Google translation app could break language barriers via phone

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Whether it's C-3PO, the fastidious Star Wars droid fluent in 6 million languages, or Star Trek's invisible but convenient "universal translator," the miracle interpreter has been a favorite device of science fiction.

But now, on planet Earth, Google Inc. is using its vast computational and intellectual resources to put that futuristic technology directly in the hands of consumers.

If you're traveling in Beijing and find yourself hungry for some American cuisine, you can activate the translator on your Google-powered phone, and say, "Where can I find a hamburger?" Moments later, the phone will spit out the phrase in Chinese -- both as a string of text and, if you prefer, in a computerized voice.

Conversely, should you happen to be stopped on Sunset Boulevard by a visiting Japanese businesswoman with a question in her native language, simply ask her to speak it into the phone. Wait a beat, then press the play button to hear the translation: "Is it going to rain today?"

The phone's voice can sound like a robot from a 1950s-era sci-fi movie -- and the translations are often less than perfect. But half a dozen bilingual speakers of Mandarin, Japanese and Spanish (including a few Los Angeles Times reporters) said the application works surprisingly well for translating basic phrases.

"There's still a long way to go, but this is an amazing start," said Jaime

Carbonell, the director of the Language Technologies Institute at Carnegie Mellon University in Pittsburgh.

The free application, called Google Translate, works on phones running Google's Android operating system. It can translate text to and from more than 50 languages -- including Icelandic, Slovenian and Swahili -- and has so far been downloaded more than 250,000 times since its January release. As of now, the only languages for which it recognizes spoken words are English, Mandarin and Japanese, though German and several other languages are in the offing

The program's simplicity belies the difficulty inherent in teaching computers to translate -- a long-standing computer science problem known as machine translation.

Google's founders realized early on in the company's 12-year history that if it was going to achieve the goal of making the world's information easily accessible, its software would need to work in every language.

"The idea is -- with the help of technology and machine translation -- can we actually break down the language barrier?" said Franz Josef Och, who leads Google's machine translation group. "So that anyone can access any information or text out there, independent of the language."

Och, by the way, has a doctorate in computer science and was a machine translation researcher at the University of Southern California before he began working on translation at Google in 2004. He has written dozens of research papers on the subject.

He pointed to Arabic as an example of a language whose speakers may benefit disproportionately from machine translation. Though there are hundreds of millions of Arabic speakers in the world, only about 1 percent of the text on the Web is in that language, he said. That

imbalance greatly limits Arabic-speakers' access to nearly all of what is written online.

In addition to the mobile application, regular computer users can use Google to translate entire Web pages. An Arabic speaker could, for instance, use Google to read a translated version of a newspaper's Web site.

Google trains its computers to translate by constantly feeding them examples of a text that occurs in two or more languages. Many official United Nations documents, for instance, are carefully translated into the languages of member countries. Looking at those "parallel" documents, Google's translation system can deduce the way many words and phrases are translated. And the more examples it gulps down, the smarter it gets.

Indeed, because Google maintains an ever-growing database containing text from billions of Web pages and periodicals and books in many languages, its translator is not lacking for fodder.

In recent years, Google's beefed-up approach to translation has given it an advantage over most university research efforts, said Mark Przybocki, who oversees machine translation at the National Institute of Standards and Technology. NIST hosts an annual machine translation contest, but Google no longer participates.

Its competitors in the contest "were going up against someone with access to a football field worth of processors to collect data," Przybocki said. "That's kind of not fair."

Though the mobile application is still in its early stages, Google has high hopes for it. Och believes that it won't be long until the technology will allow for speech-to-speech translation: that is, allowing for a live conversation between speakers of two different languages.

"A few years down the road, it will be a reality that people find useful," he said.

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