

## A PROPOSED ARCHITECTURE FOR IMAGE RETRIEVAL BASED ON OBJECTS FEATURES IN AN IMAGE

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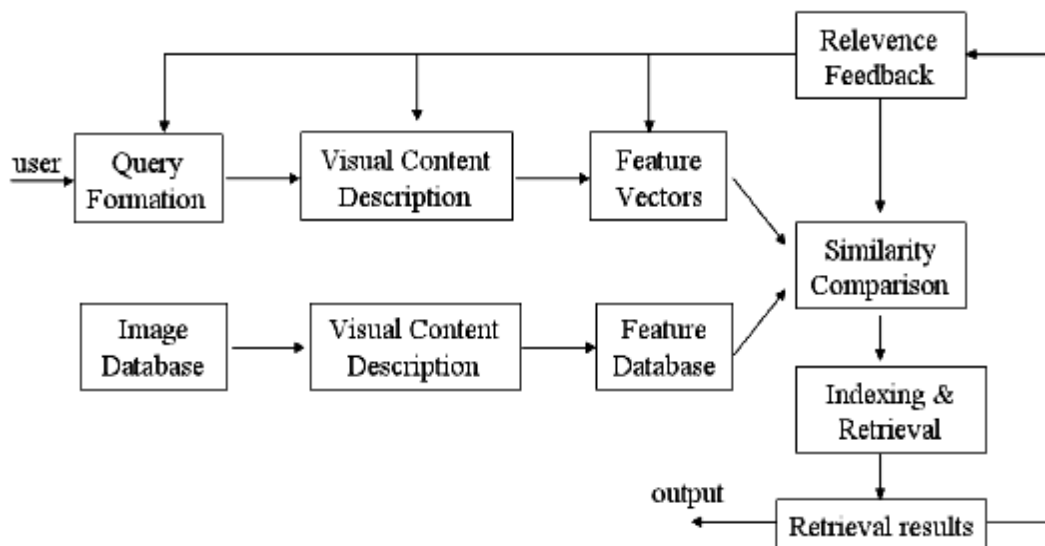
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**ABSTRACT:** - Basically image retrieval means to identify an image from a collection of images. A human can easily identify a similar image from a collection of images. But if the collection is increases from a small (10 or 20) number to a huge (10000) of images, then it can be very difficult to search the image. To help in this regard architecture is proposed where this retrieval work will be done on the basis of the objects on the image. First of all the features of the objects are extracted from the query image than the matching will be start. So here an automated system will be developed to do this task.

### 1. INTRODUCTION

Identifying an image from the huge database is called the image retrieval here the images can be retrieved on the basis of local and global features derived from color, texture, and simple shape information. The actual work is here is to take a query image first or it can be called an input image. Then next step is to identified and extract the important features from the image which will help in the process of retrieval image from the database. Some CBIR system retrieved images on low-level features such as texture and color of an image. The basic block diagram of retrieval of an image is shown in figure 1. Main work is to retrieve the image. The object of the image may be the good candidate for retrieval and it includes the categories of the object classes (city/human/animal/sunset).



**Figure 1:** Content Based Image Retrieval: Search Picture as picture [1].

Original



Figure 2: Original Image [2].

Original

Color

Texture

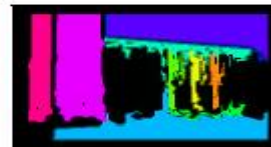


Figure 3: Texture and Color features of an image [2].

## 2. LITERATURE SURVEY

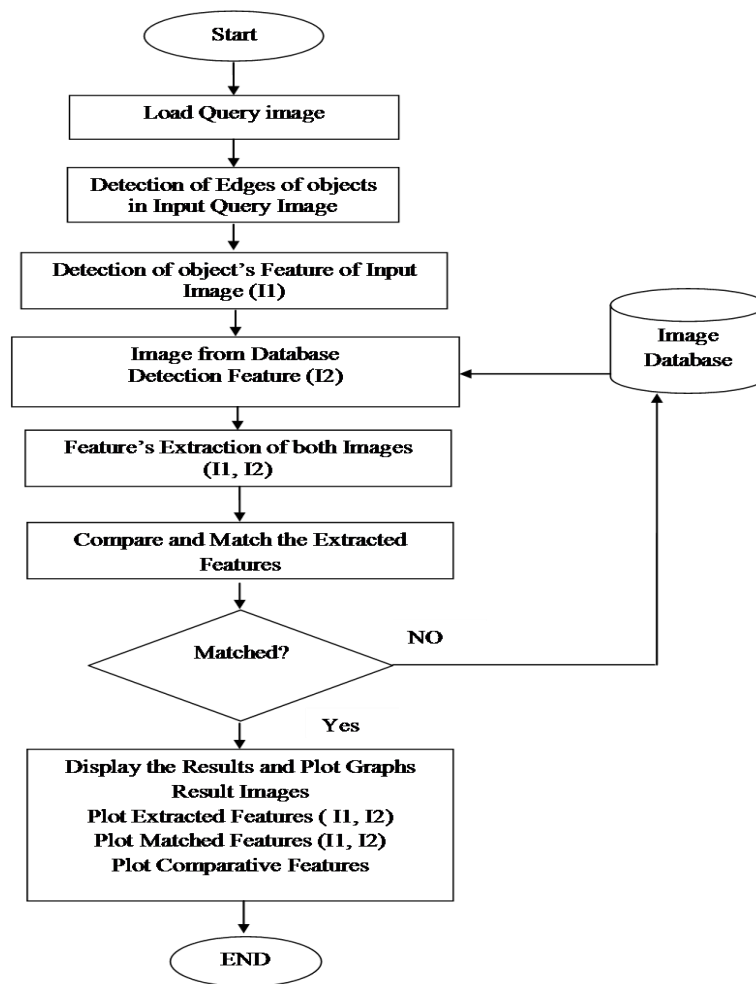
Robert S. Gray et al. (1994) [3] here the researcher describe a simple content-based system that retrieves color images on the basis of their color distributions and edge characteristics. The system uses two retrieval techniques that have been described in the literature. The performance of the system is evaluated and various extensions to the existing techniques are proposed. Zoran Pecenovici et al. (1998) [5] this paper presents the highlights of recent research for Image Retrieval. Some trends and probable future research directions are presented. Researchers have also exposed the major problems that we have recognized: the lack of a good measurement of visual similarity, the little importance accorded to user interaction and feedback, and the neglect of spatial information. Amit Jain et al. (2007) [7] this paper presents an algorithm for retrieving images with respect to a database consisting of engineering/computer-aided design (CAD) models. The algorithm uses the shape information in an image along with its 3D information. A linear approximation procedure that can capture the depth information using the idea of shape from shading has been used. Suman Lata et al. (2014) [12] this research presents a review on various ways of content based image retrieval. The author has discussed the fundamental aspects, visual features and techniques for fast searching and retrieval of images from the database. The use of wavelets in CBIR is also discussed.

## 3. PROBLEM IDENTIFICATION

We know that a human being can do the image retrieval task very easily because we can see and sense what we have seen so we can manage and interpret the outcomes, but if we have huge amount of database images then this task may be hectic. It may be very exhaustive process for a human being that's why we need an automatic mechanism to do this task. To implement and achieve the retrieval task an algorithm is required which will help us to achieve the image retrieval target for the human being and the answer is image retrieval on the basis of its internal objects features. To solve this problem an architecture for retrieval of image is proposed.

## 4. PROPOSED WORK

As we know that image can be retrieved on the content based using local and global features. Here in my research work my proposed work to design and implement content's pixel based feature extraction and retrieval of a gray scale image. For this purpose a architecture is designed figure 3 is showing the flow chart of the proposed work.



**Figure 3:** Proposed Work Flow Chart

## 5. RESEARCH OBJECTIVES

Here my main objective is to retrieve the image from the database based on the extracted features of input query image. The objectives are:

- Developing an architecture to retrieve an image based on the features of the objects in an image
- To implementation the architecture using GUI environment of Matrix laboratory.
- Calculate and analyze the results MSE and PSNR value.

## 6. METHODOLOGY

- To obtain the features from a grey scale image a method (corner Detection) is proposed available in the Matlab. Which will return the location of the corners as a matrix of [x y] coordinates.
- Image Processing Tool to implement the proposed research work.
- To achieve this task a matching feature function is used and the method will returns a P-by-2 matrix, INDEX\_PAIRS, containing indices to the features most likely to correspond between the two input feature matrices.
- The used function will take two parameters , first will be used for the extracted features of first input image or it can called query image (FEATURE 1), an M1-by-N matrix, and the second will be the extracted features of the database image (FEATURE 2), an M2-by-Nmatrix, where N represents the

length of each feature vector. In the last the features of both the image will be compared to retrieve the result [13].

### REFERENCES

1. Dr. Fuhui Long, Dr. Hongjiang Zhang and Prof. David Dagan Feng, “Fundamentals of Content-Based Image Retrieval “, Chapter 1, 2004.
2. Yi Li and Linda, G. Shapiro, “Object Recognition for Content-Base Image Retrieval” University of Washington Seattle, WA 98195-2350.
3. Robert S. Gray et al. (1994) Content-based Image Retrieval: Color and Edges.
4. Join R. Smith and Shij-Fu Chang, “Tool and Techniques for Color Image Retrieval”, IS&T/SPIE Proceeding Vol. 2670, 1995.
5. Zoran Pecenovci, Minh Do, Serge Ayer, Martin Vetterli, New Methods for Image Retrieval”, 1998.
6. Markus Koskela, Jorma Laaksonen, and Erkki Oja, Comparison Of Techniques For Content-Based Image Retrieval” 12th Scandinavian Conference on image Analysis (SCIA), Pg. 579-586, 2001.
7. Amit Jain, Ramanathan Muthuganapathy and Karthik Ramani, “Content-Based Image Retrieval Using Shape and Depth from an Engineering Database”, 2007.
8. Ritendra Datta, Dhiraj Joshi, Jia Li, and James z. Wang, “Image Retrieval: Ideas, Influences, and Trends of the New Age”, ACM Computing Surveys, Vol. 40, No. 2, Article 5, Publication date: April 2008.
9. A.Kannan, Dr. V. Mohan and Dr. N. Anbazhagan, “An Effective Method of Image Retrieval using Image Mining Techniques, ,IJMA, Vol.2, No.4, November 2010.
10. Gulfishan Firdose Ahmed, Raju Barskar, “A Study on Different Image Retrieval Techniques in Image Processing”, IJCSE, ISSN: 2231-2307, Vol-1, issue-4, Sept-2011.
11. Ritika Hirwane, “Fundamental of Content Based Image Retrieval”, (IJCSIT) International Journal of Computer Science and Information Technologies, Vol. 3 (1) , Pg. 3260 – 3263, 2012.
12. Suman Lata, Parul Preet Singh, “A Review on Content Based Image Retrieval System”, International Journal of Advanced Research in Computer Science and Software Engineering Volume 4, Issue 5, ISSN: 2277 128X, May 2014.
13. Matrix Laboratory helps (Image Processing Tool Box).