

Braille converter bridges the information gap

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A free, e-mail-based service that translates text into Braille and audio recordings is helping to bridge the information gap for blind and visually impaired people, giving them quick and easy access to books, news articles and web pages.

Developed by European researchers, the RoboBraille service offers a unique solution to the problem of converting text into Braille and audio without the need for users to operate complicated software.

“We started working in this field 20 years ago, developing software to translate text into Braille, but we discovered that users found the programs difficult to use – we therefore searched for a simpler solution,” explains project coordinator Lars Ballieu Christensen, who also works for Synscenter Refsnaes, a Danish centre for visually impaired children.

The result of the EU-funded project was RoboBraille, a service that requires no more skill with a computer than the ability to send an e-mail.

Users simply attach a text they want to translate in one of several recognised formats, from plain text and Word documents to HTML and XML. They then e-mail the text to the service’s server. Software agents then automatically begin the process of translating the text into Braille or converting it into an audio recording through a text-to-speech engine.

“The type of output and the language depends on the e-mail address the user sends the text to,” Christensen says. “A document sent to britspeech@robobraille.org would be converted into spoken British

English while a text sent to textoparabraille@robobraille.org would be translated from Portuguese into six-dot Braille.”

The user then receives the translation back by e-mail, which can be read on a Braille printer or on a tactile display, a device connected to the computer with a series of pins that are raised or lowered to represent Braille characters.

RoboBraille can currently translate text written in English, Danish, Italian, Greek and Portuguese into Braille and speech. The service can also handle text-to-speech conversions in French and Lithuanian.

Christensen notes that the RoboBraille partners are constantly working on adding new languages to the service and plan to start providing Braille and audio translations for Russian, Spanish, German and Arabic. They are also working on making the service compatible with PDF documents and text scanned from images.

Up to 14,000 translations a day

At present, the service translates an average of 500 documents a day, although it could handle as many as 14,000. RoboBraille can return a simple text in Braille in under a minute while taking as long as 10 hours to provide an audio recording of a book.

As of January, the RoboBraille system had carried out 250,000 translations since it first went online.

The team have won widespread recognition for their work, receiving the 2007 Social Contribution Award from the British Computer Society in December while in April they were awarded the 2008 award for technological innovation from Milan-based Well-Tech.

“We initially started offering the service only in Denmark but to make it viable commercially we needed to broaden our horizons. Hence the eTen project which allowed us to involve other organisations across Europe in developing and expanding the service, not only geographically but also in terms of users,” Christensen says.

In addition to the blind and visually impaired, the service can also help dyslexics, people with reading difficulties and the illiterate. The project partners plan to continue to offer the service for free to such users and other individuals, while in parallel developing commercial services for companies and public institutions.

“Pharmaceutical companies in Europe will soon be required to ensure all medicine packaging is labelled in Braille and we are currently working with three big firms to provide that service,” Christensen explains.

“Banks and insurance companies are also interested in using it to provide statements in Braille as too is the Danish tax office. In Italy there is interest in using it in the tourism sector.”

The RoboBraille team, which recently received an €1.1 million grant over four years from the Danish government, expect the service to be profitable within four or five years.

And although they are not actively seeking investors, they are interested in partnerships with organisations interested in collaborating on specific social projects.

RoboBraille was funded under the EU's eTEN programme for market validation and implementation.

On the Net: www1.robobrainle.org/

Source: [ICT Results](#)

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