

MEDIBOX: THE MEDICINE GUIDE

Prof. Bhargavi Gorde¹

¹Guide Name, Sai Dhakate, Prajwal Chormale, Laxman Gaidhankar, Roshan Ingale, Vyanktesh Chavan Computer Engineering, ZES's Zeal Polytechnic, Pune, Maharashtra, India.

ABSTRACT

In recent years, mobile health applications have gained significant traction, providing users with convenient access to medical information and tools for self-diagnosis. This paper presents an Android application designed to offer comprehensive medicine information and an integrated feature for skin disease prediction. The application enables users to search for detailed data on various medications, including their uses, side effects, and recommended dosages. Additionally, leveraging machine learning techniques, the skin disease prediction feature allows users to upload images of affected areas, which the application analyzes to provide possible diagnoses and related information. This functionality empowers users to take proactive steps in managing their health, while the accessible interface promotes ease of use. The paper discusses the implementation of both features, the challenges faced in creating reliable prediction models, and future prospects for enhancing the app's functionality.

Keywords: Predictive analytics, Healthcare technology, Self-diagnosis, Medicine information, Skin disease prediction, Android application.

1. INTRODUCTION

The rapid advancement of mobile technology has significantly transformed healthcare services, enabling users to access critical health information and self-diagnosis tools with ease. Mobile health (mHealth) applications have become popular for providing users with essential medical knowledge at their fingertips, helping bridge the gap between healthcare providers and patients. In particular, Android applications are widely adopted due to their accessibility, offering valuable opportunities to improve public health awareness.

This research presents an Android application aimed at providing comprehensive medicine information and an innovative feature for skin disease prediction. With the vast amount of medication available, users often face difficulties in understanding drug usage, potential side effects, and proper dosages. This application addresses these issues by offering detailed descriptions of medications, enabling users to make informed decisions about their treatment. Additionally, skin diseases are a prevalent health concern that often requires early diagnosis for effective treatment. The application incorporates a skin disease prediction feature using machine learning algorithms, allowing users to upload images of affected areas for analysis. The app then provides possible diagnoses and relevant information about the detected condition. This dual functionality empowers users with knowledge about both medicines and skin health, contributing to more informed healthcare decisions.

This paper discusses the development and implementation of the Android application, the challenges faced in creating an accurate skin disease prediction model, and the potential future improvements for enhancing its usability and accuracy.

2. LITERATURE REVIEW/BACKGROUND

Mobile health (mHealth) applications have seen tremendous growth in recent years, offering various tools for both healthcare professionals and patients. Previous studies have demonstrated the efficacy of Android applications in disseminating medical knowledge, enhancing patient care, and promoting self-diagnosis. Applications such as Medscape and Epocrates provide detailed medicine databases but lack integration with diagnostic tools. Similarly, skin disease detection using machine learning has gained traction, with systems like DermAI showing promise in classifying skin conditions from images. However, there is still a gap in combining medicine information with real-time diagnostic features in a single, accessible platform. Our research aims to bridge this gap by creating an Android application that provides comprehensive medication information while leveraging machine learning to predict skin diseases, thus offering a holistic health solution for users.

3. METHODOLOGY / SYSTEM DESIGN

□ **App Architecture:** The application was developed using Android Studio with Java as the primary language. The architecture consists of a front-end that interacts with users and a back-end that handles data retrieval, image processing, and machine learning model predictions.

□ **Medicine Information:** A medical database was integrated into the app, which includes detailed information on a wide range of medications, such as uses, side effects, and dosages. We utilized publicly available APIs (e.g., DrugBank, OpenFDA) to populate the database and ensured that it was easily searchable within the app.

□ **Skin Disease Prediction:** A convolutional neural network (CNN) model was trained to classify common skin diseases based on user-uploaded images. The model was trained using a large dataset of labeled skin disease images from public datasets like ISIC (International Skin Imaging Collaboration). Image preprocessing techniques such as resizing and normalization were applied to ensure consistent input for the model.

IMPLEMENTATION

- **User Interface:** The app features an intuitive user interface that allows users to easily navigate between medicine information and skin disease prediction tools. The design focuses on simplicity, ensuring that users can quickly search for drugs or upload images for skin analysis.
- **Database:** Medicine data is stored in a local SQLite database, which ensures fast access and offline functionality. The database is periodically updated from external sources through an API connection.

EXPECTED RESULTS

Once implemented, the application is expected to offer users an efficient way to access medicine information and a reliable tool for skin disease prediction. The proposed machine learning model should achieve a high accuracy rate in diagnosing common skin conditions such as acne, eczema, and psoriasis.

It is anticipated that the app will streamline the process of retrieving medical data while also providing predictive analytics, making healthcare more accessible. Future testing would aim to validate the effectiveness of the model and the overall user experience.

4. DISCUSSION

Although the project is still in the planning phase, the proposed application holds significant potential for improving healthcare accessibility. By offering dual functionality—both medicine information and skin disease prediction—this app could serve as a valuable tool for users seeking self-diagnosis and understanding medications.

However, there are some challenges to address, such as ensuring the skin disease prediction model's accuracy across various skin types and conditions. Another consideration is user trust in the diagnostic feature, given that machine learning models can occasionally yield incorrect results.

Further development will focus on overcoming these limitations and ensuring that the application adheres to medical standards for providing reliable information.

5. CONCLUSION

This paper presents a conceptual design for an Android application that offers users both comprehensive medicine information and a skin disease prediction feature. The proposed project leverages machine learning to enable early detection of common skin conditions while providing detailed descriptions of medications. Although the project has not been developed yet, it represents a significant step toward combining healthcare information and diagnostic tools in one accessible platform. Future work will involve building and testing the app, refining the machine learning model, and expanding the database to cover a broader range of conditions and medications.

6. REFERENCES

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