



International Journal of Intellectual Advancements and Research in Engineering Computations

CONTENT BASED IMAGE RETRIEVAL SYSTEM USING WAVELET FEATURE EXTRACTION BASED UPON HSV PROCESS

*¹P.Monica Reddy, *²B.Naga Rajesh

*¹P.Monica Reddy M.Tech., Research Scholar, Dept. of ECE, Chaitanya Bharathi Institute of Technology, Vidyanagar, Proddatur, A.P, India.

*²B. Naga Rajesh M.Tech(Ph.D)., Asst. Professor, Dept. of ECE, Chaitanya Bharathi Institute of Technology, Vidyanagar, Proddatur, A.P, India.

Author for Correspondence: P.Monica Reddy, Email: prmonicareddy@gmail.com

ABSTRACT

The project proposes the image retrieval technique based on image contents using different wavelets. The need for efficient content-based image retrieval has increased tremendously in many application areas such as biomedicine, military, commerce, education, and web image classification and searching. Content-based Image Retrieval (CBIR) technology overcomes the defects of traditional text-based image retrieval technology, such as heavy workload and strong subjectivity. It makes full use of image content features (color, texture, shape, etc.), which are analyzed and extracted automatically by computer to achieve the effective retrieval. Using a single feature for image retrieval cannot be a good solution for the accuracy and efficiency. The images format in the database is RGB format and due to color changes of the image affected by illumination especially for outdoor image acquisition, so RGB model gives different values in different environment that may reduce the retrieval performance but HSV model gives more stability to that affect since the color information of HSV space is distributed separately from the illumination part in different channels. The performance of the image retrieval is differentiated by different wavelet transforms because they provides the image information more effectively and GLCM is an old and classic method used to describe the texture in variety of image recognition fields. GLCM is useful since it can contain three major elements, texture information, histogram information and edge information. GLCM provides the rules that gray scale of a pair of pixels appears in a certain distance away in a certain direction. Finally, a practical results show the better retrieval performance based on wavelet Comparison and glcm features.

Index terms: CBIR, RGB, HSV, GLCM.

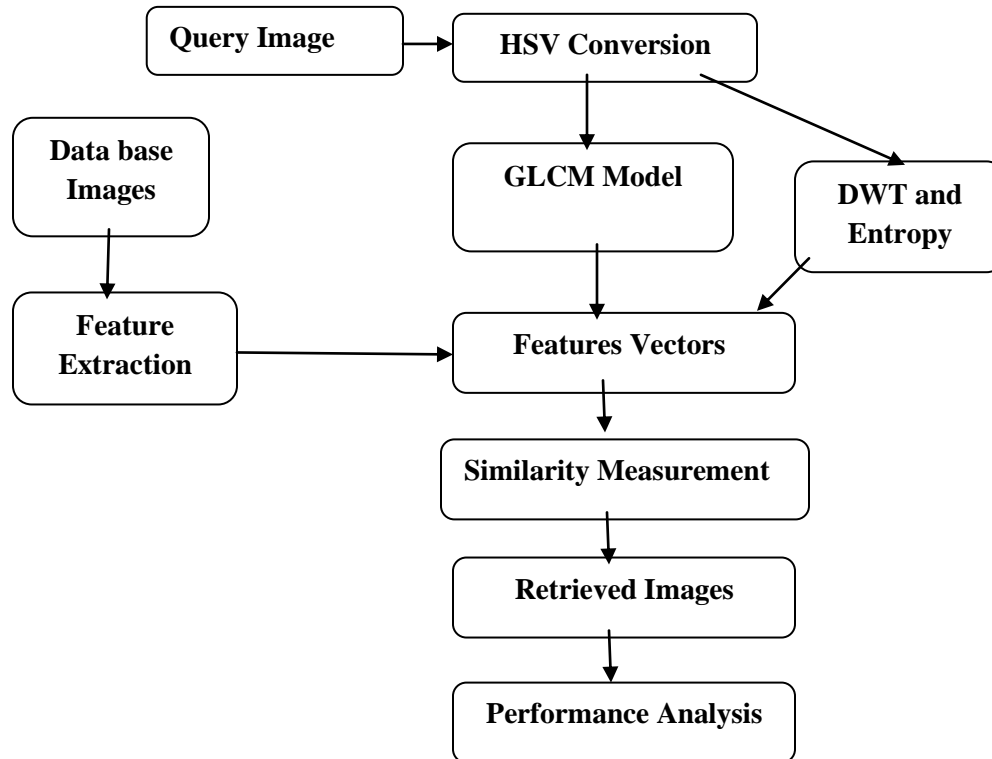
INTRODUCTION

Image retrieval techniques are useful in many image-processing applications. Content-based image retrieval systems work with whole images and searching is based on comparison of the query. General techniques for image retrieval are color, texture and shape. These techniques are applied to get an image from the image database.

They are not concerned with the various resolutions of the images, size and spatial color distribution. Hence all these methods are not appropriate to the art image retrieval. Moreover

shape based retrievals are useful only in the limited domain. The content and metadata based system gives images using an effective image retrieval technique. Many other image retrieval systems use global features like color, shape and texture.

But the prior results say there are too many false positives while using those global features to search for similar images. Hence we give the new view of image retrieval system using both content and metadata.

BLOCK DIAGRAM**EXISTING METHODS****1. Text based image retrieval**

It is the process of searching of images based on associated metadata such as keywords, texts and other elements that defined the image. This method is not only time consuming but it is also dependent to the people who categorize it.

2. Color Based Image Retrieval

The images are retrieved only based on Color. So even though if one image is same domain but in different color mean it will not retrieved the image.

Drawbacks:-

1. The text based image retrieval is not so preferable for all database images and it is time consuming process.

Using a single feature for image retrieval cannot be a good solution for the accuracy and efficiency.

PROPOSED METHOD

1. In that proposed method, we find the features of the images and find rank for retrieval propose.
2. In color feature obtain, we are using probability for find the color feature. The color distribution equally distributes the image and the feature of the image.
3. In texture feature obtain, we are using wavelets for finding texture feature. In wavelets are taken in 3 to 4 levels. To obtain at least 10 bands for feature extraction.
4. In edge structure feature obtain, The edge map is usually find the edges. The binary edge map and four way connected types also used find the feature in the image
5. Finally we are taking Rank methods for feedback purpose, we are use Neighboring divide and conquer method and global divide conquer methods are using for relevance feedback method.

MODIFIED (EXTENSION) METHOD

1. Comparison of different wavelets with GLCM feature for image retrieval in HSV color model is proposed.
2. This system can prove the better performance of image retrieval at different transformation.

Advantages:

1. It increases the retrieval performance.
2. It reduces computational time and complexity.
3. It analysis performance of different wavelets effectively.

Application:

1. Multimedia application.
2. Medical application.

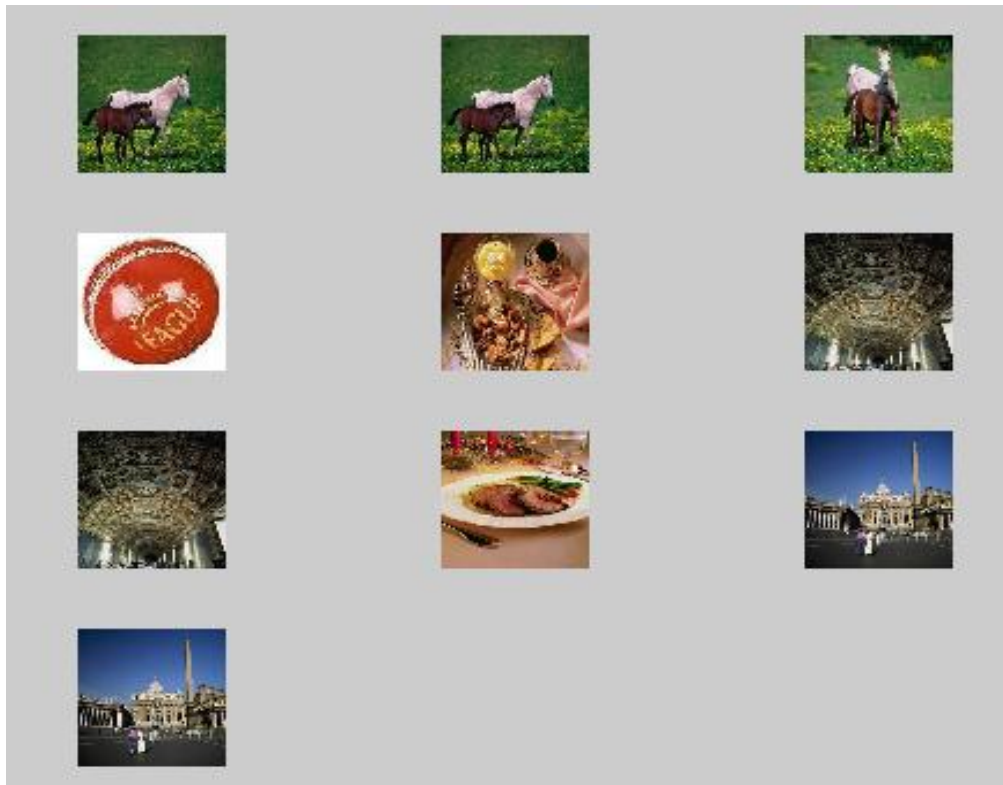
CONCLUSION

In this paper, we proposed combining colour, shape and texture features for content based image retrieval. We have experimentally investigated several feature extraction methods with several learning algorithm. We identified appropriate extraction method in colour, shape and texture feature and selected 5-Nearest Neighbour as the learning algorithm. In the future, we plan to implement this system as a web based system and try to improve the consistency of the results using relevance feedback from the user. In addition to content based retrieval, meta data can be used as a secondary method to support the retrieval of the image and furthermore, image clustering can be used to filter the images in the database according to their class.

SIMULATION RESULTS

GLCM OUTPUT





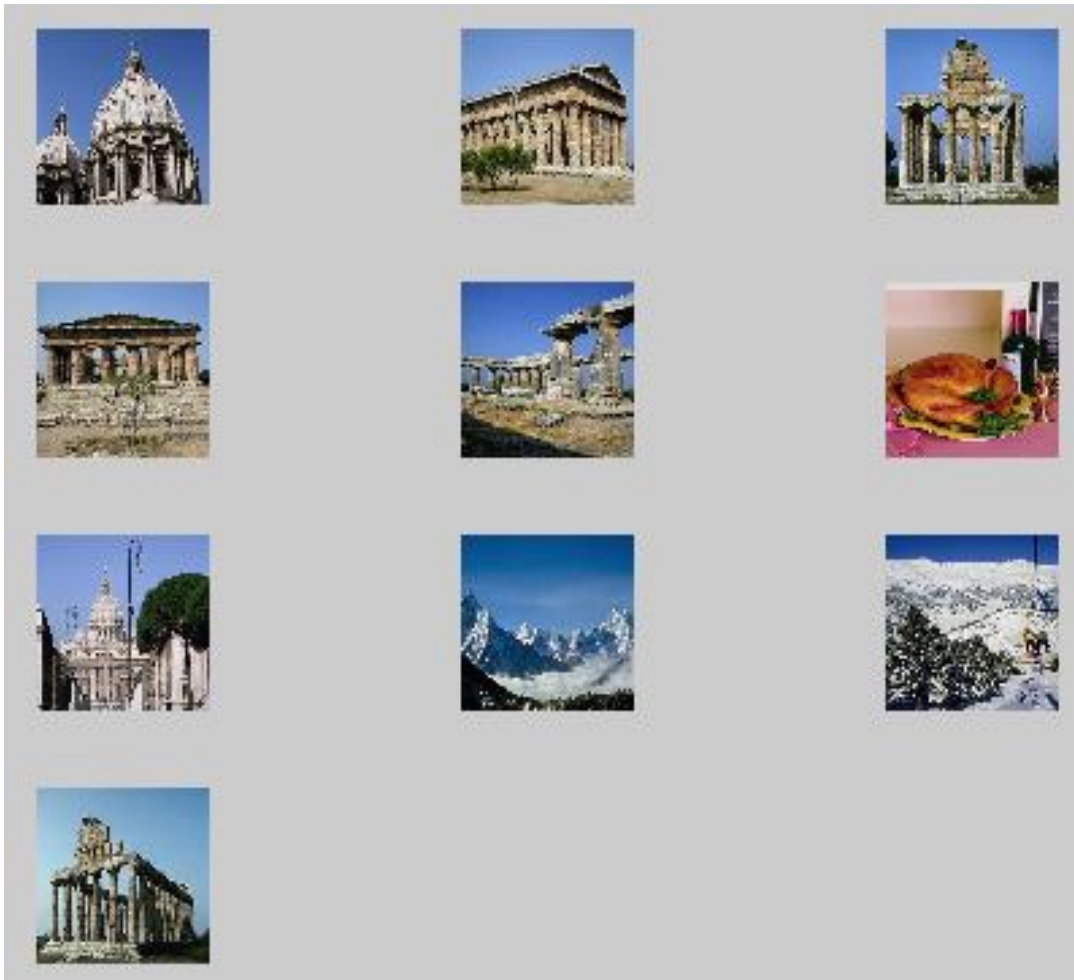
DWT OUTPUT





CLUSTER OUTPUT





REFERENCES

- [1]. "Image-Retrieval," http://en.wikipedia.org/wiki/Image_retrieval, [Online; accessed 10-Jun-2012].
- [2]. A. Smeulders, M. Worring, S. Santini, A. Gupta, and R. Jain, "Content based image retrieval at the end of the early years," *IEEE Transactions on pattern Analysis and Machine Intelligence*, vol. 22, no. 12, pp. 1349– 1380, December 2000.
- [3]. "TinEye Reverse Image Search," <http://www.tineye.com>, [Online; accessed 11-Feb- 2012].
- [4]. "FAQ - TinEye," <http://www.tineye.com/faq#what>, [Online; accessed 11- Feb-2012].
- [5]. "Flexible Image Retrieval Engine," <http://thomas.deselaers.de/fire/>, [Online; accessed 11-Feb 2012].
- [6]. T. Deselaers, D. Keysers, and H. Ney, "Features for image retrieval: An experimental comparison," *Information Retrieval*, 2008.
- [7]. H.Tamura, "Textural features corresponding to visual perception," *IEEE Trans. Syst., Man and Cybern*, 8, pp. 460–472, 1978.
- [8]. "The GNU Image-Finding Tool," <http://www.gnu.org/software/gif/>, [Online; accessed 11-Feb-2012].
- [9]. M. M. Zloof, "Query-by-example: A data base language," *IBM Systems Journal*, vol. 16, no. 4, p. 324, 1977.
- [10]. "GoogleImages," <http://images.google.com/>, [Online; accessed 10-Jun- 2012].

- [11]. "List of CBIR engines," [http://en.wikipedia.org/wiki/List of CBIR engines](http://en.wikipedia.org/wiki/List_of_CBIR_engines), [Online; accessed 10-Jun-2012].
- [12]. A. del Bimbo, Visual Information Retrieval. Morgan Kaufmann Publishers, San Francisco, CA, USA., 1999.
- [13]. S. Wang, "A robust cbir approach using local color histograms," Department of Computer Science, University of Alberta, Edmonton, Alberta, Canada, Tech. Rep. TR 01-13, October 2001.