Bridging Media Breaks in Presence Presentations

Georg Turban
Dept. of Computer Science
Darmstadt U of Technology
Darmstadt, Germany
turban@informatik.tu-darmstadt.de

Guido Rößling
Dept. of Computer Science
Darmstadt U of Technology
Darmstadt, Germany
roessling@acm.org

Christoph Trompler
Dept. of Computer Science
Darmstadt U of Technology
Darmstadt, Germany
christoph@trompler.at

ABSTRACT

The integration and fusion of different media input streams into one unique presentation stream is very important for maintaining the live aspect in recordings. The described core component of the *Digital Lecture Hall* [2] handles these requirements. It also supports annotating any content, as well as database storage for further processing of all collected materials.

Categories and Subject Descriptors

K.3.1 [**Computers and Education**]: Computer Uses in Education—*Computer-assisted instruction*

General Terms

Management

Keywords

E-Learning, media streams, media breaks, annotation, media flow

1. INTRODUCTION

The *Digital Lecture Hall* project aims to enhance traditional lectures with mobile devices, such as laptops, PDAs, or mobile phones [2]. The project consists of a set of core components that support students and learnings with enhanced possibilities both during and after lectures. The *presentation* component *VMB* [2] allows lecturer to present and annotate their material in a unique way. VMB also supports read-time content transmission as well as storage and post-processed retrieval. An *interaction* component bridges the gap between students and the lecturer. For example, the lecturer can publish multiple choice tests into the classroom [1]. The presentation component acts as a lecture hub for all educator activities. It is also able to trigger the events for changing media.

VMB integrates presentations in *PowerPoint* format by also catching the *slide change* event and storing it in the database. A similar support for *OpenOffice* and *PDF* is planned for future versions. VMB can present content from all tested applications, such as PowerPoint, Acrobat, Java applications, MS-DOS prompts, Internet Explorer and other Web browsers.

ITiCSE'05, June 27–29, 2005, Monte de Caparica, Portugal.

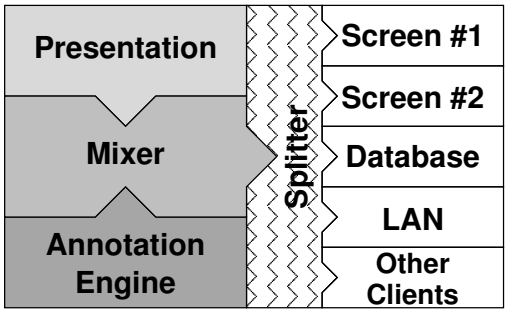

Figure 1: Bridging Media Breaks

Live recordings for later playback benefit from storing as much information as possible. Apart from the audio and video capture of the educator, this especially concerns the lecture materials and all annotations. Multiple-choice tests or examples created on the fly on an empty slide should also be embedded into the lecture recording.

Figure 1 shows the media flows within the presentation component. Presentation materials, typically slides or images, are merged with the educator's annotations in the *mixer* component. As illustrated, the annotation engine works independently from the presentation, and thus allows the annotation of any screen content independent of the underlying program. The *splitter* receives the mixed materials and is then responsible for sending appropriate content to the different output areas. Typical output areas are display screens or projection areas, the database for storing the materials, LAN transmissions and other (future) clients. VMB ensures that all materials shown on the screen are sent to the mixer for storage in an internal database including timestamps for synchronization.

All presented and annotated materials are recorded as images in the database, offering a full lecture recording and smoothly bridging the media breaks generated by changing materials.

2. REFERENCES

[1] H. Bär, G. Rößling, S. Köbler, and M. Deneke. Evaluation of Digital Interaction Support in a Large Scale Lecture. In *Proceedings of the IADIS International Conference Applied Computing*, pages 63–67. IADIS Press, 2005.

[2] G. Rößling, C. Trompler, M. Mühlhäuser, S. Köbler, and S. Wolf. Enhancing Classroom Lectures with Digital Sliding Blackboards. In *Proceedings of the* 9^{th} *Annual Conference on Innovation and Technology in Computer Science Education, Leeds, UK*, pages 218–222. ACM Press, New York, 2004.