Sanchita Kamath

PORTFOLIO

PORTFOLIO

At a glance...

ABOUT ME

PUBLICATION JOURNEY
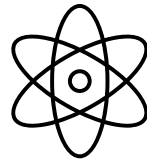
CLEARMINDS

DIYA VOCAL BIOMARKER

ROLE OF UPBRINGING, EDUCATION, CULTURE, AND SOCIETY IN SHAPING OPINIONS – A STUDY

OPTIMA

M. HOSTELS

LEARNING THROUGH TECHNOLOGY AS A TOOL TO ENHANCE DEVELOPMENT OF SKILLSET IN AUTISTIC FEMALES
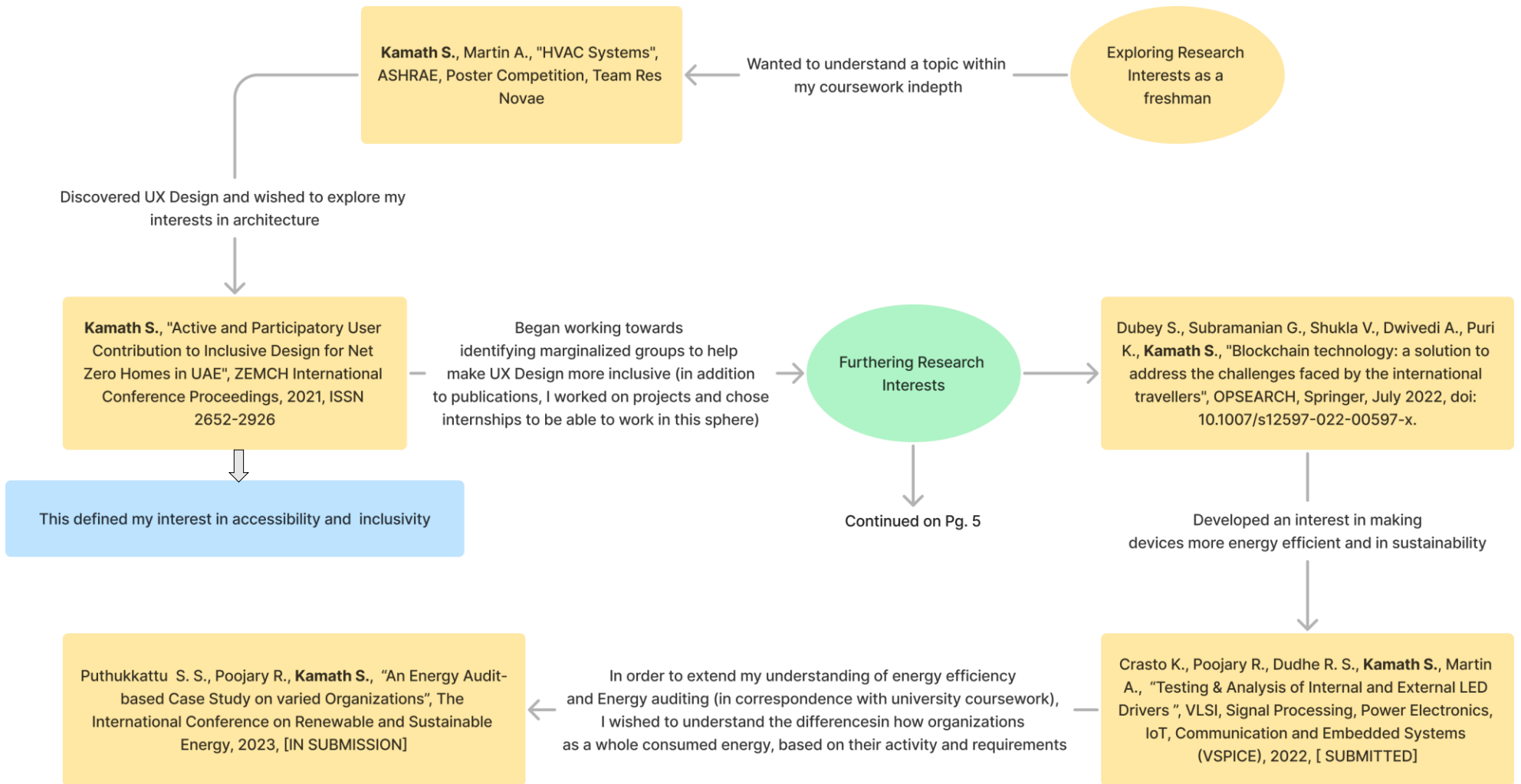
About me

I am a student researcher, focusing my studies on the equitization of society and workforce through development of accessible and inclusive technology. Users are the star of a process and I wish to systemize systems which encompass value-centered design. Specifically, I want to work towards amelioration of marginalized groups and underserved communities, allowing them utilize equal opportunity and foster self-reliance and dependability.

Throughout the tenure of my undergraduate studies, I have attempted to assimilate knowledge and experience, enabling me to produce and design accessible technology. I aspire to go into the depths of empirical research and understand how Behavioural Science and Technology can meet one another, and what trade-offs shall be systemized.

I have worked as a UX Designer and Engineer to understand accessibility, inclusion and automation, and how they can impact a human life. Human Emotions are what drives a system, and my work has majorly dealt with the engagement and socializing processes of marginalized communities with their environment. I believe that systems must have the ability to learn and perceive spoken and unspoken needs of the users to be able to understand how they can reduce the user's cognitive load and remain 'invisible' as part of a person's life and lifestyle.

Further, I intend to work towards making systems responsive and trustworthy, so that users are able to provide correct information stress-less, to derive accurate context and learning.

Publication Journey

Exploring Research Interests as a freshman

Wanted to understand a topic within my coursework indepth

Kamath S., Martin A., "HVAC Systems", ASHRAE, Poster Competition, Team Res Novae

Discovered UX Design and wished to explore my interests in architecture

Kamath S., "Active and Participatory User Contribution to Inclusive Design for Net Zero Homes in UAE", ZEMCH International Conference Proceedings, 2021, ISSN 2652-2926

This defined my interest in accessibility and inclusivity

Began working towards identifying marginalized groups to help make UX Design more inclusive (in addition to publications, I worked on projects and chose internships to be able to work in this sphere)

Furthering Research Interests

Dubey S., Subramanian G., Shukla V., Dwivedi A., Puri K., **Kamath S.**, "Blockchain technology: a solution to address the challenges faced by the international travellers", OPSEARCH, Springer, July 2022, doi: 10.1007/s12597-022-00597-x.

Developed an interest in making devices more energy efficient and in sustainability

Crasto K., Poojary R., Dudhe R. S., **Kamath S.**, Martin A., "Testing & Analysis of Internal and External LED Drivers ", VLSI, Signal Processing, Power Electronics, IoT, Communication and Embedded Systems (VSPICE), 2022, [SUBMITTED]

In order to extend my understanding of energy efficiency and Energy auditing (in correspondence with university coursework), I wished to understand the differencesin how organizations as a whole consumed energy, based on their activity and requirements

Puthukkattu S. S., Poojary R., **Kamath S.**, "An Energy Audit-based Case Study on varied Organizations", The International Conference on Renewable and Sustainable Energy, 2023, [IN SUBMISSION]

Publication Journey

Furthering Research Interests

Wished to explore the research area of fuelling inspiration and innovation for user-centered design and learning

Kamath S., "Science Fiction Prototyping In English as a Design Thinking Tool to Inspire the Future", 4th Applied Linguistics and Language Teaching International Conference, March 2022, can view presentation here, manuscript accepted - to be published in October 2022.

Kamath S., Rahaman S., "Engagement of Senior Citizens in a Family Setting to Help Revive Dignity: A Study", 8th International Conference on Information and Communication Technologies for Ageing Well and e-Health, January 2022, doi: 10.5220/0011074800003188.

Developed an interest in Computer Vision and wished to extend the same to accessibility

Kamath S., Martin A., Poojary R., "Effectuating Communication for the Deaf and Hard-of-Hearing: An Ethnographic Review", The International Conference on Electrical and Computing technologies and Applications, 2022, [ACCEPTED]

Expanding Research Interests

As part of my Bachelor Thesis, I began thinking of how accessibility and Human Computer Interaction can become part of learning and engagement

Kamath S., "Evaluating Learning Abilities in children diagnosed with the Autism Spectrum Disorder through video-based instruction", Bachelor Thesis for Manipal Academy of Higher Education - Dubai Cmapus [IN PROGRESS]

Shaped my goals while pursuing Human Computer Interaction as a discipline

Anand A., Jimoh A., Poojary R., Dudhe R., **Kamath S.**, "Design and Testing of a Solar Powered Automated Fruit and Vegetable Sorter", VLSI, Signal Processing, Power Electronics, IoT, Communication and Embedded Systems (VSPICE), 2022, [SUBMITTED]

Wished to integrate Computer Vision with Automation and Electrical systems

Clear Minds

My Role
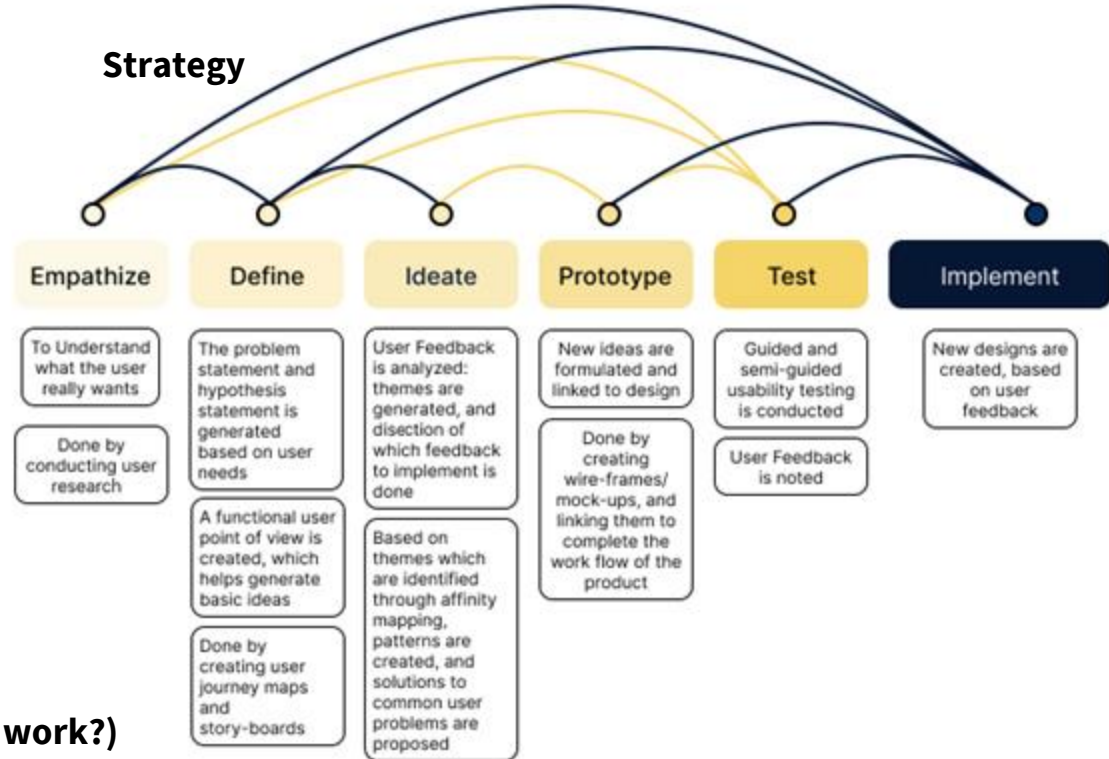User Experience Design, Prototyping, Visual Design

Practices
Human-Centered Design, Design Thinking

Why This Application
The COVID-19 pandemic had everyone cooped up in their houses. One takes time out to exercise, relax, work; but no time is given to actually looking into mental health. Being indoors, essentially limits physical social encounters to family members or flat-mates. Even though technology assists in easily keeping in touch with others, it is bound to have an effect on people's mental health. That is why, this application is important; to give people the personalized care and support they deserve.

Strategy

Empathize — To Understand what the user really wants. Done by conducting user research.

Define — The problem statement and hypothesis statement is generated based on user needs. A functional user point of view is created, which helps generate basic ideas. Done by creating user journey maps and story-boards.

Ideate — User Feedback is analyzed: themes are generated, and disection of which feedback to implement is done. Based on themes which are identified through affinity mapping, patterns are created, and solutions to common user problems are proposed.

Prototype — New ideas are formulated and linked to design. Done by creating wire-frames/mock-ups, and linking them to complete the work flow of the product.

Test — Guided and semi-guided usability testing is conducted. User Feedback is noted.

Implement — New designs are created, based on user feedback.

Existing Systems (What's inadequate in other people's work?)

	First Impressions		Website Interaction				Website visual design	Website content	
	Desktop website experience	Mobile website experience	Features	Accessibility	User flow	Navigation	Brand identity	Tone	Descriptiveness
Your Companion	**Okay** + Welcoming and easy to use - Feels dense and overwhelming in places - No easy navigation - No easy information tracking	**Okay** + Fully responsive - Not very engaging - Easy to comprehend	**Okay** + "Create account" feature - Too many similar doctors to choose from - Not able to enlarge smaller print - T&C doesn't open	**Needs work** - Website only available in English - Images are not labelled - Font is illegible in some places	**Okay** - Cluttered Content - No Seach Tab - No information retention	**Okay** - Somewhat difficult to navigate - Some elements seem clickable but are not	**Needs work** - No brand promotion, due to a presence of too many doctors, lose sight of the user is looking for	Indirect	**Okay** + All key info is present - Cluttering Unnecessary details
Helpers	**Outstanding** + Clear information + Engaging animations + Clear branding	**Outstanding** + Fully responsive + Engaging animations (same as desktop)	**Good** + User Friendly animations that explain about the purpose of the website/app + Have VIP Status - Information clusters are not opening	**Needs work** - Website only available in English - Everything is uploaded as clickable images, have no labels, therefore no speakable content is seen on the screen	**Okay** + Engaging + Attention Grabbing - Filters don't work efficiently	**Okay** - Somewhat difficult to navigate - Some elements seem clickable but are not	**Outstanding** + Strong brand identity, including colors, font, style, motion, imagery, and photography	Fun, Friendly, Direct, Helpful	**Outstanding** + Short + Efficient + Confident
Therapy on touch	**Okay** + Easy to navigate and find information - Lot of information in the navigation bar - No proper selection highlight	**Needs work** - Information is scattered - Not fully responsive	**Needs work** - Users need to download credentials, instead of a simple pop-up - Selection doesn't happen instantly, lots of counter-questions asked - Just asks for basic user information - Lot of the information to be inputted by user is compulsory - Too many personal/invasive questions	**Okay** + Website available in two languages - Illegible font	**Outstanding** + Have a small information panel + Efficient Filters + Easy to spot Search Bar	**Outstanding** + Very easy to navigate + Familiar way to navigate (e.g., swipe) + Large noticable icons	**Okay** + Clear color scheme and art direction - Inconsistent font	Friendly	**Outstanding** + Easy to follow + Short and to the point
One of a kind	**Okay** + Clear information placement - Irrelevant information clubbed together - No proper navigation	**Good** + Fully responsive - Hard to comprehend all the information	**Outstanding** + Details open using pop-up + Selection is instant + Asks user courtesy questions, when moving form one page to another, to simulate real-life conditions, like, while going from one counter to another	**Needs work** - Website only available in English - Everything is uploaded as clickable images, which have no labels, therefore no speakable content is seen on the screen - Pop-up information is not readable, through speakable tech	**Outstanding** + Efficient Filters + Easy to spot Search Bar	**Okay** - Somewhat difficult to navigate - Some elements seem clickable but are not + Observable search bar	**Outstanding** + Strong brand identity, including colors, font, style, motion, imagery, and photography, perfectly matching logos	Serious and open	**Outstanding** + Short + Focused on info relevant to target audience + Information displayed is key to demographic

CLEARMINDS (Individual Project)

User Journey Map to redefine needs

Understanding Potential users

"I made many mistakes in the past, and I want to rectify everything I did wrong, and for that, I will do whatever it takes."

David Borough

Age: 27
Education: Graduate
Hometown: Illinois
Family: Single
Occupation: Paralegal

Goals
- Wants to please everyone in his work environment through his efficiency
- Has underlying emotional issues, and hence needs to get them sorted by visiting a therapist
- Needs to focus on work, and take up every opportunity without having to constantly worry if he deserves it

Frustrations
- He wants to solve emotional conundrums fast, but his work-life does not allow him to.
- Previous doctor appointments were not flexible
- Hasn't received proper sessions, the previous therapist has asked him, but hasn't bother to tell him why he generally acts out

Made a few wrong choices, and wasn't focused when younger. Lost a few opportunities, but has made up his mind to recover the lost time. He has promised to make up for all the loop-holes in his career. But first, he needs to sort the mess of a life he has created; since he cannot figure out how to start, he needs a therapist to help him. He hasn't found one who can properly help him, yet. He is ready to take on as much work, and more if required, but needs to remove lack of self confidence that he has.

ACTION	Find a qualified therapist	Talk to the therapist and tell him/her about his journey	Ask the therapist to pin-point to one of his problems	Ask the therapist to give him a way to overcome his issue	Implement the therapist's advice	Judge if the therapist is right for him
TASK LIST	Tasks A. Search online/through referrals for a therapist B. See if he/she can suit his requirements (location/timings)	Tasks A. Book an appointment B. Reach the therapist's office C. Fill him/her in on his past history and experiences	Tasks A. After talking to him/her, asking the therapist to tell him of what he/she thinks is a potential emotional obstacle B. Try to accept whatever he/she says at face-value	Tasks A. Admit the problem B. Listen to the therapist while he/she gives him advice C. Accept that advice without being critical	Tasks A. Remember to alter his lifestyle to incorporate the changes advised. B. Make a note of how effective the changes are.	Tasks A. Review the effectiveness of the changes advised. B. Decide if the changes are drastic enough. C. Decide of whether to continue with the therapist.
FEELING ADJECTIVE	• Confused • Overwhelmed	• Encouraged • Overwhelmed • Hopeful	• Admittance • Emotional • Confused	• Overwhelmed • Shocked • Emotional	• Overwhelmed • Alert • Satisfied	• Critical • Calculative • Confused
IMPROVEMENT OPPORTUNITIES	• Better visibility for therapist making it location-centric	• Familiarity and trust with the person would be a plus	• Familiarity • Trust that he/she knows what he/she is talking about	• Familiarity • Trust that he/she knows what he/she is talking about	• Regular updates and follow-ups with the therapist outside sessions • Easy way to vent out and ask for doubts in behavior	• Someone whom he trusts, to reinforce his decision (not the therapist, a friend or family member perhaps.)

Defining the Problem Statement

Create an application for users who are motivated to move forward in their life, but are finding it difficult to cope up with their fast-paced lives and careers; thus require the help of a professional to help them through this.
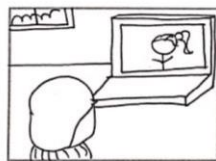
Story Boards

Scenario: Young David has been facing pressure in his life, and needs a professional to help him handle it while he is stuck at home.
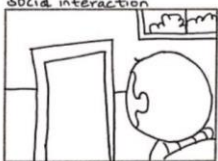
With the pandemic, David is forced to stay at home and handle pressure with minimum social interaction
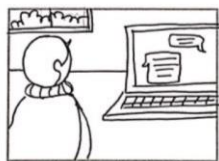
David opens the application to seek professional help

David is satisfied with the therapist's advice and decides to implement it

David is able to track progress and happiness quotient through application
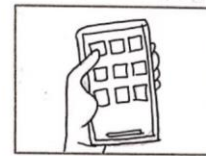
David is able to take second opinion anytime he wants through application

David feels much happier and relieved because of the help he receives.

Scenario: David, a young, busy man, is able to interact with the therapist and gain solutions to his problem and improve fast and efficiently, while managing his daily routine and work
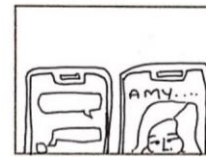
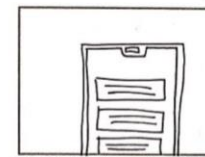David finds and opens the application for personalized care online
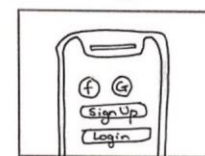
David logs in / signs up to the application

David can view the therapist's profile to see if the latter is a fit for his needs

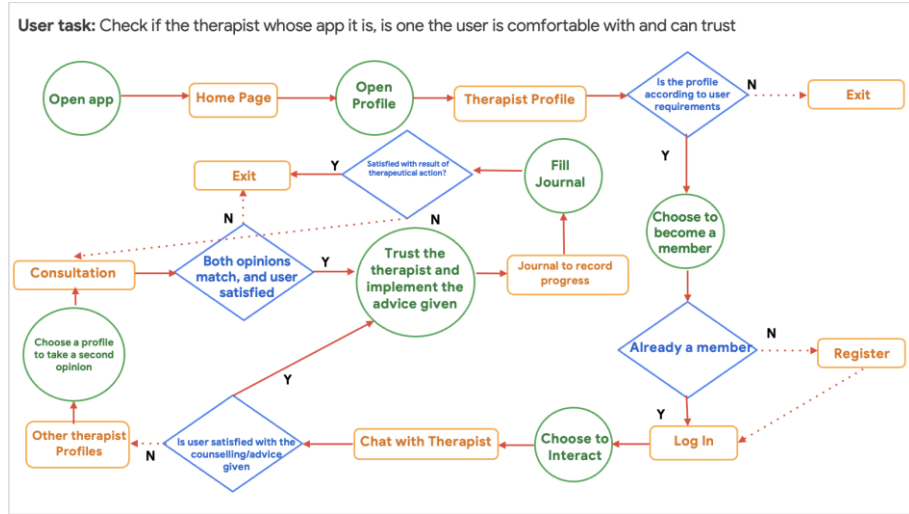David interacts (calls and messages) the therapist

David implements advice given by the therapist (certain modifications in routine) and the therapist reviews and drops suggestions

David can take a second opinion anytime by scrolling through therapist profiles, and interact with them.
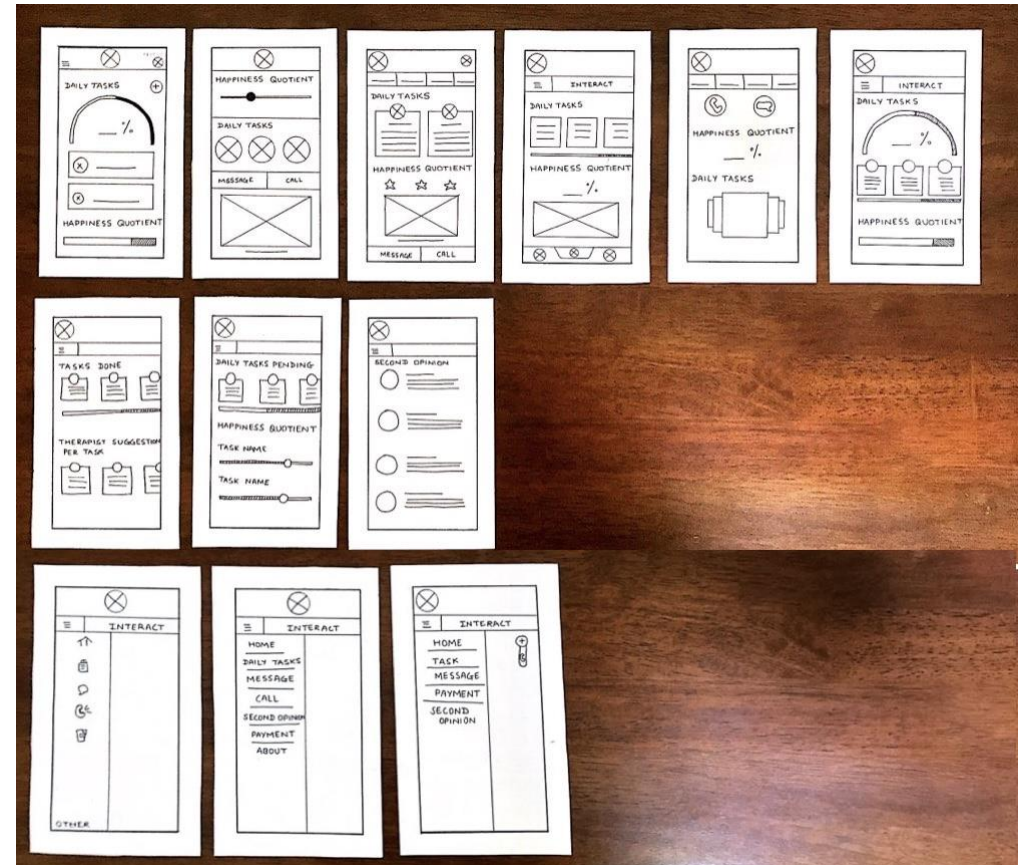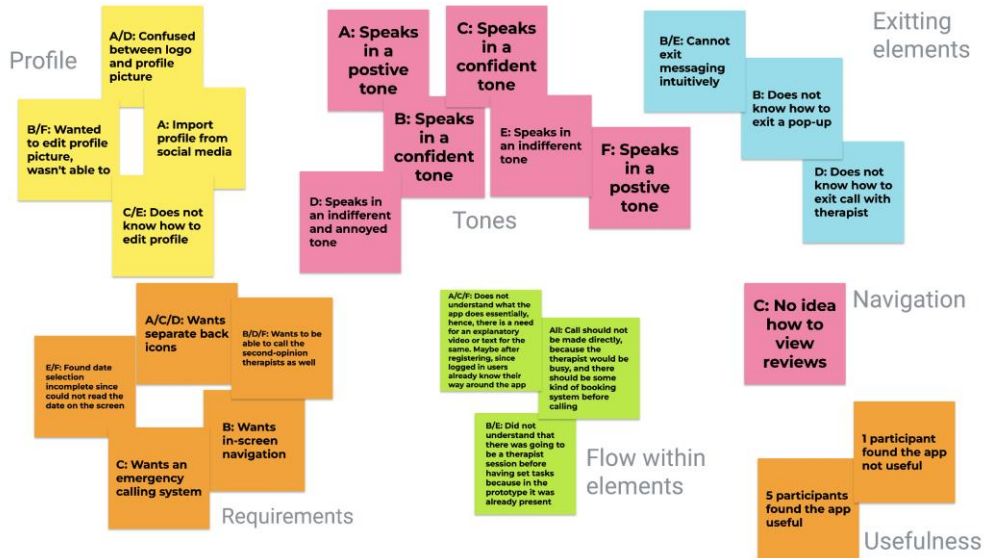
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CLEARMINDS (Individual Project)

User Flow

Logo – Developing Brand Identity
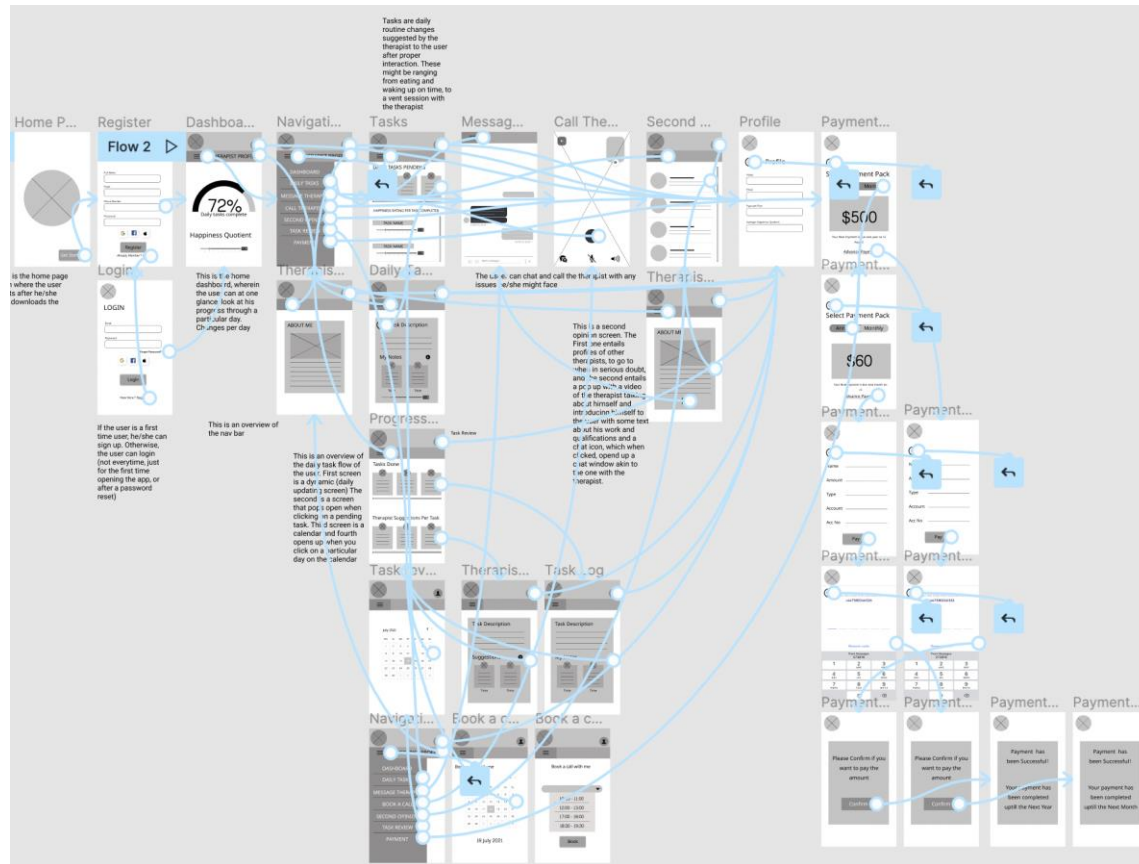

Shaping the Application – Paper Wireframes

Affinity Diagram

CLEARMINDS (Individual Project)

Shaping the Application – Digital Low Fidelity Prototype

Testing of Low-Fi Prototype - Findings

Round 1 findings

1. The user needs a call booking system
2. User wants to be able to control their profile
3. The user did not want to rate their emotions in numbers or percentages

Testing of Mock Up - Findings

Round 2 findings

1. The user wants the therapist to be prepared for the call, so a message sent would be great, assuring the user
2. The user also needs a system wherein they can read through their whole schedule at once, and see all their booked appointments in one place
3. The user wants their tasks neatly stacked, in order of their doing, one after the other, so they can look just at the first one, complete it, and get on with their life

BASED ON USABILITY STUDIES - Elements to be included:

- A dashboard, showing progress at a glance, and asking how happy the user feels at a given time.
- A daily task board, which tells the user what to do throughout the day, and tells him the rating for every task.
- A Task review board, where the user can easily view all tasks done on a particular date (along with notes and therapist suggestions).
- Facility to message and call the therapist.
- Option to take a second opinion.
- Payment subscription (annual/monthly)

CLEARMINDS (Individual Project)

Modification of Mock-Up based on Usability Studies
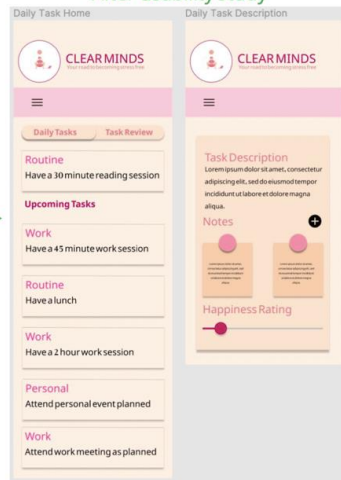

Before usability study / **After usability study**
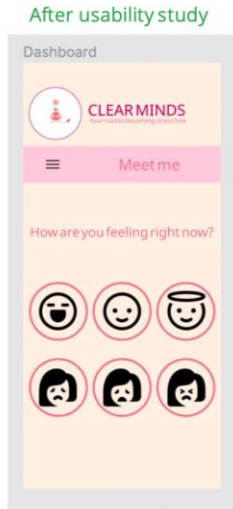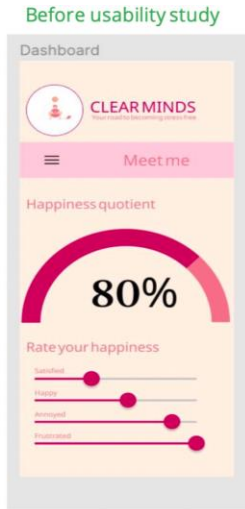
Users did not want to give numbers or estimates to feelings hence percentages were changed to "emojis" as emotions are better quantified using visual depiction.
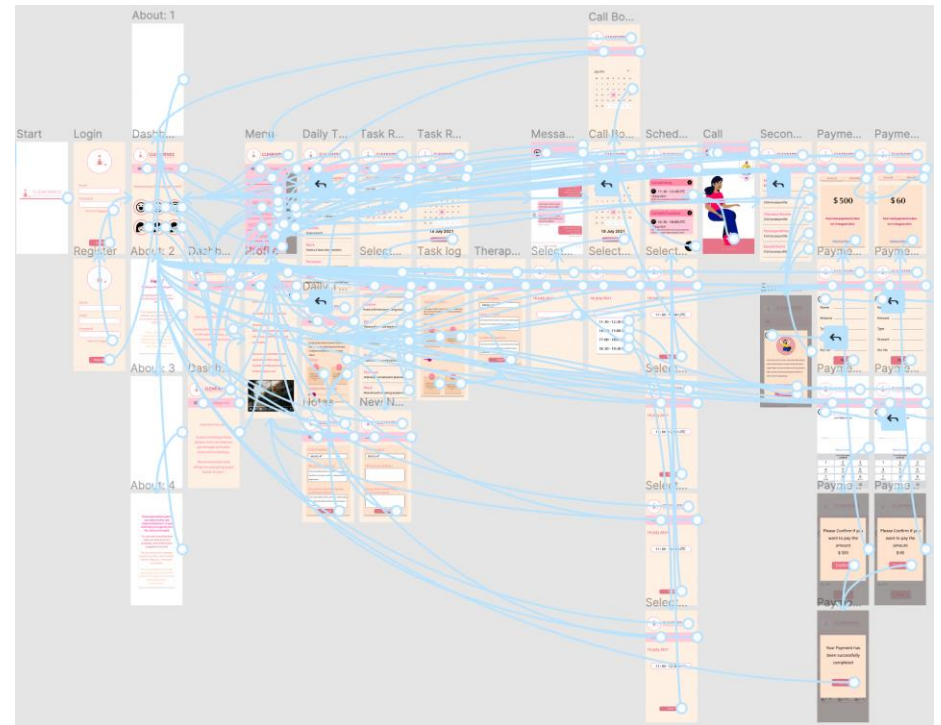
User needed a stacked view to order their daily tasks (time-based) and ratings for every task needed to be separate. I aligned tasks with ratings for the user and therapist to better evaluate individual tasks.

Resulting High-Fidelity Prototype

Accessibility Considerations

1 The content on the screen is easily legible to the users. Through their device's speech to text software, they can easily navigate.
Also, information required to be entered, is very minimal, making it less cumbersome for normal and disabled users

2 The text and background have a high contrast. This shall help the user easily identify content, and iconography has been used, to make the user very comfortable with the application.
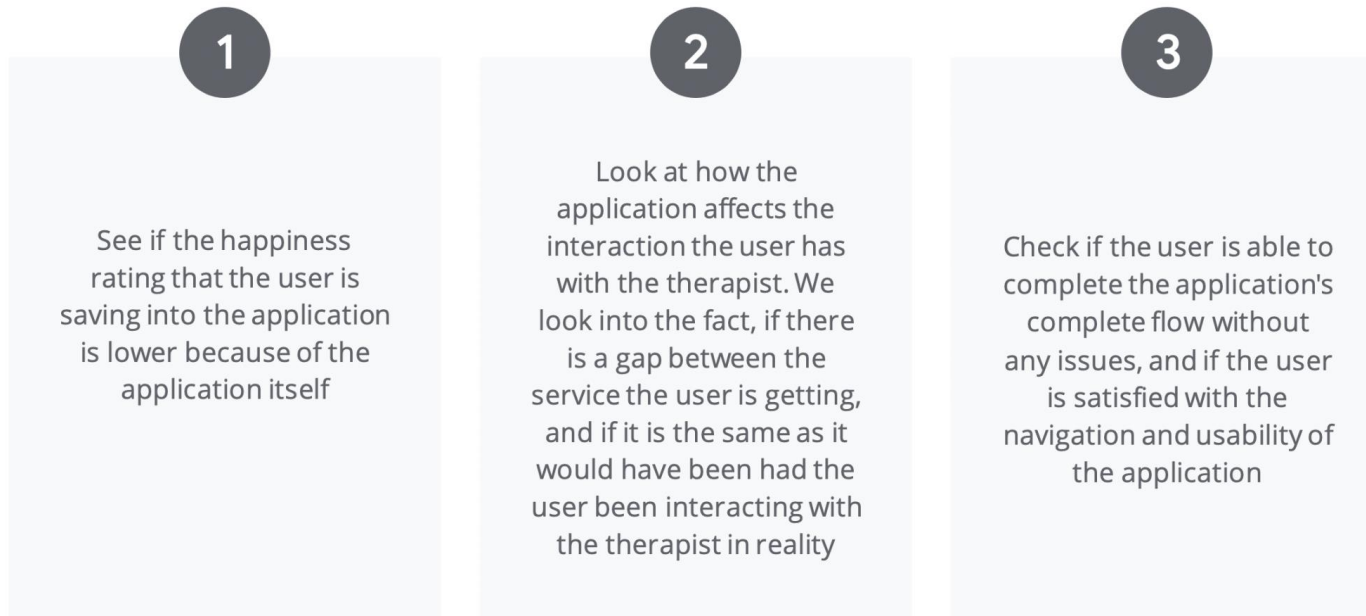
3 The flow of the application has been constructed in such a manner, that if the user lands on the homescreen, and starts navigating through the application, he/she can easily access everything, without intrinsic navigation. (Except for the subscription page, which needs to remain aloof from the working flow)

10

CLEARMINDS (Individual Project)

Challenges

The users are <u>not comfortable with the therapist</u> at first and need time to start trusting her. Users need transparency and need to know why the therapist is recommending certain routines and methods of venting out. Without knowing this, they feel that they become uncomfortable with their therapist and are <u>not able to create a workable rapport</u>.

Users are also stuck in a loop wherein they are not able to rapidly understand their compatibility with the therapist. Further, they are not able to accept advice at face value. Due to <u>lack of an impersonal relationship</u> with the therapist, users spend a lot of time questioning the therapist's advice and intentions. Sometimes, when the therapist, through professional experience, stems the user's problem, the latter has difficulty in accepting that the reason for their emotional baggage might be deeper than he/she envisioned which is difficult to handle via an interface and taints the data (happiness rating).

Future Scope and Additional Research

1

See if the happiness rating that the user is saving into the application is lower because of the application itself

2

Look at how the application affects the interaction the user has with the therapist. We look into the fact, if there is a gap between the service the user is getting, and if it is the same as it would have been had the user been interacting with the therapist in reality

3

Check if the user is able to complete the application's complete flow without any issues, and if the user is satisfied with the navigation and usability of the application
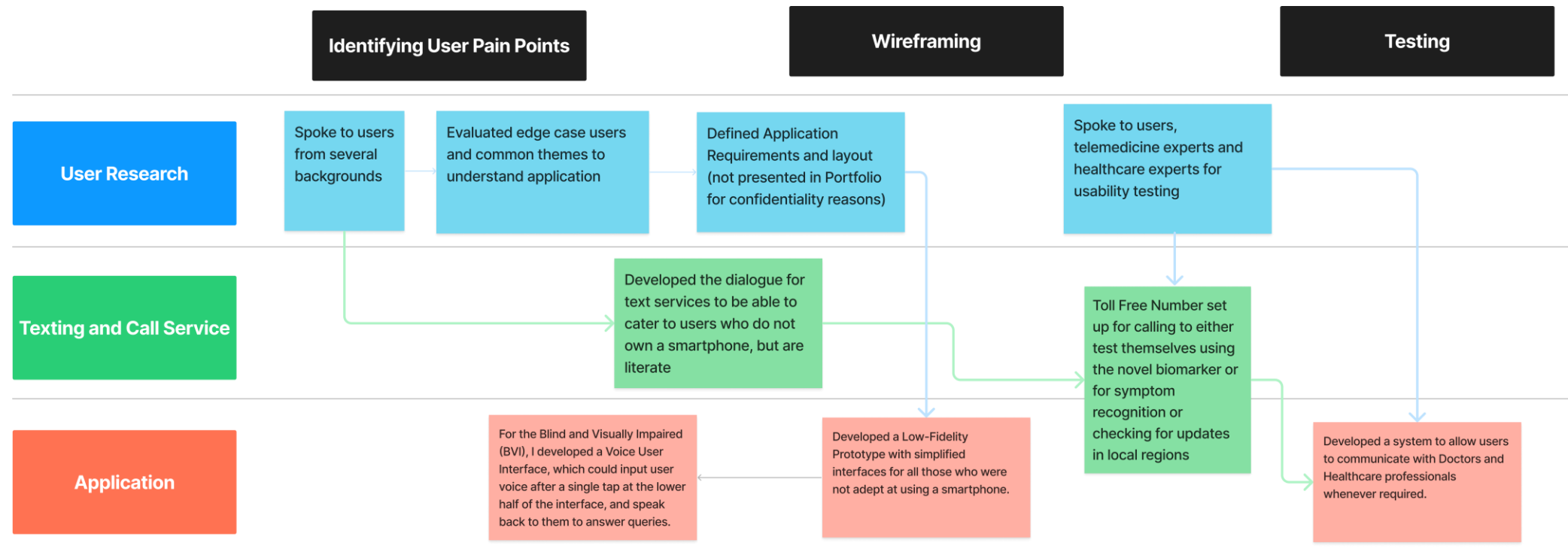
Diya Vocal Biomarker

My Role
Prototyping, Interaction Design, Lingual Diversification

Practices
Accessibility, Inclusion, Design Thinking

Methodology for Design
I began my internship with the task of User Research and my final deliverable was the High-Fidelity Functional Prototype of the Simplified User Interface and the Voice User Interface

	Identifying User Pain Points			**Wireframing**		**Testing**
User Research	Spoke to users from several backgrounds	Evaluated edge case users and common themes to understand application	Defined Application Requirements and layout (not presented in Portfolio for confidentiality reasons)	Spoke to users, telemedicine experts and healthcare experts for usability testing		
Texting and Call Service		Developed the dialogue for text services to be able to cater to users who do not own a smartphone, but are literate		Toll Free Number set up for calling to either test themselves using the novel biomarker or for symptom recognition or checking for updates in local regions		
Application	For the Blind and Visually Impaired (BVI), I developed a Voice User Interface, which could input user voice after a single tap at the lower half of the interface, and speak back to them to answer queries.		Developed a Low-Fidelity Prototype with simplified interfaces for all those who were not adept at using a smartphone.			Developed a system to allow users to communicate with Doctors and Healthcare professionals whenever required.

DIYA VOCAL BIOMARKER (Remote Internship at Pucho Inc)

Why This Application

People across India are from diverse backgrounds and ethnicities. Not all of them are Financially stable, or similarly abled. With the hit of the Global COVID-19 Pandemic, it was necessary for the populace to stay alert and take care of their own health with the strain on the resources provided by healthcare systems. Hence, this application delved into telemedicine; to inform people of the impending dangers of COVID-19.

Further, Testing for COVID-19 was also getting extremely tough and people were in a frenzy. The methods for testing were intrusive as well. Hence, the purpose of this application was also to help users understand their ailments and get tested in a non-intrusive fashion – using Vocal Biomarkers, which used breath-analysis when users spoke pre-determined optimized syllables (which were easy to pronounce for even the Deaf and Hard-of-Hearing and those with speech impediments).

Establishing direct contact with healthcare professionals near users was made possible as well.

Persona Generation (to test for hesitancy to use technology)

Persona 1:

Digital Literacy	Low
Dedication	High
Need regularly	Yes

- Talking to people in the village
- Children
- Advertisements on her television
- Government loudspeaker announcements

Name	Imarti Devi
Gender	Female/ 70
Occupation	Home Maker
Place of living	Madhopatti
Status	Married, 5 children
Device Used	Has a small laptop

BIO

She is a self-respecting lady, who doesn't want to depend on her husband and children anymore, and wants to make her way out in the world. She is a great seamstress, and has been sewing for her neighbourhood ladies for a long many years. She wants to gain a source of income, and expand her business to other villages. That is why she needs a platform to promote herself and sell her goods. Her sons want her to move to the city, but she wants to spend her days in the village itself. With the pandemic hit, her determination to start her own seamstress business has found renewed vigor, and she has now come to know of the expanse of internet and how far enough she can sell

FRUSTRATIONS

- She does not know whom to approach, to start an online business.
- She doesn't have a stable internet connection and wants to know of the impact of the pandemic hit, so that she can figure out the USPs of her online seamstresing business.
- Because of the lack of information, she hasn't been able to effectively price and start her business.
- She doesn't understand the concepts of panic-buying and bulk-buying, which effects how she is going to sell
- She fears that the pandemic might be a reason she is not going to start a fruitful business ever, in her life

PERSONALITY TRAITS: Headstrong · Over-Thinker · Calm · Extrovert · Non-Judgemental · Patient

MOTIVATIONS
- Have information fast, since digital world is the fastest means of communication.
- Be able to run a sucessful online, and offline seamstress business

EXPERIENCE
- Has been pleasantly surprised by the amount of information digitization gives her
- Wants to learn about business analytics, and has been surprised that are online tools to accomplish the same

"I am very happy with learning to digitize, and it suprises me how much I can expand my business with the same. But it also scares me, as to how fast this can all collapse

Digital Literacy	Low
Dedication	Low
Need regularly	Maybe

- Children
- Wife
- His friends and associates
- Television

Name	Salman Sheikh
Gender	Male/ 40
Occupation	Rickshaw Driver
Place of living	Hyderabad
Status	Married, 2 children
Device Used	No Phone

BIO

He is a family man, and loves his sons deeply. He wants them to get a good education. He despises technology, because of past experiences. He was once asked for his papers by a traffic inspector but he didn't have them on him. He offered mailing the pictures of the documents to the police officer's phone since he didn't own a smartphone. This led to an altercation and a fine. Another time, Salim tried enlisting with a transportation services company but could not figure out customer location on the technology's app. This led to lot of problems in picking up clients. After pay cuts for not picking up clients, he decided to delist himself from the company. He gets very less work now that the lockdown is in force. He doesn't want to dabble into anything digitally, and refrains from it vehemently. His dream is go to Haj, and believes in life being the gift of god

FRUSTRATIONS

- He wants his children to be educated, and worries he might not be able to provide for it
- Everytime technology is introduced in his life, something untoward happens to him, Therefore, he wants to be as away from it as possible. With the changing times, he is terrified that might not be possible
- He needs to repay back his relatives the money they lent him during the lockdown, but the rules of haath badli (informal money exchanges) are very different from those of a formal loan and involve a lot of relationship dynamics as well. He does not know how to handle that.
- His wife doesn't express any needs, but he is worried, he might disappoint her.

PERSONALITY TRAITS: Sensible · Satisfied · Non-ambitious · Caring · Patient · Over-thinker

MOTIVATIONS
- Have his children educated
- Live his own life with respect
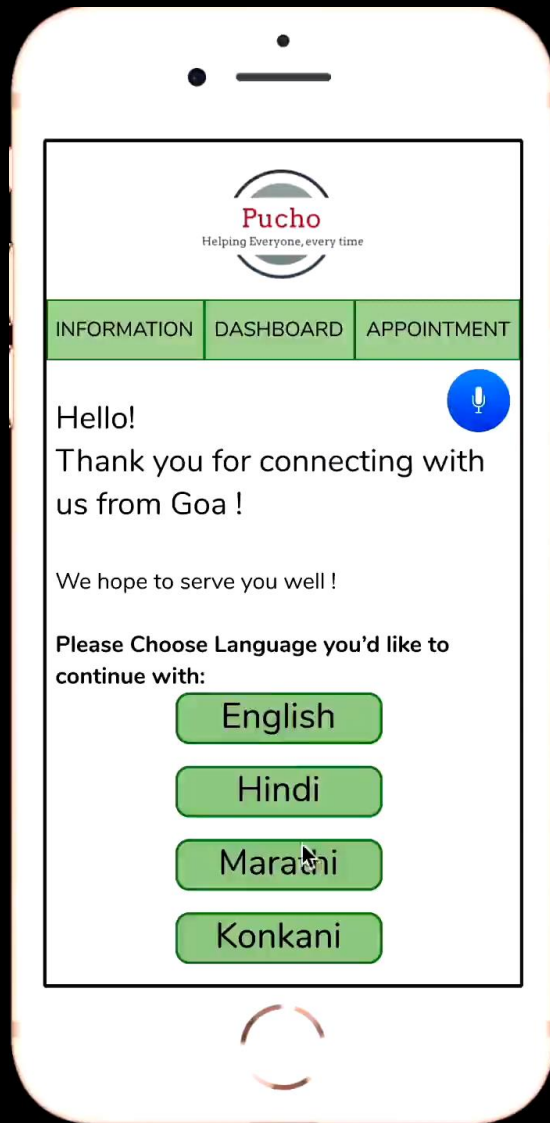- Go to Haj
- Keep his family happy and satisfied

EXPERIENCE
- Doesn't like technology at all
- Runs away from it
- Gives up livelihood if he is in contact with it

"I tell my sons that there is respect in getting an education. Even a taxi driver's job is respectable if he is educated
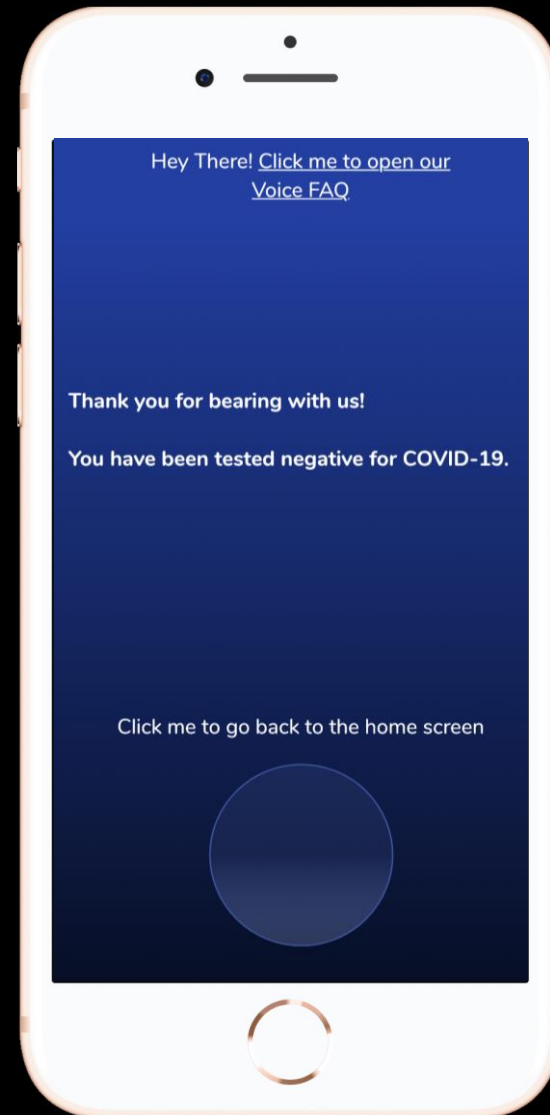
DIYA VOCAL BIOMARKER (Remote Internship at Pucho Inc)

Translated to

(For BVI)

Regular Simplified Interface (for regular users)

Voice User Interface
(Video couldn't be shared due to confidentiality reasons)

Intended Audience
Major focus was shed on rural India, since the paucity of resources hit them with amplified rigour than to those in the metropolitan.
The design also caters to accessibility and making the process as easy as possible for the differently-abled.

Role of Upbringing, Education, Culture, and Society in Shaping Opinions

My Role
Data Preprocessing, Dependency mapping, Knowledge Discovery

Practices
Data Analytics, Derivative Thematic Analysis

Importance of this study
This Study aimed to identify the seeding factors in a person's life which are responsible for the formation of a person's opinion, and determine if their alliances with society, race, culture, upbringing, education, and life requirements shape their opinions about themselves, their social environment, their interaction with other members of the society within their vicinity, and their stance on how the ideal and optimal life should be, and how they fit into the same. I appropriately categorized opinions to define if a person believes that they should live their lives in an ambitious fashion or stay ethical and leave opportunities to bag larger incentives due a strong and heavy, conscientious, moral compass.

Methodology
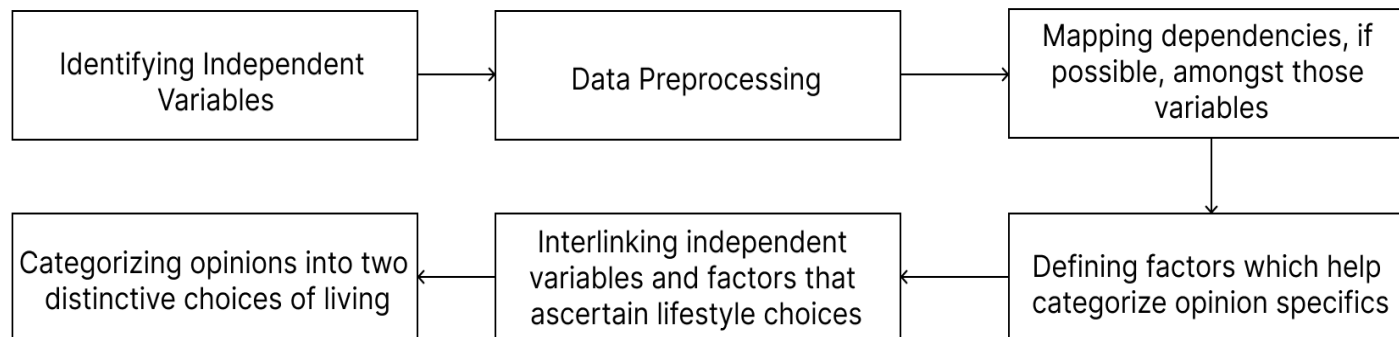
Identifying Independent Variables → Data Preprocessing → Mapping dependencies, if possible, amongst those variables

Categorizing opinions into two distinctive choices of living ← Interlinking independent variables and factors that ascertain lifestyle choices ← Defining factors which help categorize opinion specifics
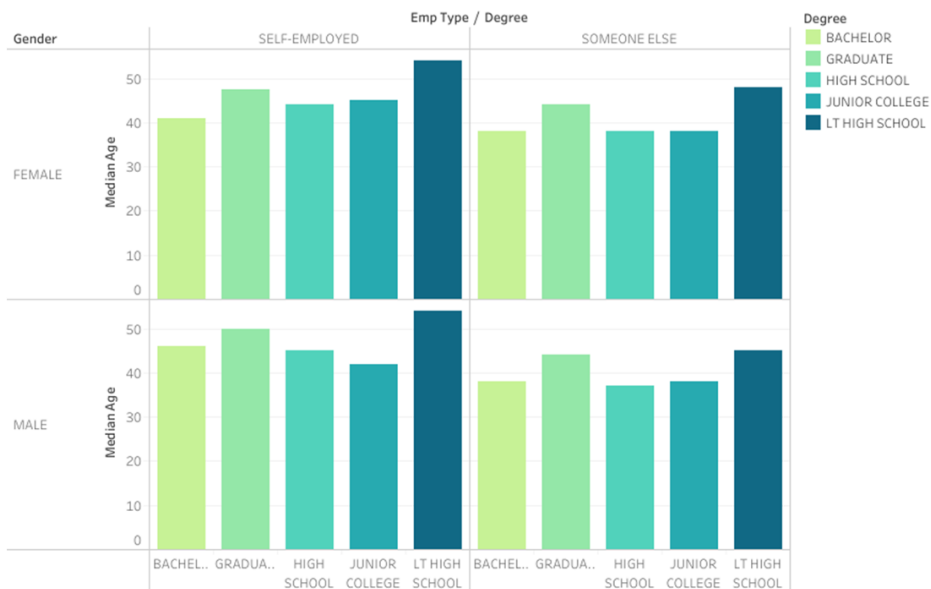
ROLE OF UPBRINGING, EDUCATION, CULTURE, AND SOCIETY IN SHAPING OPINIONS
(Study as part of a Research Team of Two)

Visualizations Derived

Demarcation of Employment on the basis of Gender and Degree

People who have been to Lt Schools, have a higher tendency to be employed (especially self-employed) and those who have completed their bachelors and graduate degrees have the least tendency to find employment, and are also more likely to be self-employed. The male gender has a slightly pronounced tendency to be self-employed.

Ethnicity and Family Size
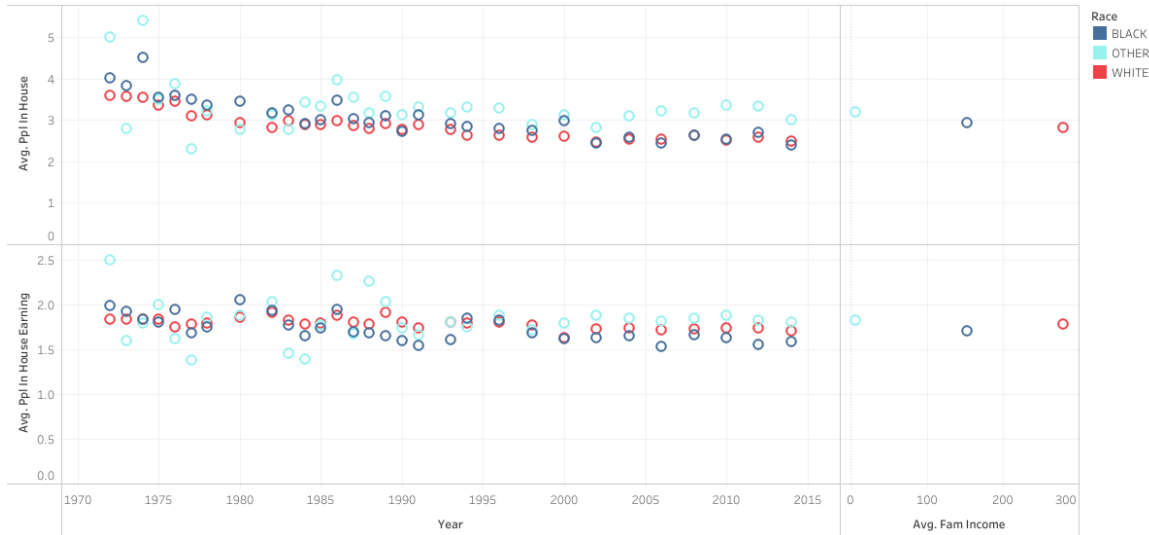
People in the 1970s, showed a higher Family Size, which ensued a relatively higher income which does not change dramatically over the years and people who were predominantly of black and white race were superseded by the those of other races in family income and size (consequently number of people in the house who are earning).
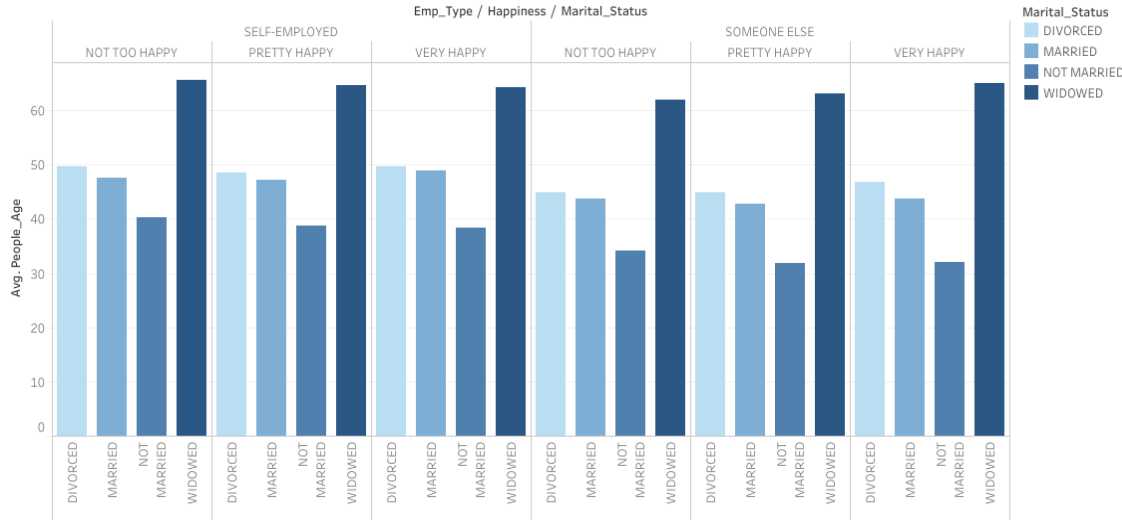
ROLE OF UPBRINGING, EDUCATION, CULTURE, AND SOCIETY IN SHAPING OPINIONS
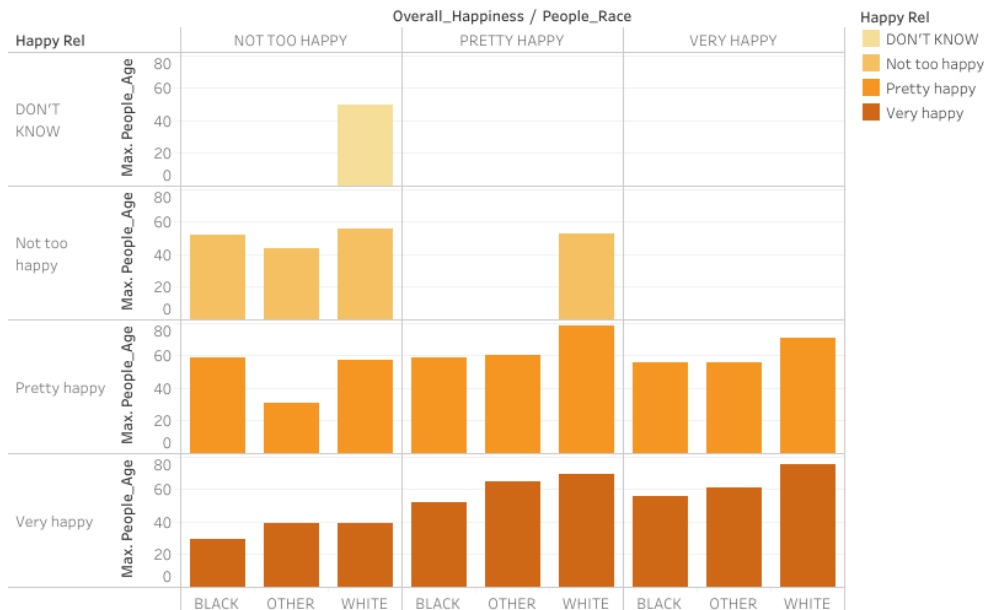(Study as part of a Research Team of Two)

Insights Derived

Employment, Marital Status and Happiness

People who are working for someone else and have been widowed, lie in the higher age bracket and are ubiquitously spread. Those who are unmarried, are the youngest and are not especially decided about their happiness status.

Ethnicity and Happiness

People of all races are likely to understand if they have satisfactory relationships or not. There are a limited number of people who cannot ascertain whether they are happy. If they are especially satisfied with their life, and relationship, they are more likely to admit it.
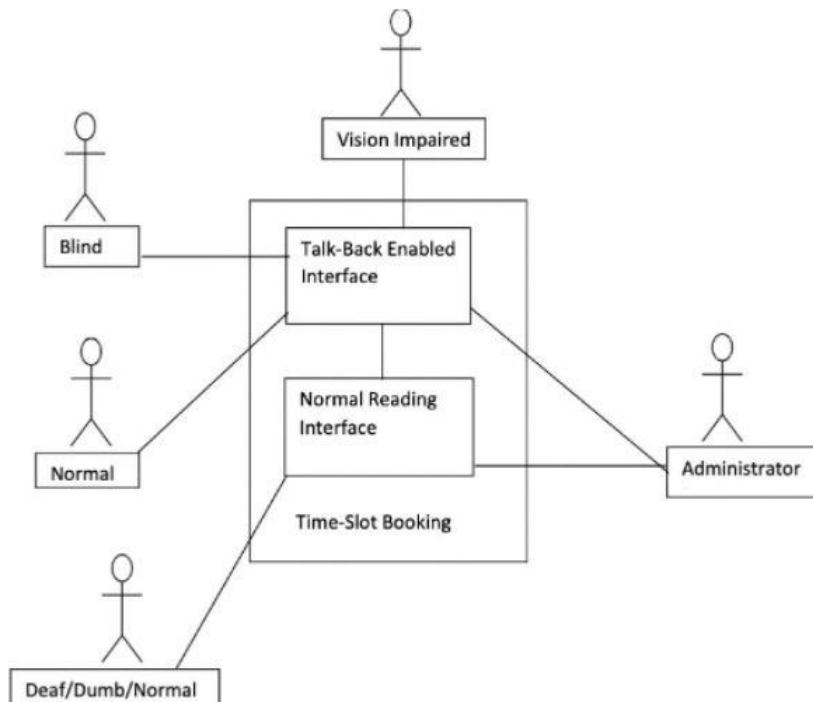
17

Optima

My Role
Algorithm Design, Interface Design

Practices
Accessibility, Inclusion, Lean User Experience

Use Case Diagram

Why this Project
This project was conceived to incorporate the needs of the differently abled; aiming at making PCR/Vaccine time-slot booking for them, a bit easier. Research was constrained to official government websites and allowed for derivation of insights which inspired a priority list within the user group. The novelty of the priority list is, that it helps single out high risk patients, and cater to them faster, and more efficiently.

The user shall enter some data since access to his/her medical records was not possible, due to lack of access to a dynamic Government database; the entered data was analyzed by the automated system and stored appropriately.

No such Priority-Based application was found.

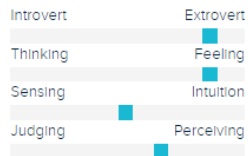# OPTIMA (Project as part of a Team of Three)

User Characteristics

Proto Persona Type: Blind

"The value of life, is in having vision, not sight."

Age: 35
Work: Public Speaker
Family: Married, 2 kids
Location: Dubai, UAE
Character: Archetype

Intelligent   Patient   Empathetic   Self-Reliant

Personality

Introvert — Extrovert
Thinking — Feeling
Sensing — Intuition
Judging — Perceiving

Goals
- A normal life with family
- Protect himself and family from every adversity of life
- See all the colors of the Rainbow
- Tell people of his history, and help them realise the gifts they have, and to be grateful for them.
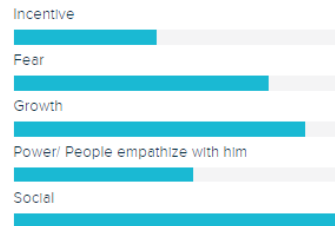
Frustrations
- People pitying him, Not being able to lead a normal healthy lifestyle
- People continuously prodding him with questions about his deformity
- No one makes him the star of their process, he is a liability
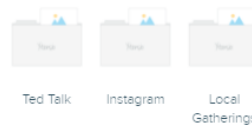
Bio
Had a car accident which rendered him vision-less. He is happy he did not lose anyone else in it, yet he still laments on the fact, that had he maintained safety, and paid attention on the road, this would not have occurred.
Before this accident, he was a care-free teenager, extremely outgoing, who had not a care in the world. Now, he is much more sedate, and wishes he could have minced many of the words he uttered in his pre-life.

Now, he is determined to educate people about himself, and others like him, to make their lives a bit easier, and help people empathize with them, and help them understand to count their blessings, and be happy.
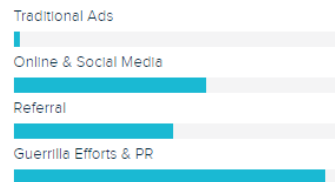
Motivation
Incentive
Fear
Growth
Power/ People empathize with him
Social

Brands & Influencers

Ted Talk   Instagram   Local Gatherings

Preferred Channels
Traditional Ads
Online & Social Media
Referral
Guerrilla Efforts & PR

I developed the design and accessibility considerations for this project by developing a Proto Persona. I also systemized the prioritization algorithm having thirteen parameters to optimize time slots so that users could easily book their appointments for testing and vaccination. Further, I designed the interface to be single touch so that differently abled users could be comfortable with it.
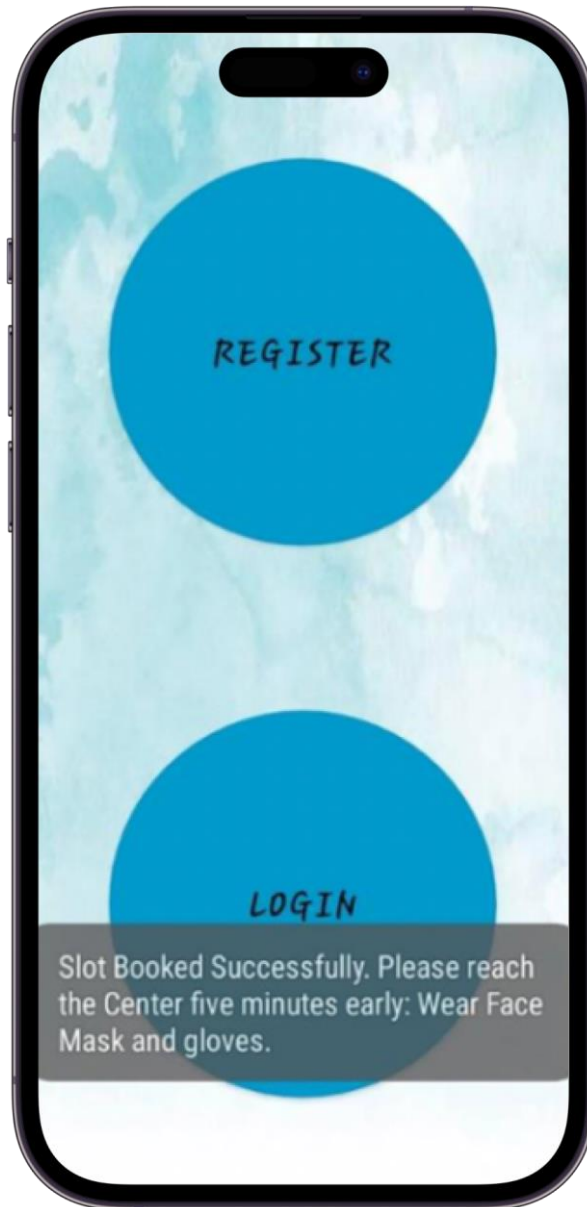
Entity Relationship Diagram

OPTIMA (Project as part of a Team of Three)
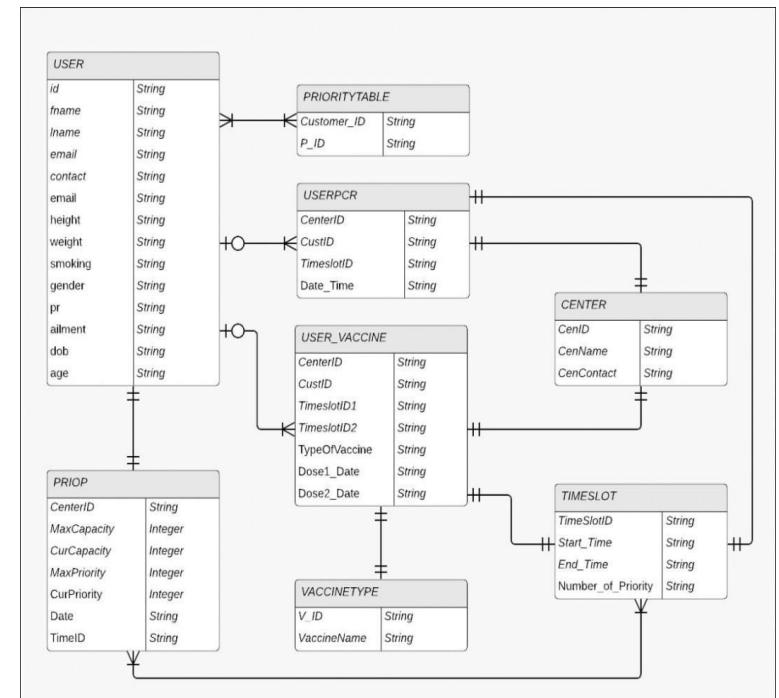
Application
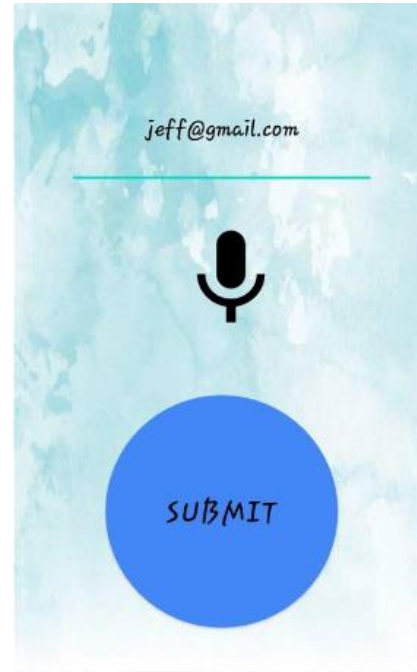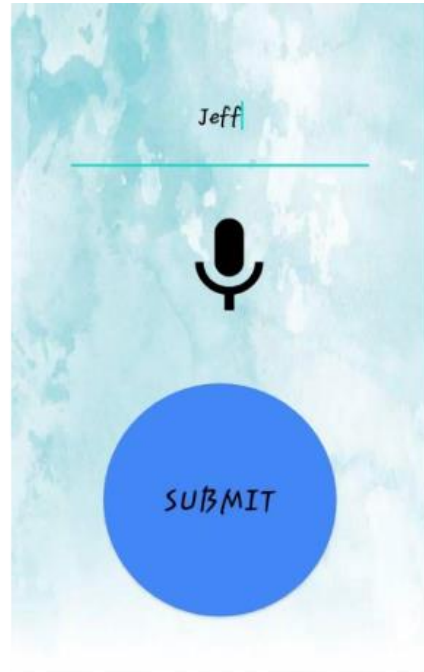
Data Entry

Data Validation
(through users)

Usage Procedure

Instructions/intents/purposes were informed to the user, and he/she had to adhere to them methodically, to obtain best results with a tolerance range for error. Certain slots for the PCR/Vaccine Centers were reserved for priority users. The slots in both cases (priority or not), were first come first serve. Twelve hours before the slot booking, the user had to confirm his/her slot. If not done, then the user's slot was transferred to the next person depending on his/her category. This is how the traffic on the application was handled, to help resolve difficulties observed in a non-automated system of working.

OPTIMA (Project as part of a Team of Three)

Success Message

REGISTER

LOGIN

Slot Booked Successfully. Please reach the Center five minutes early: Wear Face Mask and gloves.

Challenges

Since we have the BVI as a target demographic, it is necessary to help them easily understand what the application demands. Through development, beta-testing was done by individuals who blindfolded themselves, hence there is heavy reliance on theoretical research made previously in the domain, leaving room for a possible taint in practice.

This application inputs medical information inputted by the user. This would mean that people could, in theory, enter falsified information to get earlier slots. This would lay a lot of faith in the moral of the people, rather than the system.

M.Hostels

My Role
User Research Algorithm Design, User Experience Design

Practices
Design Thinking

Why this application – Understanding through an Empathy Map

1. Who are we empathizing with?

Who is the person we want to understand?
What is the situation they are in?
What is their role in the situation?

The person is an academic, who wishes to have a easy lifestyle while studying. They do not want to spend time on working to maintain a lodging.

2. What do they need?

What do they need done differently?
What decision(s) do they need to make?
How will we know they were successful in their hunt?

The user needs a faster and more efficient service that gets their booking done affordably. They need to decide based on amenties they are being provided, and will be successful when their expectation and provision will have a minimum gap, which shall be projected through lesser abandonment and better sales

3. What do they see?

What do they see in the marketplace?
What do they see others saying and doing?
What are they watching and reading?

The User is currently been given a fixed price. Dynamic Pricing will be the USP

4. What do they say?

What have we heard them say?
What can we imagine them saying?

The Amenities might not be projected well, and the process of booking might be too cumbersome

5. What are they currently doing for the same service?

What do they do today?
What behavior have we observed?
What can we imagine them doing?

Applications are floating through departments, and hand-overs take a lot of time and effort

What do they think and feel

Pains

What are their fears, frustrations, and anxieties?

Information Potrayed, may or may not be true. No guarantee that the best value is being provided

Revenue streams

What are their wants, needs, hopes and dreams?

As defined before, users want a fast and trustable service through which they can book affordable rooms in a single go

M. Hostels (Project as part of a Team of Five)

User Profiling

1. Demographic

Which sections the people we are catering to?

Age
Gender
Occupation and Place of Work

2. Psychographic

What are the interests of the people?

Reason for booking
Needs: amenities required

3. Behavioural

How do people react? (Analyzing previous behaviour too)

Loyalty Points: based on Account Usage (Frequency), Attention, and Abandonment and Purchase History
Readiness to buy: Includes need assessment (Time Frame and Reason for occupying)

4. Edges and Geographic

What are the physical living situations of the people?

Normal Admissions: National (UAE- Emirati), or Residents
Transfer Students
Emergency Situations
Examination Situations
Other

Final Points for User Input (OPTIONAL SAVING)

→ Name, Emirates ID details (Number), Gender, Contact

→ Preferred Payment Method and Details (Saved information about card or online banking along with bearer name)

→ Occupation: From which academic/other institution

→ For MAHE Dubai Students only: SLCM Number

→ Loyalty Points: demarcated into Usage and Purchase History (including receipts of previous transactions)

NEED PREDICTION

Requirements

☆ A person needs to be able to book their rooms fast, and safely

☆ They want complete amenities in their lodging, residable, if not luxury (Hot water/bed/study desk etc...)

☆ This lodging needs to be close enough to the place where they intend to work (study/job)

☆ The room must be affordable

☆ A person might want to have a saved set of information like billing method, and personal details

Useful Takeaways

→ No stalls, or redirects

→ No speaking to human authorities - transparent human computer interaction

→ Details of all amenities or facility to be able to choose based on amenities (example - a person wanting a personal washplace or wants extreme privacy, with less financial constraints, might like to opt for a single room)

→ Person might want to view pricing demarcations or comparitive pricing

Potential solutions

⚡ Allow consumers to have complete flow of execution

⚡ Allow consumers to save their information (what they want to save should be their choice)

⚡ Pricing should be customized based on user information saved.

Potential risks

⊙ Customers might start expecting higher offers after sporadic activity

⊙ Customers might be discouraged by amenities or lack thereof (Care must be taken to project in optimal light)

⊙ Customer needs might evolve

Recommendation

Creation of a Dummy Customer Profile, to include external details based on feedback

M. Hostels (Project as part of a Team of Five)

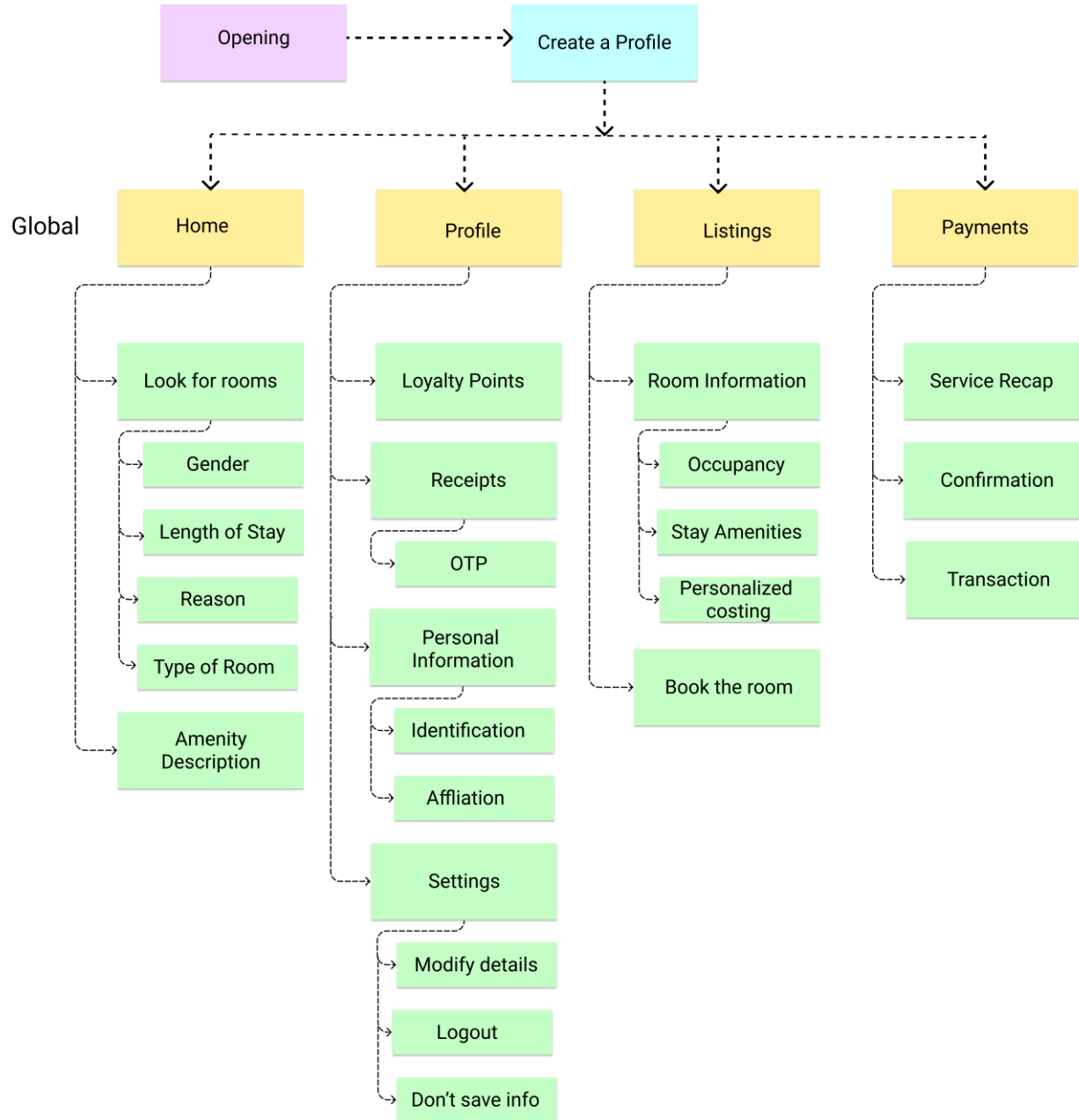## BUSINESS MODEL

PRODUCT   MARKET

1. Problem

1. Reduced occupancy rate due to student living in other quarters, or in their own homes
2. Problems associated with long response times for booking a room within the hostel and additional human points of contact
3. No available rooms for shorter periods of time for students who want to avail such a facility

No Special Amenities available, to attract customers.

Extremely Expensive Comparatively

4. Solutions

1. Booking directly via the website
2. Dynamic Pricing, lower in normal periods and high in peak times
3. Early Bird Discounts
4. Shorter stay facility
5. Transport for students from other universities
6. Better ambience, that goes hand in hand with facilities and increased occupancy
7. Rewarding loyalty

5. Key Metric

Understanding customer behaviour at different price points to see what clicks, and what is sustainable

3. Unique Value Prop.

This is a dynamic hostel revenue manager, for the hostel occupants in M.Hostels.
It prevents the long succession of various human points of contact, and reduces the time and effort needed, to book a hostel room, for anyone who wishes, for either long, or short period of time.

The Project also posits the need for ameliorated hostel services, and additional amenities, that would help with the same

Baseline matching, better services, and the added benefit of security, location and no minimum stay duration

9. Unfair advantage

M.Hostel is offering triple room occupancy, which is not available essentially in competition.

This is a great way to increase revenue, without much load on extension of additional facilities

6. Channels

University Services and Invited students and faculty think about availing the hostel facilities.

Direct Payment via Credit Card and DD. Installments may be allowed

2. Customer segments

The customer Segments are:

1. Students who are living alone in the UAE, and need a place to stay
2. Students who are living in Emirates notwithstanding Dubai, and need a place to stay
3. Students who have poured in, as visiting students/International Students
4. Students who want to avail the hostel facilities for a short period of time
5. Faculty members who want to avail this facility

7. Cost structure

Costs to hold, and maintain additional and existing hostel facilities, and income would be decided Using the occupancy Rate, average daily rate and RevPAR.
Have a baseline price, and vary in a band above the price, according to situations as they may be.
Most important costs would be providing certain amenities to attract customers, and then to maintain a set standard, which would be most expensive.

8. Revenue streams

Value to be captured by luring customers through price, location and amenties, that are attractive, and cater to both price sensitive leisure customers (Those who want to live through the entire semester) and the price insensitive business customers (like visiting/international students who would need the room, and might book closer to the date of arrival, which might cost them more).
Done via: Data Collection (to gather competitive audits, and previous sales data by monitoring consumer behaviour and market information), Customer Segmentation, Forecasting, Optimization of dynamic pricing and re-evaluation of the model, regularly to observe treands and peaks that can be worked on.

M. Hostels   (Project as part of a Team of Five)

SITE MAP

```
Opening  ┈┈┈┈┈>  Create a Profile
                        ┊
        ┌───────────┬───────┴───────┬───────────┐
        v           v               v           v
Global  Home      Profile         Listings    Payments
        │           │               │           │
        ├─> Look for rooms  ├─> Loyalty Points  ├─> Room Information  ├─> Service Recap
        │     ├─> Gender    │                   │    ├─> Occupancy
        │     ├─> Length of │   ├─> Receipts    │    ├─> Stay Amenities  ├─> Confirmation
        │     │   Stay      │     └─> OTP       │    ├─> Personalized
        │     ├─> Reason    │                   │    │   costing       ├─> Transaction
        │     └─> Type of   │   ├─> Personal    │
        │         Room      │       Information └─> Book the room
        └─> Amenity         │     ├─> Identification
            Description     │     └─> Affliation
                            │
                            └─> Settings
                                  ├─> Modify details
                                  ├─> Logout
                                  └─> Don't save info
```

25

Learning through Technology as a Tool to Enhance Development of Skillset in Autistic Females

My Role
User Research, Framework Development, Application Conceiving

Practices
Design Research, Child-Centered Design, In-person Interviews

Findings of user research

- Students find it <u>difficult to concentrate for long</u>, and therefore find reading cumbersome, as it requires deliberation, acumen, and focus.
- It is often observed that the <u>Fine Motor Skills</u> of autistic individuals <u>remain underdeveloped</u> as they move into the workforce, and they find it difficult to instill it in the later stages of their life and must work much harder since they find it is essential to functioning.
- Autistic individuals have <u>heightened sensory needs</u> and LSA's and parents must take steps to ensure they are catered to. (This includes speech therapy, which unfortunately many parents cannot afford)
- The <u>need for attention</u> is also more in this demographic, and they expect to have the LSA focusing on them, even during group activity, which is not possible.
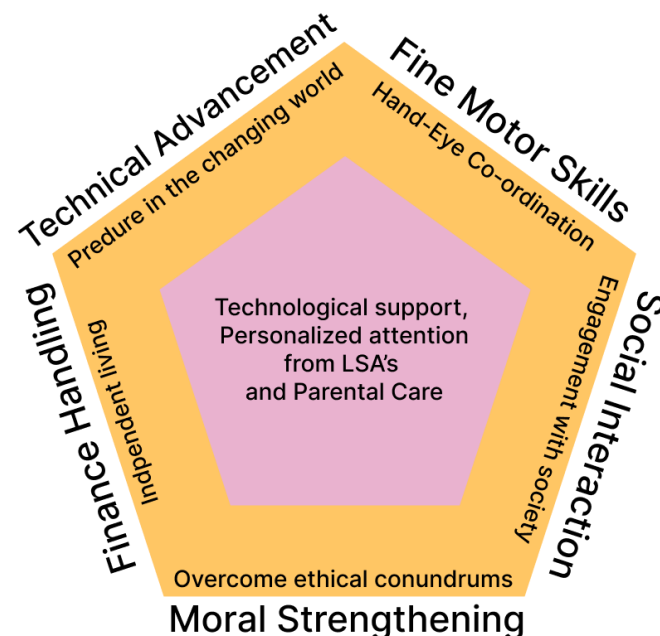
Technological Intervention in Autistic Learning – and why

LEARNING THROUGH TECHNOLOGY AS A TOOL TO ENHANCE DEVELOPMENT OF SKILLSET IN AUTISTIC EDUCATION

Persona Development (based on interaction with users)

Generated user story shows that while a huge obstacle to autistic students is their inability to learn as fast as normative students, it also includes anxiety growing in this demographic, due to lack of regularized engagement with their surroundings. The inclusion of technology in the learning experience of autistic children, shall be equivalent to including a neutral study buddy in their learning regimen, which will help them evolve and support their erudition.

Samantha Richards
Female Student

"I want to be a anthropologist when I grow up, but sometimes I feel as though I am not capable enough, that I can't compete"

Age: 12
Status: Single
Location: Dubai
Work : Studying

Bio

Samantha is a young autistic student, who was diagnosed three years ago. She has enrolled in the learning center, and has little to no trouble in theoretical education. Although, she struggles with social interactions, and is recluse, as she does not find it easy to speak to others. She also finds it difficult to behave, and is prone to saying things that hurt others around her. She wants to be amicable with everyone around her, and wants to be more confident about her skills and capabilities.

Habits

- Wants her daily tablet time, and gets cranky without it.
- Doesn't like to work in groups, and is happier and faster with individual assignments.
- Likes to work hard, and demands complete attention for long spans of time.
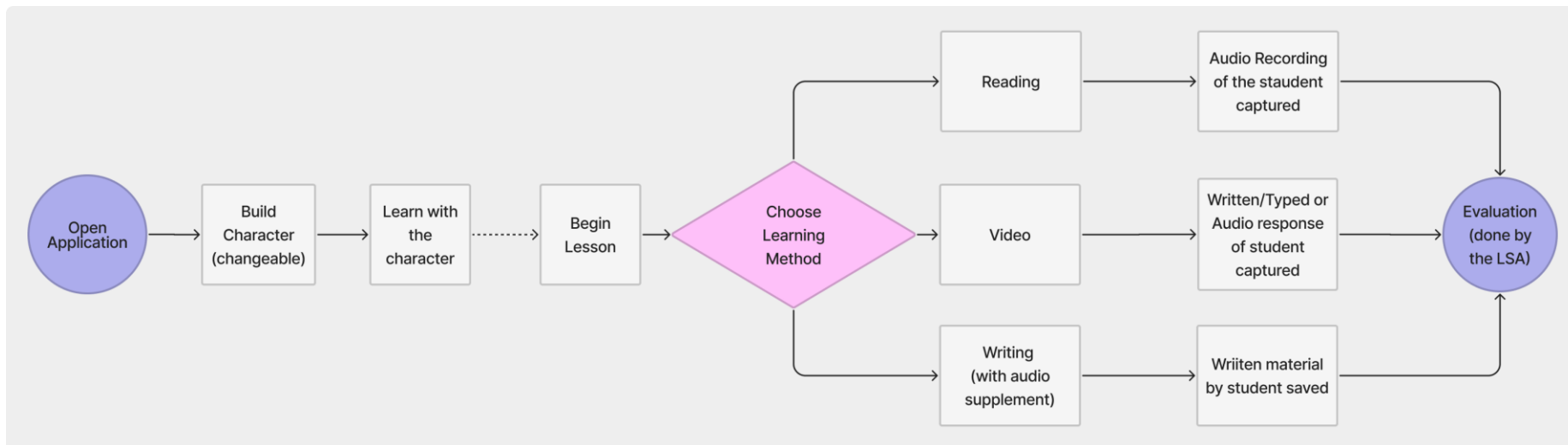- Tends to not talk, but is sharp-tounged when she does.

Goals

- Be able to achieve her dreams and overcome the fear of competition
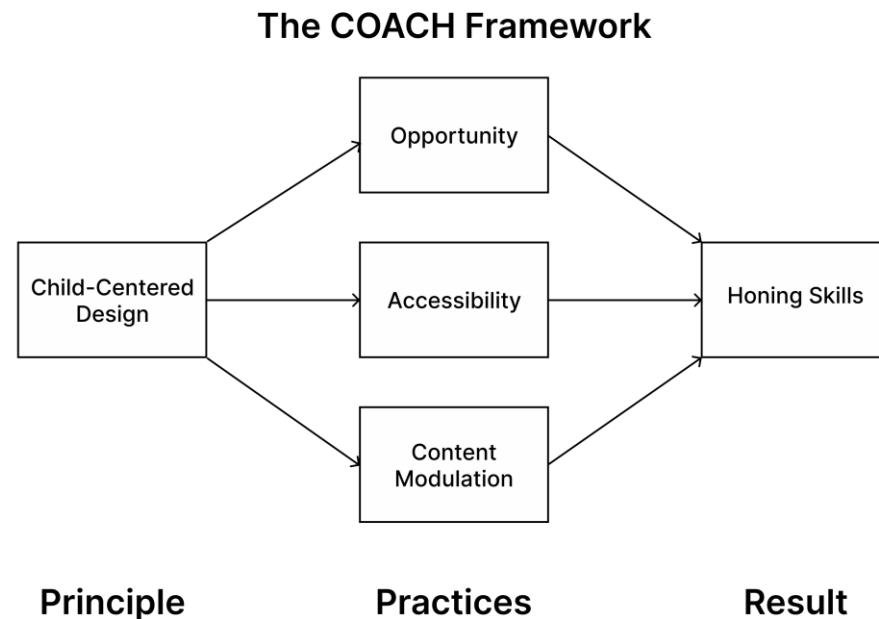- Be liked and respected by her peers

Skills

Reading

Content Writing

User Flow

LEARNING THROUGH TECHNOLOGY AS A TOOL TO ENHANCE DEVELOPMENT OF SKILLSET IN AUTISTIC FEMALES

The COACH Framework

Principle   Practices   Result

1. **CHILD-CENTERED DESIGN** - Modular Lessons to <u>focus more on intellectual cognition development</u>, social interactions and methods of engagement. The application shall have <u>several independence stages</u>, adjustable by either the LSA or the Parent, so that students begin thinking on their own.
2. **OPPORTUNITY** - Students would be able to <u>develop their fine motor skills</u> through plain scribbling (for young/beginner students), writing words of the alphabet, sketching and even writing/typing. (<u>Financial and Portfolio Management</u> included in course content)
3. **ACCESSIBILITY** - Simulated situations would require students to record their answers (typing/ voice recordings), which the LSA would evaluate. <u>Voice Recordings</u> of students' responses to be encouraged <u>as a lesser alternative to speech therapy</u> and for Pronunciation testing to discern between sensible/non-sensible words in their speech, including analysis of speech to check for stuttering and excessive repetition of words.
4. **CONTENT MODULATION** - The <u>syllabus</u> of theoretical learning, must be <u>adopted but modified</u> from a pre-established board and curriculum, and altered to fit the unique needs of autistic students.
5. **HONING SKILL** - <u>Each specialized interface focuses on a particular skill</u> as required for every unique child.

Thank you

Contact: kamath.sanchita@gmail.com