Project Title:
Supporting Hearing in Elderly Citizens

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SHiEC

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Authors: Birgit Philips (CTC)

Contributors: CTC, OTO, VUA, OPCI

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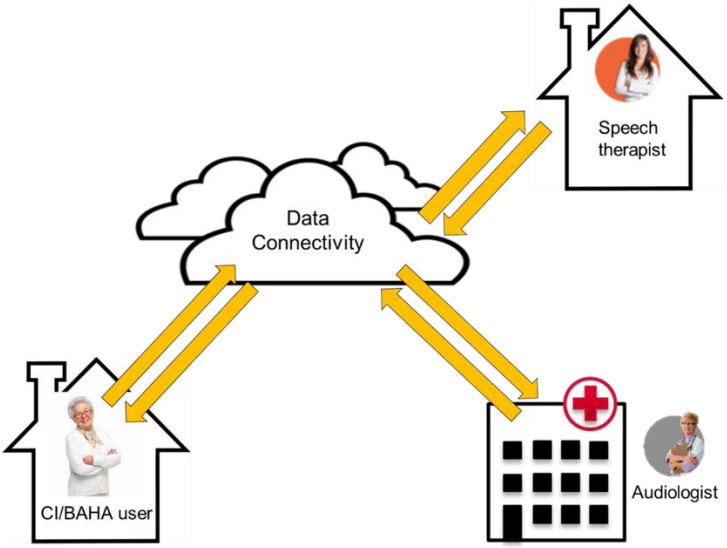
Contents

Abbreviations

Term	Definition
Baha	Bone Anchored Hearing Aid
CI	Cochlear Implant
SHiEC	Supporting Hearing in Elderly Citizens
MHA	My Hearing App

1 Background

The Supporting Hearing in Elderly Citizens project (SHiEC, funded by AAL JP, project number 2013-6-065) aims at developing eHealth tools to support senior cochlear implant (CI) and Bone Anchored Hearing Aid (Baha) recipients in using their CI/Baha more effectively by providing them with a digital platform containing several functionalities. The digital platform developed for CI users is called the **My Hearing App** (MHA).



2 Work package 4- Web service development, system integration and user field trials

The fourth work package of the SHiEC project focuses on the integration of the processes delivered in Work packages 1, 2 and 3.

Based on the focus groups (see Additional Report Work Package 1.1) with senior end-users (= cochlear implantees) the My Hearing App contains several **functionalities**:

1. assessment of one's hearing in the home environment
2. overview of the device use through data logging
3. motivation by offering a reward system with milestones and badges
4. device diagnostics in the home
5. counselling information on the use of the device
6. communication strategies with a tip of the day

Two versions of the MyHearing App were brought up:

1. MyHearing AppV1.0 for newly implanted CI subjects
2. MyHearing AppV2.0 targetting experienced CI subjects

Two **evaluations** of the MyHearing App are being conducted in the Netherlands, one with newly implanted CI users (MHA V1.0), and a second one with experienced senior CI users (MHA V2.0). These

evaluations have been approved by the METC of VUmc (NL51919.029.15). A report regarding the results of the clinical trials with the My Hearing App can be found in Deliverable 4.4.

The goal of this deliverable is to give an overview of the My Hearing App.

3 Getting ready to use the My Hearing App

The My Hearing App is available for Windows and has been offered to the participants of the clinical evaluations on a tablet (Acer or Lenovo).

My Hearing App can be offered to cochlear implant recipients owning a Cochlear Nucleus 6 Sound Processor (Figure 1) and CR230 Remote Assistant (Figure 2).

Figure 1 Cochlear Nucleus 6 Sound Processor

Figure 2 CR230 Remote Assistant

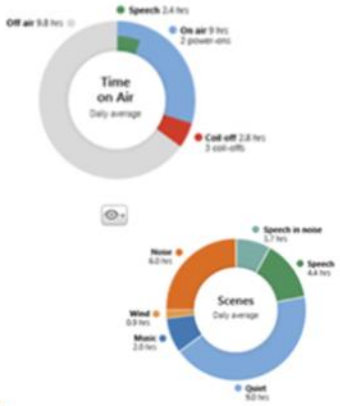
4 Functionalities within the My Hearing App

4.1 Dashboard

My Hearing App 1.0 and 2.0 monitor data refers to the performance/hearing tests, the sound processor logs, the hearing journey and the test results that are tracked, monitored by the application. The dashboard screen allows the users to see a “summary” of all these topics and to navigate to detailed views. Clicking on the buttons, or the related text/images shall allow the user to navigate to a detailed view. Below, a sketch of the My Hearing App can be found. A detailed overview of the final My Hearing App can be found in the restricted Additional Report WP4_3 “Final Demonstrator”.

Hearing tests

Datalogging



My Hearing Journey

Recipient Portal

Program use and Events

Nucleus® 6 System

Connecting remote assistant

4.2 Hearing tests

The hearing test screen allows the recipient to execute different hearing tests and view the results of the previous tests in the home environment.

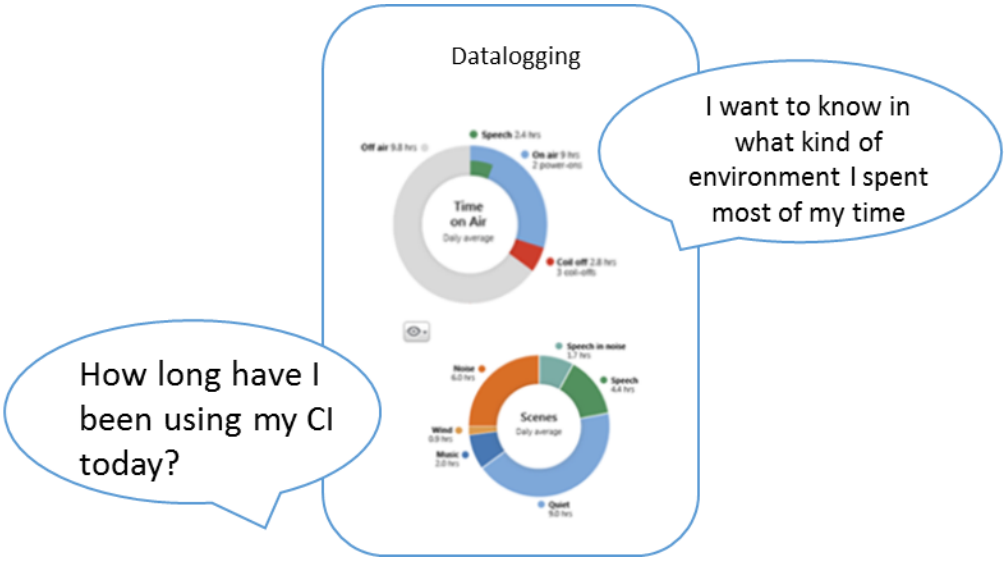
Therefore, the recipient needs to hook up the Nucleus 6 sound processor to the tablet via a personal Audio Cable (PAC) (Figure 3 and 4). Hence, the recipient only hears the input form the PAC cable (i.e. the hearing test) and is not disturbed by background noise in the home environment [1]. These tests have been described in Deliverables 3.3 and 2.4.

Figure 3 Connecting the Nucleus 6 Sound Processor with the PAC to the tablet

Figure 4 Connecting the Nucleus 6 Sound Processor with the PAC

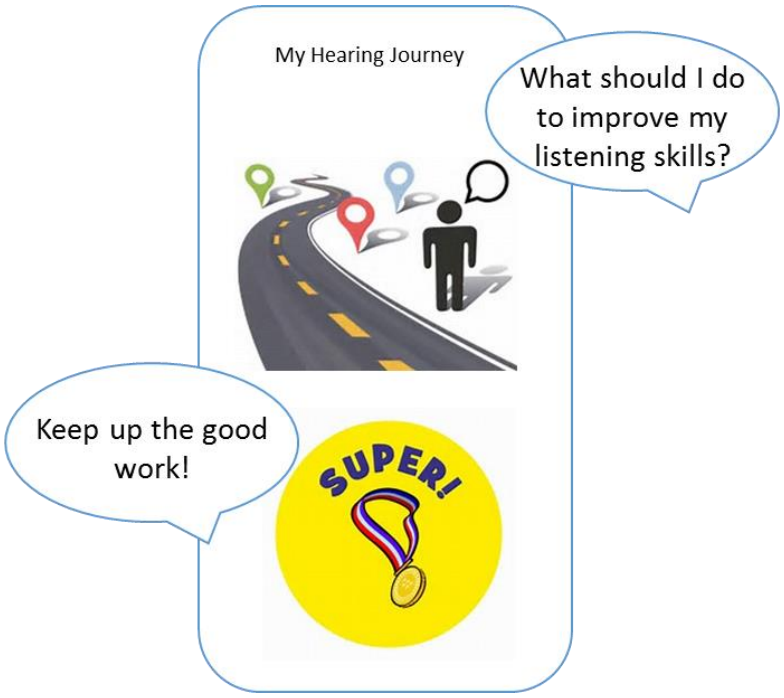
4.3 Datalogging

In this section, the CI recipient has access to an overview of the device use through data logging. Currently, having insight in device use was only reserved for the clinician (e.g. audiologist, speech pathologist, …). An overview of Datalogging, as it is currently provided to the clinician, can be found in Deliverable 1.3.



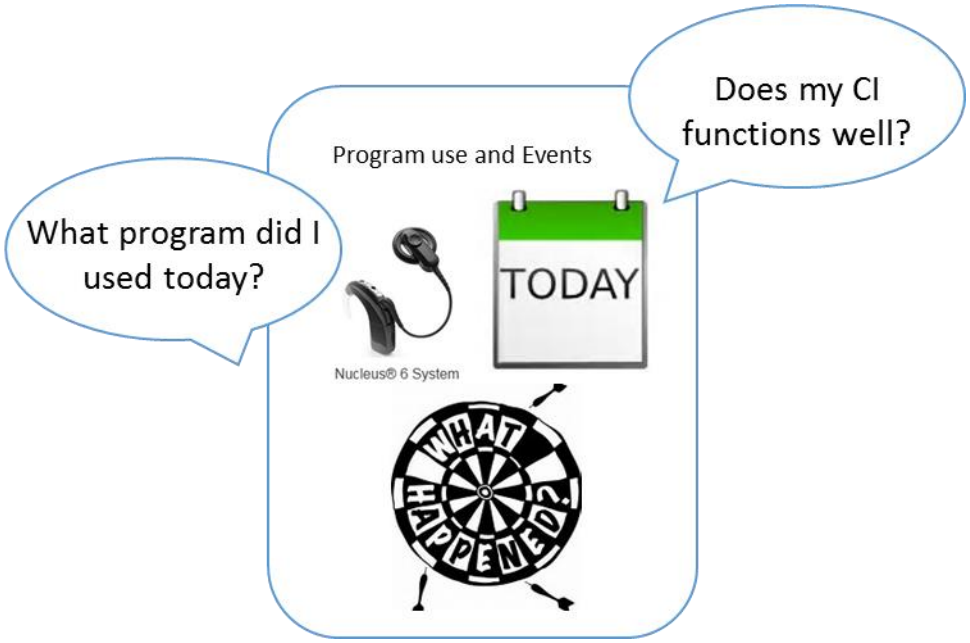
4.4 My Hearing Journey

In this section, the CI recipient is motivated by offering a reward system with milestones and badges.



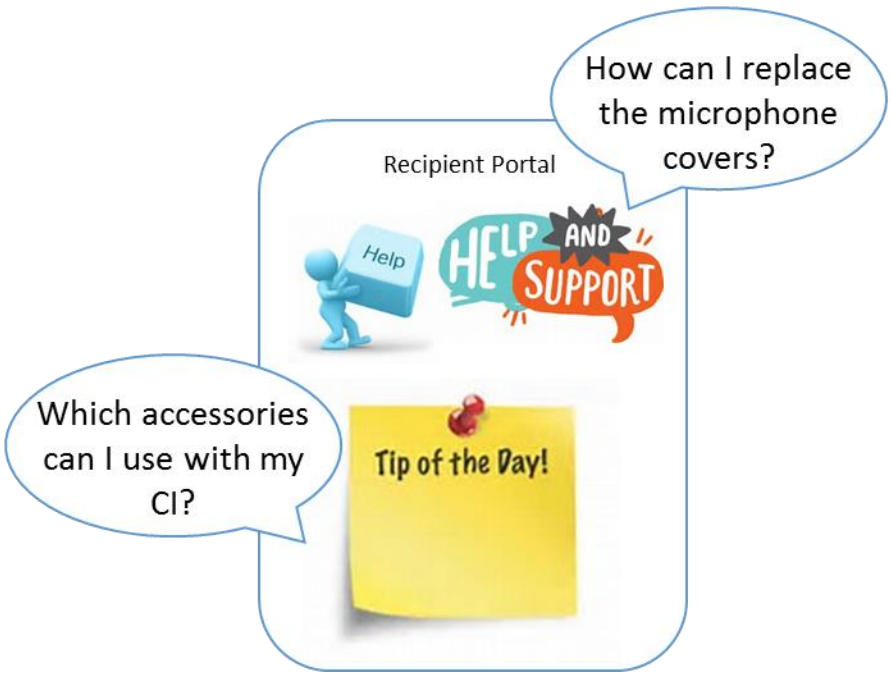
4.5 Program use and Events

As a CI is a technological device, Ci recipients want to be sure their device is functioning properly. This sections helps them in finding out in their home environment which programs they used, whether their battery run flat or whether their coil fell off.



4.6 Recipient Portal and Tip of the Day

One of the main issues that was raised during the Focus Groups, was having access to a reliable information source, accessible 24/7. Therefore, the Recipient Portal (MyCochlear Portal) was brought up. This recipient Portal has been described in Deliverable 1.3 and a clinical evaluation with the Recipient Portal can be found in Deliverable 1.4.
Furthermore, the My Hearing App offers a tip of the day, which can help recipients to reach their milestone (in section My Hearing Journey).


How can I replace the microphone covers?
Recipient Portal
Help
HELP AND SUPPORT
Which accessories can I use with my CI?
Tip of the Day!

5 References

[1] F. de Graaff, E. Huysmans, O. R. Qazi, F. J. Vanpoucke, P. Merkus, S. T. Goverts, C. Smits. The development of remote speech recognition tests for adult CI users: the effect of presentation mode of the noise and a reliable method to deliver sound in home environments. Audiology and Neurotology. May 2016, https://www.karger.com/Article/FullText/448355