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MedMinder: A Smart Medication Reminder System for Enhanced Patient Compliance.

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ABSTRACT:

MedMinder is a simple and easy-to-use mobile app designed to help people stay on top of their medications. Whether it's an elderly person struggling to remember their pills or someone who prefers information in their native language, MedMinder makes the process effortless. With support for Hindi, Marathi, and English, the app ensures that users can understand their medication details without confusion. Just scan the barcode on your medicine, and instantly get important information like dosage, instructions—all in a language you're comfortable with. To make life even easier, MedMinder lets you set reminders for your medications. You can create a personalized schedule and receive notifications so you never miss a dose again. No more worrying about forgetting your pills or taking the wrong medicine at the wrong time. Designed with a clean and user-friendly interface, MedMinder combines advanced scanning technology with simple features that actually make a difference. It's not just an app—it's a smarter way to take care of your health, making medication management stress-free for everyone.

Keywords: Medication Reminder, MedMinder, Healthcare Technology, Mobile Application, Health Informatics.

1. Introduction :

Taking medications as prescribed is crucial for good health, but for many people, it's not as simple as it seems. Forgetting doses, dealing with complicated schedules, struggling to understand prescriptions, or facing language barriers can make medication management overwhelming. Unfortunately, this often leads to serious health problems, more hospital visits, and higher medical costs. Despite the rise of digital healthcare solutions, many people—especially the elderly or those with limited literacy—still find it difficult to keep track of their medications. That's where MedMinder comes in. Designed as a user-friendly mobile app, MedMinder helps people manage their medications effortlessly. By scanning a QR code on the medicine packaging, users can instantly access clear dosage instructions in Hindi, Marathi, or English—ensuring they fully understand their prescriptions. Beyond that, MedMinder also allows users to set personalized medication reminders, making sure they take their medicines on time. These simple yet powerful features work together to reduce medication errors, improve adherence, and ultimately promote better health. This paper explores how MedMinder bridges the gap between prescriptions and patient understanding. By combining technology with an easy-to-use interface, it makes medication management accessible to everyone—especially elderly patients, non-tech-savvy users, and those who struggle with language barriers. Through this research, we aim to show how digital solutions like MedMinder can simplify healthcare and improve lives.

2. Literature Survey :

Sr. No	AUTHOR	TITLE	YEAR	PROS	CONS
1	1 Unde Gorakh Shankar , 2 Ranjeet Kumar, 3 Khan Abdullah Z, 4 Asst.Prof Dagadkhair Pooja	Scan Med: A Healthcare Application using QR Code	2018	Improves Medication Adherence – Helps users follow prescribed dosages accurately.	Requires QR Availability – Medications without QR codes may not be supported.
2	Ann Blandford , Anna L. Cox , Katarzyna Stawarz	Don't forget your pill!: designing effective medication reminder apps	2014	Enhances Medication Adherence – Helps users stay consistent with their prescriptions	Device Dependency – Users must have a smartphone or digital device.

3	UX Planet	A Medication Reminder App	2022	Refill Reminders – Alerts users when they need to restock medications	Privacy Concerns – Some apps collect sensitive health data.
4	Ms. S. A. Patil*1, Ms. Monika Bhanuse*2, Ms Snehal Mali*3, Ms. Vishaka Swami*4	REVIEW ON MOBILE APPLICATION FOR MEDICINE REMINDER	2021	Uses ANN with backpropagation for evaluation, supports scanned handwritten input	Lower accuracy in descriptive answer evaluation, keyword based matching limitations

3. Problem Statement and Scope :

“Problem statement Many people, especially non-regional language speakers, the elderly, and those with literacy challenges, struggle to understand medication instructions provided in a single language or complex medical terms. This leads to incorrect medication usage, increasing the risk of health complications. The lack of accessible and understandable dosage information in the user's regional language creates a significant barrier to medication adherence and patient safety. If the QR code sheet on the medicine falls off, it could cause issues in accessing important medication information. ”

Scope : MedMinder will develop a mobile app that allows users to scan medicine QR codes, access dosage and instructions in multiple languages (Hindi, Marathi, English), and set medication reminders. The app is designed for users of all ages, focusing on making medication management easier and more accessible. Future features could include health tracking and personalized insights. We will be developing IOT devices to adhere to the voice instructions of the medication dosage.

Area of project The MedMinder project falls within the areas of healthcare technology, mobile application development, and health informatics. It focuses on improving medication adherence through the use of digital tools such as QR code scanning, multilanguage support (Hindi, Marathi, English), and personalized reminders. The project integrates technology to solve real-world healthcare challenges, particularly in medication dosage information, for diverse populations, including the elderly and non-tech-savvy users.

4. Objectives :

- To Implement QR code scanning to provide users with quick and accurate access to medication dosage details.
- To Offer native language (Hindi, Marathi, English) support to ensure that users can understand instructions in their preferred language.
- To Integrate dosage reminders to help users take their medicines on time.

5. SOFTWARE DESIGN

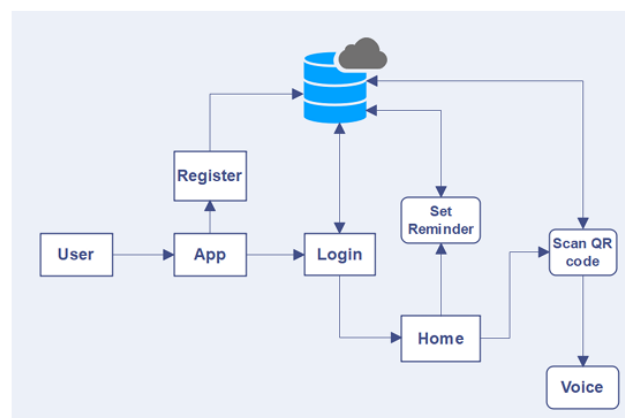


Fig 5.3 System Architecture

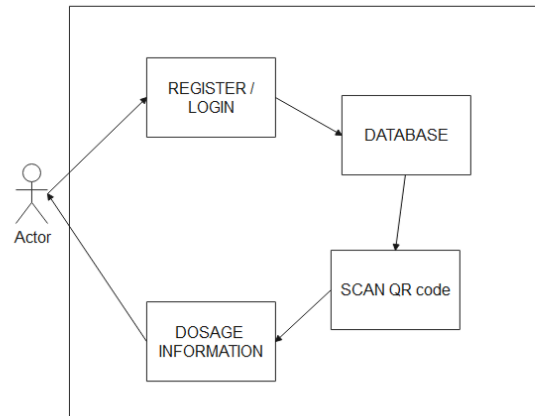


Fig 5.4 UML Diagram

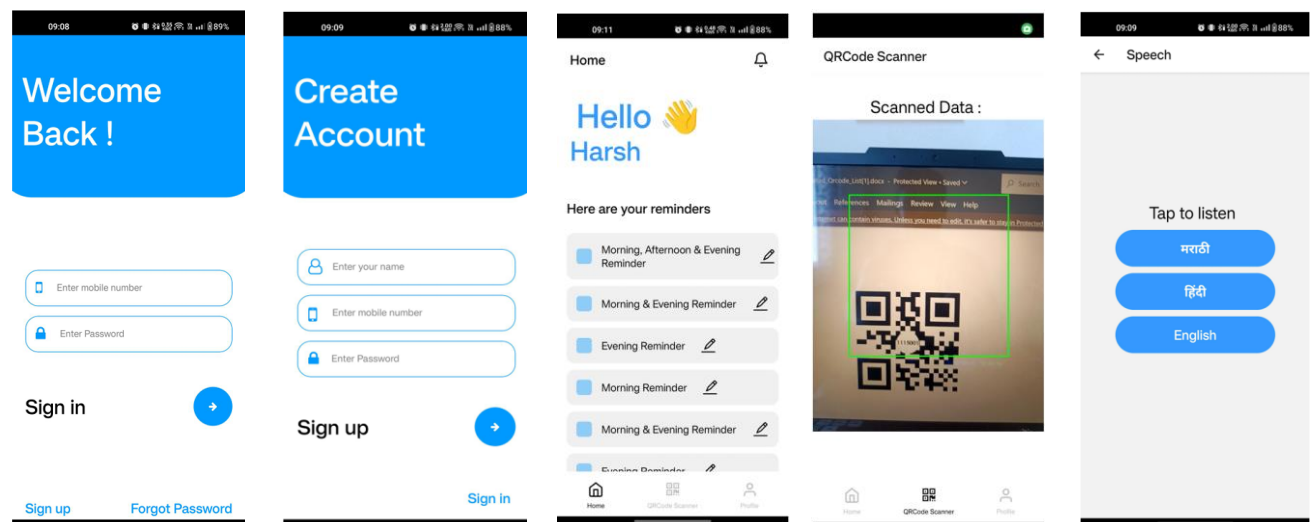
6. Implementation:

MedMinder is a smart and intuitive mobile application designed to help users manage their medication schedules with ease. Developed using React Native for a seamless cross-platform experience and powered by Spring Boot on the backend, the app ensures that users never miss a dose. One of its standout features is QR code scanning with voice guidance, where users can scan the QR code on their medicine packaging and receive audio instructions on how to take the medication—whether before or after meals, with water, or under specific conditions.

To make medication tracking even more accessible, MedMinder allows users to add reminders directly to their home screen, providing quick access to their daily schedule. The app also integrates push notifications, ensuring timely alerts so users stay on track with their prescriptions. All medication records are securely stored in a PostgreSQL database, managed by the Spring Boot backend, which also handles authentication and scheduling.

Additionally, MedMinder incorporates Jasper Reports, enabling users to generate detailed medication reports in PDF format for easy tracking or sharing with doctors. The app leverages AWS S3 for secure storage of reports and other user-related data, while Google Cloud Services enhances notifications and analytics for better medication adherence insights. With its combination of smart technology, cloud integration, and user-friendly design, MedMinder provides a comprehensive, reliable, and efficient solution for medication management, making healthcare routines easier and more organized for users.

7. Snapshot



8. Conclusion :

MedMinder is designed to help people take their medications correctly by using QR code technology to provide clear dosage instructions. With a quick scan, users can access accurate details about their prescribed medicines, ensuring they follow the right dosage and schedule. This not only improves patient safety but also helps reduce medication errors. The app's core QR scanning feature is already up and running, making medication management easier. Moving forward, we plan to add multi-language support to make the app more accessible, along with QR stickers on medications for added convenience. With these updates, MedMinder aims to simplify medication instructions and make healthcare more accessible for everyone.

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