Retrieving Stream of Video Frames Using Query Processing

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Abstract- This paper presents a graph transformation and matching approach to identify the stream of video frames using query processing. With query processing algorithm to retrieve similar frames, the mapping relationship between the query and database video is first represented by a bipartite graph. The densely matched parts along the long sequence are then extracted, followed by a filter-and-refine search strategy to prune some irrelevant subsequences. During the filtering stage, Maximum Size Matching is deployed for each sub graph constructed by the query and candidate subsequence to obtain a smaller set of candidates. During the refinement stage, Sub-Maximum Similarity Matching is applied to identify the subsequence with the highest aggregate score from all candidates, according to a robust video similarity model that includes visual content, temporal order, and frame alignment information. In the filter-and-refine phase, some non similar segments are first filtered; several relevant segments are then processed to quickly identify the most suitable segments.

Index Terms- query processing, video frames, network packets segments.

I. INTRODUCTION

The project aims at building an effective video-information representation and harnessing system. The representation scheme should be applicable to most videos and be rich enough to allow for various kind of video information encoding and access. The system should extract video objects and other semantic features from video sequences, characterize object interactions, scene activity and events, with minimum possible human intervention, using both visual and aural information. A novel representation modality of the video sequences in terms of these descriptors will be evolved which will permit a variety of useful operations like generation of video summaries, application driven semantic transcoding of video content and hyper-linking of video segments exhibiting similarity of content or other semantic relation(s),which are quintessential to content guided video browsing in a hyperlinked organization of a video collection. For universal interpretation and use of the semantic concepts in video information there is a need for associated domain ontology. This will make possible integration of the system with the Semantic Web and allow it to interact with other knowledge based information systems in the distributed environment. The proposed system will also provide for ontology driven access mechanism to the video based information. Many investigations have been made on content-based video retrieval. However, despite the importance, video subsequence identification, which is to find the similar content to a short query clip from a long video sequence, has not been well addressed. This paper has presente**d** an effective and efficient query processing strategy for temporal localization of similar content from a long un segmented video stream, considering target subsequence may be approximate occurrence of potentially different ordering or length with query clip.

II. PREVIOUS WORK

The project aims at building an effective video-information representation and harnessing system. The representation scheme should be applicable to most videos and be rich enough to allow for various kind of video information encoding and access. The system should extract video objects and other semantic features from video sequences, characterize object interactions, scene activity and events, with minimum possible human intervention, using both visual and aural information. A novel representation modality of the video sequences in terms of these descriptors will be evolved which will permit a variety of useful operations like generation of video summaries, application driven semantic transcoding of video content and hyper-linking of video segments exhibiting similarity of content or other semantic relation(s),which are quintessential to content guided video browsing in a hyperlinked organization of a video collection. For universal interpretation and use of the semantic concepts in video information there is a need for associated domain ontology. This will make possible integration of the system with the Semantic Web and allow it to interact with other knowledge based information systems in the distributed environment. The proposed system will also provide for ontology driven access mechanism to the video based information.

III. PRESENT WORK

With the demand for visual information of rich content, effective and efficient manipulations of large video databases are increasingly desired. Many investigations have been made on content-based video retrieval. However, despite the importance, video subsequence identification, which is to find the similar content to a short query clip from a long video sequence, has not been well addressed. It is often undesirable to manually check whether a video is part of a long stream by browsing its entire length.

IV. MODULES

In this application we have mainly two systems they are

- Video Copy Detection
- Video Similarity Search
- The modules in these two systems are explained briefly.

Video Copy Detection

Target system should have servers like FTP,HTTP,SSH etc.,

This server software should accept incoming connections from the remote

Detection System design

Detection System module

User Interface module

Detection System modules

i. Packet Capturing Module
ii. Field Extraction Module
iii. Field Information Storing
iv. PCF for SYN-Flood
v. PCF for Port-Scan

Packet Capturing Module

Packet capture is the act of capturing data packets crossing a network. Deep packet capture (DPC) is the act of capturing complete network packets crossing a network. In this module we capture data packets in the scalable network using packet capturing tools.

Field Extraction Module

Field Extraction Refers both to the process by which fields are extracted from event data, and the results of that process, also referred to as extracted fields. Field extraction can take place either before events are indexed or after event indexing. In this module we extract all the fields present in the network.

Field Information Storing

In this module we store all the details of the data fields.

PCF for SYN-Flood

Partial Completion Filter (PCF) consists of parallel stages each containing hash buckets that are incremented for a SYN and decremented for a FIN. In this module we use PCF for identifying the SYN packets in the network.

PCF for Port-Scan

A port scan or port-scan is an attack that sends client requests to a range of server port addresses on a host, with the goal of finding an active port and exploiting a known vulnerability of that service. In this module we use PCF for identifying the port-scan in the network

Main objectives of this project were to develop

- A scheme for construction and extraction of semantic features involving video objects and frame based characteristics for describing content of the video in terms of both aural and visual features
- An ontological specification for video information for enabling inter-operable conceptual access
- A representational scheme for video documents for efficient video information browsing, semantic transcoding, querying and semantics driven delivery.

V. EXPERIMENTAL INVESTIGATIONS

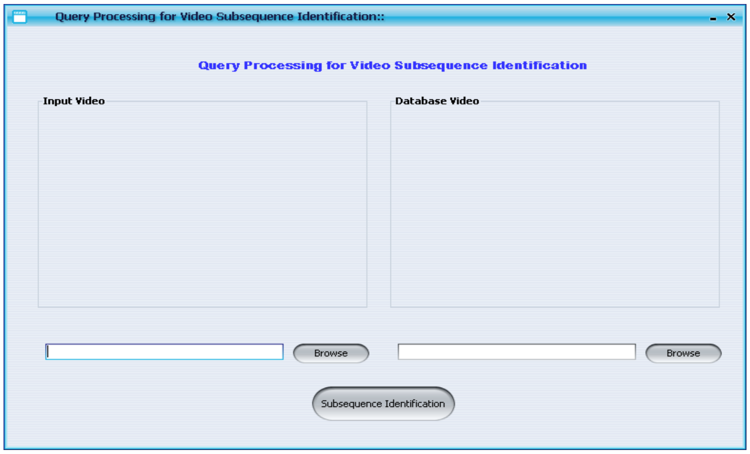


Fig.1. Home Page

The above screen page displays the main features of the project and also browse option. When we click on browse of the input video we enter into the login page of the project. In this project we can view the image of the input video and also the image of the database video one of the main features. The Subsequence Identification button helps to compare the video of the input video to the video of the database video and helps in retrieving the similar frames of both the image

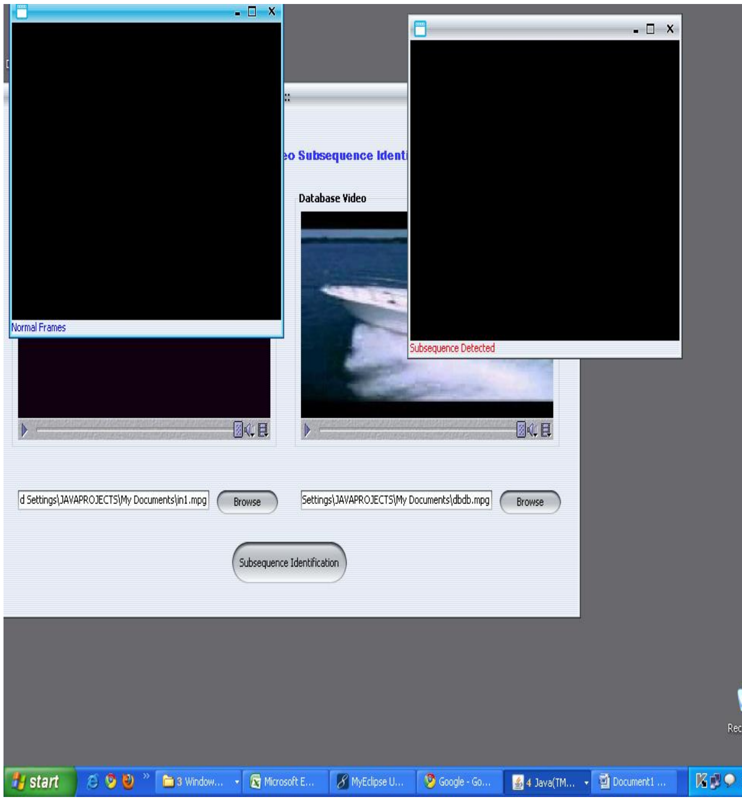


Figure 2: Login Page

The above screen page displays the main features of the project and also the browse option. After clicking on the browse option first the image on the database video is displayed. The data base searching for the retrieval of the similar frames go on the input video the two videos .After comparing two images it retrieves the similar subsequent frames of the video

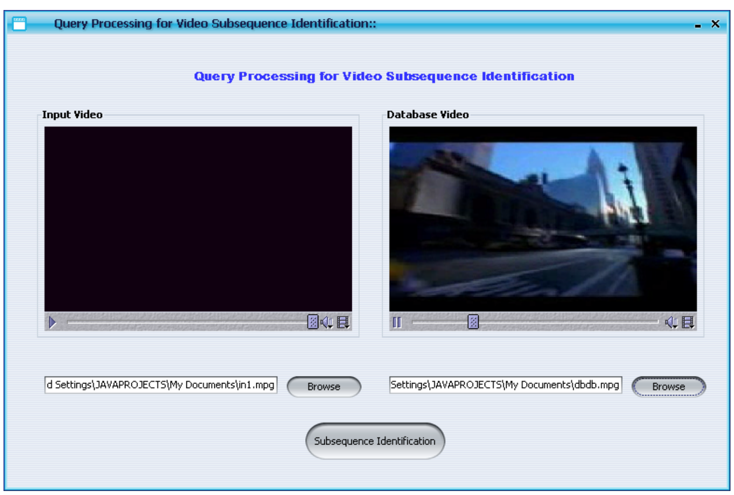


Fig.3 Retrieval of Frames

The above screen page displays the main features of the project and also the browse option. After clicking on the browse option first the image on the database video is displayed. The data base searching for the retrieval of the similar frames go on the input video the two videos. After comparing two images it retrieves the similar subsequent frames of the video

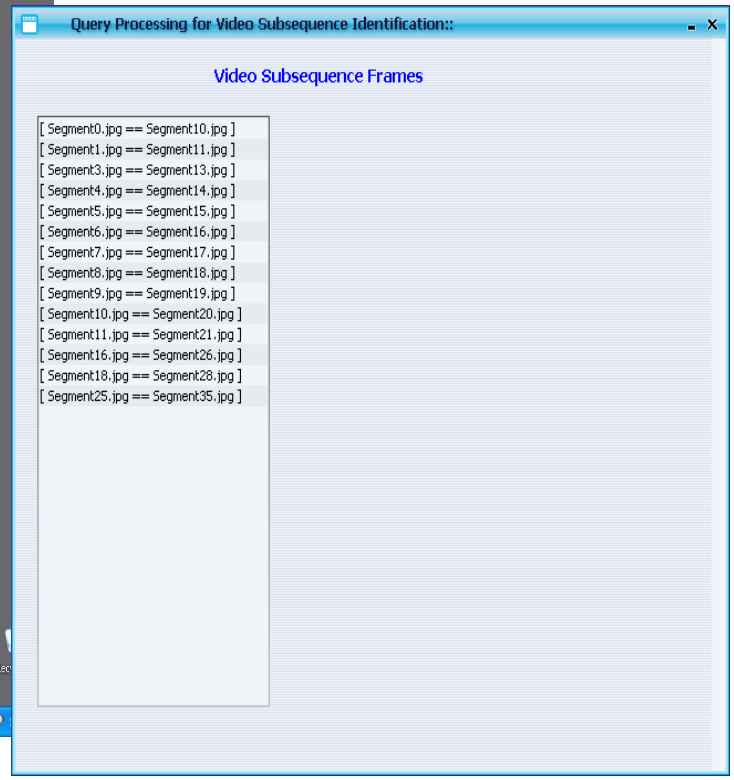
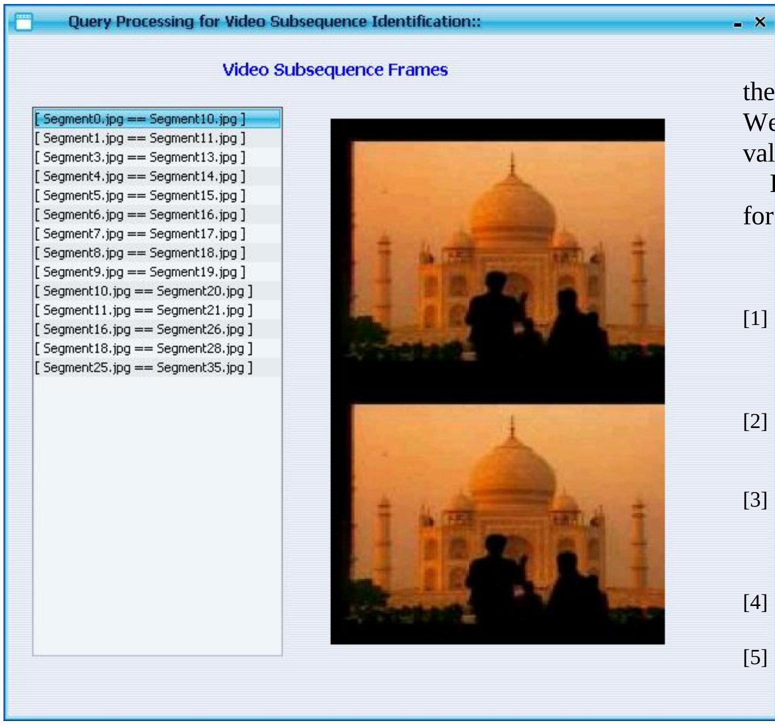


Fig.4. Log Viewer

The above screen shows the segments of the video subsequence frames. The segments of the input video is compared to the segment of database video for identification of similar frames. the segments identification is done till the retrieval other similar frames on both the input video and the database video.



. Figure 5: Log Viewer

The above screen shows the segments of the video subsequence frames. The segments of the input video is compared to the database video with the subsequence identification the segments are mapped until a match is found between this two videos and the relevant frames are displayed. The above screen also displays the final execution of the project.

VI. CONCLUSIONS AND FUTURE WORK

This paper has presente**d** a query processing method for retrieving stream of video frames. A video query processor should support video-based operations for search by content and streaming, new video query types, and the incorporation of video methods and operators in generating, optimizing and executing query plans. In the preliminary phase, the similar frames of query clip are retrieved by a batch query algorithm. Then, a bipartite graph is constructed to exploit the opportunity of spatial pruning. The high-dimensional query and database video sequence can be transformed to two sides of a bipartite graph. Only the dense segments are roughly obtained as possibly similar subsequences. In the filter-and-refine phase, some non similar segments are first filtered; several relevant segments are then processed. During the filtering stage, Maximum Size Matching is deployed for each sub graph constructed by the query and candidate subsequence to obtain a smaller set of candidates. During the refinement stage, Sub-Maximum Similarity Matching is applied to identify the subsequence with the highest aggregate score from all candidates, according to a robust video similarity model that includes visual content, temporal order, and frame alignment information.

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