

## ABSTRACT

Glaucoma is an infection on optic characterized by a progressive degeneration of the optic nerve head and visual field defect. It is caused by an imbalance between the production and disposal of liquid in eyeball so that the intraocular pressure is increasing. Vision loss caused by Glaucoma is permanent and incurable. So, early detection is needed before the damage gets worse. Glaucoma detection can be done by various ways, such as measuring the size of disc in digital fundus images. But, the result of manual measurement can be less accurate.

This final project will do a simulation and analysis of a system that can help ophthalmologist measuring the size of optic disc in digital fundus images and giving diagnose accurately in an instant. Methods used by this system including blurring, template matching, tresholding, dilate, and erode. Templates used by the system are old template that used in previous research and new template that has a better brightness than the old one.

The results are the system has maximum accuracy up to 76% with computing time 1.51245s. New template is able to cover the old template inability to detect the exact position of optic disc.

**Keywords:** Template Matching, Dilate, Erode, Glaucoma