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Content Based Image retrieval System

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Abstract : **This article describes about how technology is enhancing day by day, therefore the focus should be on new technology and new concepts which are getting implemented keeping all these things in mind the paper describes about technique for retrieving images on the basis of automatically-derived features such as color, edge, shape – a technology now generally referred to as Content-Based Image Retrieval (CBIR).**

The function of our system is that a query image will be passed to cbir, also by browsing the image database folder and by selecting the image retrieval algorithm according like cedd,fcth,cld,ehd the cbir retrieves the similar images.

This"Content-based" means that the search will analyze the actual contents of the image. The term 'content' in this context might refer colors, shapes, textures, or any other information that can be derived from the image itself.cbir is advantageous than purely text based image search.

Keywords:CBIRS, **cedd, cld,fcth,ehd.**

I. INTRODUCTION

1.Content Based Image Retrieval

Content-based image retrieval (CBIR), also known as query by image content (QBIC) and content-based visual information retrieval (CBVIR) is the application of computer vision to the image retrieval problem, that is, the problem of searching for digital images in large databases."Content-based" means that the search will analyze the actual contents of the image. Without the ability to examine image content, searches must rely on metadata such as captions or keywords.

Such metadata must be generated by a human and stored alongside each image in the database.Problems with traditional methods of image indexing have led to the rise of interest in techniques for retrieving images on the basis of automatically-derived features such as color, texture and shape – a technology now generally referred to as Content-Based Image Retrieval (CBIR). However, the technology still lacks maturity, and is not yet being used on a significant scale. In the absence of hard evidence on the effectiveness of CBIR techniques in practice, opinion is still sharply divided about their usefulness in handling real-life queries in large and diverse image collections. The concepts which are presently used for CBIR system are all under research.

2 .Images

Let us start with the word “image”. The surrounding world is composed of images In the image database systems geographical maps, pictures, medical images, pictures in medical atlases, pictures obtaining by cameras, microscopes, telescopes, video cameras, paintings, drawings and architectures plans, drawings of industrial parts, space images are considered as images.

3.Image Database systems

Set of images are collected, analyzed and stored in image database .information retrieval systems, art gallery and museum catalogues, animal and plant atlases, sky star maps, meteorological maps, catalogues in shops and many other places. There are sets of international organizations dealing with different aspects of image storage, analysis and retrieval.

4.Logical Image Representation in Database Systems:

The logical image representation in image databases systems is based on different image data models. An image object is either an entire image or some other meaningful portion of an image. The logical image description includes: color, texture, shape, and spatial attributes.Color attributes could be represented as a histogram of intensity of the pixel colors. A histogram refinement technique is also used by partitioning histogram bins based on the
spatial coherence of pixels.

RELATED WORK

Before reviewing different alternatives to proposed system, we have defined alternatives to proposed system, we have defined a set of aspects to evaluate and compare the performance of these system.

1. Performance Requirements

The system will display the list of similar images to the query image within few seconds and by selecting different image search algorithms user can retrieve imges. The results will be absolutely accurate.

2.Software Quality Attributes

a) Adaptability: Our software can be adapted to various operating system environments easily.

b) Availability: Can easily execute on currently available minimum configuration of hardware & software.

c) Correctness: our product will work correctly according to valid input requirements.

d) Usability: can integrate our module according to available resource like .NET.

e) Reliability: The system will never crash or hang, other than as the result of an operating system error.

f) Portability: The software will work efficiently on windows platform. No other portability requirements are identified.

II. PROPSED SYSTEM AND ARCHITECTURE

a.system architecture

The proposed system architecture An efficient content based medical image retrieval scheme is proposed It involves block based low level feature extraction (intensity and texture contrast) from image and then clustering of feature space to form meaningful patterns.

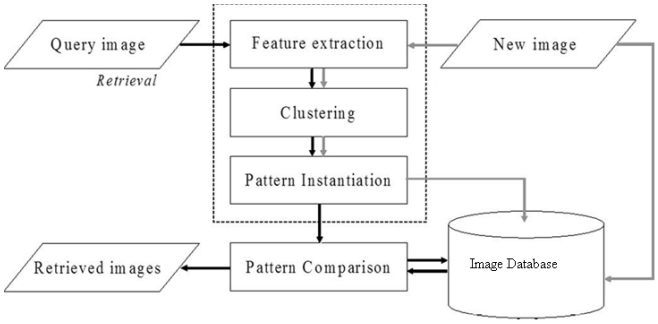

Fig 1.Architecture of content based image retrieval system

An algorithm is used for clustering feature space .some of the algorithms are cedd,cld,fcth,ehd. This algorithm is based on iterative approach to automatically determine number of clusters. The similarity between two clusters is estimated as a function of the similarity of both their structures and the measures component. Pattern base is generated to keep information about pattern in compact way. The proposed methodology is represented in fig. 1

b. Proposed algorithms

1.Color And Edge Directivity Descriptor(CEDD)
2.Fuzzy Color And Text Histogram(FCTH)
3.Color Descriptor Algorithm(CLD)
4.Edge Histogram Descriptor(EHD)

1. Color And Edge Directivity Descriptor(CEDD)

The unit associated with the extraction of color information is called Color Unit. Similarly, the Texture Unit is the unit associated with the extraction of texture information."Color and Edge Directivity Descriptor" and incorporates color and texture information in a histogram.

CEDD size is limited to 54 bytes per image, rendering this descriptor suitable for use in large image databases. One of the most important attribute of the CEDD is the low computational power needed for its extraction,in comparison with the needs of the most MPEG-7 descriptors
Fig. 2 shows image retrieval using CEDD algorithm.

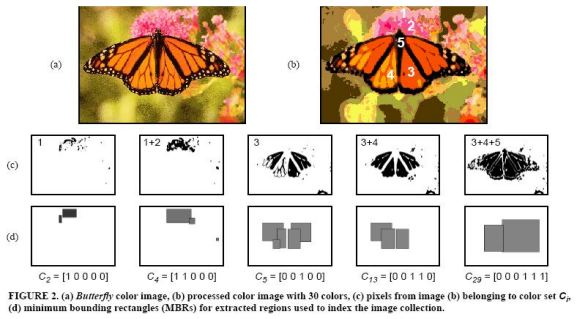

FIGURE 2. (a) *Butterfly* color image, (b) processed color image with 30 colors, (c) pixels from image (b) belonging to color set C_p, (d) minimum bounding rectangles (MBRs) for extracted regions used to index the image collection.

Fig.2.Image Retrieval using CEDD

2.Edge Histogram Descriptor(EHD)

Histogram:The histogram is the most commonly used structure
To represent any global feature composition of an image. Histogram is useful for indexing and retrieving image.
Edge:Edge in images constitute an important feature to represent their content.

One way of representing an important edge feature is to use a histogram in the image space represents the frequency and directionality of brightness changes in the image hense it is called as Edge Histogram.
Fig. 3 shows the query image and 4 shows image retrieval using EHD algorithm.

Fig.3.Query Image

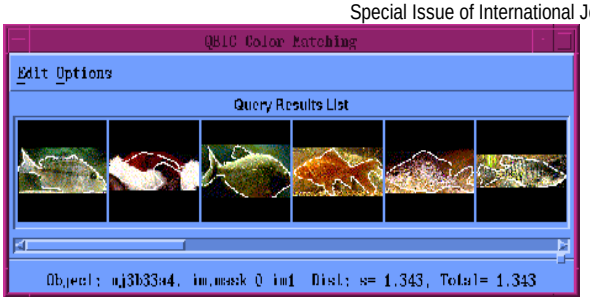

Fig.4.Image Retrieval using EHD

3.Fuzzy Color And Text Histogram(FCTH)

This algorithm Considers degree of color similarity between color and texture.
Fig. 5 shows query image.and
Fig. 6 shows image retrieval using FCTH algorithm.
a fuzzy color histogram-based shot-boundary detection algorithm specialized for contentbased copy detection applications Along with the color histogram generated with the fuzzy linking method on L*a*b* color space, the system extracts a mask for still regions and the window of picture-in-picture transformation for each detected shot, which will be useful in a content-based copy detection system.Experimental results show that our method effectively detects shot boundaries and reduces false alarmsas compared to the state-of-the-art shot-boundary detection algorithms.

Fig.5.Query Image

Fig.6.Image Retrieval using FCTH

2. Color Descriptor Algorithm(CLD)

This algorithm is Used to represent global color features of images.
The color descriptor is defined to be
Color descriptor={ci,pi}{i=1 to M}
M=total number of color clusters from the image.
Pi=percentage
It considers similarity between the colors
And sort the images.
Fig. 7 shows image retrieval using CLD algorithm.

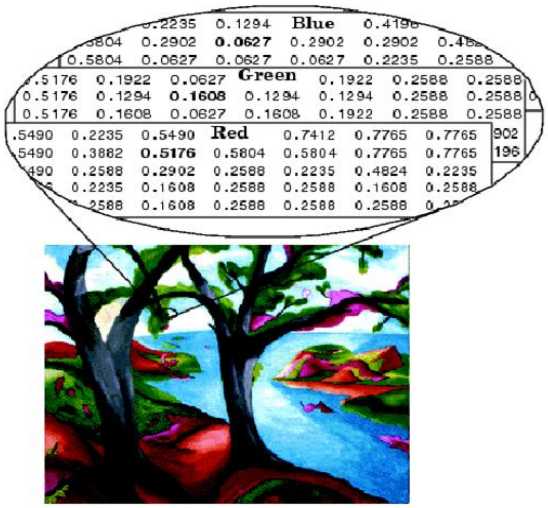

Fig.7.Image Retrieval using CLD

VI. CONCLUSION

As This paper presents the extraction of a new low level feature that contains, in one histogram, color and texture information. This element is intended for use in image retrieval and image indexing systems. Experimental results show that the proposed feature can contribute in accurate image retrieval. Its main functionality is image-to image matching and its intended use is for still-image retrieval, where an image may consist of either a single rectangular frame or arbitrarily shaped, possibly disconnected ,regions.

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