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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

WEB BASED INTELLIGENT SYSTEM FOR LEAF EXTRACTION AND DISEASE DIAGNOSIS

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A Project Report

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Submitted by

MAYUR PATKI	2GI09CS407
NAVEEN BYALAL	2GI09CS409
ROHIT KALAGHATKAR	2GI09CS412
VEERESH SEDAM	2GI09CS416

Under the guidance of

Asst. Prof. S. S. Sannakki

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

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ABSTRACT

Agriculture encompasses agricultural production and the environmental goods and services. Plant species classification, recognition of medicinal value and identification of diseases are most important tasks in agriculture. For these applications a primary requirement is obtaining the target leaf. Thus, leaf extraction is an important step for variety of these applications. But it is still a challenging problem especially for the images with complicated background such as with some interference and overlaps between two adjacent leaves. Hence a leaf extraction algorithm has been developed using two approaches: contour analysis approach and marker controlled watershed segmentation method. The contour analysis approach employs contour regions to detect the boundaries of the objects. The target leaf is obtained using the connected edges of the contour boundary. The second approach, marker-controlled watershed segmentation method is applied on the gradient images of Hue, Intensity and Saturation of the HSI color space, separately. The solidity (integrity) measure is then used to evaluate how well the segmented image is for extraction of the target leaf and determine the final leaf extraction result. The extracted leaf is given as an input to the disease diagnosis system for analysis of disease on the given leaf.

Keywords - leaf extraction, contour analysis, marker controlled watershed segmentation, solidity measure