**SKIN DISEASE IDENTIFICATION USING IMAGE ANALYSIS**

A Major Project report submitted to

**JAWAHARLAL NEHRU TECNOLOGICAL UNIVERSITY, HYDERABAD**

In partial fulfillment of the requirements for the award of the degree of

**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE AND ENGINEERING**

Submitted By

**YANNAM SRI HARSHITHA**  **18UK1A05M7**

**THOUTI REDDY SUDEEPA**  **18UK1A05M4**

**POSHALA SAI DEEPAK**  **18UK1A05L6**

**VUPPULA DIVYA**  **18UK1A05J0**

Under the guidance of

**MR.A. ASHOK KUMAR**

Assistant Professor



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**VAAGDEVI ENGINEERING COLLEGE**

Affiliated to JNTUH, HYDERABAD

BOLLIKUNTA, WARANGAL (T.S) - 506005

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**VAAGDEVI ENGINEERING COLLEGE**

**WARANGAL**



**CERTIFICATE**

This is to certify that the major project report entitled " **SKIN DISEASE**

**IDENTIFICATION USING IMAGE ANALYSIS”** is being submitted by **Y. SRI HARSHITHA (18UK1A05M7), T. SUDEEPA REDDY (18UK1A05M4), P. SAI DEEPAK (18UK1A05L6), V. DIVYA (18UK1A05J0)** in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Computer Science & Engineering to Jawaharlal Nehru Technological University Hyderabad during the academic year 2021- 2022.

**Project Guide** **HOD**

**MR.A. ASHOK KUMAR** **Dr. R. NAAVEN KUMAR**

**EXTERNAL**

**ACKNOWLEDGEMENT**

We wish to take this opportunity to express our sincere gratitude and deep sense of respect to our beloved **Dr. P. Prasad Rao**, Principal, Vaagdevi Engineering College for making us available all the required assistance and for his support and inspiration to carry out this major project in the institute.

We extend our heartfelt thanks to **Dr. R. Naveen Kumar**, Head of the Department of CSE, Vaagdevi Engineering College for providing us necessary infrastructure and thereby giving us freedom to carry out the major project.

We express heartfelt thanks to the major Project Coordinator, **Dr. J. Srikanth**, Assistant Professor, Department of CSE for his constant support and giving necessary guidance for completion of this major project.

We express heartfelt thanks to the guide, **Mr. A. Ashok Kumar**, Assistant Professor, Department of CSE for his constant support and giving necessary guidance for completion of this major project.

Finally, we express our sincere thanks and gratitude to our family members, friends for their encouragement and outpouring their knowledge and experiencing throughout thesis.

**ABSTRACT**

Skin diseases are more common than other diseases. Skin diseases may be caused by fungal infection, bacteria, allergy, or viruses, etc. The advancement of lasers and Photonics based medical technology has made it possible to diagnose the skin diseases much more quickly and accurately. But the cost of such diagnosis is still limited and very expensive. So, image processing techniques help to build automated screening system for dermatology at an initial stage. The extraction of features plays a key role in helping to classify skin diseases. Computer vision has a role in the detection of skin diseases in a variety of techniques. Due to deserts and hot weather, skin diseases are common in Saudi Arabia. This work contributes in the research of skin disease detection. We proposed an image processing-based method to detect skin diseases. This method takes the digital image of disease effect skin area, then use image analysis to identify the type of disease. Our proposed approach is simple, fast and does not require expensive equipment other than a camera and a computer. The approach works on the inputs of a color image. Then resize the of the image to extract features using pretrained convolutional neural network. After that classified feature using Multiclass SVM. Finally, the results are shown to the user, including the type of disease, spread, and severity. The system successfully detects 3 different types of skin diseases with an accuracy rate of 100%.

1. **INTRODUCTION: -**

Skin disease are the most common than the other disease. Skin diseases may be caused by fungal infection, bacteria, allergy, or viruses, etc. A skin disease may change texture or color of the skin. In general, skin diseases are chronic, infectious and sometimes may develop into skin cancer. Therefore, skin diseases must be diagnosed early to reduce their development and spread. The diagnosis and treatment of a skin disease takes longer time and causes financial and physical cost to the patient. their development and spread. The diagnosis and treatment of a skin disease takes longer time and causes financial and physical cost to the patient. In general, most of the common people do not know the type and stage of a skin disease. Some of the skin diseases show symptoms several months later, causing the disease to develop and grow further. This is due to the lack of medical knowledge in the public. Sometimes, a dermatologist (skin specialist doctor) may also find it difficult to diagnose the skin disease and may require expensive laboratory tests to correctly identify the type and stage of the skin disease. The advancement of lasers and photonics based medical technology has made it possible to diagnose the skin diseases much more quickly and accurately. But the cost of such diagnosis is still limited and very expensive. Therefore, we propose an image processing-based approach to diagnose the skin diseases. This method takes the digital image of disease effect skin area then use image analysis to identify the type of disease. Our proposed approach is simple, fast and does not require expensive equipment's other than a camera and a computer

1. **PROBLEM STATEMENT: -**

Our proposed approach is simple, fast and does not require expensive equipment's other than a camera and a computer. Identification of skin disease from dermotoscopy images are treated as an image classification needs robust feature are feed to the classifier for training. The medical diagnostic processes several color, texture and shape features are used to characterize the skin lesion. However, it is very much difficult to develop robust feature representation to deal with the dermotoscopy images obtained from different acquisition devices and captured in diverse illumination conditions. Computer vision researchers to use deep convolutional neural networks.

1. **SOLUTIONS: -**
2. **LITERATURE SURVEY: -**

Several researchers have proposed image processing-based techniques to detect the type of skin diseases. Here we briefly review some of the techniques as reported in the literature. In a system is proposed for the dissection of skin diseases using color images without the need for doctor intervention. The system consists of two stages, the first the detection of the infected skin by uses color image processing techniques, k-means clustering and color gradient techniques to identify the diseased skin and the second the classification of the disease type using artificial neural networks. The system was tested on six types of skin diseases with average accuracy of first stage 95.99% and the second stage 94.016%. In the method of extraction of image features is the first step in detection of skin diseases. In this method, the greater number of features extracted from the image, better the accuracy of system. The author of applied the method to nine types of skin diseases with accuracy up to 90%. Melanoma is type of skin cancer that can cause death, if not diagnose and treat in the early stages. The author of focused on the study of various segmentation techniques that could be applied to detect melanoma using image processing. Segmentation process is described that falls on the infected spot boundaries to extract more features. The work of proposed the development of a Melanoma diagnosis tool for dark skin using specialized algorithm databases including images from a variety of Melanoma resources. Similarly, discussed classification of skin diseases such as Melanoma, Basal cell carcinoma (BCC), Nevus and Seborrheic keratosis (SK) by using the technique support vector machine (SVM). It yields the best accuracy from a range of other techniques. On the other hand, the spread of chronic skin diseases in different regions may lead to severe consequences. Therefore, proposed a computer system that automatically detects eczema and determines its severity. The system consists of three stages, the first effective segmentation by detecting the skin, the second extract a set of features, namely color, texture, borders and third determine the severity of eczema using Support Vector Machine (SVM). In, a new approach is proposed to detect skin diseases, which combines computer vision with machine learning. The role of computer vision is to extract the features from the image while the machine learning is used to detect skin diseases. The system was tested on six types of skin diseases with accurately 95%.