ABSTRACT

Diabetic retinopathy is damage to blood vessels in the retina or the nerve layer of the eye so that they leak. As a result, there is a buildup of fluid (exudate) containing fat and bleeding in the retina. This condition can eventually cause blurred vision, even blindness. At this time, the detection of diabetic retinopathy is still done manually by expert doctors, but the manual process takes a long time, namely by manually checking and evaluating fundal photos of the retina. Therefore, in this final project a system that can detect diabetic retinopathy is faster and time efficient.

The making of this system was made to detect and classify diabetic retinopathy through the retina by using image processing in feature extraction using the Local Binary Pattern (LBP) method and classification using the K-Nearest Neighbor method. The classification that will be carried out is based on its stadium level, which is normal, Non-poliverative Diabetic Retinopathy (NPDR), and Proliverative Diabetic Retinopathy (PDR).

From the test results obtained the best accuracy results from the classification of diabetic retinopathy by 99% The accuracy was obtained from 500 training image data and 100 test image data using Local Binary Pattern using radius 1. And using K-Nearest Neighbor classification with K value equal to 1 and using the chebychev distance.

***Keyword*:** *Diabetic Retinopathy, Local Binary Pattern, K-Nearest Neighbor.*