

ABSTRACT

Diabetes Mellitus is a metabolic disease caused by increased levels of glucose or blood glucose. Blood glucose is dangerous for health, as it is an important source of energy for cells and tissues. While diabetic retinopathy is a progressive blood vessel disorder characterized by damage and blockage of the blood vessels in retina. All people who get diabetes are at risk of developing diabetic retinopathy, but the risk will be higher if diabetics also have conditions like high cholesterol levels, high blood pressure, pregnant and active as smokers.

Therefore, in this final project, a system is proposed that will be able to automatically classify the type of retina that has diabetic retinopathy and normal. This proposed system uses the Convolutional Neural Network (CNN) algorithm in classification. This system can make it easier for users to distinguish between types of retina with diabetic retinopathy and those without diabetic retinopathy in diabetics. The system test has results of 0.73 accuracy, 0.78 f1-score, 0.8 precision and 0.76 recall.

Keywords: *Diabetes Mellitus, Diabetic Retinopathy, Convolutional Neural Network.*