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Segment Based Indexing Technique For Video Data File

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Abstract

A video is an effective tool to exchange the information in the structure of showing the brief text message due to the advance developed technology. Video capturing is effortless process but the related video retrieval is the difficult process, for that process the videos must be indexed. Retrieval is the method that retrieved a video using a user query .The query will be image or texts depend upon the query result output system that returned a particular video or image based on that query. In this project we create a indexing for video file by using segment based indexing technique. Here video will be divided into a hierarchy which is in storyboards of film making. For instance, a hierarchical based video search is composed into multi stage abstraction for assist the users to locate the specific video segments/frames logically. This paper brings out the reduced bandwidth and reduced delays the video through the network of searching and reviewing. Experimental results verify this.

Key terms: Video data mining; video content retrieval; image query ; indexing ; clustering ; key frame ; Grouping.

1. 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. 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. 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 semantic value. This issue is handled through minimizing the redundant frames with the help of the methods, for example relevance ranking)

The main objective of this research work is to increase the performance of clustering in video retrieval process.

 RGB value of frame is used to eliminate the redundant frame.
 Segment based indexing technique is used to indexing the key frames.
 Hierarchical clustering algorithm is used to clustering the frames

Few basic properties about an image can be obtained from using a Histogram, The shape and the concentration of the colors in the histogram will be the same for similar objects even though they are of different colors The system has to differentiate between the both the basic concept behind the histogram generation is simple. Each pixel in the image is scanned and the respective color or intensity value is obtained for the pixel.

iColor = (16 * p1[0]) + p1[1] * 4 + p1 [72]   Then a graph is generated with total number of pixels against the pixel intensity.iHistoArr [iColor] = iHistoArr [iColor] +1   ..

1.0 Existing System

The existing methods for video lecture segmentation, annotation and classification mainly focus on either audio features or low-level visual features. Some of the works make use of high level semantic information like, drawing,

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erasing, scrolling and explaining, writing, erasing and speaking and gesture of instructor. Existing system utilized color moments to classify video frames as narrative or text based (slide, web or whiteboard) using Decision Trees.

1.0.1 Issues in Existing System
- Less prediction accuracy
- Increased time complexity
- Key frames are often not enough to represent information in a shot.

1.1 Proposed System
- RGB feature is used to remove redundant frames in the query video.
- Segment based Indexing technique is used to segment and indexing the frames.
- Hierarchical clustering mechanism is used to cluster the frames.

1.1.1 Advantage of Proposed System
- Can be easily automated
- Segments reveal temporal structure well (eg. In hierarchy)
- Supports queries by image similarity

1.2 Functional requirement
Input: The input of this work is the query video.
Behavior: The behavior of this project is the input video is converted into number of frames. Using frame extraction process, redundant frames are eliminated. Using segment based technique, segment the frames. Finally, user retrieves relevant frame for given query image.
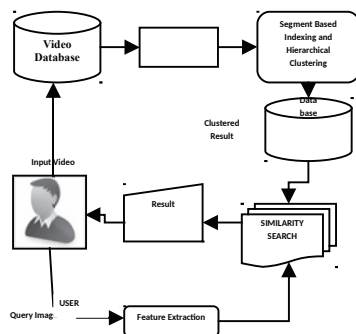Output:The output of this work is retrieved relevant image.

Fig 1. Proposed System Architecture Diagram

2. Literature Study

The usage of non-scripted lecture videos as a part of learning material is becoming an everyday activity in most of higher education institutions due to the growing interest in flexible and blended education. Generally these videos are delivered as part of Learning Objects Exploiting visual actions present in non-scripted lecture videos can be useful for automatically segmenting and extracting the structure of these videos. Such visual cues help identify possible key frames, index points, key events and relevant meta-data useful for e-learning systems, video surrogates and video skims [6]. MUST-VIS introduces a multi-modal algorithm for lecture segmentation based on video and audio/text, and annotates segments using keyword clouds, which offer direct access to the information content, while taking into account the major speaker actions. This research presents the MUST-VIS system for the Media-Mixer/VideoLectures.NET Temporal Segmentation and Annotation Grand Challenge.[7] research reports on the development and evaluation of the new NoteVideoand its improved version, NoteVideo+,systems for identifying the conceptual 'objects' of a blackboard-based video and then creating a summarized image of the video and using it as an in-scene navigation interface that allows users to directly jump to the video frame where that object first appeared instead of navigating it linearly through time[8].

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