VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590010

PROJECT   REPORT ON

"MELANOMA SKIN CANCER DETECTION USING IMAGE PROCESSING"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
ELECTRONICS & COMMUNICATION ENGINEERING

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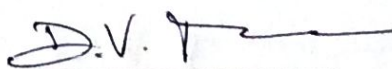
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CERTIFICATE

Certified that the project work entitled "MELANOMA SKIN CANCER DETECTION USING IMAGE PROCESSING" *is a bona fide work carried out by*

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in partial fulfillment for the award of BACHELOR OF ENGINEERING in **ELECTRONICS & COMMUNICATION ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2019–2020. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.
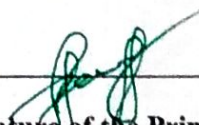
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ABSTRACT

Skin cancer is the deadliest form of cancers in humans. Skin cancer is commonly known as Melanoma. Melanoma is named after the cell from which it presumably arises, the melanocyte. Skin Cancers are of two types- Benign and Malignant Melanoma. Melanoma can be cured completely if it is detected early. Both benign and malignant melanoma resembles similar in appearance at the initial stages. So it is difficult to differentiate both. This is a main problem with the early skin cancer detection. Only an expert dermatologist can classify which one is benign and which one is malignant. The Artificial Neural Network based Classification methodology uses Image processing techniques and Artificial Intelligence for early diagnosis. Main advantage of this computer based classification is that patient does not need to go to hospitals and undergo various painful diagnosing techniques like Biopsy. In this Computer Aided Classification, dermoscopy image of skin cancer is taken and it is subjected to various pre-processing and image enhancement. The cancer affected region is separated from the healthy skin using Segmentation. In order to reduce the complexity of classification, some unique features of malignant and benign melanoma are extracted. These features are given as the input to the Artificial Neural Network Classifier. It classifies the given data set into cancerous or non-cancerous.

Human Cancer is one of the most dangerous diseases which is mainly caused by genetic instability of multiple molecular alterations. Among many forms of human cancer, skin cancer is the most common one. To identify skin cancer at an early stage we will study and analyze them through various techniques named as segmentation and feature extraction. Here, we focus malignant melanoma skin cancer, detection. In this, We used our ABCD rule dermoscopy technology for malignant melanoma skin cancer detection. In this system different step for melanoma skin lesion characterization i.e., first the Image Acquisition Technique, pre-processing, segmentation, define feature for skin Feature Selection determines lesion characterization, classification methods. In the Feature extraction by digital image processing method includes, symmetry detection, Border Detection, color, and diameter detection and also we used LBP for extract the texture based features.