MedVision AI

Smart Skin Disease Analysis System

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Project Type:	AI / Machine Learning • Healthcare • Web Application

1️⃣ Introduction

MedVision AI is an intelligent diagnostic support tool designed to provide accessible skin health analysis. By combining Computer Vision with a patient-centric interface, it helps users identify potential conditions early, providing them with professional reports and dermatological guidance based on their location.

2️⃣ Objectives

- Deliver rapid, AI-driven screening for common skin diseases.
- Enhance patient awareness through localized specialist recommendations.
- Provide structured medical reporting with clear preventive care (Do's & Don'ts).
- Ensure clinical accuracy through multi-layered image classification.

3️⃣ Tools and Technologies Used

- **Backend:** Python, Flask/FastAPI
- **Machine Learning:** TensorFlow, Keras, CNN Models
- **Frontend:** React.js, Tailwind CSS
- **Image Processing:** OpenCV, NumPy
- **PDF Generation:** WeasyPrint / ReportLab

4️⃣ Project Overview

The workflow covers the complete user journey:

- **Authentication:** Secure user onboarding with location-specific data.

- **Analysis:** Deep learning model processes uploads to detect conditions like Ringworm, Eczema, etc.
- **Care Insights:** System provides dynamic advice and lists nearby dermatologists.
- **Reporting:** Instant generation of a PDF summary for historical records.

5️⃣ Prototype Screenshots

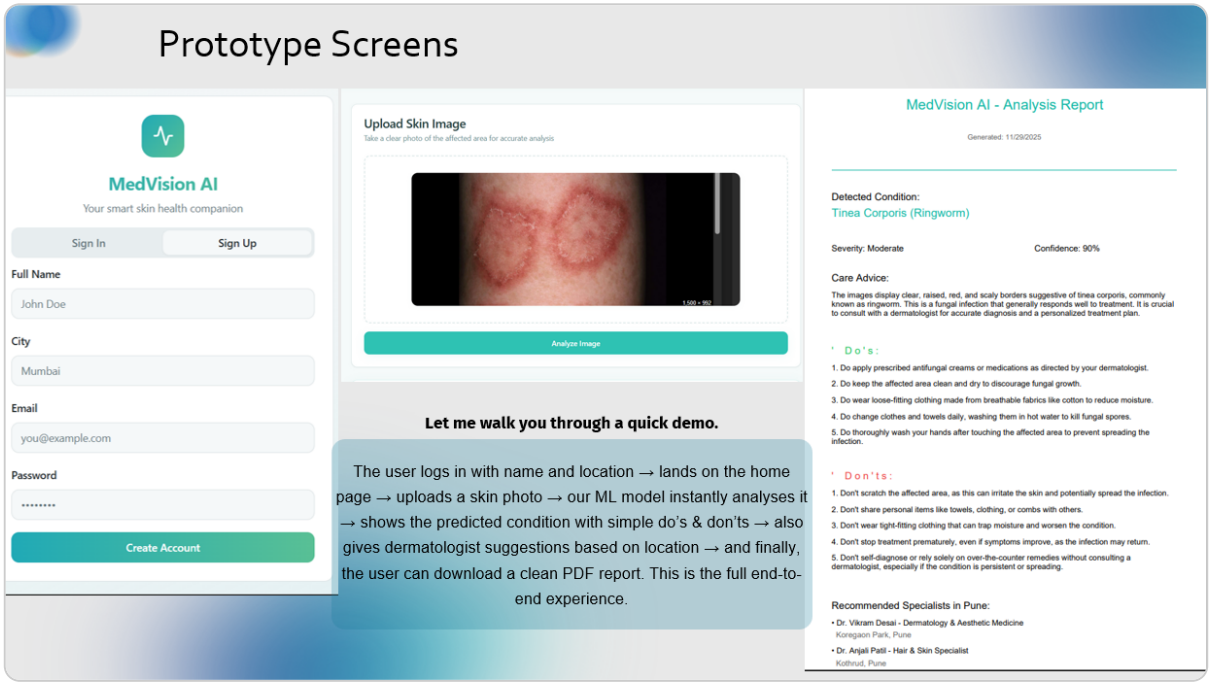

Figure 1: Full System Workflow - Registration, Analysis, and PDF Reporting

"Screenshots are for demonstration purposes."

6️⃣ Learnings and Challenges

Learnings:

- Designing a user-friendly UI that translates complex ML results into simple care advice.
- Integrating location-based APIs to provide practical value through doctor recommendations.

Challenges:

- **Dataset Acquisition:** Sourcing high-quality, medically verified, and diverse datasets was the primary hurdle. Finding datasets that represent different skin tones and varied lighting conditions is critical for training a non-biased model.
- **Data Imbalance:** Handling rare skin conditions which have significantly fewer samples compared to common ones.
- **Input Variability:** Maintaining accuracy when processing images taken by users on different mobile cameras in varying environments.

> ✅ **Final Note:** MedVision AI is a scalable solution for early-stage healthcare intervention. It leverages the power of AI to bridge the gap between patient symptoms and professional

> medical consultation, ensuring that technology serves the most critical needs in human health.