ABSTRACT

Cataract disease is one of the highest causes of blindness in Indonesia according to the World Health Organization (WHO). Many causes of cataract disease in the eye, one of them is people who get along in years so that the eye had the composition changed and structure of protein fibers in the eyes decreased. In general, cataract detection using a slit lamp that can only be done by a specialist in the hospital. Principal Component Analysis (PCA) methods that can identify patterns by characterizing the intrinsic structure of the feature of an image and decomposing the image data will be used as feature extraction. The classification uses the K-Nearest Neighbor (K-NN) method that is resistant to noisy and effective when the image data of training is large.

In this final assignment, the purpose is to know that the method that being used is better than the method used in previous research by analyzing the performance of the system from the result of accuracy obtained. The system will be designed using Principal Component Analysis (PCA) and K-Nearest Neighbor (K-NN) which used chebychev for Distance calculations.

The results of this study is a cataract detection system that can detect cataracts at once, system can classify into three types of normal eye, cataracts immature, and cataract mature. The resulting performance of the system with an accuracy of 70,27 % indicates that the Principal Component Analysis (PCA) method can be used as feature extraction processes that can be used for cataract eye detection systems for future.

Keywords : Cataract, Principal Component Analysis, K-Nearest Neighbor

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