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Online Interactive E-Learning Using Video Annotation

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Abstract— Streaming video on the Internet is being wide deployed, and work employment, E-lecture and distance education area unit key applications. The facility to annotate video on cyberspace can provide important added price in these and different areas. Written and spoken annotations can provide "in context" personal notes and would possibly modify asynchronous collaboration among groups of users. With annotations, users don't seem to be to any extent further restricted to viewing content passively on internet, but area unit absolve to add and share statement and links, therefore transforming internet into academic degree interactive medium. we tend to tend to debate vogue problems in constructing a cooperative video annotation system which we tend to introduce our model, called ABVR .We gift preliminary data on the employment of we tend Web-based annotations for personal note-taking and for sharing notes throughout a distance education scenario. Users showed a strong preference for ABVR System over pen-and-paper for taking notes, despite taking longer to undertake and do so. They put together indicated that they may produce further comments and queries with system ABVR than throughout a "live" state of affairs, that sharing added substantial price. and jump into videos at express time stamp by a tagging to the videos***)***

Keywords- *Feature extraction, Video Annotation, Video Retrieval, Distance Learning, Workplace Training, Tagging, Classification*

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I. INTRODUCTION

Now a days as a result of increase in digital media like camera, mobile phones assortment of digital videos is growing quickly. So there's got to efficiently store and retrieve theses videos from an outsized collection of video databases. Within the recent years several video retrieval systems are developed to browse, search and retrieve videos from giant databases. Current State of the art in video retrieval has two approaches: content-based video retrieval (CBVR)and annotation primarily based video retrieval (ABVR). They primarily dissent within the approach a question is developed. CBVR systems search videos mistreatment low level options like time, size, shape, abstraction layout etc. Which might be mechanically extracted and accustomed index videos. Humans tend to associate videos with keywords instead of question video. The initial demand of CBVR systems is to supply question similar video to the retrieval system. The CBVR systems fail to satisfy user expectations as a result of those systems square measure unable to index videos consistent with the high level options (keywords, timestamp etc) as perceived by the user. The most challenge within the CBVR is that the two gaps specifically semantic gap and sensory gap. The linguistics gap because the "lack of coincidence between the data that one will extract from the visual information and also the interpretation that identical data have for a user in a very assumed situation". The aim of content-based retrieval systems should be to supply most support in bridging the semantic gap between low level options extracted from videos and also the high level information want to the user also mention another gap of connection to content primarily based retrieval, the sensory gap, that they outline as "the gap between the article within the world and also the info in a very (computational) description derived from a recording of that scene. Whereas the previous gap brings within the issue of users' interpretations of videos and the way it's inherently difficult to capture them in visual content, the latter gap makes recognition from video content difficult as a result of limitations in recording and outline capabilities. Video annotation, the task of associating text to the semantic content of videos, may be a great way to scale back the semantic gap and may be used as associate intermediate step to video retrieval. It allows users to retrieve videos by text queries and infrequently provides semantically higher results than content-based video retrieval. In recent years, it's discovered that video annotation has attracted a lot of and a lot of analysis interests. Once videos square measure retrieved mistreatment these annotations, such retrieval is thought as annotation-based video retrieval(ABVR).

Annotation-Based Video Retrieval (ABVR) systems square measure an endeavour to include a lot of efficient semantic content into each text-based queries and video captions. As will be seen in several of today's video retrieval systems, ABVR is taken into account a lot of sensible. Consequently, matter info ought to play a central role in visual info retrieval. However, CBVR has been researched much more than ABVR. This paper presents a survey of the analysis associated with the automated annotation and annotation primarily based video retrieval at specific time stamp and asynchronous collaboration among teams of users.

II. RELATED WORK

With the age of E-learning, some of the disadvantages of the traditional learning culture were overcome. Those include the dependence of students on teachers' methods and choice of material, a fixed curriculum and the focus on synchronous learning in groups. Because E-learning technologies support the realization of open and flexible learning scenarios, the new learning culture supports self-organized and constructive learning in fluid networks [10]. The old learning theories of behaviorism, constructivism and cognitive cannot directly explain these new learning scenarios, because they do not consider the technology-supported side of learning [11], the

new information connection and processing possibilities nor the social networking opportunities that arose in the era of the Web 2.0.Connectivist theory [11] has been adapted to the digital age. It describes learning as the creation of connections between bits of information. Utilizing social web features can support the learners according to connectives theory.

This is the case because knowledge exchange in groups can be very fruitful for learners, since it supports the creation of connections between facts or skills learned. This 'cycle of knowledge' is described in connectives. It implies that learners contribute knowledge to a learning community, but may also learn from it again. This beneficial collaborative knowledge creation is the core of the Web 2.0 philosophy. However, although cooperation has proven to be an effective method for learning, the user participation in collaborative learning environments still remains 0quite low. The way these systems are designed may be part of the problem. The next section on the culture of participation, therefore, will go deeper into the design of participative systems. Kimmerle and Cress found out in a study in 2007 [12] that individuals participating in a collaborative process had an information-exchange dilemma. If they provided information to the group, they primarily had worked for no immediate benefit.

But, if all participants withheld information, the group could not perform at its best. The researchers proposed a group awareness-tool to solve the dilemma. Students used the tool as opportunity for self-presentation and were more willing to engage if they got feedback from other group members. Gerhard Fischer substantiated the term 'culture of participation'[13]. He suggested three design guidelines that should be used to open up socio-technical systems for participative work.

The first guideline involves different levels of participation that allow different levels of engagement, from consumer to meta-designer to user. The second guideline is a meta-design, which opens up the infrastructure to enable collaborative design. The third guideline is social creativity. Students are enabled to solve problems by collaboration. Learning is briefly discussed as a field of application by Fischer. He states that learners can be encouraged to learn by discussing and developing topics and ideas to develop a shared discernment. They can be further motivated by engaging in explicit problems and genuine activities. Like Kimmerle and Cress, Fischer found that the motivation to participate is intrinsic.

The feeling of collaborative creativity and group support, as well as the common purpose, motivates students into further participation [13]. The Related work using different methods which is to see into the table

Methods	Document Representation	Problems Addressing	Limitations	Applications
LSI	Term document Matrix	Polysemy , Synonymy	Dimensions are difficult to interpret, computationally expensive, storage, efficiency	Information retrieval, Information Filtering, Cross language retrieval, Spam filtering
PLSI	Word frequency	Using probability, Automated Document Indexing	Over fitting, Generalization	Automatic easy grading ,multi-criteria recommender system, classification, online event analysis
LDA	mixture of topics with a probability distribution	Exchangeability	Incapable to model relations among topics	Automatic easy grading, Automatic labelling, Word sense Disambiguation

TABLE I

COMPARATIVE STUDY OF DIFFERENT ALGORITHM

Author/ Methods	Video	Representation	Dataset Performance	Measure
Trong-Ton Pham	LSA	Bags of Visterms	Corel	Precision and recall
Florent Monay and Daniel GaticaPerez	LSA and PLSA	Vector Space	Corel	normalized score
Florent Monay and Daniel GaticaPerez et al	PLSA	RGB,Blobs	Corel	annotation accuracy, normalized score
David M. Blei and Michael I. Jordan	LDA	Blobs	Corel	Perplexity
Konstantinos A. Raftopoulosetal	MSI	Probability vector	Google Image Search	Precision and recall

TABLE II

COMPARISON OF AUTOMATIC ANNOTATION METHODS

III. EXISTING SYSTEM

In order to go deeper into the implementation and evaluation of the video annotation features, definitions of the annotations will given in this section. We deal with both individual and group annotations, thus two different definitions are used. We further differentiate between two functions we developed, a textual annotation feature called a manuscript and a quick time marking feature called a marker. Whereas the manuscript feature should assist in writing digital notes in the form of a manuscript, the marker function is there to quickly save certain timestamps in the video with a predefined tag added to it. We define a digital lecture video annotation as a quadruplet consisting of the annotated text (T), the content item to which it is attached (C), the timestamp within the content item to which the annotation is added (TS), as well as the user who writes the annotation (U), as shown in Eq. 1. [14]

$$a = (T,C,TS,U,) \text{ .....eq.(1)}$$

As opposed to the textual annotation, which may contain any free text sentence, the text in the marker function is selected from a predefined set of short texts. When the annotation is shared within a group for collaborative purposes, the following adjustments have to be made to our definition: a textual group annotation is defined as a quintuplet consisting of the annotated text (T), the content item (C), the timestamp within the content item (TS), the user annotating the lecture (U) and the group with whom the user shares his or her annotation (G), as shown in Eq. 2.[14]

$$a = (T,C, TS,U,G).....eq.(2)$$

IV. PROPOSED SYSTEM

When a user accesses a web page including video, the web browser contacts the web server to get the HTML page and the video-server to get the video content.

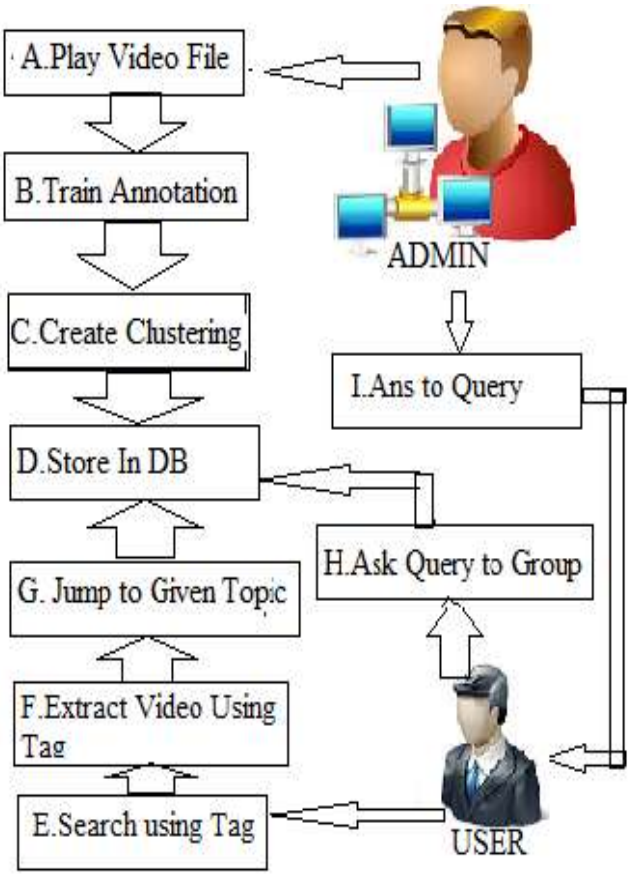

Fig: ABVR System Flow

If there are annotations related with the video in the web page, the user can contact the ABVR Annotation Server to acquire them. Given figure shows the interaction of these networked components.

The ABVR Annotation Server manages the Annotation Meta Data Store and the Native Annotation Content Store, and communicates with clients via HTTP. Metadata about target content is tuned on the target content's URL. Also client user tagging the video during session is going on but for conformation it will send admin once it will verify admin will to store into database server. In the existing system they are taking the feedback of the student after implementation of system student want to say they want switch at particular timestamp in a given video and could be possible in proposed system using allowing student to tagging the video during the interrogative system Since the display of annotations is composed with target media at runtime on the client, object and user access rights for reference content are not restricted.

Our goal is to provide a multimedia video analysis implement which is easily modified to address the kind of the task, the application and the user's personalized style. To get this task analyses were performed for multiple users within single application domain and across many different application domains (e.g., usability testing, behavioural, studies).

We also conducted narrative reviews and surveys, examined existing systems used for video analysis, and interviewed users of these systems to determine which functionality the systems had in common, which functions were most often and least often used, and what the common complaints were. From the task analysis, we derived two key points related to the *process* of manipulate a video document. Users tend to work with video in one of two ways: *annotation* and detailed *analysis*.

Annotation imply "note taking." Here users are attempting to capture data in real time, in highly personalized and abbreviated ways. The annotation task is characterized by high cognitive and attention demands. Detailed analysis typically occurs after the real-time annotation and does not have the same real-time constraint.

In this case the user may make many passes over a given segment of tape in order to capture verbal transcriptions (protocol analyses), behavioural interactions, gestural or non-verbal information. As part of this detailed analysis, users may also wish to run statistical analysis, or summarize data in tables or graphs.

Based on the user interviews and surveys of existing systems, we imitative a set of user requirements which support *both* the annotation and the detailed analysis process. These were grouped into four categories: code the data, analyzing and interpret the data, user interface and device control, and displaying the data. The *coding* category represents methods for entering the various forms of annotational and analysis data. Elements in the *examination and elucidation* category are those which related to manipulating pre-recorded data, in order to form conclusions about the nature of the data. The *user edge and device manage* category embodies some general principles for building user interfaces of video annotation and analysis systems. Finally, when *display the data*, there are several general requirements to guide presentation formats and capabilities. The annotation system should have both acoustic and visual feedback mechanism. If the user is analyzing visual data the acoustic feedback cues from the system would be used and vice-versa. This minimizes interfering between system feedback and the primary task of analyzing the video data. Visual channels are typically differentiated in terms of spatial separation (i.e.different locations in the visual field). Auditory cues are differentiated by pitch, loudness, and tonal characteristics. The auditory cues should be non-speech to avoid confusion with the voice track of the video document.

V. EXPECTED RESULT

In our system we are trying to implement online video retrieval system which will increase the accuracy factor with regards precision and recall of online data retrieval system. Also it will avoid fake link in search engine by using proper annotation mechanisms. Also the main problem behind video retrieval is user has to play video manually and due to this user can not jump to specific chapter or topic in video this draw back will be covered with the help of interactive annotation method also to make the session more interrogative we are going to create online group. In which admin will give the answer for query regarding the topic. As per a accuracy concern we are expecting more than 80% accuracy in data retrieval.

We are going to implement this system in java web service (JSP) to make it online we will use apache tomcat web service, NetBeans 8.0 version on windows platform, database will be in MySql, to make system online we need internet connection also.

VI. CONCLUSION

In this paper, we will going to implements annotation to online videos as well as online E-learning mechanisms will be created. Which will help to improve video retrieval system to avoid unwanted hits to video this system can help. The interactive session will solve all of the query of students which is not available in current E-learning , also online tagging will improve the precision and recall of system, in future this system can be implemented on distributed environment to maintain load balancing of large amount of users .

REFERENCES

[1] Bowman, M., Debray, S. K., and Peterson, L. L. 1993. Reasoning about naming systems. .

[2] Ding, W. and Marchionini, G. 1997 A Study on Video Browsing Strategies. Technical Report. University of Maryland at College Park.

[3] Fröhlich, B. and Plate, J. 2000. The cubic mouse: a new device for three-dimensional input. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems

[4] S. Zhang, C. Zhu, J. K. O. Sin, and P. K. T. Mok, "A novel ultrathin References Tavel, P. 2007 Modeling and Simulation Design. AK Peters Ltd.

[5] Sannella, M. J. 1994 Constraint Satisfaction and Debugging for Interactive User Interfaces. Doctoral Thesis. UMI Order Number: UMI Order No. GAX95-09398., University of Washington

[6] Forman, G. 2003. An extensive empirical study of feature selection metrics for text classification. J. Mach. Learn. Res. 3 (Mar. 2003), 1289-1305.

[7] Brown, L. D., Hua, H., and Gao, C. 2003. A widget framework for augmented interaction in SCAPE.

[8] Y.T. Yu, M.F. Lau, "A comparison of MC/DC, MUMCUT and several other coverage criteria for logical decisions", Journal of Systems and Software, 2005, in press.

[9] Spector, A. Z. 1989. Achieving application requirements. In Distributed Systems, S. Mullende

[10] D. Kirchh¨ofer, "Lernkultur Kompetenzentwicklung Begriffliche Grundlagen," Berlin, 2004.

[11] G. Siemens, "Connectivism: A Learning Theory for the Digital Age," International Journal of Instructional Technology & Distance *Learning*, vol. 2, no. 1, 2005.

[12] J. Kimmerle and U. Cress, "Group awareness and self presentation in computer-supported information exchange," International Journal of Computer-Supported Collaborative Learning, vol. 3, no. 1,pp

[13] G. Fischer, "Understanding, Fostering, and Supporting Cultures of Participation," interactions, vol. 80, no. 3, pp. 42 – 53,2011

[14] Franka Grunewald, Chistoph Meinel January 2015."Implementation and Evalution of Digital E-Lecturer Annotation in Learning Groups to Foster Active Learning" *IEEE Transaction on learning Technology*