

## ABSTRACT

Retinopathy diabetes is a disorder on eye retina vein which appear as cause chronicle complication of mellitus diabetes disease. This disease is main cause eyed-blind at adults. The first symptom is micro-aneurism and hemorrhages. Assessment for classify diabetic retinopathy have subjective. The diagnosis device which is used in this field is fondues camera that used to capture retinal image.

In this final test has been designed software to help doctor to detection and classification diabetic retinopathy disease based on quantities of micro-aneurism and hemorrhages. The result will be used for determining next healing effort to handle this disease. Non-proliferative retinopathy diabetes is classified into 3 stages, such as mild, moderate and severe. This system is developed using MATLAB software for detecting optic disk, micro-aneurism, and hemorrhages. Optic disk detection use template matching method. So, in this final test, accuracy for optic disk detection is 96 %. For detection of micro-aneurism, and hemorrhages use digital image processing method.

The developed system is tested using 28 retina images consists of normal retina and diabetic retinopathy images. From that testing classification success grade which is obtained is 67, 86 %. Although there is still error, this system can help ophthalmology and may become as ratio to determine his patient's retinopathy diabetes classification.

Key words: ophthalmology, diabetic retinopathy, optic disk, micro-aneurism, hemorrhages, fondues camera