**ABSTRACT**

Diabetic retinopathy is a disease caused by uncontrolled chronic diabetes and it can cause complete blindness if not timely treated. Therefore early medical diagnosis of diabetic retinopathy and it medical cure is essential to prevent the severe side effects of diabetic retinopathy. Manual detection of diabetic retinopathy by ophthalmologist take plenty of time and patients need to suffer a lot at this time. An automated system can help detect diabetic retinopathy quickly and we can easily follow-up treatment to avoid further effects to the eye. This study proposes a machine learning method for extracting three features like exudates, hemorrhages, and micro aneurysms and classification using hybrid classifier which is a combination of support vector machine, k nearest neighbour, random forest, logistic regression, multilayer perceptron network. From the results of the experiments, the highest accuracy values 82%. Hybrid approach produced a precision score of 0.8119,Recall score of 0.8116 and f-measure score of 0.8028.

Keywords-Diabetic Retinopathy, KNN, SVM, Random Forest, Retinal Fundus Images