FORTH
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INSTITUTE OF COMPUTER SCIENCE

HUMAN COMPUTER INTERACTION LABORATORY

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Starlight: *A Platform for creating and accessing dual educational electronic textbooks*

In 2007, the Human Computer Interaction Laboratory of FORTH-ICS developed a novel software platform for developing and interacting with multimodal interactive electronic textbooks that provide a Dual User Interface, i.e., an interface concurrently accessible by visually impaired and sighted persons.

The platform, named Starlight, comprises two sub-systems:

(a) the 'Writer', facilitating the authoring of electronic textbooks, encompassing various categories of interactive exercises (Q&A, multiple choice, fill in the blanks, etc.); and

(b) the 'Reader', enabling multimodal interaction with the created electronic textbooks, supporting various features like searching, book-marking, zooming, replay of sentences / paragraphs, user annotations / comments, activity recording, and context-sensitive help.

The Starlight platform has been used for the development of eight products for the Greek Primary and Secondary Education, in cooperation with the Panhellenic Association of the Blind and specialized educators.

The Starlight platform is currently available in Greek, while an English version is under preparation. The platform has inherent support for multiple languages and thus can be translated in any language easily and rapidly.

Some of the key features of the Starlight 'Reader' are:

1. Dual User Interface

2. Multi-user support

3. Ability to use the software using just a single-key

4. Dual voice for separating the content from the User Interface

5. Book-marking down to the sentence level

6. Automatic section numbering

7. Embedded on-demand note-book

8. Support for interactive exercises and examinations

9. Adaptable functionality level tuned by educators

10. Logging and statistics per student
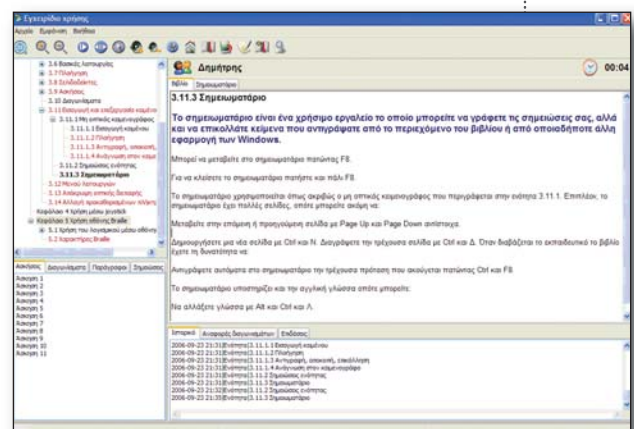
11. Integrated authoring support

A related research paper has recently been published at the Ninth International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS):

Grammenos, D., Savidis, A., Georgalis, Y., Bourdenas, T., Stephanidis, C. (2007). Dual Educational Electronic Textbooks: The Starlight Platform. To appear in the Proceedings of ASSETS 2007.

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Starlight Reader

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The Human Computer Interaction Laboratory of FORTH-ICS (http://www.ics.forth.gr/hci/), established in 1989, is an internationally recognised centre of excellence, with accumulated experience in user interface software technologies, design methodologies, and software tools. The Laboratory carries out leading research activities focused on developing user interfaces for interactive applications and services that are accessible, usable, and ultimately acceptable for all users in the Information Society, while, at the same time, providing an appropriate framework and tools for reducing development time and cost. The research activities of the Laboratory, rooted in the principles of Universal Access and Design for All, address the development of interactive applications and services for various platforms, such as personal computers, handheld computers, mobile phones, smart appliances, and other computational devices distributed in the environment. Research results include infrastructures, methods, prototypes, architectures, tools, and programming languages, as well as methodologies for maintenance, reuse, modification and extension of the developed systems. Systematic testing, evaluation, validation and integration of the above results are achieved in practice through the development of advanced applications and services, such as mobile information systems, ambient intelligence environments, accessible web portals, entertainment applications (e.g., games), and educational software (e.g., eBooks).

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