

## **SKIN DISEASES PREDICTION USING MACHINE LEARNING ALGORITHM**

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**Abstract** - Skin illnesses are a serious and concerning issue in society owing to the physical and psychological consequences they have on individuals. Detecting skin illnesses at an early stage is critical for therapy. The procedure of identifying and treating skin damage is dependent on the expert doctor's ability and experience. The diagnostic procedure must be precise and timely.

Recently, artificial intelligence research has been employed in the area of skin disease diagnosis, using machine learning algorithms and the large quantity of data accessible in health centers and hospitals. Many prior works on techniques of categorization of skin disorders based on the idea of machine learning were included in this publication. The researchers employed several systems, processes, and algorithms in earlier investigations. Several approaches have been developed that have been effective in identifying skin disorders and reaching varied degrees of diagnostic accuracy. Several systems have relied on image processing and feature extraction approaches to forecast and identify illness kind. Other approaches are meant to diagnose certain forms of skin disease using clinical symptoms and tissue analyses acquired after a skin biopsy of the afflicted region. According to the results of this study, the diagnostic accuracy of image processing techniques was very variable, ranging from 50% to 100%.

The approaches for processing tissue characteristics have a good degree of accuracy of 94% or above. The findings offer an overview of the actual relevant studies discovered in the literature and indicate the majority of the research gaps that have appeared.

**Key Words:** IOT, Smart-Health

## **INTRODUCTION**

There are several sorts and varieties of skin disorders, as well as numerous causes, including internal ones connected to hormones and bodily glands, such as acne, and exterior ones related to air pollution or sun sensitivity, such as rashes. Skin diseases may be infectious, like scabies and lice, or noncontagious, like medication allergies and rosacea, or chronic, like psoriasis and atopic dermatitis, or uncommon, like sweet syndrome and ofuji disease. The prevalent societal view minimizes the significance of skin illness when it emerges, and it is best not to consult the doctor. According to worldwide data, skin illnesses account for 1.79% of all physical impairments in all nations [1]. Skin disorders cause misery for around 30% to 70% of persons worldwide. Skin cancer is an abnormal proliferation of skin cells that may emerge as a consequence of an untreated skin injury or is often caused by the sun's UV radiation. Cancer is the disease.

among recent years, it has become the second leading cause of mortality among humans. Approximately nine million people die each year, with 70% of these fatalities occurring in low-income nations. This is owing to the delay in consulting expert physicians at the start of the illness, and therefore the difficulty of treatment due to the disease's growth and transformation into a sort of cancer, which is approaching severe stages and causing mortality [3-5]. Skin illnesses and society interact, and both are influenced by one other. This includes its relevance to the aesthetic aspect [6]. Given the relevance of skin disorders in pathology on the one hand, this increased the importance and focus of many researchers throughout the globe on researching automated detection of skin diseases. Rapid technological growth, on the other hand, and its significance in all disciplines, the most significant of which is the medical field

## **SYSTEM ANALYSIS:**

### **Existing System:**

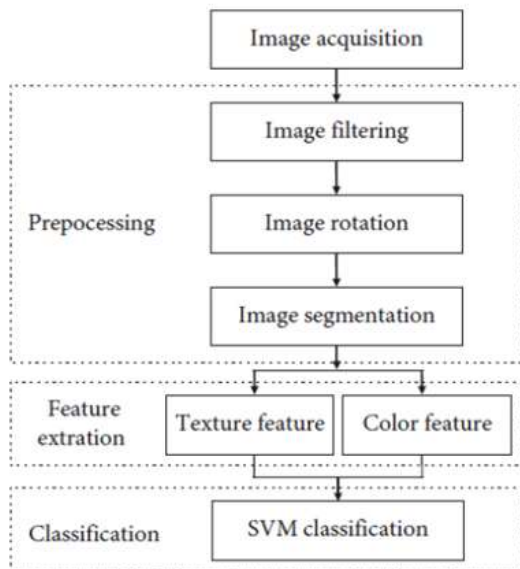
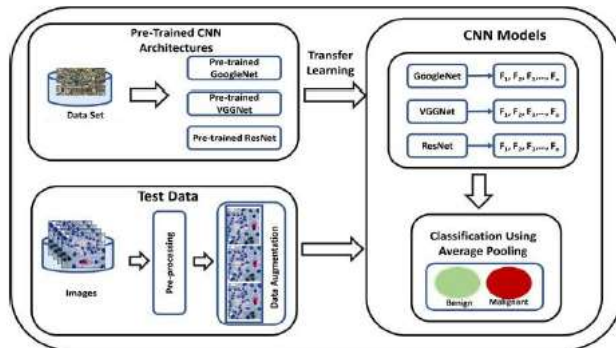
The technique of categorization of skin disorders via photographs is particularly crucial for accuracy since it is based mostly on subjective elements of the illnesses. There are two types of skin disorders. To begin, the conventional method to skin disease categorization. Second, a Deep Learning-based Approach to Skin Disease Classification [24].

It is still challenging to diagnose skin lesions automatically using photos. An integrated diagnosis algorithm that combines a lesion border segmentation step and a classification step for various skin lesions may be provided [32]. Before extracting lesion regions, picture segmentation and classification of skin lesions need noise removal [33]. Another approach for segmentation and classification of lesions that may avoid the issue of picture noise, does not need previous treatment, and is regarded a technique with promise success in segmenting difficult-to-diagnose lesions [34]. A survey was done on 27 research publications from 2015 to 2020, and several methods were applied on different data sets, as shown in the table below.

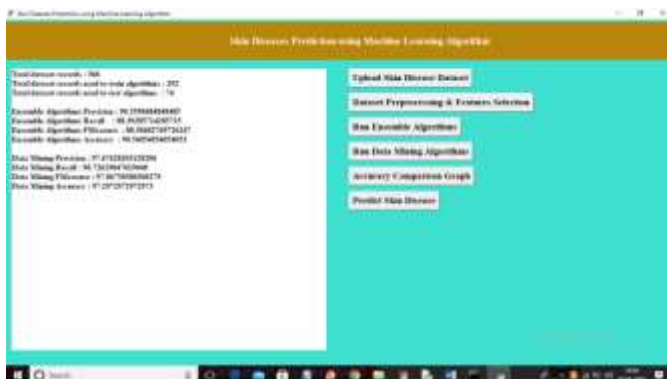
### **Proposed System**

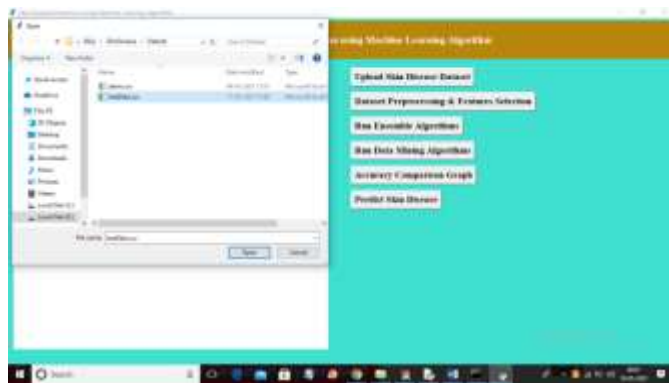
There are six types of skin diseases that posed a challenge to researchers because they were not diagnosed by images due to their high similarity at the start of their appearance, and sometimes they give characteristics to another disease at a certain stage (psoriasis, seborrheic dermatitis, lichen planus, pityriasis rosea, chronic dermatitis, pityriasis rubra pilaris). The findings of a medical biopsy are perfect for diagnosing any of them. A skin biopsy is conducted simply by extracting cells from the afflicted skin region. A collection of scientifically relevant fundamental information about tissue cells is gathered using bioinformatics analysis methods, which helps to recognizing patterns and revealing previously unknown facts about the nature of the illness. The newly acquired knowledge is assisting in the enhancement of medications and pharmaceutical items.

**ARCHITECTURE**



**Results and Analysis:**





## **Conclusion:**

Early detection of skin illness aids in therapy and increases the patient's chances of recovery and survival. Any incorrect diagnosis that leads to ineffective therapy may endanger the patient's health. The use of various combinations of computer technology and computer vision can reliably classify skin diseases. Image processing methods have aided in the development of automated screening tools for the majority of skin disorders. To categorize skin illness using photographs, two approaches were used: the classic machine learning approach and the Deep Learning Approach. The segmentation process is a critical stage in recognizing the illness region and skin area, however it may be overcome at times. The extraction of image characteristics is critical in the classification process. The accuracy of any model may be harmed by irrelevant characteristics such as linear methods, and the cause for poor classification accuracy is the huge feature dimension. Many illnesses may be predicted using the findings of a skin biopsy, laboratory analysis, and the identification of tissue features. Using contemporary machine learning techniques makes a quantum leap toward attaining high-precision prediction ratios in dermatology. Some studies utilized a single method, whereas others used many algorithms. In identifying dermatological illnesses, systems that employed more than one algorithm and hybridization approach displayed greater diagnosis accuracy. It is believed that machine learning would play a promising role in real-time dermatological

diagnosis by supporting doctors in thorough screening utilizing endoscopic or clinical imaging or tissue exams.

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