College of Informatics and Computing Sciences

BATANGAS STATE UNIVERSITY

The National Engineering University

Lipa City

IT 331 - Application Development and Emerging Technologies

Mobile Application Development Document

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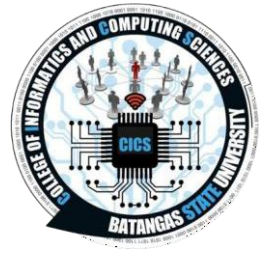*Leading Innovations, Transforming Lives, Building the Nation*

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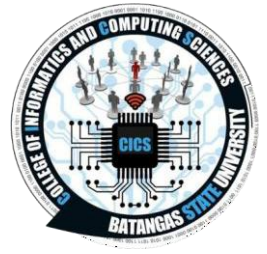
Project Overview:

StarkeyConnect is a lightweight mobile application developed as a companion tool to the main Starkey web-based health management system. While it does not replicate the full functionality of the web platform, it serves an essential role by offering convenient, on-the-go access to patient information. Designed specifically for healthcare professionals who work in the field or need quick access to records away from their workstations, the app allows authorized users to securely view patient data directly from their mobile devices. This includes access to key information such as medical history, hearing aid usage, and appointment details, all fetched in real time from the shared central database used by the web system.

The app is built with usability and security in mind. Strong user authentication ensures that only authorized personnel can access sensitive patient data, maintaining compliance with healthcare privacy standards. By focusing solely on data viewing, StarkeyConnect helps reduce the risk of accidental data modification or breaches, as all editing, updating, or deleting of records is restricted to the web platform. This centralized control supports better data integrity and overall system security.

StarkeyConnect is particularly useful for healthcare workers conducting outreach, supervisors needing to verify information while traveling, or clinicians handling urgent care situations where immediate access to patient records is critical. Although future updates may include offline capabilities for remote areas, the current version prioritizes secure, real-time access and complements the broader functionality of the main system. In essence, StarkeyConnect bridges the gap between mobility and secure data handling, making healthcare
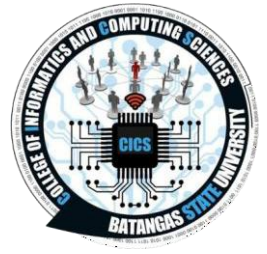
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delivery more efficient and responsive.

App Name: StarkeyConnect

StarkeyConnect is a mobile application designed to work alongside the main Starkey web-based health management system. Its core purpose is to provide healthcare professionals with a simple and secure way to access patient information remotely. Whether in the field, on the move, or away from a computer, authorized users can quickly log into the app and view important patient data directly from their mobile device.

The app does not support editing or modifying records—instead, it focuses solely on viewing data. This design ensures that all sensitive data remains protected and centralized within the main web platform, reducing the risk of accidental changes or security issues. StarkeyConnect fetches real-time information from the same shared database used by the web system, so users can always rely on up-to-date records.

Ideal for field workers, nurses, doctors, and program coordinators, StarkeyConnect is a lightweight yet powerful companion tool that increases efficiency and flexibility in healthcare workflows. It's especially useful in outreach scenarios, quick consultations, or urgent situations where time and mobility are critical.
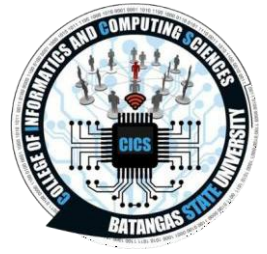
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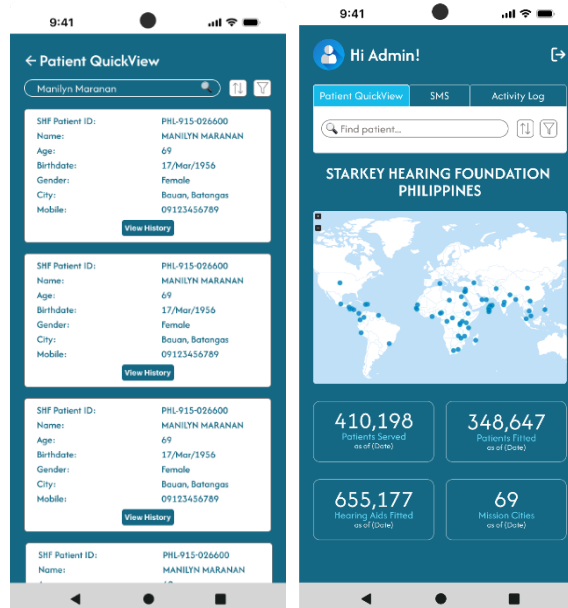
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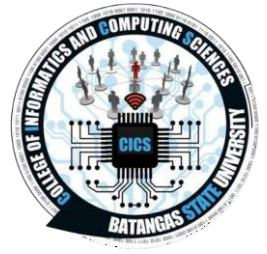
PHASE 1:DESIGN

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PHASE 2: DEVELOPMENT:

Goal: Develop the application using the Flutter framework.

Alpha Version: The initial working version of the application includes the core functionality of displaying a dynamic list of patients retrieved either from dummy JSON data or through real-time API calls. Users can tap on a patient entry to navigate to a detailed profile screen, which presents organized information such as the patient's name, age, gender, and medical background. This version also includes basic navigation flow between screens, foundational styling consistent.
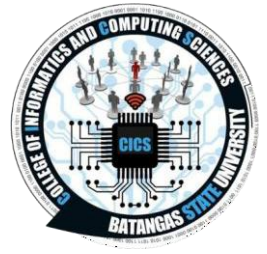
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|		
This is the login page of the app. We don't have a sign-up or registration feature, as the accounts are already assigned to their respective users.	This is the Forgot Password page. The user must first enter their username to retrieve the associated phone number from the database, which will then be used to send an OTP for verification.	This is where the user enters the received verification code. The system will verify it, and if successful, the user will be allowed to proceed with resetting their password.

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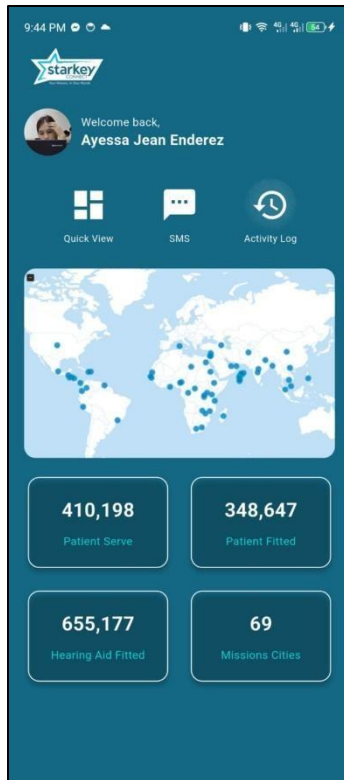
After a successful login, the app displays the dashboard, which contains three main functionalities: Quick View, SMS, and Activity Log.	This is the interface of the Quick View. The user can search for a specific patient using various filter options such as first name, last name, patient ID, and more.	This is the SMS Logs screen, the second functionality of the app. It displays all SMS messages sent through the web-based system that are saved in the shared database.

1. **Source Code Repository(Git):** "https://github.com/Shekinah-Marie/StarkeyConnect.git"

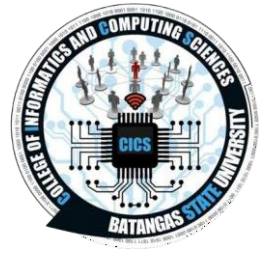*Leading Innovations, Transforming Lives, Building the Nation*

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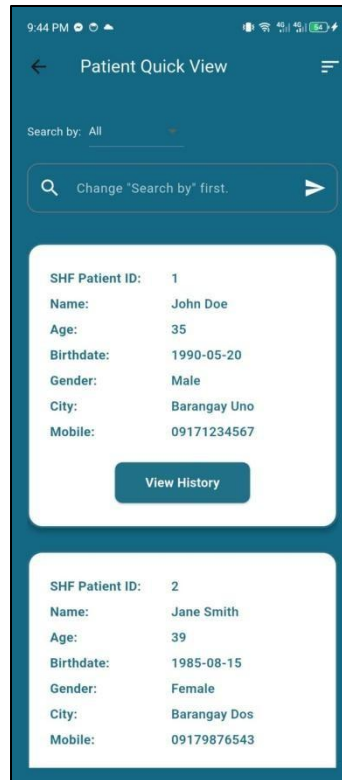**Lipa Campus**
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PHASE 3: TESTING

OUTPUT 1: Bug Report Sheet

Test case	Expected Result	Actual Result	Status
Login input validation	Correctly rejects empty/invalid input	Validation works correctly	Fixed
Patient profile fetch	Loads patient details from database	Data loads successfully	Fixed
Role-based view restriction	City/Country Coordinators only see patients in their area	Works as expected	Fixed
SMS notification action	SMS message checking	Message displayed with success	Fixed

OUTPUT 2: Testing Logs/Checklist

Feature/Module	Description	Status
Login Authentication	Secure login using stored credentials	Passed
Patient List from database	Loads patient details from database	Passed
Role-based view restriction	Access limited by user roles	Passed
Profile Navigation	Navigates correctly to selected patient's details	Passed
SMS Notification	Display messages	Passed
Usage Policy Enforcement	Usage Policy Enforcement	Passed

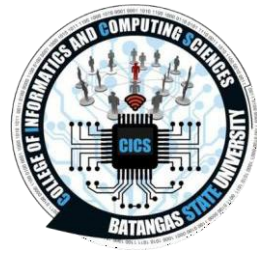*Leading Innovations, Transforming Lives, Building the Nation*

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App Info

- **App Name: Starkey Connect**

- **Build Date: July 29, 2025**

Core Features

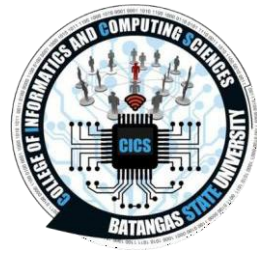| Feature	Description
Role-Based Access	Admin, City Coordinators, and Managers have tiered access
Patient Viewing	Staff can browse and open patient records
SMS Notifications	Staff may send reminders via SMS to patients in a specific location
Usage Agreement Dialog	On login, staff must acknowledge the data privacy agreement
Activity Logs	Logs every action (login, SMS, profile view) for audit trail

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PHASE 5: Maintenance

OUTPUT 1: Version History / Change Logs

Version	Release Date	Update/Changes
v1.0.0	2025-07-7	Initial working version with patient list and profile view screens
v1.0.1	2025-07-14	UI enhancements, added activity log backend integration
v1.1.0	2025-07-21	SMS notification system added with role-based filtering

OUTPUT 2: Maintenance Plan

The development team will continue to maintain the Starkey Connect app in parallel with the web platform. Key strategies include:

● Regular testing against OS updates.

● Patch rollouts for reported bugs.

● Continuous feedback collection from field staff.

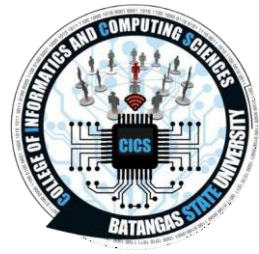● Expansion of features based on organizational needs.

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SYSTEM REQUIREMENTS

1. Functional Requirements

These requirements define the specific behavior and functionality that the **StarkeyConnect** mobile application must support.

1.1 User Authentication and Role-Based Access

- The system shall allow authorized staff members (e.g., Admins, City Coordinators, Supply Managers) to log in using their registered credentials.

- The system shall implement Role-Based Access Control (RBAC) to ensure users only see data relevant to their roles.

- The system shall redirect users to a usage agreement dialog upon login, which they must acknowledge before proceeding.

- The system shall log each successful and failed login attempt in the database.

1.2 Patient Data Management

- The system shall display a list of patients, filtered by user access level (e.g., city-specific for coordinators).

- The system shall fetch patient profiles, including demographic details, medical history, screening dates, and device status.

- The system shall include a search functionality for quickly locating patients.

- Patient data shall be read-only on the mobile app to prevent unauthorized modifications.
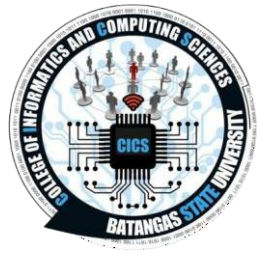
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1.3 SMS Notification Feature

- The system shall allow users to send preformatted SMS messages to patients.

- SMS sending shall support filtering based on location or device status.

- Each SMS sent shall be recorded in the activity logs with timestamp, user info, and recipient list.

1.4 Activity Logging

- The system shall log all critical user actions such as login, logout, viewing profiles, and sending SMS.

- Logs shall be securely stored in the backend and retrievable via the admin web panel.

- The system shall timestamp all logs for auditing purposes.

1.5 Usage Agreement Dialog

- The system shall require users to read and accept the app's usage policy on first login.

- Users must acknowledge this policy before accessing any app feature.

- The system shall store acceptance records tied to each user account.

2. Non-Functional Requirements

These define system quality, performance, security, and usability expectations.

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2.1 Performance Requirements

- The app shall load the patient list within 2–3 seconds on a stable network.

- Profile viewing and SMS page transitions shall occur with minimal delay.

- The app shall remain responsive even with large datasets (e.g., >1,000 patients).

2.2 Security Requirements

- All user passwords shall be securely hashed before storage.

- The app shall not store chat logs or sensitive patient communications locally or remotely.

- Input validations shall prevent SQL injection and XSS attacks.

- Data transferred over the network shall be encrypted via HTTPS.

- Users must agree to a usage policy governing ethical and secure data access.

2.3 Compatibility

- The mobile app shall support Android 9.0 (Pie) and above.

- It shall run efficiently on devices with at least 2GB of RAM and 64-bit processors.

- Backend APIs shall be compatible with both the mobile and web platforms.

2.4 Availability and Reliability

- The app shall notify users when internet connectivity is lost.

- If SMS fails to send due to network issues, the system shall retry up to 3 times automatically.

- The app shall handle API errors gracefully and provide user-friendly error messages.
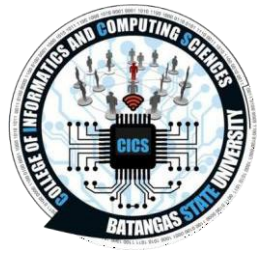
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2.5 Data Privacy and Compliance

- All sensitive data, such as patient IDs and health records, shall be encrypted during transmission and storage.

- The system shall comply with the Philippines' **Data Privacy Act of 2012** and other applicable data protection regulations.

- User access shall be restricted based on jurisdiction, ensuring coordinators cannot view data outside their assigned area.

2.6 Maintainability

- The system shall follow modular code architecture using Flutter for easy updates and maintenance.

- A changelog shall be maintained for all version updates.

- Each code module shall be independently testable and scalable.

2.7 Usability

- The app shall feature a clean and intuitive UI for quick navigation by staff.

- All icons, filters, and messages shall be clearly labeled for non-technical users.

- The design shall follow accessibility best practices, including readable text and consistent layout.