International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056
Volume: 03 Issue: 04 | Apr-2016 www.irjet.net p-ISSN: 2395-0072

A Review on Histogram Value and Texture Descriptor Analysis for Image Retrieval

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Abstract Color and texture data have been the primitive image or picture descriptors in substance or content based picture recovery frameworks. In this article, a technique is introduced for image or picture mining taking into account examination of shading or color histogram values and surface descriptor of a picture. For this reason, three capacities are utilized for texture descriptor investigation, for example, entropy, local range and, standard deviation. To separate the shading properties of a picture, histogram values are utilized. The mix of the color or shading texture features of the picture or image gives a vigorous list of capabilities for picture recovery.

Key Words: Content Based Image Retrieval System (CBIR), Color Feature, Texture Feature

1.INTRODUCTION *(Size 11 , cambria font)*

With the enduring development of PC force, quickly declining expense of capacity and constantly expanding access to the web, advanced securing of data has turned out to be progressively well known lately. Computerized data is desirable over simple configurations in view of helpful sharing and dissemination properties. This pattern has propelled research in picture databases, which were about overlooked by customary PC frameworks because of the gigantic measure of information important to speak to pictures and the trouble of naturally examining pictures. At present, stockpiling is less of an issue subsequent to colossal stockpiling limit is accessible requiring little to no effort. Be that as it may, successful indexing and looking of vast scale picture databases stays as a test for PC frameworks.

1.1 CONTENT BASED IMAGE RETRIEVAL SYSTEM (CBIR)

The Content Based Image Retrieval System (CBIR) is a framework, which recovers the pictures from a picture accumulation where the recovery depends on an inquiry, which is indicated by substance and not by file or address. The inquiry picture is a picture in which a client is intrigued and needs to discover comparative pictures from the picture accumulation. The CBIR framework recovers significant pictures from a picture accumulation in light of programmed determined components. The determined elements incorporate primitive components like surface, shading, and shape. The proposed CBIR framework can be reached out at the other primitive component vectors like, shading and shape [1]. Shading is a component of the considerable dominant part of substance based picture recovery framework. However the vigor, viability, and effectiveness of its utilization in picture indexing are still open issues. In picture preprocessing, the elements used to speak to shading data and the measures received to register likeness between the components of two pictures are basically dissected [2]. Be that as it may, in spite of numerous examination endeavors, the current low-level elements are still not sufficiently capable to speak to picture content. A few components can accomplish moderately great execution, yet

their element measurements are normally too high, or the usage of the calculation is troublesome [3]. Highlight extraction is exceptionally urgent stride in picture recovery framework to portray the picture with least number of descriptors. The fundamental visual components of pictures incorporate shading and surface [4].Research in substance based picture recovery today is an enthusiastic taught, growing in broadness [5].Representative elements extricated from pictures are put away in highlight database and utilized for article based picture recovery [6]. Composition is another imperative property of pictures. Different surface representations have been explored in example acknowledgment and PC vision. Texture representation methods can be classified into two categories: structural and statistical. Structural methods, including morphological operator and adjacency graph, describe texture by identifying structural primitives and their placement rules. They tend to be most effective when applied to textures that are very regular. Statistical methods, including Fourier power spectra, co-occurrence matrices, shift-invariant principal component analysis (SPCA), Tamura feature, Wold decomposition, Markov random field, fractal model, and multi-resolution filtering techniques such as Gabor and Haar wavelet transform, characterize texture by the statistical distribution of the image intensity[1].

2. LITERATURE REVIEW

According to Dr. Divakar Yadav et al. introduced a search engine where a picture can be transferred from the neighborhood database of the client to recover information about it from the web. This is like the conventional catchphrase look based by a large portion of the web crawlers with the main contrast being that here a picture are transferred as a question instead of printed watchwords. The way that the picture being utilized as question makes the inquiry always confounded as the substance of the picture should be broke down and coordinated to discover the data comparing to the transferred picture. According to Mohammed Atique et al. proposed color, surface and shape data have been the primitive picture descriptors in substance based picture recovery frameworks. Here novel system for joining all the three i.e. shading, composition and shape data, to accomplish higher recovery effectiveness is displayed. The picture is apportioned into non covering tiles of equivalent size. The shading minutes and geometric minutes serve as nearby descriptors of shading and surface individually. This neighborhood data is caught for two resolutions and two matrix designs that give diverse points of interest of the same picture. Shape data is caught as far as edge pictures processed utilizing Image Segmentation for shape coordinating. The blend of the shading, composition and shape highlights give a vigorous list of capabilities to picture recovery. The outcomes are contrasted and standard techniques, similar to histogram based and effortlessness, on the premise of accuracy and time required for recovery. According to Ryszard S. Choras proposed CBIR (Content-Based Image Retrieval), visual elements, for example, shape, shading and composition are separated to portray pictures. Each of the components is spoken to utilizing one or more element descriptors. Amid the recovery, components and descriptors of the question are contrasted with those of the pictures in the database keeping in mind the end goal to rank each recorded picture as indicated by its separation to the inquiry. In biometrics frameworks pictures utilized as examples (e.g. unique finger impression, iris, hand and so forth.) are additionally spoken to by highlight vectors. The applicant's examples are then recovered from database by looking at the separation of their component vectors. The element extraction strategies for this application are talked about.

3. COLOR FEATURE EXTRACTION

Images retrieval or Pictures recovery can be performed from the computerized picture database on the premise of

shading, shape or composition. Among all these three components blend of composition and shading highlight works viably as a rule. Shading histograms are as often as possible used to look at pictures. Cases of their utilization in media applications incorporate scene break location and questioning a database of pictures Color histograms are well known in light of the fact that they are paltry to figure, and have a tendency to be powerful against little changes in camera perspective [7].In this paper dim level varieties are utilized to register the histogram of any picture. For this reason the shading picture is initially changed over into dim level picture. At that point the histogram qualities are processed for dark level varieties. As indicated by histogram values, pictures are separated from the database.

4. TEXTURE FEATURE EXTRACTION

Feature extraction is very crucial step in image retrieval system to describe the image with minimum number of descriptors [8]. Texture is an important property of many types of images. To extract the texture features, entropy, local range and standard deviation measures are used as performance parameters.

Texture = (*Entropy* + *Standard Deviation* + *Local Range*)

A) Entropy

Entropy is a statistical measure of randomness that can be used to characterize the texture of the input image. The value of entropy can be calculated as:

$$ENT = \sum_{K=1}^{M} P_K \log 1/P_K$$

Where,

ENT = Entropy of 1/P.

M = Total number of samples.

P = Probability of 1/P occurrences.

B) Standard Deviation

The standard deviation value can be calculated as:

$$S = \sqrt{\left(\frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2\right)}$$

Where,

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$$

Where,

n = Number of elements in the sample.

C) Local Range

LC = (max. value of chosen pixel – min. value of chosen pixel).

3. CONCLUSIONS

According to previous contemplated the combined value of color and texture feature works very effectively in most situations. It introduced a method for image retrieval using histogram values and texture descriptor analysis of image. It first converts a true color image in to a gray level image. It developed a mechanism for image retrieval based on the color histogram values. After extraction of color feature, texture features are extracted with the help of entropy, local range and standard deviation of image.

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