WP3: Performance tracking at home

Description

This WP focuses on the development of new materials that are suitable to track speech understanding performance through a remote speech recognition assessment tool. The materials will be integrated in the web services and then tested by the user to measure their speech recognition abilities in quiet and in noise. It will help them with troubleshooting (is my hearing instrument still working properly?), annual assessment (partly a replacement for testing at the clinic), detailed monitoring of progress in speech recognition (e.g., weekly a short test session), decision making (e.g., which device setting is optimal after a week acclimatization). The process will be tested in a pilot study and the results used to modify the tool before it is fed into WP4 for full user trials.

Deliverables

1. Proposal of materials and testing methods (November 2014-Restricted)

This report describes the requirements for the development of a tool which allows CI recipients to assess their speech recognition abilities in their home environment, without the need to come to a clinic. In addition, a research study is outlined that aims to validate the outcomes of the remote test tool.

2. User validation with the first version of the speech recognition tool on 10 users (March 2016-Restricted)

This document reports on the outcomes of the validation study that was performed to assess the reliability of the speech recognition tool that is used at home. A manuscript describing the results of this study is prepared for publication in a peer reviewed scientific journal.

3. Version of the remote speech recognition tool with appropriate test settings, red flags and user feedback facility (May 2016-Public)

After validation of the home assessment tool, the application is further developed to be used as part of the SHiEC web based service in Work Package 4. This document shows how the tool works and how the test results are presented to the user.

Additional reports

1. Remote testing of speech recognition: feedback from the user panel on beta version of the app (Additional Report WP 3.2.) (Public)

Within the SHiEC project, a speech recognition tool was developed which allows CI recipients to assess their speech recognition abilities at home. Before validating the outcomes of this tool in a larger study, a beta version of the application was extensively evaluated by three experienced CI users.

2. Development of feedback to the user (Additional Report WP 3.3.) (Restricted)

When CI users assess their speech recognition abilities at home, the outcomes of the tests are not interpreted by a clinician, as in clinical practice. Therefore, results have to be interpreted automatically by the tool and then presented directly to the CI user. This report describes the procedures to present the outcomes of the digits-in-noise test, used as a screening test by CI users who experience a deterioration in performance. In addition, the report specifies the procedures to visualize the user’s progress over time on a words-in-quiet and digits-in-noise task.

Testing speech recognition at home

First, the user connects his cochlear implant processor to the tablet computer, using a personal audio cable.

Then, instructions are given to perform the test with short words, presented in quiet. The user perceives the word and enters his response on the keyboard.
After finishing the test with words in quiet, the user receives instructions for the test with digits in noise. The recipient enters the perceived digits on the keyboard.
Instructies

U krijgt cijfers te horen van 0 tot 9, telkens in een combinatie van drie cijfers (bv. 6-8-4). U hoort de cijfers in een achtergrondgeluid. Op het moment dat de cijfers worden aangeboden, ziet u een luidspakersymbool. Sommige cijfercombinaties zijn makkelijker te verstaan, andere zijn helemaal niet te verstaan.

Typ de cijfers die u heeft gehoord. U moet telkens drie cijfers typen. Als u cijfers niet verstaat, moet u gokken. Typfouten kunt u corrigeren.

Als uw antwoord klaar is, drukt u op "Volgende" om de volgende cijfercombinatie te horen. Gebruik alleen cijfers, dus geen spaties of andere symbolen.

Volgende