ABSTRACT

Diabetic Retinopathy is a disorder of the blood vessels in the retina in patients with diabetes mellitus. It is the leading cause of blindness in adults on developing countries, including Indonesia.

A medical examination of patients with diabetic retinopathy disease carried by direct observation by doctors in patient retinal images taken using a fundus camera. Results of retinal imaging of fundus cameras usually can not provide a clear picture of the blood vessels of the retina, so it will be difficult for doctors to analyze the retinal image. The weakness of this method also it takes a relatively long time to know the results.

To overcome these weaknesses, a system built using computational models needed to change the image pixel retinal to a feature of the retina that can assist doctors in determining the medical act quickly and appropriately.

In this study,we make a system that can detect and classify diabetic retinopathy to 4 class based on its severity, that is normal, mild, moderate, and severe. This study use Discrete Wavelet Transform as feature extraction with 9 level of decomposition and the classification using artificial neural network. From 37 images tested, which 4 normal retina, 16 mild retinopati, 8 moderate retinopati and 9 severe retinopati, with one hiddenlayer and 10 neurons inside, the best accuracy obtained in this study was 78.37 %

Keyword: Retinopathy; Fundus image; Feature extraction.