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LOGiT
Vision Document

Version <1.6>

Revision History

Date	Version	Description	Author
04/06/2024	<1.0>	Complete section *4. Product Overview*	Võ Minh Khôi
06/06/2024	<1.1>	Fill out section *2. Positioning*	Lê Ngọc Thảo
06/06/2024	<1.2>	Complete section *3. Stakeholder and User description.*	Nguyễn Tấn Hoàng, Lê Nguyễn Minh Châu
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09/06/2024	<1.5>	Overall check and format the document	Lê Ngọc Thảo
10/06/2024	<1.6>	Improve and format section *3. Stakeholder and User description.*	Võ Minh Khôi

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Table of Contents

Vision (Small Project)

1.   Introduction

The purpose of this document is to collect, analyze, and define the high-level needs and features of LOGiT. It focuses on the capabilities needed by patients, physicians, and hospital administrators, and why these needs exist. The details of how LOGiT fulfills these needs are detailed in the use case and supplementary specifications.

1.1   References

This subsection provides a complete list of all documents referenced elsewhere in the Vision document. Identify each document by title, report number if applicable, date, and publishing organization. Specify the sources from which the references can be obtained. This information may be provided by reference to an appendix or to another document.

2.   Positioning

2.1   Problem Statement

The problem of	inefficiencies in patient management in the current healthcare system leads to a cascade of negative consequences, such as discharged patients having difficulty accurately recalling their illness history, hindering effective post-discharge care, and potentially leading to misdiagnosis or readmission due to incomplete or inaccurate information. Additionally, these inefficiencies contribute to unnecessary hospital stays, inflating healthcare costs and straining limited resources.
affects	Patients: Patients seeking healthcare services at hospitals or private clinics, who value convenience, efficiency, and clear communication.
	Physicians: Medical professionals committed to delivering optimal patient care, who value efficiency, clear communication, and access to comprehensive patient data.
	Hospital Administrators: Individuals responsible for optimizing hospital operations and ensuring patient satisfaction, who value efficiency, resource allocation, and positive patient experiences.
the impact of which is	Patients struggling to remember or manage medication dosages can compromise treatment effectiveness and lead to potential health risks. Geographical, financial, and assessment challenges can delay or prevent patients from seeking timely medical attention, causing anxiety and potentially compromising their health. Additionally, the work overload due to inefficiencies increases the risk of errors and compromises the quality of service healthcare professionals can provide, while also making it difficult to prioritize critical cases.
a successful solution would be	a mobile application. The app aims to enhance communication between patients and healthcare providers,

	improve medication adherence, and facilitate more accurate diagnosis and treatment. By bringing the oversight of health management into the comfort and convenience of the patient's home, the solution aspires to revolutionize the patient care model and enhance the quality of care and patient satisfaction.

2.2   Product Position Statement

For	Patients, physicians, and hospital administrators
Who	seek a comprehensive solution to address the inefficiencies in patient management, leading to improved health outcomes, enhanced patient-provider communication, and optimized healthcare operations
The LOGiT	is a mobile-based platform that revolutionizes patient care by bringing the oversight of health management into the comfort and convenience of the patient's home
That	enhances communication between patients and healthcare providers, improves medication adherence, and facilitates more accurate diagnosis and treatment, ultimately improving the quality of care and patient satisfaction
Unlike	costly fragmented healthcare management tools and traditional hospital-centric approaches
Our product	offers an integrated platform that seamlessly connects patients, physicians, and hospital administrators, empowering all stakeholders to actively participate in the healthcare journey and optimize the utilization of resources, leading to better health outcomes and a more efficient healthcare system.

3. Stakeholder and User Descriptions

3.1 Stakeholder Summary

Name	Description	Responsibilities
Project Manager Lê Ngọc Thảo Võ Minh Khôi	This is a stakeholder that is primary for leading the system development.	Plans, keeps the project team focused, and ensures the success of the project.
UI/UX Designer Lê Ngọc Thảo Nhâm Đức Huy	This is a stakeholder that focuses on user experience (UX) and user interface (UI) to ensure the product is intuitive, accessible, and visually appealing.	Conducting user research, creating wireframes and prototypes, ensuring design consistency, collaborating with developers, conducting usability testing, and iterating on designs.
Frontend Developer Lê Ngọc Thảo Nhâm Đức Huy Võ Minh Khôi	This is a stakeholder that implements the visual and interactive aspects of a web application. They take the designs created by UI/UX designers and bring them to life using code.	Developing the user interface with HTML, CSS, and JavaScript, ensuring responsiveness, optimizing performance, collaborating with backend developers, debugging and fixing front-end issues.
Backend Developer Lê Ngọc Thảo Nguyễn Tấn Hoàng Võ Minh Khôi Lê Nguyễn Minh Châu Nhâm Đức Huy	This is a stakeholder that focuses on the server-side of web applications, handling the business logic, database interactions, and server configuration.	Writing server-side code, designing and managing databases, developing and maintaining APIs, ensuring security and data protection, optimizing server performance.
Business Analyst Võ Minh Khôi	This is a stakeholder that is responsible for analyzing business requirements, translating them into technical specifications, and ensuring alignment with project goals.	Identifying customer requirements and clarifying them to the development team.
Tester Lê Ngọc Thảo Nguyễn Tấn Hoàng Võ Minh Khôi Lê Nguyễn Minh Châu Nhâm Đức Huy	This is a stakeholder that ensures that software products are of high quality and meet the specified requirements. They identify bugs and issues before the product goes into production.	Creating and executing test plans, performing various types of testing, documenting and tracking bugs, collaborating with developers to resolve defects, ensuring product quality standards.
AI Engineer Lê Nguyễn Minh Châu Nguyễn Tấn Hoàng	This is a stakeholder that specializes in creating intelligent systems and applications using artificial intelligence and machine learning techniques.	Designing and developing machine learning models, preprocessing data, evaluating and fine-tuning models, staying updated with AI research.

Project Supervisor Trương Phước Lộc	This is a stakeholder that ensures the project's result meets the expectation.	Supervise and evaluate application development and support the development team.

3.2 User Summary

Name	Description	Responsibilities	Stakeholder
Physician	End-user of the system	Monitor patient health status in real time and respond with clinical information when abnormal symptoms occur. Receive immediate alerts for abnormal patient symptoms. Update patient illness statuses after checkups. Communicate with patients for appointment and follow-up arrangements. Manage doctor-patient connections by accepting or declining connection requests.	Self
Patient	End-user of the system	Schedule appointments and view upcoming appointments. Create medical records to report to doctors when there is any change in health condition. Strictly adhere to medication, appointments, and other healthcare-related reminders. Read health blogs relevant to their current health status. Bookmark meaningful blogs for later reading. Self-report abnormal symptoms and track symptom progression. Send doctor-patient connection requests by scanning QR codes or entering text codes.	Self
Technicians	End-user of the system	Provide and manage roles for accounts (physician/patient). Manage database.	Self

3.3　User Environment

Number of people involved in completing the task:

- Physicians: A physician typically has to work alongside the patient by offering diagnosis and treatment for a patient. They have to set up appointments and provide patients with clinical support when needed.
- Patients: A patient generally works with the physician by giving them updates about their symptoms and condition, or coordinate in appointment arrangements.
- Technician: A technician generally works with the system, supervising the database and managing users' role.

Duration of a task cycle:

The mentioned times may vary based on the complexity of the diagnosis, treatment, specific circumstances and the user's experience. The task cycles can change depending on the flexibility of the application and the specific requirements of car owners and car renters.

- Physician (20 - 90 minutes):
  1. Connect with patients: Physicians and patients can connect with each other via QR code. This task generally requires under 5 minutes.
  2. Create treatment profile: In this phase, the physician updates the patient's medical records after a checkup at the facility and creates a treatment profile. This task takes about 5-10 minutes.
  3. Communicate with patient: The physician receives notifications from patients and starts exchanging information with the patient. This task is generally complex, as some diseases take longer to monitor, diagnose and find treatment for, thus communication time might take longer. The duration of this task ranges from 5-60 minutes.
  4. Monitor patient's health status: Keep up with patients via real-time health monitoring. The time for this task generally takes under 5-10 minutes.
- Patients (20 - 35 minutes):
  1. Connect with physicians: Patients and physicians can connect with each other via QR code or text code. This task generally requires under 5 minutes.
  2. Self-report abnormal symptoms: Patients can log any unusual symptoms they experience and track symptom progression for their doctor's review. The duration for this task ranges from 5-10 minutes.
  3. Communicate with physician: The patient receives notifications from the physician (i.e., the treatment plan) and stays in touch with the physician. The time for this task generally takes no more than 10 minutes.
  4. Schedule an appointment: Schedule an appointment with the physician. The duration for this task usually takes 5-10 minutes.
- Technician (10 minutes - 8 hours):
  1. Account management: based on requests, the technician provides appropriate roles for account or delete expired/unused accounts. The duration for this task generally takes no more than 5 minutes.
  2. Database maintenance: perform regular checkups on the database to ensure no unauthorized/suspicious activity and take appropriate action if need be. The duration of this task may vary depending on the condition of the database or the complexity of the incident, it should take less than 10 minutes in normal conditions and up to 8 hours in abnormal cases.

Unique environmental constraints:

- Physicians: the main task of the physicians is about managing patients' profile and connecting with the patient. This task requires a mobile device with internet connection.
- Patients: the main task of the patients is to provide physicians with their symptoms and communicate with them to get treatments. This task requires a mobile device with internet connection.

Current and Future System Platforms:

- Current: Users commonly use platforms like iOS and Android on smartphones to access the application.

- Future: There may be developments in the use of new platforms or updated versions of operating systems in the future.

3.4 Summary of Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
Physicians: Find an available time frame for appointments with patients.	High	The complexity of finding an available time frame.	Using a time management app or managing time via spreadsheets.	Provide a simple user interface to help with scheduling and managing appointments within the app.
Patients: Request appointments conveniently.	High	Time-consuming with the traditional method of requesting appointments.	Request appointments meeting in real life or by using phone calls.	Provide a feature that allows users to request appointments directly in the app.
Physicians and patients: ability to view past treatments.	Moderate	Time-consuming when finding paper documents.	Use printed documents to store diagnosis and treatment results.	Provide a feature that helps storing documents of past treatments automatically.
Physicians and patients: real-time tracking of patients' progress.	High	Complexity when giving and receiving updates on patients' conditions.	Giving and receiving updates via real-life appointments or phone calls.	Provide a feature that allows patients to send a symptom report in an urgent manner, together with a chat system.
Physicians and patients: health blogs.	Low	False information might be consumed.	Reading newspapers, online blogs, and social media.	Have a dedicated page for health blogs, taken from a verified and trustworthy source.

3.5 Alternatives and Competition

Competitor application: VinMec
- **Strengths:**
1. Convenient Access to Health Information: Patients can easily access their medical records, test results, and health information anytime, from anywhere.
2. Enhanced Communication: Secure messaging allows patients to communicate directly with their healthcare providers, facilitating better coordination and faster responses.
3. Appointment Management: Users can schedule, reschedule, or cancel appointments online without needing to call the office, saving time and effort.
- **Weaknesses:**
1. Learning Curve: New users may find the interface and various features overwhelming or difficult to navigate initially.
2. Cost: While the app itself may be free to download, there could be costs associated with using certain features or accessing premium services within the app.
3. Limited feature usage: The application features usage are limited to only inside the VinMec medical system, which is not accessible to a large portion of users due to geographic distance and pricing.

Improvements:

1. User-friendly interface: the LOGiT app will prioritize a visually appealing and easy-to-navigate interface to ensure compatibility for users of all ages and backgrounds.
2. Focus on key features: improve on unique features that are important, such as real-time tracking, giving and receiving notifications, reminders, etc.

4. Product Overview

A Product Overview is a high-level summary of a product, detailing its purpose, features, benefits, and target audience. It serves as a quick reference for stakeholders, customers, or anyone interested in understanding the product's essence. This overview typically comprises two subsections:

4.1 Product Perspective
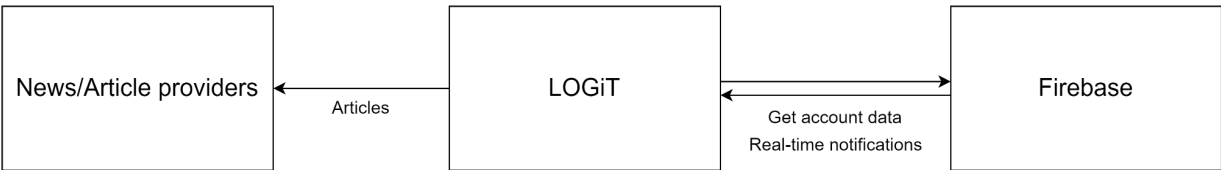
4.2 Assumptions and Dependencies

- The app assumes that patients will have access to smartphones or devices with internet connectivity to utilize the app's features effectively.
- The app depends on the willingness of both patients and physicians to actively use the platform for communication and health management.
- The app assumes that patients will input and update their health condition regularly, precisely to ensure physicians' diagnosis accuracy and treatment effectiveness.
- The app depends on the availability and reliability of external health data sources and APIs for features like health blogs.
- The app assumes that users will grant necessary permissions for features like notifications and access to health data.
- The app assumes that Firebase services will be available and reliable to ensure the proper functioning of user authentication, data storage, and database operations.
- The app depends on the security measures implemented by Firebase to protect sensitive patient information and maintain user privacy.
- The app assumes that healthcare facilities will have the necessary infrastructure to support the integration of the app into their existing systems.

5. Product Features

Number	Category	Priority	Feature	Description
1		High	Register/Log in	Allows user to create an account and log in using the application including.
2	General	High	Reminders	This utility allows users to create personalized alerts for taking medications, scheduling appointments, or other daily healthcare-related activities.

3		High	Appointment scheduling	Streamlines the arrangement of appointments, enabling both doctors and patients to schedule and view upcoming appointments.
4		Medium	Edit profile	By establishing a profile, patients empower healthcare providers with valuable personal information to optimize treatment plans and facilitate seamless communication throughout the care journey.
5		Low	Account authentication.	Confirm user information, ensure security, and protect user data.
6	Physician's exclusive	High	Create Doctor-Patient Connection	Leveraging QR codes or unique codes, doctors and patients can seamlessly connect to engage in remote treatment plans. This secure platform facilitates seamless interaction, communication, and updates, ensuring both convenience and privacy.
7		High	Immediate Alerts	Physicians receive instant notifications if a patient reports abnormal symptoms. This allows for quick assessment and prompt medical advice, ensuring timely intervention.
8		High	Real-Time Health Monitoring	Doctors can monitor their patient's health status in real-time.
9		High	Update Patient's Illness status	Allow physicians to add new medical records after a checkup at the facility.
10		High	Instant messaging	Communicate directly with patients via text messages for effective consultation and Q&A.
11		Medium	Appointment Arrangement	The system enables doctors to promptly arrange appointments or follow-ups, when necessary, based on the real-time data and notifications received.
12	Patient's exclusive	High	Symptom report	Patients can easily report symptoms to doctors for close monitoring.
13		Medium	Reminders	Reminder helps users easily keep track of their medical appointments, medication schedules, and other health-related activities. With this feature, users will never miss an important appointment again, ensuring they adhere to their treatment plans and maintain good health.
14		Medium	Send Doctor-Patient	The patient sends a connection request to the doctor

			Connection Request	by scanning the Doctor's QR code or typing the Doctor's text code, therefore ensuring the authenticity of
15		Low	Health Blog	The Health Blog provides users with the latest health news from trusted sources, curated and managed by a team of administrators. This allows users to stay up-to-date on health knowledge and information in an accurate and easy-to-understand way.
16		Low	Bookmarking	From the blogs, users can "bookmark" – save the blogs that are meaningful to them for later reading.
17	Administrator's exclusive	High	Database Administration	Exclusive access to facility databases to ensure security and to manage users' account information and roles.
18		Medium	Offer assistance	Receive direct requests for support from users, thus ensuring prompt service.

6.   Non-Functional Requirements

NO.	Category	Description
1	Hardware	Device requirements of users (patients and physicians): must have an Internet connection (Wi-Fi)
2	Performance requirements	Concurrent users capacity: 200,000 (according to *Firebase simultaneous connections limit* in Realtime Database Limits)
3		Requested data must be retrieved in less than 5 seconds
4		Operations must be processed in less than 2 seconds after the user triggers the event
5		Notifications must be delivered in less than 10 seconds
6	Applicable standards	A connection must only be created when a patient sends a connection request and the corresponding physician accepts it.
7		An account can only be a patient or physician, not both because it will affect the patient's medical record and physician's working schedule while avoiding overwriting and data misunderstandings.
8		A physician account can only be created via the facility's administrator role appointment to ensure the authenticity and credibility of the healthcare professionals using the app.
9		There is no restriction on patient account creation to ensure equal access to healthcare services for all individuals.
10		A patient can have multiple connections with one or more physicians to ensure comprehensive care for individuals with complex medical needs or multiple health conditions.
11		A patient can create as many medical records as needed to ensure comprehensive documentation of their health history

		and accurate tracking of changes in their condition over time, which can assist physicians in making diagnosis and treatment decisions.
12		Offline Functionality: Consider incorporating offline capabilities for certain features, such as viewing medical records or accessing educational resources, to ensure usability even in areas with limited connectivity.
13	Platform requirements	Data Security: Leverage Firebase's robust security features, including encryption and secure authentication mechanisms, to safeguard sensitive patient data. Implement additional security measures within the app, such as input validation, data masking for sensitive fields, and secure session management, to ensure data integrity and protection during app usage.
14		Push Notifications: The app should have the capability to send push notifications for appointment reminders, medication alerts, and important updates from healthcare providers.
15		Regular Updates and Maintenance: The app should be regularly updated to address bugs, and security vulnerabilities, and to introduce new features based on user feedback and evolving healthcare needs.