# Content based video extraction system

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***Abstract-*** *Video extraction is getting its popularity in multimedia based fields which has its genealogy rooted in artificial intelligence, digital signal processing, statistics, natural language understanding, databases, psychology, computer vision, and pattern recognition. In this paper presented a System that supports video extraction from video database on content basis using SURF (speeded up robust feature) algorithm Here videos will be extracted on the basis of content of the image or video. Videos extraction consists following two steps: First create database of videos. Then extract videos from the created video database. The video extraction system includes various steps: Video Segmentation, Key frames Selection, Feature Extraction and similarity matching.*

***Keywords***- Video Retrieval, Content Based Video Extraction, SURF Algorithm.

## I. INTRODUCTION

Multimedia field is getting its importance in other major fields so that the multimedia data is growing day by day, in some sort of operations in some fields the user needs to retrieve some specific videos from the video warehouse for that the traditional systems such as text based video retrieval methods are not a better choice for the video retrieval, so that the Content based video retrieval method is presented for retrieving the video from video database. Content based means that the search will analyze the actual content of the video. The term 'Content' in this context might refer colours, shapes, textures. In text based video retrieval system videos get retrieved based on the static keywords or caption information presented in the video.

The video extracting system processes the presented input query (image or short video clip), performs operations such as segmentation, key frame selection, feature extraction using SURF (speeded up robust feature) Algorithm and similarity matching operation between the feature vector of input query and feature vector of database videos and finally displays the highly matched videos to end user.

The content based video retrieval system can be implemented in three different ways those are:

1. Extracting videos by giving input query as an image
2. Extracting videos by giving input query as small video clip
3. Extracting videos by giving input query as real time input video

## II. RELATED WORK

Many researchers made related work regarding the content based video retrieval; efforts have led to the development of methods that provide access to image and video data. These methods are used in various applications and fields such as Computer Vision and Pattern Recognition.

[1] In this paper Oscar D. Robles et. al. proposed the two new primitives for representing the content of a video. These primitives are used in the content based video retrieval system the techniques presented in the paper titled "Towards A Content-Based Video Retrieval System Using Wavelet-Based Signature". First a multi-resolution representation is computed using the Haar Transform. Then two types of signatures are extracted from the multiresolution representation those two signatures are: one based on multi-resolution global color histograms and the other one based on multi-resolution local color histograms. The tests performed in the experiments include the recall measure achieved with the proposed primitives

[2] In this survey paper describedvideo retrieval process. Different algorithms for video retrieval on content basis are explained such as SIFT algorithm, SURF algorithm. The framework of content based video retrieval system is illustrated and results are evaluated and compared.

[3] The report on SURF (speeded up robust feature) algorithm. Author explained each and every aspects of SURF algorithm with illustrative examples. The processing steps involved in the SURF algorithm are given with detailed description and results.

[4] In this research article presented on video mining and data mining. This reportProvides the brief information about the video mining and its applications.

## III. PROPOSED SYSTEM DESIGN

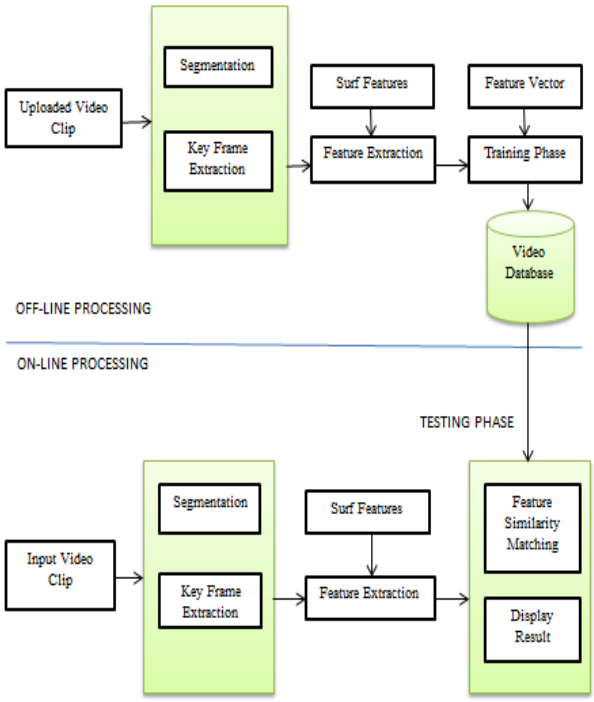


Figure: Video Extraction System on Content Basis

As shown in above figure during the offline processing stage, first all videos in video database undergoes a preprocessing phase, which includes Segmentation, Key Frame extraction modules. During this preprocessing stage, the input video gets converted into a set of key frames. From this identified key frames, SURF features are extracted using SURF algorithm and feature vector is created. This feature vector is then passed into a training phase. Next in online processing stage, for a given input query image or clip to retrieve the video, feature vector of input query is computed. Then similarity matching is performed between the feature vector of input query and feature vector of videos in video database. From the list of similar videos the highest ranking videos are retrieved.

## IV. RESULTS

User can retrieve specific videos from video warehouse in three ways that is by an input image, by input short video clip, by real time video clip. This process can be implemented in MATLAB tool by creating easily accessible GUI. If user gives an input query as an image, the videos which consists that image will be retrieved. If the user gives input query as short video clip then the highly matched videos with the input video clip in video database is get retrieved. If the user gives input query as real time video clip, the related and matched videos in video database are extracted.

## V. CONCLUSION

Video extraction on content basis using SURF algorithm will retrieve videos from the video database efficiently and works better than the traditional video retrieving methods. Video extraction performed by using an efficient SURF (Speeded up robust feature) algorithm. SURF provides scale and rotation invariant detector and descriptor. Repeatability, distinctiveness and robustness are unique features of SURF.

## REFERENCES

[1] Oscar D. Robles et al - “Towards a content-based video retrieval system using wavelet based signature”.

[2] Deepika. H Patel - “content based video retrieval – A survey”.

[3] AnquiXu.,GauranNamit - “SURF-Speeded up robust features” – Report

[4] Shrutiaggarwal, Rapinderkaur – “Review on video mining”.

[5] PriyaRajendran.,Shanmugam T.N - “An enhanced content based video retrieval system based on query clip”

[6] Hamdy K Elminiir, Sahar F sabbeh , Mohamed Abu Elsoudayagamal - “Multi-feature content based video retrieval using high level semantic concept”.

[7] B.B Meshram.,B.V Patel - “Content based video retrieval systems”