

# **ELSSIST**

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**IHCI Group : 6\_6**

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## Abstract

“Change is constant. The only undeniable unchanging truth is that people age. We haven’t found the elixir of youth or the Philosopher’s Stone yet. As the technology advances, so does the significant subset of people who can't keep up with it”.

The emergence of technology has changed the world to a large extent. We have made the design especially for them so that it will be user-friendly. This unprecedented shift in technology has taken the form of various changes in our life. One of the giants which are taking over in creating

our lives easier is applications on mobile phones. We bring to you an app that includes the elderly as a figment of our society which is generally ignored and not cared for. In current scenarios, the elderly are very much dependent on others for the functioning of their daily lives. Our app aims to reduce this dependency by introducing an app that includes all kinds of features which will make their lives easier. We have tried to tackle and accommodate this problem space by inculcating a user-friendly interface and easy-to-understand features

## **Introduction**

Information and communication technology have shown tremendous growth after the 1990s, it is mainly driven by mobile phones. According to a survey conducted 81% of the world's population have mobile phones. Different People use technology in different ways. With elderly people as the target audience, we need to realise that a very less fraction of the elderly possess smartphones since they face issues in using them. Elderly people have special needs that can only be addressed if we harness the advancement of technology that we are witnessing today. This makes a large digital gap between the two groups of our society and acts as a barrier for the development of society since elderly people are the most experienced people and can contribute a lot through technology.

By looking at the statistics of the percentage of an elderly person using mobile phones gives us a glimpse of the opportunity it provides to a tech company to launch a mobile app specifically for older people. By bridging the digital gap this issue can be resolved which in turn increases social interaction and increases their quality of life and opens new opportunities for them.

However, the use of technology is not easy for elderly people since usually the app and the features not designed consider them as many times the apps are too complex for them to understand. According to a survey conducted by Vodafone Spain foundation which showed that people above the age of 50 years want to learn new technology and want new technology to be introduced to fit their needs. Most elderly people use mobile phones for limited things such as calling, texting. This is because the apps are not made according to their needs and they are not able to learn them.

## **MOTIVATION, PROBLEM DEFINITION and TARGET USERS**

Assistance is the essence of coexistence. Without helping each other we as an individual fail the premise of mutually co-existing as a society. With the world progressing at an unprecedented rate, it has been observed that many people do not have the time or the privilege to help the elderly in their daily lives and the restrictions they face due to the age constraint. It is horrifying to even hear incidents where old parents die in their own apartments since no one is looking after them or even care about their well being. The elderly are shunted away because no one is ready to accept the responsibility to assist the elderly. We bring to you an app for assisting that fraction of the society that requires support and care at their stages of life. Our app entails assisting the elderly in multiple aspects which include health, daily routines and emergencies etc. Our motive to discover the app was an instinctive thought to aid the elderly in any way possible since many of them are neglected and live a frugal lifestyle with minimal help. The problem space defined by our team exists on the premise that old people require care and we have to facilitate using easily accessible and usable technology. Addressing the double diamond of design the development part was catered for by structuring a design prototype of the interface which includes features which accommodate the elderly through its comfortable visual display and easy to use nature. The solutions we have developed include all aspects of life of the elderly in which

they face difficulty. Some of the solutions we came up with are SOS , medical reports and daily assistance features such as find your thing, yoga and physio etc. Under the broad umbrella of the problem space we try to address these problems. These issues might seem miniscule at this stage but we strongly believe that change will be witnessed eventually

To facilitate the application that is made for them some things need to be taken into consideration. some of these things are:

1. Usability should be taken care of. It is the prime thing to be taken care of while making an app for them
2. Study the features that they need in the apps. These features can be related to their health or for solving their problems booking a cab or to finding the thing they misplaced from the previous data stores
3. Developers needs to also explore the existing apps present and include the features that would be essential for the elderly person

The target user for our apps are elderly people, a person with health issues and physically disabled people. For different countries the criteria for an elderly person is different. Somewhere it is 65+ and somewhere it is 58+. But we have taken the elderly person criteria according to the WHO guidelines. According to them, a 60+ person should be considered an elderly person. Our apps mainly focus on the age group of 60+ but it can be used by a person whose age is less than 60 or by a person who has some problems or is physically disabled. For the person with problems like eyesight issue, mental issue, etc it has features like font increment, health system which will monitor their health and make their life easy. For the physically disabled we have features like speech to text, health monitor system, features to connect them to their family and doctors

Lives of people of the age group 50+ are the hardest and their body is the most vulnerable to diseases. This motivated us to make an app for elderly people and make their lives easier and much more comforting and convenient. As my grandparents suffer from joint pain and blood

pressure problems and have to take medicines regularly and go on regular checkups. They find it very difficult to maintain a schedule and do all that at that age.

They require the help of a family member to assist them in taking medicine etc but for the elderly people who live alone, this is a big issue as they don't have anyone there to help them follow their schedule and remind them to take their medicines hence there is a need of an app that will take care of these small things that make a huge difference.

The idea of making an app for an elderly person is not new. There are various apps presently available that provide different features to the user but in most of the cases provide very specific features and solve very few problems of the elderly person. For example, there is an app that provides a torch using the smartphone backlight but this app provides only these features. If the user needs some other feature like font size increment then he/she needs to install one more app. This may confuse the older person and they may not use them often if they need to open different apps for a different function. This also takes more storage space and also makes the smartphone slow. So we made an app with different existing functions as a flashlight app and with some other features also like a full-body health system that has a prescription reminder. We also have a feature that informs your family members and doctors if it finds your health degrading. We also made the app more interactive so that the user can give inputs or by noticing the user experience we can open a particular section of the app that the user most often used. Some of the features that should be present in an app for elderly people are memory aid like a reminder, appointments, etc: visual aids like larger text, backlight, Bold character: features to reduce errors, and safety features. We have tried to increase all these features so that elderly people do not have to look for various apps and can find all the features in a single app.

## **Problem Definition and Identifying Target Users**

The goal of this project is to make an app that makes the life of elderly people easier and more convenient. In this day and age technology has become a big part of our lives but studies show that less than 60% of elderly people own a mobile phone or know how to use it, this is a big barrier to the development of society. We all know that the majority of elderly people have ill health and have to follow a tight schedule of taking medicines and having doctor appointments. The problem with this is that it is hard for them to keep track of their medicines and appointments. Customizing their phones like turning the font set too high so that they can read better is a difficult job for elderly people. Getting the right calorie intake is essential for diabetes patients but elderly people find it difficult to keep track of their calorie intake and often end up taking more calories than required which is very dangerous for them. Many elderly people suffer from blood pressure problems so keeping track of their pulse and sending an SOS signal when their blood pressure is critical is a much-needed requirement. Elderly people often find it difficult to navigate through different apps and understand each of them. Elderly people who live alone especially are very vulnerable as in case of emergencies it can be very dangerous for them. They often find it difficult to travel to hospitals and medical clinics as many of them are not allowed to drive due to their medical conditions and booking a cab is not easy for them. So it is pretty clear that the target users of our app are people of the age group 50+ years and anyone who is suffering from a physical disability of any kind of visual impairment, an app specifically designed for them is much needed to boost their health and make their lives much easier and much more comforting.

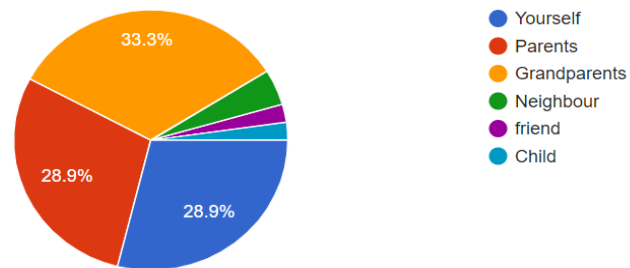
## **Requirements Gathering**

For gathering the required data for the features we should have added in the app we did a survey and took some interviews of some of our elderly people in our neighbourhood. In the survey, we asked the person if he is filling it for himself or any other person like their parents, grandparents, neighbours, etc, and their age. We asked them if they live alone or with their family to categorize the type of problem they may face and to find out if they get help or not. We also asked them about various medical conditions like hearing loss, cataracts, diabetes, depression, and loneliness, heart-related problems Alzheimer's, or dementia, Arthritis and joint pain, Parkinson's disease, Blood pressure problems, etc find about the most common diseases in the elderly person. We also asked them about the most common problems they face to maintain their mental or physical health. We also presented our features to them and asked them to rate out features so that we can find out if our features would be of any use to them. We had also asked them what problems that elderly people face while using electronic gadgets.



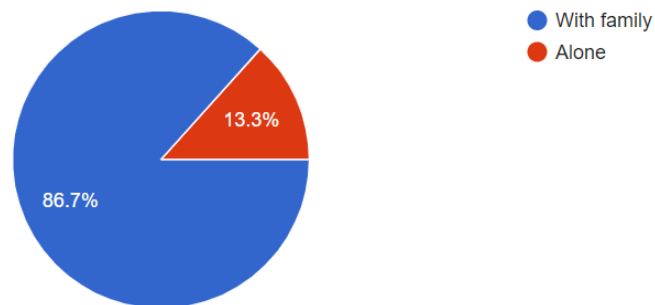
Who are you filling this form for

45 responses



Do the elderly live alone or with family?

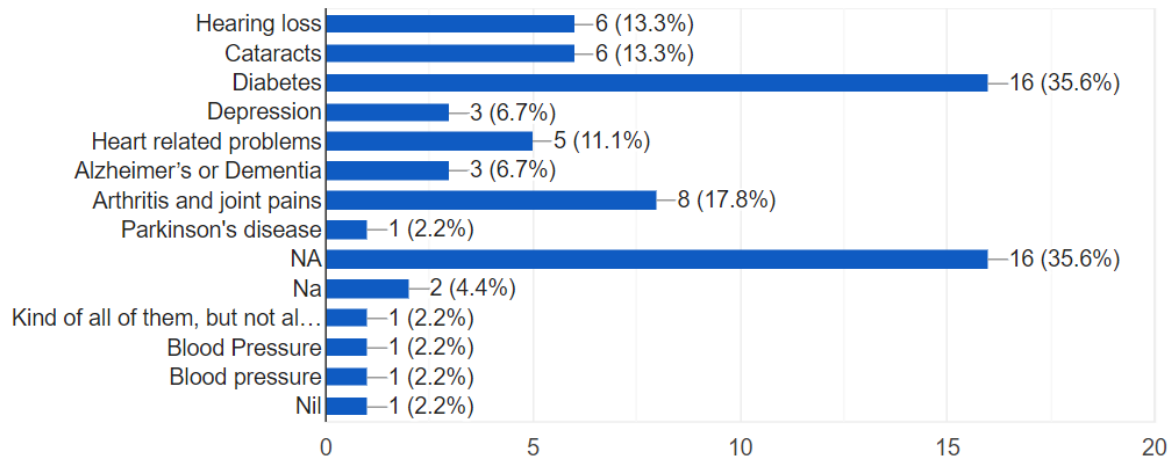
45 responses



As you can see in the above charts that we tried to include various age groups in our survey and about 70% of it is filled for a person with 50+ age and one can also see that in Indian families most of the elderly person lives with their family members so most of them have some help in their daily lives from their family members

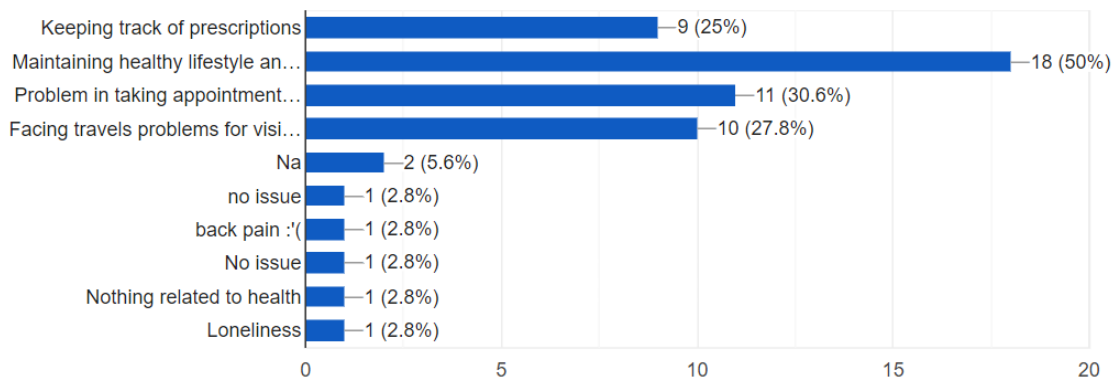
Are they experiencing any of the following medical conditions?

45 responses



What kind of issues(if any) have they been facing in maintaining their mental or physical health?

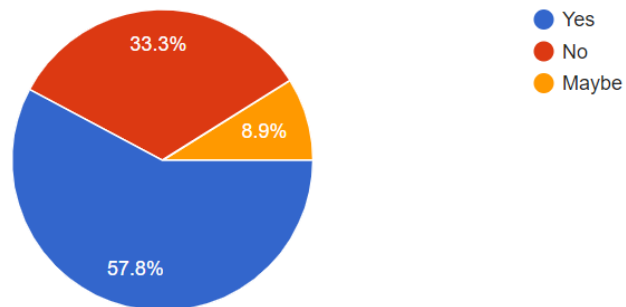
36 responses



From the above charts, we can see that most of the elder have diseases like hearing loss, cataracts, diabetes, depression, and loneliness, heart-related problems Alzheimer's, or dementia, Arthritis and joint pain, Parkinson's disease, Blood pressure problems, etc and they also face problems in maintaining a healthy lifestyle, keeping track of prescription, problems in taking appointments, etc.

Do the elderly face issues in operating a mobile phone

45 responses



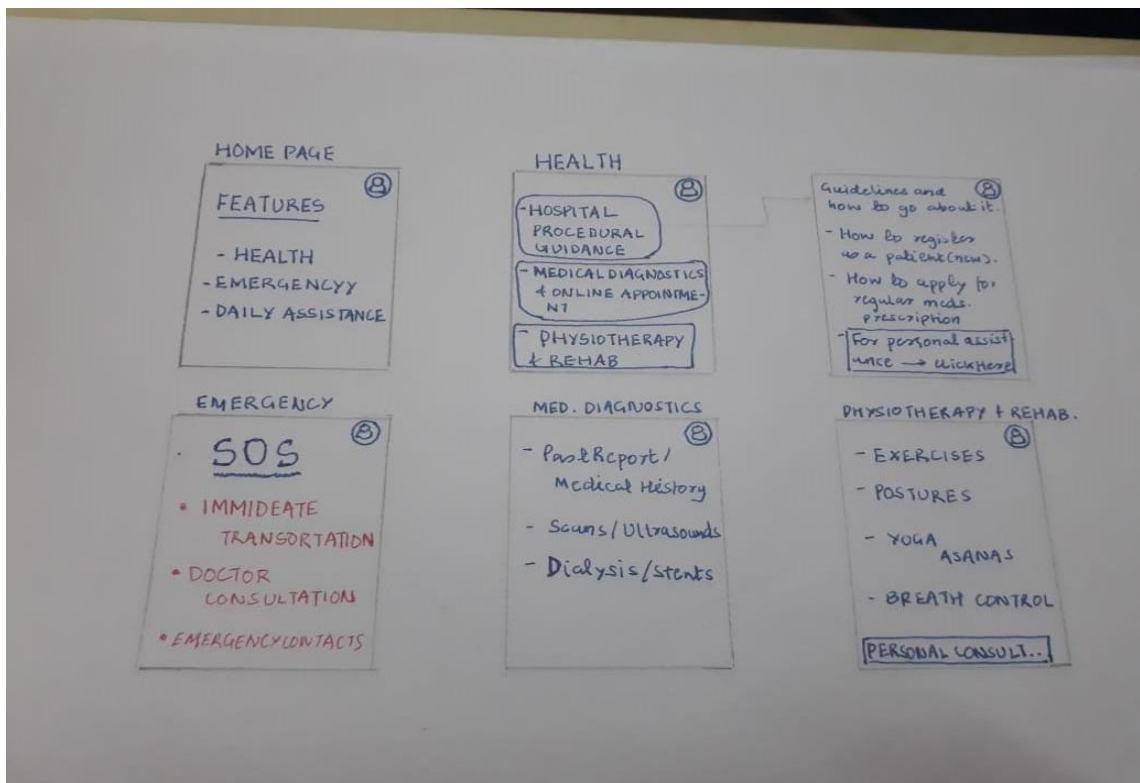
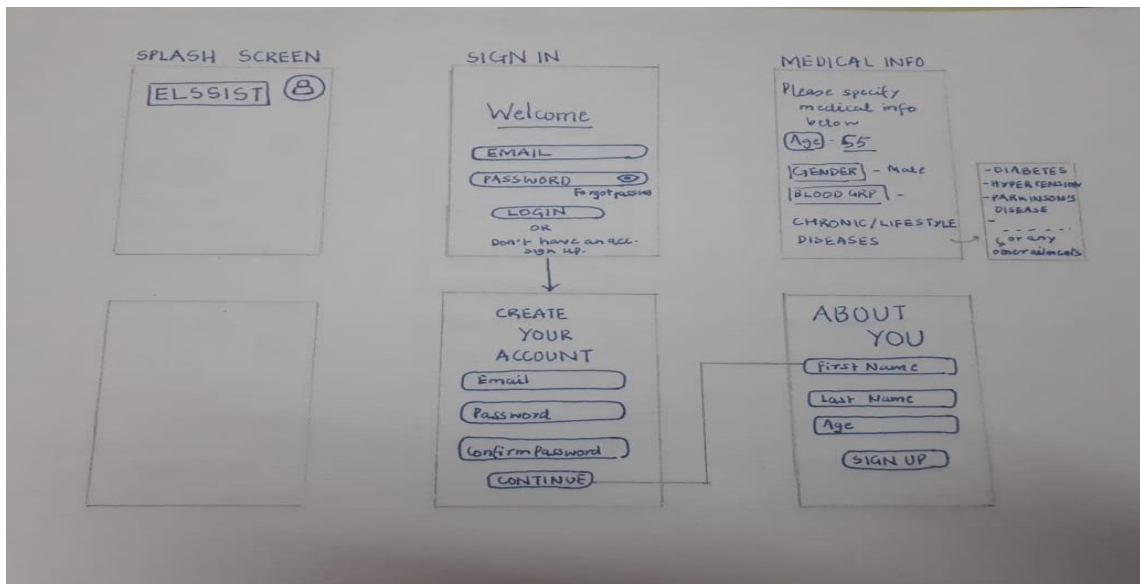
From the pie chart above, we can clearly see that most of the elderly people, especially Indian elders, face a problem in operating mobile phones so some features have to be added to solve these problems. In most of the suggestion also we received we got that the app should be easy to use for an elderly person as they have very less digital knowledge

In the interviews we took, we got to know about the same problems like health and about not being able to use mobile phones or not having anyone to explain to them.

## Ideation and Low-fi Prototyping

After the surveys and interview, we had finalised the main problems that the elderly person face in their daily lives. Some of the problems and solutions that we found out are:

1. Because of their reduced eyesight, they are not able to properly see the mobile screen or newspaper articles in normal font size. Therefore to accommodate issue we have made inculcated large fonts and clearer texts such that they easily access all features
2. They face a lot of problems in finding things that they placed and forgot. To solve this problem we decided on a feature where they can save the places they generally place that particular thing or they can also get the location from the app as the app will save the location where they place theirs by following their previous habits.
3. As an elderly person gets out of the house a little less so to connect them with another elderly person we have a feature that will help them to connect them to another elderly person in their locality. It will act as a social media for them but it will be easy for them to use compared to the other social media apps available in the market
4. As per the survey, elderly people get a problem with getting an appointment so to solve this problem we made a feature that connects them to the hospital. By seeing the previous records and list of diseases you have it provides customised diet plans, calorie counters, health trackers and 24x7 connectivity with a nearby hospital to take care of your queries and health
5. For enhancing their health we also have a feature for reminding them about their appointment and also for booking an appointment for them, It also has a medical emergency guide
6. The app also allows you to track your weight, blood pressure, pulse, oxygen tracking from their smartwatches and also in case of emergency shares this data with the doctor and the family members
7. It also has a guide to physiotherapy exercises to prepare and recover from orthopaedic surgery
8. The app also has a feature for SOS. if the elderly person faces some emergency he can use it through the app



## High-fi Prototyping

1. Based on user stories and feedbacks we wanted to make a UI which would hugely help the elderly in their daily life. To make sure we do the best implementation possible we took points from the interviews conducted and the form responses.
2. The high fidelity prototype has been made after further developing the ideas made in our low fidelity and centring on 3 main categories- Health, Emergency and Daily Assistance.
3. High fidelity Prototyping on Figma : Hi-fidelity prototyping has been done on Figma, a platform which allows its users to create an application and see its functionality on a limited scale.
4. We tried to implement Glass Morphism, one of the latest UI designs in our prototype
5. The text size is intentionally larger so that the elderly can easily read it

Now we will guide you through the UI and UX of the app:

Design Principles:

### 1. Visibility:

Visibility principle has been inculcated in the app design by making bigger tabs and buttons. Age constraint of the elderly citizens have also been accommodated by making simple listed options without any complex selection procedure so that they can be easily viewed.

### 2. Feedback:

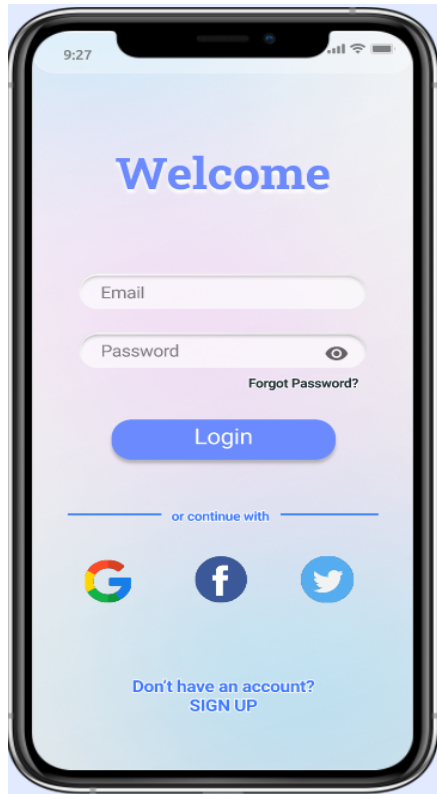
A definite feedback has been shown on every user's action on app



In this image you can see there is feedback provided to the user . He can choose his appointment date and time from here.

### 3. Consistency:

Login pages are kept consistent in design with the classic UI which is similar to most app , which also gives an option to log in using Google,facebook option



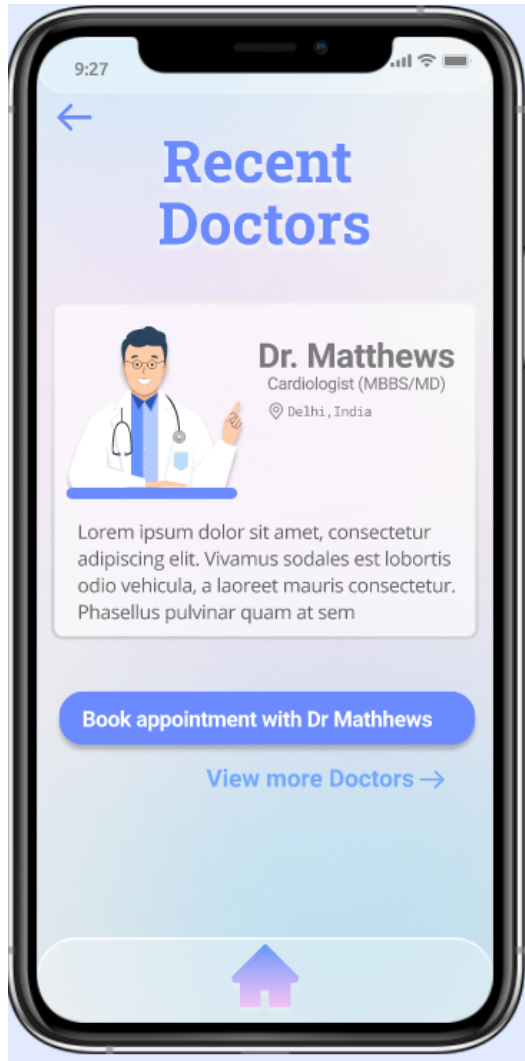
#### 4. Affordance:





Icons and animation explain the use of that particular function.

5. Constraints:

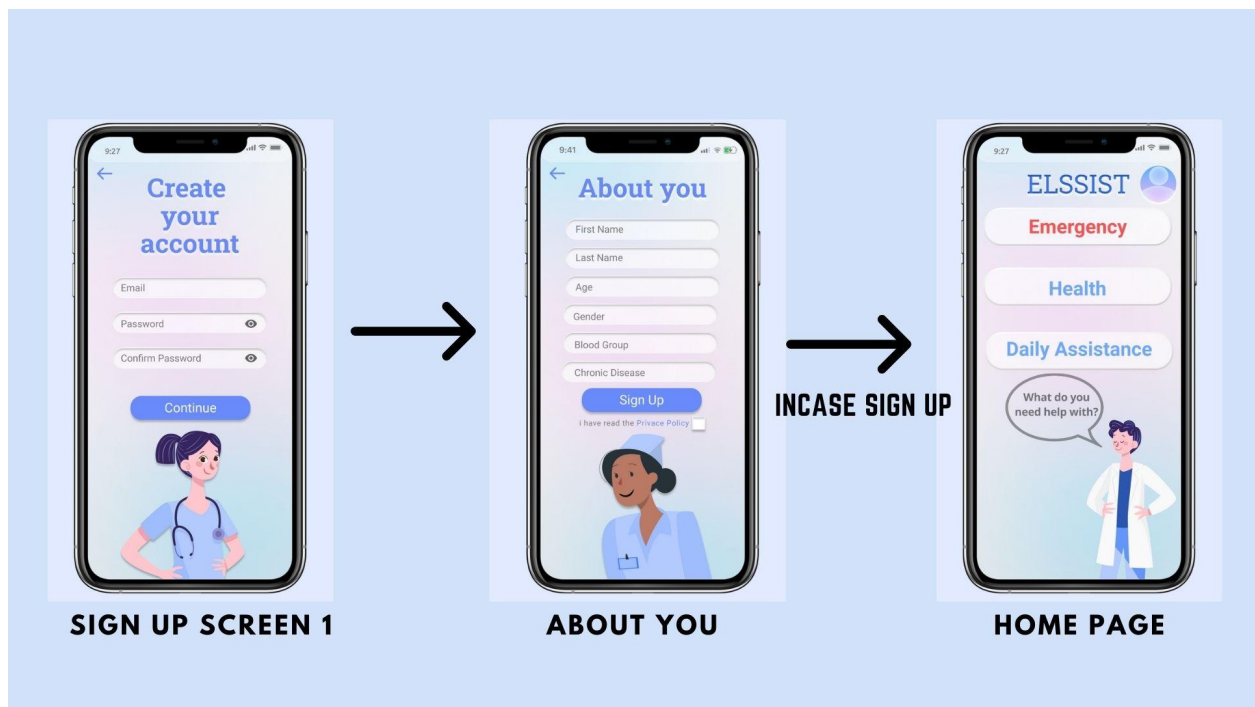
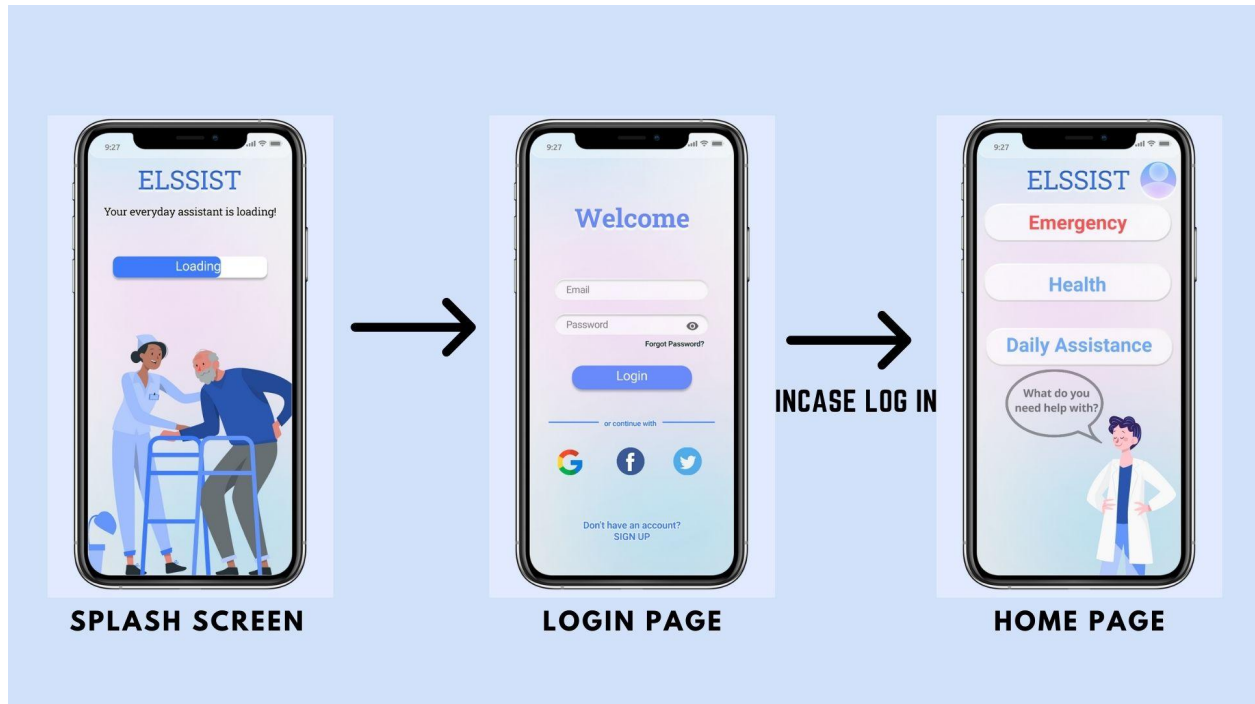


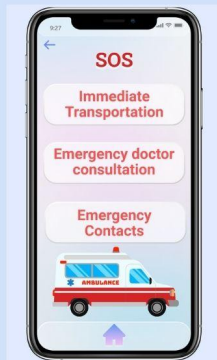
Only the list of recent doctors which you have consulted before also will come.

**The link to hi-fidelity prototype :**

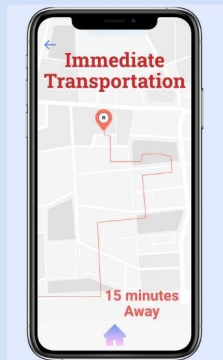
<https://www.figma.com/proto/3Knk03SmDZUAnQkvawxFuH/HCI-PROJECT?node-id=117%3A59&scaling=scale-down&page-id=0%3A1>

## USER FLOW

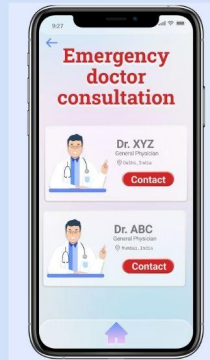




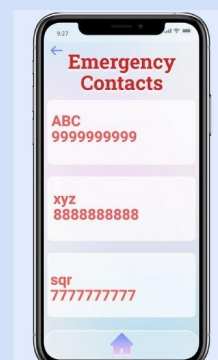
**EMERGENCY FEATURES**



**IMMEDIATE  
TRANSPORTATION**



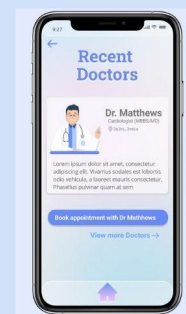
**EMERGENCY  
DOCTOR  
CONSULTATION**



**EMERGENCY  
CONTACTS**

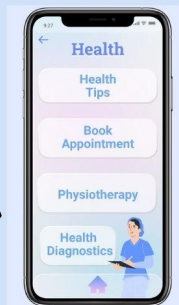


**CUSTOMISED TIPS  
BASED ON USERS  
HEALTH**



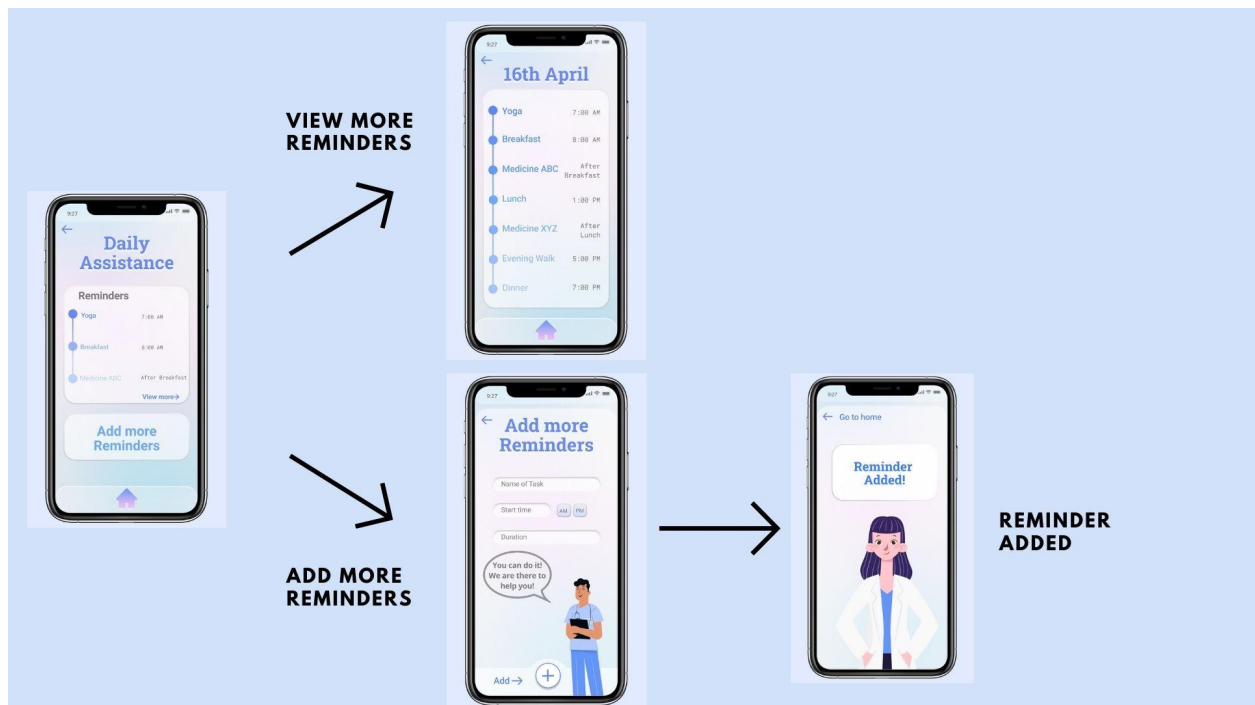
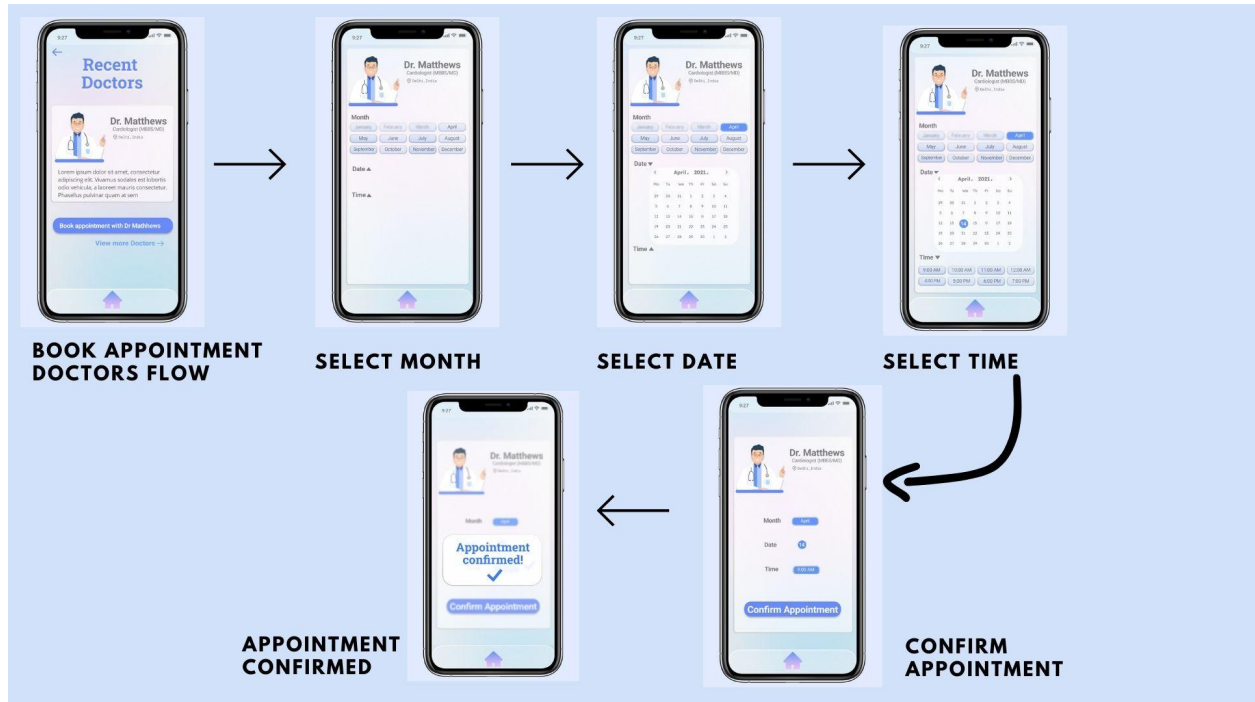
**BOOK APPOINTMENT  
DOCTORS**

**HEALTH FEATURE**



**PHYSIOTHERAPY AND  
REHAB TIPS**





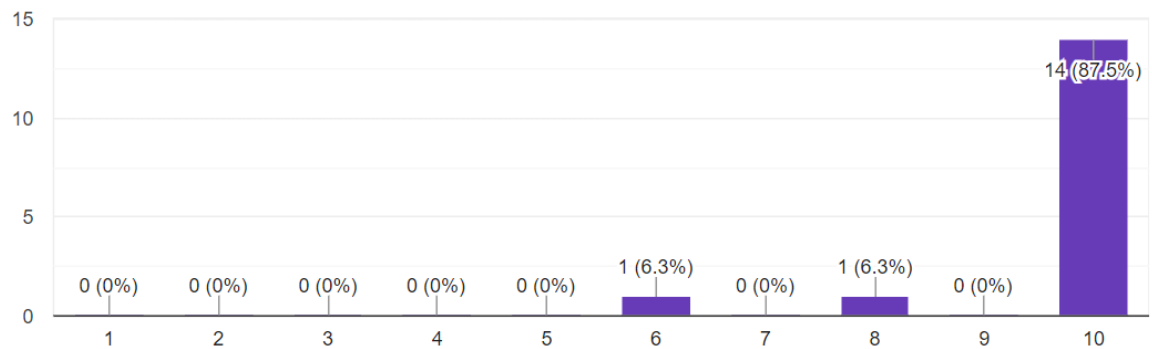
## Evaluation

For evaluating our prototype we floated a google form asking the users to go through our prototype. We received various responses from it . some of the responses are listed below

Rishabh IIITD 1st year student	The UI is amazing. It was really enjoyable to use the app!
Harsh Bhardwaj IIITD 1st year student	The UI was a bit cluttered, but overall a great UI and simple design!
Ayush Sharma IIITD 1st year student	The prototype is too, nothing to complain about. good job
Sunishka IIITD 1st year student	The emergency button shouldn't be included between the other two buttons. It should be larger and a different shape. People can often panic and press the wrong button in emergency situations. Similarly book appointments should be a separate page out of the health category imo. I love the whole interface either way
Vikrant IIITD 1st year student	Best prototype I have seen so far :)
Akanksha MBBS student	The emergency button should be differentiated well in the app so that in case of an emergency person does not have to find it rather it should be highly prominent and visible in the app. It should be large and little dark and highlighted and easy to press
Samarthya Gupta IIITD 1st year student	Yes security system must be added

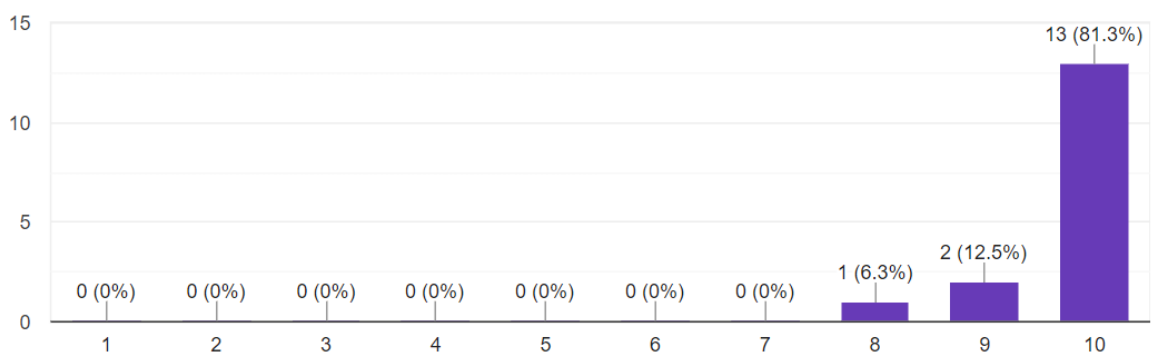
### Was the UI self-explanatory?

16 responses



### What do you think of the user interface of the app, on a scale of 1 to 10?

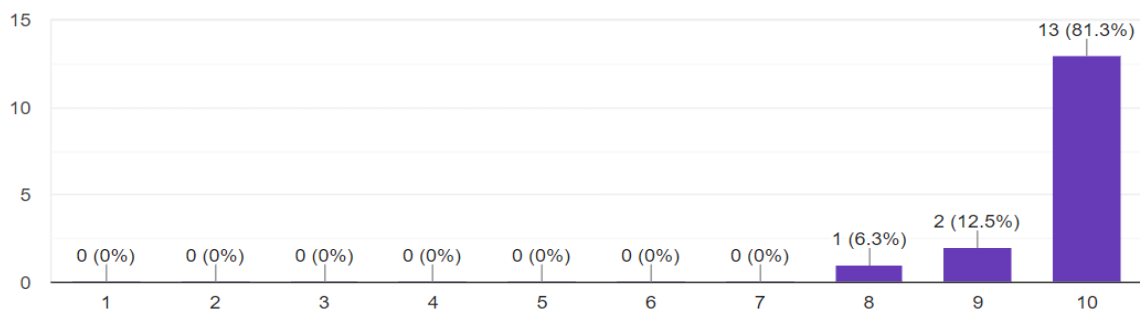
16 responses



### On a scale of 1 to 10, what was your initial impression of the app?



16 responses



From the feedback that we got from our google form we can see that most of the users find our High-fi Prototyping very user friendly and self explanatory

### Implementation through the feedback

The feedback that we received had some responses that says that the emergency button placement was not good as the user when panicked may press the wrong button or may not find the emergency button. The solution provided for this problem was that the emergency button should be of different shape and placed separately and not between other buttons. So we implemented it and changed the position of the emergency button so that it can be easily seen and therefore can provide some benefits to the elderly person in emergency situation.



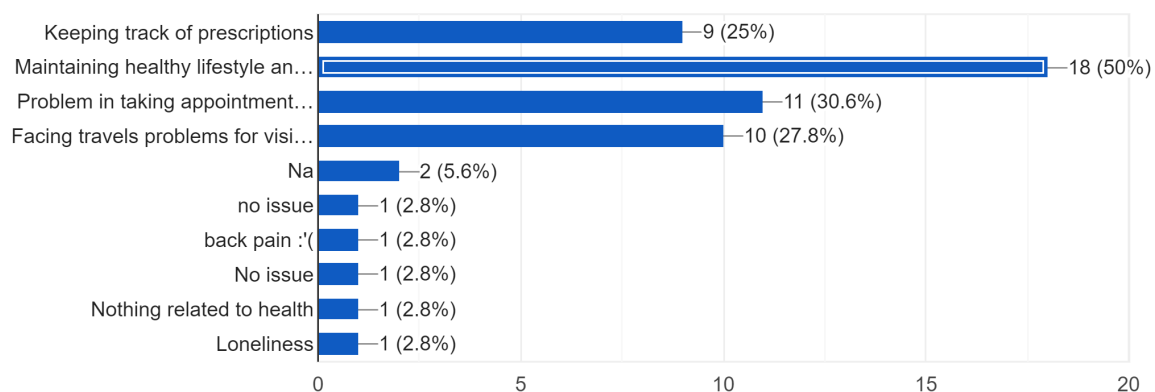
**USERFLOW VIDEO (WORKING OF THE  
PROTOTYPE):**<https://drive.google.com/file/d/14gKSvhwPhQPqwhbS7TA6VZ3Vk9OeqZAY/view?usp=sharing>

## Analysis and Future Work

From the survey we conducted, the majority of respondents observed elderly people having a problem in maintaining a healthy lifestyle and taking a healthy diet, keeping track of their prescriptions and appointments, having a problem in taking an appointment and facing a problem in travel issues for visiting the medical institute like booking a cab. 87% of the respondents said that the elderly people live with their family but 90% of the forms were filled for their own family members so it might be a bit misleading as from a study in 2011 about 40% of senior citizens live alone and this can be a very high-risk situation as with the increase in age there is a rapid growth of risk factors and emergency situations are a very dangerous possibility. Our study also indicates that there is an increasing need for an app for elderly people but there are very few options available. This can be changed from our project.

What kind of issues(if any) have they been facing in maintaining their mental or physical health?

36 responses





Elderly people are more prone to diseases than any age group in the society and from our survey, we found out that only 35% of elderly people don't suffer from a chronic disease like hearing loss, cataracts, diabetes, depression, and loneliness, heart-related problems Alzheimer's, or dementia, Arthritis and joint pain, Parkinson's disease, Blood pressure problems, etc. Most of these problems need 24X7 attention from a caretaker or family member and regular checkups. Our app will have an SOS button for elderly people to contact and alert their caretakers and doctors in case of an emergency we also propose to link the app with smart watches like iWatch or one plus watch for monitoring elders' blood pressure and oxygen levels and notify the caretakers and the users in a case where the blood pressure goes higher or lower than expected. We also offer daily assistance to elderly people in taking their medicines and help them in maintaining a proper schedule and taking a proper diet plan. We also offer a one-stop solution for maintaining their medical records and a tool for elders and their doctors to communicate and manage prescriptions. Physical health is not the only concern for elderly people. Their mental health is equally vulnerable as they feel alone and don't meet people much therefore we offer yoga lessons, exercises, breathing controls, etc for peace of mind and maintaining sound mental health. Our biggest limitation is that many elderly people find it difficult to use technology and in our survey also we got suggestions to make the app simple as elderly people don't have much experience with technology, therefore, to go past that barrier we have made our app very easy to use and we also plan to introduce short and easy to understand videos on how to use the application. Our future plan is to integrate our app with a social media platform so that elderly people who are alone and lonely can make friends and improve their mental health and meet new people who can understand them and support them.

## **Conclusion**

The introduction of technology has impacted life in various ways. These impacts can be increased if they include the elderly person also as not always the technology is adapted for them. It can open various possibilities for them to socialise, live a healthy life, learn, keep in contact with their family and friends.

This report focuses mainly on the use of mobile apps and mobile phones and how they are not adapted for their use. From various reports, surveys we got to know about the problems that elderly people face in their lives. Some of the problems are physical and some are due to mental issues. To help them with these problems and make their lives a little easier we came with designing an app that had various features in it to help them

From this, we got to know that there are various factors to consider before designing an app for them and that we also got to know that developers need to change their approach to make it suitable for elderly people also.

The usability of elderly is very different from normal mobile phone users so special attention should be given to them to make it user friendly for elderly people. Taking this account we designed an app that has most of all the features an adult would need in his daily life ranging from find features to health features that have puzzles to make their mind active which contributes to their physical and mental health.

## Bibliography

1. Figma Resource Credits-  
<https://www.freepik.com/>  
<https://www.figma.com/community/file/918144271852412298/Glass-icons>  
<https://www.figma.com/community/file/961525536677833422>
2. <https://medium.com/@sachinrekhi/don-normans-principles-of-interaction-design-51025a2c0f33#:~:text=Visibility%20is%20the%20basic%20principle,still%20struggle%20with%20adopting%20it.>
3. <https://dl.acm.org/doi/10.5555/2729485.2729549>

## Contribution:

Name	Contribution
<b>Aanya Trehan (2020419)</b>	Prototype,Report,Video
<b>Ayush prusty(2020427)</b>	Prototype,Report,Form and collaboration
<b>Hemang Dahiya(2020435)</b>	Video,Form and data collection,Editing and collaboration
<b>Shubham Lal(2020 )</b>	Report,Form and data collection
<b>Ujjwal Godara(2020345)</b>	Report