

# Look it up, Map it, Navigate to it

—by Rami Honig

**GPS** is the best known way to locate objects and people by applying the fundamental principles of distance measuring. Combining GPS with mobile phones makes mapping locations an integral part of our everyday lives. Today's cell phone makers are increasingly incorporating mapping technologies to provide navigation and customized services for the most ubiquitous device in the world—the mobile phone.

As a result, location-based services are enhancing the mobile experience—and not only from a “Where am I?” and “What am I near?” perspective. Map content can now be easily transferred between mobile devices, and turn-by-turn directions provide not only navigation but also suggestions on the route and time to destination. This enables users to make informed choices on how to get from point A to B using public or private transportation, where to dine when they get to their destination, and even make the late-night movie at a nearby theatre, if they are so inclined.

Market trends such as tying user-generated content to specific locations to provide information or even recommendations on such things as a hot new restaurant or locating the closest, highest-ranked source of best regional wine are making map-based applications useful for navigation, but they are increasingly also changing the way we navigate. Meaningful, contextual content is being geo-referenced and has become geo-searchable; the possibilities for integrating this new medium into everything we do are limitless.

Several distance-measuring methods can be used to determine the location of the mobile phone subscriber. The standard and arguably the simplest way of pinpointing the exact location of a mobile device, and thereby its user, is to use GPS. GPS is based on the concept of triangulation,

a basic geometric technique that is used to “find” a location based on distance from another “known” location.

There are, however, situations in which GPS positioning is not readily available or accessible by a mobile device. GPS signals

are often blocked when a user and his or her phone are indoors or surrounded by tall buildings in a city.

In these “dead zones,” another option for determining locations in serving up location-based information is accomplished through cell-based positioning techniques. This method analyzes signals received by a mobile phone from cell sites, using approaches such as EOTD (Enhanced Observed Time Difference) to triangulate its geographical position. While cell-based positioning and other methods are typically less accurate than GPS and may not be suitable for all navigation purposes, an approximate location can still be used to view an area map or to search for nearby places and services.

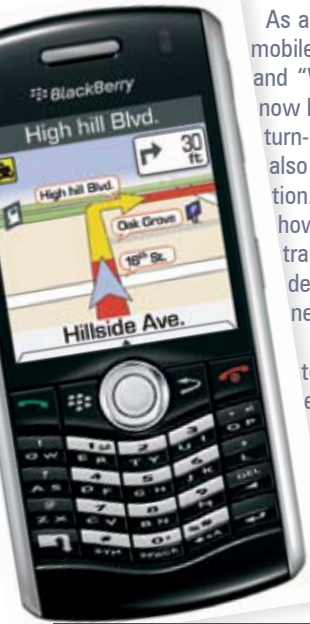
Today's mobile phone users are always on the go and therefore need advanced up-to-the-minute information. By incorporating real-time traffic information, users can view several optional routes, based on traffic conditions and the estimated travel time for each option. Additional real-time information such as current weather conditions give users greater control over the information they seek and, consequently, greater satisfaction from their mobile navigator.

The use of location information from a GPS chip in combination with open-source development technologies has contributed to a rapid increase in the number of mapping applications and navigation services. Telmap, a world leader in mobile location solutions, is one company driving this momentum by opening up their APIs (application programming interfaces) to third-party applications that can now integrate mapping and navigation services into one coherent UI (user interface). As companies such as Telmap, Nokia, and Google participate in making navigation services and their mapping richer and more integrated with content, mobile devices are becoming indispensable.

As more and more map-based services are integrated with mobile devices, location-based services (LBS) will become available everywhere. Google, for instance, uses free maps and advanced search technologies to create an underlying map structure for mobile navigation. Telmap extends mapping by making location actionable.

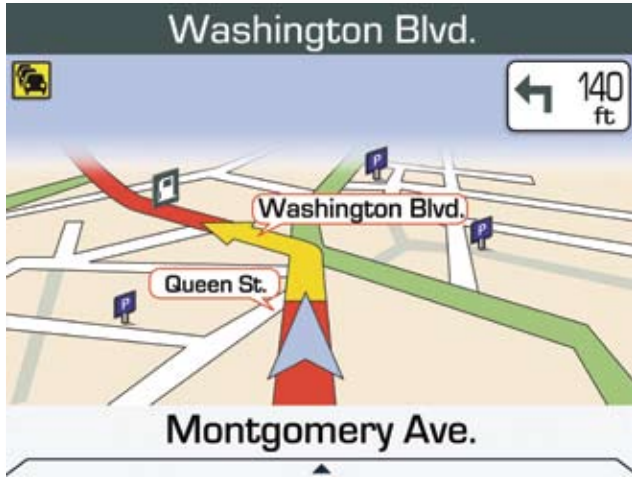
These technological advances make it possible to connect location to navigation instructions and even to such communication paradigms such as SMS (Short Message Service), which in turns makes it possible for users to send information about their whereabouts to other people in real-time. And by opening up APIs, mobile device makers are making it easier for applications such as media or IM (instant messaging) engines to quickly initiate platform services on mobile phones, easing the development of more sophisticated browser applications. This will help to blur the lines between local and external services, creating innovative on-device combined services that are location-based.

Time-saving navigation features that speed search for mobile users such as “Look it up”, “Map it” or “Navigate to it” hold



the key to user adoption and can be created on the basis of real-time LBS technology. Telmap's back-end platform, for example, exposes APIs to application developers and allows them to create a variety of location-based functions such as geocoding and reverse geocoding, map display, route calculation, and more. Content, too, is integrated easily on the same API platform, and the result is that mobile users can access and display places and businesses worldwide.

Through APIs, companies such as Telmap are providing a bridge for operators to offer a suite of applications in one integrated, operator-branded solution. Wireless carriers can in turn use the technology to determine and customize the services their customers want and extend the functionality of features customers are using to make them more functional. Open-source APIs also ensure that carriers can provide the services their customers request, regardless of the underlying platform of the mobile device.



GIS mapping is playing an important role in the evolution of mobile location technologies. By making the tools and platforms available to a broader audience, the era of mobile usefulness and revenue based on LBS has finally arrived. ■

*The author, Rami Honig, is a product marketing manager for Telmap with over a decade in the mobile industry. Honig joined Telmap in software development and currently heads up product marketing strategy following commercial trends and changes in the LBS industry. To participate in Telmap's developer program and access the open APIs, visit the Developer Zone at [www.telmap.com](http://www.telmap.com).*