

AI BASED SKIN DISEASE DETECTION AND TREATMENT RECOMMANDATION SYSTEM

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Abstract--- Many skin or body diseases are still difficult for people to identify in their daily lives, which causes them discomfort and makes them question whether the condition can be treated. Like in the modern world, everyone looks to Google search results, blogs, and chatbots for assistance. They don't know if the issues are being presented honestly. With AI specially trained to identify skin conditions and provide guidance or remedies, the proposed system will help the user and promote increased accountability for skin care. In addition to tracking their progress and comparing their uploaded photos over time for AI analysis, the mobile application will notify users of temperature changes and provide advice on what to do in those situations. A dermatologist in the area can be found, an appointment can be made, and the user can ask for more prescriptions and clarification. The mobile app focuses on providing skin care advice and treatment plans to prevent the condition from worsening. The backend will securely store the user's uploaded images, enabling them to track their healing progress. The AI will also provide daily guidance based on regional weather conditions in order to enhance care. Last but not least, the AI-infused mobile application will help the user treat a wound or illness efficiently.

Keywords--- Skin Disease, Dermatologist, Daily Tips, Doctor Consultation and Daily Progress.

I INTRODUCTION

Today's world has seen a dramatic shift in how people use technology and interact with it for even the smallest tasks. To treat oneself without going to or talking to a doctor for the appropriate medication, this entails searching for every kind of treatment that is offered globally. This kind of internet browsing typically yields not only the intended results but also all the other possibilities or worse scenarios, which makes anyone who has the condition—whether in its early stages or in its more severe stages—fearful.

The suggested system won't cause such anxiety in its users by using a specially trained or optimized AI model to diagnose and treat skin conditions. Globally, there are over six different kinds of skin diseases. Different approaches to care will be needed for each type. The system is designed to facilitate user interaction with the application. Both the prediction results and every navigation area have been made simpler to make it easier for the user to finish. Thus, we suggested a skin disease detection system that makes use of artificial intelligence in order to forecast and treat skin conditions in a manner that is simpler for the user to comprehend.

II LITERATURE REVIEW

Although technology has progressed to the point where everything is becoming digital, some everyday tasks that may have been digitalized still fail to adequately address issues or meet user needs. This section reviews the major works' contributions and limitations that are relevant to the proposed system. The application of machine learning techniques for automated skin disease detection is examined by the authors of this study in order to satisfy the growing demand for dermatological analysis that is accurate, timely, and affordable. The study

highlights how traditional skin disorder diagnosis is often based on dermatologist knowledge, which is not always available, especially in rural areas, and is often arbitrary and time-consuming.

To overcome these limitations, the researchers propose a machine learning-based system that can recognize various skin conditions from digital photos. The work primarily examines supervised learning strategies because deep learning architectures, such as Convolutional Neural Networks (CNNs), excel at image recognition tasks. The authors discuss the importance of preprocessing methods like noise reduction, normalization, and augmentation in order to increase training accuracy and generalize the model across a variety of skin types and image quality. The study also evaluates different feature extraction techniques and looks into how different model configurations affect accuracy, sensitivity, and specificity

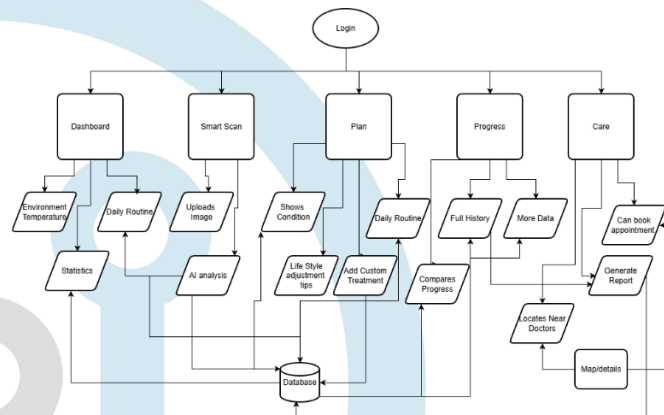
It was a study by M. Shankar and colleagues. present Convolutional Neural Networks (CNN), an automated process for detecting skin diseases using computer-aided diagnosis. The authors note that manual dermatological diagnosis is often time-consuming, subjective, and requires specialized knowledge, which makes fast treatment delivery difficult, especially in resource-constrained or rural settings. To tackle these problems, the study proposes a CNN-based image classification model that has been trained on a collection of labeled dermatological images spanning multiple skin disease categories.

This review paper presents a thorough examination of the ways in which deep learning technologies have transformed automated dermatological diagnosis and image analysis of skin diseases.

"The handcrafted feature extraction techniques that are a major component of traditional machine-learning approaches do not always capture the complex texture, color variation, and irregular lesion shapes often present in skin disease images," the authors said. Deep learning, especially convolutional neural networks (CNNs), has advanced rapidly, leading to notable gains in accuracy, scalability, and real-world

applicability in skin disease classification systems. This review carefully evaluates the state-of-the-art deep learning models used in dermatology, including CNN architectures like AlexNet, VGGNet, GoogLeNet, ResNet, DenseNet, and Inception.

III METHODOLOGY



The proposed system's flow diagram is displayed in the mobile application in the image above. Six sections make up the entire application: Dashboard, Smart Scan, Plan, Progress, Care, Authentication Layer/Welcome Screen, and Authentication Layer.

A. WELCOME SCREEN

The Welcome Screen or Authentication layer is a first screen of the mobile application, where each user will be authenticated by their unique login credentials. Each user will get their data in the application after the login which is retrieved from the Firebase Database/Firebase Storage or any other cloud storages.

B. AI ANALYSIS

In order to analyze the uploaded images and produce results, the application's second screen is directly connected to either local or cloud AI.

C. AI TREATMENT

The AI-generated report or treatments to either cure or stop the condition from spreading will serve as the basis for the treatment plan screen.

D. HISTORY OF SCANS

From the beginning of the treatment to the present phase, the Progress Screen informs

the user of their level of recovery. The screen displays statistics so that you can also see the recovery rate. In the other tab, each screen is linked to a database or another feature, and it will retrieve the required information from the cache or database.

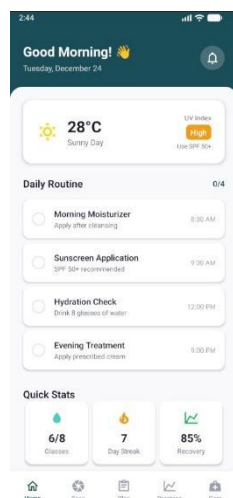
E. LOCATE DOCTOR

The map-connected final screen, which displays the dermatologist's office or nearby hospitals for users to view, which offers the ability to schedule an appointment with that physician and aids the user in crucial circumstances.

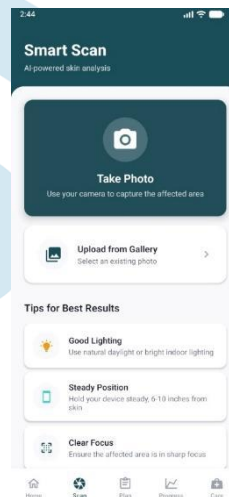
To navigate, scan, predict, and obtain the prediction results, the suggested system uses a specific mobile application tab. It also finds nearby hospitals for dermatologist consultations and compares recovery rates.

F. DAILY ROUTINE

Users can find their daily routine, daily tips, and the current weather conditions on the mobile device's home page. It also tells users what they need to do to protect their skin. Additionally, some statistical information based on the daily routine streaks and the overall progress percentage will be shown on the home page. Additionally, the app will remind users to apply moisturizer, stay hydrated, and turn up the temperature to Celsius.

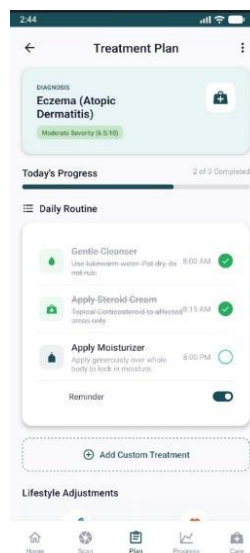


Through the Smart Scan section, the user can upload an image or take a live photo with the camera. The AI will then use the image data to analyze the current state of the skin and offer treatments or remedies. The name of the disease and its severity will also be predicted by the AI.



H. TREATMENT PLAN

According to the results, the treatment plan page includes the disease's medical name, severity levels, daily routines to maintain or prevent its progression, and lifestyle changes to help prevent skin-related illnesses. The user can also add a custom treatment to the tab and toggle the reminder to receive push notifications when it's time to take their medication or receive treatment.



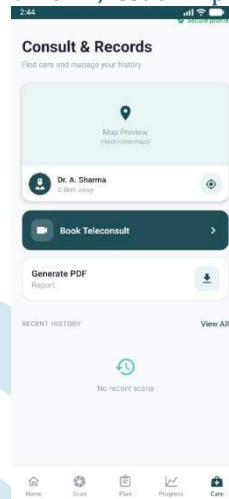
I. PROGRESS HUB

The progress hub is where the recovery progress is displayed in relation to the monthly reports or, alternatively, to the scan's beginning. The user has access to both the scan reports and the complete history of scans they have performed. Along with a chart that breaks down the recovery rate based on recent scans, the tab also displays the progress report percentage.



J. CONSULT & RECORDS

Finding and scheduling a teleconsultation, as well as downloading the reports, will be the last and final tab. The real-world map that solely displays the closest medical facilities and skin care clinics. Through the app itself, users can find and visit hospitals or schedule a video consultation to demonstrate their current condition and align with AI-generated treatment plans. and, following the video consultation, can obtain the prescription from the physician via the preferred platform from the hospital.



IV RESULT

Without causing the user any anxiety, the suggested system will assist in safely evaluating any skin damage or disease. The application will only provide the information required to determine the extent of the skin disease or damage. In order to prevent the wound from becoming more severe, the optimized AI will also offer treatment plans and medication instructions. All things considered, the application makes it 60% easier for the user to find problems.

V CONCLUSION

This paper presents a mobile application that makes it easier to detect skin damage without having to search online or worry about unidentified illnesses. The AI in the mobile application will eventually become a commonplace technology that helps users keep their skin healthier and in better condition. Each application result will undergo additional verification before being sent to the user.

The administration of inappropriate medication may exacerbate the condition or result in a protracted healing process. Furthermore, the application will retain historical data pertaining to previous scans, treatment regimens, prescribed medications, and even the daily activities that the user has accomplished. Consequently, the user will be able to present this historical data to the physician in order to obtain a more precise and effective treatment plan from the medical professional at the healthcare facility.

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