

ABSTRACT

Humans basically have various kinds of organs in the body that support each other. One of the most visible human organs is the skin which is a cover for other internal organs and has a very important role in maintaining the balance of the body. Indonesia, which has a humid climate, can be a breeding ground for organisms that can cause infection. There is no doubt that human skin can also become susceptible to infection from external organisms such as bacteria, viruses, fungi, and others so that the function of the skin can be disrupted. Therefore, the author aims to conduct research on the identification of skin diseases using the Discrete Cosine Transform (DCT) and K-Nearest Neighbor (KNN) methods.

The purpose of this study is to design a skin disease identification system using the DCT and KNN methods so that patients can identify the disease early on. The scope of the disease used in this study is Basal Cell Carcinoma, Melanoma, Squamous Cell Carcinoma and Actinic Keratosis with a total dataset of 520 images. The system design has three main processes, namely pre-processing, feature extraction, and classification. Pre-processing itself aims to focus the image on the Region of Interest (ROI) that will be used. The next step is the feature extraction process using the DCT method with a block transformation process. The last step is the classification process using the KNN method with the process of choosing the closest distance.

As for the results obtained from the test, the system is able to identify skin cancer through the patient's skin image with an accuracy value of 82,5%. This level of accuracy is obtained through testing the test variables for RGB image types with blue layers, image size of 256×256 , DCT block size of 8×8 , 7 statistical features (Mean, Variance, Range, Skewness, Kurtosis, and Entropy), the Euclidean distance equation and the value of $K = 1$.

Keywords: Skin Diseases, Basal Cell Carcinoma, Melanoma, Karsinoma Sel Skuamosa, Discrete Cosine Transform, K-Nearest Neighbor