MediScan: An AI-Based Android Application for Smart Healthcare Management

1st Author: **Gauri Gaikwad**, Dept. of Computer Engineering Nanasaheb Mahadik Polytechnic Institute Peth, A/P: Shirala, Sangli, Maharashtra, India, gaurigaikwad9966@gmail.com

2nd Author : **Pourima Waghmare**, Dept. of Computer Engineering Nanasaheb Mahadik Polytechnic Institute Peth, A/P: Rethre dharan, Sangli, Maharashtra, India, pournima1w@gmail.com

3rd Author: **Rasika Jadhav**, Dept. of Computer Engineering Nanasaheb Mahadik Polytechnic Institute Peth, A/P: Tandulwadi, Sangli, Maharashtra, India, rasikaj1608@gmail.com

4th Author: **Traniti Kamble**, Dept. of Computer Engineering Nanasaheb Mahadik Polytechnic Institute Peth, A/P: tadavale, Sangli, Maharashtra, India, tranitikamble9@gmail.com

Author: **Mayuri Gaikwad**, dept. of Computer Engineering Nanasaheb Mahadik Polytechnic Institute Peth, A/P: Shirala, Sangli, Maharashtra, India, mayugaikwad1212@gmail.com

Abstract

The rapid growth of mobile technology and artificial intelligence (AI) has transformed healthcare. However, many patients still rely on paper prescriptions, complicating access to medical care. This paper introduces MediScan, an Android healthcare app that simplifies management through machine learning-based optical character recognition (OCR), AI, and location services. Users can scan handwritten or printed prescriptions to extract text using Google ML Kit. MediScan also helps users locate nearby pharmacies, clinics, and hospitals, and features an AI-powered chatbot that provides basic medical advice. The system aims to improve access, reduce reliance on paper records, and enhance healthcare management with automation.

Introduction

As digital technology continues to reshape our world, healthcare is gradually adopting smart, automated solutions. Yet, patients everywhere still encounter common frustrations: lost paper prescriptions, unclear medication instructions, and difficulty finding nearby healthcare facilities when they need them most. Without a unified digital healthcare platform, people often experience unnecessary delays and complications in receiving necessary medical assistance.

To address these issues, our team created MediScan, an intelligent Android app designed to enhance healthcare accessibility. MediScan converts hard-to-read handwritten prescriptions and printed medical documents into clear digital records using optical character recognition (OCR) technology. This eliminates the need to decipher messy handwriting and alleviates the anxiety of lost prescription slips.

Additionally, MediScan utilizes Google Location Services to help users find nearby pharmacies, hospitals, and clinics, providing real-time location tracking and navigation. It also features AI-based medical guidance for basic health-related questions, making it easier for users to access medical facilities, especially during emergencies or in unfamiliar areas.

Existing System

The current healthcare system primarily relies on paper to issue and store medical prescriptions. Managing these physical prescriptions can be challenging as they may be easily lost, damaged, or misinterpreted due to unclear handwriting. This leads to difficulties during follow-up consultations and ongoing treatment.

To obtain medical information or locate nearby pharmacies or hospitals, patients often have to use multiple apps or conduct manual searches, which can become time-consuming and inconvenient. While some healthcare apps, such as Practo and 1mg, offer basic services like booking doctor appointments and providing medical information, they operate independently and lack integration. These existing apps do not support prescription digitization, location-based healthcare services, or AI-based medical assistance all

in one platform. As a result, the current system remains fragmented, inefficient, and unable to fully support patients in emergencies or long-term care situations.

Literature Review

Several studies have explored the use of artificial intelligence and mobile technologies in healthcare. OCR technology is widely employed for text extraction, with applications like Google Lens demonstrating accurate recognition of both printed and handwritten text. In healthcare, OCR is primarily used to digitize medical documents and reduce the need for manual record-keeping.

Mobile healthcare platforms such as Practo and 1mg aim to enhance access by providing services like doctor consultations and medicine ordering. Additionally, research in mobile health (mHealth) indicates that AI-based solutions, including chatbots, can boost patient engagement and facilitate faster medical decision-making by delivering instant assistance.

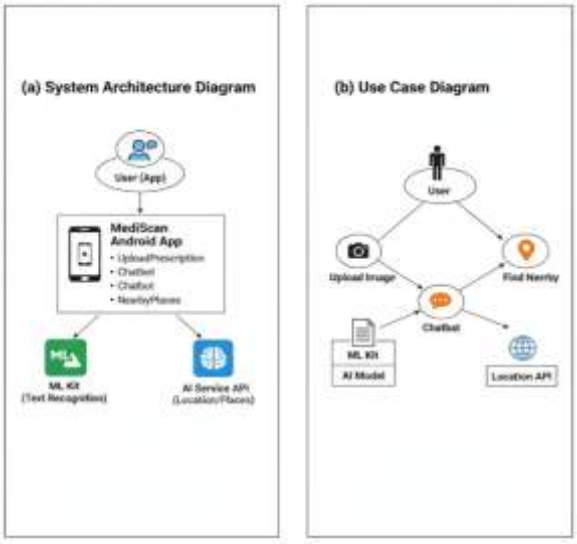
However, most existing systems focus on individual functions rather than offering a fully integrated solution. Very few applications combine OCR-based prescription scanning, AI chatbot support, and real-time location-based healthcare services within a single platform. To address this gap, MediScan merges these technologies to create a user-friendly digital healthcare assistant.

ML Text Recognition: Digitizes and analyzes handwritten or printed prescriptions.

GPS-based Nearby Detection: Assists in finding pharmacies, clinics, and hospitals in real-time.

AI Chatbot Support: Provides instant health information, guidance, and first-aid tips.

System Architecture



A) System Architecture Diagram:

This diagram illustrates how users interact with the MediScan Android App. The app captures images of prescriptions, utilizes OCR to extract text, and connects with AI services and a database to analyze medications and provide accurate health information.

B) Use-Case Diagram:

This diagram outlines the main actions performed by users in the MediScan system. Users can upload prescription images, extract text, identify medications, and access nearby medical services through integrated AI and location-based APIs.

Results

The MediScan application was successfully developed as an Android-based healthcare solution that integrates OCR, artificial intelligence, and location services. The OCR functionality, equipped with Google ML Kit, allows for efficient digitization and management of prescriptions, enhancing overall user experience in accessing healthcare.

Future Work

Future enhancements of MediScan may include cloud-based prescription storage, online medicine ordering, AI(Artificial Intelligence)-Powered diagnostics, location-based services, Collaboration tools for doctors, Patient monitoring and alerts, Blockchain for secure data, Wearable and IoT integration, Global accessibility and Language, doctor appointment booking, and integration with electronic health records

(EHR). Advanced Artificial Intelligence (AI) models and voice-based interaction can further improve the chatbot functionality, making the application a more intelligent healthcare assistant.

Conclusion

MediScan presents an efficient and intelligent healthcare management solution by integrating Artificial Intelligence(AI), Machine Learning, and location-based services into a single Android application. The system reduces dependency on paper prescriptions, improves access to healthcare facilities, and provides instant medical guidance. This research demonstrates the potential of smart mobile healthcare applications in enhancing patient-oriented healthcare delivery and sets the foundation for future digital health innovations.

References

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