Phone software takes the taps out of typing

Back in the 1990s, typing out "hello" on most cellphones required an exhausting 13 taps on the number keys, like so: 44-33-555-555-666.

That was before the inventor Cliff Kushler, based here in Seattle, and a partner created software called T9, which could bring that number down to three by guessing the word being typed.

Now there is a new challenge to typing on phones. More phones are using virtual keyboards on a touch screen, replacing physical buttons. But pecking out a message on a small piece of glass is not so easy, and typos are common.

Mr. Kushler thinks he has a solution once again. His new technology, which he developed with a fellow research scientist, Randy Marsden, is called Swype, and it allows users to glide a finger across the virtual keyboard to spell words, rather than tapping out each letter. [Watch a demonstration of Swype on YouTube.com]

While many smartphones have features that auto-complete words, correct typos on the fly and add punctuation, Mr. Kushler is aiming for the next level.

"We've squeezed the desktop computer, complete with keyboard and mouse, into something that fits in a pocket. The information bandwidth has become very constricted," he said. "I thought, if we can find a better way to input that information, it could be something that would really take off."

Mr. Kushler says Swype is a big breakthrough that could reach billions of people. That's not as ambitious as it sounds. To date, the T9 technology has been built into more than four billion devices worldwide. In 1999 its creators sold it to AOL for a reported $350 million; it is now owned by the speech-recognition company Nuance.

Swype's software detects where a finger pauses and changes direction as it traces out the pattern of a word. The movements do not have to be precise because the software calculates which words a user is most likely trying to spell.

Capitalization and double letters can be indicated with a pause or squiggle, while spacing and punctuation are automatic. Mr. Kushler, who is chief technology officer of Swype, estimates that the software can improve even the nimblest text-messager's pace by 20 to 30 percent.

Swype is now being used on seven smartphones in the United States, across all major wireless carriers, including the HTC HD2 and the Samsung Omnia II. By the end of the year, the company says its software will be on more than 50 models worldwide.

It does not have a deal with Apple, the king of touch-screen phones, but it is tinkering with software for the iPhone and the iPad and hopes to show it to Apple soon.

To make money, Swype charges phone makers a licensing fee for each device sold. It also sees opportunity in add-ons.

"We could have custom dictionaries for doctors or lawyers," said Mike McSherry, chief executive of the company.

But Swype's appeal goes beyond mobile phones, said Won Park, director of United States technology sourcing at Samsung.

"It could become the de facto standard for tablets, next-generation TVs or next-generation remote controls," Mr. Park said. "It has tremendous potential."

Swype's executives also see its reach extending into public kiosks, smart home appliances, video game consoles and in-car navigation systems.

Some older input methods for mobile devices were based on scribbled gestures, like Palm's Graffiti. But using Graffiti was slower than typing and forced people to learn an entirely new handwriting format to produce accurate results, said Gavin Lew, co-founder of User Centric, a consulting firm that studies user experiences with mobile devices.

"Swype-like applications rely on a well-known layout, the full qwerty keyboard," he said. "One simply needs to target a specific letter rather than relying on a memory of how to draw a letter."

As cellphones take on the functions of personal computers, Mr. Lew said, the need increases to quickly enter and search for information on them.

"These devices aren't just phones anymore, which is why you're seeing all these new technologies emerge," he said. "The more we use them in our daily lives, the greater the need to be more efficient at inputting information."

Mr. Kushler began experimenting with input methods in 2001, guided in part by his earlier work in helping people with disabilities use technology. He took note of the popularity of devices like those from Palm that used a stylus for input, but he saw room for improvement. He worked with Mr. Marsden to fine-tune the Swype software — which took a laborious seven years.

"The most important thing was that it could accurately figure out which word you wanted to spell," Mr. Kushler said. "It needed to work no matter what."

Swype is not the only start-up hoping to profit from innovations in this area. Many companies are trying to improve the way people type on touch screens, which are proliferating swiftly. The research firm Gartner expects global sales of touch-screen devices to reach 326.7 million in 2010, an increase of 97 percent from last year.

SlideIT, a start-up with offices in the United States and Israel, sells applications for touch-screen text input with a finger or stylus for Symbian, Windows Mobile and Android phones. The company says that since February its software has been downloaded more than 500,000 times.

Nuance, a company best known for speech recognition software, acquired a start-up called ShapeWriter that matches patterns traced onto a touch-screen keyboard with those of commonly written words. It is negotiating with phone makers to use its software, called T9 Trace.

Google is trying to let people skip the screen entirely by developing voice- and image-recognition technologies. Its Goggles application can analyze a photo of some text and translate it into a different language — no typing required. Meanwhile, Swype is moving ahead with its own voice recognition feature, which it expects to add to smartphones this summer.

"We're all about improving how people input information into their phones, whether through swiping or speaking," Mr. McSherry said.

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