A Fast Image Retrieval System (Web Application)

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Abstract

The project is entitled as A FAST IMAGE RETRIEVAL SYSTEM". Digital images have many applications in different fields like medical imaging and diagnostics, weather forecasting, space research, military etc. The number of images available and their wide variety increases with the ease of acquiring, storing and sharing digital images due to the advances in technology. As a result, the significance of image retrieval algorithms and systems has been considerably increased. Many researches on content-based image retrieval (CBIR) are being carried out. In this paper, a fast image retrieval algorithm called feature levels is proposed. Feature levels algorithm works with the classification of image features to different categories or levels, feature extraction in terms of levels and feature similarity comparison of the query image with database images. The system retrieves images from the associated database. The database is re-written after each level according to Distance Matching (DM) algorithm.
Keywords: Admin, Images, Database

I. INTRODUCTION

Faced with the big media data, we need to organize and manage these semi-structured and even unstructured data effectively. With the development of information retrieval technology and commercial search technology in recent years, database indexing and text retrieval techniques has become a general pattern. However, the present image retrieval performance still cannot meet the requirement of expectations. Compared with text retrieval, image retrieval is still in exploratory stage.

At present, there are two main types of image retrieval: Text-Based Image Retrieval (TBIR) and Content-Based Image Retrieval (CBIR). Text based image retrieval makes use of artificial marks to avoid visual analysis. Through the searching and matching for texts, text-based image retrieval establishes the correlation link between images. However, with the increase in size of the image database, the limitations of the method based on artificial annotation are also shown. Manual annotation requires two much manpower and time consumption. When the size of the image database increases to a certain extent, manual labelling for each image will become impossible to achieve.

In order to overcome the shortcomings of the methods based on manual annotation, content-based image retrieval is used. Different from the text-based image retrieval, content based image retrieval directly gets visual vectors of the images to find out the high similarity characteristics.

A. Problem Statement

A Fast Image Retrieval System is used to retrieve the images from the database with high similarity features as soon as possible. Since it used Text based image retrieval it could not find the exact output of the image given.
For solving the problem we use Content Based Image Retrieval and Distance Matching Algorithm to find the images with high similarity feature.

B. Objective

The main objective of the project scope is retrieving the image with good accuracy. In content-based image retrieval (CBIR) searching for k most-similar images to a query image involves comparing the feature vectors of all the images in the database with that of the query image using some pre-selected similarity measure, and then sorting the results.

C. *Related Works*

In the current work all process is carried out on Content Based. The Images are distinguished into three categories such as color, shape and vertex. According to the image provided it compares the other images in the database and provide the output by considering all the categories.

II. LITERATURE SURVEY

A. *Beginners to Content Based Image retrieval by S-Pattanaik, D.G.Bhalke at May 2012:*

This paper gives an overview idea of retrieving images from a large database. CBIR is used for automatic indexing and retrieval of images depending upon contents of images known as features. The features may be low level or High level. The low level features include color, texture and shape. The high level feature describes the concept of human brain. The difference between low level features extracted from images and the high level information need of the user known as semantic gap. A Single feature can represent only part of the image property. So multiple features are used to enhance the image retrieval process. This paper has used color histogram, color mean, color structure descriptor and texture for feature extraction. The feature matching procedure is based on their Euclidean distance.

B. *Image Retrieval with Interactive Query Description and Database Revision by S.-S., Sebastian-S at 2011:*

This paper has a further exploration and study of visual feature extraction. According to the HSV (Hue, Saturation, Value) color space, the work of color feature extraction is finished, the process is as follows: quantifying the color space in non-equal intervals, constructing one dimension feature vector and representing the color feature by cumulative histogram. Similarly, the work of texture feature extraction is obtained by using gray-level cooccurrence matrix (GLCM) or color co-occurrence matrix (CCM). Through the quantification of HSV color space, we combine color features and GLCM as well as CCM separately. Depending on the former, image retrieval based on multi-feature fusion is achieved by using normalized Euclidean distance classifier. Through the image retrieval experiment, indicate that the use of color features and texture based on CCM has obvious advantage.

C. *Image Compression using Block Truncation Coding by Doaa Mohammed, Fatma Abou-Chadi at 2011:*

The present work investigates image compression using block truncation coding. Two algorithms were selected namely, the original block truncation coding (BTC) and Absolute Moment block truncation coding (AMBTC) and a comparative study was performed. Both of two techniques rely on applying divided image into non overlapping blocks. They differ in the way of selecting the quantization level in order to remove redundancy. Objectives measures were used to evaluate the image quality such as: Peak Signal to Noise Ratio (PSNR), Weighted Peak Signal to Noise Ratio (WPSNR), Bit Rate (BR) and Structural Similarity Index (SSIM). The results have shown that the ATBTC algorithm outperforms the BTC. It has been shown that the image compression using AMBTC provides better image quality than image compression using BTC at the same bit rate. Moreover, the AMBTC is quite faster compared to BTC.

III. OVERVIEW OF EXISTING SYSTEM

The process of analysing the existing system is used to find the drawbacks of the existing system. The user interface experience is not satisfied in the existing system. The formats of the company description are not available for blinds.

A. *Existing System*

The process of analyzing the existing system is used to find the drawbacks of the existing system. The user interface experience is not satisfied in the existing system. This following point are describing the existing system drawbacks:

- The existing system used Keyword based search engine and Text based image retrieval where there is no accuracy and relevancy
- No semantic based similarities is implemented
- In existing system if a large sentence is given accuracy falls down tremendously
- The Database Revision Algorithm is used for image retrieval which produced inaccurate results
- Searching result is highly diverse. Visual pattern was not clear. Lack of accuracy and relevancy
- It takes long time to compare and retrieve images from the database.

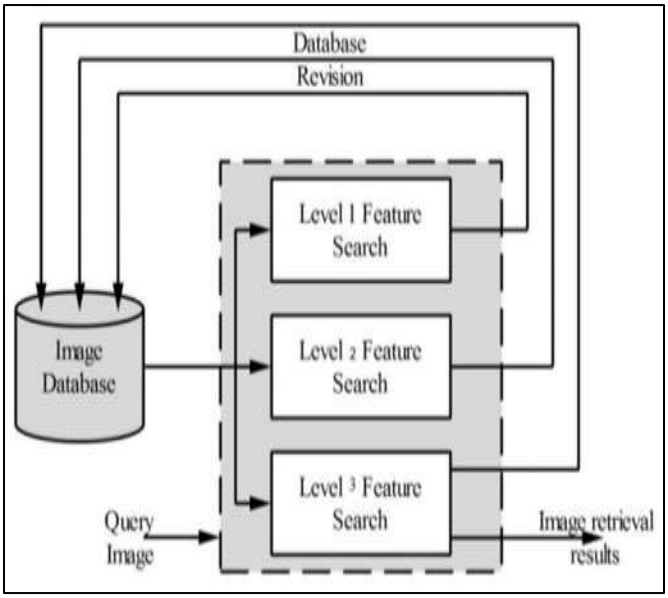
IV. PROPOSED SYSTEM

The proposed system is used to improve the application as good and smart. This proposed system overcomes the entire drawbacks of the existing system. The following details are explaining the proposed system:

- The effective content-based image retrieval (CBIR) needs efficient extraction of low level features like color, texture and shapes for indexing and fast query image matching with indexed images for the retrieval of similar images.

- The effective matching of the image with images, various distance metrics are used to measure similarities using texture features. The user interface is designed by using latest technologies. The flat UI and Marshmallow interface is a new concept of the android application development.
- The analysis of the effective CBIR is performed on the basis of various distance metrics in different number of quantization bins. User can find the necessary details in efficient way. The searching takes less time to load. The efficient searching algorithms are used in the android application.
- The proposed method is tested by using Corel image database and the experimental results show that the method has robust image retrieval for various distance metrics with different histogram quantization in a compressed domain.

V. SYSTEM ARCHITECTURE



B. System Architecture:

The Fast Image Retrieval System consists of an Image Database where all the query images are stored. It consists of three categories called color search, vertex search and shape search. It uses an algorithm called Distance Matching Algorithm. Finally it retrieve the high similarity images.

VI. WORKING MODEL

A. Admin

This admin module is used to manage the entire system. The admin can manage the category of the system. The admin can add a new query images to the database.

B. Image Indexing

In Image Indexing the directory path has to be provided which also include sub-directories. The image can be added to an existing image and the index verification will be started.

C. Search

It is used to search the digital images where the directory given for specifying will have the actual image within itself.

D. Browse

The browse index is used to show the images which are already browsed and it provides the size and width of the image.

VII. CONCLUSION

The project report entitled "A FAST IMAGE RETRIEVAL SYSTEM" has come to its final stage. The system has been developed with much care that it is free of errors and at the same time, it is efficient and less time consuming. The important thing is that the system is robust. I have tried our level best to make the site as dynamic as possible.

The entire system is documented and can be easily understood by the end users. The website developed has been designed and run to satisfy the requirements and needs of the organization as well as the end users.

In addition, provision is provided for future developments in the system. The entire system is secured. This online system will be approved and implemented soon.

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