



## Content Based Image Retrieval in E-Commerce for Quality Products

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**Abstract:** *Content based image retrieval is the task of retrieving images from the large collection of database on the basis of their own visual content. Content-based image retrieval, a technique which uses visual contents to search images from large scale image databases according to users' interests, has been an active and fast advancing research area since the 1990s. The proposed system will enable users to efficiently retrieve a product of good quality as per his choice. The system extends the concept of CBIR to Sketch Based Image Retrieval where the products can be retrieved by the sketch of the product drawn on the UI. User can retrieve products of good quality by drawing the sketch of the desired product in the drawing panel available on the interface. The result of relevant images will be returned to the user.*

**Key Words:** *Content Based Image Retrieval, Sketch Based Image Retrieval, User Interface*

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### I. INTRODUCTION

Traditional websites are on-click and manual search based. The products returned to the user for a particular search are not of good quality instead are just relevant searches. The user also needs to browse the whole section to obtain the product he desires. Content based image retrieval is the task of retrieving images from the large collection of database on the basis of their own visual content [4]. The proposed system i.e. Content based image retrieval in E-Commerce will enable users to efficiently retrieve a product of good quality as per his choice. The system extends the concept of CBIR to sketch based image retrieval where the products can be retrieved by the sketch of the product drawn on the UI. User can retrieve products of good quality by drawing the sketch of the desired product in the drawing panel available on the interface. The result of relevant images will be returned to the user. The proposed system will emphasize on the quality factor which is an important aspect of any product to be purchased. System will take care that the user gets the good quality product as per his/her requirements.

User will have the freedom to either upload an image for his/her search or to draw the sketch of the desired product in the input panel that will be provided at the graphical user interface. Retrieval of the search will be based on the internal and external features of the product. The internal feature will serve as the basis to retrieve good quality product for the user. CBIR/SBIR will take external features such as color, shape or texture into account for the retrieval of the product. The aim of this document is to review the current state in content-based image retrieval (CBIR), a technique for retrieving images on the basis of automatically-derived features such as color, texture and shape and to introduce a system which is based on a free sketch (Sketch based image retrieval – SBIR).

### II. RELATED WORK

Lin et al. [3] proposed a color-texture and color-histogram based image retrieval system (CTCHIR). System proposed CBIR using color and texture was based on three image features, on color, texture and color distribution, as color co-occurrence matrix (CCM) [2], difference between pixels of scan pattern (DBPSP) and Color histogram for K-mean (CHKM) respectively to enhance image detection rate and simplify computation of image retrieval. From the experimental results they found that, their proposed method outperforms the Jhanwar et al. [7] and Hung and Dai [8] methods. Raghupathi et al. [9] have made a comparative study on image retrieval techniques, using different feature extraction methods like color histogram, Gabor Transform, color histogram with Gabor transform, Contourlet Transform and color histogram with contourlet transform. Hiremath and Pujari [10] proposed CBIR system based on the color, texture and shape features by partitioning the image into tiles. The features computed on tiles serve as local descriptors of color and texture features. The color and texture analysis are analyzed by using two level grid frameworks and the shape feature is used by using Gradient Vector Flow. The comparison of experimental result of proposed method with other system [11-14] found that, their proposed retrieval system gives better performance than the others. Rao et al. [15] proposed CTDCIRS (color-texture and dominant color based image retrieval system).

### III. SYSTEM MODEL

The proposed system will return efficient and relevant results to the user as per their search. The result in the form of product will be of good quality, since the proposed system takes into consideration- quality, as the prime aspect of the search. Relevance feedback is an interactive process that starts with normal CBIR. The user input a query, and then the

system extracts the image feature and measure the distance with images in the database. An initial retrieval list is then generated. User can choose the relevant image to further refine the query, and this process can be iterated many times until the user finds the desired image or product he is looking for. The process will take place as shown in the Figure 1.

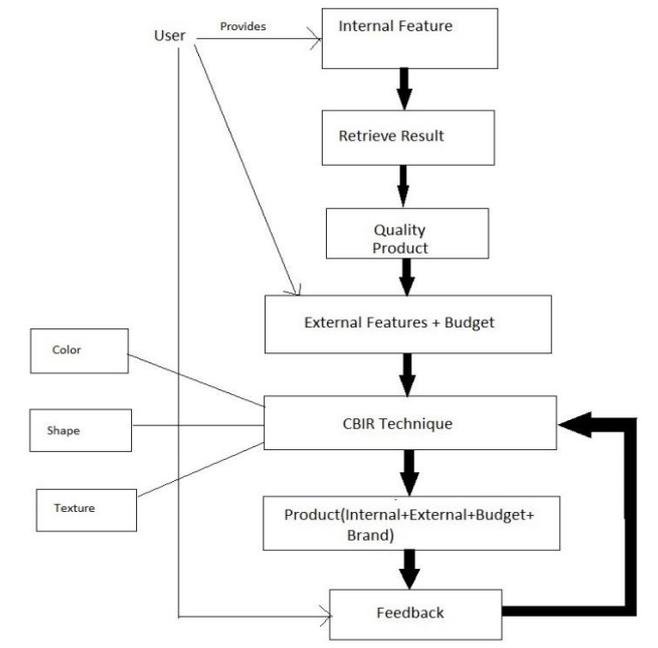


Fig. 1 System Model

**IV. PROBLEM STATEMENT**

The traditional e-commerce websites are manual. They are on-click based. The user needs to enter into a category and then browse throughout what he wants. In a way that is time consuming if the user has a picture in his mind about what he wants. The current system restricts the user to actually put down his thoughts. Instead the user needs to surf the whole sections provided in the website to match to any product he/she has in his mind. The second drawback is that the results produced are of relevance and do not assure good quality product.

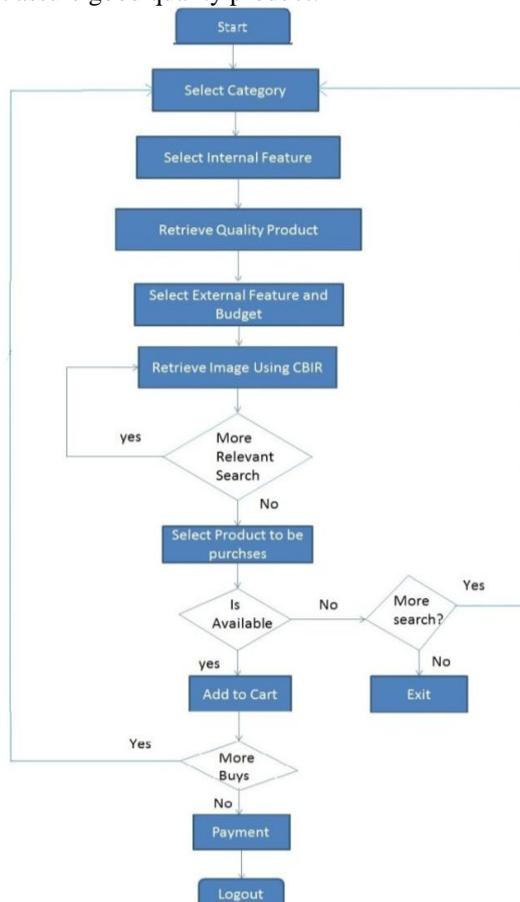


Fig. 2 System Flowchart

## V. SOLUTION

As shown in Figure 2 the proposed system is a combination of an e-commerce website along with CBIR which has tremendously boosted in the field of research. User visits the shopping website. An option of login is available to user in case the user desires to make an account on the website. User navigates through the category of selection. For e.g., electronics, clothing etc. The UI of the selected category appears. User will provide the internal features of the product that he is looking for. E.g. User is looking for a laptop then he specifies the internal features such as RAM, ROM, Internal memory etc. that he is looking for in a particular laptop. Based on the internal features provided by the user the system will retrieve product of good quality. The second iteration will be of the external features i.e. the shape and colour. The user will also provide the range of budget of the product he /she is searching. On the input panel the user can draw or upload the image. Using CBIR, the retrieval of the searched image is done. The user is asked for the satisfaction of the image. If no, then It goes back to the database to fetch more relevant data and returns them to the user, this is an iterative process.

## VI. SUMMARY

CBIR IN E-COMMERCE i.e. the proposed system will serve as a combination of an e-commerce website along with CBIR which has tremendously boosted in the field of research since 1990[1]. The proposed system with the help of CBIR will retrieve quality products for the user based on the internal features. This system will also allow the user to jot down his/her thoughts since the system enables the user to draw the sketch of the desired product. The result of the search returned will be of good quality demanded by the user. For every search, relevant results will be returned to the user. User's feedback will be taken into consideration so that more relevant search can be provided. Hence the proposed system will provide shopping in a more fun loving manner and at the same time will be more efficient to the user.

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