

# **PALM IMAGE SEGMENTATION BY USING EDGE AND REGION DETECTION**

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## **ABSTRACT**

In this paper we present method for segmentation of the palm image for the edge and region segmentation. We applied different filters on the palm image like Sobel operator, prewitt operator, Laplacian operator, Gaussian operator, Roberts operator, Motion operator, Log operator, Disk Operator, Average operator, Un-sharp operator, and we compared the result of each operator with one another we got that the best operator is the Gaussian operator to get the good result for the segmentation of the palm. For edge detection palm segmentation we used the different six techniques These are prewitt edge detector, sobel edge detector, Log edge detector, Roberts edge detector,canny edge detector, zero-cross edge detector We got that the best techniques for edge detection are Sobel edge detector , prewitt edge detector and Roberts edge detector. For the region segmentation of the palm image we used the technique of quadtree decomposition in the palm. Then we get the result of the different region of the palm.

## **INTRODUCTION**

Palm is the large region of the hand. It is difficult to do whole study of the palm. So to solve this problem we use Segmentation. This is the technique of image processing. In segmentation process rather than taking whole palm we divide the palm in to regions and edges this process is called segmentation. We have to segment the palm such as we will get more extracted features without losing any information

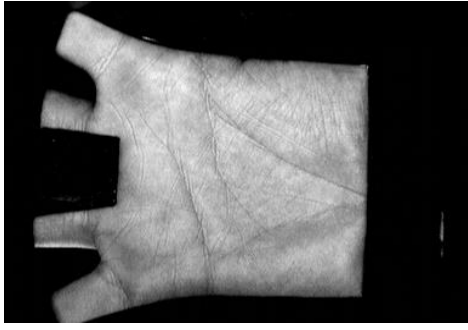
## **FILTER OPERATIONS ON THE PALM IMAGE**

To segment the palm first we applied various filters to obtain the enhanced the palm image so that we get the sharper image of the palm.

## **IV. EXPERIMENT**

### **A. Testing Procedure**

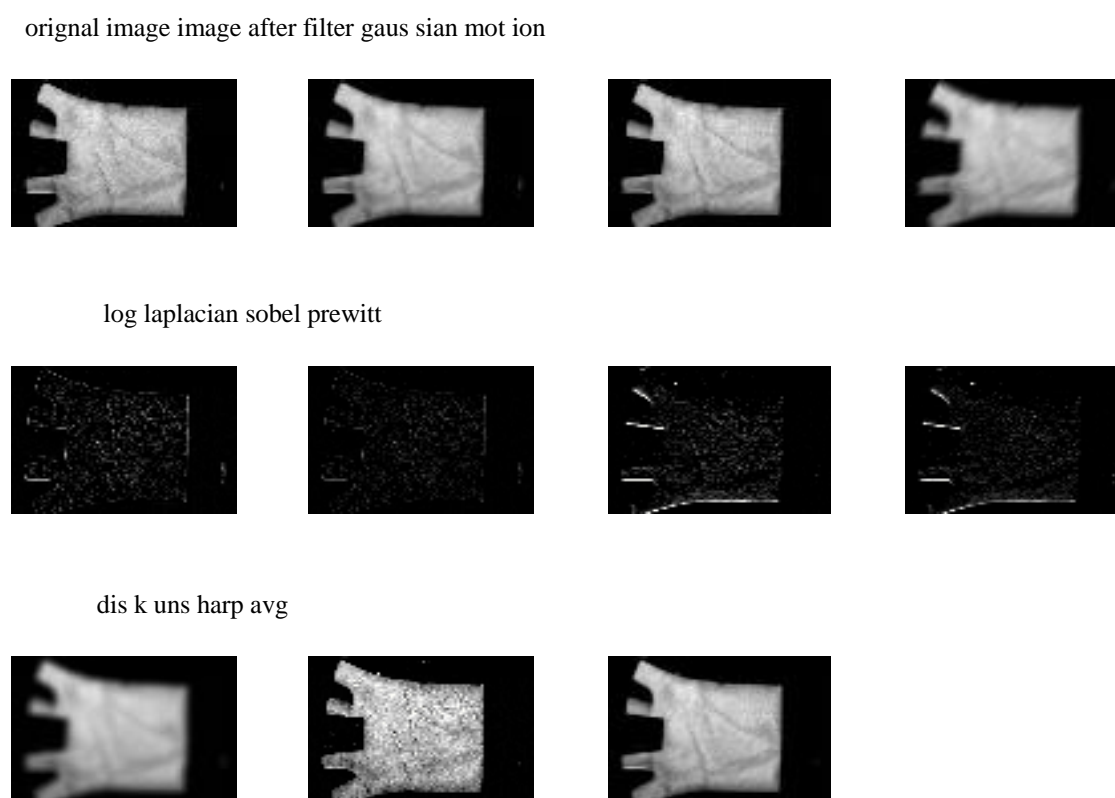
The filter operators were implemented using(MATLAB R2007a, 7.4a) and tested one palm database (Saturn) illustrated in the Figure 1 .



**Figur e.1.a) original palm image**

### **1.b) Output**

The performance re sults applied by Se ven Techniques



**Figure 1 b) Outputs of operators**

After performing the operations we got that the result of Gaussian technique is the best technique for filter the image because it gives more clear output rather than others.

## SEGMENTATION:

The process of partitioning a digital image into multiple regions or sets of pixels is called image segmentation.

In computer vision, **segmentation** refers to the process of partitioning a digital image into multiple segments (sets of pixels, also known as super pixels). The goal of segmentation is to simplify and/or change the representation of an image into something that is more meaningful and easier to analyze. [1] Image segmentation is typically used to locate objects and boundaries (lines, curves, etc.) in images. More precisely, image segmentation is the process of assigning a label to every pixel in an image such that pixels with the same label share certain visual characteristics.

### 1] EDGE BASE SEGMENTATION

Edge is a boundary between two homogeneous regions. Edge detection refers to the process of identifying and locating sharp discontinuities in an image.

In this paper, the main aim is to survey the theory of edge detection for image segmentation using soft computing approach based on the techniques as above given in abstract.

## IV. EXPERIMENT

### A. Testing Procedure

The filter operators were implemented using (MATLAB R2007a, 7.4a) and tested on one palm database (Saturn) illustrated in the Figure 2.

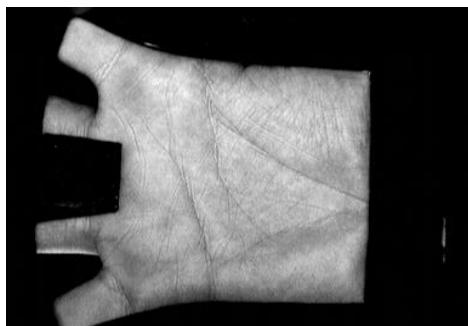
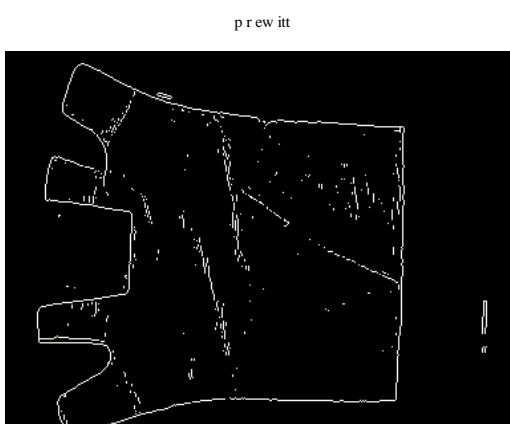


Figure 2 a) Original palm image

2.b) Output

The performance results applied by Six Techniques





**Figure 2 b) Outputs of Edge Detection**

Result:- After applying the different edge detection technique we got that as compare to other the prewitt and the sobel are the best technique for the palm edge detection.

## 2]REGION BASED SEGMENTATION

The main idea here is to classify a particular image into a number of regions or classes. Thus for each pixel in the image we need to somehow decide or estimates which class it belong to. There are a variety of approaches to do region based segmentation and to our understanding the performance does not change from one method to the other considerably

Region-based segmentation methods attempt to partition or group regions according to common image properties. In this paper we done the region base segmentation by using the matlab function quadtree decomposition, by using this technique we can find the region of the palm. qtdecomp divides a square image into four equal-sized square blocks, and then tests each block to see if it meets some criterion of homogeneity. If a block meets the criterion, it is not divided any further.

If it does not meet the criterion, it is subdivided again into four blocks, and the test criterion is applied to those blocks. This process is repeated iteratively until each block meets the criterion. The result can have blocks of several different sizes.

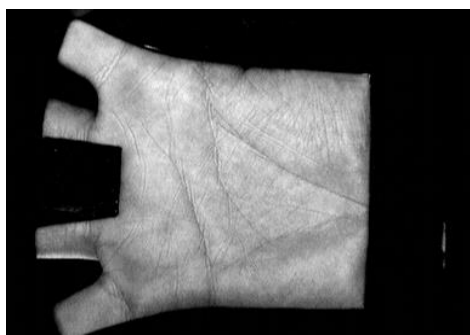
#### IV. EXPERIMENT

##### A. Testing Procedure

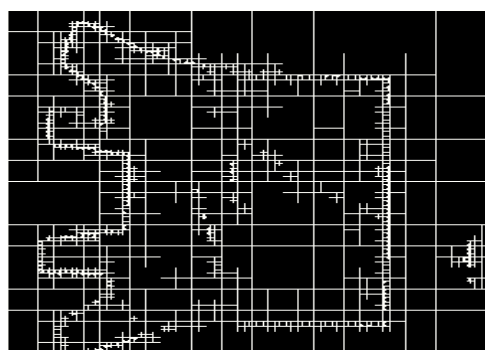
The filter operators were implemented using (MATLAB R2007a, 7.4a) and tested one palm database

(Saturn) illustrated in the Figure 3.

Figure 3 a).original palm image



3.b) Output



#### CONCLUSION

In this paper first we had applied the various eleven techniques to enhance the palm image after filtering we got the Gaussian filter is the best filter for enhance the palm image by using six techniques of edge detection segment: Sobel, Roberts, Canny, Laplacian and Edge Maximum Technique on the palm original image Figure.1.A comparative study are explained & experiments are carried out for different techniques and Perwit techniques respectively are the best techniques for edge detection this result can be seen in the Figure.2,

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## REFERENCES

1. IEEE TRANSACTIONS On Pattern Analysis And Machine Intelligence, Vol. 31, No. 6, June 2009 (Latent Palm Matching), By Anil K. Jain, Fellow, IEEE, and JianjiangFeng
2. Fisherpalms based palm print recognition, By Xiangqian Wu, David Zhang, Kuanquan Wang
3. <http://www.biometrics.gov/Documents/PalmPrintRec.pdf>