



**INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH
TECHNOLOGY**

**PERFORMANCE OF CONTENT BASED IMAGE RETRIEVAL USING LOCAL
BINARY PATTERN AND COLOR MOMENTS**

Hitesh Singh*, Sachin Tyagi

M.Tech Scholar , Dept. of Electronics and Communication Engineering, Roorkee College of Engineering,
Roorkee, UK, India

Assistant Professor, Dept. of Electronics and Communication Engineering, Roorkee College of
Engineering, Roorkee, UK, India

ABSTRACT

Content-based image retrieval (CBIR), , otherwise called as query by image content (QBIC) and content-based visual information retrieval (CBVIR) is the application of Computer vision to the picture recovery issue, that is, the issue of hunting down advanced pictures in substantial databases.

“Content-based” implies that the pursuit will dissect the real substance of the image. The expression "content" in this setting may allude colors, shapes, textures, or whatever other data that can be gotten from the picture itself. Without the capacity to inspect picture content, seeks must depend on metadata, for example, subtitles or watchwords. Such metadata must be created by a human and put away nearby every picture in the database.

Issues with customary systems have prompted the ascent of enthusiasm for methods for recovering pictures on the premise of naturally inferred elements, for example, shading, surface and shape – an innovation now by and large alluded to as Content-Based Image Retrieval (CBIR).The ideas which are instantly utilized for CBIR framework are all under exploration research.

KEYWORDS: content-based image retrieval, image database, image descriptors, indexing, query specification, query visualization, effectiveness measures, relevance feedback, performance,applications..

INTRODUCTION

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. The term ‘content’ in this context might refer colors, shapes, textures, or any other information that can be derived from the image itself. 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 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).

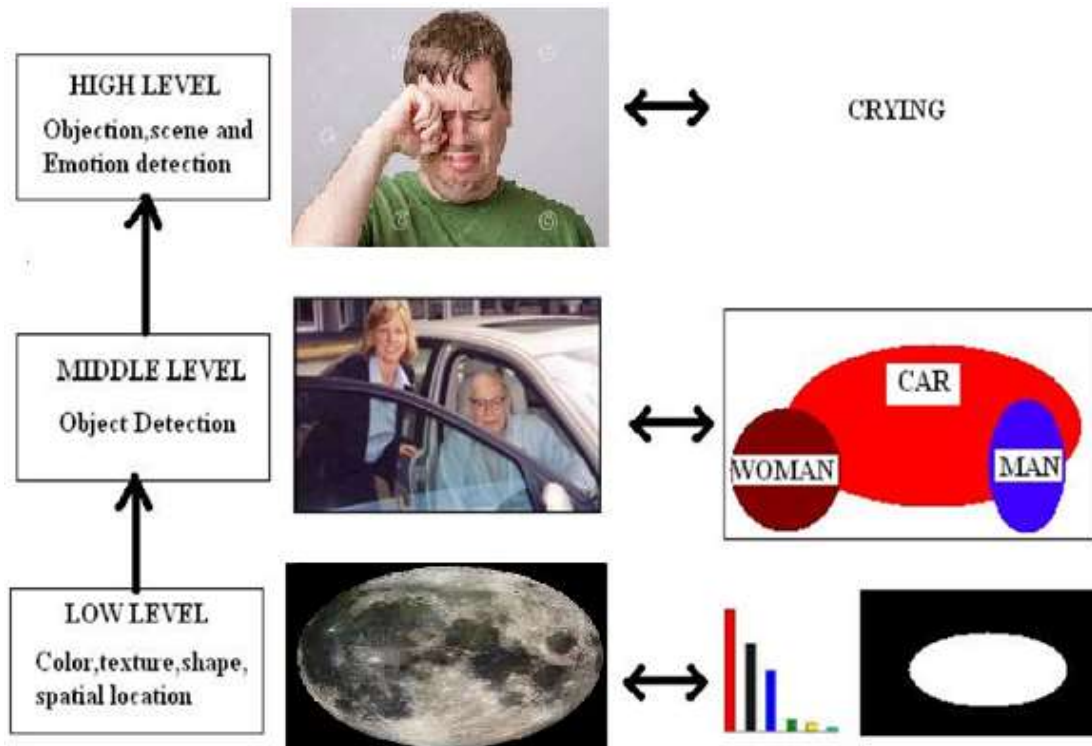
The image content level is also a measure of level of feature extraction. At the low level, also regarded as primary level the features extracted (color, shape, texture, spatial information and motion) are called primitive features because they can only be extracted by information obtained at the pixel level, that is pixel representation of the images. The middle level features are features that can be extracted by collection of pixels that make up the image, while high level features go beyond the collection of pixels. It identifies the impressions, meanings and emotions associated with the collection of pixels that make up the object.

LBP is one of the best texture methods available today. It is invariant to monotonic changes in gray-scale and fast to calculate. Its efficiency originates from the detection of different micro patterns (edges, points, constant areas etc.). LBP has already proved its worth in many applications in which texture plays an important role. There already exist some CBIR platforms with LBP features included, but the use of the operator has been limited to the original version and it has been applied on full images only. Most of the current CBIR texture descriptors used in commercial systems is calculated for full images.

Color analyses are measures that characterize color distribution in an image in the same way that central moments uniquely describe a probability distribution. Color analyses are mainly used for color indexing purposes as features in image retrieval applications in order to compare how similar two images are based on color. Usually one image is compared to a database of digital images with pre-computed features in order to find and retrieve a similar image. Each comparison between images results in a similarity score, and the lower this score is the more identical the two images are supposed to be.

Image retrieval is an important field in image processing and pattern recognition, which is also an important branch of information retrieval. Generally, there are three categories of retrieval methods: text-based, semantic-based, and content-based methods.

The content-based image retrieval (CBIR) method aims to organize digital images according to their visual features, such as color, texture, shape, distribution layout, and so on. CBIR needs neither manual image annotation nor semantic labeling, and can rank the retrieved images with respect to their similarity with the query image. CBIR system is equipped with database of images with different set of features. User has interface to add image in the image database and retrieve images from the database. A database stores all the images from which the image similar to the query instance is to be retrieved. Performance evaluation has been a competitive issue in the field of content-based retrieval, primarily because of the difficulty associated with calculating quantitative measures to evaluate the quality of retrieval. There are several feature extraction techniques and retrieval techniques which have been developed, so it is better to compare and select the ones which give superior performance.



IMPLEMENTATION

Query Techniques:

Distinctive usage of CBIR make utilization of diverse sorts of client queries. Query by case is a question procedure that includes giving the CBIR framework an illustration of picture that it will then construct its pursuit in light of. The

basic inquiry calculations may change contingent upon the application, however result pictures ought to all offer normal components with the gave case. Choices for giving case pictures to the framework include:

- A prior picture may be supplied by the client or browsed an arbitrary set.
- The client draws an unpleasant estimate of the picture they are searching for, for instance with blobs of shading or general shapes

This query strategy uproots the challenges that can emerge when attempting to portray pictures with words.

FLOWCHART

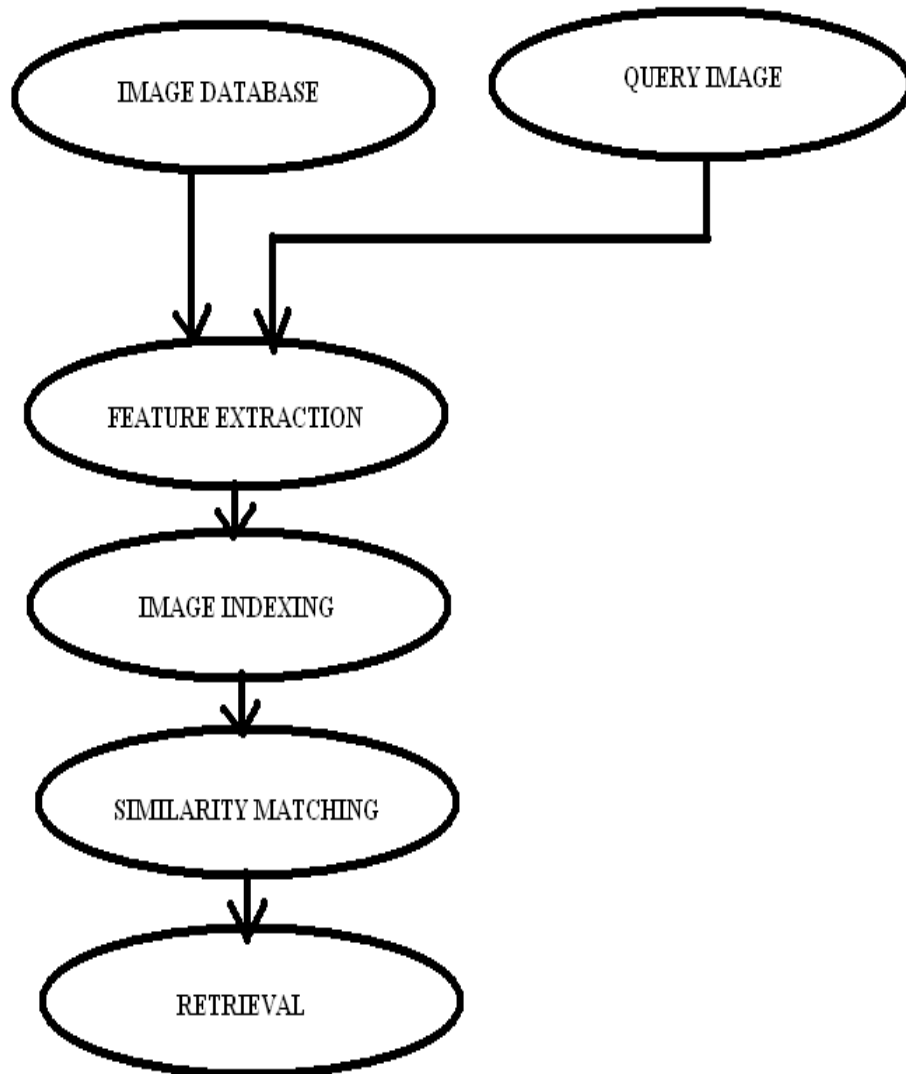


Fig. 2 Flow chart showing principle of CBIR system

CONCLUSION

The zone of Content Based Image Retrieval (CBIR) recovery is a mixture research range that obliges information of both PC vision and of database frameworks. The use of data hypothesis to picture elucidation and CBIR offers numerous conversation starters for further investigation. The innovation is energizing yet immature, and couple of operational picture chronicles has yet demonstrated any genuine enthusiasm for selection.

The field seems, by all accounts, to be producing intriguing and legitimate results, despite the fact that it has so far prompted couple of business applications. Organizations concerned with innovation exchange or spread of best practice in fields which could conceivably profit by CBIR (counting administration of picture accumulations and drawing chronicles, electronic distributed and interactive media content creation) ought to consider supporting projects to bring issues to light of CBIR innovation among driving experts in these fields. This task can be further upgraded to minimize lapses and build the level of exactness furthermore make it accessible for considerably bigger databases.

Intelligent execution assessments including a few levels of criticism and client connection should be produced. The requirement for institutionalized assessment measures is required, following a few measures are slight varieties of the same definition. An often redesigned shared picture database and the standard correlation of framework exhibitions would be of incredible advantage to the CBIR group.

REFERENCES

1. Ms. K. Arthi, Mr. J. Vijayaraghavan, PG Scholar, Communication Systems, Rajalakshmi Engineering College-“Content Based Image Retrieval Algorithm Using Color Models”, Chennai, India.
2. Zhenhua Guo, Lei Zhang, *Member, IEEE*, and David Zhang*, *Fellow, IEEE* -“A Completed Modeling of Local Binary Pattern Operator for Texture Classification”.
3. Jau-Ling Shih and Ling-Hwei Chen-“Color Image Retrieval Based on Primitives of Color Moments”, Dept. of Computer and Information Science, National Chia Tung University.
4. Ritendra Datta Jia Li James Z. Wang-“Content-Based Image Retrieval-Approaches and Trends of the New Age”
5. Ricardo da Silva Torres, Alexandre Xavier Falcão-“Content-Based Image Retrieval: Theory and Applications”
6. Dr. Fuhui Long, Dr. Hongjiang Zhang and Prof. David Dagan Feng-“FUNDAMENTALS OF CONTENT-BASED IMAGE RETRIEVAL”[7] Amandeep Khokher, Dept. of ECE, RIMT-MAEC, Dr. Rajneesh Talwar, Dept. of ECE, RIMT-IET IMAGE RETRIEVAL: A STATE OF THE ART APPROACH FOR CBIR, Mandi, Punjab, India
7. Michael Eziashi Osadebey-“INTEGRATED CONTENT-BASED IMAGE RETRIEVAL USING TEXTURE, SHAPE AND SPATIAL INFORMATIONM, February 2006”
8. Valtteri Takala, Timo Ahonen, and Matti Pietikäinen, “Block-Based Methods for Image Retrieval Using Local Binary Patterns”.
9. Swati V. Sakhare & Vrushali G. Nasre, Dept. of Electronics Engg., Bapurao Deshmukh College of Engg., “Design of Feature Extraction in Content Based Image Retrieval (CBIR) using Color and Texture”, Wardha
10. Topi Mäenpää & Matti Pietikäinen’s “Texture Analysis with Local Binary Patterns”, University of Oulu, Finland.