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APPLICATION OF DIGITAL IMAGE PROCESSING FOR HORTICULTURE

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ABSTRACT

Flowers are in high demand because the world population consumes them daily. This research aims to improve Flower production and quality through flower measurement methods, which have a low impact factor on the Flower and plant during measurements. In the present paper, we present a review of the main attributes, such as colour, firmness, shape, size and composition, that determine Flower quality for final consumers; we also overview the methods currently used to evaluate these attributes. The future trend in attribute analysis involves the development of portable, low-cost devices that take images directly from crops in the field to instantly determine quality characteristics. The main factor in the classification is the detection of deficiencies. Depend on the average pixel intensity value; the horticulture merchandise is graded as defected or healthy.

KEYWORDS: *Horticulture, Histogram, Damaged flower.*

I. INTRODUCTION

Horticulture is described as the art and science of growing flowers, fruits, vegetables, and trees and shrubs effecting in the increase of the minds and sentiments of individuals and the enrichment and health of community's civilization. It is performed from the personage level in a garden up to the actions of a multinational corporation. It is very dissimilar in its activities, incorporating plants for food and non-food crops (flowers, trees and shrubs, turf-grass, hops, medicinal herbs). It also contains narrated services in plant conservation, landscape restoration, landscape and garden design. This range of food, medicinal, environmental, and social merchandises and services are all fundamental to enlarging and continuing human health and well-being. Horticulturists concern the knowledge, skills, and technologies exploited to breed intensively produced plants for human food and non-food uses and for personal or social needs.

The aim of this paper is to new approach for detecting damaged flower. From histogram we extract the difference between the intensity among the original flower and the diseases affected flower.

II. ESSENCE OF APPROACH

Digital Image Processing has created a centre of attention in the information industry and in society as a whole in recent years, due to wide availability of huge amount of image information and the imminent need for turning such data into useful information and acquaintance. The information and awareness achieved can be used for relevance ranging from market analysis, fraud detection, to production control and science exploration.

Images of different different flowers are captured using a digital camera in the similar lighting conditions and with identical the background. The intensity of the input image is estimated, which is a key appraise for the defect detection. Segmentation of defects is proposed at pixel level in spatial domain, therefore for each pixel of the flower, its intensity value is used as a local feature. By the applications of assorted edge detecting, the contour is sketched over an input flower image.

III. METHODOLOGY

3.1 Image Enhancement

The aim of image enhancement is to recover the interpretability or awareness of information in images for human viewers, or to provide `better' input for other computerized image processing techniques. For this purpose authors have visited and captured images from several Horticultural Research farms from Hessaraghatta Lake, Bangalore.

3.2. Image Pre-processing

Image pre-processing can significantly augment the steadfastness of an optical scrutiny. Several filter procedures which intensify or reduce certain image details enable an easier or faster evaluation. Users are able to optimize a camera image with just a few clicks. It involves cropping, rotating, normalizing, contrast enhancement, filtering, angle correction and various graphical operations.

3.3. Image segmentation

The segmentation of image states to represents an image into another meaningful format that is easier to analyze.

3.4. Histogram Draw

Usually, in image processing resolution of an image is the total number of pixels in the image. The original resized image is converted to gray image such that the pixels corresponding to the leaf image are same. Then we plot the histogram for calculating the change in the pick value.

IV. DISEASE GRADING VALUE BY PICKS VALUE

Disease Grade	Training Sample	Testing Sample	Classifier Accuracy
chrysanthemum mosaic	250	204	96%
Scab	398	392	94%
Botrytis	305	298	95%

V. PROPOSED WORK FLOW DIAGRM

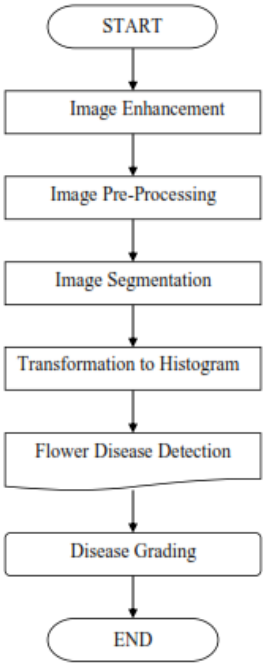


Fig.1. Flowchart of Methodology Process

VI. RESULT AND DISCUSSION

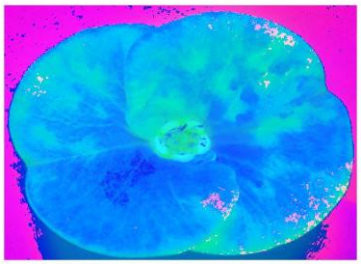
In this thesis work, we have considered flower images from several farms from Horticultural Research farms from Hessaraghatta Lake, Bangalore, India. Here we show the original flower images and gray images with disease grading based on Histogram Technique.

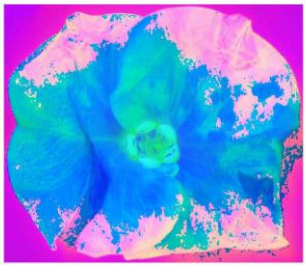
Original flower

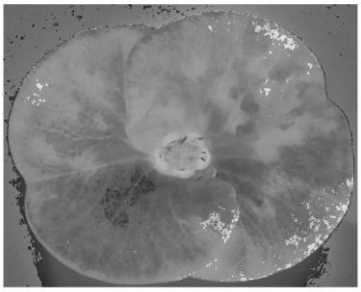
Defected Flower

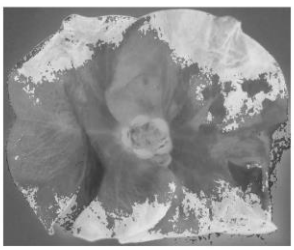
Original Gray Flower

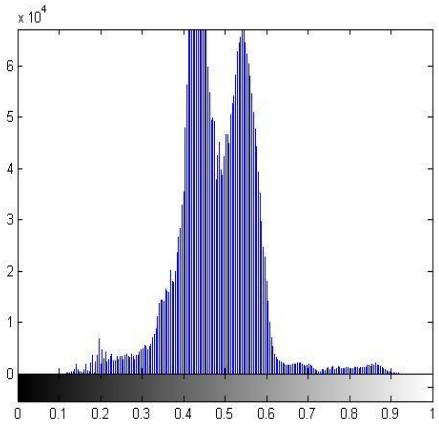
Defected gray Flower



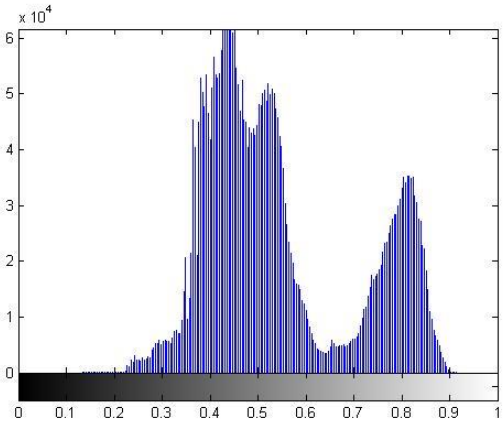








Original Histogram



Defected histogram

VII. CONCLUSIONS

Horticulture commodities are categorized and sorted in bulk on the basis of size, shape, colour and surface defects. Machine vision technology can be applied to collect information on all these parameters using appropriate optics and imaging system. In this paper is to new approach for detecting damaged flower. From histogram we extract the difference between the intensity among the original flower and the diseases affected flower.

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