

A new way of using the mobile phone for the visually impaired

Nowadays, more and more features are added to every new generation of mobile phones. It'd be hard to find a phone without camera, mp3 player or advanced games. However, sightless people don't get a chance to experience these fascinating possibilities.

Without eyesight, there are currently only two possibilities for mobile communications:

- **Text2Speech-software:** This is problematic due to the privacy requirements – it'd be hard to use in public. Also, navigation through menus is slow. Another disadvantage is that it'd be nearly impossible to put text2speech-software on top of the existing UI of mobile phones, as today's interfaces are usually very graphical. For example, even the alarm clock application couldn't be read by software, as the time is usually presented in a graphical way.
- **Special Braille PDAs:** They are comfortable to use, but very big and expensive, making their daily and mobile use problematic.

Why not use the power of modern Smartphones to provide a new and better solution? A project started by Ewald Kantner at our University of Applied Sciences in Hagenberg¹ tries to address this issue.

Ninepoint Box



Fig. 2 - Closeup of a prototype Ninepoint Box.

A small, external box with several Braille components and keys for easy input connects through Bluetooth to the mobile phone. A special Python-application on a Symbian OS phone is responsible for communication and for providing the special non-graphical user interface.

The interface has to be highly optimized to be able to efficiently access the most important features of phones, like making calls, sending SMS and using the alarm clock or calculator. Python proved to be the ideal choice for these tasks as its performance is sufficient and it enables better access to the required phone services than Java ME. On the other hand, using standard C++ would be very difficult due to the vast amount of different system APIs that are involved – of course, they're very powerful but therefore also complex.

The resulting solution is relatively cheap, easy to use and very transportable. It has been a big challenge to design the hardware and to test it with the target group, as the requirements are hard to meet. In the current status, fully working prototypes are finished and the final hardware design is on its way.



Fig. 1 - Prototype of the Ninepoint Box in use.

¹ http://www.fh-ooe.at/uploads/media/MC_BSc.pdf

To bring this product to the market, Ewald Kantner² has started his own company “Ninepoint Systems”. Currently, he is searching for investors to bring the solution to the market – which is looking forward to the solution, according to the feedback from Europe’s biggest fare for sightless people, “Sight City”.

- Andreas Jakl
andreas.jakl@fh-hagenberg.at

² ewald.kantner@ninepoint-systems.at

