

IT-ASSIST: Digital Media for elderly people.

Daniel Kohlsdorf, Claas Ahlrichs, Michael Lawo

TZI- Universität Bremen
Am Fallturm 1
28359 Bremen
{dkohl, claasahl, mlawo}@tzi.de

Abstract: IT- ASSIST¹ is a twenty months research project which has the goal to give elderly people the opportunity to profit from digital media. Therefore it is important to redesign common applications like photo editing, digital mailing or Internet browsing because most elders suffer from visual impairment or bad hand-eye coordination. But one of the main aspects of bringing computing in this user group is low acceptance of personal computers. This paper presents a prototypic design of a user interface and the results of an interview done in three retirement homes in Bremen.

Keywords: user interface, elderly people, prototypic interface.

1 Motivation

In many retirement homes are no or only very little opportunities to get access to computers or even the Internet. Usually few computer workstations are found in multi-purpose rooms. But the problem is that many elder people are not able to interact with the software or do not see the advantages of using the new technology [1], [2]. Applications like email, online video telephony, picture browsing, and Internet browsing or reminder functionality could support the daily life in retirement homes.

How people use, apply and understand information depends of the complexity the user is confronted with. It depends on the level of training and the degree of operational demands as we know that from rule based or knowledge based human computer interaction models [3], [4].

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In a project named IT-ASSIST and supported by the structural funds of the European Commission we did during the last six months some basic generic studies with 15 residents recruited as volunteers. As a result three groups were identified: one very small group (3) is working with computers and has a lot of experience. A second larger group (8) is interested in computing and wants to learn more about it but does not know how to start or needs a lot of help. The third group (4) is not interested at all or does not know about the advantages. All participants had age related minor visual, hearing and dexterity impairments.

The goal of IT-ASSIST is to bring computers and Internet in every apartment of the retirement homes helping residents, carers and physicians to ease the collaboration. Therefore a system is planned with a simplified user interface for elderly people, and a specific modular hardware platform. With the help of the experienced and interested user groups the idea is to involve the skeptic group by telling about the opportunities.

2 Interview

For a better understanding and for planning the entire system, interview sessions with 15 residents from three local retirement homes were done. The subjects were mostly familiar or were interested in applications like digital music libraries, video chat, picture browsing or editing, writing texts or using email. All of them agreed that it is important to simplify the user interface. All attendees agreed that a ubiquitous reminder function (maybe on the TV screen) for birthdays, appointments or medications could prove to be useful.

We received the following findings: The mouse seems to be very difficult to handle and the residents liked the idea of using a touch screen or something different with direct manipulation. Most of them do not want to have another screen beside their TV and accept using the TV remote control for interaction. Weekly learning sessions or computer meetings were suggested where the residents can exchange their experiences and help each other in case of questions or problems.

3 Prototype

A first prototype consisting of a hardware platform and a user interface was designed, proposed to the residents and assembled.

2.1 Use case

Every morning the care is preparing the residents for their day. At this point they can switch the computer on. Residents without special care should start it, too. - Our goal is that the computer could be started without any interaction by simply turning it on. When turned on our interface is appearing (see section 2.3). The system then supports the residents during the day with reminders, media or communication with friends, assistants or family. Many residents have a lot of remote controls for their media devices like CD player, television or video recorder. It should be desirable to combine all in our solution so the interaction with all the devices becomes more consistent. In the evening the care assistants or again the residents themselves turn the computer off.

2.2 Hardware

The proposed hardware platform is a small, energy efficient computer that fits in any even small resident apartment. In the first iteration the television screen will be the computer monitor because most residents own one and it will not be out of place. Input methods will be the TV remote control and a specially prepared Bluetooth keyboard. For people in electric wheelchairs the controller stick could replace the mouse.

In public places, for example multi-purpose rooms or the entering hall, a touch screen will be placed with information about the offers of the house or some newspaper articles. In that way people that are skeptic about computers could be animated to interact with the platform.

2.3 Software

The software prototype consists of three levels. The first level is an overview or **welcome screen** from which the **main menu** can be accessed which is the second level. From the main menu the users could start their **programs** (third level).

In the welcome screen (see fig.1) the header is the resident's name, the date and the current time (1). If the computer is placed in a public place the name of the house appears. Below the header, the reminder is placed and the weather forecast (2 and 3). At the bottom is the button for accessing the main menu (4).



Fig. 1 Welcome screen

The main menu is a list of items. By pressing back or forward (see 1) in fig 2) the items rotate one by one. In the middle of the screen the current icon is displayed larger as the rest with the name or description of the program to be used (see 2) in fig. 2). Only a few icons from the whole list of programs are displayed at once. If the user presses left or right one icon is disappearing on the one side and on the other a new icon is placed. For example if the user presses right all icons would be shifted on slot to the right and the internet icon would move to the center position.

The icons are arranged in a cycle so the user can access all icons by pressing repeatedly in one direction. By pressing the button “overview” (see 3 in fig. 2) the user is redirected to the welcome screen.

The program design should be very minimalistic. There should be only functionality, which the user really needs. For example in mailing only read, send and reply is needed and all icons and fonts should be quite huge.

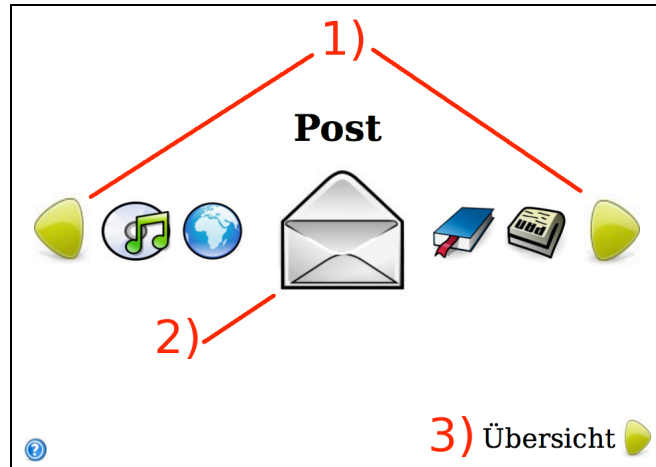


Fig. 2 Main menu

3 Conclusion and future work

We presented a prototypical system of digital media access for elderly people based on interviews with residents of three retirement homes. In the next phase we will evaluate the prototype and do further studies on the user acceptance and the maintenance of the system.

In the future we have to implement the software parts of the system and start doing field tests with the residents in their apartments. Based on that a user study is planned evaluating the usability of the software. At least we have started planning and building a network infrastructure in the retirement houses.

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