Product Requirements Document

EMGT 6700: Digital Product Design and Management
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ElderTend

Team 5: ProPulse

TEAM MEMBERS

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Vision

For elderly individuals and their caregivers who need comprehensive health monitoring and emergency assistance, ElderTend is a health and well-being app that provides continuous care coordination and peace of mind. Unlike other health apps, ElderTend offers integrated location tracking, vital sign monitoring, a panic button, and seamless data sharing between elderly users, caregivers, and family members.

Motivation

Customer Segments

Autistic/ differently abled people, and Alzheimer's patients or the elderly: This category of customers may not be tech-savvy, and they find it difficult to use smartphones, or have multiple devices to carry. By integrating their needs, ElderTend provides confidence and independence for these individuals, ensuring they can enjoy their independence without fear of social vulnerability.

Family members: According to a study by the Pew Research Center[1], about 27 percent of American seniors live alone. Living away from parents while maintaining elderly health can be challenging. Requiring monitoring of medication, blood sugar, blood pressure, and mental health, a common concern in modern times. Forbes[2] reports that 1 out of 36 children are autistic. ElderTend can assist working parents in monitoring their children's wandering by tracking mental, physical, and location aspects, reducing the burden on the accountable party.

Caregivers/ old age home staff: According to aplaceformom[3] and Centers for Disease Control and Prevention[4], over 1.3 million senior citizens reside in nursing facilities across the US. The number is expected to rise as the population ages and 10.4% of caregivers provide care to dementia or cognitive impairment patients. ElderTend helps caregivers become supervisors for elderly or disabled individuals living far from home, allowing them to maintain independence and provide real-time information to their families. This helps families maintain trust and stay in touch with their parents, reducing the burden on caregivers.

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[1] https://www.nytimes.com/2023/11/02/realestate/more-american-seniors-live-alone.html

[2] https://www.forbes.com/sites/jenniferpalumbo/2023/03/23/cdc-estimate-on-autism-prevalence-increases-to-1-in-36-children-in-us/?sh=6187c9e16e7e

[3] https://www.aplaceformom.com/senior-living-data/articles/elderly-nursing-home-population

[4] https://www.cdc.gov/aging/caregiving/caregiver-brief.html

User Persona

Old man Stephan

Stephan Clearwaters is an 80-year-old man. He has the beginning stages of Alzheimer's. Though he has made sure that his family and his financial future are safe, he worries about his own safety and his health. He keeps worrying about him forgetting his way home, his medications, his daily life, and fears that he will be too dependent on his family once he gets worse. He does not want to burden his family. But at the same time his son and daughter are worried about him being distant too. He wishes there is some way he could have his worries satisfied.

Responsible working professional Rita

Rita Morgan is a 42-year-old pre-sales professional who requires 80% travel. She has her parents living with her but is concerned about her mother, who lacks confidence and worries about her general health. Her mother cannot walk well due to an irreparable knee injury. However, to keep her active, she needs to go on walks or be active. What if something happens to her? What if she falls when Rita is away? These questions haunt her occasionally. Rita keeps calling her mom whenever necessary. She does have a caregiver, but she needs to keep asking for updates, which seems like a separate task itself. She feels she might as well call her mother instead to check. She wishes to have a platform to keep track of her mom's health and emergency situations.

Caregiver Catherine and Paula

Catherina and Paula are caregivers at an elderly home. At times, they oversee multiple elders, occasionally sharing responsibilities for the same individuals during shifts. Since they may clock out at different times, they are worried about miscommunicating or not communicating certain things at all. They wish they had a platform to keep track of the elders' vitals and be transparent in terms of data. Since they handle so many elders at the same time, they find it extremely hard to remember all the information about everyone. They wish to have a common platform for tracking and sharing information, like a dashboard to keep track of various individuals at once, in real-time.

Unmet Needs

Autistic/ differently abled people, and Alzheimer's patients:

We believe that Autistic, differently abled, and Alzheimer's patients experience discrepancies in terms of ease of use, using multiple devices, complex technology arrangements, and being self-conscious while using tracking devices when doing daily activities. They do not have one single device that could give them notifications about medications, panic buttons, tracking features, fall detection, emergency contact etc., that is simple to use.

Family members:

We recognize that family members encounter challenges in obtaining accurate information and facing concerns about their loved ones wandering off or experiencing health issues while under the care of others or when they are away. This is due to the inability to provide constant supervision and the potential discomfort experienced by those with disabilities due to continuous

monitoring. We lack a mechanism that enables individuals to monitor their parents' well-being while they are away, without relying on caregivers or third parties. Families may need to invest in unconventional gadgets that are conspicuous or challenging for them to use independently. It is frustrating for families to continually request or conduct basic tests for their loved ones' blood pressure, sugar levels, and medication tracking; automation is urgently needed.

Caregivers/ old age home staff:
We believe caregivers encounter difficulties when it comes to tracking information for multiple clients simultaneously. They also face challenges in communicating with other caregivers who may be working different shifts for the same client. These challenges arise due to time and human resource constraints. Caregivers may be occupied with attending to other elders or disabled individuals when another client requires assistance. One pain point caregivers face is the need to manage multiple emergency contacts, which impacts their overall efficiency.

Existing Solutions

Life360 is an application specifically designed for people with Alzheimer's, which helps track senior citizens. It also enables them to create private groups with their caregivers, allowing them to share their live locations. The alert-based system notifies the caregiver when the user arrives at the pre-set location.

Medisafe, available on iOS and Android, streamlines medication management with timely reminders, ensuring adherence. The app includes health measurement tracking and generates comprehensive reports for sharing with caregivers and healthcare providers.

BoundaryCare is an app-based service that supports vulnerable individuals to improve safety and health by providing comprehensive monitoring and tracking various health parameters.

Medical guardian is a tracking system that consists of a tracking device (separate for in-home in the form of a necklace or a bracelet. It claims to have the longest tracking range (1300 feet) and has a fall detection feature.

Bay Alarm Medical is a panic button system that can be attached to a watch, keys, locket, watch strap, etc. This device is integrated with AT&T or other mobile services. It comes with a smart watch arrangement as well. This is a standalone medical alert system and does not require a cell phone.

Table: Competitive Analysis

Feature/Competitor		Life 360	Medisafe	Boundary Care	Medical Guardian	Bay Alarm Medical	ElderTend
Upfront price	**For Consumers – Kit**	$199	Not Applicable	$995	$125	$159	$999
	For facilities	Not Applicable	Not Applicable	$649 per kit	Not Applicable	Not Applicable	$599
Monthly Subscription	**App only**	Not Applicable	$40/month	$35/month	$39/month	$35/month	$25/month
Devices		User's own device	App only	Apple Watch	User's own device	User's own device	Compatible with Smart watches with health tracking features
Location Tracking		Cellular data	Not Applicable	GPS	Wi-Fi, GPS and 4G LTE	GPS	GPS
Fall Detection		Not Applicable	Not Applicable	Automatic	Manual and Automatic	Manual	Automatic
Panic Button		On the app	Not Applicable	Not Applicable	On the hardware	On the hardware	On the watch
Geofencing		Not Applicable	Not Applicable	Polygons on maps	Not Applicable	Not Applicable	Range with Polygons
Medication Reminders		Not Applicable	App Notification	Push notification on watch	Push notification on watch	Not Applicable	Push notification
Emergency Calling		Public services	Not Applicable	Autodial 911	Emergency contacts	Emergency contacts	Emergency contacts
Health Dashboard		Not Applicable	Pills history and sleep, nausea	Heart rate, oxygen levels	Step count	Not Applicable	Heart rate, oxygen levels, steps, sleep cycle, ECG
Behavioral Reminders		Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Yes
Low Battery Notification		Customizable	Not Applicable	User and caregiver	User	Service centre	Caregiver, family member and user
Medical History		Not Applicable	Pill history	On the web version	Not Applicable	Not Applicable	Doctor details, test results, pill history

Differentiation

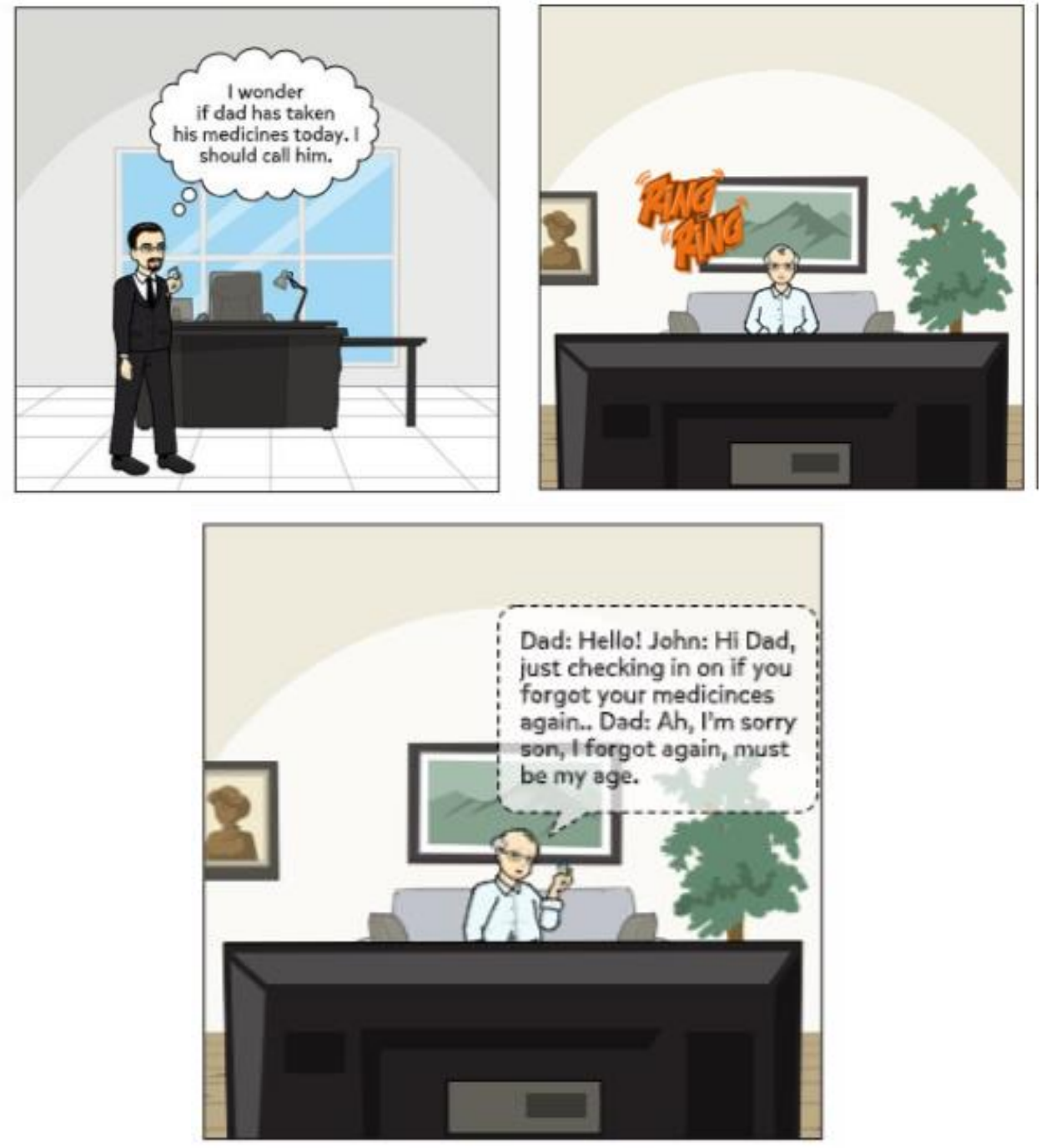
In the existing solutions, there are gaps around emergency response, holistic health monitoring, data sharing between stakeholders, expanded location tracking, accessibility for users, and ease of use. ElderTend can differentiate itself by addressing these limitations and providing an integrated, end-to-end solution. Though they could be very simple solutions, integrating them into any peripheral device is crucial to ensure user-friendly interfaces for enhanced accessibility.

Why Now?

Over the past two decades, the utilization of smartphones, tablets, and, more recently, wearables have expanded significantly. According to Insider Intelligence, the US smart wearable user market is expected to grow by 27.2% year over year in 2025. As we will delve into later, the market for healthcare devices has surged and is projected to continue growing in 2024 and beyond. With both trends converging, the time is ripe to raise awareness of this product.

Verbal/Visual Walkthrough of Use Cases

Use Case 1: Elderly - Medication Reminder



Peter, a professional in New Jersey, is concerned about his father's early-stage diabetes. Usually, Peter calls his dad every day to check on his father's medication intake, but he found out during lunch time today that his father had forgotten. This happens often and Peter finds it difficult to call daily. Peter realizes to use ElderTend to provide a medication reminder for his father. Peter downloads the app, links it to his father's account, and adds a medication reminder every morning and evening, providing him with a notification at dosage time, alleviating his worry. Refer appendix for detailed wireframe.

Use Case 2: Family Member - Location Tracker

John's parents came to visit him in Arizona. But he had gone to Sacramento on a business trip for a couple of days. His parents usually go on walks in the evening. Usually, he is home and ensures that they are safe and are not lost. But now he is concerned as his parents have not called him to ensure that they are done with their walk. They did not pick up when he called them too. Now he pulls out the ElderTend app and finds out through the tracking feature that his parents are safe indeed. He found out later that their parents were talking to the neighbor. Refer appendix for detailed wireframe.

Use Case 3: Caregiver - Tracking Health Parameters Remotely

Sam, a senior healthcare provider for multiple patients, was worried about his client Calvin on a snowy day when traveling was not safe. Reassured by Calvin's vitals displayed on the ElderTend app's health dashboard (oxygen levels, heart rate, sleep cycle, and blood pressure), Sam saw Calvin had even been quite active that day. ElderTend allowed Sam to work remotely and provide continued care for Calvin despite the weather conditions. Refer appendix for detailed wireframe.

Detailed Design & Features Description

Design Principles:

1. **Easy to use**: ElderTend is built on keeping user's needs on top priority. The app is used to easy and navigate from one screen to another.

2. **Simple Integration**: ElderTend app concentrates highly on user experiences which includes reminders, alerts, and location tracking option for both caregivers and family members. This allows users to focus on all the required tasks without feeling annoyed.

3. **Proactive Feedback**: By analyzing the users, the app is designed in such a manner that it takes care of the needs of elderly, caregivers, and family members, starting from medication taken on time to location sharing the app provides customized support.

4. **Adaptable Design**: ElderTend is designed to be flexible by adapting the recent trends and technologies. To maintain a dominant position, ElderTend is ready to add new features based on the changing requirements of the users.

5. **Security**: The medical data that is collected, used, and stored through the app is transparent to the users. ElderTend believes data privacy is one of the most important parameters to be treasured. By maintaining high level of security, the app protects details such as Health information and location sharing data.

Initial Feature:

Features	Details	Dependencies	Priority
Signup	User registration is tailored for Elderly, Family Members, or Caregivers based on their respective roles.	-	1

Features for Elderly customer segment:

Refer to appendix for Elderly's user flow.

Features	Details	Dependencies	Priority
Sign in	Elderly people sign-in into the ElderTend app using their credentials.	Storage of user information on the platform with a secured link to Google Sign-In.	1
Profile Setup	Create/update personal profile - name, age, emergency contacts, medical history etc.	Obtaining legal approvals and terms and conditions for storing applicant's information.	1
Caregiver Setup	Ability to add caregivers and share data permissions.	Verify caregiver credentials for secure access to Elder Tend.	1
Vitals Tracking	Fetch daily vitals like temperature, blood pressure, oxygen level from watch.	Secure connection between watch and application	1
Activity Tracking	Track activity levels, exercises, sleep patterns via wearable.	Secure connection between watch and application	2
Appointments	Schedule visits with doctors, request home caregiving assistance.	Implement calendar integration for appointment scheduling	1
Medication Reminders	Reminders for medications and appointments	Notification integration between the watch and application	1
Fall Detection	Automatic detection of falls by the app, triggering alerts to caregivers and family members for immediate assistance.	Enabled fall detection functionality in the application	1
Geofencing	Set virtual boundaries to monitor the elderly user's movements and receive alerts when they enter or leave designated areas.	Continuous location access	2
Panic Button	Elderly users can press a panic button within the app to quickly alert caregivers and family members in case of emergencies.	Notification alert is activated on all linked devices	1

Behavioral Reminders	Gentle reminders for the elderly user to engage in specific behaviors or activities, promoting a healthy and active lifestyle.	Notification alert is activated on the specific device	2
Connect Watch with App	Establish secure connection between the watch and the application for data transmission.	Secure communication protocols are implemented, Verify compatibility with the hardware specifications	1
Low Battery Notification	ElderTend triggers a notification to the patient as well as the caregiver in case the battery of the device goes below the threshold.	Notification alert is activated on the device for low battery alert	1

Features for Caregiver customer segment:

Refer to appendix for Caregiver's user flow.

Features	**Details**	**Dependencies/ Mockups**	**Priority**
Sign-in	Caregivers sign into the Elder Tend app using their credentials.	Storage of user information on the platform with a secured link to Google Sign-In.	1
Health Dashboard Overview	Caregivers are presented with a dashboard overview displaying summaries of their patients' current status.	-	1
Add Patients	Caregivers can add a new patient to their list for monitoring and management.	-	1
View Patients	Caregivers select a patient to view their profile, which	-	1

	includes personal details and medical history		
Check Vitals	Caregivers check and record the patient's vital signs.	-	1
Health Monitoring	Caregivers monitor the activity levels of their patients to ensure they remain active and engaged.	-	1
Receive Alerts	Caregivers receive alerts and reminders regarding medication schedules, appointments, and fall alerts	Implement notification system to deliver alerts and reminders	1
Edit/Remove Medication	Caregivers can edit or remove medication details for their patients.	-	1
View Location of Individual Elderly Patient	Caregivers can view the real-time location of a specific elderly patient.	Implement location tracking feature for individual patients	2
View Location of All the Patients	Caregivers can view the real-time locations of all their assigned patients on a single screen.	Implement location tracking feature for all patients	2
Behavioral Reminders	Gentle reminders for caregivers to prompt the elderly user to engage in specific behaviors or activities, promoting a healthy and active lifestyle	-	2
Low Battery Notification	Caregivers receive notifications when the elderly user's device battery is running low, ensuring continuous monitoring.	Implement Notification alert for low battery	1

Features for Family Members' customer segment:

Refer to appendix for Elderly's user flow.

Features	Details	Dependencies	Priority
Sign In	Family members sign into the Elder Tend app using their credentials to access features and information specific to the elderly user's care.	Storage of user information on the platform with a secured link to Google Sign-In.	1
View Individual Family Member's Location	Family members can view the real-time location of the elderly user through GPS tracking within the app.	Integration with location tracking services	1
View Location of All Family Members	Family members can view the real-time location of all the registered elderly members through GPS tracking within the app	**Integration** with location tracking services	2
View Medication	Family members have access to a medical history, including prescribed medications, dosages, and adherence records for the elderly user.	-	2
View Vital Signs	Family members can view the real-time vital signs of the elderly user, including temperature, blood pressure, and heart rate.	-	1

Daily Reports	Family members receive daily reports summarizing the elderly user's activities, health status, and any notable events or changes.	-	2
Behavioral Reminders	Reminders for family members to prompt the elderly user to engage in specific activities, promoting a healthy and active lifestyle	-	2
Low Battery Notification	Family Members receive notifications when the elderly user's device battery is running low, to ensure active usage	Implement Notification alert for low battery	1

Minimum Viable Product (MVP):

Priority 0 - Critical Features

1. **Sign up**: Users can create an account based on their status (elderly, caregiver, family member).
2. **Sign in**: Allow users to sign in with their own credentials, such as usernames and passwords.
3. **Profile Setup**: Enables users to configure their accounts based on their roles.
4. **Caregiver Setup**: Allow elderly users to enter caregiver information.
5. **Vitals Tracking**: Assists users in tracking vital health data.
6. **Medication Reminders**: This feature provides reminders to take your medication.
7. **Panic Button**: Allows user to promptly activate emergency button.
8. **Connect Watch with App**: Creates a secure relationship between the watch and the application.

Priority 1 - Nice to have features

1. **Health Dashboard Overview (Caregiver)**: Provide reports on their patient's status.
2. **View Patients (Caregiver)**: Enable caregivers to see patient profiles.
3. **Fall Detection**: Alerts are sent automatically when a fall is detected.
4. **Receive alarms (Caregiver)**: Set up reminders for medication schedules, appointments, and fall alarms.
5. **View Location (Family Member)**: Allows family members to view the senior user's present location.
6. **Emergency Calling**: Allows users to call family members or caregivers and vice versa.
7. **Geofencing**: Caregivers or Family members can set polygonal boundaries of “safe zones” for the users to roam in. If crossed a notification or alarm is sent to the caregiver/family member.
8. **Low Battery Notification**: Alerts the user about low device battery levels.

vNext:

1. **Daily Reports (Family Members)**: Get full details of the Elderly user's daily activities and health status.
2. **View Medical History (Family Member)**: View the Elderly user's medication history and adherence records.
3. **Behavioral Reminders**: Gentle reminders are given to encourage the elderly person to participate in beneficial activities.
4. **View all patient locations (Caregiver**): Allow caregivers to see all assigned patients' current on one screen.
5. **Appointments**: Allows the user to set and manage appointments.

vLongTerm:

Enhance activity tracking by assessing sleep habits, expanding geofencing capabilities for advanced monitoring, and improving daily reports with meaningful data and trends.

Roadmap / Timing

The first quarter will be dedicated to finalizing core functions such as location tracking, health monitoring, panic buttons, and emergency assist. While developing the Minimum Viable Product (MVP) aka Alpha product, user testing (beta testing) will take place to optimize the user experience (UX), devise a marketing plan, and create publishing materials. By the end of this phase, 200 users will be the initial target.

Initial target users could be a specific U.S. state for initial testing. However, since it is an online product, user acquisition will not be geographically restricted. The marketing strategy, however, can target specific user segments like caregivers, individuals with Alzheimer's, or autistic individuals.

Once the Alpha product is launched, the next milestone will be dedicated to enhancing the application based on user feedback from the MVP's beta testing. It is intended to provide new features like fall detection and pill reminders, focusing on certain user segments based on their needs. Furthermore, if usability difficulties are discovered during testing, the application will be made more accessible to the elderly and autistic users. A geofencing add-on will also be released to improve the tracking functionality. This will be the Beta product.

Following these enhancements and innovations, the program will enter a three-week testing period. Following successful testing, we will launch ElderTend with the goal of boosting the user base by 20%.

The version 1 product, after the beta product launch, will follow a similar trend of adding new features and making enhancements. This milestone will see the release of an improved product with features such as behavioral reminders and a holistic health dashboard that displays vital signals.

This launch will collect user feedback to detect and resolve defects or issues identified via user feedback systems. To increase our reach by 20%, we intend to collaborate with nursing homes and caregiving organizations. This cooperation is part of a larger marketing campaign to establish the product in the market.

Two new features will be added to the version 2 product: alerts for low battery life and a thorough medical history section in health records. We will keep refining the application in response to user comments (or "tickets"). Our goal is to enhance response times from healthcare providers and expand the application reach by collaborating with nearby hospitals and care institutions. In the end, this will raise the general caliber of our application.

Release Schedule and Testing

At least two features are aimed to be added following our alpha launch, which corresponds to roughly one new feature every month for two months out of four months. The last few weeks of every quarter will be spent creating improvements, reviewing user statistics from the previous quarter, and conducting additional testing. The application is to be tested with current users for two to three weeks while we refine our sales-boosting marketing strategies.

Metrics

Metric	Caregiver	Family	Elderly
Number of elderly people signing up			x
Time spent by caregivers on the application platform	x		
Number of notifications sent by caregivers or family to elderly	x	x	x
Number of times elderly people open the application upon receiving a notification.			x
Number of times caregivers acknowledge the notification of their patient	x	x	
Measuring which section of the application is being used the most by both the parties, caregiver, and patient.	x	x	x
Measuring the average time spent viewing the real-time map after a fall alert.	x	x	
User retention rate	x	x	x
Measuring the Number of Monthly Active Users (MAU)	x	x	x
Number of people changing the default settings of the application and tracking the respective setting.	x	x	x
Number of people converting from free to paid subscriptions.	x	x	x
Measuring the customer satisfaction score (check number of users reviewing your product and checking reviews)	x	x	x
Average response time to emergency alerts from caregivers or family members.	x	x	
Number of successful interventions or assistance provided through the application's features (e.g., medication reminders, emergency calls)	x	x	x
Percentage of users who discontinue using the application over a specified period.	x	x	x

We have picked our top three metrics as

1. **Measuring the Number of Monthly Active Users (MAU):** It represents the amount of people who interact with your app at least once every month. This includes the use of any function available in our program. With this metric, we can
   - Analyze your MAU's user demographics to see who uses the application the most.
   - Customize marketing strategies for specific user categories (elderly, caregivers, and families).

- Analyze user acquisition channels to determine where users are coming from and concentrate efforts on the best-performing channels.

2. **User retention rate:** A high retention rate suggests that customers value the application and make it a regular part of their routine. We will calculate the retention rate by comparing the number of active users in each month to those who were active the month before. This number allows us to determine which client segments utilize what the most and least. We could alter or eliminate badly performing functionalities.
3. **Measuring the customer satisfaction score:** Customer satisfaction (CSAT) measures users' overall perceptions of features, usability, and value proposition. This will give us crucial information about the pain issues that may be a blind spot for the firm. Use favorable comments to find and promote your assets in marketing and promotional materials.

International

Internationalization may be considered at a much later stage in ElderTend's long-term roadmap. The ElderTend team would have to make considerations of different languages, processes, cultural relevance, user acceptance, regulatory compliances, differences in data privacy laws and variations in healthcare procedures for caregiving for going international.

Due to a large number of critical considerations that need to be addressed ElderTend would only be available in English taking into careful consideration of US rules, laws, regulatory compliances, and budgetary constraints for the scope of the project.

Projected Costs

The projected costs for the ElderTend project are divided into 2 phases: MVP development phase comprising of a projected 6-month period and the improvement phase ranging one year. The cost structure is thus divided, considering projected expenditures for workforce, technology, and effort for these phases. The team for the development of the project would consist of a Project Manager who would handle the overall development of the project, including scheduling, resource management, task delegation, and development tracking. Additionally, the team will require one UI/UX designer who would be responsible for the design of the application and the user experience. Then, two developers would be required who would be responsible for the front-end and back-end development of the application. During the improvement phase of the project, the team would additionally need a marketing specialist who would be responsible for devising the marketing plan to promote ElderTend. Finally, a team of two people would be required to handle the legal and accounting topics.

MVP Development Phase (6 Months):

Roles and Estimated Team Size for MVP Development Phase:

- Project Manager: 1 person
- UI/UX Designer: 1 person
- Frontend Developer(s): 1 person
- Backend Developer(s): 1 person
- Total Team Size: 4 people

Cost calculation for MVP development:

- Project Manager: 1 person: $70,000
- UI/UX Designer: 1 person: $60,000
- Frontend Developer(s): 1 person: $60,000
- Backend Developer(s): 1 person: $60,000
- Technology cost (server hosting, database management, software tools): 30,000

Total MVP development cost: $280,000

Improvements Phase (1 Year):

Roles and Estimated Team Size for Improvements Phase:

- Project Manager: 1 person
- UI/UX Designer: 1 person
- Frontend Developer(s): 1 person
- Backend Developer(s): 1 person
- Marketing Specialist(s): 1 person
- Legal and accounting: 2 persons

- Total Team Size: 7 people

Cost Calculation for Improvement Phase:

- Project Manager: 1 person: $140,000
- UI/UX Designer: 1 person: $120,000
- Frontend Developer(s): 1 person: $120,000
- Backend Developer(s): 1 person: $120,000
- Marketing Specialist(s): 1 person: $100,000
- Technology cost (server hosting, database management, software tools): 60,000
- Marketing expenditure (Digital Marketing, Social media advertising, Search engine marketing, Content marketing, Brochures and flyers, Analytics and Tools Events and Sponsorships): $50,000
- Legal and accounting: 2 people: $100,000

Total cost for improvement phase: $810,000

Total project cost: MVP Phase + Improvement phase = $280,000+ $810,000 = $1,090,000

No.	Phase	Category	Number of People	Months	Amount/month	Total Amount
1	Development Phase	Project Management	1	6	$ 11,667	$ 70,000
2		UI/UX Design	1	6	$ 10,000	$ 60,000
3		Frontend Development	1	6	$ 10,000	$ 60,000
4		Backend Development	1	6	$ 10,000	$ 60,000
5		Technology cost				$ 30,000
					Total	**$ 280,000**
1	Maintenance Phase	Project Management	1	12	$ 11,667	$ 140,000
2		UI/UX Design	1	12	$ 10,000	$ 120,000
3		Frontend Development	1	12	$ 10,000	$ 120,000
4		Backend Development	1	12	$ 10,000	$ 120,000
5		Technology cost	1	12		$ 60,000
6		Marketing Executive	1	12	$ 8,333	$ 100,000
7		Marketing Expenditure				$ 50,000
8		Legal and accounting	2	12	$ 4,167	$ 100,000
					Total	**$ 810,000**
					Total Project Cost(Development Phase + Maintenance Phase)	**$ 1,090,000**

Assumptions considered:

- The marketing expenditure shall only be considered in the improvement phase of the project.
- Partnerships with legal team, software development teams, and marketing agencies are considered at a later stage of the project after the improvement phase.
- Partnerships with medical facilities and hospitals would be considered after the improvement phase of the project.

Operational Needs

The following operational needs have been identified for the smooth functioning of ElderTend:

Software Development, Testing & Support

ElderTend would partner with a software development firm for developing the software, testing and support of the platform. Integration with google maps for location tracking and geofencing is a requirement. Updating of the ElderTend platform with updates of the software version on phones and smartwatches is also a priority. Further enhancements in response times and updating the UI/UX with customer feedback is a requirement as part of the ElderTend roadmap.

Smartphone & Smartwatch Providers

ElderTend would form strategic alliances with smartphone and smartwatch manufacturers to integrate ElderTend with the features of the smartwatch, to integrate with pre-existing health apps and draw data. We also endeavor to have discussions to include ElderTend as a default application on phones and smartwatches.

Caregiving Facilities

ElderTend would partner with caregiving facilities for adoption of the app for caregivers and integration with internal database of the caregiving facilities for information and details of the patients under their care. This partnership also grants access to medical records and other patient data from them to update the app, onboard patients, and caregivers onto the platform. This partnership would also introduce ElderTend to the patients thereby attaining direct access to more consumers. ElderTend would also benefit from standby doctors to be part of the platform for immediate support in case of emergencies.

Legal, Regulatory and Compliance

ElderTend would require a partnership with a third-party legal consultancy to get legal advice and compliance with regulations. This partnership also facilitates consultation for data protection acts and privacy and any concerns related with storing patient and caregiver information and location tracking information on our database.

Marketing Firm

ElderTend would need a strong marketing team for advertisements and introduction of the app and its features to the targeted user segments. Development of search engine optimization (SEO), app store optimization, webinars and workshops, community engagements, sales deck, promotion of the app with partners are necessary activities.

User Feedback Systems

For the continuous improvement of the ElderTend's platform, we will be taking user feedback into consideration and perfecting the platform with features attuned to user needs and specifications.

Investment

For achieving the long-term roadmap milestones, the ElderTend team would seek out opportunities for government grants, angel investors and other sources of funding for incremental development and upgrade of features and scaling to newer market segments.

Addressing Caveats/Risks

Risk	Description	Mitigation Strategy
Data Privacy	All user data and information should be protected from data piracy leaks and attempts	Data security will be given prime importance and measures will be taken to prevent the sharing of user data without user consent. Other web security optimization strategies include but not limited to- • Ensuring highest data protection protocols during software development for reducing attempts of infiltration • NDA agreements to be accepted by users • Complex password requirement • Biometric login facility • Software updated frequently • Server-side validation • 2 factor authentication • Proper error messaging
Legal/ Regulatory Compliance	Compliance with data protection laws and government regulations regarding the use of private user data, location tracking and medical records	Partnership contract with legal firm for consultation and to ensure the solution adheres to all government regulations and compliances
Compatibility Issues With iOS and Android	Software compatibility of the Elder Tend application with iOS and Android software version on the phone and smartwatch	Robust app development and frequent updates to ensure that the platform is up to date with the latest versions of Android and iOS.

Service Downtime	Service disruption due to crashes	24/7 support team to ensure zero downtime and proper messaging for the users in-case of any service interruptions
Low Adoption Rate	Failure of the targeted user segments to adopt the ElderTend solution	Partnership for marketing firm to ensure the solution reaches the targeted user segment, presenting the solution at seminars and conventions and use of social media and caregiver partners for onboarding new users.
User Attrition	Registered user numbers decrease as users discontinue using the app	User specific intuitive UI and reduced response time providing all existing users value added services and offer new features in a timely manner
Sensor Failures	Failures of the sensors of the smartwatch to detect health parameters	Proper error messaging to all users when a sensor fails to ensure that all users are notified, and measures are taken to repair or change the smartwatch
Technological Barriers	Elderly may have limited familiarity and may not be familiar with wearable devices	Conduct training and initial handholding to accustom users to features and the value that ElderTend provide and how it empowers them
Integration With Existing Healthcare System	Integration with software and processes of existing caregiving facilities, access to electronic health records (EHR) and communication channels	Work closely with caregiving facilities to integrate ElderTend with existing processes and software using API integration, HL7/FHIR Standards compliance which are widely adopted standards for healthcare data exchange allowing interoperability and integration with EHR systems.

Team Members

Team 5: ProPulse

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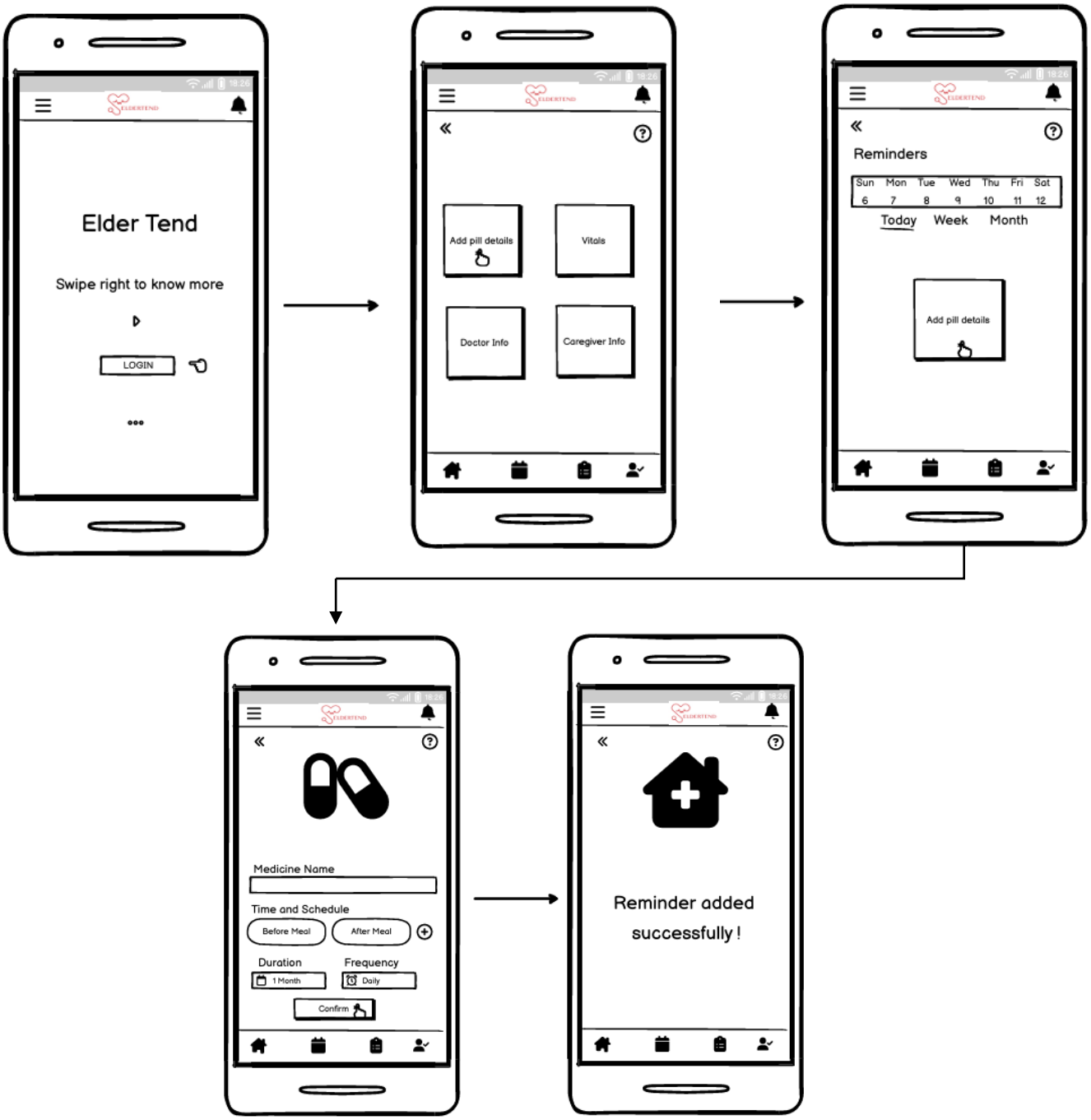
Responsibilities

No.	Name	Responsibility
1.	Aishwariya Subakkar	Operations
2.	Aparna Madhurakavi	Accounting executive
3.	Bharath Vittal	Market Research and Marketing Strategy
4.	Sanyam Sharma	Product Strategy, UX Design
5.	Vishak Vijayakumar	Development and Testing

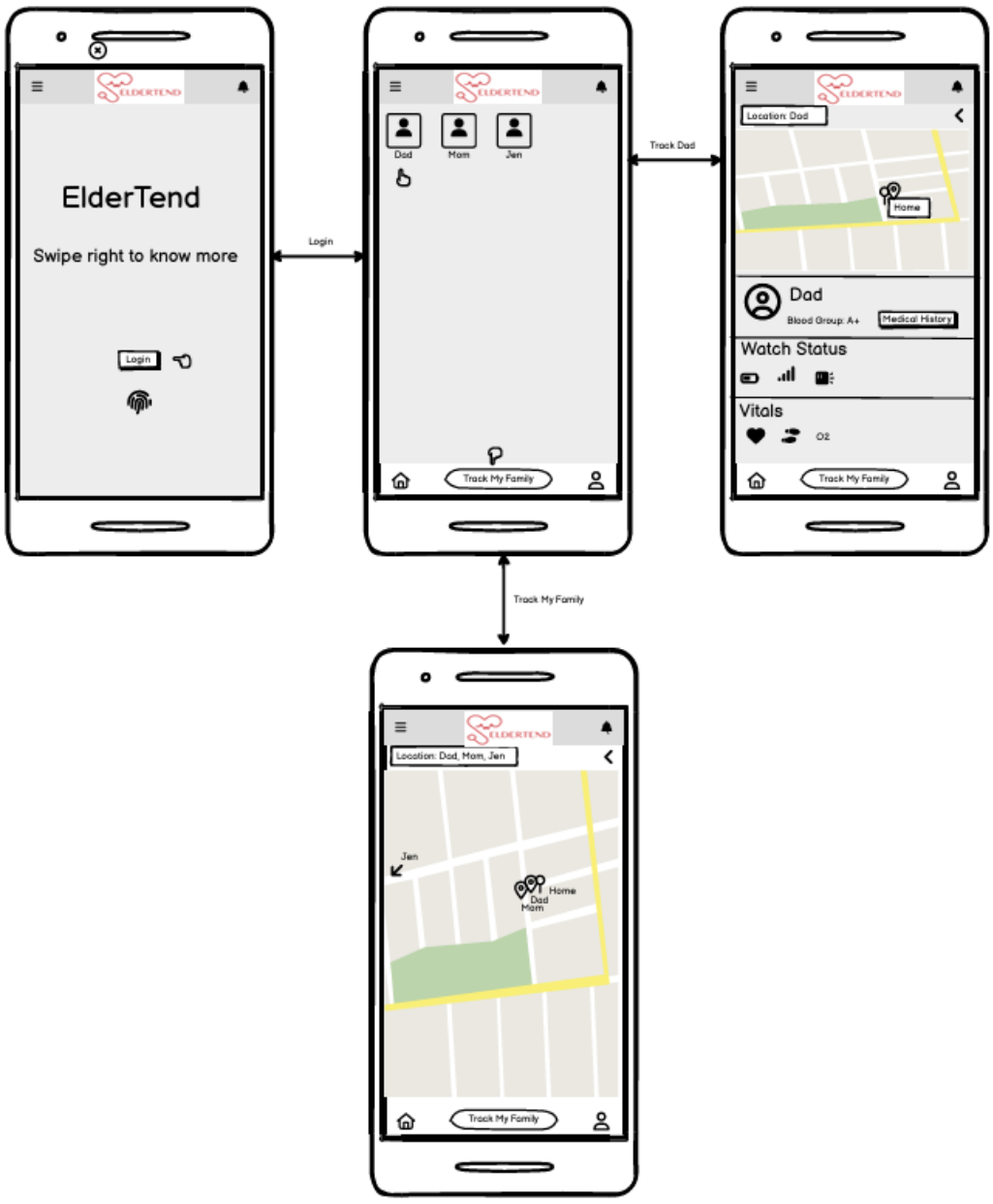
Appendix

Appendix A: Wireframes

Use Case 1: Elderly - Medication Reminder



Use Case 2: Family Member - Location Tracker



Use Case 3: Caregiver - Tracking Health Parameters Remotely