CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE · INDIA

MEDICARE

Software Requirement Specification

TEAM MEMBERS:

Greeshma Girish C – 2241130

Sandeep Mathew – 2241155

1. INTRODUCTION TO THE DOMAIN

The Medicare app addresses critical challenges in medicine identification and healthcare management. By integrating machine learning and mobile technology, the app ensures safer medicine consumption, reduces the risks associated with counterfeit drugs, and promotes better healthcare practices. This solution aligns with Sustainable Development Goal (SDG) 3: Good Health and Well-Being, fostering a healthier society by improving accessibility and awareness for individuals with varying levels of medical knowledge.

2. EXISTING SYSTEMS

- **MedSnap App:** The app uses a smartphone's camera to identify pills, their name, dosage, and potential interactions with other drugs**.**
- **MedHelper App:** A medication management app with features to track prescriptions and set reminders.
- **Pill Identifier App:** An online tool and mobile app that identifies medicines based on their physical appearance (shape, colour, imprint).

3. LIMITATIONS OF EXISTING SYSTEMS

5.1 Med Snap App:

- Primarily designed for healthcare providers.
- The app requires users to place pills on a Med Snap tray, capture an image using the phone's camera.

5.2 Med Helper App

- Focuses more on medication reminders than scanning or counterfeit detection.
- Limited database for lesser-known drugs.

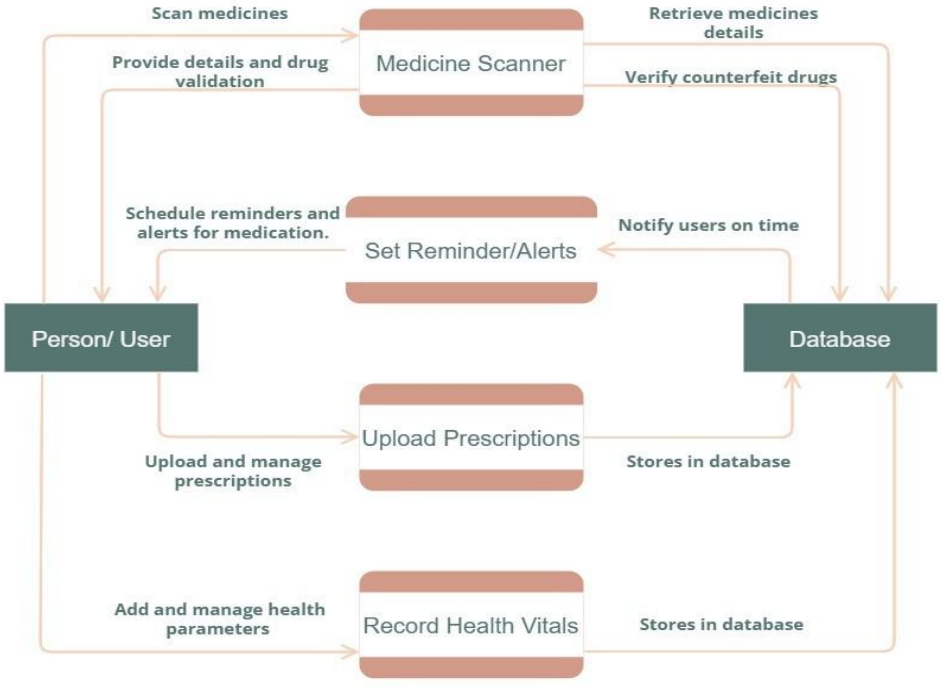
5.3 Pill Identifier App

- Requires manual input of pill attributes.
- Cannot scan physical packaging or detect counterfeit drugs.

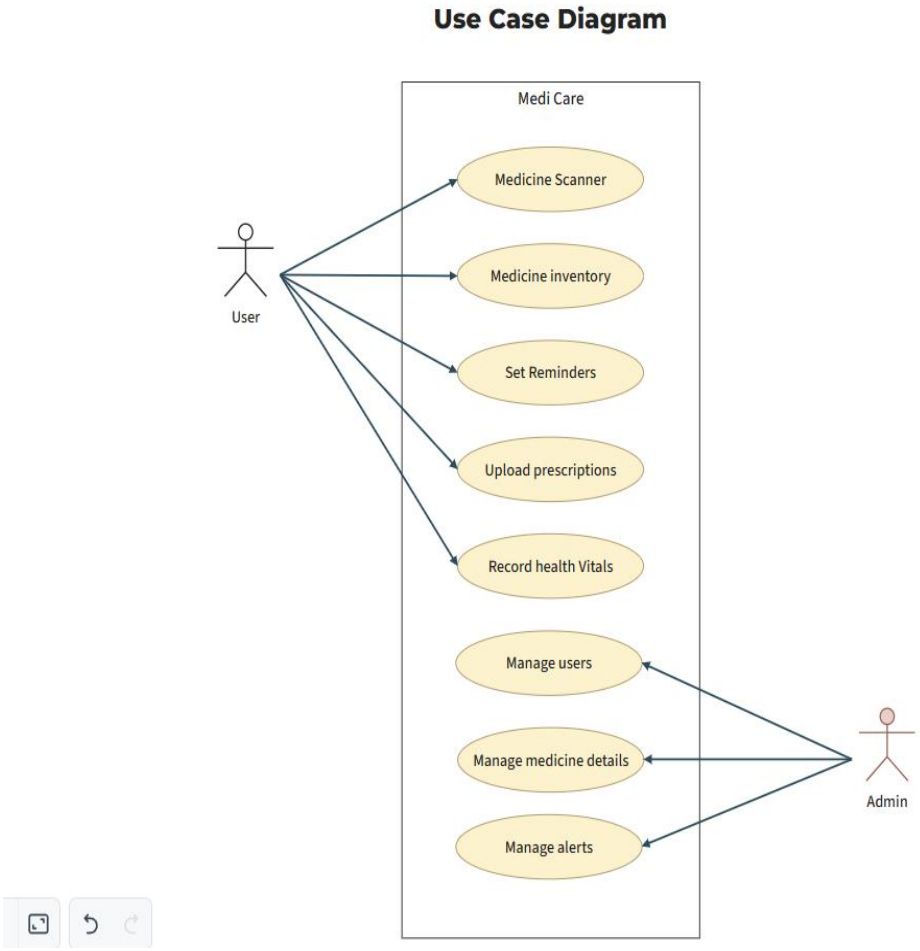
4. PROPOSED PROJECT IDEA

The Medicare app offers a holistic solution for medicine identification and awareness. By allowing users to scan medicines with their device cameras, the app provides instant access to vital information, including composition, usage, side effects, and manufacturer details. Additional features like prescription tracking, medication scheduling, and personalized user profiles further enhance its utility. The app promotes safer healthcare practices, reduces counterfeit risks, and ensures informed decision-making.

4.1 Block Diagram



4.2 Use Case diagram



5. FUNCTIONALITIES

- **Medicine Scanning:** Use the device camera to scan medicine packaging or pills for identification.
- **Information Display:** Provide details such as name, composition, uses, dosage, side effects, and manufacturer information.
- **Prescription Tracking:** Allow users to upload and track prescriptions for better medication management.
- **Medicine Reminder Alerts:** Set reminders for medication schedules to ensure timely consumption.

- **Stock and Refill Alerts:** Track medicine quantity and notify users to restock when supplies run low.
- **User Profiles:** Let users save medicine history, preferences, and health-related data for personalized usage.

5.1 Requirement Specification

Sources of Requirements	Requirements specification
User Needs and Feedback: To ensure the Medicare app meets user expectations, requirements should be gathered through community feedback sessions. These methods help identify user needs, such as customizable medicine reminders, effective prescription tracking, and easy-to-use scanning features. By understanding user preferences and challenges, the app can be optimized for seamless medication management and accessibility.	-**Medicine Scanning**: Enable the use of a device camera to scan medicine packaging or pills, ensuring accurate identification and retrieval of relevant information such as name, composition, uses, dosage, side effects, and manufacturer details. - **Prescription Tracking**: Allow users to upload images or digital copies of prescriptions, track their status, and ensure historical data is easily accessible. - **Medicine Reminder Alerts**: Enable users to set customizable reminders for timely medication consumption, catering to different schedules and dosages. - **Stock and Refill Alerts**: Notify users when medicine quantities are running low, ensuring they can restock without interruption to their treatment.
Organizational Policies: Aligning the app's functionality with the internal policies. This includes data privacy policies, communication protocols.	Ensure compliance with organizational data privacy policies, such as secure storage and transmission of sensitive health data.
Market Trends and Competitor Analysis: Studying similar healthcare and medication management apps, analyzing market trends to identify in-demand features such as scanning, personalized reminders, and secure prescription tracking, and ensuring the Medicare app offers competitive, user-friendly, and innovative solutions to meet evolving user needs.	**Information Display**: Include features such as cross-referencing similar medicines, pricing, and availability in local pharmacies. **Prescription Tracking**: Enhance tracking capabilities by integrating prescription renewal alerts. **User Profiles**: Offer personalization features such as medicine preferences and suggestions based on user history to differentiate from competitors.

End Users and Consumers: Understanding the needs and concerns of end users and consumers can provide insights into how to design a user-friendly application that meets their expectations and encourages active participation in the community.	**Medicine Scanning**: Make the scanning process quick and reliable, with fallback options like manual entry. **Medicine Reminder Alerts**: Offer flexibility in reminder formats (e.g., notifications).
Technical Standards and Best Practices: Following industry standards and best practices for software development, data security, user interface design, and performance optimization will ensure the app is robust, secure, and user-friendly	Use secure, scalable cloud storage for prescription images and user data. Implement robust authentication mechanisms for user profiles to protect sensitive information. Optimize the app for performance, ensuring minimal lag during scanning, tracking, and alert notifications.

5.2 Functional Requirements

Requirement ID	Requirement name	Description
C_FR1	Access mode	Users (e.g., General Users, Physicians, Nurses, and Pharmacy Personnel) shall access the system with dedicated privilege sets, ensuring personalized functionality and interface.
C_FR2	Dashboard display	The system shall display a personalized dashboard for users, including medication schedules, stock alerts, prescription tracking, and patient-specific updates.
C_FR3	Medicine Scanning	The system shall enable users to scan medicine packaging or pills using the device camera for identification and detailed information retrieval.
C_FR4	Information Display	Users shall access detailed medicine information, including name, composition, uses, dosage, side effects, manufacturer, and other relevant data.
C_FR5	Prescription Management	The system shall allow users to upload, track, and manage prescriptions for streamlined medication management.
C_FR6	Medicine Reminder Alerts	Users shall set up and receive reminders for medication schedules to ensure timely consumption.

C_FR7	Stock and Refill Alerts	The system shall track medicine stock levels and notify users to restock when supplies are low.

5.3 Non-Functional Requirements

Requirement ID	Requirement Name	Description
C_NF_R1	Performance	As it's a Mobile application, the network, hardware and other related infrastructure plays a vital role in determining the application performance. • **Data Compression**: Efficient formats and caching reduce network burden. • **Navigation**: Minimal screens and gestures streamline user interaction. • **Graphics**: Lightweight visuals and optimized color schemes enhance performance.
C_NF_R2	Safety/Security	Performing frequent backup can reduces the data loss due to sudden server or the system crash. Being a healthcare workflow system, its primary character should be security, thus providing secure environment for the app flow process.
C_NF_R3	Quality Requirements • Usability	The Medicare app is designed to cater to users from various clinical departments with diverse levels of functionality requirements. The interface for each type of user kept very simple and complete for ease of its user. Manuals, demos or the documents made available, simple, clear and definite set of interfaces makes the context easy to understand and use.
	• Reliability	This system uses atomicity features where each task flow is performed to complete a process successful, failure of single task halts the transaction and the process fails. This avoids occurrence of incomplete order processing. Data backup ensures the availability of data to the system users all the time.
	• Availability	This mobile application handles multiple service requests and the server is up all the time, which is made sure by the robust algorithms and server design architecture.

6. DESCRIPTION OF THE MODULES

- **Scanning and Identification Module:** Uses algorithms to recognize medicines and retrieve detailed information.
- **Prescription Management Module:** Allows users to upload, view, and track prescriptions.
- **Reminder and Alert Module:** Includes features for medication scheduling, stock alerts, and refill notifications.
- **User Profile Module:** Maintains personalized data such as medicine history and preferences.
- **Admin Module:** Ensures backend management of drug information and app functionalities

7. ADVANTAGES OF PROPOSED IDEA

- **Enhanced Patient Safety:** Reduces the risk of counterfeit and incorrect medicine consumption.
- **Improved Accessibility:** Empowers individuals with limited medical knowledge to make informed decisions.
- **Comprehensive Solution:** Combines medicine identification, prescription tracking, and medication scheduling in one platform.
- **User-Friendly Interface:** Simplifies healthcare management with an intuitive design.
- **Healthcare Awareness:** Promotes informed decision-making by providing detailed drug information.

8. TECHNICAL STACK

8.1 System Requirements

Hardware Requirements	Software Requirements	Other Requirements
RAM • 2GB Internal Storage • 4GB or Higher Processor • ARMv7 (32-bit). ARM64 (64-bit). x86, x86_64 or higher	**Operating System** • Android 7 or Higher	None