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VIDEO CONTENT RETRIEVAL USING IMAGE FEATURE SELECTION

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ABSTRACT

Multimedia is any combination of content written in text, drawing, and sound, moving picture, delivered to you by computer or other electronic or digitally manipulated means. Through the rapid growth of multimedia technology, multimedia content can be created, shared and distributed easily. The amount of available digital resources is continuously increasing, promoted by a growing interest of users and by the development of new technology for the ubiquitous enjoyment of digital resources. The acquisition and storage of video data is an easy task but retrieval of information from video data is challenging .The general method of representing each video segment is shot that is a sequence of key frame(s) where those frames contained the 'meaningful' frames also the frame contained the important contents of the shot. The key frame(s) based shot method is specifically assisted for searching the video content as clients provided image query/search where an image will be matched with the indexed key frames with assist of resemblance distance. As a result, the key frames selection is most significant and several methods are used to automate the process. This paper proposes a new technique for key frame selection. The proposed method show significant ally good and the experiments prove the above statement.

Index Terms—Video data mining, Data mining, Key frame extraction, Knowledge Extraction, Multimedia Data's. Data extraction, Video dates, Frames.

I. INTRODUCTION

Data mining is a process of detecting knowledge from a given huge set of data. Of the available huge data set, multimedia is the one which contains diverse data such as audio, video, image, text and motion, and video data plays a vital role in the field of video data mining. In short, the application of video data is called video data mining. Data mining technique can be applied in various documents. Multimedia information has be-come increasingly prevalent and it constitutes a significant component of multimedia contents on the Internet [1]. Since multimedia information can be represented in various forms, formats, and dimensions, searching such information is far more challenging than text-based search [2]. While some basic forms of multimedia retrieval are available on the Internet, these tend to be inflexible and have significant limitations.

The key frame selection is having two main issues:

1. The number of key frame(s) utilized, (The first issue is tackled by where the amount of key frames for every shot will be decided arbitrarily using the shot length)

2. The significant representative frame(s) selection in a shot. (The second issue is generally complicated for choosing the frames automatically with maximum sem-antic value. This issue is handled through minimizing the redundant frames with the help of the methods, for example relevance ranking) existing methods for sear-ching video to identify co derivatives have substantial limitations: they are sensitive to degradation of the video; they are expensive to compute; and many are limited to comparison of whole clips, making them unsuitable for applications such as monitoring of continuous streams. Most of the previously proposed search methods require direct comparison of video features between the query clip and the data being searched, which is computationally expensive.

II. EXISTING SYSTEM

A new approach is carried out for deep concept-based multimedia information retrieval, which focuses on high-level human knowledge, perception, incorporating subtle nuances and emotional impression on the multimedia resources.

It provides a critical evaluation of the most common current Multimedia Information Retrieval approaches and proposes an innovative adaptive method for multi-media information search that overcomes the current limitations.

The main focus of this approach is concerned with image discovery and recovery by collaborative seman-tic indexing and user relevance feedback analysis.

Through successive usage of our indexing model, novel image content indexing can be built from deep user knowledge incrementally and collectively by accumulating users' judgment and intelligence.

A. Drawback of Existing System: This approach does not consider about the false positives and false negatives in the given video.

The fault tolerance value is not reduced.

Incorporating genetic variations into the design will affects the accuracy of this work.

It considers only the action based video mining.

Human motion detection specifies only a particular region.

B. Advantage of Proposed System: The proposed method can find the best matching sequence in many messy match results, which effectively excludes false "high similarity" noise and compensate the limited description of image low-level visual features.

Compared to other search method, this method can also reduce the detection time.

It first pre-processes the query image and extracts the features of that image.

Trained videos are stored in the database and the features of the trained videos are clustered using the extracted features of the query input image.

Finally, features matching procedure is implemented to identify the similar feature and retrieves the relevant video. This method provides an efficient video retrieval using an image as input. Efficient clustering process is implemented.Features matching provide an efficient accurate similar video retrieval

III. LITERATURE SURVEY

The main objective of the paper is to retrieve the video using a clustering mechanism. To implement a new feature extraction method. Use a new clustering mechanism for clustering key frames. Identifying pattern using a new similarity mechanism. Discovery of Collocation Patterns: from Visual Words to Visual Phrases [3]. The problem stated here is the visual word lexicon construction by using clustering primitive visual features, and a visual object can be described by a set of visual words. However, in practice, the clustering of primitive visual features tends to result in synonymous visual words that over-represent visual patterns, as well as polysemous visual words that bring large uncertainties and ambiguities in the representation. Real-Time Human Pose Recognition in Parts from Single Depth Images [4] the problem of predicting the human pose recognition in parts in a single depth image is discussed here. A new method should be proposed to quickly and accurately predict the position of the body joints from a single depth image. On Probabilistic Packet Marking for Large Scale IP Trace back [5] proposed an approach to IP traces back based on the probabilistic packet marking paradigm. Which we call randomize-and-link, uses large checksum cords to “link” message fragments in a way that is highly scalable, for the checksums serve both as associative addresses and data integrity verifiers. Video Mining with Frequent Item set Configurations [6] here a new method for mining frequently occurring objects and scenes from videos is proposed. Object candidates are detected by finding recurring spatial arrangements of affine covariant regions.

IV. EXPERIMENTAL SETUP

A. Creation of train videos: Admin Database is created. Initially the reference videos are converted into frames and that are stored into the database. Then, segment all the frames, and three frames are extracted from each segment [7,8]. These three frames are the first frame, the key frame and the last frame of this segment. Select the key frames from the every segment of the video. Key frame is determined by the frame that is the most same to the average frame. (I.e. The average feature value of all the frames within the segment) [9]. Finally each key frame of the feature values is stored into the feature database. For finding performace of given clustering different video files are taken example news, song, debut, sports, cartoon type of video files are taken, each video files first converted into frames and duplicates are eliminated[10]. Process are explained in terms of algorithm shown below.

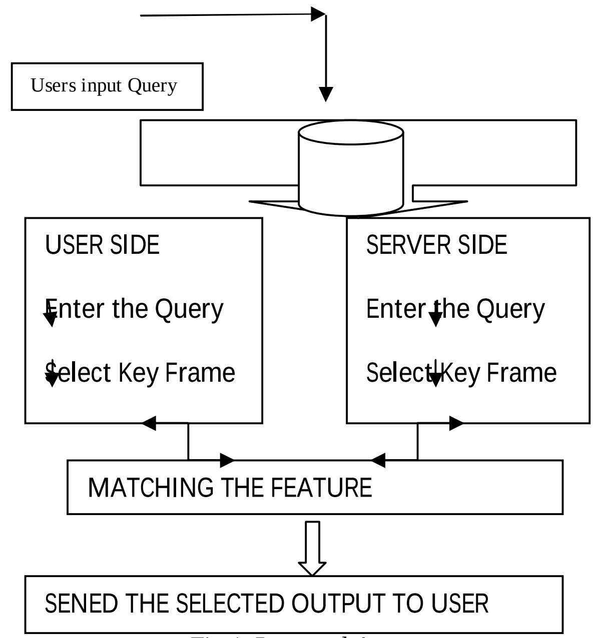

Fig 1. Proposed A

Video Training Set Algorithm:
Fig 1. Proposed Architecture
Step1: Select video file
Step2: Extract the frames of that video
Step3: Preprocess the extracted frames
Step4: Segment the frames using the low level features
Step5: Apply Sift feature selection method
Step6: video frame matching
Step7: Retrieve the matched results

B. User’s image query : Input the query image and add some specific transformation in a query image such as frame-droppings, noise, text/pattern additions, and picture-in-picture transformation windows and then query image is analyzed. Features are extracted from these query images and compared to those stored in the reference database[11]. The matching results are then analyzed and the detection results are returned.

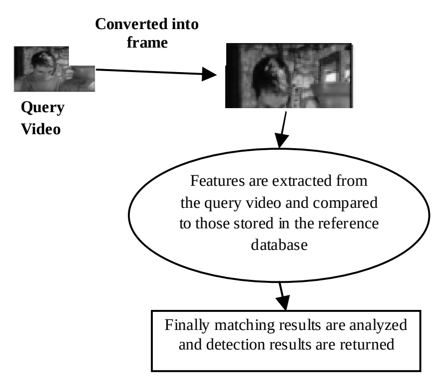

Fig 2 User Video query

C. Video retrieval

The proposed graph based video sequence matching method is utilized for matching the each frame from the video sequence. According to the process cluster the segmented frame and produce the retrieval results

[12]. Whenever the user enters the query input image the system extracts the features of input image query and finds the similarity of the key frame and retrieve the results. Here input video are trained first , using image feature value here we took image pixel by using this feature video files are trained [13]. Trained frame values are stored in the server side for further retrieval process.

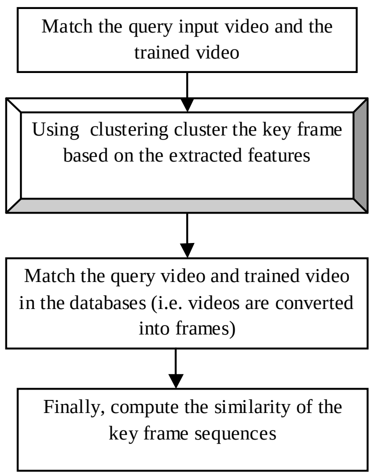

Fig 3. Steps of Video retrieval process

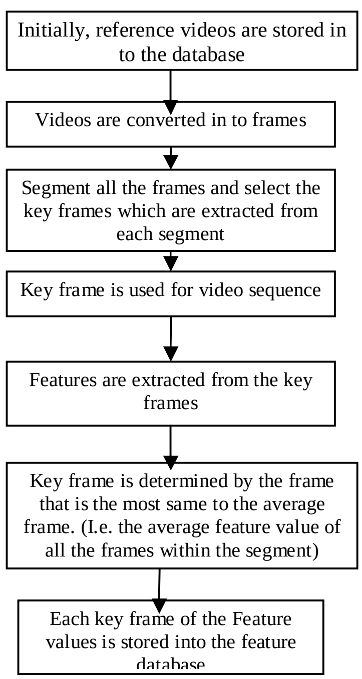

Fig 4. Flow steps of Video training process

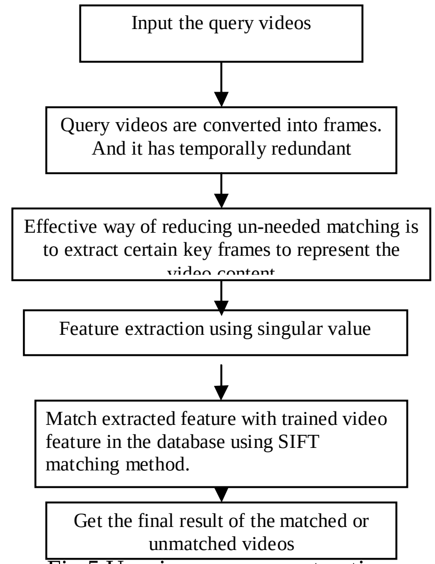

Fig 5 User image query extraction

Algorithm for video retrieval

Step1: Take a sample number of videos

Step2: Extract the frames of that video

Step3: Preprocess the extracted frames

Step4: Segment the frames using the low level features

Step5: Apply clustering algorithm to cluster the frames

Step6: Store the clustered frames in the database

Step7: Give an image input query

Step8: The server extracts the features and processes the features of the image

Step9: Find the similarity of the image with the video content

Step10: Retrieves the related video to the requested user.

V. CONCLUSION & FUTURE ENHANCEMENT

Video Content management and mining has become more and more important in recent years. This is due to the growing amount of digital video data available. While on the one side, the amount of audio/video data produced daily is rapidly increasing due to the vast amount of digital devices like camcorders, digital cameras and surveillance cameras etc, on the other, we still lack the efficient tools to manage and mine this huge amount of video data Considering the limited man-power, it is much expected to develop retrieval methods which use features automatically extracted from videos. However, since features only represent physical contents (e.g. color, edge, motion, etc.), retrieval methods require knowledge of how to use/integrate features for retrieving relevant videos to the given image query. The proposed algorithms have been applied to several content-based multimedia retrieval applications, including cross-media retrieval, image retrieval,. Results are proved that the proposed method is more efficient.

The future enhancement of these adding additional features will produce more accurate results. The same test against different video feature such as motion, text and more.

VI. EXPERIMENTAL OUTPUT

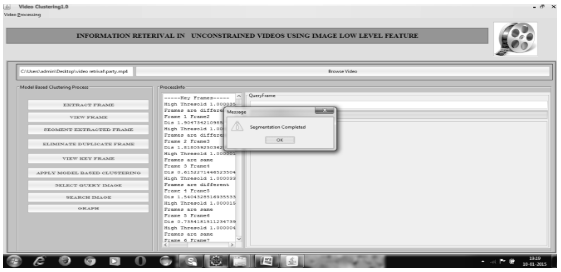

Fig 7. Video Segmentation

Fig 8. Video shots (Frames)

Fig 9.Duplication Removal operations

Fig 10 .Trainings the Input Frames

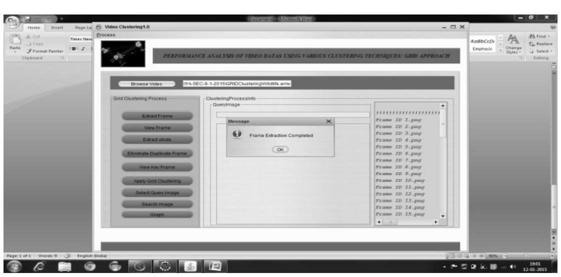

Fig 11. Clustering the frames

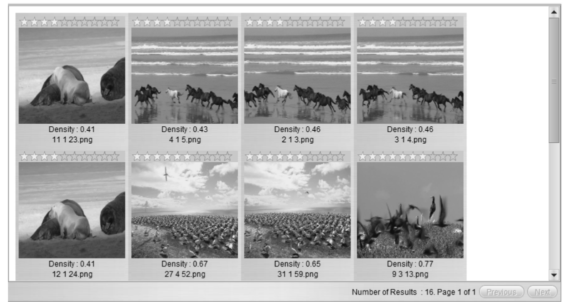

Fig 12. Image Comparison based on user input image

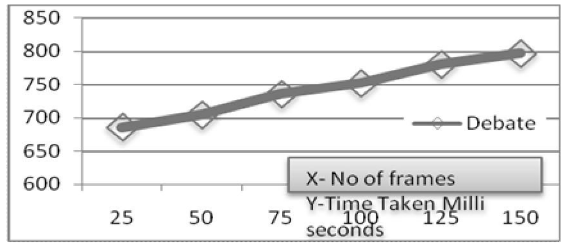

Fig 13. Performance graph for news video file

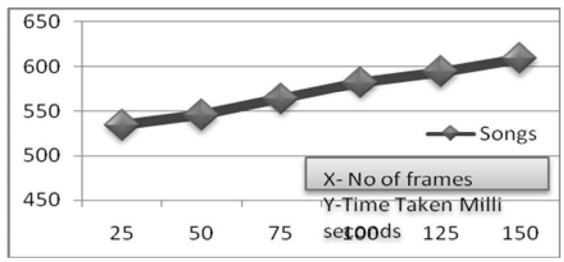

Fig 14.Performance graph for song video file

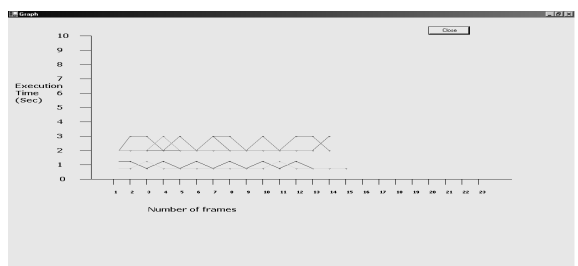

Fig 15. Comparison Graph for Frame Matching

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