

## Mobile Search Is Dialing Up Voice Recognition

By SAMAR SRIVASTAVA

UNTIL RECENTLY, when Eli Portnoy wanted to find the nearest restaurant he would use his cellphone to call a search service offered by his carrier, Verizon Wireless. A live operator would answer and, for about \$1.50 per inquiry, give the 26-year-old entrepreneur a list of choices based on his location.

Today Mr. Portnoy still makes wireless calls to get such information. But he has switched to Google Inc.'s free directory service that employs voice-recognition technology to power searches for local-business listings. To use it, he'll call the service and say "restaurant" and his location. Within a few seconds, an automated voice will list the top 8 choices and also give Mr. Portnoy the option of receiving a text message or being connected to one of the restaurants. The restaurants do not pay to be in-

### Digital Dialing

Major free search services that use voice-recognition technology

Access number	Service provider/launched	Search options
1-800-555-TELL	Microsoft Tellme/ April '07	Businesses, stock quotes, news, sports, entertainment, travel
1-800-GOOG-411	Google /Began testing in April '07	Only local business
1-800-FREE-411	Jingle Networks/ September '05	Business and residential listings

Sources: the companies

cluded, and they are ranked using the same algorithm Google uses for Web searches.

Voice-recognition technology is emerging as the latest tool in the competition among technology companies to carve out a share of the fledgling

mobile-search business. In April, Microsoft Corp. acquired Tellme Networks Inc., a leading provider of voice services. Start-up Jingle Networks Inc., one of the first to offer a free directory-assistance service, has been doing so since 2005.

Other types of cellphone search services exist, but most of them require consumers to use their handsets to type in inquiries or navigate through menus. The procedures have proved to be daunting for many users.

The appeal of voice recognition is that users need only make a phone call and talk like they're used to doing with directory assistance. Some directory-as-

sistance services have employed limited forms of voice recognition, but the new search services are fully automated, offer a wider range of advanced functions and are free. Typically, the ser-

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vices can understand words and some phrases but not whole sentences. Most of the new services allow callers to ask for the numbers of specific businesses as well as general categories. The lists of businesses aren't vetted in terms of quality.

"The billions of calls made every year to directory-assistance services are a healthy precedent for voice-based search services," says Dan Miller, a senior analyst at Opus Research, a San Francisco-based consultancy that tracks the interactive-services sector.

What's also new about such services is how they plan to make money. Some are still charging fees for each call, like most other directory services. But others, especially new entrants, are giving out information for free and trying to make money off advertising.

The interest in voice recognition is part of a broader gold rush taking place by major Internet companies for new advertising technologies. Recent deals include Microsoft's \$6 billion plan to acquire online-ad specialist **aQuantive Inc.**; Google's planned purchase of **DoubleClick Inc.** for \$3.1 billion and **Yahoo Inc.**'s purchase of the remaining 80% stake in **Right Media Inc.** for \$680 million.

The flurry of activity is spilling over into the voice-recognition business. Earlier this month, **Nuance Communications Inc.**, which sells speech-recognition software, acquired **VoiceSignal Technologies Inc.**, a provider of mobile-voice technology. Yahoo has said that it also is planning to use speech recognition in mobile-search services.

Free mobile search, however, is more bad news for the paid directory-service business. Opus Research predicts this business will drop from \$3.5 billion in annual revenue in 2006 to \$1.8 billion by 2010, mostly because searching for most phone numbers is free on the Internet. People also will likely begin calling free directory services from their landline as well as their cellphones. The advertiser-supported free model is expected to increase to a \$3 billion business in 2010 from \$203 million in 2006, according to Opus.

"There is no question that these services have got to be free. Anyone who thinks otherwise is fooling themselves," says Emerick Woods, the CEO of **V-Enable Inc.**, a San Diego-based provider of search and directory-assistance solutions.

"All operators are exploring the possibility of setting up free services," says Jeff Kunins, vice president marketing at Tellme Networks.

For now, the free search services are experimenting with simple ad techniques. Jingle Networks runs a general ad before users state their request. After the request is made, the Jingle service plays an ad that's more related to the query. Only then is the information dispensed.

Microsoft's Tellme service runs ads after some of the searches are performed. Google's automated-search service



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is still in testing mode and for now is free of advertising. The company declined to comment on whether they would run ads in future. "We think about monetizing our products later [after the testing is complete], if it makes sense to the user," says Bill Byrne, senior voice-interface engineer at Google.

Technology companies are moving toward ad-supported business models partly because voice recognition has reduced the cost of providing directory services. It costs 25 cents to 27 cents for a live oper-

ator to answer a call, but only 8 cents to 10 cents when the answering process is automated, according to Opus Research's Mr. Miller.

For now, most searches can be performed by ZIP code, area or intersection. But even executives who work for the new search services acknowledge they're not always accurate because their databases aren't complete. For example, sometimes a service won't name the closest business.

Voice-recognition technology has been around for years.

But recently it has improved to the point that some systems have a 95% or better success rate in correctly recognizing words spoken, according to Paul Ricci, chairman and chief executive of **Nuance Communications Inc.**, a Burlington, Mass.-based provider of voice-recognition solutions and services.

Brian Lent, CEO of Medio, a provider of mobile search solutions, says his company has been able to make their services indifferent to background noise—and that's helped cut down on misunderstood inquiries.

