



Fig1. Usability testing with older adults.

# **EzNav** A MOBILE WEB BROWSER FOR THE ELDERLY

Ageing population is increasing around the world, and will continue to do so for the next decades. Consequently, the number of older adults that use the Web to enhance their independent participation in society will increase.

The regular use of the Internet may help to reduce isolation, loneliness and depression rates in older adults, thus improving their quality of life.

With that said, it is essential that older adults (like everyone else) can have proper access to Web resources, in order to take advantage of their vast benefits.

### Problem

As people get older, some difficulties arise, such as vision, cognitive and motor impairments, that may be an obstacle for Web interaction.

Besides ageing-related functional impairments, older people tend to be reticent about using the Web also because they have some fears, which include: damaging the machine, erroneously deleting files, providing personal data, privacy invasion, installing some kind of malware and not knowing what to do in a given situation. These fears arise from these user group's own lack of knowledge, discouragement and, often, lack of family support.

## Designing a mobile Web browser for the elderly

EzNav is an Android mobile application that consists of a Web browser for older adults, focusing on their needs.

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+351 220 430 300 info@fraunhofer.pt www.fraunhofer.pt The application design aimed at being simplistic and easy to learn and understand, especially because most elderly people had little to no experience with smartphones and tablets. Central to this ideology was the need for simple screens, including only essential functionality for a mobile Web browser and following a set of layout rules to ensure consistency across the system, with well-defined conventions for the position of information and buttons. Figure 2 depicts the application's main screen.

Furthermore, EzNav aims at improving Web browsing experience, by simplifying webpages' content and adapting the browser to fit user needs. The customizations made consist of implementing negative polarity in every webpage and increasing spacing between paragraphs, by adapting the webpage Cascading Style Sheets (CSS), and removing ads, which is achieved by blocking calls to common publicity sources. Besides, users can enlarge images by long pressing on them. In addition, the webpages which are most frequently visited by users are recorded in a list, allowing the application to adapt to each user's habits, such as when visiting the 'Search' screen.

#### Results

Usability tests were performed with a group of seniors, asking them to perform some tasks, in order to evaluate the system's usability. The results gathered proved promising, with all test participants performing all tasks, with no effort. Besides, seniors, in general, felt the application was easy to use and all of them would like to use it again, which shows great acceptance and interest in the application. Given these results, there are reasons to believe that the developed application has, in fact, a senior-friendly design.

## Future Work

Despite preliminary results showed positive, there are still some improvements to be done and features to add.

Future work can be done, regarding the webpages customization, trying to make all different webpages become the most coherent as possible, among them, and following Web design guidelines for older people, thus facilitating Web interaction for this type of users. Another possibility is to implement some mechanism that allows users to select what kind of transformations they want to be done to webpages.

An interesting aspect that is yet to be explored is the implementation of machine learning algorithms, so the browser can self-adapt to each individual's needs, for example, by suggesting webpages according to a user browsing patterns.



Fig2. Application's main screen.