

ESCRAPBOOK: SIMPLE SCRAPBOOKING FOR SENIORS

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Abstract

Reminiscence therapy can be defined as "the use of life histories - written, oral, or both - to improve psychological well-being". The therapy helps to solve a number of problems associated with aging (gradual loss of short-term memory or discontinuity caused by the change of environment). One of favorite techniques reminiscence therapy utilizes is scrapbooking, i.e. making commemorative albums with photos, clippings and small decorations (scraps). In this paper we present eScrapBook, an online platform for easy creation and viewing of multimedia scrapbooks. The books may contain text, images, audio and video clips and are viewable either online or exportable as an archive to be used independently of the authoring application. The primary target group is seniors with an onset of Alzheimer disease or dementia and their family members and caretakers (who prepare the scrapbooks for their relatives/clients); however, the application is fairly generic so it could be used to create books for various audiences.

Keywords

memory book, scrapbook, e-book, e-health, brain stimulation

Background

Longevity and aging are becoming increasingly important issues in developed countries and many developing countries. Medical, economic, social and public health advancements lead to prolongation of life expectancy. However, advanced age also carries the risk of multiple diseases, disability and loss of autonomy.

In past years, many projects sought to find ways how to utilize the results of technological progress in order to efficiently provide care and help to people who need it, e.g. EU projects K4CARE [1] or MAS [2]. These projects aim to find ways how to optimally utilize information and communication technologies as a means to support the elderly, patients in reconvalescence or disabled clients in their homes. The focus is on increasing the autonomy and independence of the clients. One of these projects, OLDES ("Older people's e-services at home") [3], was aimed for creating a low-cost platform which could assist the seniors and enrich their lives, particularly of those seniors living alone. The OLDES platform consists of two main parts: health monitoring module and social/entertainment module. The health monitoring

module keeps track of basic physiological parameters, mainly those related to some of the most common health issues typical for advanced age (cardiovascular problems and diabetes). The social (entertainment) module offers (via a web portal) a means to access information about important events, to communicate and participate in online activities through thematic channels and VOIP conferences. OLDES was later succeeded by SPES project ("Support Patients through E-service Solutions") [4], with a similar goal, to create a platform to provide remote health monitoring and medical data analysis and telemedicine or social support for groups of clients in various regions of Central Europe. The work we describe here is one of our own contributions to the SPES project.

Motivation

Reminiscence therapy (RT) is a psychotherapeutic technique, in which self-esteem and personal satisfaction are restored, particularly in older persons, by encouraging patients to review past experiences of a pleasant nature. It is often used in Alzheimer's disease when initially long-term memory stores are more intact than short-term and in other forms of dementia. RT

helps the caretakers in better understanding of seniors as personalities, in strengthening the relationship between senior and caretaker and in planning of the services with respect to the individual needs of each senior. The core of reminiscence therapy is a discussion about past activities, events and experiences with a person of a group of people, usually with help of tangible objects such as photographs, household items, music or voice recordings etc. Group therapy (reminiscence groups) typically involves group meetings where the participants are asked to talk about their past experiences at least once a week. The method of “life recapitulation” or “life balancing” (life review) [6] is performed on an individual basis and involves only the reviewer and the therapeutic listener. The therapeutic listener asks probing questions in an attempt to elicit the reviewer’s experiences, deepest thoughts, and secrets. Participants reflect on both the positive and negative aspects of their lives, evaluating the significance of these events and working through unresolved conflicts. Reviewers can be encouraged to complete a family tree, a timeline or create a memory book. Additionally, props such as music, aromas, pictures, and antiques can be used as tools during life review. Reminiscence therapy is one of the most popular psychosocial interventions and is highly regarded both by caretakers and clients.

Methods

In the course of OLDES and SPES projects, we participated on development of GUI frontends to the platforms, which would allow client users to access health information, daily agenda (current events, calendar), food menu creator to create a diet not exceeding certain sacharide limits for clients with diabetes, chat with other users online etc. [5]. A typical installation of OLDES client system had a small headless PC connected to a TV, with an eight-button Weemote remote control to control the user interface rather than keyboard and/or mouse. The design of the GUI is ruled by the specific needs of the target group (seniors, clients with disabilities), resulting in the need of a simple and intuitive paged GUI with only a few of control widgets, optimized for TV screen resolutions. The GUI should be also easily navigable, configurable and personalizable. An example of OLDES GUI, specifically from the application for seniors with diabetes is shown in Fig. 1.

In the SPES project, we further expand the functionality of the user interface to better support mobile devices and input peripherals (such as touch screens). Our application we describe below, eScrapBook, is amongst the new extensions (plugins) to the GUI, but can be also used independently. It allows for simple creating of digital albums and

memory books (scrapbooks) for the purposes of reminiscence therapy, hence the name.

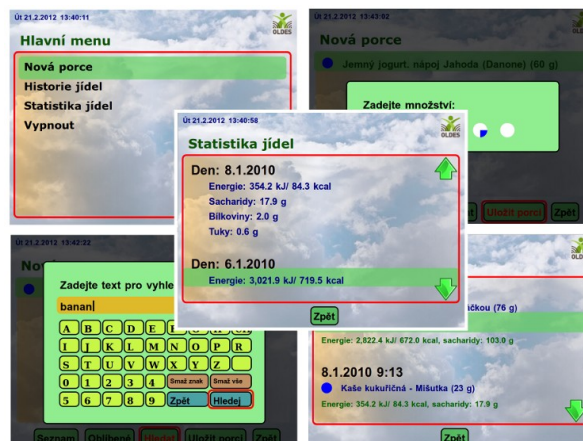


Fig. 1: Example of the OLDES GUI (screens from Prague pilot – Czech version, food menu creator for patients with diabetes.)

Designing eScrapBook

The idea of eScrapBook was inspired by Biogravision [7], a service aimed mainly for seniors in day-care centers, suffering from dementia or Alzheimer disease. It assists its clients and their families to digitize and transform their personal life documents, such as letters, pictures, photos, music and video footage into virtual personal life books on screens that can be browsed, viewed and listened to. The books can be viewed on the computer (ideally with touch screen) by book viewer software and accessed online or downloaded for offline use. It is also possible to have a physical book created from printable contents. In addition to standard multimedia (text, audio, video), clients can have extra features and applications integrated on demand – from simple games and quizzes to online newspapers and e-book readers.

The eScrapBook application design is based on the idea of the Biogravision book viewer software. We aimed to create a web application for creating, managing, viewing and editing of simple digital books that may contain text, images, audio, and video. The application should have quite simple user interface (especially the book viewer part) and should be readily extensible by adding new media types or widgets.

The Application

The current testing version of eScrapBook application can be found at [8]. While still under development, the current version is already fairly stable and usable, allowing for registering users, uploading

media and creating, viewing and exporting scrapbooks. The main page (dashboard) of the application is shown in Fig. 2.

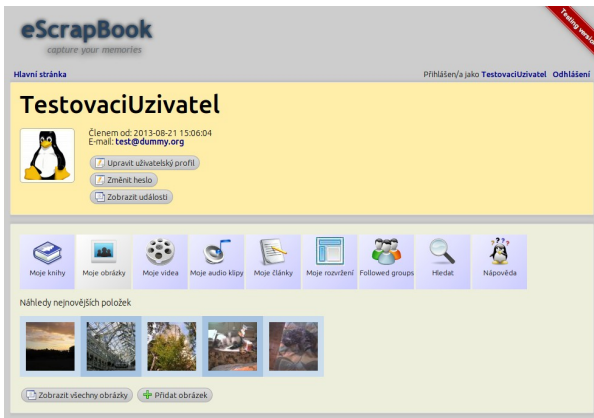


Fig. 2: The dashboard of eScrapBook application

When the user gathers and uploads necessary media files, it is possible to create a new book. Books can have any number of pages containing (based on selected page layout) one or more content units. A layout governs the placement and distribution of content units on page, examples of a layout can be “one content unit per whole page”, “grid with 3 rows and 2 columns” etc. The predefined standard layouts are shown in Fig. 3.

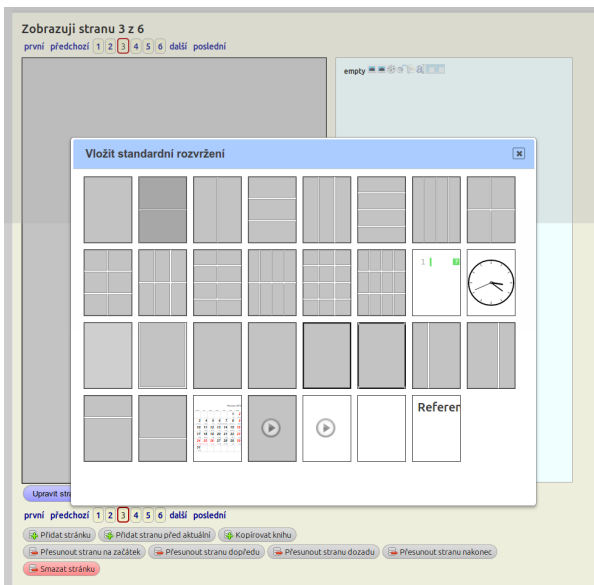


Fig. 3: The book editing page with standard layout selection dialog.

A content unit is either basic media (image, rich text, audio, video) or a layout. Therefore, layouts can be nested and combined, allowing for easy definition of custom reusable page layouts. The default parameters of content units can be changed via properties dialog, as seen in Fig. 4.

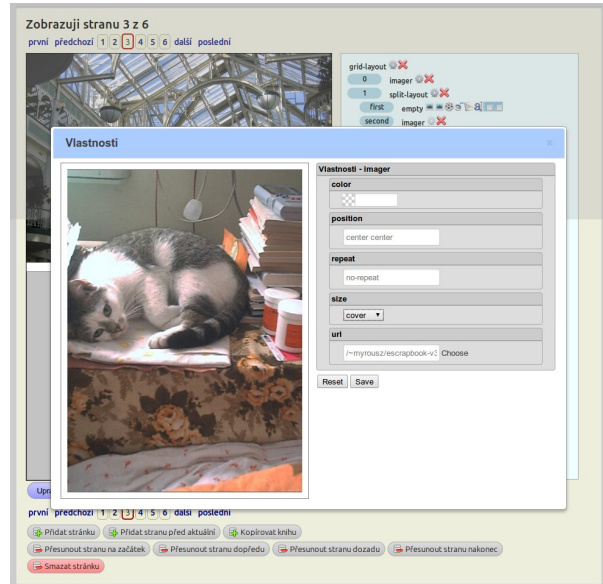


Fig. 4: The book editing page with image properties dialog.

The complete eScrapBooks can be viewed using built-in viewer, which allows to browse the book and turn its pages (literally, thanks to Turn.js library providing the page-flipping effect). This works very nicely on touchscreens, as seen in Fig. 5.



Fig. 5: Browsing an eScrapBook on touchscreen.

Implementation

The application consists of two main parts: a web portal (CMS) for uploading media and creating and editing books, and a book viewer client. Through the web portal, users can access all features of the CMS, create, edit and view books online. It is also possible to export created books for offline use – a zip archive is created, containing book media and metadata and also the book viewer client; this archive can be unpacked on the target computer and opened by a web browser without the need to be connected to the Internet.

The book viewer client is implemented in Javascript using the jQuery 1.9 and Turn.js libraries. The server part is implemented in PHP using CakePHP 2.2 framework and MySQL database. The client communicates with the server via REST services passing data in JSON (JavaScript Object Notation) format. The application and books are best accessed by Google Chrome (Chromium) and Mozilla Firefox browsers.

The book viewer can optionally log viewing-related data (e.g. which media or pages of the book are accessed most frequently, or for how long) for the purposes of later analysis and data-mining. The data may be logged to a local storage, or they can be sent to a server via a REST webservice. Currently, we work on the integration of the logging facility with the data mining and visualization software to provide useful information and feedback (for instance, which content do the clients prefer the most) to the content creators and the caretakers.

Conclusions and Results

In this work, we described eScrapBook, an application for easy creating of memory books and scrapbooks, suitable for use in (but not limited to) reminiscence therapy and Brain Stimulation test case of the SPES project. The application is developed as an open-source project under MIT license.

The test case 'Brain Stimulation' began with practising handling the touch screen function. More than 30 daycare centre clients of three daycare centres in Vienna (men and women with dementia of various types, with and without migration backgrounds) familiarized themselves with the 'all-in-one' PCs with touch screens acquired in the project by getting to know different computer functions and the internet, in many cases having their first experiences with PCs.

Subsequently, the test persons were requested to bring along pictures, texts etc. important to them or to speak about their preferences so as to gain material (contents) for personal memory books (eScrapBooks). Several personal memory books were produced with different focuses: Memories of former professional experiences, family, culture of countries or regions of

origin, as well as reflections of recent events in the daycare centre.

As many test persons could no longer express their interests verbally, joint watching of films and music on the internet was used to observe how test persons reacted respectively. The insights gained could be used for personal memory books as well. It was important to combine both visual and acoustic contents, i.e. short films, texts and photographs, and for them to be expandable as and when required.

Amongst other aspects, the personal memory books are suitable for persons who can no longer communicate verbally or for persons whose possibilities of communication are restricted because German is not their first language, but, of course, also for persons not affected by these limitations.

The test persons were supported in operating the initial personal memory books. In addition, work with the memory books stimulated test persons to use electronic entertainment programmes (specific games, films on YouTube, information in the mother tongue) with the support of the member of staff accompanying the test activities.

Acknowledgement

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