Using the SIVA Suite as a Multimedia Help System for Technical Applications in SME

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ABSTRACT
In this demo paper we present how the SIVA Suite can be used as a multimedia help system for technical applications in SMEs. After describing our use case, a mechanics scenario, we show how our software was extended to fit all requirements of this scenario. We present short overviews over each component of the SIVA Suite: the authoring tool, the player, and the server application. Thereby, important new features are described briefly.

Author Keywords
Multimedia; Help System; HTML5 Player; Hypervideo; Server Application

ACM Classification Keywords
H.5.2 Information Interfaces and Presentation: User Interfaces—*Interaction styles*; H.5.4 Information Interfaces and Presentation: Hypertext/Hypermedia—*Navigation, User issues*

INTRODUCTION
Dynamic presentations like videos are well suited for the explanation of procedural skills, especially motor skills [1]. Most of the traditional videos show the execution of a procedural task in one single video. If subtasks are already known by the viewer, finding the right subsequence with the needed information can be a laborious task. Tasks consisting of multiple subtasks are hard to navigate due to the lack of an overlying structure like a table of contents or a search function. Tasks where single steps are depending on certain conditions result in duplicate scenes in different videos. This results in high download volumes using online videos, because usually large parts of a video are downloaded until the scene with the needed information is found. These problems can be overcome with hypervideos in combination with navigational elements. Longer videos are split up into scenes and a navigational structure as well as additional information to video contents is added. In the proposed demonstration, we show how our software can help finding information for the repair of a desktop computer more easily and quickly.

RELATED WORK
Several tools exist, which are capable of producing and playing hypervideos, but they are either not implemented with recent technologies or lack certain needed features for our scenario. Two important tools from related work are Hyper-Hitchcock [5] and Klynt [2]. Hyper-Hitchcock is a desktop tool for detail-on-demand videos. Here, an explanatory video is shown and the viewer is able to retrieve further information on a certain task. An additional video is loaded on request, at the end of which the main video is resumed. Klynt is capable of producing graph-based links between videos and adding different types of annotations to a currently shown video. The player is implemented in HTML5, which allows the playback of the videos on a large number of different end user devices. Klynt is only available under a proprietary license and cannot be extended and adapted to the requirements of our computer repair scenario or other scenarios.

SIVA SUITE
The SIVA Suite consists of three parts which will all be presented in the demonstration. New features of all parts, compared to previous work, are described briefly in this section. Multimedia instructions are created in the authoring tool and uploaded to the server application. The player can work in two modes, it either downloads the instruction and works in offline mode, or it downloads a control file and required multimedia files when they are needed.

SIVA Producer
The authoring tool called SIVA Producer was improved in different areas compared to the version presented in [4]. The video framework was updated and missing features were implemented. The settings dialog as well as the export dialogue were simplified. The text editor was replaced by our own implementation. The menu bar was extended with additional functions like a graph checker and the color layout of the whole application was unified. The editor for the markings in the video which display an annotation after a user click was revised as well (see Figure 1).
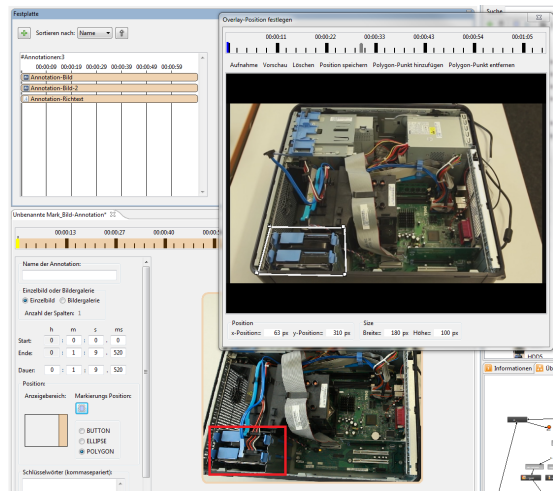
Figure 1. The annotation editor for the marking annotation.

Server Application

The server application is used to manage users, user groups, and videos (see Figure 2). A rights management is implemented to ensure that the visibility of videos is satisfied according to the demands of the author. Certain materials have to be protected from unauthorized access to protect the copyright. The server furthermore provides the backend for the logging functionality as well as interfaces to export the logged data in different formats.
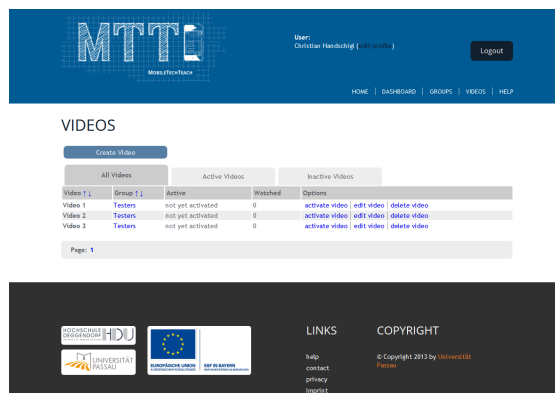

Figure 2. The video overview in the server application.

SIVA Player

With the implementation of HTML5 in most browsers, even those for tablets and smartphones, it is now possible to implement one player and use it for all platforms. This makes the maintenance and updates of our previously used players implemented in Flash [4] or for Android devices [3] unnecessary. Our new HTML5 player has a simplified layout with one main annotation area on the right side and one navigation area on the left side. Both can be hidden or shown separately. Central buttons are grouped according to their range of applicability. Those needed in a scene are positioned at the bottom, those for the whole video at the top of the player (see Figure 3). A logging functionality is implemented to track the user

behavior for individual videos. The logged data are synchronized with the server. We use JSON for the definition of the hypervideo control file.
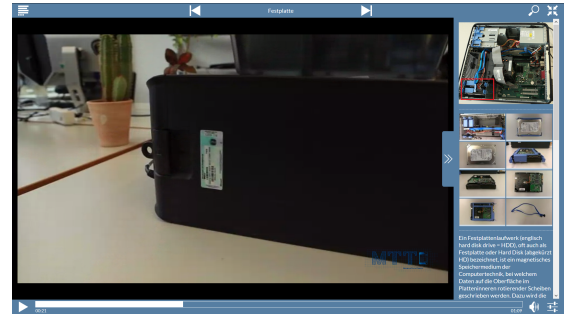

Figure 3. The player with the annotation area on the right side and the extended button bars at the top and at the bottom.

DEMONSTRATION

In this demonstration, we show how the SIVA Suite can be used as a multimedia help system for a technical application. We use a computer repair scenario for our illustrations. We present the authoring tool, the new HTML5 player, and the server application with focus on new functions compared to previous work.

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REFERENCES

1. Ayres, P., Marcus, N., Chan, C., and Qian, N. Learning hand manipulative tasks: When instructional animations are superior to equivalent static representations. *Computers in Human Behavior 25*, 2 (2009), 348 – 353. Including the Special Issue: State of the Art Research into Cognitive Load Theory.

2. Honkytonk Films. Klynt. Website (accessed April 2, 2014). http://www.klynt.net/.

3. Meixner, B., Köstler, J., and Kosch, H. A mobile player for interactive non-linear video. In *Proceedings of the 19th ACM International Conference on Multimedia*, MM '11, ACM (New York, NY, USA, 2011), 779–780.

4. Meixner, B., Siegel, B., Hölbling, G., Lehner, F., and Kosch, H. Siva suite: Authoring system and player for interactive non-linear videos. In *Proceedings of the International Conference on Multimedia*, MM '10, ACM (New York, NY, USA, 2010), 1563–1566.

5. Shipman, F., Girgensohn, A., and Wilcox, L. Authoring, viewing, and generating hypervideo: An overview of hyper-hitchcock. *ACM Trans. Multimedia Comput. Commun. Appl. 5*, 2 (Nov. 2008), 15:1–15:19.