

Diploma Thesis

System zur Erzeugung personalisierter Vorlesungsmitschnitte

English Summary

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23/07/2004

This diploma thesis is about a lecture recording system which can be personalized by the students. First of all the lecture is recorded with two parts: the lecturers face with his speech and as the second part the abetted parts of the lecture, i. e. PowerPoint presentations. Both parts will be stored on a server for later use. On the other side of the system are the students who are taking part in such a lecture. Every student will get a Computer (a PDA or a normal laptop) connected to the LAN with an Wireless LAN witch he can use to take part of the system. At the beginning of the lecture the lecturer has to start the system: he must start the lecture-time at a special time-server and the recording of the two lecture parts. Now every student can take part. He must register at the time-server and gets the actual lecture time. The time server is the connection between the lecturer and his students. With this lecture time he sets his own clock and now this clock is synchronized with the central lecture time. Now the students are ready the personalize the lecture. The personalization is done in a way of setting time-marks at the beginning and the end of an interesting part by the students. These time-marks are stored after the lecture in an XML-file for further use. Between the time-marks the student has the possibility to make little annotations which will be stored in the XML data too. After the end of the lecture the student stores his XML-file with his annotations and the made time-marks and the lecturer transfers the two recorded streams on a server by using the Windows Network SMB. The software generates names for the two streams so that they will be found when the students want to watch them again.

After the lecture the students get the possibility to use the recorded lecture together with their own personal XML-Code. The students sends his XML-File to a web server and the web server generates an for each student personal website for retrieving the marked scenes by the time-marks. Each marked scene can be replayed and the personal made annotations will be shown on the screen at the same moment as they were made. So the students can directly view the parts of the lecture which are interesting for them.

The system is build with Microsoft Products. The programs are written in VisualBasic.NET. The VisualBasic.NET programs are compiled into the so called Intermediate Language witch is processed by the CLR (Common Language Runtime) witch is available for different platforms.

The Microsoft .NET Framework is used because it is easy to transfer .NET programs from a normal PC to an PDA. The web server is a IIS Server on a Windows .NET server (the name while I wrote the thesis) with ASP.NET technology for building the personalized viewing site. The

code behind the page was written in Visual Basic.NET. The media streams are coded with Microsoft WindowsMedia 9 codecs which were beta versions while the thesis was written. With the WindowsMedia Technologies it was possible to store a 90 minutes lecture in about 50 MB space. For viewing the streams in the personal viewing website two WindowsMedia Players are used as an ActiveX control in a website and they are controlled by JavaScript. The JavaScript code managed the showing of the annotations too. The streams are sent to the client by the WindowsMedia Services which are part of the Windows.NET Server.

The system has a status of a prototype to show the possibility of personalization and is not ready yet for a use in a university or school.

The source code can be found in the German elaboration at <http://www.christian-kurz.de/diplomarbeit/ausarbeitung.pdf>

The diploma thesis shows the way to synchronize three different media types (picture and sound of the lecturer, the lecturers PowerPoint-Presentation & the students own annotations) and it shows an idea to make e-learning more efficient and more useful for the students, because there are a lot of lecture-viewing systems (Authoring on the fly (AOF), Educast, TeleTeachingTool (TTT) & Microsoft Producer) only with the possibility of streaming the lecture to a client but there were no way to make them directly personalized by the student.