

Appendix A

E-Chalk: Project Overview

This appendix provides an overview of the components of the E-Chalk system and their contributors. Figure A.1 provides a conceptual diagram.

E-Chalk Server

Board System E-Chalk was conceived as an update of the traditional chalkboard by Raúl Rojas in 1999. Wolf-Ulrich Raffel created a first prototype of the board software as diploma thesis [Raffel, 2000]. Further development was done by Lars Knipping [Knipping, 2005].

SOPA SOPA has been developed by Gerald Friedland and is described in this dissertation. SOPA contains the component framework Oscar, which has been developed by Richard Hall [Hall and Cervantes, 2004] and the component-discovery engine Eureka which was developed by Karl Pauls [Pauls, 2003]. The visual node editor was implemented by Bastian Voigt. A frame-by-frame testing environment for SOPA video nodes was developed by Kristian Jantz.

Audio System A first version of the audio system, called *World Wide Radio (WWR)* [Friedland and Lasser, 1998] was conceived in 1997 by Gerald Friedland and Tobias Lasser. E-Chalk's first prototype included a Java rebuild of the audio system, called *World Wide Radio 2 (WWR2)*, created by Gerald Friedland in cooperation with Bernhard Frötschl [Manhart, 1999]. Since version 1.2, E-Chalk uses the adaptive *World Wide Radio 3* system by Gerald Friedland, which is described in this thesis.

Video System An initial prototype video codec was created by Gerald Friedland in cooperation with Sven Behnke. An automatic video hardware detection was developed by Kristian Jantz. The rest of the video system has been developed by Gerald Friedland and is described in this thesis. Neven Santrac has contributed several experiments on time-of-flight 3D camera segmentation [Santrac et al., 2006].

SIOX SIOX is a spin-off of the instructor video segmentation approach. It is described in this thesis. The SIOX Java Reference API was written by Gerald Friedland in cooperation with Kristian Jantz and Lars Knipping.

The GIMP implementation of SIOX was developed by Gerald Friedland, Kristian Jantz, Tobias Lenz, and Sven Neumann. The Inkscape implementation was derived by Bob Jamison, the Krita version by Michael Thaler, and the Blender version by Brecht Van Lommel. Experiments on the usage of SIOX for robotic soccer were performed by Fabian Wiesel.

E-Chalk Startup Wizard An initial version of the E-Chalk Startup Wizard was developed by Gerald Friedland. Since E-Chalk 1.1, a new Startup Wizard has been used that was developed by Lars Knipping [Knipping, 2005].

Macro Recorder The macro recorder was developed by Lars Knipping [Knipping, 2005].

Audio Wizard The Audio Profile Wizard, described in this thesis, was developed by Gerald Friedland and Kristian Jantz.

Tools

Lecture Repair Tool The Lecture Repair Tool was developed by Kristian Jantz.

E-Chalk to Video Converter The E-Chalk-to-video converter was developed by Kristian Jantz. It was extended for MPEG-4 support by Benjamin Jankovic.

LMS Connectivity The BlackBoard connectivity was developed by Thomas Reimann.

DBMS Connectivity An initial version of the database connectivity for E-Chalk was developed by Peter Siniakov, Sebastian Frielitz, Robert Günzler, and Gerald Friedland. It was later refined by Sebastian Frielitz and Robert Günzler.

Keyword Generator Automatic indexing of E-Chalk lectures was investigated by Michael Theimer [Theimer, 2004].

PowerPoint to E-Chalk The PowerPoint converter was done by Shirzad Kamawall and Alexandar Rakovski.

Lecture Replay

Java Client The board client was created by Wolf-Ulrich Raffel [Raffel, 2000]. The development was taken over by Lars Knipping [Knipping, 2005]. An initial version of the console was developed by Karsten Flügge before Lars Knipping rebuilt it. The audio, video, and slide-show clients were developed by Gerald Friedland.

WMV Client An experiment on a Windows Media Video format client for E-Chalk was performed by Stephan Lehmann.

PDA and Mobile Phone Replay Experiments on E-Chalk lecture replay for handheld devices were performed by Gerald Friedland.

MPEG-4 Replay MPEG-4 replay was developed by Benjamin Jankovic in cooperation with Gerald Friedland [Jankovic et al., 2006]. The “La Linea”-prototype was implemented by Benjamin Jankovic after suggestion by Gerald Friedland.

Chalklets

Logic Simulator The Logic Simulator Chalklet was developed by Marcus Liwiki [Liwicki, 2004].

Python Chalklet Henrik Steffien and Brendan O’Connor developed the Python-interpreting Chalklet [Steffien, 2004].

Geometry Work on the geometry Chalklet was performed by Andreas Stoffl and Ittay Eyal.

Algorithm Visualizations Chalklets on algorithmic animations were developed by Margarita Esponda [Argüero, 2004]. They are maintained by Kristian Jantz now.

NeuroSim Chalklet Olga Krupina authored a Chalklet on Neural Network simulations as part of her dissertation [Krupina, 2005].

Chess Chalklet Marco Block built a Chalklet that enables playing chess [Block et al., 2004b].

Deployment

i18n Tools Tools that automate the internationalization were built by Lars Knipping [Knipping, 2005].

Installer The installer was built by Gerald Friedland using InstallAnywhere by ZeroG, Inc. Some custom code was developed by Abid Hussain.

Version Converters Converters were developed to upgrade format changes in subsequent releases of E-Chalk. The WWR2-to-WWR3 converter was developed by Gerald Friedland, the board format version converter by Lars Knipping.

Lecture Editing

Exymen Exymen and all but three plug-ins were developed by Gerald Friedland [Friedland, 2002a, Friedland, 2002b]. Mary Ann Brennan developed a JMF audio plug-in. Kristian Jantz developed a SID-file plug-in [Jantz et al., 2003, Friedland et al., 2004a]. Thomas Schakert developed a scripting language that is able to control the entire functionality of the editor in batch mode.

Hardware

Multi-Screen Board The data wall was designed by Raúl Rojas and built by Christian Zick in corporation with different workers from the Freie Universität Berlin. The laser-pen tracking used by the data wall is founded on the work of Michael Diener [Diener, 2003], continued by Gerald Friedland, and completed by Kristian Jantz [Jantz, 2006]. He also built Windows and Linux versions of a minimalistic LED-ring tracking.

Bluetooth Keypad The bluetooth extension possibilities for the data wall were tested by Jörg Rebenstorf [Rebenstorf, 2004].

Other contributions and Ongoing Projects

Joachim Schulte conducted an extensive user evaluation on the system in university teaching [Schulte, 2003]. Stefanie Eule evaluated the deployment in K-12 schools [Eule, 2004]. Damian Schmidt built the poor man's slide-show recorder. Oleksiy Varchyn planned the combined stand for the 3D camera and the 2D camera. Michael Beckmann is currently developing a Haskell interpreter Chalklet as a bachelor's thesis. Alexander Lüning is currently investigating scaling methods to enable play back of high-resolution board content on handheld devices as a diploma thesis.

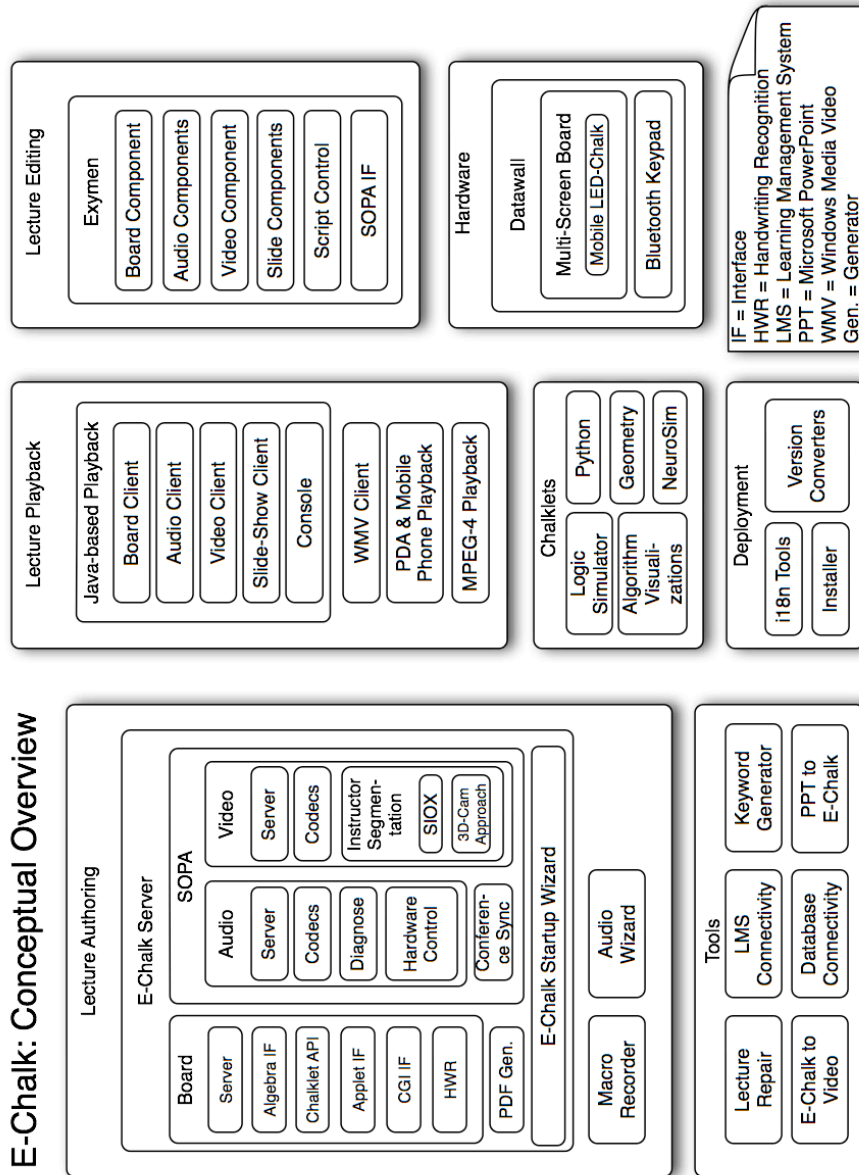


Figure A.1: Conceptual Overview of the E-Chalk system.

