

SVM Based Video Content Retrieval for Online Sessions

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Abstract— Now days users are interested in distance learning as there is rapid growth in digital data due to day today development in information as well as computer technology. Also its applications have grate response in market. Peoples are attracted towards interactivity in each thing, we found that for e-learning is a very interactive way to learn and understand things. Now a days, YouTube is widely used for video sharing. It is having certain limitations such as, it having inactivity in online learning. In online study students expecting some extra guidelines from available resources. In this project we developed video annotation system to promote active learning. In this project, we achieved active participation of students. we are using technologies that extracts some important keywords from textual information. MOOCs model is another technology to solve interaction problem of users in active learning. Our system is interactive as it has ability to assign real-time annotations to the video. In our system user can give their active participation as they are directly interacting with our system. As part of our contribution in this project we did SVM analysis to provide recommended videos for end users. Support Vector Machine(SVM) algorithm classifies the stuff according to user interest. So, in our system user can search for video and they get recommended video list for their study.

Key words: Video Annotation, Retrieval, E-Learning, Training, Tagging and Classification

I. INTRODUCTION

Whenever we search for video, chances exist where we don't get the relevant data as required. The reason is because the size of data grows at about 1 million pages per day. Google also indexes 9 billion documents. Moreover, there are diverse types of data such as images, text, audio, video, XML, HTML etc. Thus, there is always a problem of data mining when the accuracy rate is concerned for the results. Presently, clients are occupied with distant learning as there is fast development in computerized information because of day today advancement in data. Additionally its applications or use have enormous response in business sector. People are pulled towards intuitiveness in everything, it is found that e-learning is an exceptionally intelligent approach to learn and comprehend things. At present, YouTube is the worldwide method for video sharing. It have some disadvantages like buffering during forward and backward play, which also consumes huge data and time to start from the set point from mouse. In online study, users expect some additional rules from given assets. Here, we created video annotation framework for faster dynamic learning. In this venture, we accomplished dynamic participation of users. There is sure sort of advances that concentrate some keywords from printed data. Our framework is intelligent as it gives constant explanations to the video. In our framework client can give their dynamic investment as they have direct

cooperation to our framework. As a feature of our commitment in this undertaking we did SVM analysis to give prescribed recordings to end clients. SVM is Support Vector Machine calculation; it characterizes the things as indicated by client interest. Along these lines, in our framework, client can get video and they can get related video list for their study.

II. LITERATURE SURVEY

Tele-TASK Tele teaching Anywhere Solution Kit, this paper suggests new tele-teaching package which is easy to use and It is based on internet. Tele-TASK accomplishes all needs of modern tele-teaching. With tele-teaching It is possible to reach people fast. It work on all platforms, several bandwidths, arbitrary programs. Also it does not required install additional software's, their configurations at users end. This system is firstly developed for recording and transmission in the field of computer science lecture on topic Information security in open networks in 2002. It is possible to provide high quality tele-techning [1].

R. Mertens, H. Schneider, et al 2004, discussed about the differences between hypertext documents and lecture recordings with respect to Hypermedia navigation features along with Virtual Presenter. It is a prototyping software tool for automatic generation of hypermedia user interfaces for lecture recordings. The system makes use of Hypermedia navigation are used for recordings of lecture and also to develop a prototype implementation of the concept. all of the navigational features found in current hypertext systems are incorporated For lecture recordings. that In this paper, the authors decided to design a learning interface for learner's. This approach has technical and conceptual problems for adopting features statically [2].

Y.S. Su, Stephen J.H. Yang et al. 2010, describes about **use of** Personalized Annotation Management System 2.0 (PAMS 2.0) which is very useful to the students. Technology PAMS 2.0 becomes easy to use this system and effective tool to coordinate in between them. With the help of designing of such annotation management system for personalized management it becomes easy to share, reuse individual as well to collaborate with multiple users. To provide an experienced instructor a personalized annotation management system 2.0 (PAMS 2.0) is designed. PAMS 2.0 help students to coordinate and avoiding users in face to face communication. At the same time instructor can easily understand the student behavior and depth of knowledge. The parameters like curriculum, syllabus and learning period uses some instructional tools which helps to increase depth of learning. Better explosion in research is possible by adding some features. These features includes curriculum, learning period, teacher, assigned articles, and more it influence he learning methodology and set of instructional .

C. Hermann and T. Ottmann 2011, contributing themselves to developed tool called "aof convert", the use of this tool is to associate students to specific time instant of lecture recordings in a Wiki. The use of this tool is to convert object based lecture recording and its conversion into PDF as well as other output forms. In this paper, aof convert tool combines wiki with recorder lectures. The help of these tools enables students to obtain visual direct references from the lecture recordings. Therefore there is tight integration between wiki and lecture material that allow students to explore learned topics. With the help of this technology students can able to actively participate in the process of learning. The use of this technique will enhance slide transition detection technique used in video based recordings.

P. N. Mendes, M. Jakob, A. García-S2, et al 2011, the author compared their work of DB-pedia Spotlight approach with the other state of the art in and evaluate the results in light of three baselines and six publicly available annotation systems.. DB-pedia Spotlight is a tool to detect contains of DB-pedia resources in text. The entity linking keyword from the annotation is linked to an entity in the Linked Data Cloud DB-pedia. The link provided by authors is visualized within the user's annotation to provide him or her with further research possibilities. They found that NER, disambiguation and entity linking problems was already focused and solve successfully and published in a service called DB-Pedia Spotlight. This approach is utilized for implementation of researchers annotation system. Restful and SOAP web services for the annotation and disambiguation processes was used for integration of DB-pedia. For evaluation of annotations they collect the data from unseen database.. They found their system retrieves more configured approach than any other market available Services. It requires resources to be complex relationship within knowledge hub [5].

G. Fischer 2011, found the motivation to anticipate is important. It was a meta-design, which will able to open new infrastructure to enable collaborative design. To understand basic need for the society including technical skills and technical knowledge there is need of people's culture participation. Their System was already developed for active cultures participation but this is not sufficient compared to other parameters. Students are able to solve problems by collaboration as it uses different interaction techniques. Culture describes their media tools in the field of thinking, working and learning. There Research meets the expectations of theoretical foundations as well as it includes technological changes in human centered Page Style computing. In this participations are invited, supported and valued. [6]

Y. Haojin, F.Grunewald, Bauer M. et. al 2012, discussed about, automatic video indexing and video search in huge lecture video storage. To offer visual guidelines authors uses the techniques like video segmentation and detection of **key** frame. In their work they also uses keyword extraction. Video search and video finding systems such as Google, YouTube, and Bing etc. reply with metadata like, person, genre, title and their brief. Generally, this kind of metadata has to be created by a human to ensure a high quality. In keyword extraction OCR and ASR algorithm are applied to OCR text lines methods are used. The main

advantage is that captures essential knowledge change between adjacent frames as well as it also captures real slide transitions. But it is essential to have complete experience on annotation to enhanced e-learning platforms on all devices, and especially on mobile ones, which have important constraints in terms of display size and general capacity. Authors proposed a new concept for content-based video search technique system. A user study was conducted to find the effectiveness of their proposed indexing methods. With their proposed system much more content-based metadata can be generated efficiently. However, the temporal video information is also be adopted for some special retrieval menu such as teaching staff gesture. To retrieve content-based information they used a high level text semantic. [7]

F. Grune, C. Meine 2012, suggested involvement of multiple user in e-learning platform. During their conversation, they suggest various improvements to really create a culture of participation in television teaching. For considering previous example feature they were use a collaborative digital video annotation. This would helps to tackle the problem of user participation in video retrieval and video search system. For implementation of their proposed system, they used Tele-Teaching Web Portal. Also they find proposed system improves Active participation by maintaining a Culture of Participation. For true result it requires more reflecting of cultured active participations. They suggest different techniques which were based on collaborative digital video annotation as one of the possible feature. The most essential search thereby are awareness mechanisms have to be created by storing a previous history of all contributions to a group annotation and allowing access to the statistics of all individuals input. Finally two scenarios were suggested that how online discussion and problem solving can be easily started by the teacher. Basically video annotation supports the generation of large amounts of metadata in a short span; their functionality can be used as sample feature to explain the approach related to implement a culture of participation to more actively engage users. [8]

F. Grunewald, Meinel C., M. Totschnig et al. 2013, explained an analysis of the survey responses compared to some questions about MOOC accommodate various learning methods and also recommendations for the design and organization of a MOOC. It considers human-problem interaction in scalable virtual laboratories, and learning services and practical approach that connect with learners 'living environment, and create responsibility and participation. MOOCs share the goal of bounding together thousands of learners into a common event. From this paper, they provides confirmation about learners acknowledge quality of video lectures as well as textual learning sources. To extend MOOC model, it requires learning human limitations, gamification and also social responsibilities. Massive Open Online Course (MOOC), held in German at open HPI that were attracted a large candidates that has not been in contact with higher education before. In this paper authors were implemented and improving in current research and development activities: human-problem interaction in scalable virtual laboratories, and learning services and practical tasks that connect with learners 'living environment; [9]

E. Lesage, M. Valcke 2013, Sabbe, goals to present a comprehensive review of multiple choice scoring methods recently used in higher education system, for answer analysis of strength and weakness. According to research in this paper, there is need to reduce the gap between theoretical solutions and Practice. It is important for test designers to know about ranked methods with their demerits. To understand the student's depth of knowledge, a multiple choice test is a widely known in higher education. Number right scoring (NR) and negative marking (NM) systems are most commonly used scoring methods for multiple choice assessments. Problem with both NR and NM system is that they do not meet expectations. This paper goals to review an overview of (alternative) examination methods for multiple choice tests, in which strengths and weaknesses of each method were provided. Their system uses the term negative marking 'to describe scoring method. Studies report an increase in actuality or reliability when negative marking is implemented. However, their studies describe improvements and they specifically check true/false/items. This system instructs a student to guess or not is too difficult to answer than it has. It is also difficult for students to figure out the exact decision strategy under negative marking scheme. In this respect, more consistency in scoring methods of multiple choice tests was recommended at program or institutional level in higher education system [10].

III. PROPOSED SYSTEM

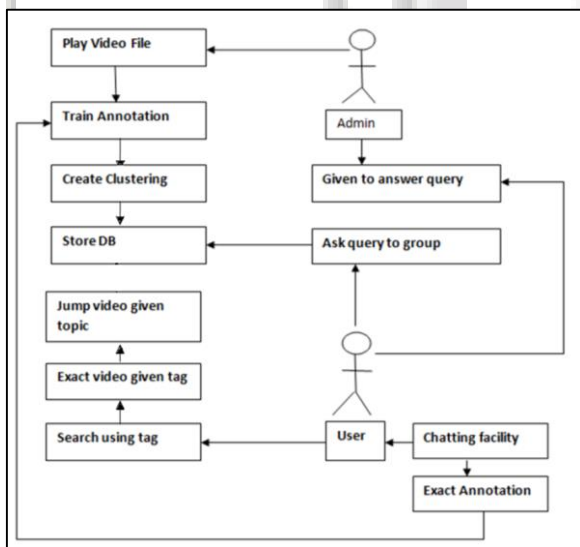


Fig. 1: Proposed System

Admin has the rights to play the video uploaded, provide annotations to the uploaded file and store in database. Whenever a user logs in and searches for a topic, the video jumps into the given topic instead of playing the whole video. Chatting facility is provided by the users where multiple users can chat with each other at a time. The annotations will be extracted using SVM algorithm and will be stored in database as annotation for the particular video. The annotations provided by the admin will be replaced here and user suggestion will be added. User can also view related documents or videos of the ongoing video session.

A. Steps:

1) Admin Side:

- Registration & Login
- Upload Video
- Add Annotations with Timestamp
- Add related Links & Resources
- Manage Sessions
- Update Related Documents
- Rescheduling of Lectures
- Delete video

2) User Side:

- View Current Video session
- Explicit Time Based Annotations
- Chat Room
- Search Video

IV. TECHNICAL SPECIFICATION

A. Algorithm:

Support Vector Machine (SVM) algorithm is basically used for classification which based on given attributes. In our project we will going to adapt SVM algorithm to create recommended video list for end user as per their needs. In our system, user can search videos by providing search input such as annotated words, video title, date and time etc. Therefore to generate recommended video list SVM Algorithm will work as follows:

Input: Cluster set 'c'

-Set of videos.

Output: List of Recommended video

Processing: Cluster= {Closest Video with respect to keywords, title, annotations, resources etc.}

If Match

Then Find match

Cluster=Cluster U match

If any $\alpha p < 0$ due to addition of c to S

Then Cluster = Cluster \ p

Repeat up to all such points are shorted/ pruned.

End if

End while

Return List of recommended video.

B. Hardware Specification

- PC Processor Intel core i3
- Speed 2.0 GHz
- Memory 2GB
- Hard disk drive 140GB

C. Software Specification

- Operating System: Windows XP and Above.
- IDE: NetBeans.
- jdk 1.4.0 and above.
- mysql 5.5 and above.

V. EXPERIMENTAL RESULT

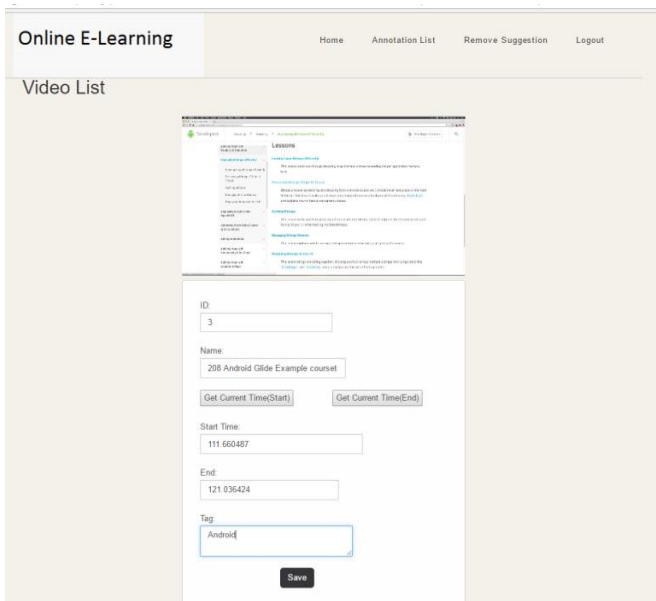


Fig. 2:

- Above screen is designed for annotating important topics from running video.
- This annotation is based on time slice.
- Also annotations are shareable.

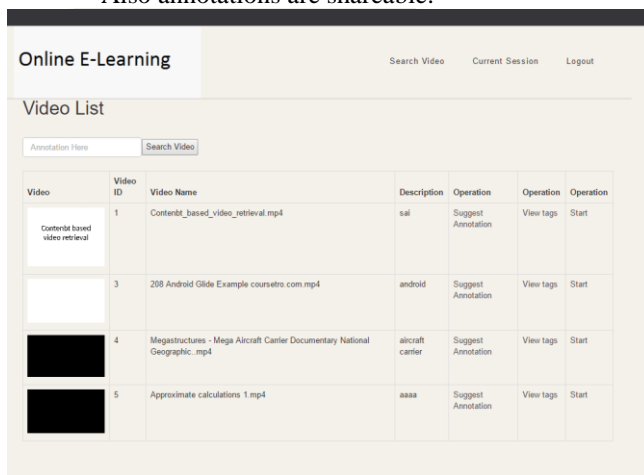


Fig. 3:

- Above Screen represents list of recommended videos.
- Search function of our system is implemented using SVM algorithm.

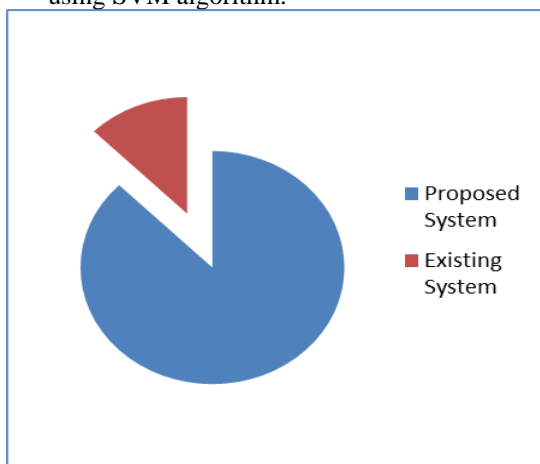


Fig. 4: probability of video removal of offensive words

The above graph shows the probability of video that will be removed by admin based on the number of offensive words that come for the particular video. As shown in the chart, in existing system, there is no such facility when the admin has rights to remove a video based on the offensive words gathered by that particular video. But in our proposed system, if the number of offensive words is greater than or equal to 3, then admin gets recommendation to remove that video from the system.

A. Comparison between existing system and proposed system

- In existing system, currently, only one name was given to a single video. This system gives provision to given multiple names to a single video and also play the video from the particular specified track.
- After implementation of proposed system, information retrieval can be explored as accurate data is retrieved faster.
- Time consuming is reduced in proposed system as compared to existing system.

B. Timeline and Accuracy

Parameters	Existing System	Proposed System
Time taken for searching video in ms	20	12
Error Rate	0.56	0.02
Accuracy in content retrieval	20	80

Table 1:

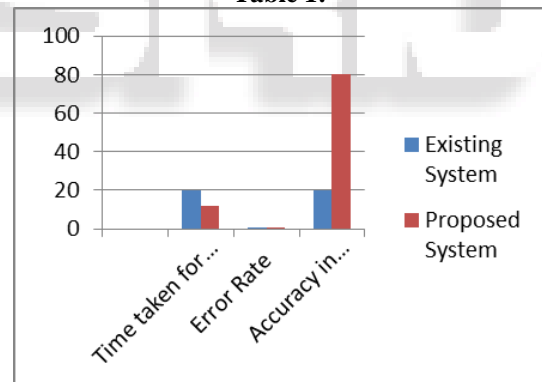


Fig. 3: Timeline and Accuracy

VI. CONCLUSION

In this paper main focus is on video annotation system which runs efficiently with respect to time and surfing. SVM algorithm is used to compare conventional searching and annotation based searching. It is beneficial to student to search required videos by specifying keywords, annotations, link, related resources etc. Tutor must have facilities in designed control panel having some upload videos, manage sessions, rearrange of sessions etc. whereas; student can learn session by watching online videos. Topic from playing video, so that they get reminder of important Topics while next time they watch that specific video Students can create a chat group, to discuss about lecture topic, queries that they get, they may share metadata related to video. Etc. By implementing annotation technique we will compare and

improving efficiency and flexibility compared to other systems. Modification in our project is that we are going to provide recommended video list on user search.

The current research intended to improve the classification of videos by including automatically generated information such as automatic captioning saved in database. We consider enlarging the annotation set and integrating more features to construct more representative model for semantic concepts.

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