A NOVEL APPROACH TO DETECTION OF MELANOMA SKIN CANCER BASED ON IMAGE PROCESSING TECHNIQUES

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ABSTRACT

Skin cancer is the most common type of cancer today. Day by day it has been increasing rapidly all over the world; especially, in recent years, fairly rapid increment can be seen in melanoma skin cancer patients. Melanoma is a deadliest form of skin cancer, must be diagnosed earlier as soon as possible for effective treatments. To diagnose melanoma earlier, skin lesion should be segmented accurately. However the segmentation of the melanoma skin cancer lesion in traditional approach is a challenging task due to the number of false positives is large and time consuming in prediction. Hence, the development of automated computer vision system becoming as an essential tool today. The current study is carried out through the image processing techniques. The main aim of this study is to identify the specific cancer region with accuracy than traditional approaches. So, the objectives of this study are to examine existing systems and identify the major issues of the systems and finding future directions. The proposed methodology is implemented the segmentation for melanoma Skin Cancer detection using Image Processing. For this research, sample of 250 cancer patients' images were collected from Ethical Review Center, University of Jaffna, Srilanka. The input for the system is the image of the skin lesion which is speculated to be a melanoma lesion image, which is then pre-processed to upgrade the image quality. According to our finding, this proposed approach could achieve 97.54% sensitivity, 97.69% specificity, and 97.56% accuracy respectively. This tool is more useful for the rural areas where the experts in the medical field may not be available. Since the tool is made more user friendly and robust for images acquired in any conditions, it can serve the purpose of automatic diagnostics of the melanoma Skin Cancer. Finally, the proposed methodology is also a financially attractive solution, since it runs on simple computers, which are usually available in hospitals too.

Keywords: Lesion, Segmentation, Canny edge, Thresholding, Watershed