Image Search Engine of Mono Image

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Abstract— In recent year, images are widely used in many applications, such as facebook, snapchat. The large numbers of these images are saved in the smart system to easy access and retrieve. This paper aims to design and implement the new algorithm which is used in search of images. The mono image (black and white) is used as input data to the proposed algorithm. The methodology of this paper is to split image into number of block (block size = 8*8). For each block set 1 or 0 in order to count the number of black and white pixels. Finally, the result compare with other image dataset with the threshold value. The result show's that the proposed algorithm is successful passed in tested stage.

***Keywords*— Image processing, Search Image, Mono Image, Search by Image**.

I. INTRODUCTION

Describe the automatic selection of features from an image training set were done by using the theories of multidimensional discriminant analysis and the associated optimal linear projection. The demonstration of the effectiveness of these most discriminating features for view-based class retrieval from a large database of widely varying real-world objects presented as "well-framed" views, and compared with that of the principal component analysis[1].

An image retrieval system contains a database with a large number of images. The system retrieves images from the database are similar to a query image entered by the user. The images in the database are grouped in clusters according to a similarity criterion so that mutually similar images reside in the same cluster. Each cluster has a cluster center which is representative for the images in it. A first step of the search to similar images selects the cluster that may contain images similar to the query image, by comparing the query image with the cluster centers of all clusters. A second step of the search compares the images in the selected clusters with the query image in order to determine their similarity with the query image[2].

In the proposed algorithm the monochrome image (black and white) is used as input data to the algorithm. The proposed algorithm has two main steps. First, extract the identify block from the search image. Second, matching the identify block with identify blocks Dataset.

II. **RELATED WORK**

Jain, A.K. and A. Vairagya(1996) [3] proposed a method to deals with an images from large databases which based on the color and shape content in images. The recent significant increase in the use of large-size image databases in various applications, LED conductors create a method for automatic retrieval and must be effective for reviewing complete databases. Many of the techniques that use text attributes in the image search for annotations are limited in their image retrieval applications. In the proposed algorithm rely mainly on Features images that take advantage of visual signals such as color and shape. Quite unlike what has been addressed in the previous methods focused on extracting only one concise feature. The proposed algorithm is based on collecting the characteristics of the image to be retrieved, such as color and shape. The results on the 400-image databases, which are trademarks, showed that the color and combined feature representation produces 99% of the images retrieved in the top two positions. The additional results demonstrate that the combination of the aggregation and the branch-specific alignment scheme helps to improve the speed of recovery processes.

Smith, J.R. (1998) [4] deal with the images that do not have a common search database were among the most difficult to retrieve or search for. Although many researchers have tried to find special ways to search for images through content-based retrieval methods using color images, there has been little effort in creating a standard set of images and queries. Doing so had many benefits in the development of technology and the usefulness of image-based image retrieval systems. Address the growing need to create a common test base to restore content-based images.

Cho, S.-B. and J.-Y. Lee(2002)[5] Suggested method of retrieval of images and containing the content list in its content, and was been actively studied in several areas. The proposed in [3] is more effective than the keyword-based approach and is done by managing and retrieving images. However, most traditional methods lack the ability to effectively integrate human intuition and emotion into image restoration. It was very difficult to obtain results that are identical to the scan images when the person seeking the images cannot be clearly described or can be ordered based on appearance only. To solve these problems and complete the user's inability to express images, the researcher developed an image retrieval system

based on human preference and emotion using an interactive genetic algorithm (IGA). This system extracts the feature from images by converting wavelets and provides a way easy-to-use to retrieve a picture from a large database when the user could not clearly determine the image. This mad it easy to search for an image not only through explicit queries, but also with implicit queries such as "cheerful impression," "dark impression," etc. A comprehensive experience with a 2000 image database showing the usefulness of the proposed system.Kulkarni, A. and L.

Brown (2009) [6] Had prepared a comprehensive survey of many technical achievements in the field of research on research and retrieval of images, specifically those images that contain the lists of content, as was very active area, especially in the previous twenty years, which was very popular. The research includes a survey of more than 100 scientific research covering the aspects Research aspects of the representation and features of images, multi-dimensional indexing, system design, three basic rules for the retrieval of content-based images. In addition, based on the latest technology available and demand from real-world applications, the researcher identifies open search problems and suggests promising research trends for the future.

Can, E.F., et al. (2019) [7] Presented which system provides image search results based on a query that includes an attribute or an association and a concept identifier. The query was input into a trained query model to define search syntax for the query. The search syntax was submitted to an expanded annotated image database that includes a concept image of a concept identified by the concept identifier with a plurality of attributes associated with the concept and a plurality of associations associated with the concept. Query result was the received based on matching the defined search syntax to one or more of the attributes or one or more of the associations. The query result includes the concept image of the concept associated with the matched one or more of the attributes or one or more of the associations. The concept image included in the received query result was presented in a display.

Iyer, S., S. Chaturvedi, and T. Dash(2019) [8] Image retrieval is an integral part of many different search engines. Search based on metadata of the image had been a primary approach in the process of image retrieval. In this work, implemented a search engine for better quality image retrieval using query image. The implementation uses elastic search for indexing of the available images in the server and intermediate captioning mechanism for both search and retrieval process. The image captioning has been carried out using VGG16 Convolutional Neural Network. The implemented engine has been implemented and tested using the

popular benchmark dataset called Flickr-8k dataset. The retrieved image quality demonstrated promising performance and suggests that an intermediate captioning-based image search could be an alternative to metadata-based search engines.

III. **DATASET**

In this paper, the image used a dataset type. The number of images that four will be used in this dataset is 4 as shown in figures (1-4). The image is mono image color (black and white).

Fig. 1: image1

Fig. 2: image2

Fig. 3: image3

Fig. 4: image4

We develop C# windows application to analysis these dataset image (extract identify block) then saved these block in txt file. Figure5 shows this application.

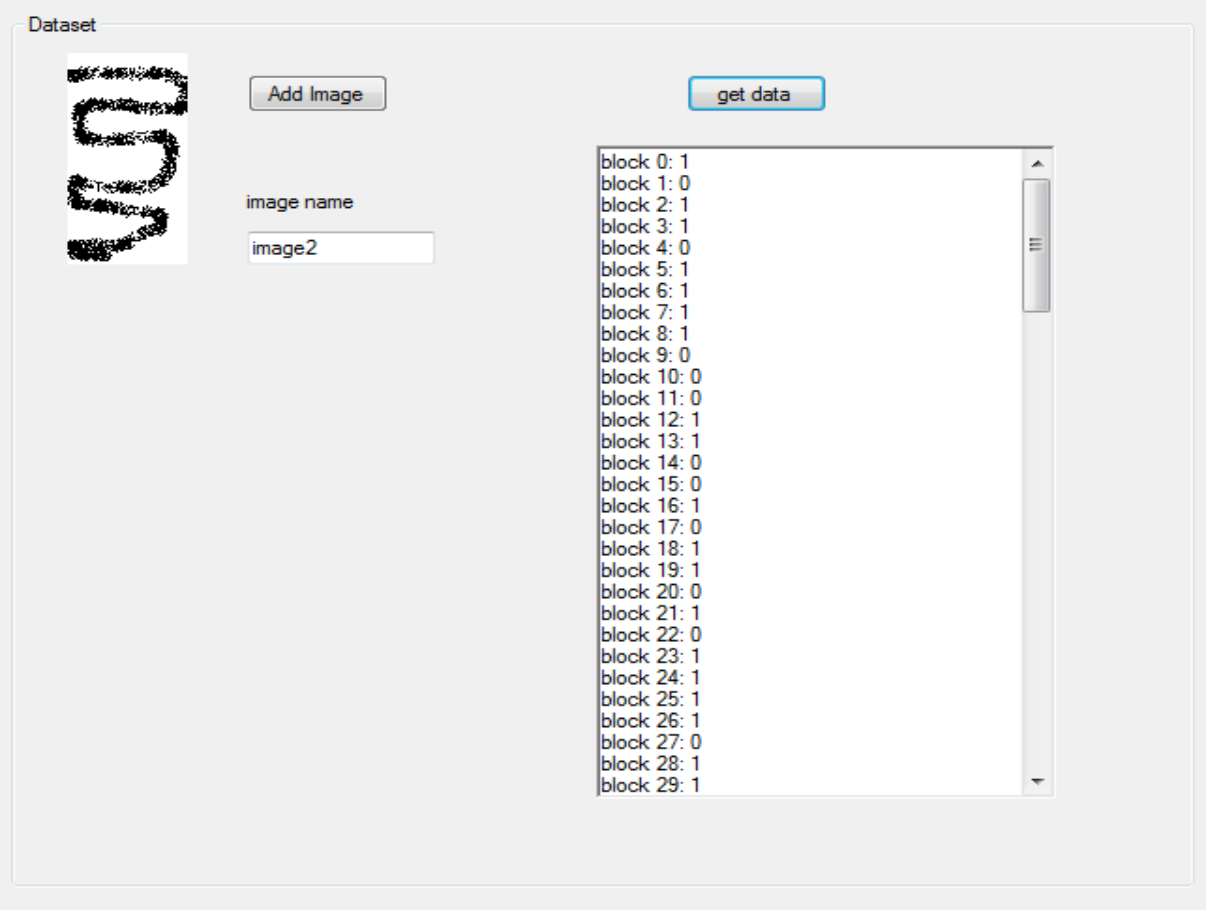

Fig. 5: application to analysis image dataset

These are blocks (identify block) of the dataset for four images which will be saved in txt file:

image1=0,1,1,1,1,1,1,1,1,1,1,1,1,0,0,0,0,0,0,1,1,1,0,0,1,1,1,0,0,1,1,1,1,0,1,1,1,1,1,0,0,0,0,0,0,
1,1,1,1,0,0,1,1,1,1,1,1,1,1,1,1,1,0,0,1,1,1,1,0,1,1,1,1,1,1,1,1,1,1,0,1,1,1,0,0,0,0,0,0,0,1,1,0,0,0,0,
1,1,0,0,0,0,0,0,0,0,1,0,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1

image2=1,0,1,1,0,1,1,1,1,0,0,0,1,1,0,0,1,0,1,1,0,1,0,1,1,1,1,0,1,1,0,0,1,0,1,1,1,1,0,1,1,1,1,0,1,
1,0,0,1,0,1,1,1,1,0,1,1,1,1,1,1,1,0,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,0,1,1,1,1,0,1,1,1,1,1,0,0,1,
1,1,0,1,1,1,1,0,0,0,0,1,1,0,1,1,1,1,1,1,0,0,0,1,1,1,1,1,1,1,1,1,1,1,1

image3=1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,0,0,0,0,0,0,0,0,0,0,1,1,0,1,1,1,0,1,1,1,1,1,1,1,1,1,1,1,
0,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,0,0,1,1,1,0,0,0,0,0,0,1,0,0,1,0,1,1,
1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1

image4=1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,0,0,0,1,1,1,1,0,0,0,0,
1,1,1,1,0,1,1,1,0,1,1,0,1,1,1,0,1,1,1,1,0,1,1,1,1,1,1,0,1,1,0,1,1,1,1,1,0,0,1,1,1,1,1,0,0,0,1,1,1,
1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1

IV. **METHODOLOGY**

There are two types of methods to process the image, the first is by applying algorithm steps for each pixel in image; the second type is by applying algorithm steps for each block of pixel in image. In this algorithm, will use the block process type.

The methodology consist of this three steps: first step, the image will be split into number of blocks; the size of block is 8 pixel width and 8 pixel height. Second step (extract identify block): for each block, count the number of black and white pixel; then set 0 if number of blacks pixel large or equal to the number of white pixel, else set 1. Third step: is comparing the blocks (identify block) generated in the previous steps with the block (identify block) of dataset image to get the match value. Finally, if match value is smaller than the threshold value then the image was found, else the image was not found. Algorithm1 show the algorithm steps. Figure6 show the flow chart of our algorithm.

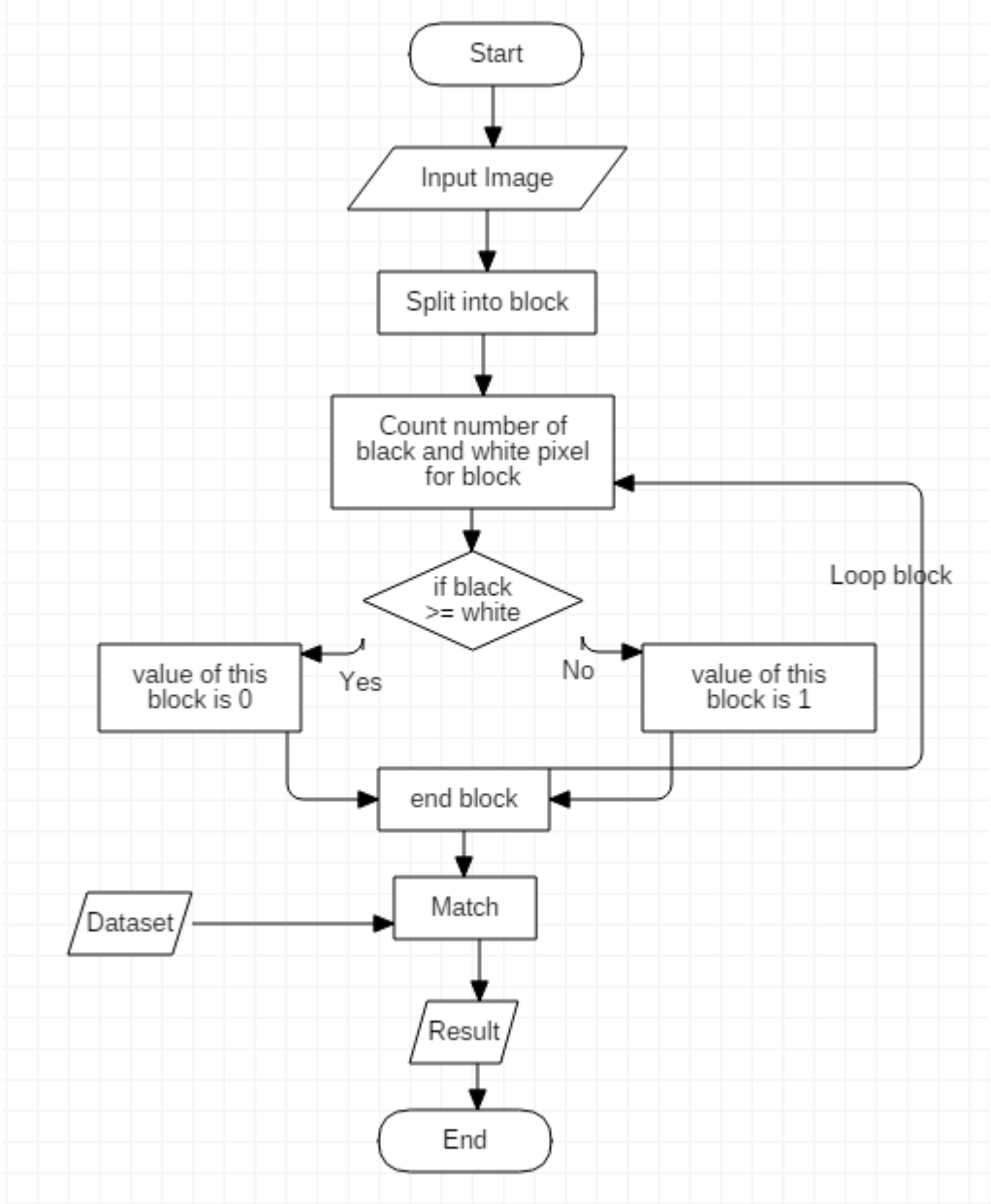

Fig. 6: flow chart of proposed algorithm

Algorithm 1: Search Image

Input:

Image: searching image

dataset: block values of 4 image dataset

Block size: 8*8

Threshold: initial value to the minimal number of blocks not match

Noe: number of block not match

Output:

match result: true or false

```
1:  Split image into block
2:  For Each block
    Count the number of black and white pixel
      If  count(black) >= count (white)
         Block = 0.
      If   count(black) < count (white)
         Block = 1.
    End
3:  Compare searching image with each image in dataset.
    For each block result
      If  block(search image) != block (dataset image)
         Noe++.
    End
      If  Noe <= throshould
         Found in this image dataset.
      Else
        Not found in this image dataset.
```

V. **RESULT**

In this section, will show the results of the proposed algorithm for each input image (query image). The input image will be checked with the 4 images shown in four dataset section. The proposed algorithm extract the identified block for each input image and matching with the identify block of the dataset images.

In figure7 the input image is exactly from the dataset (image 2). So it is matched with image 2.

Fig. 7: result of first input image

In figure 8 the new image is selected. It is matched with image 3 in the dataset.

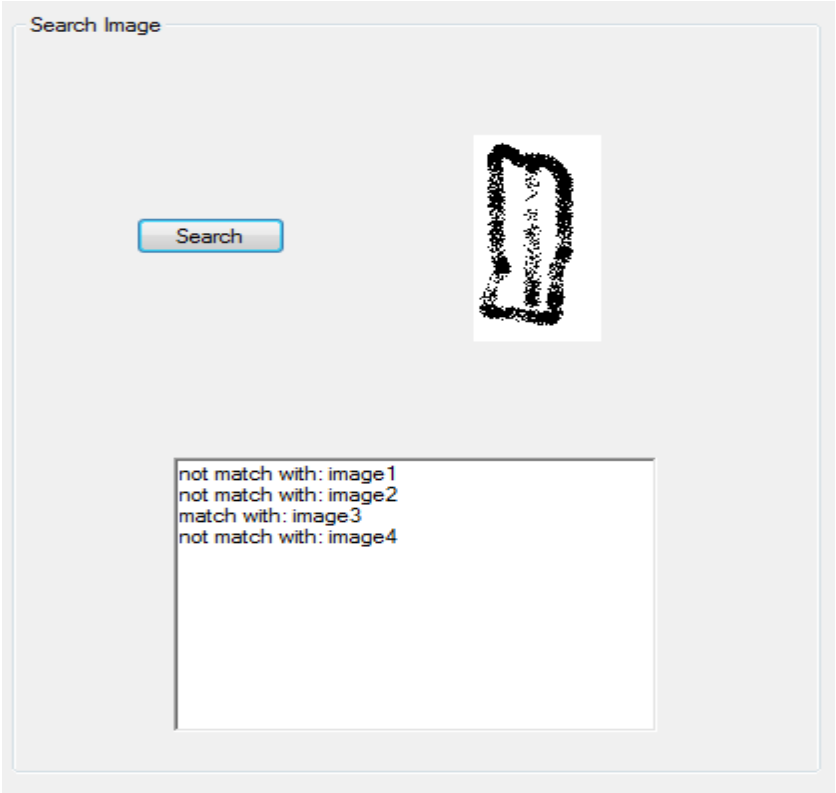

Fig. 8: result of second input image

In figure 9 the new image is selected. It does not match with any image in the dataset.

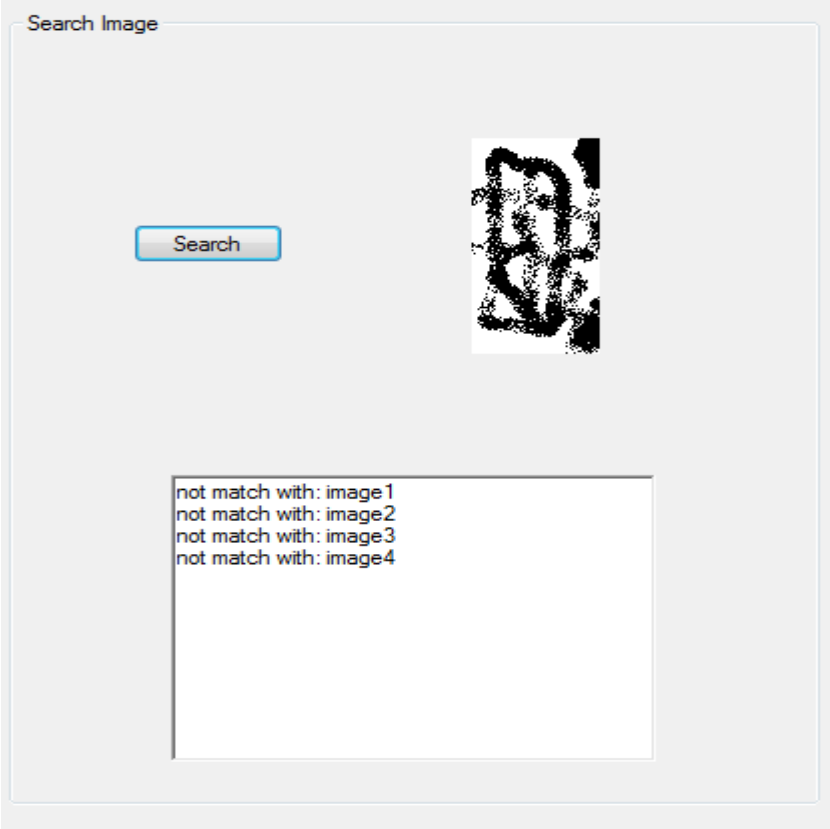

Fig. 9: result of third input image

VI. CONCULSTION AND FUTURE WORK

From this is concluded that the proposed algorithm is successfully applicable on any number of mono images. Although, it contains simple steps.

The implementation of the proposed algorithm is efficient. However, can add parallel implementation rather than use sequential implementation

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