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RECOGNITION OF DISEASE USING SKIN CAPTURE

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ABSTRACT- This paper goals to detect the disease from the seized skin image. Diagnosis is done based on chosen algorithm which is useful to identify the diseases and presents basis for detection of skin lesions cancerous feeling by segmentation and subsequent application of Neural Network on dermatoscopy images. Images with skin scratches were segmented based on individual channel intensity Thresholding. The resulting images were fed into NN for feature extraction. The take-out features were then used for classification by an NN classifier. Earlier, several methods have been used for subject diagnostic with varying grade of success. However, room is still available for discovering other techniques for improving proportion of successfully detected malignant lesions in this we identifying four types of skin diseases chicken pox, melanoma, psoriasis, benign keratosis etc.

Key Words: Segmentation, Feature Extraction, NN algorithms

1.INTRODUCTION

Skin cancers are types of cancers that originate from the skin, which is the largest organ of the body. skin cancers are of three types: basal cell carcinoma (BCC), squamous cell carcinoma (SCC), and melanoma. BCC and SCC are collectively known as non-melanoma skin cancers (NMSC), while melanoma is a more aggressive type of skin cancer.

BCC is the most common type of skin cancer and usually grows slowly. It typically appears as a raised, shiny bump on the skin that may have small blood vessels running over it. BCC is usually painless, but it can damage the surrounding tissue if left untreated. However, it is unlikely to spread to other parts of the body or result in death in most cases.

SCC is the second most common type of skin cancer and also tends to grow slowly. It typically appears as a red, scaly patch or a raised bump that may be tender to touch. SCC can spread to other parts of the body if left untreated, although the risk is generally lower compared to melanoma.

Melanoma is a more aggressive type of skin cancer that can spread to other parts of the body, including organs, and can be life-threatening if not detected and treated early. It usually appears as an irregularly shaped mole or spot on the skin that may have uneven colors, borders, or sizes.

it's important to be vigilant about monitoring your skin for any changes, such as new growths, changes in existing moles or spots, or symptoms like itching, tenderness, or bleeding. If you notice any concerning changes, it's essential to seek medical attention promptly for evaluation and appropriate management.

Image processing-based disease analysis has gained significant attention in recent years due to its potential to provide quick and accurate results for disease detection and diagnosis. Utilization of camera technique, the people can provide the input as image. Firstly, the skin disorder image should be provided and then the image is subjected to various pre-processing techniques and extraction of features. The second stage includes the use of Deep Learning algorithms to find disease that are assisted by the features found on skin examination (classification of disease using image). The detected disease image is displayed on the screen along with its label.

2. LITERATURE SURVEY

Adheena Santy and Adheena Santy-2015

"Segmentation Methods For Computer Aided Melanoma Detection"

They have done recognition of disease only on melanoma using some techniques like Segmentation, Thresholding, GLCM.

M. Rademaker and A. Oakley-2010

"Digital monitoring by whole body photography and sequential digital dermoscopy detects thinner melanomas"

They used techniques like Dermoscopy. mass screening, Diagnosis, Melanoma, Telemedicine, teledermatology it is used for melanoma detection less resulting accuracy.

J. Fridrich, R. Du, M. Long-2000

"Steganalysis of LSB encoding in color snap shots" they used techniques like Steganography, image processing.

M. Moncrieff, S. Cotton, P. Hall, R. Schiffner, U. Lepski,and E. Claridge-2001

"Siascopy assists in the diagnosis of melanoma by utilizing computer vision techniques to visualise the internal structure of the skin"

In this project they used techniques like SVM classifier, Thresholding, Segmentation only detect and classify the melanoma

Abder-Rahman Ali, Micael S. Couceiro, and Aboul Ella Hassenian-2016

"Melanoma Detection Using Fuzzy CMeans Clustering Coupled With Mathematical Morphology"

In these project melanma is detected using Thresholding, GLCM, Clustering techniques but The FCM (Fuzzy C-Means) algorithm is a popular clustering algorithm used for image segmentation. It works by assigning each pixel in an image to one or more clusters based on their intensity values and the degree of membership to each cluster. In the context of lesion and skin segmentation, the FCM algorithm can be used to automatically divide the data provided by the contrast stretching phase into two clusters: one representing the lesion and the other representing the skin.

Finally, complete content and organizational editing before formatting. Please take note of the following items when proofreading spelling and grammar.

3. METHODOLOGY

3.1 Data Collection: Gather a dataset of skin images that includes images of healthy skin as well as images of various skin diseases. These images can be obtained from reliable sources, such as dermatology clinics, medical databases, or publicly available datasets.

3.2 Preprocessing: Preprocess the skin images to enhance the quality and consistency of the data. This may involve resizing the images to a standard resolution, normalizing the color or brightness, and removing any artifacts or noise.

3.3 Feature Extraction: Extract relevant features from the skin images that can be used for disease recognition. Features can include color, texture, shape, and other characteristics that are indicative of different skin diseases. The feature technique used is deep learning-based feature extraction using convolutional neural networks (CNNs).

3.4 Feature Selection: Select a subset of the most informative features from the extracted features to reduce dimensionality and improve the efficiency of the recognition algorithm.

3.5 Classification: Train a machine learning or deep learning model using the extracted and selected features to classify skin images into different disease categories. deep learning-based approaches such as CNNs is used.

3.6 Evaluation: Evaluate the performance of the trained model using appropriate evaluation metrics.

3.7 Validation: Validate the trained and optimized model using an independent test set or real-world skin images to assess its performance in a real-world setting. This step helps to ensure that the model is accurate and reliable in practical scenarios.

3.8 Deployment: Once the model is optimized and validated, it can be deployed in a real-world setting, such as a dermatology clinic or a telemedicine platform, for automated recognition of skin diseases using skin capture.

3.9 Continual Improvement: Continuously update and refine the model as new data and insights become available to improve its accuracy and effectiveness in recognizing skin diseases over time.

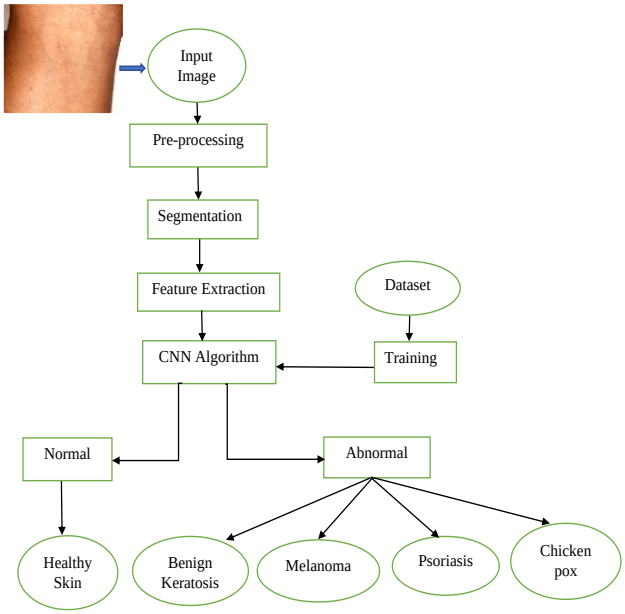
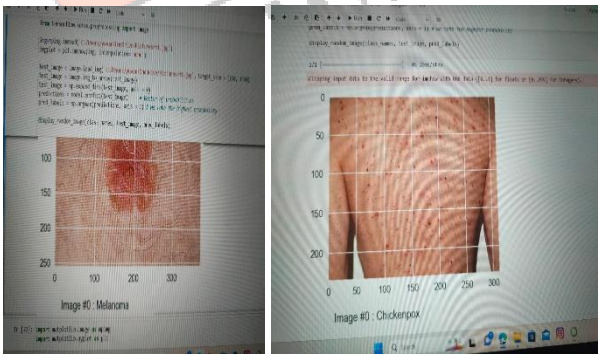


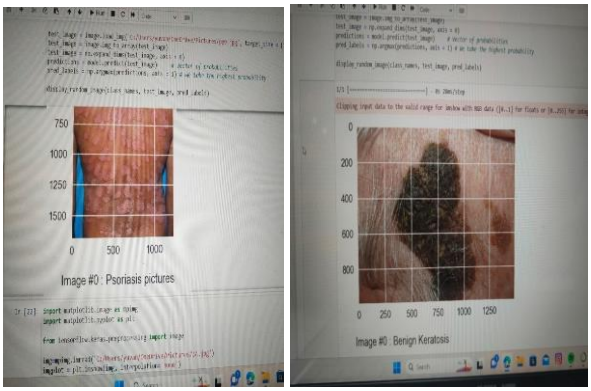
Fig -1: Block Diagram of Recognition of Disease using skin capture

3.11 Steps to be followed for the result

- Step 1: Take the image of effected area
- Step 2: add the path of the image to the code
- Step 3: Run the code
- Step 4: In the process of code, the train dataset will be loaded and test data too
- Step 5: confusion matrix is also shown in the output for better understanding
- Step 6: The output or the name of the disease is displayed along with the image

4. RESULTS





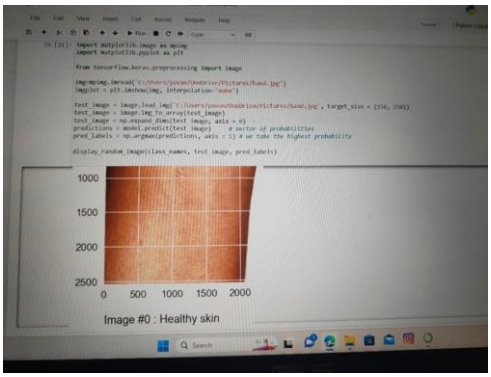


Fig -1: shows the image with disease name
1.Melanoma
2.Chickenpox
3.Psoriasis
4.Benign keratosis
5.Healthy skin

5. CONCLUSIONS

The purpose of the project is to detect the person effected with the skin disease or not. Here we are using algorithm of convolutional neural network to train the data set and input image. By using feature analysis and pre-process to get the features of input image.

6.FUTURE SCOPE

Dermatology can become one of the most suitable medical fields for telemedicine and AI is supported by the increasing interest and development of image-based analysis methods in dermatology. With advancements in imaging techniques and the application of deep learning algorithms, there is potential for AI to assist dermatologists in the diagnosis of skin diseases. Continuous refinement and validation of the AI model should be carried out to ensure its safety and accuracy in assisting dermatologists in the diagnosis of skin diseases.

We have met our minimal success criterion, and we are happy with the result.

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