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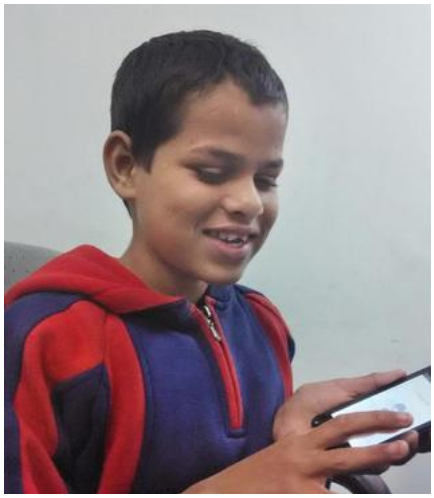
Expanding horizons

A text-to-speech (TTS) software in Tamil is making it easier for the visually-impaired Tamil speaker to access books



Tamil TTS, developed by CMU and the Hear2Read project, converts electronic text written in Indian languages into messages one can hear.

The conversion from text to speech is done in real-time, without Internet access.

The Hear2Read app works with the Android TalkBack accessibility option that allows people with low vision to use applications such as web browsers, email, SMS (texting), phone calls, word processors, spreadsheets and book readers.

TalkBack adds spoken, audible and vibration feedback to your device. TalkBack comes pre-installed on most Android devices. It has a high rating.

The popular Tamizh novel *Washingtonil Thirumanam* got a whole new review recently when Sundari Venkatesan and her students heard it at the Independent Living Skills Training Programme for the Blind and Visually Challenged at Mitra Jyothi in Bangalore. The reading voice shivered a bit, Sundari said, numerical figures were spelt in "funny English" and names like Harry and Rockefeller had weird pronunciations. But the listening was an experience to remember. The story came through Tamil text-to-speech (TTS) software on Android OS, thus enabling millions of visually-impaired Tamil speakers to "read" books on the go.

The text-to-speech (TTS) software, developed by Carnegie Mellon University (CMU) in collaboration with the Hear2Read project, can now be downloaded free of charge from Google Play. It's in Tamil now, but will soon be out in seven other major languages — Hindi, Bengali, Gujarati, Marathi, Kannada, Punjabi and Telugu. The software is available on Android OS and the Windows version isn't far behind, says Suresh Bazaj, founder, Hear2Read, a voluntary organisation.

Screen-reading software isn't new in India. JAWS (Job Access With Speech) for Windows PC has been around for years. But "it's not available for Android devices and Freedom Scientific, the JAWS publisher, has no plans to port it to Android," says Bazaj. "Once we release Hear2Read Tamil TTS for Windows, it will work with JAWS, NVDA and other Windows applications that support TTS software."

But how do people who can't see well use a device with a touchscreen? Sure, using a keyboard is easy, but learning to use a touchscreen is not very difficult, says Bazaj. Dr. Sam Taraporevala's demo – he is visually-impaired – on how he uses a touchphone to read his e-mail bears out his claim. If you are reading for long, say a book, you can use a physical keyboard connected to the Android device.

Which cellphone will be best for TTS software? Affordable Android phones/tablets with a minimum memory and processor should do, although it may not work well on phones that sell for Rs. 5,000 or less. Tablets and phones are being distributed by the Government of India to qualified class VI students under the ADIP scheme. Bookshare, an Accessible Online Library for people with print disabilities, is another great resource.

The need for good quality TTS for Indian languages is great, but it's difficult to find, difficult to use or unaffordable, says Bazaj. Making TTS software affordable has been the goal of this project. The software is free and the price of touchscreen smartphones is coming down rapidly. Any 1 GB RAM and 1.3 GHz Quad Core processor will run the TTS software and have leftover processing power to run other applications.

The project became a possibility when Bazaj met Alan Black, a professor in the School of Computer Science's Language Technologies Institute and internationally known for his work in speech synthesis, two years ago. Inspired by the idea, Black and his students took up the challenge to develop a TTS software that would be simple and user-friendly. First, a native speaker records two-three hours of open-source text in clear, consistent speech. The audio then goes into a baseline TTS system. Though the process to create voice databases needs large-scale computing, the resulting database for each language is relatively small, and can run on low-end Android phones or tablets. Selfless volunteers supported the programme, says Bazaj, thanking the non-profit Access Braille and Indians for Collective Action for help with funding. Here's hoping that it reaches every visually-impaired person who reads Tamil.