Progressive Work on detection And Identification of Artificial Ripened Fruit

Ms. Swati S.Khandarkar[1], Prof.V. R. Wadankar[2], Prof.D. S. Dabhade[3]
[1]Dept of Electronics
[2, 3]Professor, Dept of Electronics
[1, 2, 3] Agnihotri College of Engineering, Sindhi Meghe, wardha(M.S) India

Abstract- *In this paper, an efficient image processing technique is used to detect the artificially ripened bananas. Banana is an important fruit crop across the world. Nowadays to ripe the bananas, traders use many artificial methods (using chemicals). One of the artificial methods used is adding of calcium carbide. CaC2 contains the traces of arsenic and phosphorous which is the carcinogenic agent. The threshold based segmentation is used to segment the image from the bunch of bananas and some discriminatory features are extracted in frequency domain using Haar filter. Features are selected up to the third level of decomposition in wavelet domain and analysedfo discriminatory behaviour. The variation in the features of the images is related to the difference between artificially ripened and naturally ripened bananas. These statistical features are then analysed and used for identification of artificially ripened sample in these samples using support vector machine classifier. The experimental results indicate that the proposed method is efficient for identification of artificially ripened bananas.*

Keywords- Matlab

I. INTRODUCTION

The fruits liberate ethylene gas augmented with respiration rate1 during the process of ripening. It is difficult to handle the ripe fruits as they are squashy and flimsy and they usually cannot endure the rigors during transport. Hence, these fruits are harvested in a fully mature state which is hard and green. Little quantity of ethylene stimulates the ripening process near consumption zones in a controlled environment of temperature and humidity. They include mango, guava, fig, apricot, banana, kiwi, apple, plum, pear and passion fruit. The other categories of fruits are non-climacteric fruits. They are harvested only when they are completely ripened. They do not react to ethylene treatment as they emit a tiny amount of ethylene. They include orange, grapes, litchi, watermelon, and blackberry.

II. LITERATURE REVIEW

In [1] this paperdevice gets an input image of mango undertest and compares the features (histogram values) with a naturally ripened one and detects fruits which are ripened artificially. This method makes usage of the Smartphone which runs android application that is installed in it and the image processing is executed to detect the artificially ripened fruits. The proposed system has an efficiency of 91% in the identification of the fruits ripened.

In [2] this paper demonstration version of fruit sorting system and it is implemented on Raspberry Pi development board. This paper proposed and appraised the frame for the determination of the ripeness of tomato, estimation of size and shape and detection of defects of tomato. This work presents the novel incorporated technique for grading tomatoes based on their ripeness. The proposed approach used the concept of color detection algorithm for classifying tomato in three classes and K-mean clustering algorithm for detecting the defects in tomato and classifying them in defected class. The result analysis is able to accurately determine the ripeness of tomato. The modularity and distributed nature of approach makes the system easy to be upgraded in the future in order to increase quality standard.

In [3] the thermal imaging is used for observing and fault diagnosis in electrical equipment. They used thermal camera for images of electrical equipment in experiments of nonidentical conditions, after that contacting with noise denoising, for image processing the segmentation and feature extraction is used, and then finally the analysis of image is generalized by using algorithms of artificial intelligence and check whether there is fault or not. In this the threshold segmentation technology is most widely used as compared to the detection edge segmentation or the segmentation method based on region. In electrical equipment's image they detect the abnormal heating condition. In feature extraction they extricate the images which were considered as fault, features those indicates the important characteristics and ancient. Ancient characteristics refers an image characteristics which is perfectly not weak and does not depend on environment

conditions. In Intelligent fault diagnosis methods they used neural network methods.

In [4] they used an Electronic based nose system, which recruit an array of in exorbitant trading tin-oxide fragrance sensors, have been used to analyze ripeness state of banana fruit. To define seven different regions in multisensory space according to the ripeness state of bananas an investigatory techniques and principal component analysis were used, to estimate the banana-skin colors from classification. In equipment of electronic-nose, the signals generated by sensors are organized such a pattern-recognition engine that permits system to analyze multiplex aroma. Neural Network has been used extensively to perform pattern-recognition. Today back-propagation-trained multilayer perceptron (MLP) paradigm is the more accepted pattern-recognition step in aroma inspection. Although, there is problem in aroma classification, because in some instance the Fuzzy ARTMAP paradigm outperforms MLP. Optimistic technique is another learning vector quantization (LVQ) technique, it is supervised technique which is based on (SOM) selforganizing paradigm.

In [5] a thermal imaging technique is used for (PCB) Printed Circuit Board and their analysis is done using MATLAB. They have been taken a series of 20 thermal images which are stored in form of .png. These images are of the identical PCB in various conditions of thermal load. Particularly each image corresponds electrical operation. To aid the different characteristics of image analysis they also develop a tool based on MATLAB. Maximum area of peak temperature and the peak temperature variables are used for analysis those corresponds the regions with heat dissipation. MATLAB based tool is used to analyze all the images which are related to PCB and on the basis of that they also drawn useful conclusion accurately in much lesser time. On the basis of MATLAB the Graphical User Interface (GUI) is used for designer to choose censorious image to see temperature jump in between two images which are appreciably various temperature profiles. They used clustering based segmentation methods to select the region of interest should be permitted. For processing of thermal image of PCB's the standard methodologies of image processing are uses like color-based segmentation, histogram thresholding technique, image production difference, image into video conversion and histogram comparisons.

III. METHODOLOGY

Categories banana samples (artificially ripened bananas and naturally ripened bananas) using image processing. The image processing based method to differentiate between naturally and artificially ripened fruits involves feature extraction from segmented gray image of bananas followed by feature analysis of the coefficients of wavelet transform. To extract the identical area from banana bunches; a uniform portion of the image was segmented from the whole image. From this segmented gray scale image of bananas, different imaging features are extracted in spatial and in wavelet domain. These features are analyses to find the discriminatory behavior between the different categories of bananas.
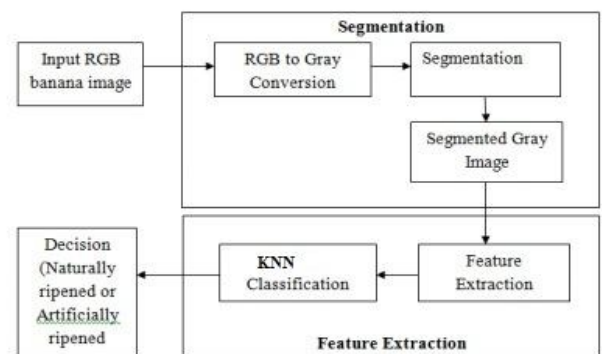
IV. BLOCK DIAGRAM

Fig 1.:- Block Diagram
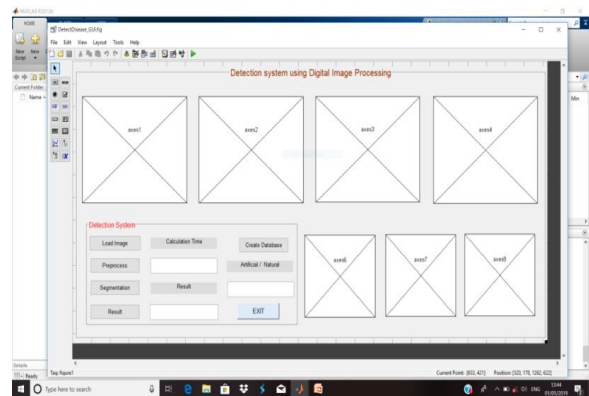
V. PROGRESSIVE RESULT

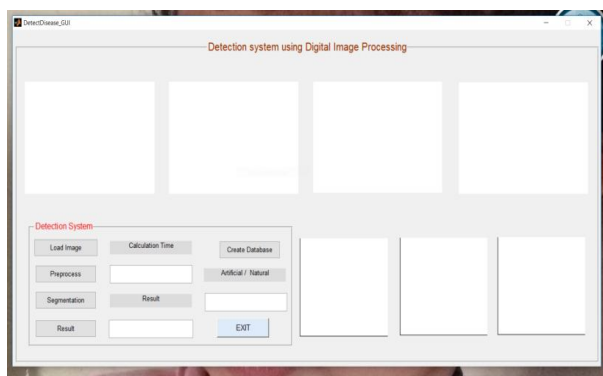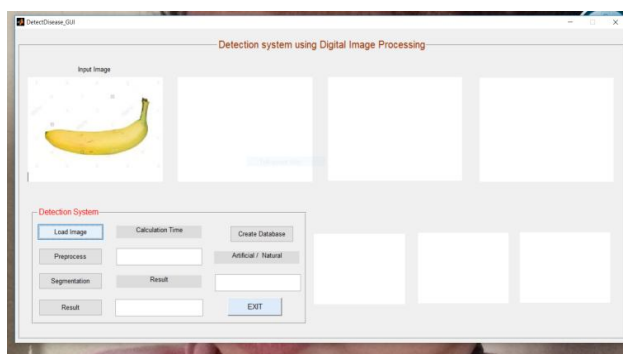Fig 2:-Develop GUI(Graphical User Interface)

Fig 3:- Run GUI

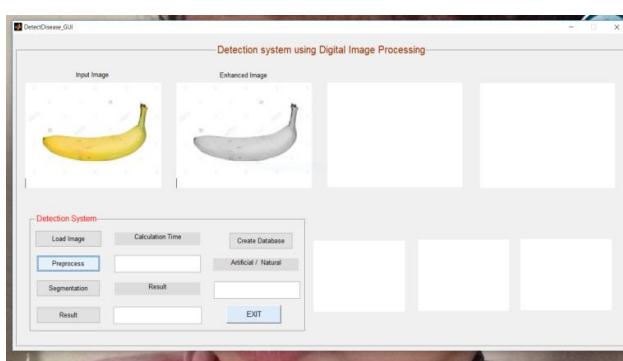Fig 4:- Load the RGB Image of Banana.

Fig 5:- Convert RGB into Gray Image.

VI. DISCUSSION

The result discussion involves the output obtained through MATLAB.

VII. CONCLUSION

The proposed method thus identifies the fruits ripened by artificial means and keep people healthy by intake of these healthy fruits. The proposed method aims in developing an android application for detecting the artificially ripened and naturally ripened fruits. The application takes the image of the fruit using the camera in the mobile, processes the image by calculating the histogram value and then classifies the image with the threshold as natural and artificially ripened fruits

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