PRESIDENCY UNIVERSITY
Private University Estd. in Karnataka State by Act No. 41 of 2013
Itgalpura, Rajankunte, Yelahanka, Bengaluru – 560064

AI-BASED TOOL FOR PRELIMINARY DIAGNOSIS OF DERMATOLOGICAL MANIFESTATIONS

A PROJECT REPORT

Submitted by

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Under the guidance of,

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BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING (INTERNET OF THINGS)

PRESIDENCY UNIVERSITY

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PRESIDENCY SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

BONAFIDE CERTIFICATE

Certified that this report "**AI-based tool for preliminary diagnosis of Dermatological manifestations**" is a bonafide work of "Vinod (20221CIT0085), Nallin Kumar AB (20221CIT0077), Deeksha D (20221CIT0077)", who have successfully carried out the project work and submitted the report for partial fulfilment of the requirements for the award of the degree of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE ENGINEERING, INTERNET OF THINGS during 2025-26.

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DECLARATION

We the students of final year B. Tech in COMPUTER SCIENCE ENGINEERING, INTERNET OF THINGS at Presidency University, Bengaluru, named VINOD, NALLIN KUMAR AB, DEEKSHA D hereby declare that the project work titled **"AI-based tool for preliminary diagnosis of Dermatological manifestations"** has been independently carried out by us and submitted in partial fulfilment for the award of the degree of B.Tech in COMPUTER SCIENCE ENGINEERING, INTERNET OF THINGS during the academic year of 2025-26. Further, the matter embodied in the project has not been submitted previously by anybody for the award of any Degree or Diploma to any other institution.

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Abstract

Over 1.8 billion people worldwide suffer from skin disorders such as eczema, psoriasis, and acne, making them one of the top five causes of non-fatal disease burden (WHO). In India, 20–25% of outpatient visits are related to dermatological issues, yet only 12,000 dermatologists are available for 1.4 billion people, creating a ratio of 1 dermatologist per 100,000 people, with less than 10% serving rural regions.

Since 65% of India's population lives in villages, many individuals lack access to trained specialists and depend on home remedies or unqualified advice, leading to delayed diagnosis, complications, and social stigma.

Due to limited access to trained dermatologists (particularly in semi-rural regions) and the large number of patients who experience some form of skin condition, many people consult a General Practitioner (GP) and receive incorrect or missed consultations, or self-treat their conditions. This leads to prolonged periods of untreated skin diseases and/or continued progression of more serious conditions than if the patient had seen a dermatology trained provider at the very beginning. In order to help meet this urgency and need, this project proposes an Artificial Intelligence (AI) based solution for assisting with the initial diagnosis of skin conditions based on images taken by patients.

A Predefined ResNet-50 Convolutional Neural Network (CNN) has been trained by taking thousands of examples of variations of skin lesions, classifying and grouping them according to their likely diseases they can develop (and thus the type of diseases). Once an AI prediction has been made, a conversational interface for the end-user to interact with the system will provide users with probable reasons for the lesions, a list of what to look for as symptoms and warning signs, and provide recommendations for treatment options. This dual approach will allow users to get an accurate and probable diagnosis for a skin condition as well as stay informed about their condition in an easy and reliable way.

Ultimately, the goal of the proposed healthcare resource is to increase knowledge about skin conditions prior to developing or finding out about them through their doctor and improve access to this resource by reducing unnecessary clinic visits, and creating avenues for general instruction and "leadership" when medical assistance is not available.