VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

A PROJECT REPORT ON

"AUTOMATED DETECTION OF DIABETIC RETINOPATHY IN DIGITAL COLOR FUNDUS IMAGES : A TOOL FOR DIABETIC RETINOPATHY SCREENING"

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ABSTRACT

Diabetic related eye diseases are the most common cause of blindness in the world. So far the most effective treatment for these eye diseases is early detection through regular screenings. To lower the cost of such screenings, we employ the state of the art, the image processing techniques to automatically detect the presence of abnormalities in the retinal images obtained during screenings.

During the screenings, color retinal images are obtained using fundus camera. However, this results in a large number of fundus images being produced that require manual analysis and diagnosis. In other words, medical professionals have to spend a great deal of time and energy to review these photographs. It would be more cost effective if the initial task of analyzing the retinal photographs can be automated so that only the abnormal retinal images need to be reviewed by the medical professionals each time. High blood sugar can damage blood vessels in the retina, and when they are damaged, they can leak fluid or bleed (hemorrhage). This causes the retina to swell and form deposits. This is an early form of diabetic retinopathy.

The proposed system uses automated method to detect abnormalities in the color retinal images. The detection of blood vessels is carried out by the Robinson edge detection method and the detection of exudates/lesions in color retinal images by using the thresholding technique.