International Journal of Modern Engineering Research (IJMER)
www.ijmer.com Vol.2, Issue.1, Jan-Feb 2012 pp-525-527 ISSN: 2249-6645

Smart Learning through Intelligent Response System

Robin Tommy
Learning and Development
Tata Consultancy Services, Trivandrum, India

Ullas Ravi
Learning and Development
Tata Consultancy Services, Trivandrum, India

Abstract

Smart Learning currently means learning animated lessons brought through the visual media. We present an idea of presenting smart learning on web platform in a wiki model. The content is made more appropriate and understandable to the user using the currently available means of learning mechanisms like graphical simulations, videos and animations. We propose a system where the user understands and learns the concepts of the searched content based on a dynamic animated simulation and other data (wiki, videos and graphical simulations) available in the internet. The user also will be provided an interactive simulation environment to create more awareness on the searched content. The entire dynamic simulation is based on the wiki and other relevant content of the searched data and the interactive environment is simulated from the other contents of the same data available in the internet. The system will have a predefined set of graphics (clip arts and images), emotions and trained patterns defined for a predefined set of content. Here we try to integrate cognitive, affective and psychomotor level of learning and redefine the way SMART learning has evolved. The dynamic simulation and animation is dependent on the target group. In short the proposed system generates a dynamically animated story board from the wiki static content for providing the meaning and conceptual understanding of the searched content followed by a dynamic interactive environment to learn the concept in depth. Along with these the user will also be provided with other relevant content (videos and graphical simulations) from the internet for the searched data. So we propose a smart system for learning which can enable humans to get more depth in their understanding and they interact with the system during the learning process through the intelligent interactive learning mechanism.

Keywords: dynamic animation, simulation, cognitive intelligence, smart system, interactive knowledge.

Introduction

A lot of research has been put into e-learning by many organization and we have a seen an explosion brought about in the internet. In most scenarios the learning is predefined and the user has no engagement or decision in the learning process. Most of the content available online is static and distributed, it is the pain of the user to gather, unite and draw out a conclusion for relevant data knowledge.

In this paper we propose a system which provides a dynamic content evaluation and smart reconstruction of the available content. The content is made available to the user in the friendliest way using dynamic animations depending on his taste and flavor of learning. The content changes for age groups and cognitive level. The system collects all the data available in the open internet space, evaluates the content, construct the most appropriate animated learning model with the available set of graphics and also gives the user with other knowledge resources available in the open forum. As soon as the user completes the cognitive mode of understanding he will be taken into an interactive dynamic environment for creating more awareness and establishing a psychomotor level of understanding.

The currently available systems or e-learning's have static content just thrown to the target group based on the system designer perspective after understanding the requirement of the user. These data cannot be changed easily. The materials inside these systems are priori determined by the designer/tutor. In our system the data is online and it enriches the experience of the user and making him learning more and interact with the data environment.

Early research was based on content based adaptive presentation [1][2]which adaptively presents the content of the page. The contents of the pages are used as clues to derive important features of learners such as their interests, knowledge state etc. learning items are all pre-stored and not changeable; what keeps changing is the order in which course items are delivered, as also described in [3]. Bollacker et al. [4] refine CiteSeer, through an automatic personalized paper tracking module which retrieves each user's interests from well-maintained heterogeneous user profiles. Woodruff et al. [5] discuss an enhanced digital book with a spreading-activation mechanism to make customized recommendations for readers with different types of background and knowledge. McNee et al. [6] investigate the adoption of collaborative filtering techniques to

recommend papers for researchers. They do not address the issue of how to recommend a research paper; but rather, how to recommend additional references for a target research paper. From this perspective, this work is different from our proposed system where learning happens dynamically in interactive environments with intelligent response.

Proposed System Architecture

The following Figure 1 explains the system architecture. When user queries the system the available data on the open internet will be put together. The content will be fetched from various resources giving preference to the ranking and usage of the content. The content can be retrieved from wiki, citreex and other content management platforms. The system draws patterns from the content and extracts the relevant data based on the predictive algorithm. The resulting data will be given to online dynamic interactive system for dynamic animated content generation. With the available cliparts, graphics, videos and audios (from the internet) and emotions the systems starts a learning platform for the user. If the user feels the content is not enough he can regroup his sub-options available and generate a more defined content. After the user completes the learning he will provided with an interactive responsive environment to get an in-depth understanding of the learning

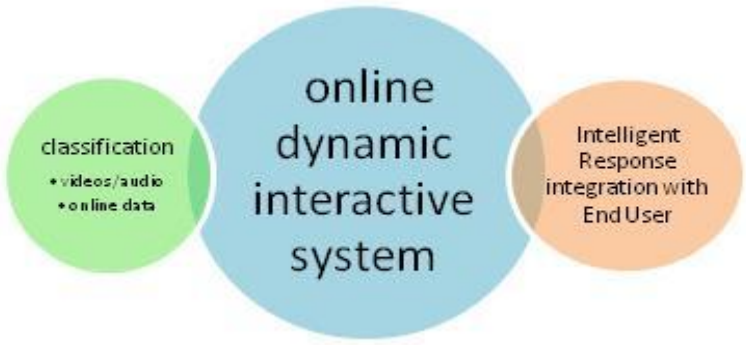

Fig1: Proposed System Architecture

A Running Example

Consider there are two learners Jany and Smitha as shown in figure 2. Both of them belong to different cluster of learner. Jany is observed to browse through the internet for relevant data on Webservices content. She is a novice learner without much background in the topic. She is looking for some contents in the research papers and wiki. Therefore Jany belongs to a group *novice, research, webservice.* Smitha also looking for the same knowledge artifact but is an advanced learner. She is interested in more technical aspects and its implementation aspects. Therefore she can be grouped into the *advanced, technical, webservices*. Here we can see the variant approach in the data needed for the same learning artifact. So static content for both of them is no any value addition to their learning.

The proposed system searches for simple and understandable data for Jany and converts the data into an animated e-learning followed by interactive response learning for giving an insight into the concept. The concepts will be dealt in detail for Jane in his level and provides her an in-depth knowledge taking her to the next level. The same system searches data for Smitha in a more broad sense picking up researched content from IEEE, Citreex and other platforms with applications. The same platform generates an animated e-learning for Smitha giving her more application and research specific data followed by an interactive response system to complete the learning experience.

It is clear from the above example for the same interest, there is a different learning experience generated. Here we propose an individualized system which gives a more precise and relevant data for the target group.

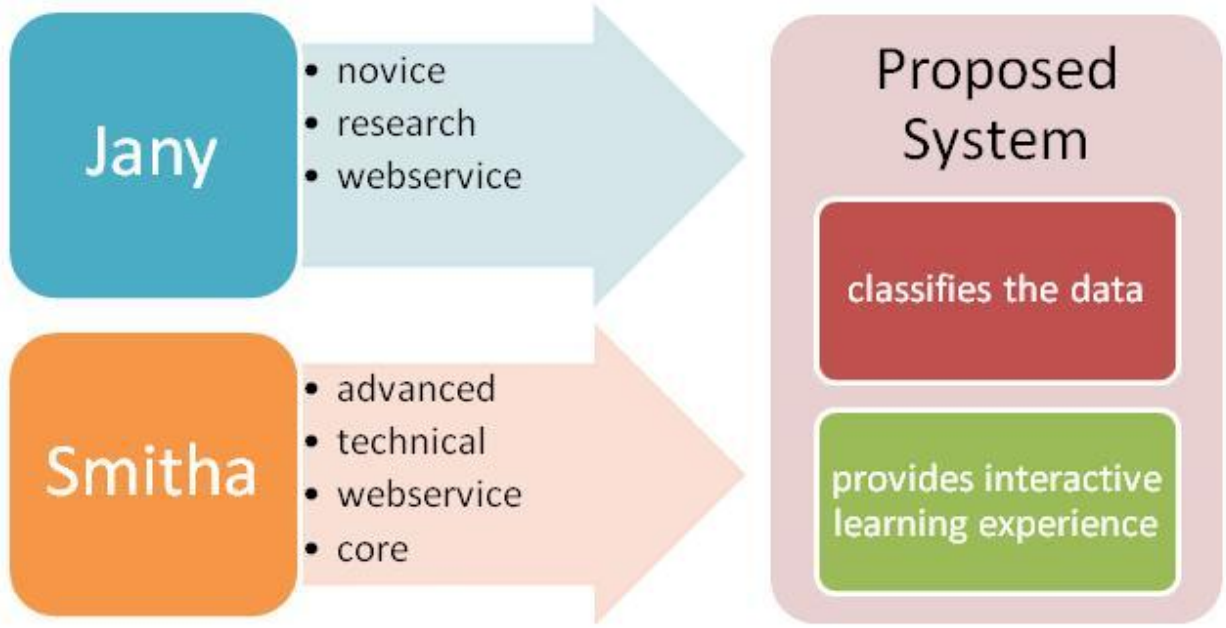

Fig 2: System Example

Conclusion

Current learning systems focus on the system and designer perspectives. The learner is not given the ultimate priority in any scenario. Here we proposed an intelligent system which predicts the right data and provide the exact information for cognitive understanding of the learner in most preferable manner. Here we have made collaboration between the system and the open web giving more possibilities of learning with interactive response environment. It is evident that more research has to be carried out in making this system more learners friendly. It is evident that more rigorous collaborative research should be carried out between researchers from artificial intelligence in education, adaptive hypertext and hypermedia, web information retrieval, data mining, collaborative filtering, user modeling, intelligent user interfaces, computer supported collaborative work etc, in order to achieve these goals.

References

[1] Brusilovsky, P. Adaptive hypermedia. (2001) User Modeling and User Adapted Interaction, Ten Year Anniversary Issue (Alfred Kobsa, ed.) 11 (1/2): 87-110. 2001.

[2] De Rosis, F., De Carolis, B and Pizzutilo, S. (1993) User tailored hypermedia explanations. INTERCHI'93 Conference Proceedings: Conference on Human Factors in Computing Systems, INTERACT'93 and CHI'93, Amsterdam, The Netherlands. 169-170. 1993.

[3] Boyle, C., and Encarnacion, A.O. (1994) MetaDoc: an adaptive hypertext reading system. User Models and User Adapted Interaction. 4, 1-19. 1994.

[4] Bollacker, K.D., Lawrence, S. and Giles, C.L. (1999). A system for automatic personalized tracking of scientific literature on the web. In Proc. ACM Conference on Digital Libraries (DL 1999), 105-113.

[5] Woodruff, A., Gossweiler, R., Pitkow, J., Chi, E. and Card, S.K. (2000) Enhancing a digital book with a reading recommender. In Proc. ACM CHI 2000.153-160. 2000.

[6] McNee, S.M., Albert, I., Cosley, D., Gopalkrishnan, P., Lam, S.K., Rashid, A.M., Konstan, J.A and Riedl, J. (2002) On the recommending of citations for research papers. In Proceedings of ACM International Conference on Computer Supported Collaborative Work (CSCW'02), 116-125. 2002.