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VIDEO SUBSTANCE EXTRACTION USING IMAGE FETURE POPULATION BASED TECHNIQUE

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ABSTRACT

In networking and multimedia technologies the digital video contents over the web availability is growing at a scare speed. By using many different devices the huge amount of videos can be played and downloaded from everywhere. The tremendous success of websites like YouTube, Google and iTunesvideos are based on the popularity where people can upload and download any videos. . In such scenario, a tool for performing video browsing would be really appreciated. To overcome the browsing the video files today many indexing, techniques are proposed. In recent years video content management and mining has become more important. This is because of increasing amount of digital video system. The amount of audio/video data produced is rapidly increasing due to various digital equipments. Here a new mechanism is proposed in this work which implements a population based clustering mechanism for clustering and efficient video retrieval.

Keywords: data mining, video data mining, knowledge extraction, clustering, segmentation.

INTRODUCTION

Nowadays the users used many different types of video sharing websites like YouTube and yahoo videos for sharing and viewing the videos. In the existing work they describe the human action fetching from client videos on the web. It was fully focused on actor-independent action. The main drawback of the existing process only concentrate on action based video mining. Human motion detection specifies only a particular region and only boosts the selected features.

In this paper we proposed a clustering techniques used for easy retrieval. The video format we can't able to find the accurate points, so we convert the video into frames format. The frames are stored in the database. After completion of noise removal the frames are grouping together with the help of RGB value. The key frames taken from each segment, and then find the average value of key frame. K-Nearest Neighbour algorithm is used for clustering process. Finally features matching produce the relevant image for query image.

LITERATURE SURVEY

The main objective of this paper is to retrieve the video using a clustering mechanism. To implement a new feature extraction method a new clustering mechanism is used for clustering key frames by identifying pattern using a new similarity mechanism."Discovery of Collocation Patterns: from Visual Words to Visual Phrases" (Junsong Yuan *et al*, 2007). 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"(Jamie Shotton*etal*,2013) 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 IPTraceback" (Michael T. Goodrich *et al* 2007) 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 checksum serve both as associative addresses and data integrity verifiers. Video Mining with Frequent Itemset Configurations (Till Quack *et al*, 2013), 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.

EXISTING SYSTEM

- Visual discovery pattern fully concentrate with shift scheme for fast and protection human motion for detection and segmentation. In this existing system proposed deployed over 3D-SIFT Interest points.
- In this pattern model it's provide two different types. The high-level abstraction frequently used the A Prior based frequent item to discover the video patterns.
- Bag-of-features and the mined patterns used for proposed the optimal human action, with ranking the sample queries into the boosting objective.
- Boosting based feature selection is used for best fits the potential action.

DISADVANTAGES

- It considers only the action based video mining.
- Human motion detection specifies only a particular region.
- Only boost the selected features.

PROPOSED SYSTEM

- 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 queried input image.
- An efficient K-Nearest Neighbour clustering approach is implemented for clustering process.
- Finally, features matching procedure is implemented to identify the similar feature and retrieves the relevant video.

ADVANTAGES

- 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.

DESIGN AND DEVELOPMENT

System Implementation is the final phase of the paper which reveals us the real outcome of the previous steps. Here the software based tasks directly dealing with the papers target is carried out. The implementation explains about the ways through the documentation was carried out. This includes the software support, modules and their implementation.

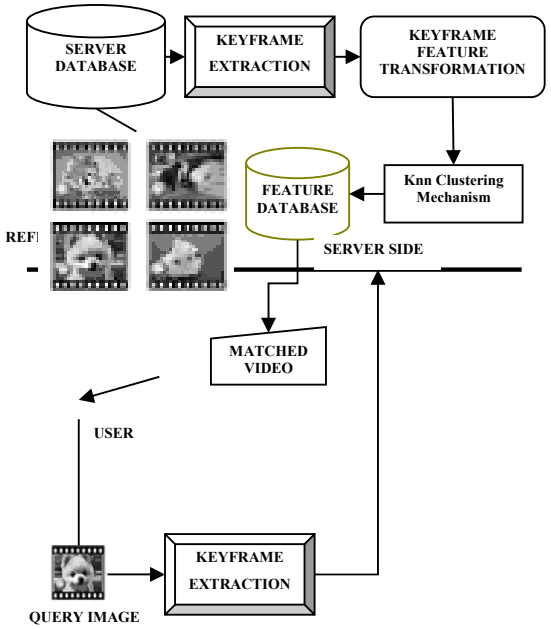


Figure-1. Proposed architecture.

EXPERIMENTAL SETUP

Algorithmic approach

Step1: Take a trial number of videos
Step2: Mine the frames of that video.
Step3: Use histogram Technique remove duplicate frames.
Step 4: Preprocess the extracted frames
Step 5: Segment the frames using the low level features
Step 6: Apply population based clustering algorithm to cluster the frames
Step 7: Store the clustered frames in the database
Step 8: Process repeat for all input video files. This process also called training process.
Step 9: Extract needed frame give an image input query
Step 10: The process extracts the features and processes the features of the image
Step 11: Find the relationship of the image with the video content
Step 12: Retrieves the related video files to the requested user.

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. The key frames are extracted from each segment. Finally each key frame values are stored into the feature database.

User's query

Users give the query image and do all transformation process like noise removal, transformation and analyse the image. Query image is compared with the reference database and then it provides the matching results.

Clustering process

Normally, the video frames are temporally redundant. With the help of key frames we can easily identify the similar frames to represent the video content. By KNN clustering method, Cluster all the frames and produce the result of clustered frames.

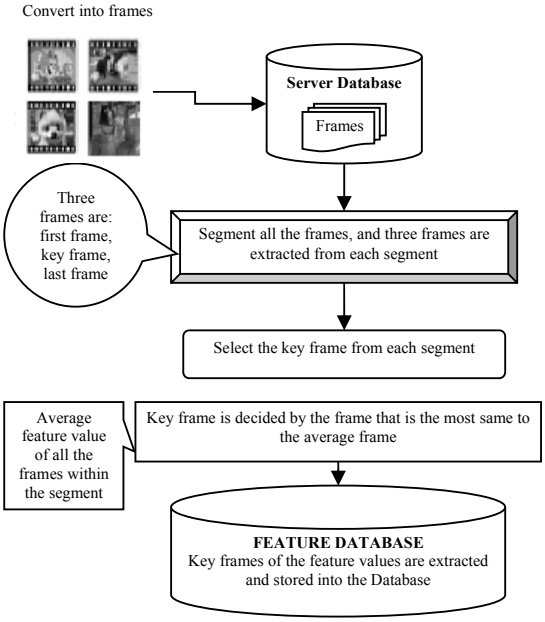


Figure-2. Train the video files.

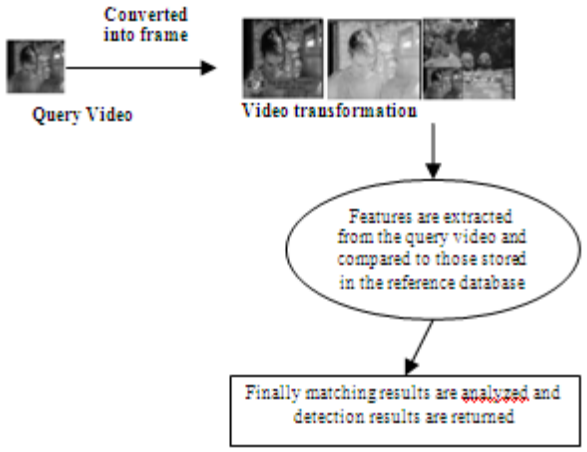


Figure-3. Create query video frames.

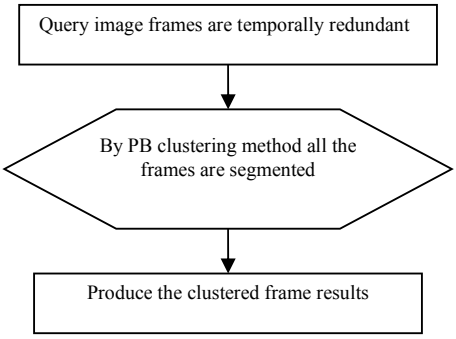


Figure-4. Clustering process flow diagram.

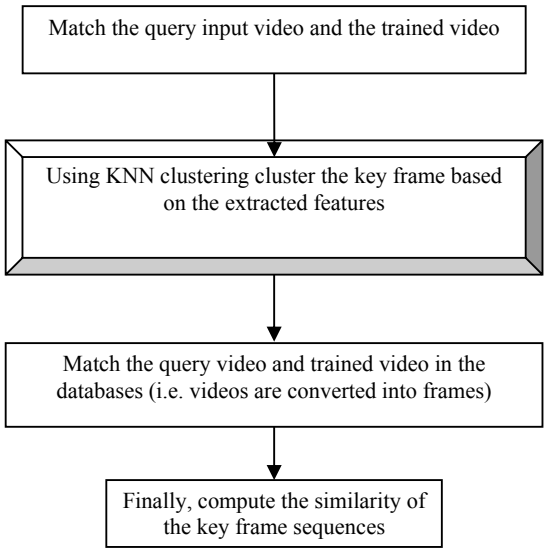


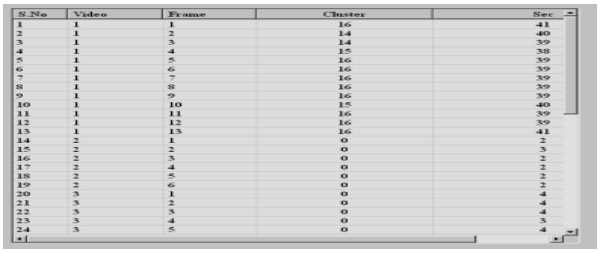
Figure-5. Video retrieval process flow diagram.

Video retrieval

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

6. EXPERIMENTAL RESULTS AND DISCUSSIONS

Figure-6. Cartoon video files frame conversion.



S.No	Video	Frame	Cluster	Sec
1	1	1	16	41
2	1	2	14	40
3	1	3	14	39
4	1	4	15	38
5	1	5	16	39
6	1	6	16	39
7	1	7	16	39
8	1	8	16	39
9	1	9	16	39
10	1	10	15	40
11	1	11	16	39
12	1	12	16	39
13	1	13	16	41
14	2	1	0	2
15	2	2	0	3
16	2	3	0	2
17	2	4	0	2
18	2	5	0	2
19	2	6	0	2
20	3	1	0	4
21	3	2	0	4
22	3	3	0	4
23	3	4	0	3
24	3	5	0	4

Figure-7. Cluster formation.

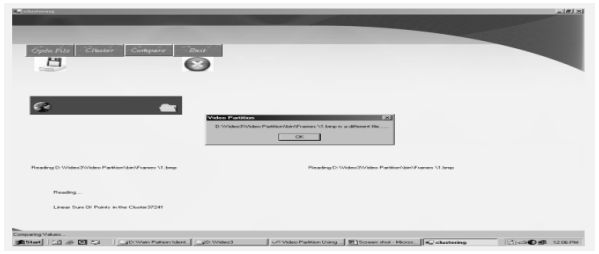


Figure-8. Frame comparison process.

Figure-9. Frame duplication elimination process.

Figure-10. Frame comparison1 input 1 output.

Figure-11. Frame comparison1 input 3 output.

Figure-12. Matching frame result.

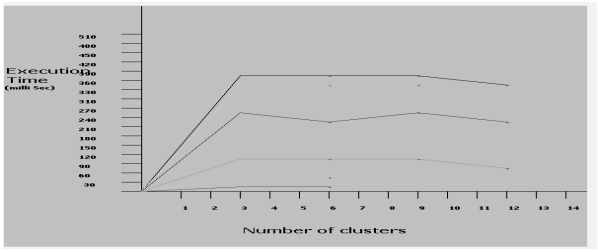


Figure-13. Performance graph for proposed system.

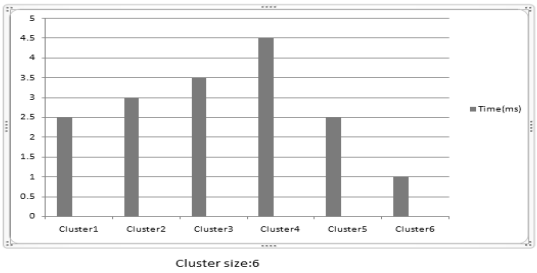


Figure-14. Performance result for cluster comparison.

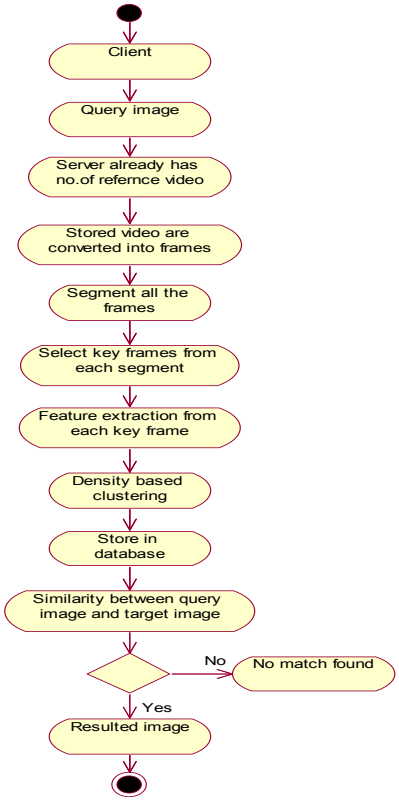


Figure-15. Overall flow diagram.

CONCLUSIONS AND FUTURE ENHANCEMENT

This work presents an efficient video clustering mechanism for exact video retrieval. Initially a number of sample videos are taken and trained using population based clustering approach. This clustering algorithm clusters the nearest neighbour frames and store it in the database. When a user gives an input query image the server searches the image related to the video and retrieves the relevant video. This work produces an efficient video retrieval approach using a cluster based approach and efficiently retrieves then other existing methods.

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