AN ENVIRONMENT FOR EASY CROSS SYNCHRONIZATION OF MULTIMEDIA WEB BASED MATERIAL

I. Stiubiener, L.H. Ceze, K. Strauss, C.B. Margi, R.M. Silveira, W.V. Ruggiero[1]

Abstract *The use of web based content presentations as an information exposure method is essential for the online learning process .Our main goal in this short communication is to present the main functional specifications of an easy-to-use tool for creating web based cross-synchronized multimedia presentations..*

In the learning process probably one of the most relevant aspects is the degree by which we manage to interact and maintain the student's attention and concentration. Many studies and researches are concentrated now on how to improve and keep this attention. In parallel, the use of multimedia elements in Web courses and the streaming technology showed that they are enriching and improvement agents in this process as well as in knowledge transmission .

The purpose of this work is to present an easy-to-use tool for creating web based cross-synchronized multimedia presentations with video and audio streaming, slides, scrolling text ,animations, simulators, photos and other digital media components.

This tool allows the user to select the layout and the digital media components in the presentation and provides an easy and fast way to synchronize all these components. It 's possible to synchronize media components such as scrolling caption , slides and animations with an audio or video streaming and vice-versa. Its output is a ready-to-use HTML and JavaScript code that together with all other items compose the web based presentation.

As the tool is in progress we'll present only its main functionality :

- The tool provides a synchronization mechanism used in the streaming server's event feature. The commands which come with the stream are used for changing the slides and scrolling the text simultaneously and start an animation interpreted by JavaScript or a simulation.
- Users can choose a course layout (a template) in which they can use all the media elements the template permits. That means that they can choose any media they want to use in its seminar and in what disposition on the Web page they want to put them respecting of course all the templates.
- The user's interface is natural and very simple allowing a minimum team to prepare the final edited and synchronized version of the presentation. This is a very important feature of the tool .
- It gives users the option of publishing their courses on a CD or on the Web. This is very important when you have memory or network bandwidth problems. In our seminars we have our video material available at 22kbps and 100kbps so the students can access both qualities depending on their network connections.
- When watching the presentation the students can go back and forward on it. This is a very important feature and few similar implementations have it.
- It supports the importation of files from other programs like PowerPoint, Word etc and permits an automatic format adjustment. This is a very helpful facility because the teachers can re-use their material already done without any additional work.
- The users have to show where to pick all the elements their course will use and the toll takes them automatically. This means that the users can use any element in any place improving the reusability of courses' elements .
- The final pages produced by the tool must contain basic navigation elements and elements to memorize where the users have stopped and where all the media involved was. This is very helpful when the students stop and resume the presentation on another occasion.
- The tool must foresee a communication channel with the student and the teacher/instructor. This channel may be an e-mail address, a FAQ, a chat or any combination of these options.

Based on the specifications above we've already developed what we call the "kernel" of our tool which synchronizes a video, a pool of PowerPoint transparencies and a text representing a full lecture/ class.We believe we have now a powerful instrument for producing our online courses and presentation in a very friendly way .We are now focused on using other media for improving the interaction between students and teacher.

[1] LARC - Department of Electrical Engineering of Universidade de São Paulo, Av.Prof. Luciano Gualberto , trav. 3 – 158, sala C1-46, 05508 900 SP, Brasil .

0-7803-6424-4/00/$10.00 © 2000 IEEE October 18 - 21, 2000 Kansas City, MO