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Sumathi. K ; S. Mangayarkarasi All Authors ...



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Abstract:

One of the main properties of images is their quality. The quality of images is estimated, by the metrics to ensure the noise level in an acquired image by comparing the images captured and enhanced. Image filtering is a fundamental part of preprocessing to remove the noise and upgrade the image for further analysis. Among many filters, the Gabor filter is most widely used to extract the texture feature. In this paper, a method proposed for selecting optimal filters using the MSE (Mean Squared Error) & PSNR (Peak Signal Noise Ratio) values in the bank of filters produced with the Gabor filter. In the proposed method, combinations of filters are used, to find the best outcome from the bank of filters. The best results are derived when the images are edge-enhanced and filtered with the Gabor filter. Used watershed segment to extract the defect region, and the result is alarming. The MSE values range from 0 to 0.1, PSNR values range above 20dB, and SSIM values in the range of 0 to 0.1 are considered. Based on this range criterion, the best Gabor filters in the proposed method are taken, and the Region of Interest is extracted with the Watershed method. The PSNR is generated by implementing the images with different filters like the Gabor filter, Bilateral filter, Median Filter, Canny with Gabor and with the proposed method is checked. The proposed hybrid method gives more PSNR value 32.51 dB with an accuracy of 91% in segmenting the defect region using Watershed when compared with other methods.



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Contents

I. Introduction

The climacteric fruits tend to ripe, even after they are reaped from the trees. The self-life of the climacteric fruits are very crucial period as these fruits are vulnerable to bruises, fungus, and other infections. Keeping the spoiled fruits with the goods and consumables might infect the marketable too. The tactile checking method takes more time and costs for the cultivars. Image processing helps in segmenting the defects in the fruits without harming the fruit peel by using the captured fruit image and segregating it from the consumable fruits.

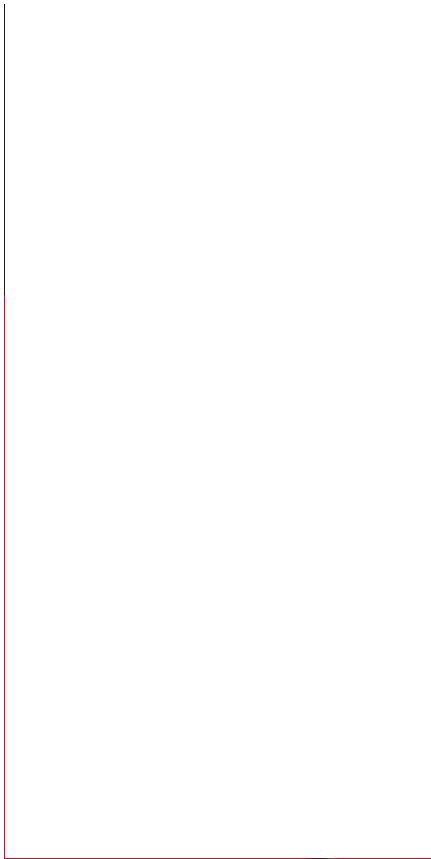
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