Supplementing Video Accessibility and Availability using Information Bound Reference and DCT

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ABSTRACT

We propose a new scheme to provide customer with different quality of same video and high quality of experience and also provide support for diverse operating systems with minimal upfront costs. The new scheme in our paper is to address the key algorithmic and system design challenges in realizing information bound reference base content retrieval framework for that Information Bound Reference must be useful for encoding immutable, durable to contention and compact. Using Information Bound Reference we can copy the content that is most suitable for their device and network condition. The hashing schemes in our proposals operate at the byte level. Thus, the names for different encodings of the same content will be different and preclude opportunities for leveraging the alternative versions.

Keyword— *DCT, Hashing, IBR, quantization, YCBCR,*

I. INTRODUCTION

Consumer are commonly vexed when they cannot view video links shared through social networks, sites and shared bookmarks sites on their devices either be affected performance and usability problems. At the same time other versions of the same content better suited to their device and network constraints may be attainable on other mediator hosting sites, these remain unprofitable because user cannot able to locate these videos and verify that these alternatives match the content publishers original bound.

To solve this problem in existing system it uses the information bound reference using histogram technique which estimates the images in the frames.

In this paper, we increase the accessibility and availability of video by using the DCT technique with information bound reference.

It provides the facility to the user to search and access the video of same content with different versions.

Information Bound Reference must be algorithmically derived from the underlying information contained in content.

It includes following modules:

- Uploading
- Features extraction
- Hashing
- URL Generation
- Matching

II. RESEARCH METHOD

1) Uploading: First of all we upload the video and store it in the database or in any specific folder after that we are going to split the video in to small frames.

2) Features extraction: In this phase discrete cosine transform (DCT) will applied to extract the color feature of the frames. The plane in RGB format will convert into YCBCR format.

3) Hashing: In this phase the extracted features are hashed into 64 bit combination and it will be stored in the database.

4) URL Generation: In URL Binding the hashed values of three planes are integrated to form the video URL the matched will be further performed using this URL.

5) Matching: The threshold will be fixed in the matching phase. The related videos are shown to the user.

A. Uploading Video

Uploading is the process of sending the data (in the form of video, audio, image, text etc.) in the remote database and remote servers.

In this phase, the admin will upload the file that will be processed to create a URL and finally stored in database. We are splitting video into respective frames.

Uploading is the process of transferring information from one computer system from another computer. To provide the effective accessibility and availability of video, it will be stored in the database to make it available for the users later.

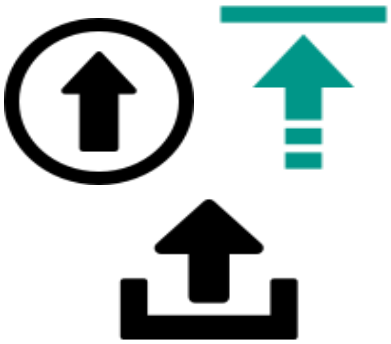

Fig1: Three Generic symbols for Uploading [1]

B. Feature Extracting from Video

We are going to convert the frames to YCBCR format after that we apply discrete wallet transform. The main intuition behind the frequency domain techniques is that the low frequency components provide a high level sketch of the image, and the high frequency component provides more fine-grained distinctions.

1) YCBCR: The YCBCR or Y'CbCr is the family of color space used in the video system and image files. The different between the RGB and YCBCR is that the YCBCR control the brightness and difference between two color components .Y represent the luma component and Cb and Cr represent the **blue** and **red** Chroma components. The prime on the Y is to distinguish the luma from luminance [2]

Fig 2.YCBCR color format

2) Converting YCbCr frames into RGB:YCbCr data can be double precision, but the color space is particularly well suited to uint8 data. For uint8 images, the range for Y is [16,235], and the range for Cb and Cr is [16,240].YCbCr leaves room at the top and bottom of the full uint8 range so the additional (non image) information can be included in a video stream.

For Example, The following convert an RGB image to YCbCr color format.
RGB=imread ('animal.jpg');
YCBCR=rgb2ycbcr (RGB); [3]

Y'CbCr (601) from R'G'B'
==========

Y' = 16 + 65.481 * R' + 128.553 * G' + 24.966 * B'
Cb = 128 - 37.797 * R' - 74.203 * G' + 112.0 * B'
Cr = 128 + 112.0 * R' - 93.786 * G' - 18.214 * B'
.....
R', G', B' in [0; 1]
Y' in {16, 17, ..., 235}
With foot room in {1, 2, ..., 15}
Headroom in {236, 237, ..., 254}
Sync. In {0, 255}
Cb, Cr in {16, 17, 240} [3]

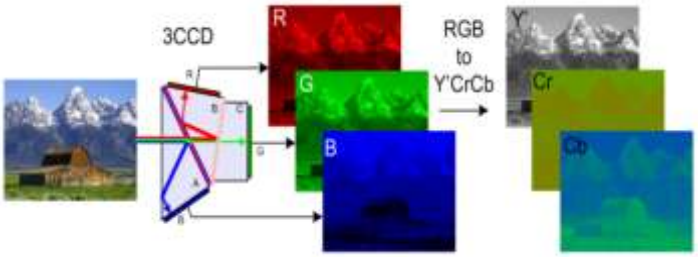

Fig 3: converting RGB frames into YCbCr frames [3]

C. Hashing

Hashing is a method for sorting and searching data. Hashing makes it easier to add and remove elements from a data structure.

We take the lower end sub matrix(rows 1-8,columns 1-8)of Y DCT matrix-which capture more than 95% of the signal energy-and generate a compact 64-bit summary,Hash64,by first finding the median of the coefficients and then compute each coefficient to be 1or 0 calculate on whether it is high or low than median. This compressed summary reduces the cost of checking if two information bound reference are exact values.

This hashing method is used to search the IBR's in the databases which helps the customer to provide the effective video which is most appropriate for their devices and network conditions.

This method uses the storage space called "hash table" which is used to store the IBR's which can be used in the later to match the IBR's of the searching video. Each location in the hash table is often called "Slot"

Hashing method is used to Search and sort the stored information in the database. Using this technique it is easy to add or delete the information which is stored in the database or hash table.

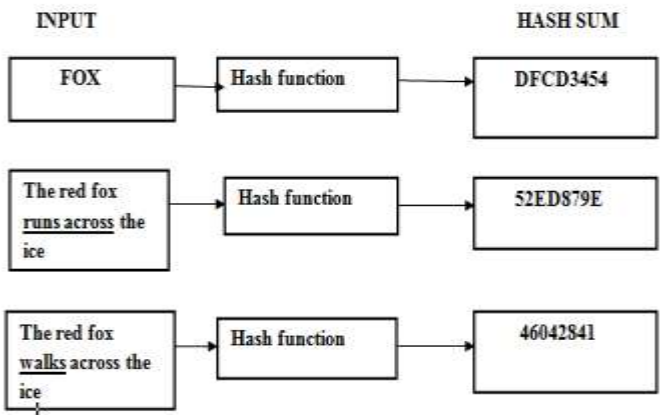

Fig 4: Hash Function

1)Quantizing Coefficient:This technique is used to abbreviate the range of values in to the signal unit of value.

2)DCT technique used in IBR Generation:DCT stands for Discrete Cosine Transform, a much improved transform method for energy compaction. The great and more concentrated histogram gathered with the DCT.

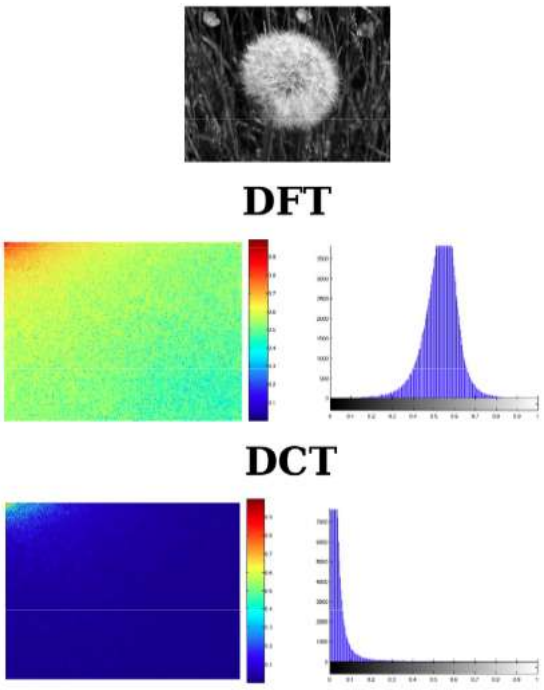

Fig 5: Comparison between DFT and DCT [4]

3) Image Compression: Image compression is the process of decreasing the size of the image in Bytes not in the Quality of the image.

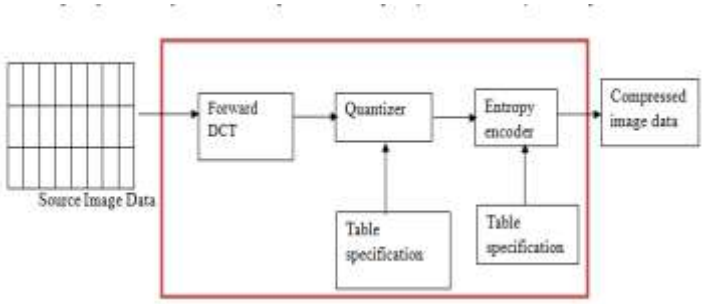

Fig 6: Image Compression Blocks

4) DCT Matrix: The DCT matrix is used to store the dct values of the frames in a row column format.

D=dctmtx (n);

Return the n-by-n DCT (discrete cosine transform) matrix. D*A is the DCT of the columns of A and D' *A is the inverse DCT of the columns of A (when A is n-by-n).

5) Discrete Cosine Transform: The Discrete cosine Transform is a technique for converting a signal into elementary frequency Components.

It is widely used in image compression. Here we develop some simple function to compute the DCT and to compress images.

It is a transform method used to transform the video into set of values to compute the IBR's.

Video are the group of visual images which can be spitted into frames to store in a database later it can be matched with the Searching IBR's.

In this paper the DCT method is used to Extract the feature from the video to generate the URL.

The Discrete Cosine Transform may use following algorithm:

6) Direct 2-D Method: The 2-D transforms, DCT and IDCT, will be applied directly on the NxN input data items.

$$C(u,v)=\alpha(u)\alpha(v)\sum_{x=0}^{N-1}\sum_{y=0}^{N-1}f(x,y)\cos\left[\frac{\pi(2x+1)u}{2N}\right]\cos\left[\frac{\pi(2y+1)v}{2N}\right], \quad [5]$$

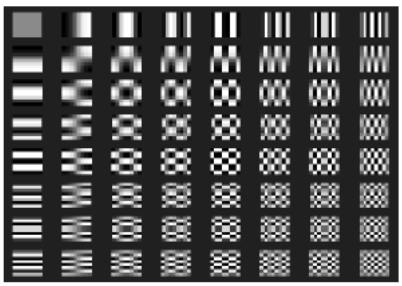

Fig 6: Two dimensional DCT basic function (n=8).neutral gray represents zero. [6]

7)Row-Column Method: The 2-D transform can be carried out with two passes of 1-D transforms.

The separability property of 2-D DCT allows the transform to be applied on the one dimension (row) then on the other (column)

It requires 2N instance of N-point to implement an NxN 2-D DCT.

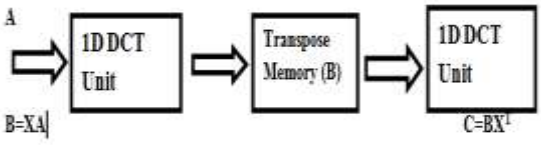

Fig 7: Image Compression Blocks

D. Uniform Resource Locator

The uniform resource locator is a specific type of Uniform Resource Identifer.The URL is used to locate the resource in the web .It is used to specify the specific webpage and file in the internet.

The URL may include Protocol, host name, file name. The URL usually occurs in the web pages to locate the web resource in the websites. The web resources may include video, audio, images, database access etc..,

Generating URL:

After extracting the features from the images in the video the IBR are generated based on the features of the image. Then we need to generate the URL for the Video which is stored in the database for the user accessibility.

E. Matching

Matching is the analytical technique which is used to evaluate the effect of the treatment by comparing the treated and the non-treated units in an observational study or quasi-experiment.

Matching is the process of comparing the stored IBR's with the searching video IBR to get the perfect match for the searching video to get the different format of the same content available in the other party websites.

III. RESULTS AND ANALYSIS:

In our paper, the Information bound references are used to generate the URL for the video to provide the convenient way to access the matching videos for the searching video. First the admin log in the web page with the unique ID and Password, if the username and password is valid then the admin login to the webpage where he/she has list of options like Upload, frame extraction, features extraction, Url Generation, Matching and hashing methods, each may perform different action based on the input data, these operations are related with each other. This paper helps the user to access the high quality video's which is approximately suit for their devices.

User may login to the web application with te help of unique user name and password which was provided to them when they register in to the application.

The Existing system using histogram does not provide convinent way to search for the related videos because it does not provide an effective way to generate the information bound reference, to overcome this problem we are implementing the DCT(Discrete Cosine Transform)to extract the color feature from the extracted frame (images)then the IBR's are used to generate the URL for the matching video in different version.

After generating the IBR they need to match the IBR with searching video IBR.Generating the IBR for video is very difficult process so we are generating the IBR for sequences of images.

IV.CONCLUSION

This paper provides the effective way to access the video which is suitable for their devices, and it also reduce the in front cost and operating system efforts. It improves the effective way to access the video and implementing the information bound reference. The productive algorithm called DCT is used to generate the IBR's.consumers can seamlessly choose different from the most appropriate fit for their devices and operating constraints, and also verify that the variants match the publisher's intent. It allows the users to express other type of constraints as well and has broader Potential to enable new applications.

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