

EPUB and the use on 2D Braille displays (Bachelor thesis)

ACCESS@KIT - Zentrum für digitale Barrierefreiheit und Assistive Technologien

Two exciting topics that we would like to combine here.

EPUB is an open standard for e-books that is used in many devices (e-books, software on mobile devices, etc.) and, due to the fact that it is based on XHTML, also offers a lot of potential in the accessible use of literature.

On the other hand, research into the use and handling of dynamic braille displays is on the agenda as a very important new aid that offers visually impaired people more flexibility in their everyday work than conventional methods, such as pure reading aloud software or embossed graphics. With new interactive Braille displays, it is possible to create more interaction possibilities with documents and graphic elements. To this end, we are currently working on a user interface that can be used flexibly.

To this end, we are working on the creation of an optimised document interface that can run on any 2D Braille display. The interface will be based on the EPUB format in order to have the possibility to adapt the content of the documents to the display, resolution and possibilities.

The basic data for the EPUB files will not come from anywhere. For this purpose, an AI-based platform is currently being developed at ACCESS@KIT, which breaks documents down into elements and then guides or automatically makes these elements accessible. In the end, all data will be available in a database.

The first goal of this bachelor thesis is to use this segmentation data to create accessible EPUB documents. The second goal is to implement the parsing and rendering mechanism of the generated EPUB format in the new interface, i.e. for use on Braille displays.

Requirements:

Basic programming knowledge in Python and C or C++. Knowledge of MySQL is a plus.

If you are interested in the topic of the thesis, please contact Dr. Thorsten Schwarz

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