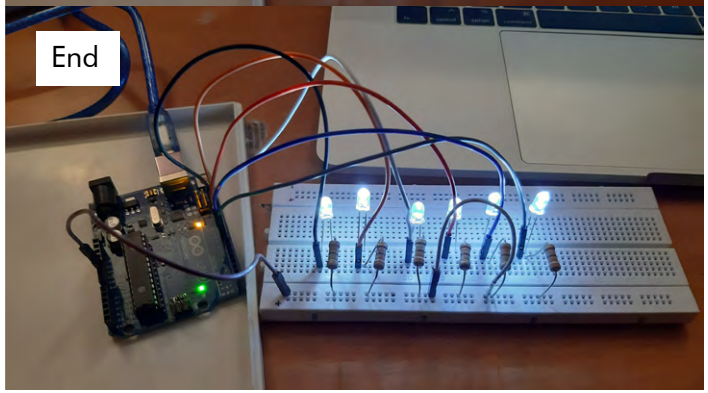
Some triggers:
Lifts
MRI Machines
Metros/Trains
Public washroom
Crowded room
Car washes
Revolving doors
Store dressing rooms
Tunnels

WORKING PROTOTYPE

LAMP COMPONENTS


Beginning


During (Mid)

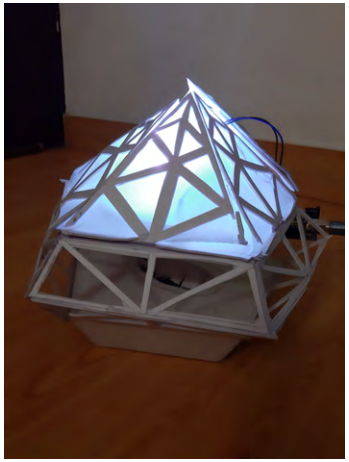

End

Components used: shoebox and magnifying glass

As the actual projector was not available in stores, a homemade projector was created to try the projection feature. Though the outcome looks dark, the actual projection will be clear and light.

Components used: white LED and Ardunio UNO

The LED lights were coded in such a way that each light would switch on after a delay to simulate the concept of the tiles lighting up slowly during the session.



NODE 02

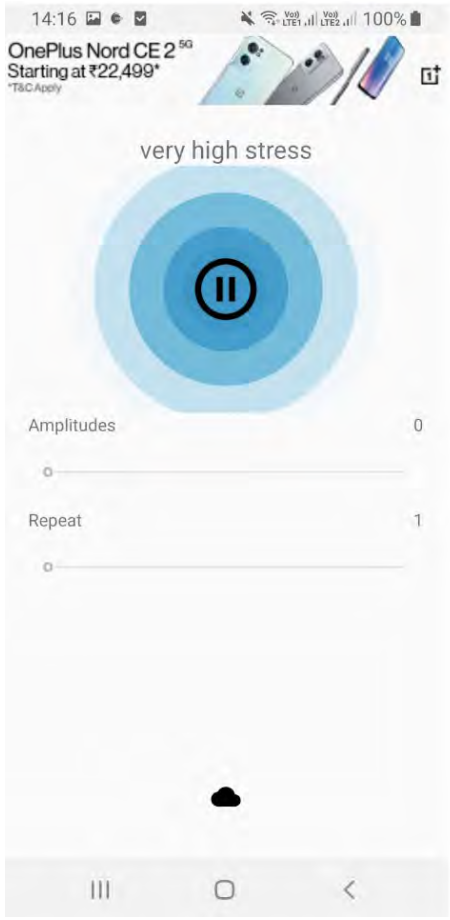
STONE

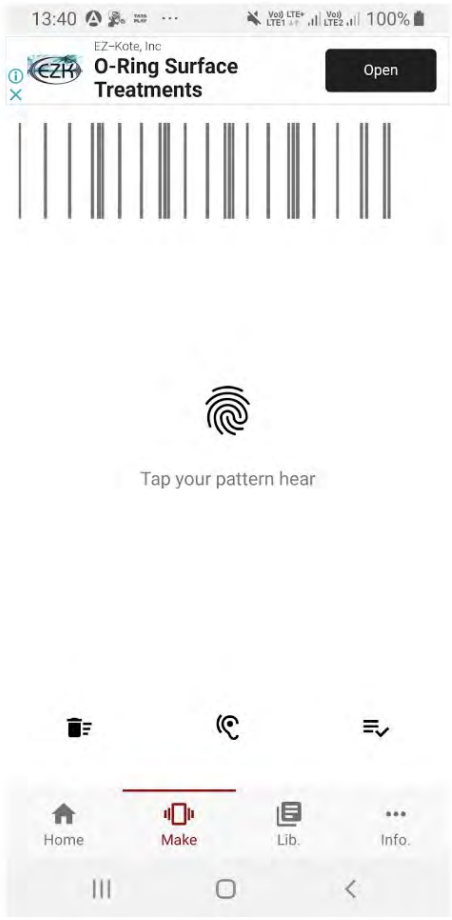
PHYSICAL PROTOTYPES

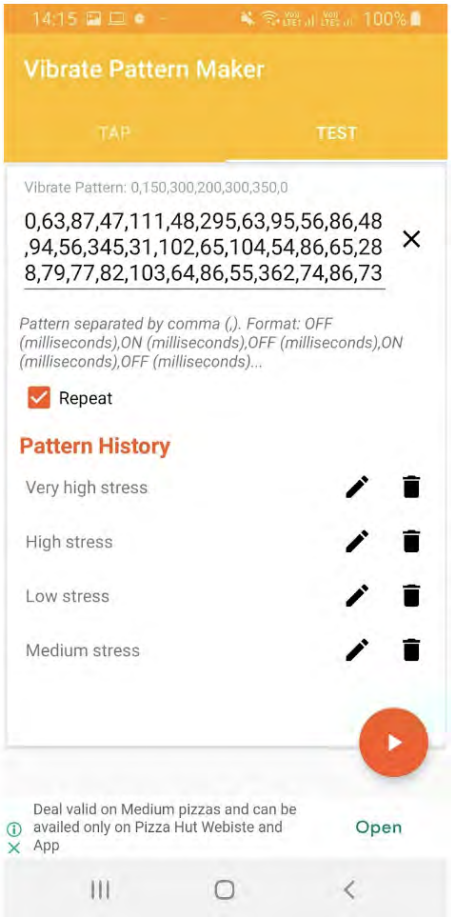
The prototype of the stone was created using paper clay as it was light and easy to mould into the desired form. The actual material would be of silicone which is soft and comfortable to hold.

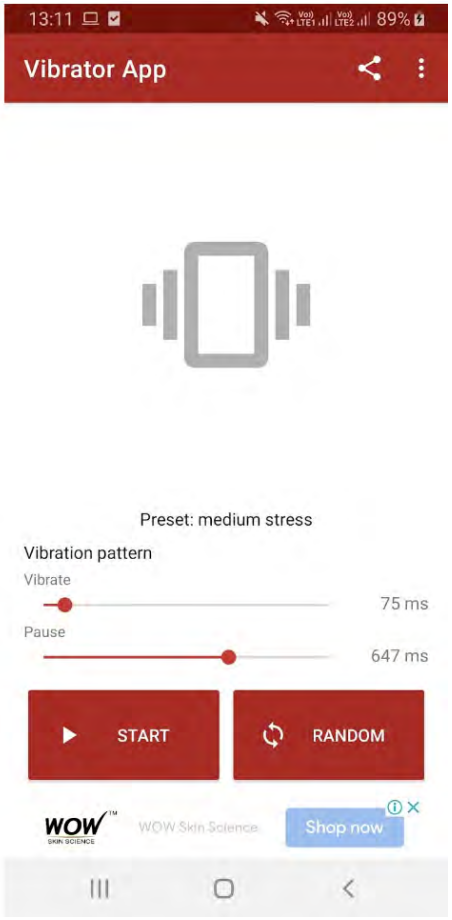
WORKING PROTOTYPE

STONE VIBRATION









Varius vibration frequencies were tested out. Soft pulsating vibrations which resemble that of a heartbeat were preferred.

USER TESTING INSIGHTS

LAMP AND STONE - HIGH FIDELITY PROTOTYPE

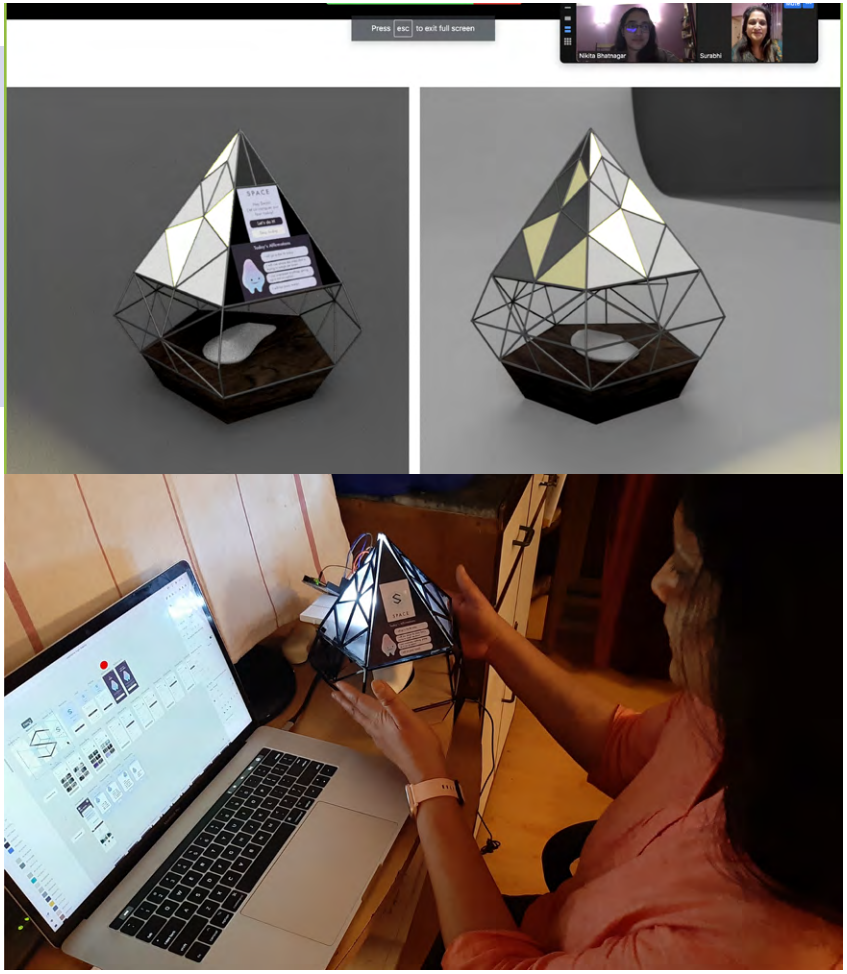
No. of Participants: 7

What worked

- 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

What did not work

- 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

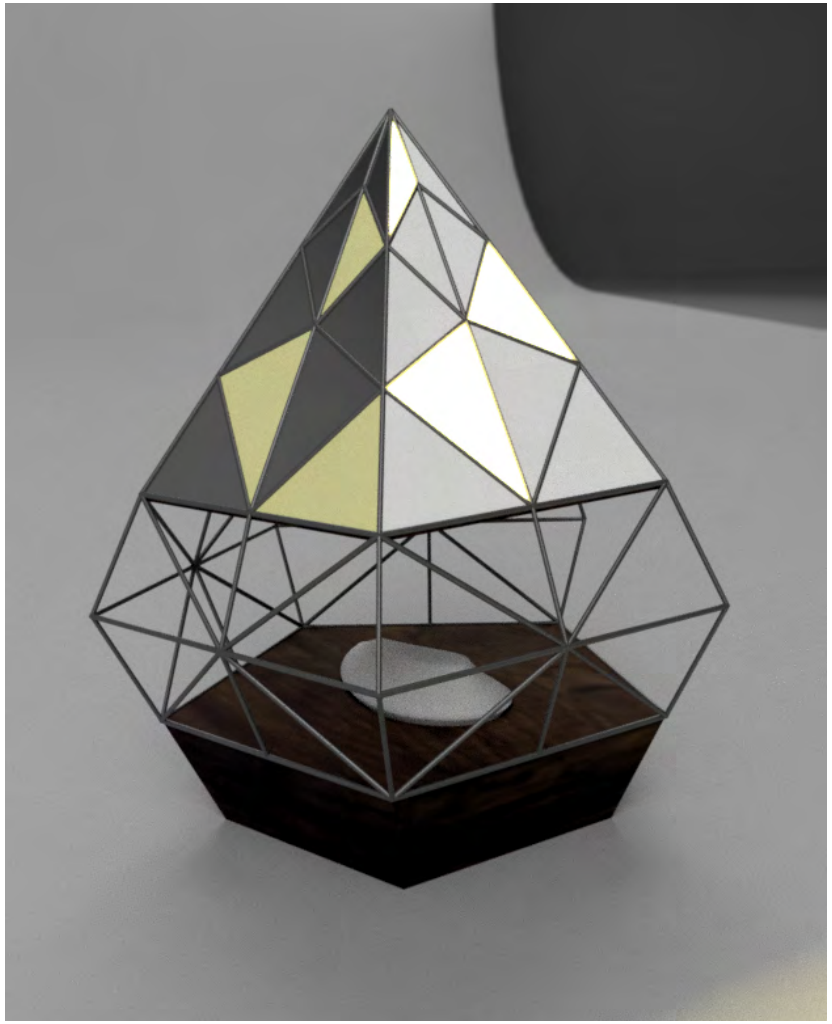
Assist in overcoming phobia

Motivation to use

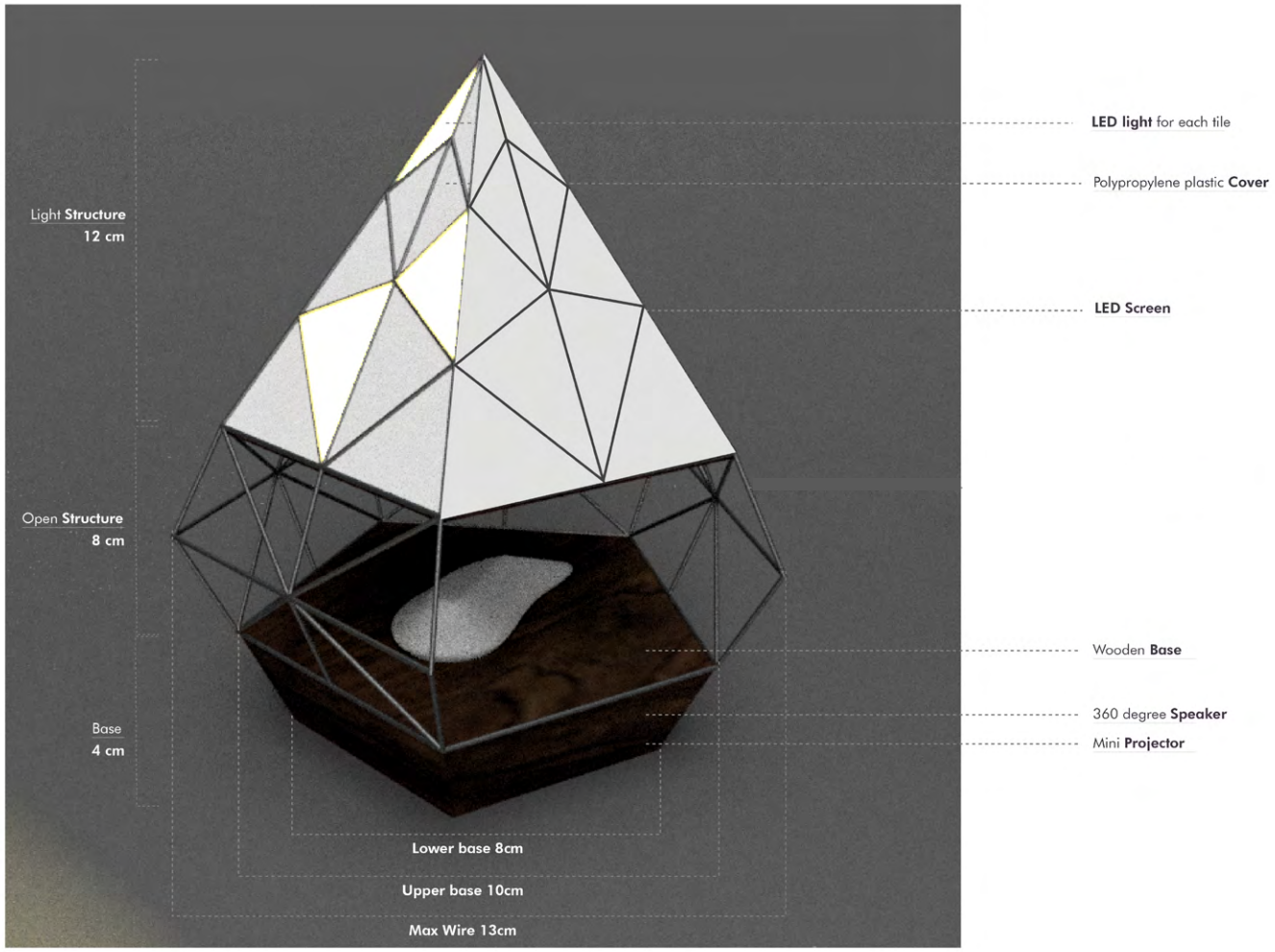
Learnability

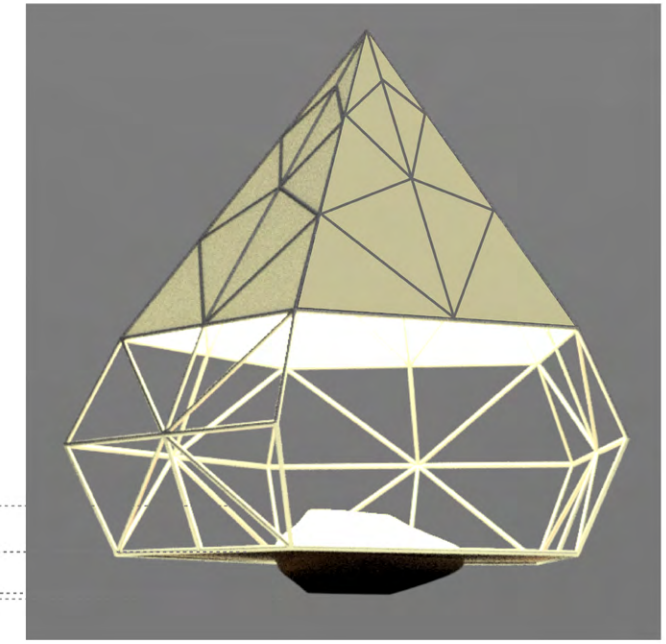
THE FINAL FORM

Based on feedback, the decision to omit the LED screen from the lamp was taken. The following is the design.



PRODUCT ARCHITECTURE





NODE 03

MOBILE APP

APP OVERVIEW

The key features of the app are Conquer it, Knowledge, Connect and Aura. Along with these, the onboarding and the positive affirmations play an important role as well. The following table explains the functions of the app

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.

Styleguide

01. VISUAL IDENTITY

SPACE

02. TYPEFACE

Aa

Futura

03. STYLES

Futura Book

Futura Light

Futura Medium

Futura Bold

04. COLOUR PALETTE

PRIMARY COLOUR

#58495f

SECONDARY COLOURS

#D5D7ED

#C7C7C7

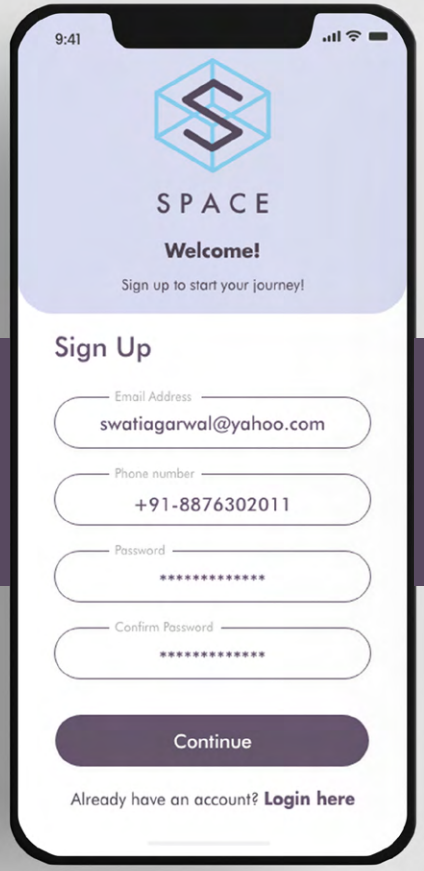
ACCENT COLOUR

#93D1ED

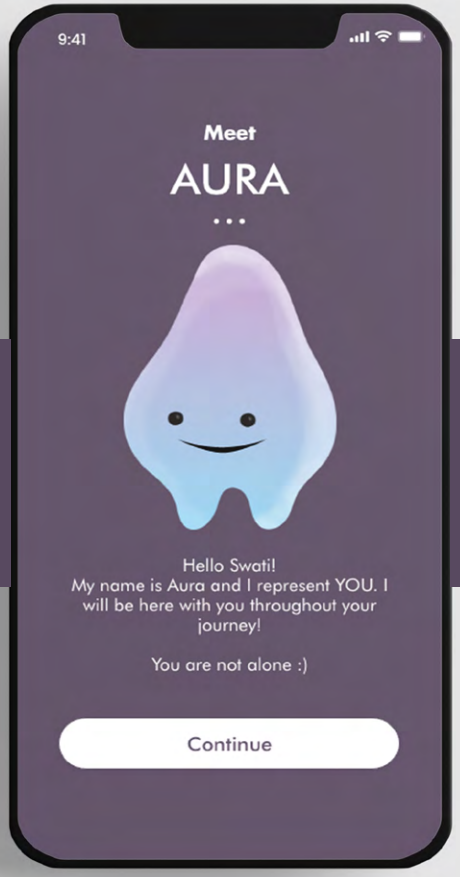
ADOBE XD SCREENS

APP - HIGH FIDELITY PROTOTYPE

SPLASH SCREEN

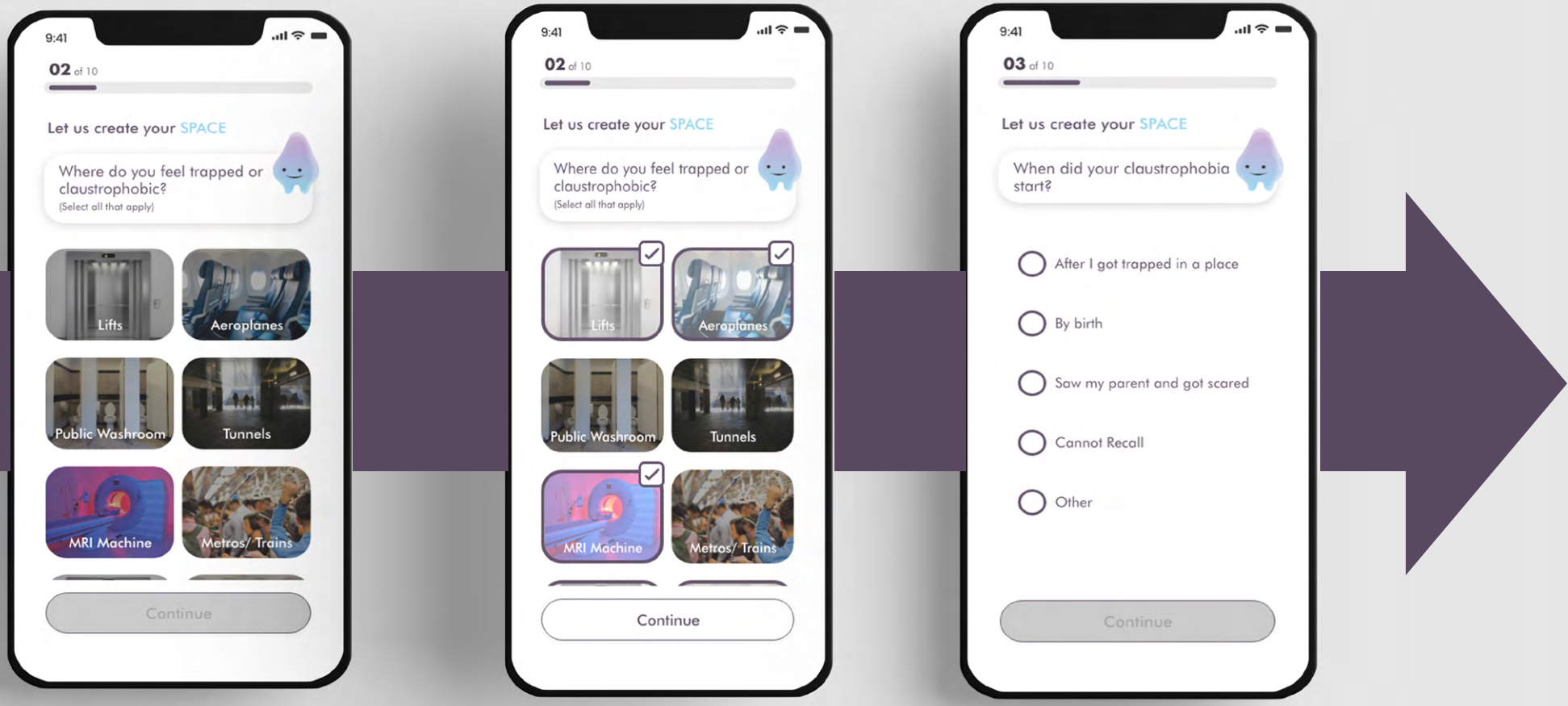


SIGN UP



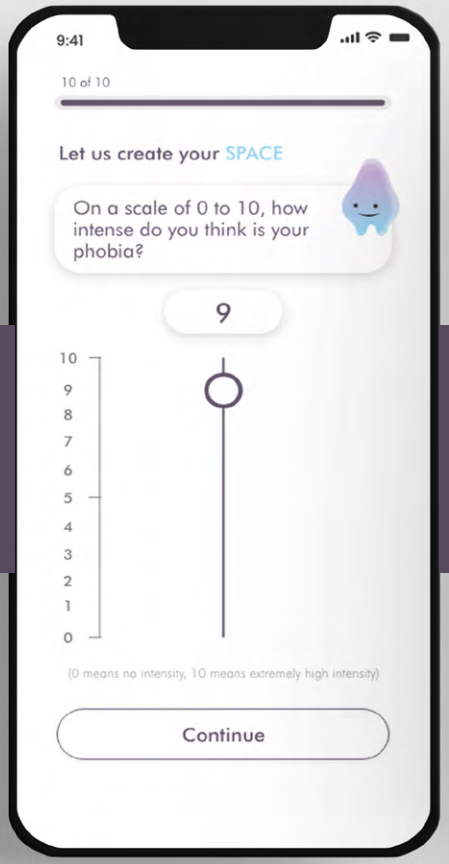
INTRODUCING AURA

a virtual representation of the user throughout her journey to keep her real identity private

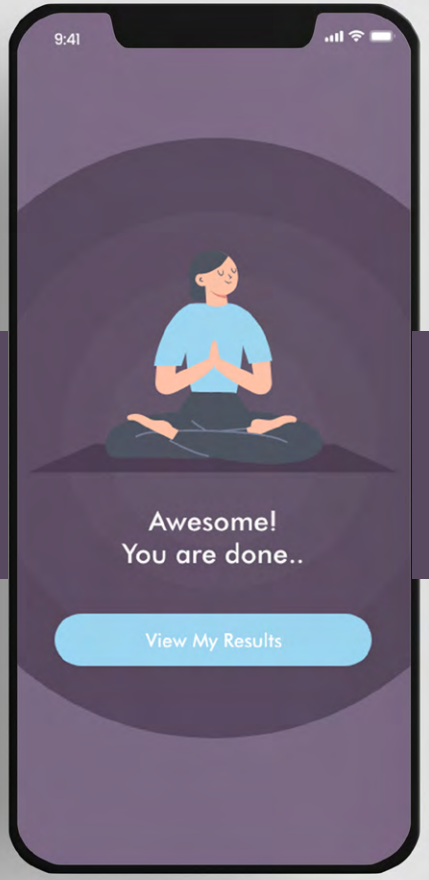


ONBOARDING QUESTIONS JOURNEY

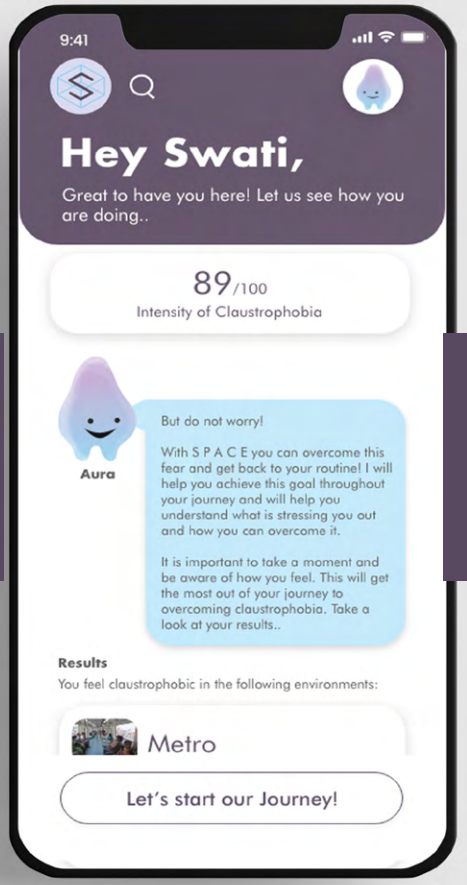
Helps the app to provide customised actions later



ONBOARDING QUESTIONS



WAITING SCREEN

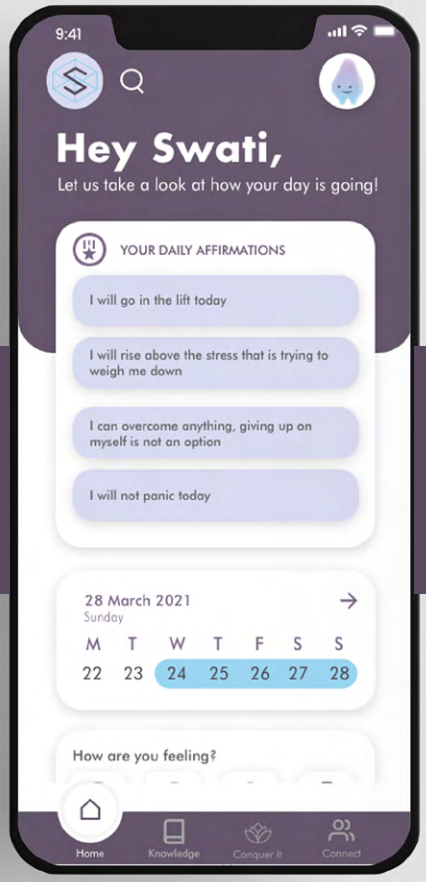


USER'S RESULTS

based on user's answers, a report showcases the intensity of the phobia as well as other insights which will help her in overcoming claustrophobia

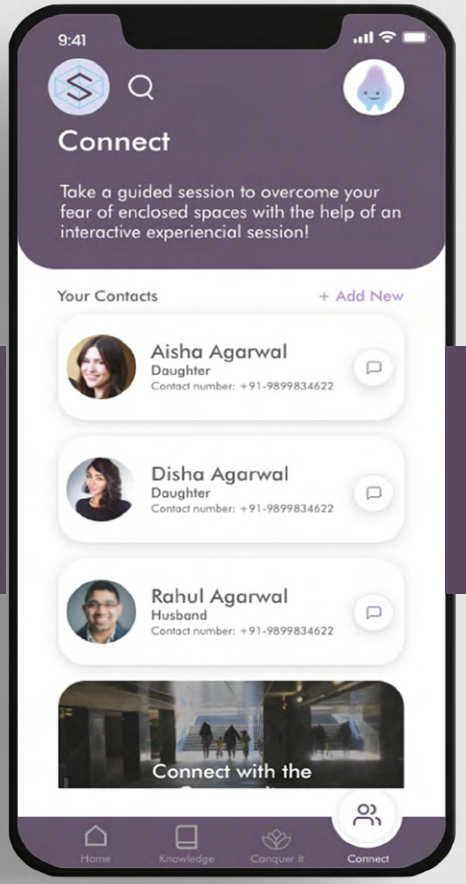
POSITIVE AFFIRMATIONS BY AURA

these are shown everyday to the user



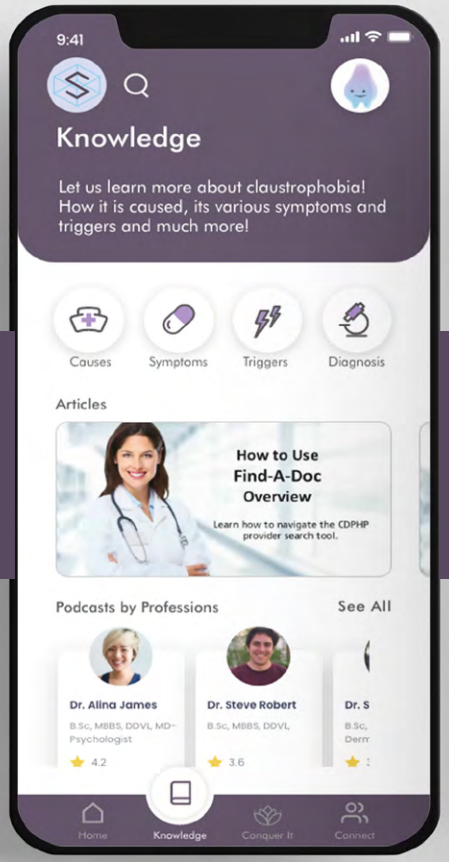
HOMEPAGE

showcases the key actions for the user to take



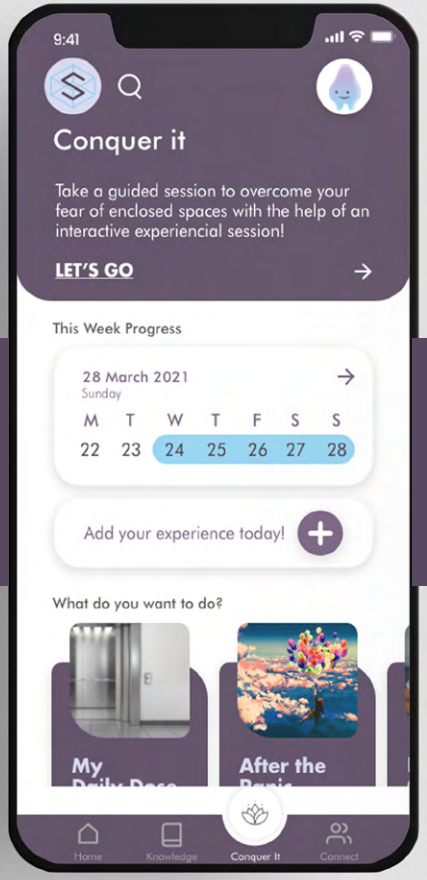
CONNECT

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



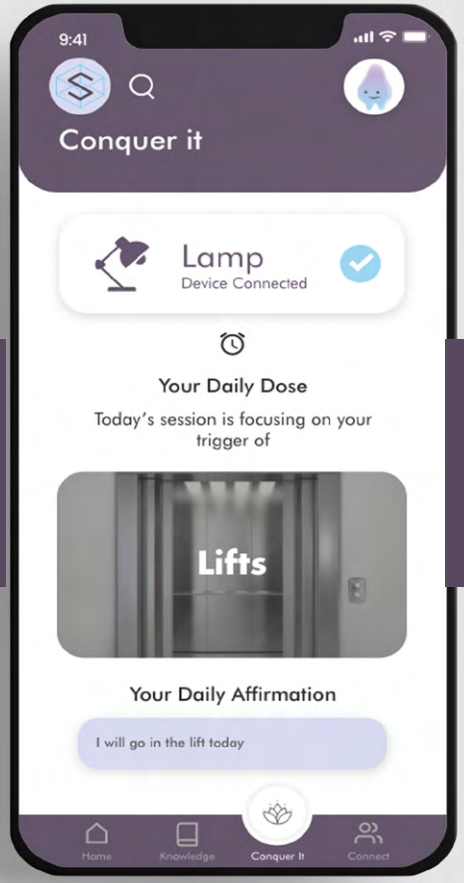
KNOWLEDGE

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)

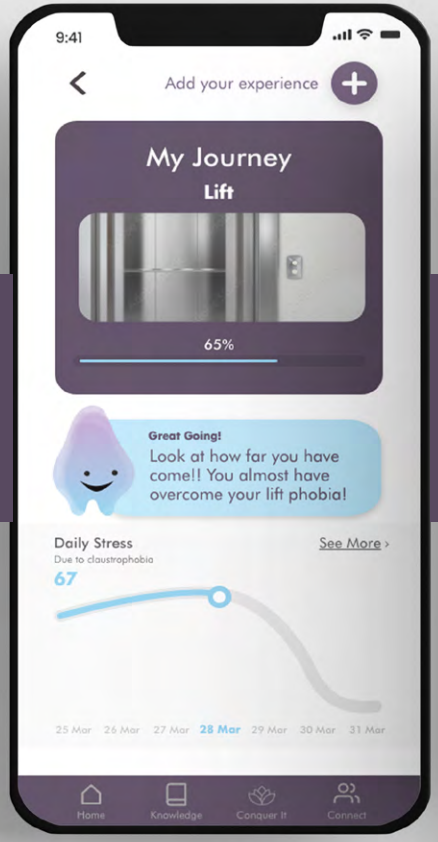
HYPNOSIS SESSION 4 STAGES

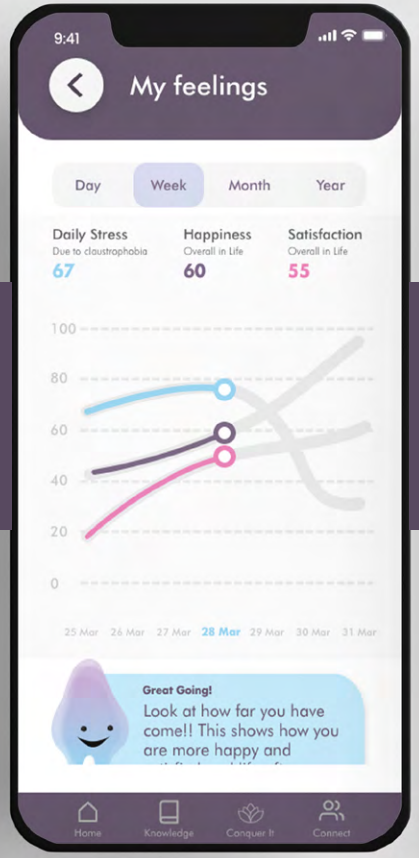
ABSORB THE ATTENTION
STAGE 1

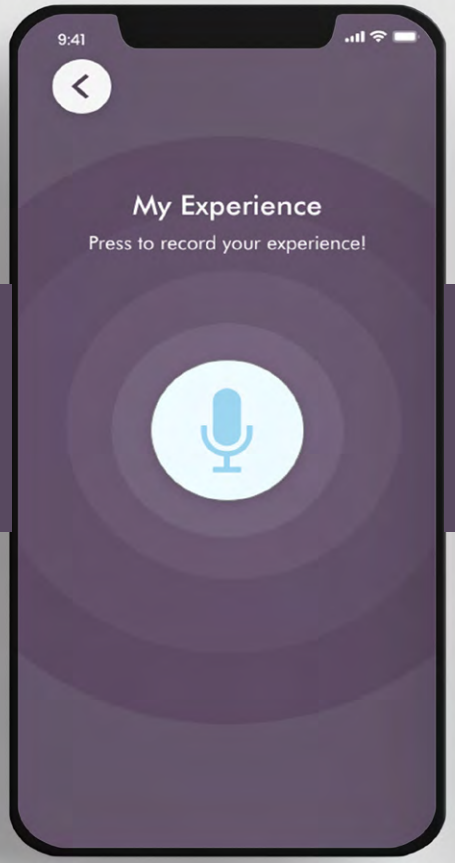
BYPASSING CRITICAL FACTOR
STAGE 2

ACTIVATE SUBCONSCIOUS RESPONSE
STAGE 3

THE DESIRED OUTCOME
STAGE 4







JOURNEY PROGRESS OF EACH TRIGGER LOCATION

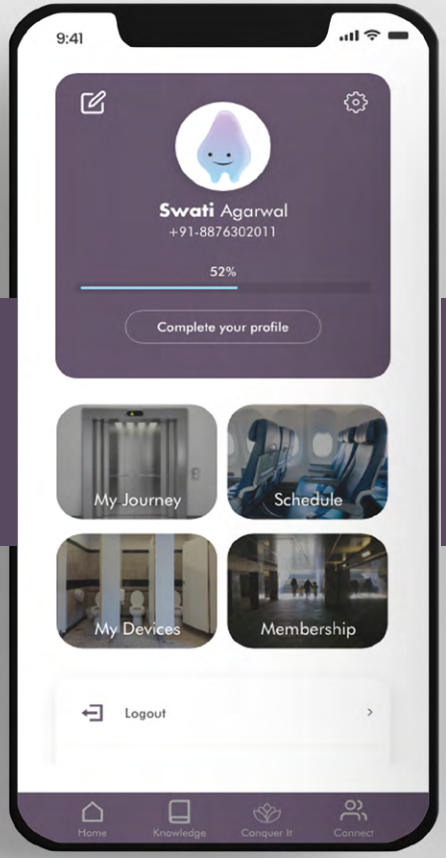
each trigger has separate journeys which the user can view (Lift, MRI, Trains etc). Triggers based on onboarding data

HIGHLIGHTING USER FEELINGS

in accordance to the phobia to showcase the impact on the user

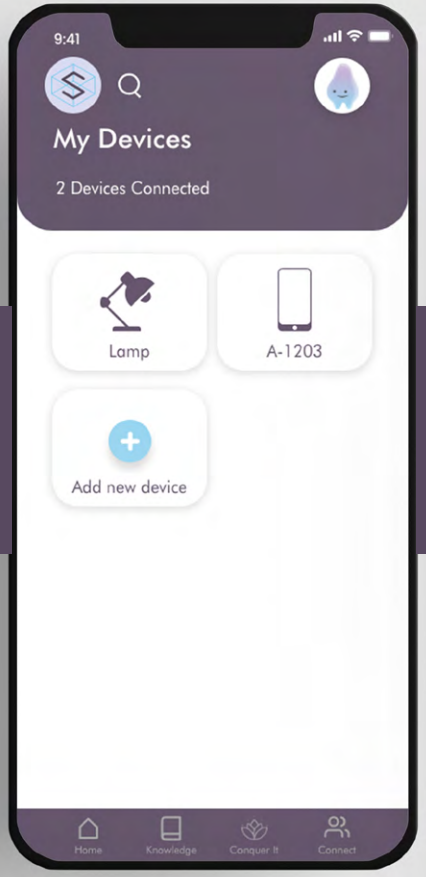
USER EXPERIENCE

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



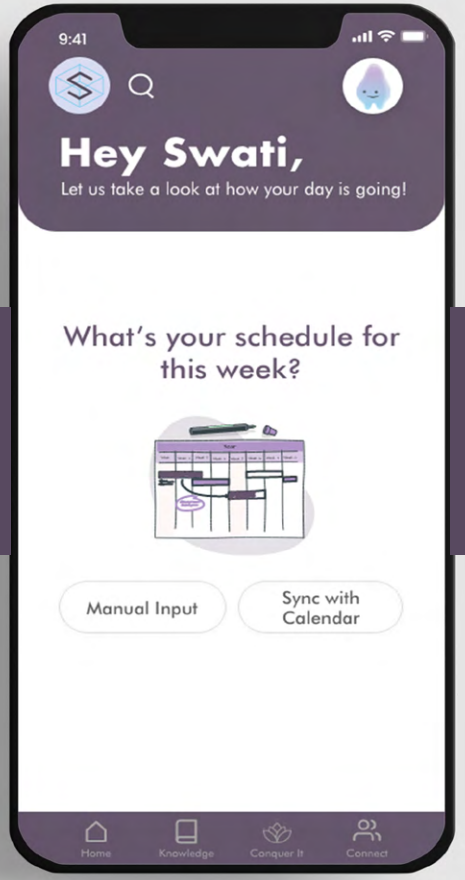
USER PROFILE

sub tasks can be viewed from here



DEVICES

pairing and unpairing of devices can be controlled



SCHEDULE

if the user wants to add her daily tasks for more enhanced and personalised experience she cand add from this page

USER TESTING INSIGHTS

APP - HIGH FIDELITY PROTOTYPE

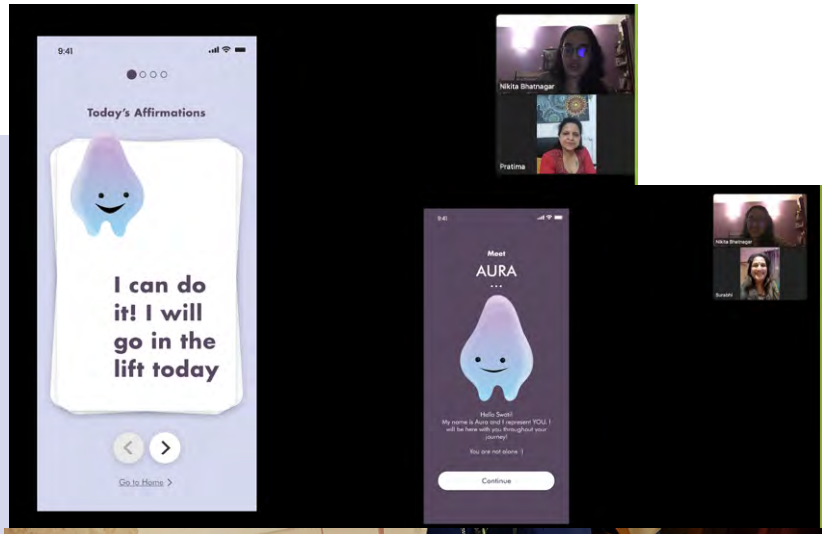
No. of Participants: 7

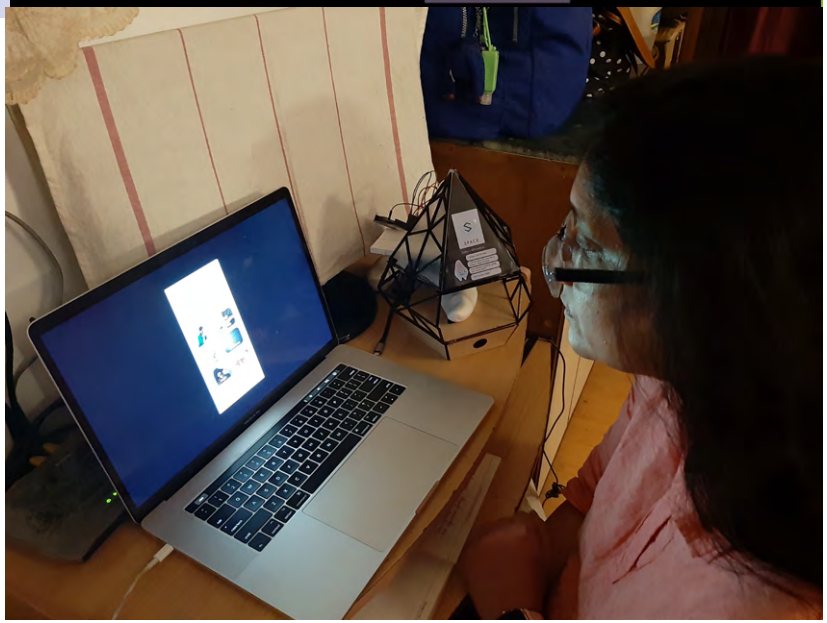
What worked

- Appreciated the anonymous feel through Aura of connecting with the community
- Really liked the concept of 'Aura'
- Users found the onboarding very nice as they felt someone took effort in getting to know them

What did not work

- 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

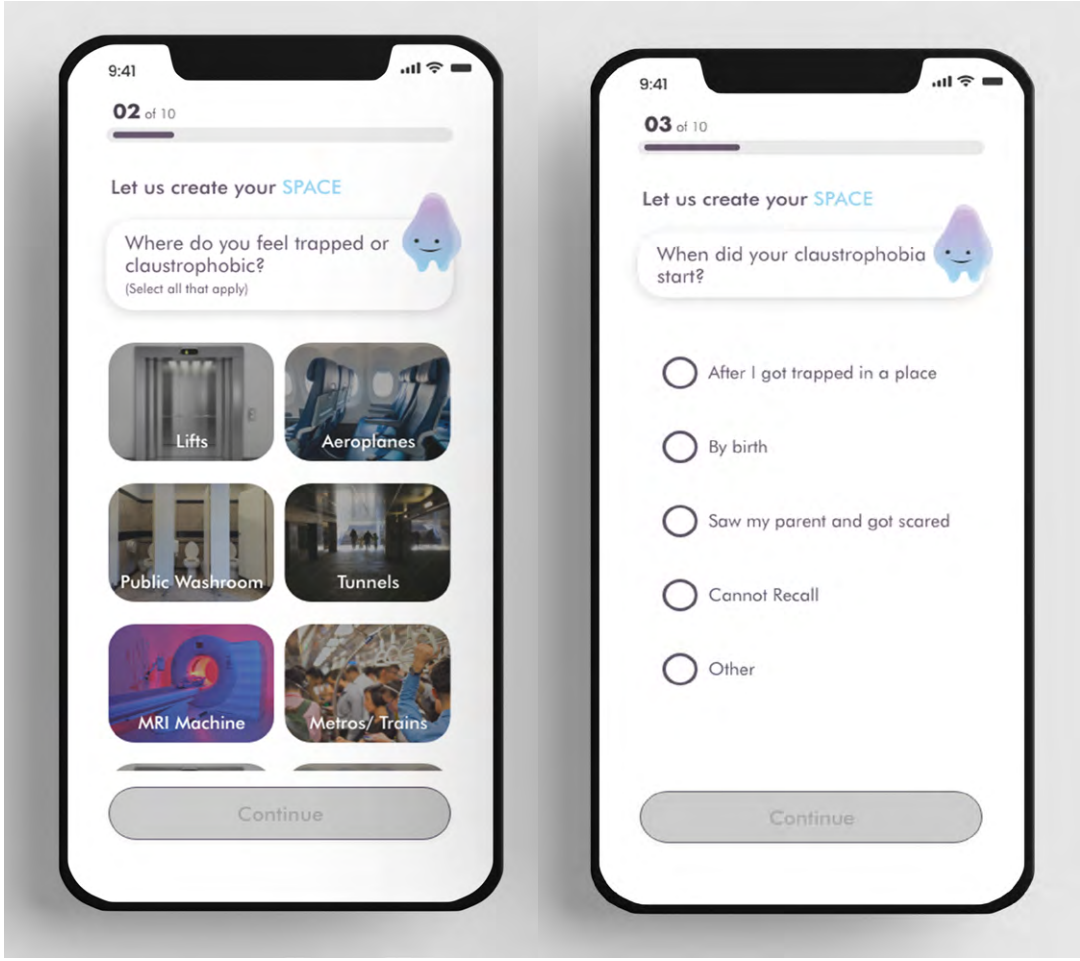
Motivation to use

Learnability

ELABORATE ONBAORDING

APP FEATURES #1

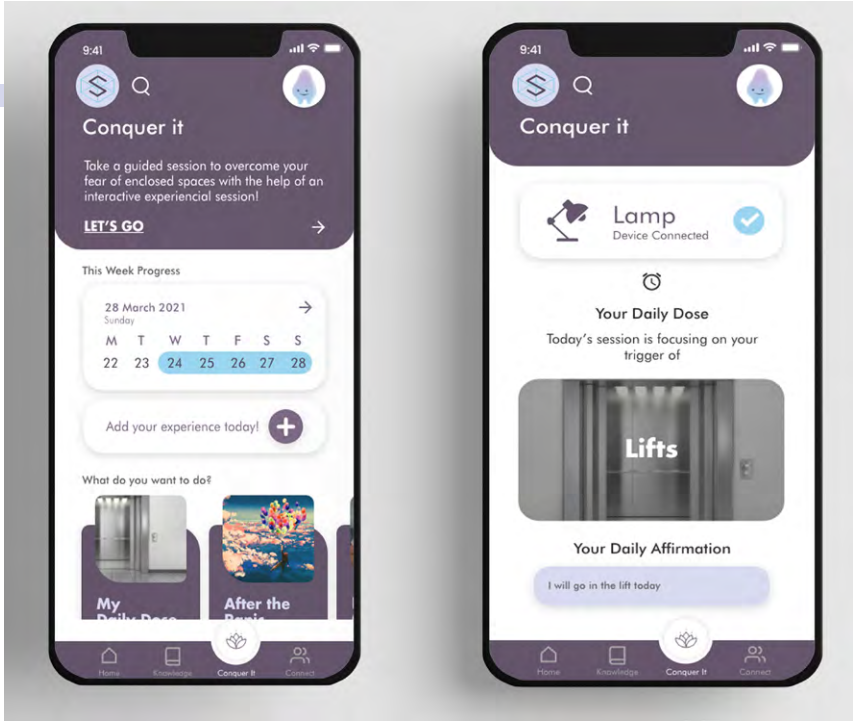
The onboarding enables the app **algorithm to learn about the users phobia** so that it can provide **customised suggestions** for each user to target one's **subconscious mind** effectively.



DAILY MIND FITNESS SESSION '4 STAGES'

APP FEATURES #2

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.



4 stages of hypnosis:

1. Stage 1 – Absorb Attention
2. Stage 2 – Bypass the Critical Faculty
3. Stage 3 – Activate an Unconscious Response
4. Stage 4 – Leading the Unconscious To Desired Outcome

VIRTUAL CHARACTER 'AURA'

APP FEATURES #3

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.

JOURNEY ANALYSIS

APP FEATURES #4

Data is analysed and represented in visual format for the user to see her **progress**

- Stress, happiness and satisfaction levels are mapped based on how the user feels and her experience
- Progress of each environment (lift, MRI, plane etc)

NODE 04

WEARABLE

ALERT ON HOMESCREEN

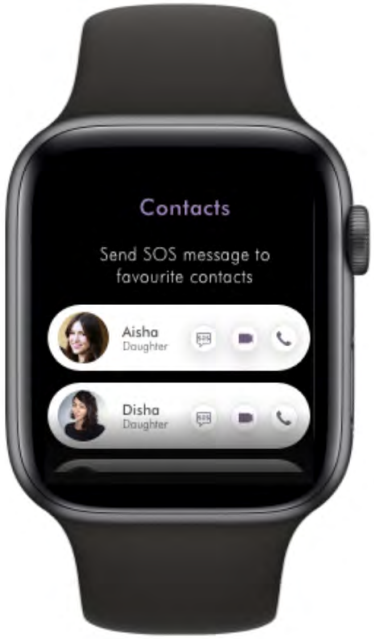
in case of increase in panic levels

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

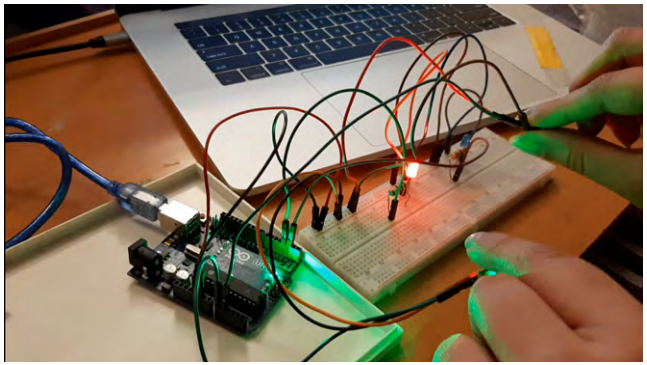
during a panic attack, distracting tasks can be performed

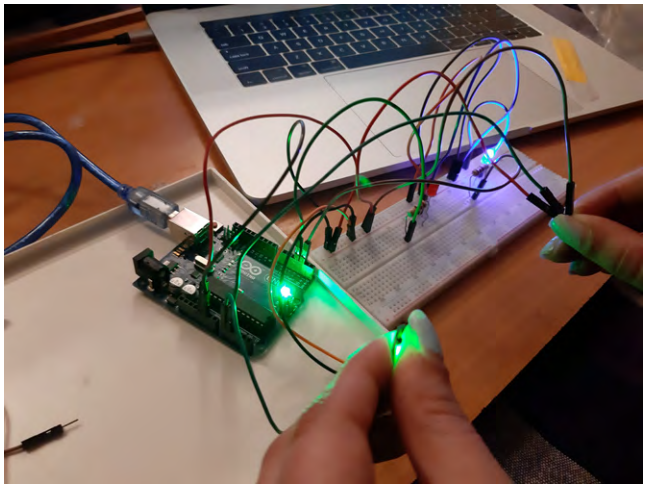
WORKING PROTOTYPE

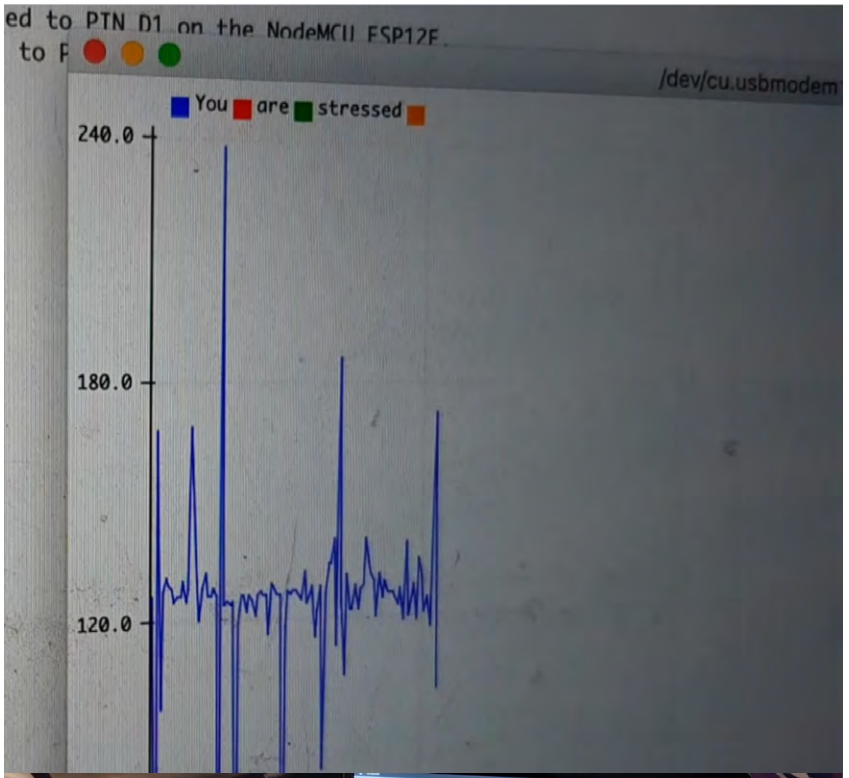
WEARABLE STRESS DETECTION

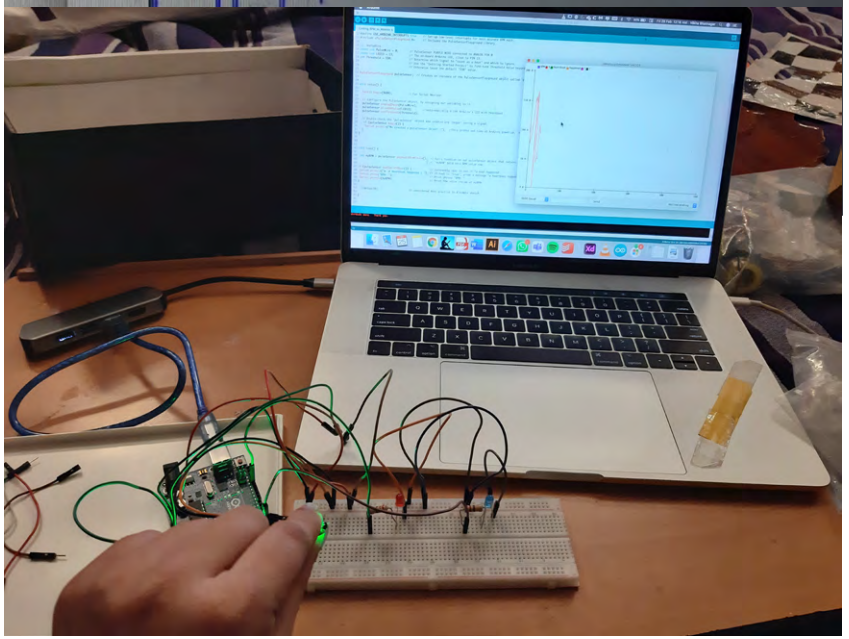
Components used: green and blue LED, pulse sensor, temperature sensor

The LED lights were coded in such a way that the red light would turn or if the stress level was higher than the threshold value while also displaying 'you are stressed' on the monitor. Bue light indicated the normal value of stress.









USER TESTING INSIGHTS

WEARABLE - HIGH FIDELITY PROTOTYPE

No. of Participants: 7

What worked

- SOS message going immediately in case of panic attack was one of the most appreciated feature
- Distracting games were nice

What did not work

- Strong, quick vibrations were not pleasant

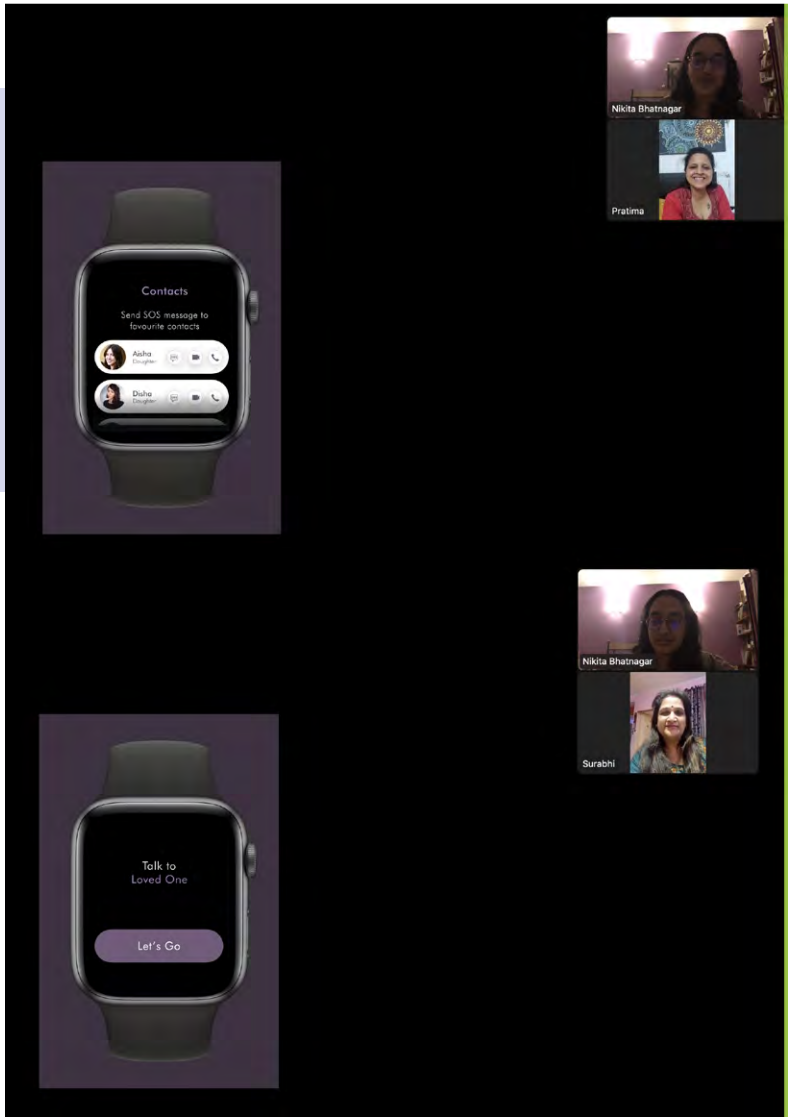
User Comments

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

Learnability



PANIC DISTRACTION

WEARABLE FEATURES #1

The wearable detects users stress levels and when it is high, the wearable prompts distracting activities for the user to perform. This would help deviate the mind of the user from the panic state.

BUBBLE POP

BREATHING EXERCISES

SPOT THE DIFFERENCE

SOS MESSAGE TO FAMILY

WEARABLE FEATURES #2

The wearable sends an sos message to the added contacts when the user is having a panic attack. This would help the loved ones be aware of the situation and take any action if needed. This would be helpful as the users are not in the state of mind to take any decision and hence the message is sent.

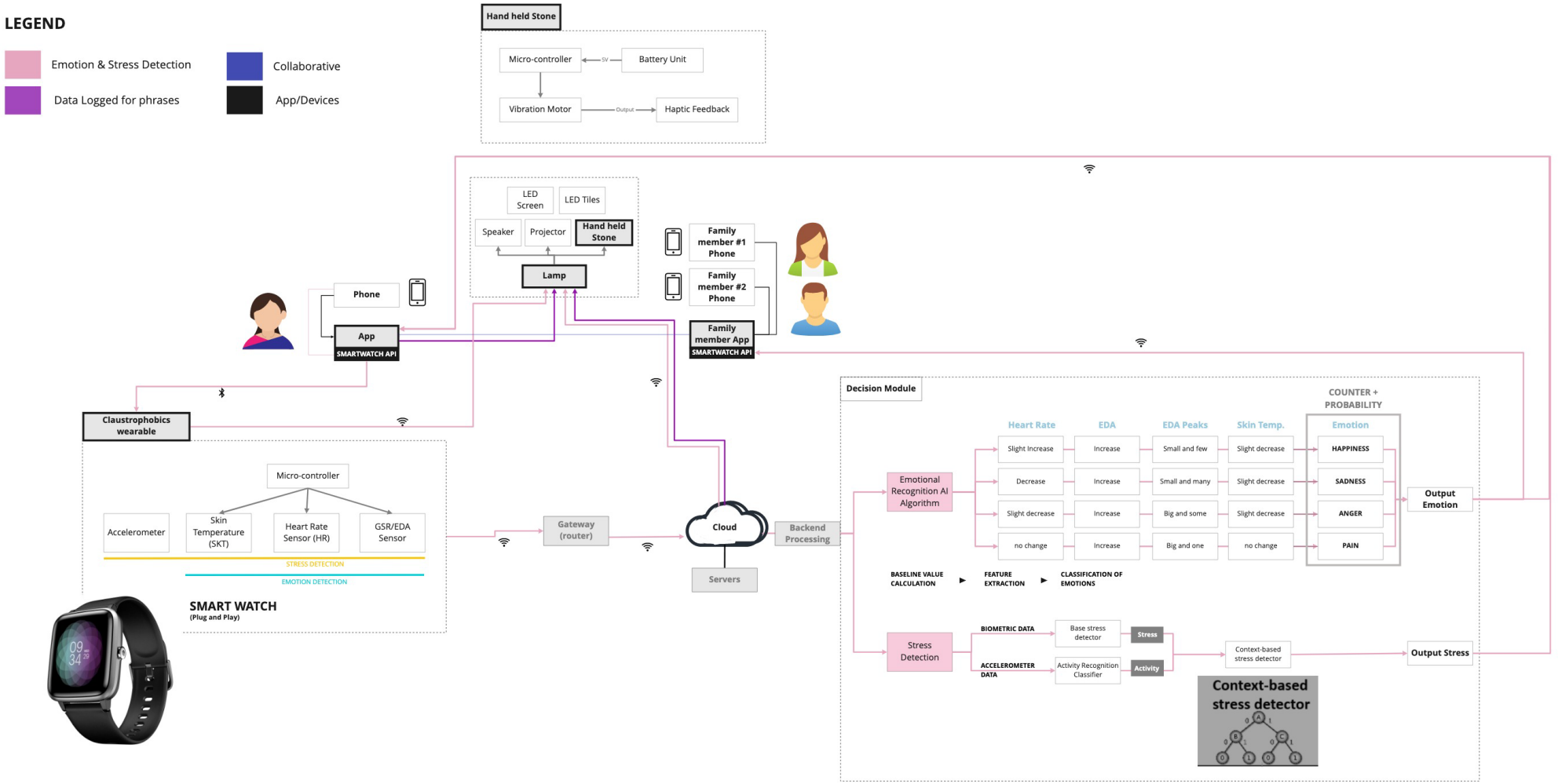
STRESS AND EMOTION TRACKING

WEARABLE FEATURES #1

Stress and emotion levels of the user are tracked and this helps provide more personalised data to the user.

TECHNOLOGY PLAN

FINAL CONCEPT - SPACE



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.

BUSINESS MODEL

FINAL CONCEPT - SPACE

BUSINESS MODEL CANVAS

KEY PARTNERS

1. Psychologists
2. Therapists
3. Experts in field of Claustrophobia
4. Google AdSense
5. Investor
6. Smartwatch brands

KEY ACTIVITIES

1. Experiencial Lamp
2. Targetting each environment where fear triggers
3. Progress Tracking
4. Wearable for panic distraction
5. Personalised therapy curation based on user feedback

KEY RESOURCES

1. Curated content for each environment
2. Technology infrastructure (AI - aura tracking)
3. Relationship with SME
4. Hardware/wearables/product

VALUE PROPOSITION

1.Targeting subconscious mind to eradicate the fear from their mind
2. AURA - conversational UI and virtual representation of users progress
3. Convenience and safe environment
4. Community building
5. Daily affirmations personalised for each user
6. Nudge family to be empathetic and aware of the phobia

CUSTOMER RELATION

1. Having a trustworthy and relaxing tone in the system.
2. Providing additional resources and connect for assistance if required

CHANNELS

1. App (App store, Google playstore)
2. Social Media

CUSTOMER SEGMENT

1. Claustrophobic women
2. Family members
3. Psychologists
4. Therapists
5. All claustrophobics

COST STRUCTURE

1. App development
2. Marketing strategies
3. Content curation
4. Product designer and manufacture company
5. Customer service

REVENUE STREAMS

1. Affiliate marketing
2. Freemium model (free basic membership + subscription premium membership)
3. Sale of Experiential lamp
5. Tie-ups with existing smartwatch brands

Total cost = Rs 2199/-
(excl. wearable)

VALUE TO USERS

- **Better understanding** of claustrophobia
- Exploring **safe ways to target subconscious mind** and overcoming the fear
- **Strengthening bonds** with loved ones
- Living an **independent life** without any hindrances

EPILOGUE

Claustrophobia is the fear of enclosed spaces. Although this phobia is not a disability, it can have a significant impact on job opportunities, career growth, hobbies, and personal and professional relationships. Claustrophobia can cause feelings of embarrassment and depression, as well as a loss of self-confidence and self-esteem. Therefore, solving this problem would contribute to current and future problem-solving issues. Existing solutions do not address problems such as lack of knowledge of each individual's triggers and symptoms and coping mechanism in the event of a panic. Users' inability to talk about their phobias makes diagnosis difficult and treatment options limited, leaving them emotionally weak to deal with their fear. This study however focuses on the target group of claustrophobic women of the age 40-60 years only, as they are the most susceptible to this phobia. For the expansion of scope, the male audience of 40-60 years along with other age groups can be incorporated as well.

To have a genuine impact, an attempt should be made to appeal to the desires of the users while also taking into account social and behavioural variables. The proposed solution does so, as it seeks to strengthen the users' minds by targeting their subconscious minds so as to eradicate the fear from its core. It also aims to build a sense of community amongst the user to nudge them into sharing their thoughts without hesitation. Through Aura, a virtual representation of themselves they can share their thoughts anonymously without having to think about what people may say and feel. The lamp attempts to showcase to the user that they can overcome this phobia which is represented by the shape (i.e. cage) of the lamp by doing mindful exercise. The light from the tiles on the lamp, which begin to light up, shows them the instantaneous action of what they are doing. The intensification of the light represents the user breaking free from the cage and conquering their fear. This solution tries to bridge the gap by making the family aware of the situation and be empathetic.

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