

Segmenting RGB Image Using Fuzzified Pixel

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Abstract— Images have always been an attraction and our existence depends on them. Without images world would be an empty canvass. Our eyes capture thousands of images each day and our brain processes them. Interestingly we human can identify images in a micro second, a wink of an eye and we know what the object is, be it moving or static. Artificial intelligence is designed to let the computers think and behave like human beings, fuzzy logic is one of its important technique which has been used in the proposed thesis to segment and image. The proposed algorithm reads the image, pre-process it, then fuzzy rules are applied over it and finally de- fuzzification is carried over it to get the segmented image. The algorithm is compared with existing K-Mean and Modified K-Mean to access the viability of the proposed algorithm. The algorithm is tested for number of segments, segmented area, and time taken, it is observed that the proposed algorithm improves K-Mean, by 60%, 1.6%, 94% respectively and Modified K-Mean by 43%, 1.2%, 13.5% respectively. The results indicate that the proposed algorithm works better than the previous two algorithms. There is a marked improvement in number of segments maintaining the time taken. In this proposed worked has been overcome in MATLAB features.

Keywords—Segmenting pixels images, Trim function, di-fuzzification, centroids methods, modified k means ,fuzzyfication.

I. INTRODUCTION

The intension was to scale the class of any given picture as far as the visualization is concept. As we have tangled to improve the pixel, we have tangled to enrich the pixel of image, we have tangled to diminish the image the sound factor in an image, so in all these diverse procedures, the output was a processed picture for an original picture as an input. But the plan was that the processing method should be like that the outcome picture should be fine seen as compare to the input pictures.

The main point of segmentation:- generally the point of segmentation is application dependent for the sub part or the level of the sub division. just like If anyone concerned in abstracting the movement of automobile on a highway so if a highway is engage then we have to find out the movement of management in different automobile.

For any given Arial image taken from satellite or from a aeroplane by any person. So because of this precise case interest is to deduct the moving vehicles from the highway so that the initial level sub division should be to extract the road from Arial images and once we recognize the highway then we can go for further examination of the highway so that we can identify each single automobile on the highway and once

we have identified the vehicle then we can go for vehicle motion analysis. So here we find this precise application yet an Arial image will have a huge area various of the Arial's we have figures from the domestic developments many of the areas will have figures of H2O body safety for example a sea, canal or a pool, most of the regions will contain information of agricultural activity but our application says that we are not entertained in water bodies we are not entertained in a residential areas neither we are entertained in agricultural lands but we are only interested in the highway division and once we recognize the highway division then we can go for the sub division of the highway so that we can recognize each and every vehicle on the highway, so we said all subdivision of image at the initial level should stopover afterward where capable to excerpt or recognize the highway constituent.

images can never be create automatically ,when we input some data then the images can create. Today world is full of colors so then, we can create a colourful things by digital camera and many other instruments .so we collected all pixel together then it make segmentation

section I introduction of paper (segmenting rgb image using fuzzified pixel)

Section II Related Work previous year paper and related work describe chenheng zhou and hongwei zhao introduction of segmentation by otsu based

Section III Methodology(Describe algorithm through modified k means using fuzzification)

Section IV Result and Discussion (describe result with help of graph and figure)

Section V Conclusion (conclude paper with future scope)

II. RELATED WORK

Chenheng Zhou, Liwei Tian*, Hongwei Zhao, Kai Zhao[1] the founder paper has stated that 2-Dimensional image threshold segmentation just like covering of point ,closeness is little and simple to create fake segmented image, a new image segmentation algorithm that join to enhanced 2-Dimension Otsu-based on better fire worm Algorithm. lastly ,to whole picture segmentation through the optimal segment threshold value.

P.M.K. Prasad ,D.Y.V . Prasad , G. Sasibhushana [2] the author of this paper has stated that, The x-ray picture are extensively used by the medical master for finding the indication of breakdown fillet pictures as they are painless and reasonable analyze to other pictures manner.The orthogonal wavelet changes like Haar, daubechies etc be able to be used as boundary indicator , but a lot of wrong edge data will be grab

Divya, Mr. Pawan Kumar Mishra,[3] the author of this paper has been proposed that the pixel of image is common object in favour of knowing the images either this is a white picture or grey picture .It works in the different picture processing application, computer dream, etc. the main moto of paper work is for numerous clustering path to segmented the figure in our start up step like Normalized cut, k Means, and Mean shift. so the top input 1-time derived during the Modified k-Mean by which the attribute outcome so the splitting of overlay of things be originated by building use of wavelet change & estimate time be cheap by allowing for estimation group co-efficients of DWT contribution in an picture during which whole presentation was better.

III. METHODOLOGY

fuzzyfication is a set of converting a original scaler value into fuzzy value . This is capture with a different types of fuzzyfier (like membership function) union ,intersection, compliment. we use mainly centroid method to implement a new proposed algorithm

Proposed algorithm of fuzzyfication to de-fuzzyfication:- Setup

Initialize required variables

Start

Step 1: read an image file

Step 2: convert image to grey

Step 3: get the grey threshold level of the image

Step 4: calculate scaling factor maximum integer value of the class type

Step 5: get an image divide the grey scale image by scaling factor

Step 6: p1,p2,p3,p4 add four pixels of 2*2 sliding window to fuzzy variables

Step 7: add triangular membership function to fuzzy system

Step 8: write the fuzzy rules

r1-if p1 is zero and p2 is zero and p3 is zero and p4 is zero then p5 is black

r2-if p1 is zero and p2 is zero and p3 is zero and p4 is not zero then p5 is edge

r3-if p1 is zero and p2 is zero and p3 is not zero and p4 is zero then p5 is edge

r4-if p1 is zero and p2 is zero and p3 is not zero and p4 is not zero then p5 is edge

r5-if p1 is zero and p2 is not zero p3 is zero and p4 is zero then p5 is edge

r6-if p1 is zero and p2 is not zero p3 is zero and p4 is not zero then p5 is edge

r7- if p1 is zero and p2 is not zero p3 is zero and p4 is zero then p5 is edge

r8- if p1 is zero and p2 is not zero p3 is not zero and p4 is not zero then p5 is edge

r9- if p1 is not zero and p2 is zero p3 is zero and p4 is zero then p5 is edge

r10- if p1 is not zero and p2 is zero p3 is zero and p4 is not zero then p5 is edge

r11- if p1 is not zero and p2 is zero p3 is not zero and p4 is zero then p5 is edge

r12- if p1 is not zero and p2 is zero p3 is not zero and p4 is not zero then p5 is edge

r13- if p1 is not zero and p2 is not zero p3 is not zero and p4 is zero then p5 is edge

r14- if p1 is not zero and p2 is not zero p3 is zero and p4 is not zero then p5 is edge

r15- if p1 is not zero and p2 is not zero p3 is not zero and p4 is zero then p5 is edge

r16- if p1 is not zero and p2 is not zero p3 is not zero and p4 is not zero then p5 is edge

Step 9: fire fuzzy rules for each input

Step 10: apply defuzzification using centroid method

Step 11: pre-allocate the output matrix

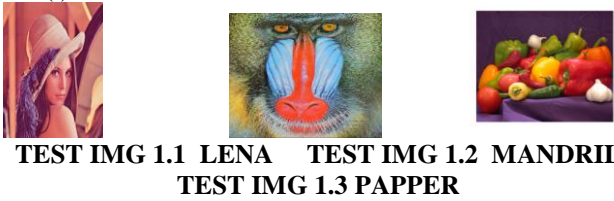
Step 21: p4out-get the pixel which may come under white, black or edge category image

Step 13: Edgeimage-compare and get the edge of the image

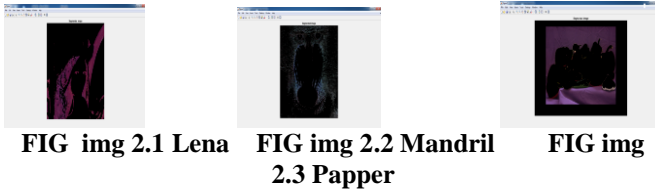
Step 14: segimage-get the segmented image using background subtraction

IV. RESULTS AND DISCUSSION

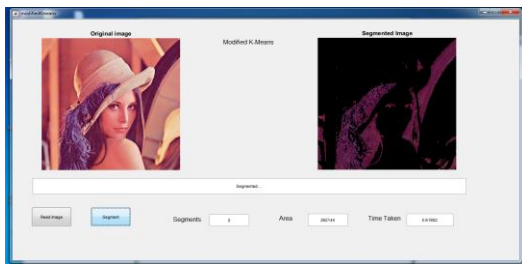
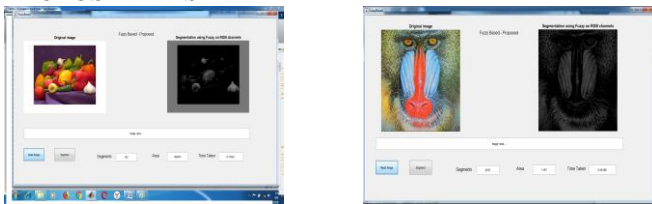
(i) COMPARISON WITH THREE TEST IMAGES



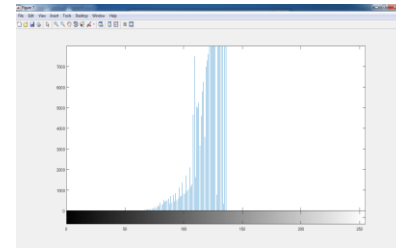
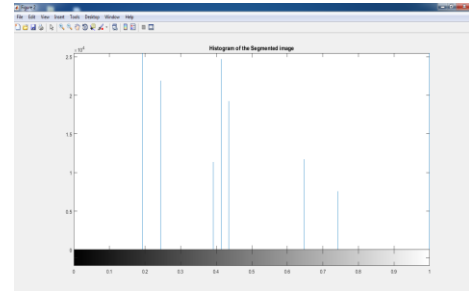
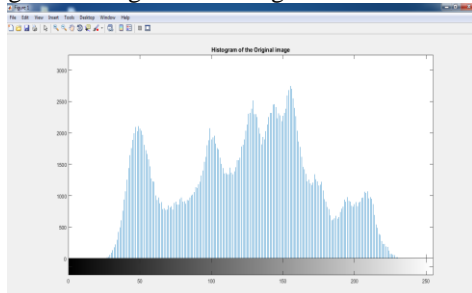
(ii) BASE ALGO IMAGES FOR MODIFIED K MEANS



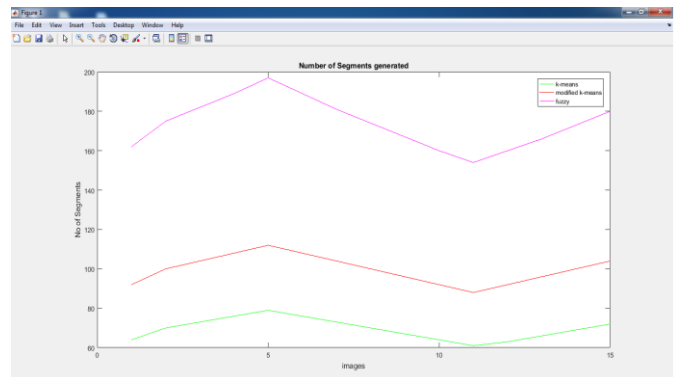
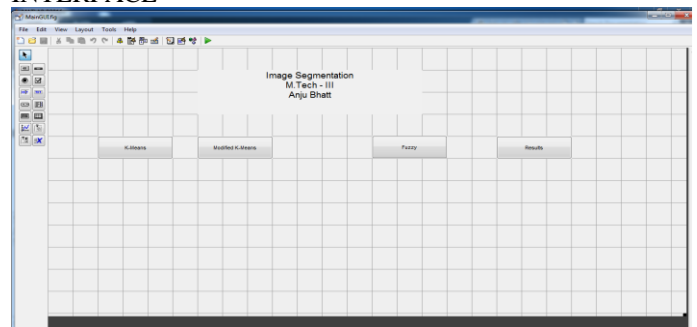
(iii) ORIGINAL IMAGE TO RGB SEGMENTING FUZZY PROPOSED BASE



(iv) Histogram of original test images



(v) ALL OUTCOME RESULT DECLARED BY MATLAB INTERFACE



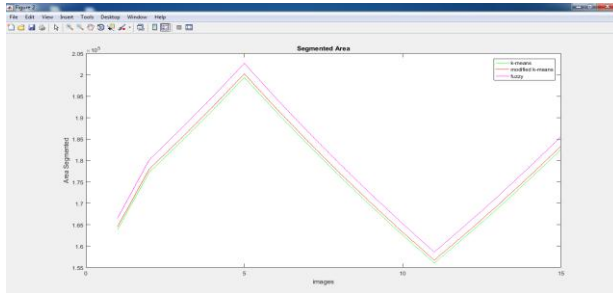


Fig 5.3 Segmented Area in k means, Modified k means and Fuzzy method

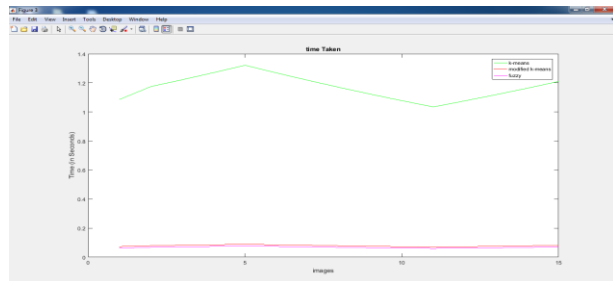


fig5.3.1 Time Taken in k means, Modified k means and Fuzzy method

In the result section we briefly describe about a new technology like fuzzification which we can use in the thesis project so we can use a modified k means as a comparison with fuzzification technology so the segmentation is one of the region for using fuzzification technology ...

V. CONCLUSION AND FUTURE SCOPE

In this research paper we implement a fuzzification method by compare with two methods the first one is k means and the second one is modified k means so ,then the result outcome .our main aim of this research paper is to improve a technology in segmented area day by day so that's why we use the centroid methods for segmented image pixel in fuzzification technique so, in upcoming time, we can use 4*4 sliding window and can execute in video graphy for recover quality of pixel.we can modify further through new technology

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Authors Profile

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