



Project Proposal

2023



PDD Web and Mobile App
Design and Development

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About Cura





Overview

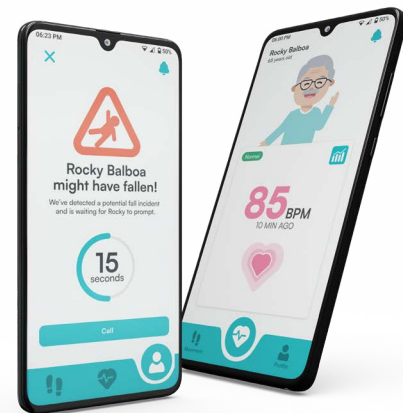
Our mobile app helps caregivers monitor the health of their elderly loved ones by using a smart wearable band for constant, real-time health tracking, to promote peace of mind and connectedness.

The name of a divine figure whose name means “**Care**” or “**Concern**” in Latin. A significant portion of English vocabulary is from the Romans and Latinate sources. Latin is also used in Ancient Rome. In its golden age, it introduced a lot of futuristic invention. Its citizens are health-conscious and they put high regard or respect to the elders.



Problem

The project aims to solve the pain point of ensuring the safety and health of senior citizens, particularly those living independently or with limited assistance. Seniors often face challenges related to falls, medical emergencies, and the need for continuous health monitoring. These challenges can lead to concerns for both seniors and their caregivers regarding their well being.



Solution

The senior care app will provide a comprehensive solution by incorporating features such as fall detection, health monitoring, location tracking, and emergency alerts. It will enable seniors to lead more independent lives with peace of mind while allowing caregivers to remotely monitor their health and safety. By addressing these pain points, the app aims to enhance the overall quality of life for seniors and provide caregivers with the tools they need for effective support and assistance.

MAIN Features



Fall Detection

To ensure the safety of seniors, particularly in cases of falls or sudden movements.



Heart Rate Monitoring

Relevant to the user as it provides continuous health monitoring and alerts for potential health issues.



Location Tracking

To ensure the safety of seniors, particularly in cases of falls or sudden movements.



MARKET Research

Cloud Feature

1. Data Storage and Management: Use the cloud for secure storage of user data, including health info, location, and alerts.
2. Real-Time Data Sync: Enable real-time data synchronization between wearables and the app.
3. Scalability: Ensure the cloud can handle growing user numbers and data volume.
4. Data Security: Leverage cloud security features for data protection.
5. Analytics and Insights: Use cloud-based analytics to provide health insights.
6. Backup and Recovery: Ensure automated data backup and recovery.
7. User Authentication: Handle user authentication and access control securely.
8. Updates and Maintenance: Perform updates and maintenance remotely for user convenience.



Platform

Mobile Platforms (iOS and Android):

- Reach a wide audience, including both seniors and caregivers who use smartphones and tablets.
- Take advantage of established app distribution channels (Apple App Store and Google Play Store).
- Provide a familiar user experience for those already accustomed to using mobile devices.
- Ensure accessibility and convenience for users who may not use wearables.

Wearable Platforms (e.g., Apple Watch, Android Wear):






- Enhance health monitoring with wearable sensors and features.
- Offer a seamless and convenient way for seniors to access health data and trigger alerts.
- Leverage the portability and always-on nature of wearables for continuous monitoring.
- Appeal to tech-savvy seniors who may already be using smart-watches or fitness trackers.



The health tech sector is a huge business, all of which offer a plethora of products and services on senior health care. The biggest challenge for us is to find close competitors which we can gauge the competitive edge of our app against with. We also took into consideration some competitors that integrates a smart wearable with a mobile device. We have narrowed down with Quardio, iBP Blood Pressure, ElderCheck and Mi Fitness Xiaomi Wear. While some might be exclusive to either an Android or IOS system, Cura (while currently running on Android) has strong plans of making it available for both platforms in the future.

Another edge of Cura is how we utilize a smart watch that is already existing in the market. This makes our app more readily available to users and eliminates a steep learning curve compared to apps that have their own hardware.

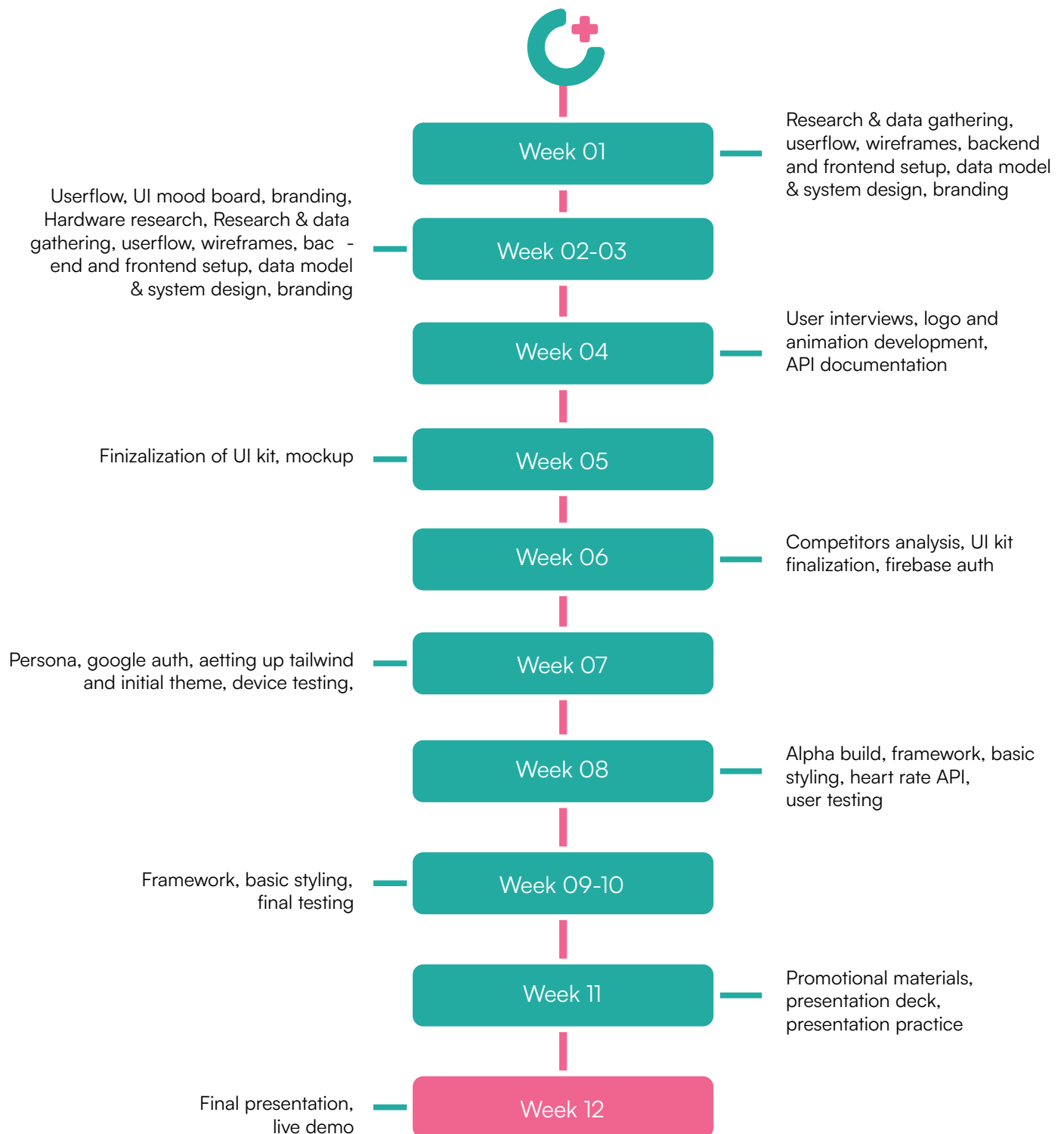
COMPETITORS Analysis

					
Fall Detection Notification	✓			✓	
Heart Rate Monitoring	✓	✓	✓		✓
Location Tracking	✓				
Smart Wearable	✓	✓		✓	✓
Setup Pulse Threshold	✓				

Project Schedule



Design & Development Plan



Technical Overview



Data-Model

Elder User Profile	
PK	_id
String	Name*
String	Preferred Name
String	Email*
String	Phone Number
String	Sex
String[]	Medical Condition
String	Blood Type
String[]	Allergies
String	Notes
Document[]	Caregiver Profile
String (index)	userId
Document[]	Heart Rate Doc
String[]	Default / Home Location GPS
Document	NotificationLog
Int	Age
String[]	Home Location Coords
JSON[]	Caregiver Relationships

Caregiver User Profile	
PK	_id
String	Name*
String	Preferred Name
String	Email*
String	Phone Number
Document[]	Elder Doc
String	Expo Push Notification Request Token

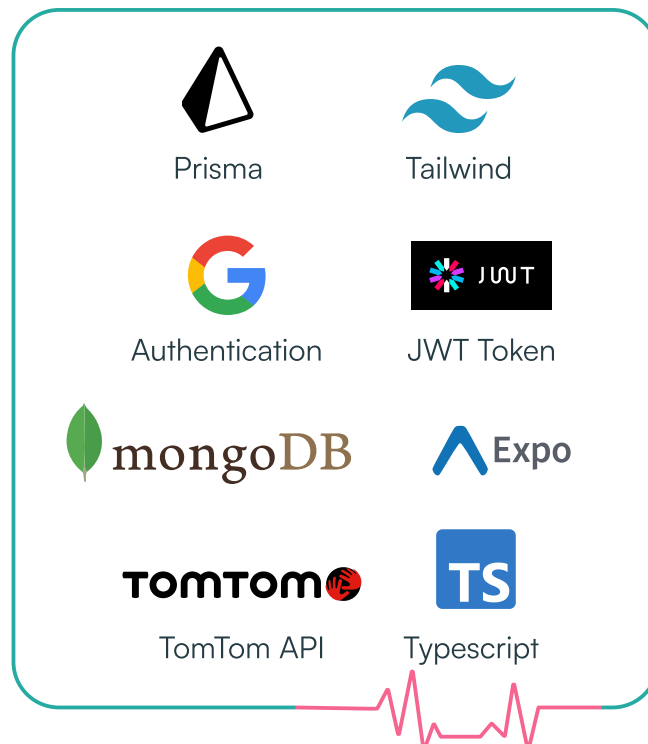
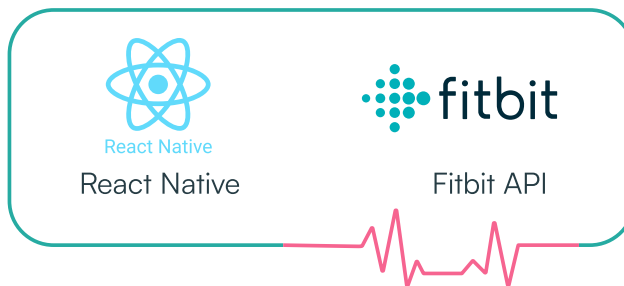
Heart Rate Log	
PK	_id
FK	ElderId
ISO	Timestamp
Int	Week's Avg BPM
Int	Week's Min BPM
Int	Week's Max BPM
Int	Today's Average BPM
Int	Today's Min BPM
Int	Today's Max BPM
Int	Beats Per Minute

Notification Log	
PK	_id
FK - Indexed	ElderID
ISO - Indexed	Timestamp
Enum	Type [Movement Detection, Fall Detection, Critical Heart Rate]
Int	Detected Abnormal Heart Rate
String	Message
String[]	Location GPS
Int	Current Max Threshold
Int	Current Min Threshold
String	Location Address

Technology Used

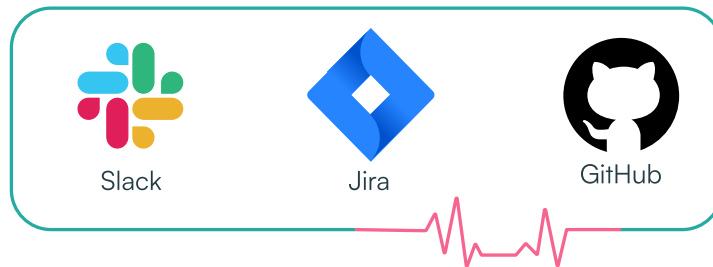
Development

The mobile app, built with Expo and React Native, harnesses native mobile APIs, ensuring a seamless user experience. Security is prioritized through JWT token authentication, and the backend, powered by Express.js and hosted on EC2 on AWS, ensures both control and scalability. React Native and Expo form the core of its mobile app, providing access to native functionalities, while EC2 on AWS supports a scalable and controlled backend. With meticulous design using TailwindCSS and Lottie JSONs for animations, coupled with security measures like JWT token authentication, Cura stands out as a secure, efficient, and user-friendly platform.



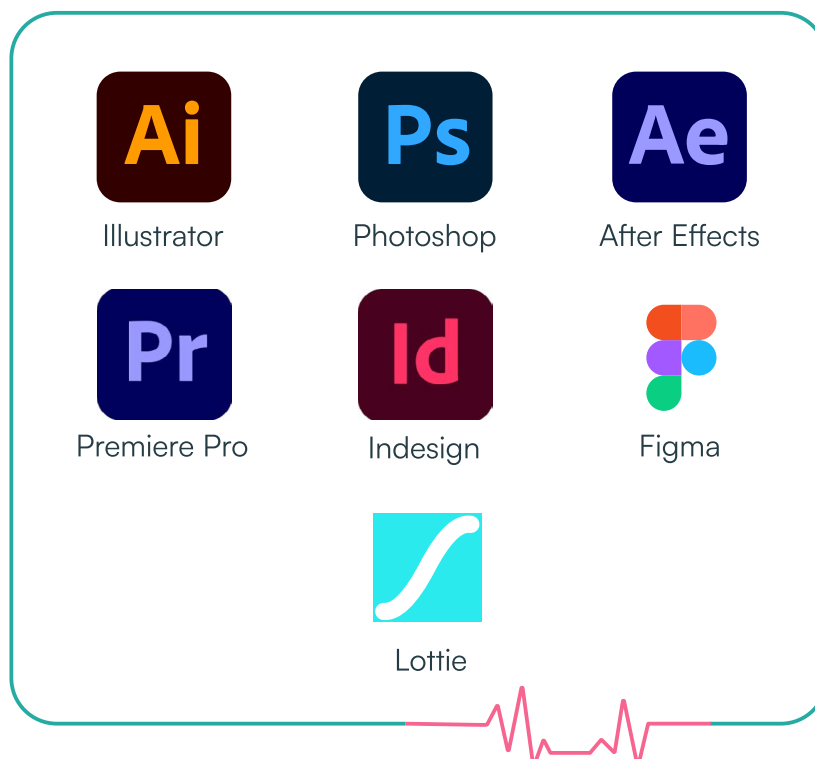
Project Management and Communications

Coming up with a working, functional app in 12 weeks requires efficient project management and team coordination where each of these apps help us achieve the tasks within a short minimal time. We've used Slack as our primary communication, Jira for managing tasks and adherence to the scrum framework, and Github for our repository.

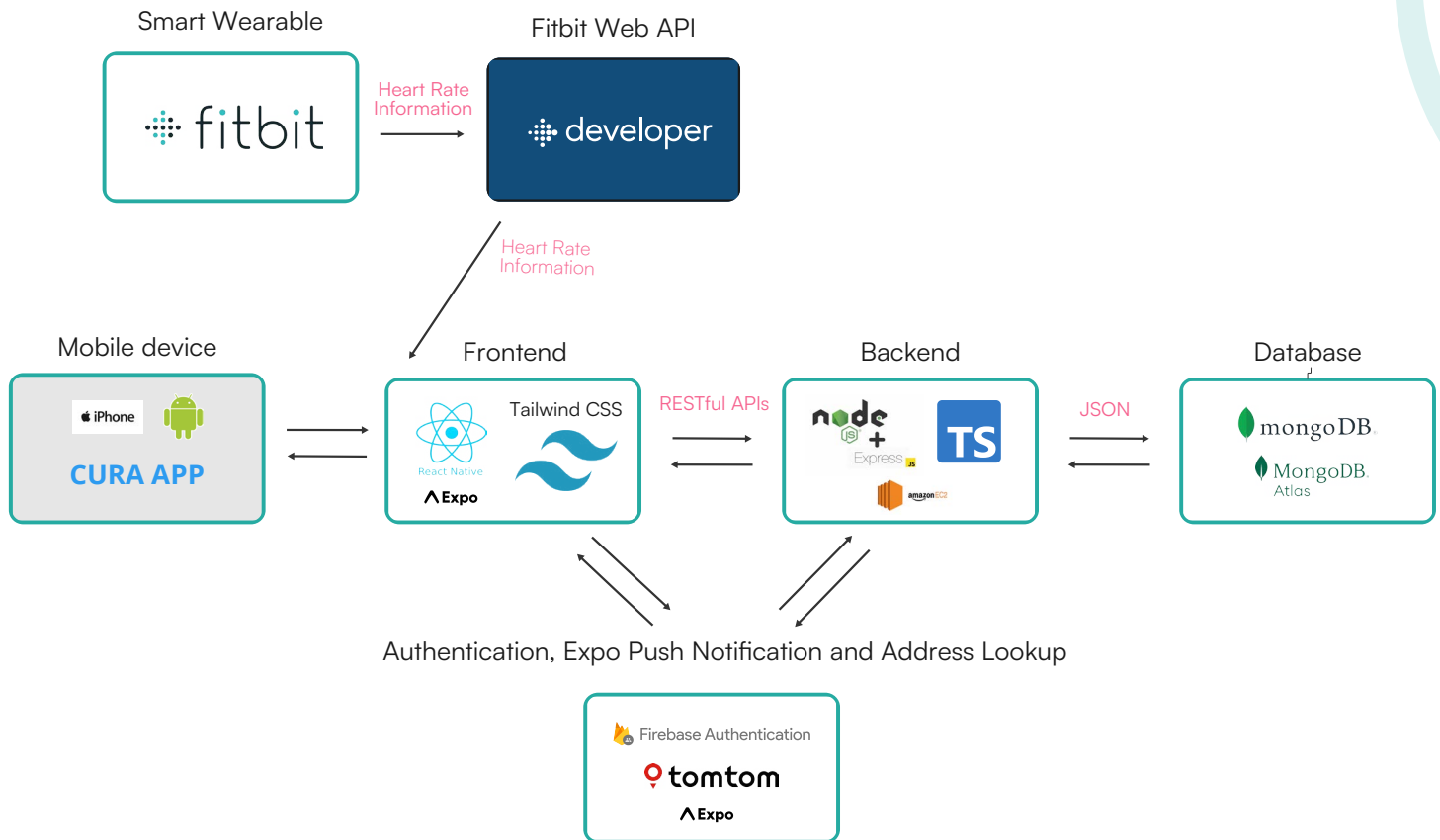


Design

We used Adobe Premiere and After Effects to edit our marketing video and create the animation of the avatar. Photoshop was generally used for graphic effects and enhancements while Indesign was the primary tool for documentation and laying out our project proposal. Figma was used in developing wireframes and mockups while Lottie was the software of choice for animating icons.



System Architecture

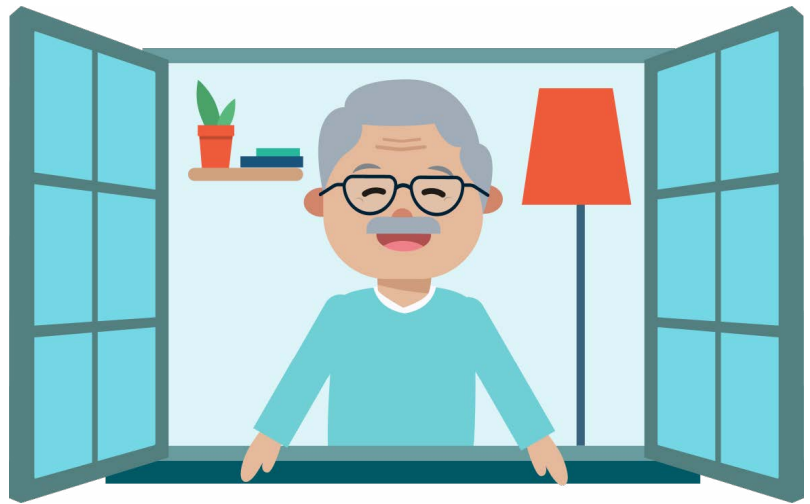


MVP Features

Cura leverages smart wearables, particularly the Fitbit Smart Watch, to collect health data, which is stored in Fitbit's cloud. We access this data via Fitbit web APIs to monitor the health status of elders.

Initially, we explored Google Fit as an alternative, but we found that the time intervals for data acquisition were significantly longer compared to the data gathered through the Fitbit Web API.

Cura is equipped with personalized thresholds for minimum and maximum heart rates based on individual diagnoses or age parameters aligned with the guidelines of the American Heart Association. By gathering data from Fitbit devices, we continuously monitor for any abnormal heart rate patterns. Upon detecting such anomalies, our system promptly triggers Expo push notifications to alert the designated caregivers or family members responsible for the elder's care.



Live Location Tracking

Cura's Live Location Tracking is a key component in the app's feature set, utilizing Expo TaskManager and Expo Location APIs to ensure the safety of elders. By obtaining GPS coordinates at 20-minute intervals and comparing them to the elder's home location, the app can detect real-time movements. If the elder is found outside their home, Expo Notification sends timely alerts to caregivers. This seamless solution offers caregivers peace of mind, incorporating advanced technology for ongoing monitoring while prioritizing user privacy and data security.



Fall Detection

Cura's Fall Detection feature utilizes Expo Sensors, specifically the accelerometer, along with our in-house algorithm designed for precise fall detection. The Expo Sensors library enables continuous monitoring, while our custom algorithm enhances the accuracy of identifying potential falls based on accelerometer data. Upon detecting a fall, the app prompts the user for confirmation. If confirmation is not received within 20 seconds, caregivers are notified through Expo Push Notification. Additionally, Expo Location, in conjunction with the TomTom API, ensures accurate address lookup, providing caregivers with the elder's current location in the notification. This integrated solution, combining Expo technologies with our proprietary fall detection algorithm, ensures a reliable and responsive caregiving experience within the broader functionality of the Cura app.



Cloud

Scalability

We've strategically chosen Expo and Express frameworks due to their adherence to industry-standard practices in mobile app development and API construction, respectively. Expo provides a well-documented framework for mobile app development, while Express aligns with established industry standards, making it optimal for building scalable and maintainable APIs. Leveraging MongoDB and Node.js, our app's backend is fortified, ensuring scalability to efficiently handle increasing workloads. Additionally, AWS integration enhances stability by providing a reliable cloud infrastructure, guaranteeing high availability and minimal downtime. Node.js, with its stable ecosystem and event-driven architecture, further strengthens our application, enabling the creation of stable and resilient functionalities.

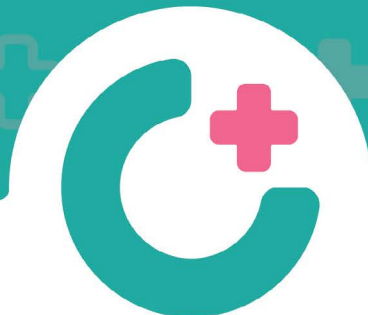
Security

We have enhanced the security of our system by implementing robust measures through the integration of Firebase Auth. This integration ensures seamless authentication processes spanning both the frontend and backend components. Leveraging Firebase admin support, we guarantee a secure authentication system. Our backend APIs utilize JWT tokens to authenticate user identities, thereby bolstering our security protocols. These JWT tokens act as protective layers for every API call, meticulously safeguarding our system against unauthorized access. Our team has developed a dedicated middleware layer to enforce the utilization and validation of these tokens, thereby maintaining a consistently high level of security across all interactions within our system.

Cost

The selection of AWS EC2 for hosting the website and MongoDB Atlas for database management in our app is driven by cost-effectiveness and efficiency. AWS EC2 offers a scalable and pay-as-you-go model, allowing us to optimize costs based on usage. With EC2, we can easily adjust server capacity to match demand, avoiding unnecessary expenses during periods of lower traffic. Additionally, AWS provides a range of pricing options, including reserved instances and spot instances, further enabling us to optimize costs. MongoDB Atlas, on the other hand, offers a fully managed database service, reducing the operational overhead and costs associated with database maintenance. Its flexible pricing model aligns with our usage patterns, allowing us to scale resources up or down based on demand, ensuring that we only pay for the resources we need. By strategically leveraging AWS EC2 and MongoDB Atlas, we aim to maintain a cost-effective infrastructure that aligns with our app's requirements while providing scalability and reliability.

Design Overview



Persona 01



Rani Del Rosario

Demographic

Age: 26

Status: Single

Occupation: Long-term Care Facility Nurse, Nursing Student

Hobbies: Walks and Hikes

Personality: Compassionate, Reliable, Attentive, Empathetic

Goals

Wants to ensure the well-being and comfort of the elderly individuals she cares for.

Frustration

It takes a great amount of time for her to check up on her patients by conducting traditional way of vital signs monitoring.

This audience's first point of contact with the app.

As a long-term care facility worker, she handles multiple senior clients that requires daily vital-signs checking. In order to check all of them it will have to take her at least 45 minutes per client and it takes a big chunk of her shift just to do that. In order to save those extra time reading and documenting vital signs, Cura can help her with it's heart rate monitoring, it can show her historical data with regards to her patients heart rate pattern and can provide insights with their patient's condition. Cura also have critical heart rate alert which can detect abnormal or unusual heart rate pattern and can notify her right away for faster and more accurate decisions.

App's features that User most cares about and the related benefits.

Real-Time Heart Monitoring - This feature can help her monitor the heart rate of the their loved ones. This allows them to stay updated on any changes or anomalies, enabling prompt action if needed. Abnormalities in heart rate can be indicative of various health problems. Detecting irregularities early can lead to timely intervention, potentially preventing more serious complications. She often worries about the well-being of their loved ones, especially if they have pre-existing health conditions. Having access to real-time heart rate data can provide reassurance and peace of mind. Other use cases she can take advantage of this feature: providing data to other healthcare experts, track recovery, documentation and record keeping.

Movement Tracker - In this feature she'll be able to monitor movement that can help in identifying any unusual patterns or signs of instability, which can be an early indicator of an increased risk of falls. This information can be used to implement preventive measures. Sudden changes in movement patterns, such as prolonged periods of inactivity, could be indicative of a health emergency. She can use this information to take appropriate action.

Fall Detection - This feature can automatically notify her or emergency services when a fall is detected. This ensures that help is dispatched quickly, which is crucial in minimizing potential injuries or complications. It can help alleviate some of her anxiety by providing a means for immediate notification. Knowing that there is a system in place to detect and respond to falls can provide a sense of security and confidence for the individual, allowing them to maintain a higher level of independence.

The media channels most appropriate to reach this audience.



Spotify hosts a vast library of podcasts, some of which are specifically tailored for caregivers. These podcasts cover a wide range of topics, including caregiving tips, emotional support, healthcare information, and personal stories from fellow caregivers. Caregiving can be emotionally and physically demanding. Caregivers can use Spotify to create personalized playlists of calming music or relaxation sounds to help reduce stress and promote a sense of calm.

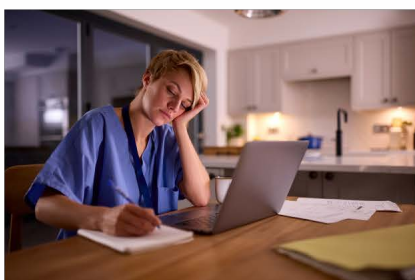
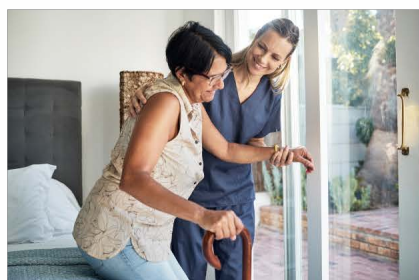
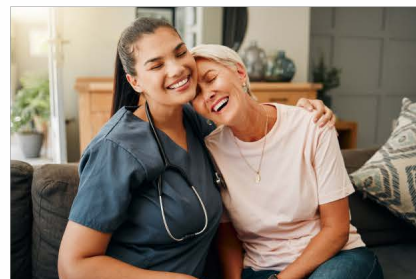


There are YouTube channels dedicated to providing advice, tips, and support for caregivers. Many experts in the field of geriatric care and caregiving share their knowledge and insights on YouTube. These experts might include doctors, nurses, physical therapists, occupational therapists, and social workers.

Brands



Moodboard



Persona 02



Lyn Balao Espiritu

Demographic

Age: 67

Status: Married

Location: Las Piñas, Philippines

Ethnicity: Asian

Occupation: Retired, former Executive Assistant

Personality: Resilient, loving, caring, light-hearted

Education: College Graduate, Bachelor Degree Holder

Interests: Staying at home, visiting and spending time with her grandchildren, watching television

Goals

She wants to live longer, enjoy life with grandchildren.

Frustration

Sometimes she prefers not to think about her health status anymore because it just worries her. She just tries to eat and live as healthy as she can.

This audience's first point of contact with the app.

Lyn finds it tedious to monitor her health. She doesn't want to get distracted away from the things she loves to do. She has a positive outlook towards life, claiming this is her 2nd life after surviving stroke and cancer. The first thing she must do is to set up a personal account along with her caregiver.

The first feature she will discover upon using the app would be the heart rate monitor, fully emphasized as the dashboard of the app.

Cura allows a caregiver to monitor the health of their elderly loved ones by connecting a smart watch with a mobile device that works even if they are living apart.

Lyn immediately feels secure knowing that someone close to her looks after her. This promotes connectedness and peace of mind. This also takes away the hassle of monitoring her health status just by herself. Lyn then shares this wonderful discovery with her relatives as soon as she experiences the connection and monitoring of her heart rate between her and her caregiver (son and daughters) even if they don't live in the same house.

Cura's Features and Benefits

Lyn was a stroke and cancer survivor. She used to take life a bit too easy and lax before until she encountered these health challenges and took it as a wakeup call to be more mindful of her health. Now that she is more self-aware of her wellbeing, she finds most of the health monitoring devices and procedures to be too cumbersome.

The mobile app, Cura has a heart rate monitoring system, movement and location tracking and fall detection features synced with a smart watch worn by a senior that enables a caregiver to get updates on their health status even when they live apart.

This creates a sense of connection and accountability between seniors with their loved ones, promoting peace of mind knowing that someone is looking out for them.

The media channels most appropriate to reach this audience.

facebook

Lyn usually scrolls through her Facebook when not playing mobile games or watching streaming videos. Quick videos or shorts during her waking hours relating to her worries will be a good bait for her to click and watch about the features and benefits of Cura.

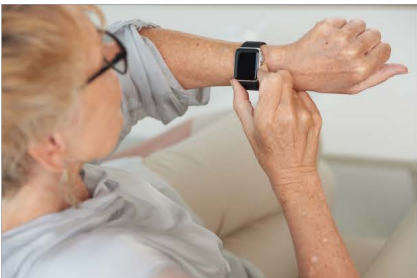
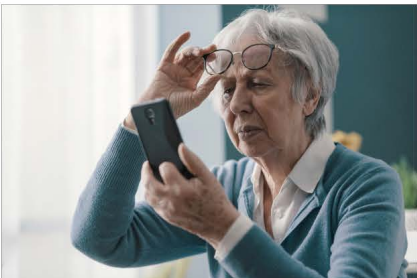
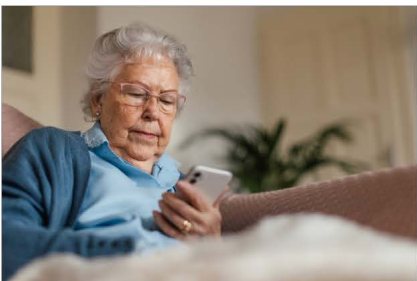
YouTube

She occasionally watches videos complementing her watching preferences on streaming media and hobbies. Catchy thumbnails that quickly resonates with her hobbies would be a good opener about Cura on her feed.

Brands

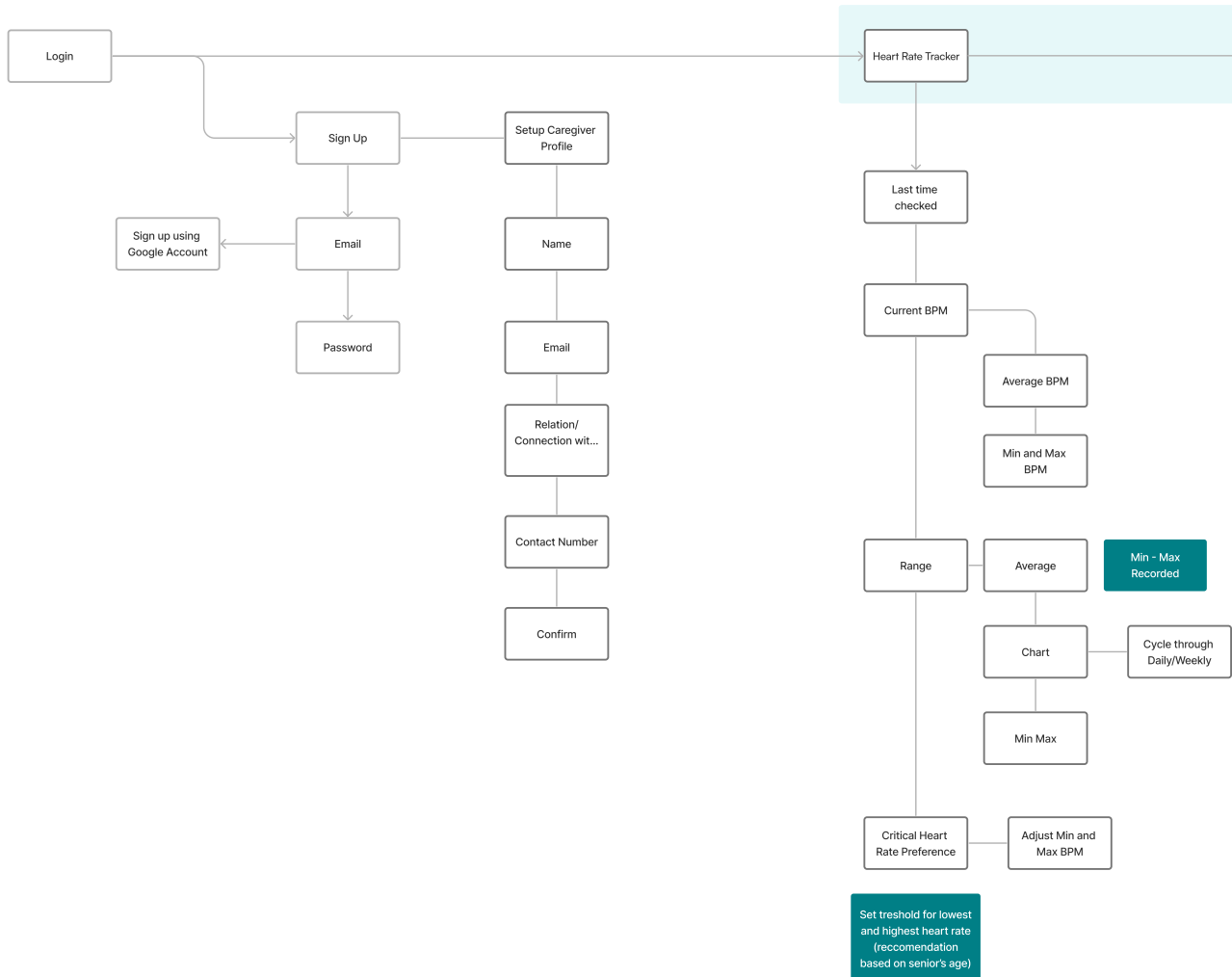


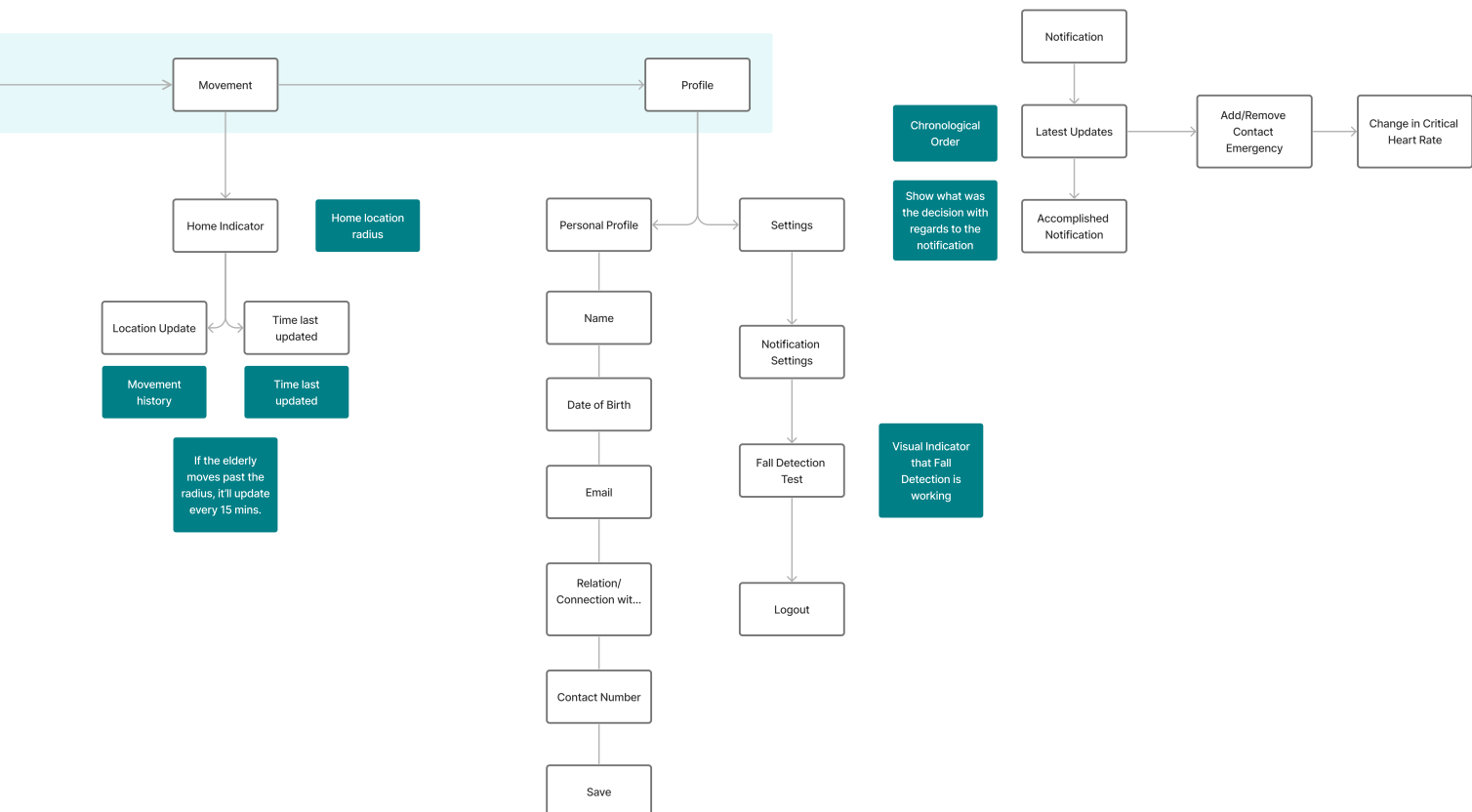
Moodboard



Userflow

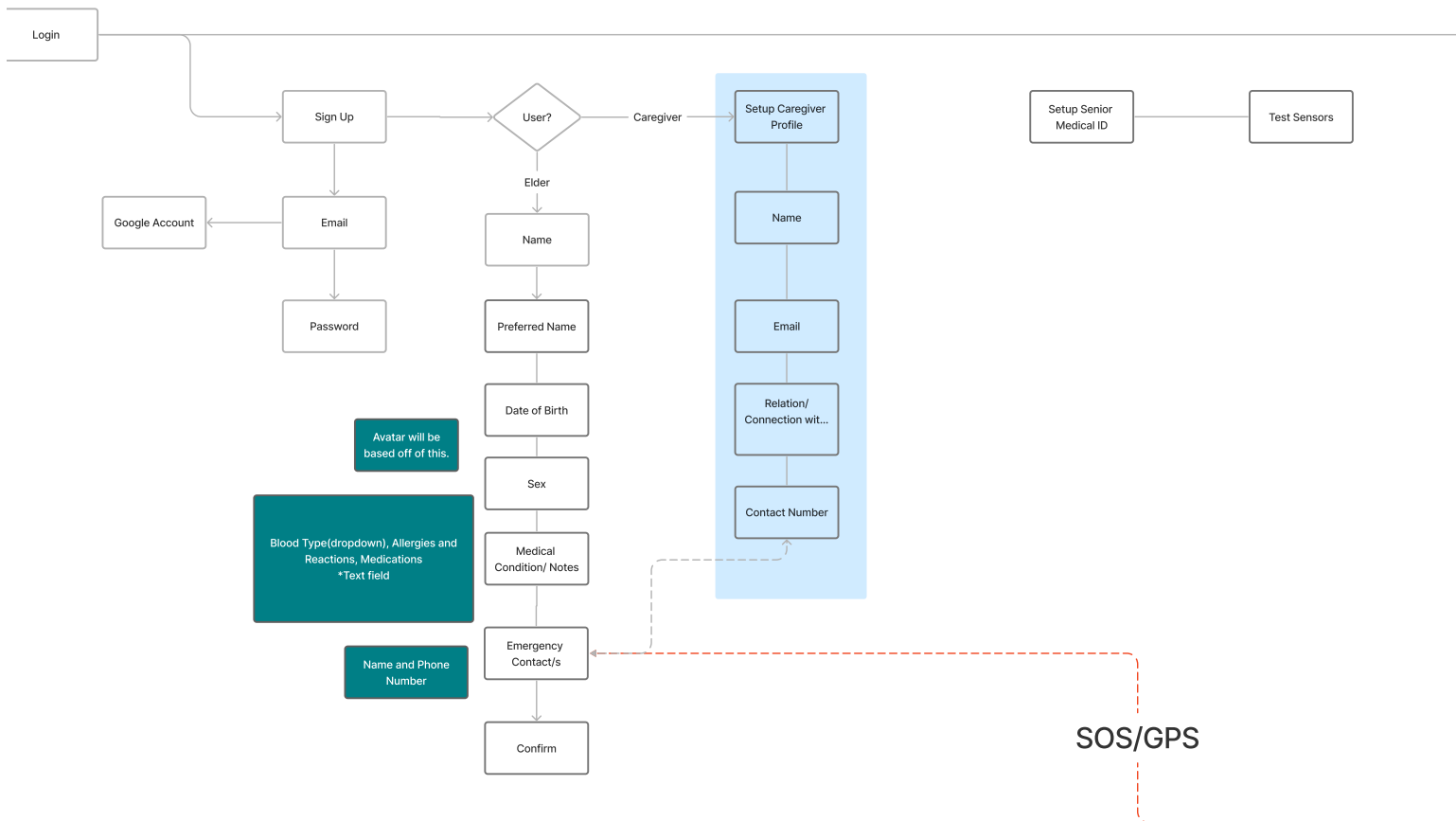
Caregiver

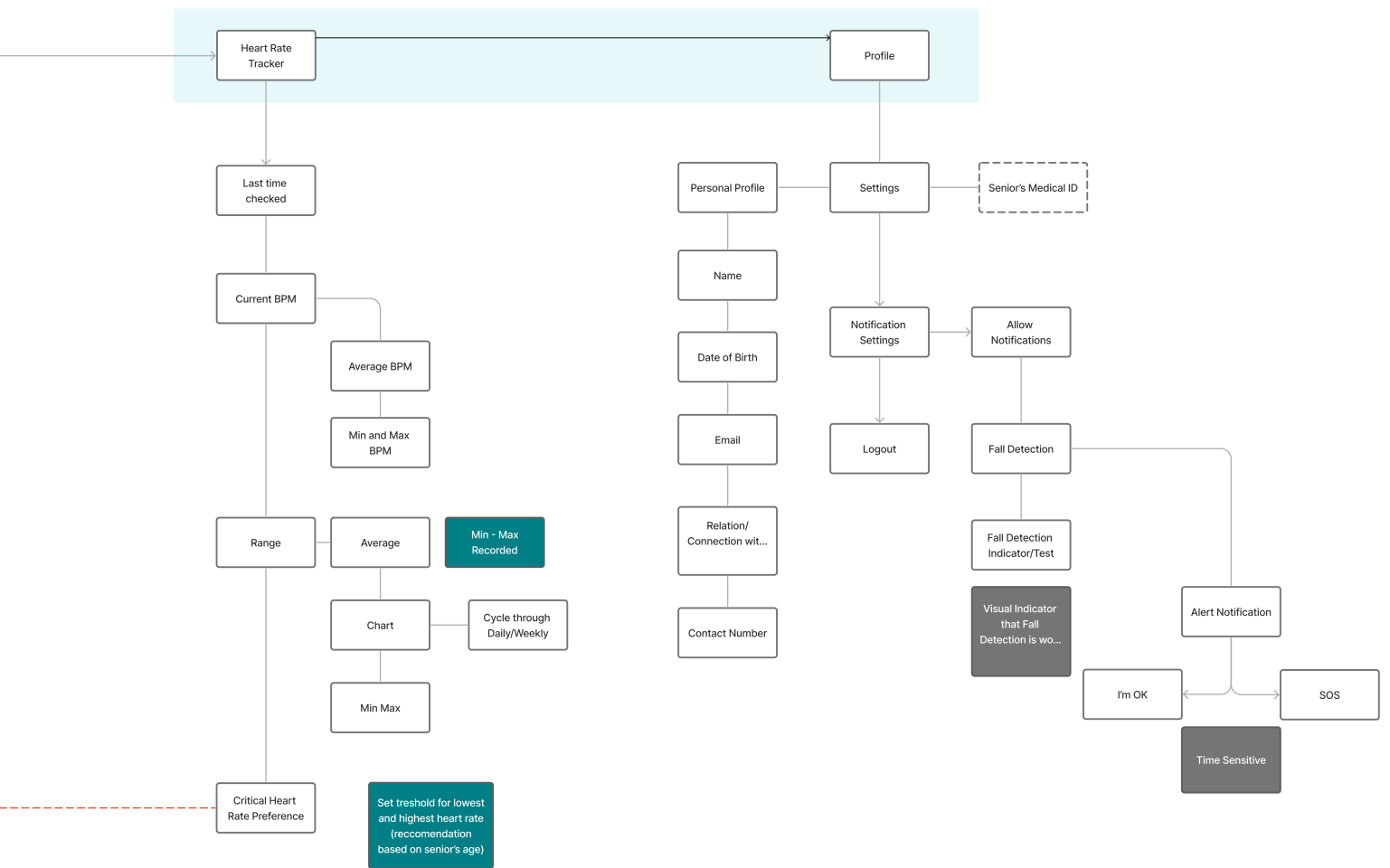




Userflow

Senior





Wireframe Caregiver

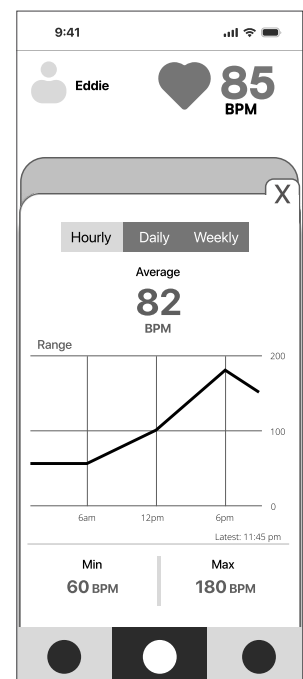
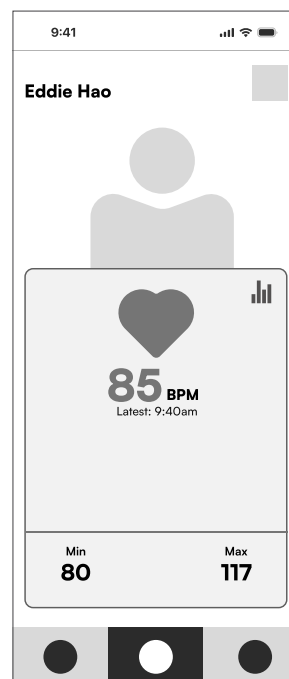
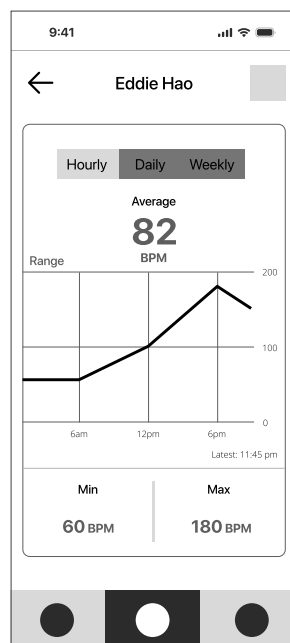
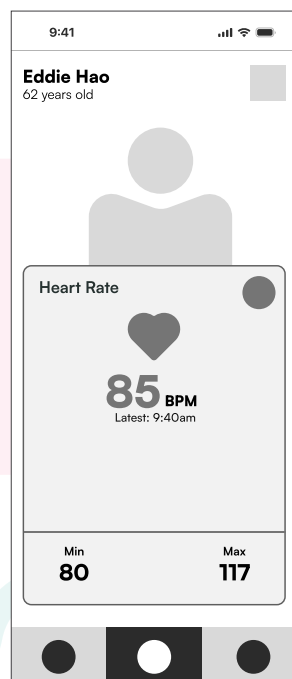
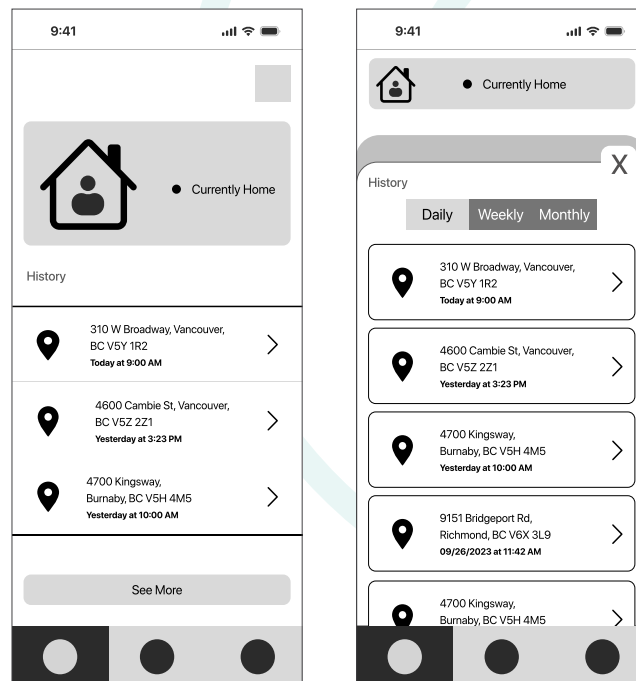
The wireframes show the following screens:

- Login:** A screen with a large circular placeholder for a profile picture, followed by input fields for 'Username / Email' and 'Password'. Below these are 'Login' and 'Sign in with Google' buttons, and a link for 'Don't have an account? Sign Up'.
- Account Selection:** A screen with a back arrow, a circular placeholder, and the text 'Choose what type of account you'll be using'. It features two buttons: 'Caregiver' (with a person icon) and 'Senior' (with a person icon).
- Create Account:** A screen with a back arrow and the title 'Create Account'. It includes input fields for 'Username / Email', 'Password', and 'Confirm Password', followed by a 'Sign Up' button.
- Caregiver Profile:** A screen with a back arrow and the title 'Caregiver Profile'. It contains input fields for 'Preferred Name/s', 'Email', and 'Contact Number', a dropdown menu for 'Relation to the senior', and a 'Confirm' button.
- Success:** A screen with a large checkmark icon, the text 'You're all set!', and 'You can now view the dashboard'. It includes a 'Go to Dashboard' button.

A detailed view of the 'Relation to the senior' dropdown menu is shown below:

Choose One
son
daughter
brother
sister
nephew
niece

In the design process of our app, the designers have carefully considered the user experience for both caregivers and seniors. Recognizing the diverse needs of these user groups, we have implemented a thoughtful and user-centric approach to ensure optimal usability. One fundamental aspect of this strategy involves mirroring the interface for both users while keeping the differences in functionalities to a minimum, to create a streamlined design layout that fits just what the users need.



Wireframe

Senior

9:41

←

Create Account

Username / Email

Password

Confirm Password

Sign Up

9:41

←

Add Contact Person

You can import details from your contacts or scan contact person's QR code.

Import from Contacts

Scan QR

9:41

←

Emergency Contacts

Abbey Winston

Relation ▾

+

Add Emergency Contact

Next

9:41

←

Elderly Profile

Preferred Name/s

Date of Birth

Sex

Blood Type

Medical Condition/s

None Listed

Allergies & Reactions

None Listed

Medications

None Listed

Notes

Confirm

Sex

Choose One ▴

Male

Female

Prefer not to say

Blood Type

Choose One ▴

A+

A-

B+

B-

AB+

AB-

O+

O-

9:41

You're all set!

You can now view the dashboard

Go to Dashboard

9:41

←

Add Contact Person

You can import details from your contacts

Add Contacts

9:41

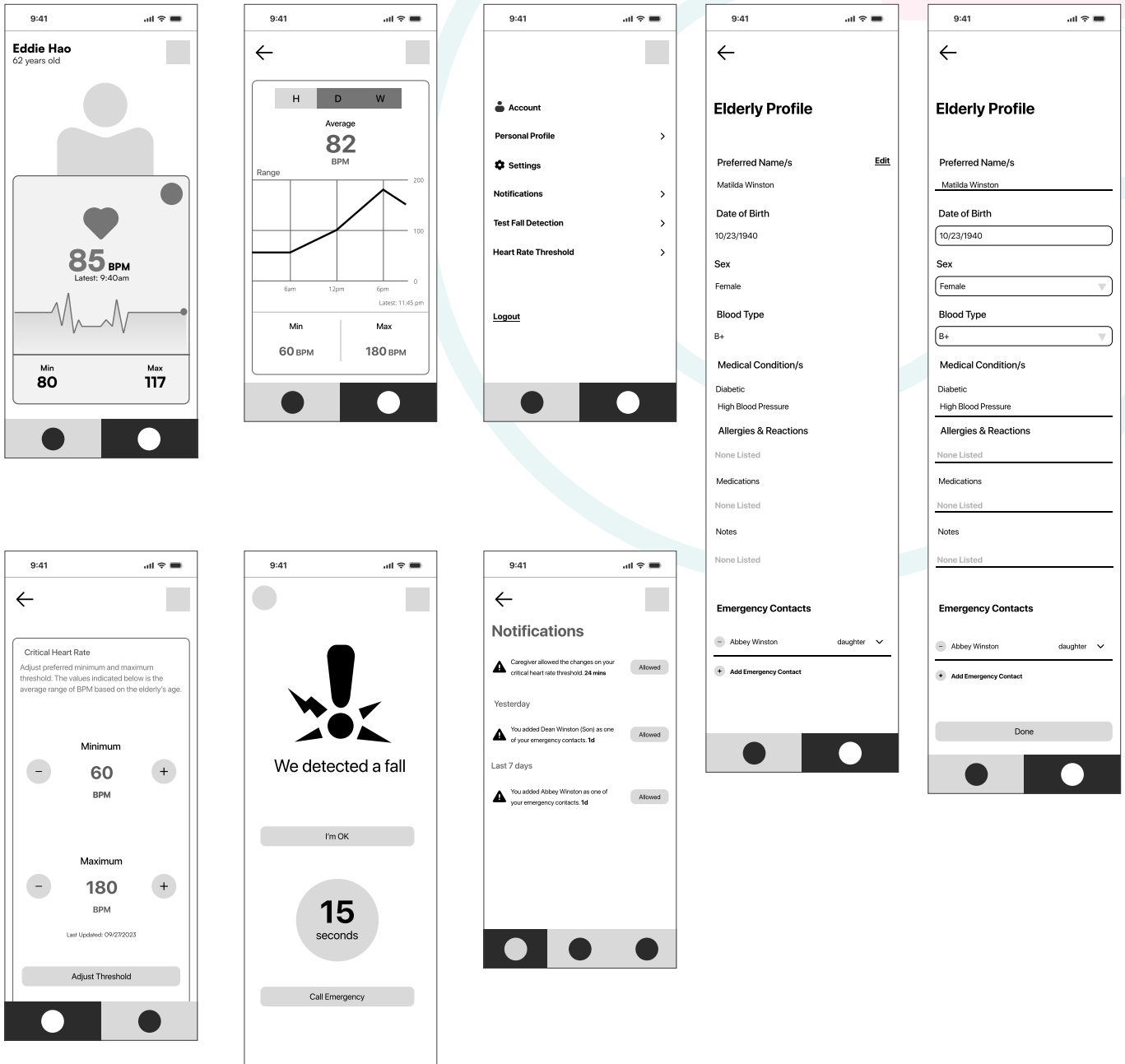
←

Contacts

Abbey Winston

Conrad Winston

Richard Winston

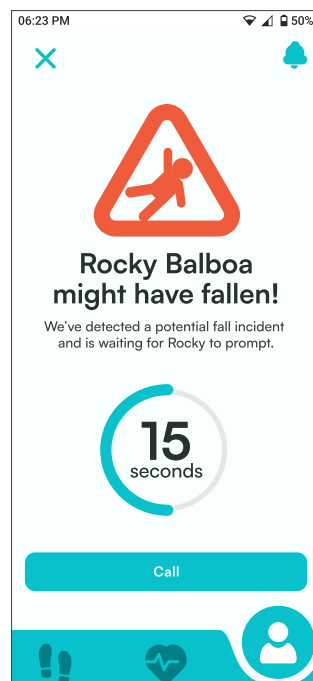
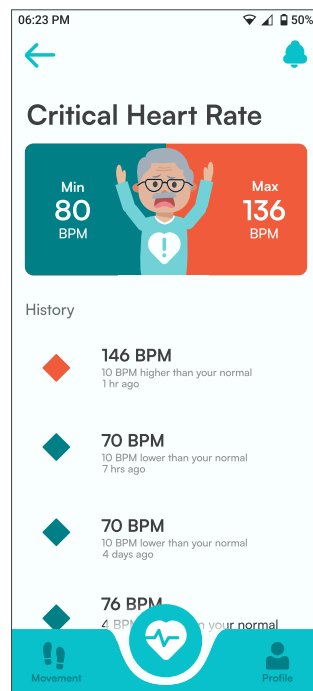


By carefully organizing the interface elements, we aim to provide an intuitive and efficient experience for users of all ages and technological proficiencies We understand the importance of clear and easily readable text, especially for seniors or those with visual impairments.

Consequently, our chosen typeface is not only visually appealing but also prioritizes legibility. Additionally, the strategic incorporation of ample space between various components within the design serves a dual purpose.

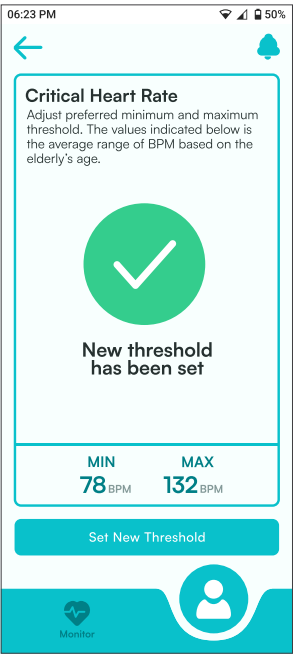
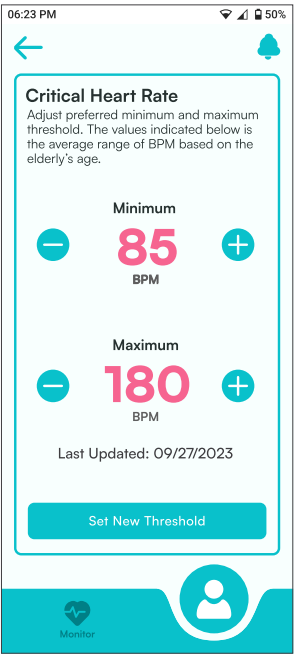
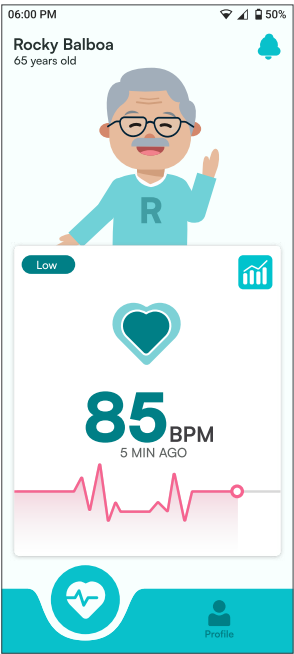
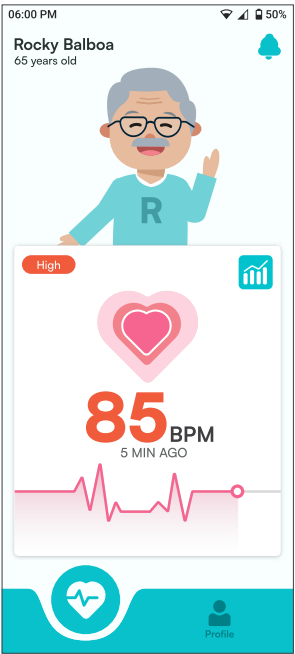
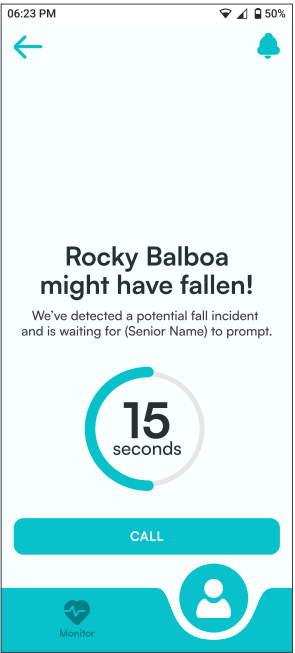
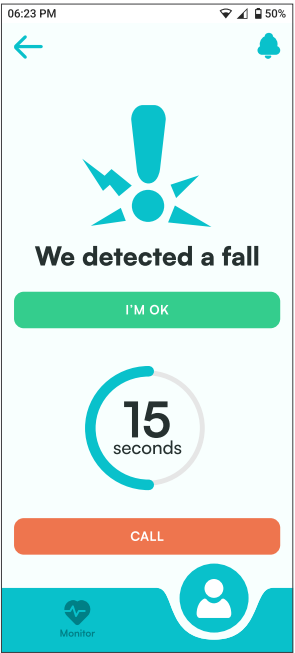
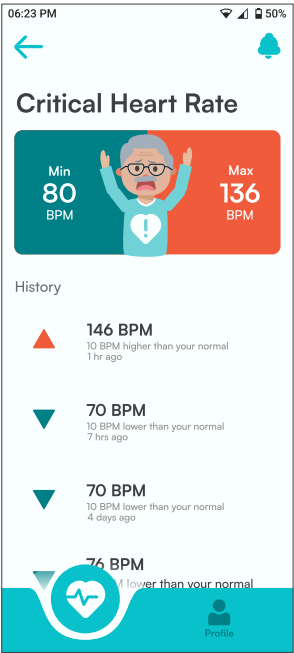
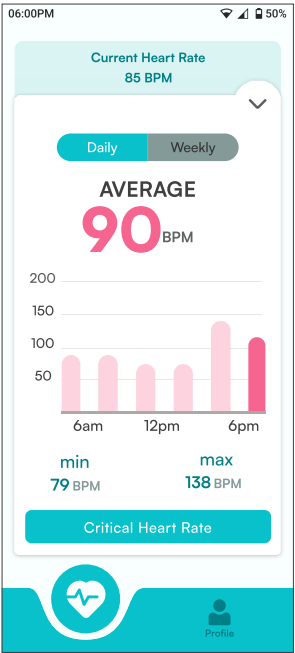
Mockup Caregiver







Mockup

Senior





06:23 PM



Elderly Profile

Preferred Name/s

Matilda Winston

Edit

Date of Birth

10/23/1940

Sex

Female

Blood Type

B+

Medical Condition/s

Diabetic
High Blood Pressure

Allergies & Reactions

None Listed

Medications

None Listed

Notes

None Listed

Emergency Contacts


-


Abbey Winston

daughter



+

Add Emergency Contact

Monitor



06:23 PM



Elderly Profile

Preferred Name/s

Matilda Winston

Edit

Date of Birth

10/23/1940

Sex

Female

Blood Type

B+

Medical Condition/s

Diabetic
High Blood Pressure

Allergies & Reactions

None Listed

Medications

None Listed

Notes

None Listed

Emergency Contacts


-


Abbey Winston

daughter

+

Add Emergency Contact

Monitor



Branding

Full Logo



Monogram



Typography

Satoshi Bold 28px

Satoshi Bold 26px

Satoshi Bold 22px

Satoshi Bold 18px

Satoshi Medium 16px

Satoshi Medium 14px

Colors

#F66490

#26ABA2

#F66490

#26ABA2

#F6A8C0

#F66490

#34CD8D

#22AD73

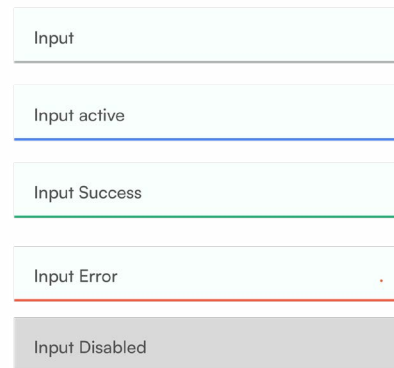
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#EF5B3B

Navigations



Input Field



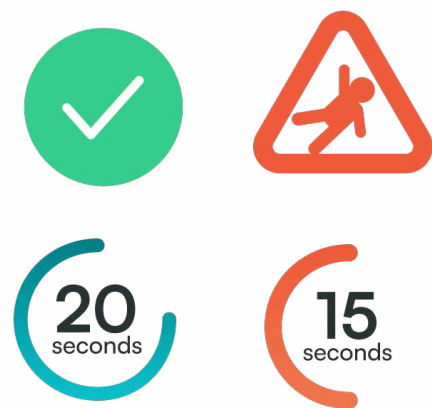
Cura

has two versions of the bottom navigation menus. The *senior* account has two icons which has the heart, where the *elderly* person can monitor their own heart rate and profile icons for setting up and customization.

The caregiver account on the other hand consists of three icons with the addition of location icon which allows the user to be notified when the elderly person they are monitoring has gone beyond the set radius of their home and will give an approximate distance and coordinates.

Indicators

There is a confirmation icon for specific successful input from the user. The countdown timer for the elder prompt have a version of a cool color when it activates and turns into a hot color for attention as it gets closer to the set time. The call button signifies urgency for the caregiver to contact the elderly person as soon as possible.



Future Features





Supports other types of wearables

Multiple Elders per Caregiver

Customize Avatar



Marketing Assets





Sticker



Meet the team





Karan Singh Dhir | Lead Developer

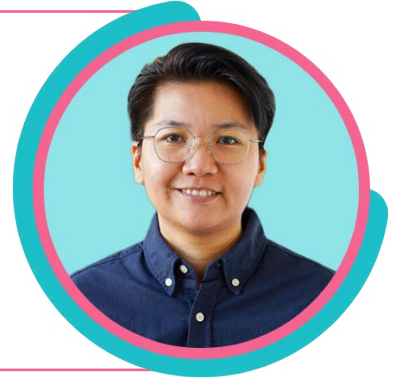
[in](#) in/ksdhir

Karan, our experienced Dev Lead, specializes in full-stack web development and brings 5 years of experience to our team. They are highly skilled in using a wide range of technologies, particularly serverless architecture. Their familiarity with different frameworks and systems ensures a robust and seamless integration within the app.

JB Sinluenam | Front End Developer

[in](#) in/jbsinleunam

JB Sinluenam is our front-end developer and a distinct blend of advertising and commercial production expertise. Transitioning to become a full stack developer, JB brings a creative touch to our development team.



Haidren Amalia | Back End Developer

[in](#) in/haidrenamalia

Haidren Amalia, our back-end developer. With 7 years of expertise in full-stack development, Haidren possesses a deep understanding of cutting-edge technologies and a track record of delivering high-quality applications.

Meraldo Cazar Jr. | Back End Developer

[in](#) in/mscjr

Meraldo is a seasoned and adaptable Full-Stack Developer, showcasing expertise in diverse tech stacks while effectively connecting industry experience with innovative solutions.





Christian Flordeliza | UI Lead

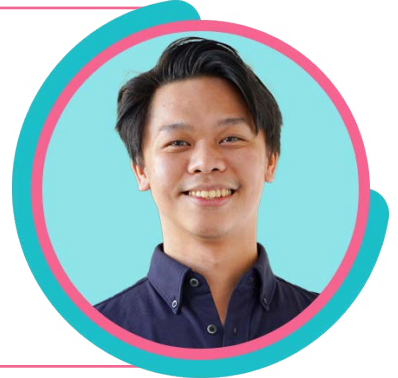
 [in/christian-flordeliza](#)

Christian is a Creative UX/UI Designer with expertise in Figma and Adobe Creative Suite. Proficient in wireframing, prototyping, and user testing, ensuring the delivery of exceptional digital experiences.

Aerick Estrella | UX Lead

 [in/aerick-estrella](#)

Aerick is a UX/UI Designer skilled in Figma, Adobe Creative Suite, and creating digital products that are not only functional and intuitive but also visually appealing and enjoyable to use.



Katrina Mirambel | UI/UX Designer

 [in/katrinamirambel](#)

Katrina brings her expertise in UX design to our team. With a keen eye for user-centered design and a deep understanding of user experience principles, Her commitment to delivering exceptional user experiences ensures that our app is intuitive and user-friendly.

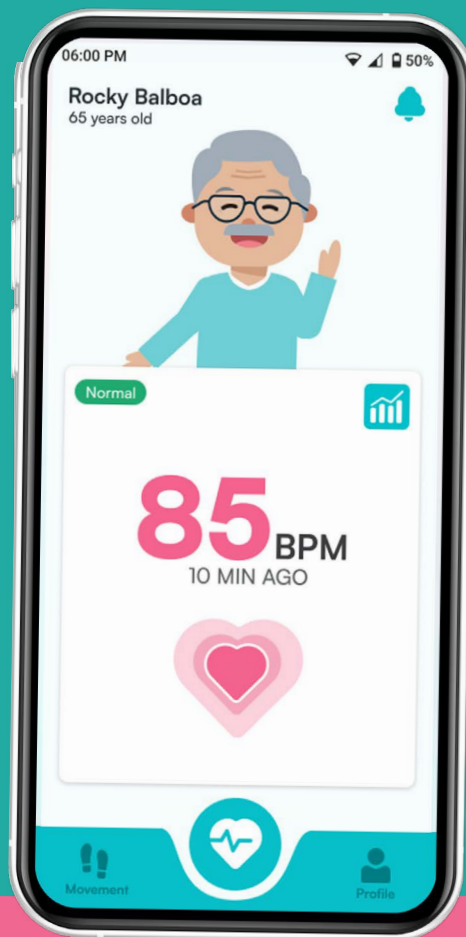
Rock Manuel | Project Manager, UI/UX Designer

 [in/rock-manuel](#)

Rock is the Project Manager, branding, UX and UI Designer with a vast experience in art direction and post production in the broadcasting media industry.







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