SKIN CANCER DETECTION

Shruti Maitri, Ashlesha Aher, Kalyani Patil, Harsha Jadhav

ABSTRACT

Melanoma skin cancer detection at an early stage is crucial for efficient treatment. Recently, it is well known that the most dangerous form of skin cancer among the other types of skin cancer is melanoma because it's much more likely to spread to other parts of the body if not diagnosed and treated early. The non-invasive medical computer vision or medical image processing plays an increasingly significant role in the clinical diagnosis of different diseases. Such techniques provide an automatic image analysis tool for an accurate and fast evaluation of the lesion. The steps involved in this study are collecting dermoscopy image database, preprocessing, segmentation using thresholding, statistical feature extraction using Gray Level Co-occurrence Matrix (GLCM), Asymmetry, Border, Color, Diameter, (ABCD) etc., feature selection using Principal component analysis (PCA), calculating total Dermoscopy Score and then classification using Convocation neural network(CNN). results show that the achieved classification accuracy is 92.1

INTRODUCTION

In recent days, skin cancer is seen as one of the most Hazardous form of the Cancers found in Humans. Skin cancer is found in various types such as Melanoma, Basal and Squamous cell Carcinoma among which Melanoma is the most unpredictable. The detection of Melanoma cancer in early stage can be helpful to cure it. Computer vision can play important role in Medical Image Diagnosis and it has been proved by many existing systems. In this paper, we present a computer aided method for the detection of Melanoma Skin Cancer using Image Processing tools. The input to the system is the skin lesion image and then by applying novel image processing techniques, it analyses it to conclude about the presence of skin cancer. The Lesion Image analysis tools checks for the various Melanoma parameters Like Asymmetry, Border, Colour, Diameter,(ABCD) etc. by texture, size and shape analysis for image segmentation and feature stages. The extracted feature parameters are used to classify the image as Normal skin and Melanoma cancer lesion.

MOTIVATION

In the recent 3 decades Melanoma incidence rates have been increasingly high, though most people diagnosed with skin cancer have higher chances to cure, Melanoma survival rates are lower than non-Melanoma skin cancer. Melanoma skin cancer (MSC) can occur on any skin surface, and its incidence has continued to rise over the past two decades in many regions of the world. In men, it's often found on the skin on the head, on the neck, or between the shoulders and the hips while, in women, it's often found on the skin on the lower legs or between the shoulders and the hips . It's rare in people with dark skin and when it does develop in people with dark skin, it's usually found under the fingernails, under the toenails, on the palms of the hands or on the soles of the feet.

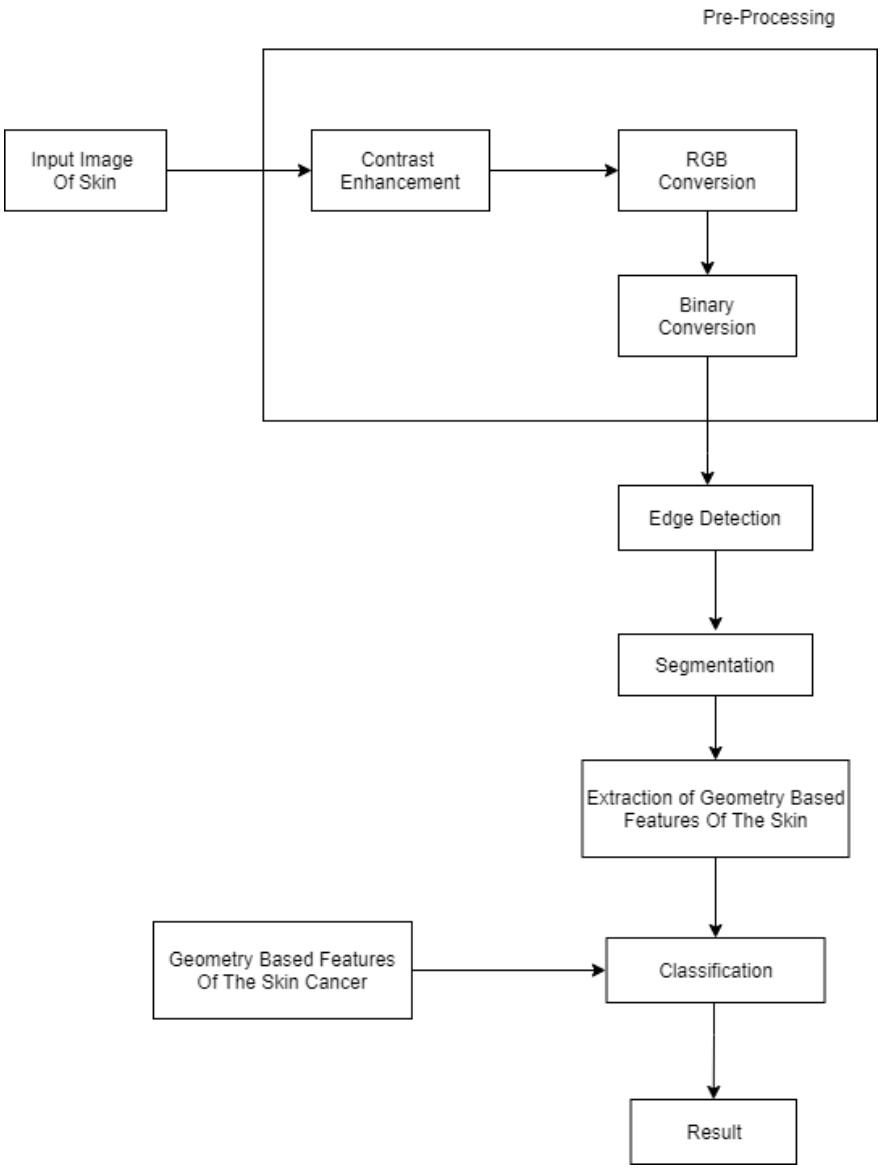
PROBLEM DEFINITION

The existing system is Time consuming process, and it is very difficult to detect it in its early stages as its symptoms appear only in the advanced stages. Implementing the system to automate the classification process for the early detection of skin Cancer.

PROPOSED SYSTEM

The input image given to the system can be obtained in any lighting condition or by using any camera such as mobile camera. Hence it needs to be pre-processed. Here, the pre-processing includes the image resizing and contrast and brightness adjustment. This is done in order to compensate the non-uniform illumination in the image. These processes are done by using image processing techniques like gamma correction.

SYSTEM ARCHITECTURE



CONCLUSION

In this project, different phases of image processing were applied on skin Nodules. From these different image processing techniques, the fuzzy filter will provide the efficient de noising. Segmentation done by marker based watershed algorithm, gives various region of image. GLCM is used to extract the different features of image and which takes less time for generating the result. This results are passed through CNN Classifier, which classifies the nodules as benign or malignant. CNN classifier provides 92.5 percentage accuracy.

REFERENCES

1 J Abdul Jaleel, SibiSalim, Aswin.R.B," Computer Aided Detection 01 Skin Cancer", International Conference on Circuits, Power and Computing Technologies, 2013. International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056 Volume: 04 Issue: 04 — Apr -2017 www.irjet.net p-ISSN: 2395-0072 © 2017, IRJET — Impact Factor value: 5.181 — ISO 9001:2008 Certified Journal — Page 2881

2 C.NageswaraRao, S.SreehariSastry and K.B.Mahalakshmi "Co-Occurrence Matrix and Its Statistical Features an Approach for Identification Of Phase Transitions Of Mesogens", International Journal of Innovative Research in Engineering and Technology, Vol.2, Issue 9, September 2013.

3 SantoshAchakanalli G. Sadashivappa ," Statistical Analysis Of Skin Cancer Image –A Case Study " , International Journal of Electronics and Communication Engineering (IJECE), Vol. 3, Issue 3, May 2014.