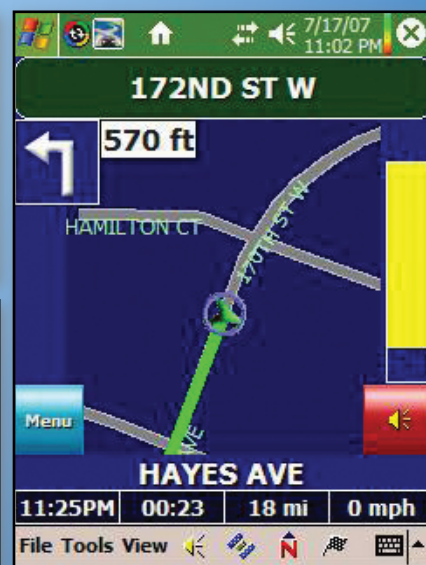




SPECIAL REPORT: GPS Solutions on Windows Mobile



GPS Solutions on Windows Mobile



Reviews of the top GPS navigation programs

This article reviews the top GPS navigation programs developed for Windows Mobile devices. To take full advantage of this software, your device must be equipped with a GPS receiver. If your Windows Mobile device does not have a GPS receiver built into it, you can purchase one as an accessory. Some of these receivers are described in our Accessories Guide on page 77 and in the October 2007 issue, in an article titled “GPS Hardware and Accessories Guide.”

Since our last full review of GPS navigation solutions was published in last year’s Buyer’s Guide (smartphonemag.com/_archives/Dec06/GPSSolutions.aspx). Since then, Mapopolis, a perennial favorite, was discontinued. ALK’s latest CoPilot Live version 7 wasn’t released in time, but we did receive and review the beta version of the program. When it becomes available, we will publish a review of the final release on the *Smartphone & Pocket PC* magazine blogs (smartphonemag.com/blogs). The latest version of Destinator has a beautiful new interface with large, easy to press buttons and added functionality. Large buttons are particularly important for in-vehicle use so that you don’t have to fumble with a stylus. I’m pleased to see that this is standard on most of the programs we reviewed. I also appreciate the fact that more programs are including the ability to program hardware buttons, so that when they are pressed a verbal status report is played telling you how far it is to the next turn and giving you other information. This is an important advancement, further eliminating the need to look at the screen while driving.

My repeat personal favorite, iGuidance, now includes text-to-speech capability to announce street names and upcoming turns as you approach them. Unfortunately, it also now requires that you load the entire North American map file on your device, which occupies 1.3 GB of storage. Practically speaking, that means you’ll need to purchase an additional storage card with at least a 2 GB capacity. In addition, because of the size of the map file, it takes longer to load the map into the program when you first start it.

Developers of GPS navigation software continue to enhance their programs, making them more functional and easier to use. They’ve also enhanced security to prevent software piracy. This makes installation a little more complicated, but ensures that they can afford to continue improving their products for the benefit of all of us.

by Myron Swartz

(November 2007)

This article was prepared with the able assistance of the following members of Smartphone & Pocket PC magazine’s board of experts, including Russ Terrell, Al Harrington, Tim Hillebrand, Remzi Turer, Lutz Bendlin, and Jerry Stevens. (Jerry is not a member of the Board of Experts, but he is experienced with GPS and we value his comments.)



ALK CoPilot Live 7 (beta)

- More info/purchase: alk.com
- Available for: Windows Mobile touch screen and non-touch screen devices; Windows PCs

CoPilot Live is a powerful yet easy-to-use GPS navigation program that includes the latest street maps, advanced customizable routing, and route specific real-time information.

The beta version of CoPilot Live 7 we tested has a clean, colorful, and attractive user interface, with even larger easier-to-press buttons than on the previous version. The satellite acquisition and route calculations were both blazingly fast. The software contains the latest street maps from NAVTEQ, with updated coverage of the U.S. with thousands of new Points of Interest (POI). Maps are also available for Canada and Europe. Although the North American POI database occupies almost three quarters of the 1.3 GB map file, it didn't seem that comprehensive to me.



CoPilot can receive live traffic incident alerts to help avoid delays.

CoPilot's enhanced scrolling 3D map display clearly indicates distance-to-turn and displays a turn arrow that highlights the way ahead. CoPilot users can opt to receive live traffic reports and notifications about route-specific

incidents via the Traffic Message Channel (TMC) or a GPRS data connection. You can reroute to avoid delays or ignore them. If you are using the program with a phone-enabled device, you can also receive and reply to text messages from within the program, have friends and associates check on your progress via a secure Web site, and update your itinerary on the go.

CoPilot Live is customizable, letting you avoid or use certain road types, set average road speeds, and create driving profiles for use at different times of day, such as rush hour or when driving different vehicles. You can also customize the display to add up to 50 stops along the way (a.k.a., waypoints), show ETA, current time, current road, nearest town, nearest major road, or destination. You only need to enter the destination and start driving, and CoPilot Live 7 does the rest. The directions for the complete trip are available in seconds, and if you make a change in the route, it recalculates the route instantaneously.

The text to speech isn't available on the non-touch screen version of the program. In addition, the voice-to-text pronunciation of some street names was not clear, and it took a bit of getting used to.

Separate versions of the program will be available for touch screen and non-touch screen devices. The CoPilot Live software will be avail-

able for \$199.99. The software bundled with a Bluetooth GPS receiver and a 1 GB SD card loaded with all of the maps for the U.S. and Canada costs \$299.99. Separate versions are available for the Motorola Q and Treo 700w. Finally, a version of the program for laptop/tablet/UMPC PCs is available, but must be purchased separately.

Despite a few minor inconveniences, CoPilot Live is a great choice for those requiring a feature-rich program with a simple interface, comprehensive maps, and great navigation capabilities. It's flexible, easy to use, and easily customized to meet your needs, making it well worth the money.

(Comments from: Lutz Bendlin, Myron Swartz)



Destinator 6 map views: Overhead 2D (left) and 3D (right).

Destinator 6

- More info: destinatortechnologies.com
- Purchase through third-party vendors (list on site)
- Available for: Windows Mobile touch screen devices

Destinator 6 is an easy to use program with a nice graphical interface. It comes in two editions, one for North America and one for Europe. The software installs easily, requiring no activation. The desktop portion, the Destinator Console, is well designed and allows you to quickly install the software and the maps to your device: It clearly shows how much disk space is required for each regional map.

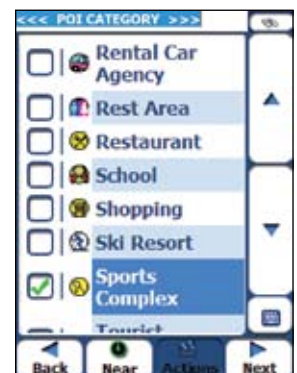
Once installed, I only had one glitch. I was testing it with an HTC P3600, which has a built-in GPS receiver. Destinator couldn't find the GPS port automatically, so I had to specify it in one of the configuration screens. Once this was set up, using the program was a breeze. The main interface has been completely redesigned and now has large buttons, which allow you to use it with your fingers instead of a stylus.

Destinator provides turn-by-turn voice and visual guidance. By default there are three notifications for each turn: 500 yards, 200 yards, and at the turn. It also offers four map views (2D day and night, 3D day and night).

Destinator allows you to download sections of maps based on your desired route, integrating selected addresses or points of interest. You can also specify the corridor (width) that will be included with the route.

Destinator has a comprehensive POI database with categories and subcategories to help you find the POI types you are interested in.

During my tests GPS acquisition was fast. The program supports point-to-point routing and allows you to specify multi-stop routes, which is great for many uses. I specified direct



routes to my destination, as well as routes that avoided certain roads. Route recalculations were fast and mostly accurate. The maps for downtown areas were up to date; less so for the suburbs. I hope they'll get updated maps out shortly.

Destinator is available with maps of North America, Europe, Mexico, Australia, and Brazil. The North American package (navigation software and maps) is \$109.95. The product is marketed through third-party vendors. A country-by-country list of these is found on their Web site. (Comments from: Remzi Turer, Myron Swartz)



iGuidance map views: Overhead 2D night view (left), 3D day view (right).

iGuidance

- More info/purchase: inavcorp.com
- Available for Windows Mobile touch screen devices

One of the least expensive solutions we tested was iGuidance, a feature-rich GPS navigation program with a well laid out and easy to use main screen. All the major options are accessible through large buttons on the screen.

The software DVD contains the Navteq digital maps and the navigation software. One of the great things about this program is that the DVD contains versions of the software for UMPCs and laptop PCs, as well as Windows Mobile touch screen devices—all for \$109. Installation is relatively straightforward, but before you start, make sure you have a storage card in your device with at least 1.3 GB of available memory for the full map set. Once the program is installed, you will need to copy the iNav iGuidance folder and subfolders to the memory card. The developer, iNav, noted that the next DVD release will have an automated copy process.

Before you start iGuidance for the first time, be sure your Windows Mobile device and Bluetooth GPS are paired. Once these are set and your GPS is communicating, you shouldn't have to set them again.

You set your destination from the main menu. The easiest way to do this is to simply enter an address. I tested this with a number of addresses, and the program found any valid address I gave it. You can also select a destination from your Contacts list, which is a handy feature if you have a lot of client contacts. You can select an intersection or a city center, which is useful if you don't know an exact address. You can also drill down through the menus by street name or city. Finally, you can enter the latitude and longitude of your destination.

The iGuidance Route Options selection screen.



The main menu's itinerary option lets you set stopovers (waypoints) or program exact direct routes. When you travel to a stopover point, the software then asks if you wish to continue to the next stopover point on the itinerary list. Tap "yes" and it will route you to the next location.

You can also set speed alerts, specify shortcuts, and set route options from the main menu. The latter lets you specify method (quickest, shortest, etc.) and exclude roads you don't want to travel on.

The program also comes with an extensive Points of Interest database, broken down into different categories and sub-categories. You have the option to navigate to the POI, view a map of the area, add it to the favorites, or get more information including address and phone number.

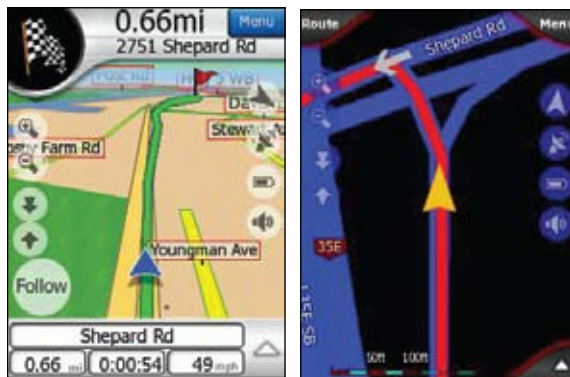
The program is highly customizable. Maps can be displayed in 2D or 3D views, and your current location is indicated by a small arrow in a circle. You can also select "night viewing" mode, which reverses map colors and makes it easier to see. When you are in navigation mode, the direction of the next turn and distance to the turn is displayed on the screen. When the program is in guidance mode, the ETA, drive time, miles driven, and current speed are displayed at the bottom of the screen. You can pan the map at any time by tapping and holding the screen, then dragging the screen around. When in navigation mode and moving, the panning map exits automatically after about 40 seconds.

Navigation is simple; just follow the visual cues on the map and the voice prompts. After you make a turn, the voice guidance will announce how far you have to drive till the next turn. This is one of my favorite features when on unfamiliar highways & roads. When you near your destination, the voice guidance will announce your arrival and tell you which side of the street your destination is on.

My experience with iGuidance was very positive, but there were some weaknesses. The program came with a Help file, but lacked a user manual (printed or PDF). Using it for Geocaching required that I convert coordinates from MinutesDecimal to DegreesDecimal formats. I also noticed that it took a long time for the program to calculate the route. Finally, you need a 2 GB storage card to install the entire map. It would be better if they gave you the option of installing smaller portions of the map.

Still, it's a very good program. The large buttons made it easy to navigate without taking my eyes off the road. It's highly accurate and rich with features, especially in the points of interest section and the variety of ways you can select destinations. The software is very stable; I never had a lockup or crash, and communication with the Bluetooth GPS was very consistent. Finally, considering that you get the Windows Mobile and PC versions of the program for \$109, it's a great buy.

(Comments from: Russ Terrell and Myron Swartz)



OnCourse maps can be displayed in either 3D views (left) or 2D views (right).

OnCourse Navigator 6.0

- More info/purchase: oncoursenavigator.com
- Available for: Windows Mobile touch screen devices

OnCourse Navigator (OCN) ships with the navigation program, maps, and POI database pre-installed on a miniSD or microSD storage card (SD card adapter included). This arrangement allows you to use the program with just about any Windows Mobile device.

The first time you slip the card into your device, the program goes through a short setup procedure (no registration is involved). After that, tap on Detect and the program will scan for your GPS receiver. (If your device has an internal receiver, make sure it's turned on. If you are using a Bluetooth receiver, make sure it's turned on and paired with your device.)

Maps can be displayed in either 2D (map) or 3D (cockpit) views. Both can be used for general travel and navigation. You can select North up, track up or "40,000 foot view" orientation of the screen. The top of the 3D screen displays the miles to the next turn and what kind of turn it is. If you make a turn that is not on the route, the route will be recalculated and you will be informed by the navigator voice and on the display, and will be informed when you get close to your destination. The program does not inform you of which side of the street the final location is. The bottom of the 3D screen can be configured by the user to display a variety of information. By default, the three slots display miles to your destination, estimated travel time to destination, and current speed. You can also use the program's portrait or landscape viewing modes on devices with VGA screens.

The program provides voice guidance and turn-by-turn visual prompts. It also provides maps which contain the exact address numbers for each street. Additionally, you can set your home or work address and quickly navigate from anywhere back to it.

OnCourse Navigator's destination entry screen.

Pressing the Find & Go button on the main screen allows you to enter the location to which you'll be traveling. You can specify Home and Work locations and select them. The POI option takes you to the Point of Interest selection screen at your location or elsewhere. Finally, the most important button is the Address button. This is where you drill down to the address you're traveling to. They have designed the address entry to be very intuitive.



One of the more interesting features is called Dynamic Volume. The assumption behind this feature is that, as you travel faster, the background road/engine noise increases. When activated, this increases the volume of the voice prompts as you travel faster.

The Route Parameters settings screen lets you set Routing Method (fast to optimal), Route (short, economical, fast), and Vehicle (car, taxi, bus, truck, emergency, pedestrian, bicycle). There are also settings to allow or disallow routing on unpaved roads, highways, ferries, u-turns, permit-needed roads, and toll roads.

The screen layout and voice prompts make it easy to navigate without having to take your eyes off the road. Your position on the screen is highly accurate, except occasionally when you pass a cross street or freeway exit. In those cases, you may see the position indicator briefly drift off course and then snap back onto your route after passing the exit.

OnCourse Navigator is a feature-rich program, especially in the points of interest and destination selection sections. The basic features of the program are easy to figure out, but you'll need to read the user manual that comes with the program to discover the less obvious features and how to use them. They might consider including a short train-

ing video to help get you started.

We tested the OnCourse Navigator North American Deluxe Edition, which includes a POI database with 3.5 million items and ships on a miniSD card with an adapter to allow its use in an SD card slot. This version of the program is priced at \$129.95 and is available on the OnCourse Navigator Web site (oncoursenavigator.com). It is available bundled with Bluetooth GPS receivers on BuyGPSnow.com.

(Comments from: Russ Terrell, Tim Hillebrand, Myron Swartz)



Ostia maps: Overhead 2D (left) and split screen showing close-up of final destination (right).

Pharos Ostia

- More info: pharosgps.com
- Purchase through third-party vendors (list on site)
- Available for: Windows Mobile touch screen devices

Pharos Ostia is a full-featured navigation program that is easy to use and offers quite a few expandable options, including the Follow Me and Live Traffic services (both require registration) as well as on-demand map downloads via an Internet-enabled device.

The program is easy enough to install, but you must do this, as well as download the maps, from a PC. I would prefer that the maps come preinstalled on an SD card for greater convenience. For the review, I downloaded Ostia and maps for parts of the United States. Maps for other parts of the world are also available. Note that you can only download three per day, so plan ahead if you are on an extended trip.

I particularly appreciated the reverse route feature, which quickly sets you up for the trip home. The voice prompts that alert you to turns are clear and easy to understand. You can even add your own prompts. And if you go off course, Ostia quickly reroutes you.

Ostia is fully integrated with Outlook Mobile, allowing you to select destinations and waypoints from your Contacts list. I also appreciated the Smart Navigator feature, which gives real-time traffic reports and displays points of interest directly on your phone-enabled WM device.

Ostia's POI selection screen makes it easy to find the type of POI you are looking for.

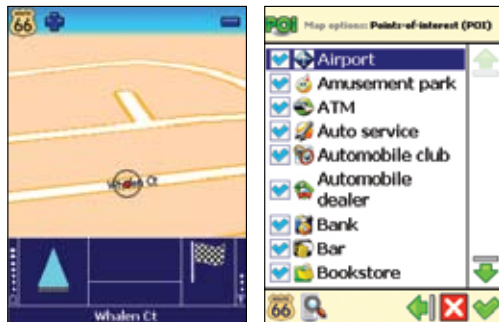
Another useful feature is that when you choose a point of interest, its address and phone number are immediately displayed; you don't have to go to a separate screen to access information. I also appreciate the range of information available on the navigation screen.

I was least satisfied with the program's POI capabilities. It seemed small, and I had a hard time finding what I was looking for. For example, there was no category for restaurants.



Once you get this program up and running, it's a winner. As mentioned, I would prefer that it came pre-installed on an SD card. Pharos also sells a GPS-enabled Pocket PC Phone Edition device (Pharos GPS Phone 600) that comes with Ostia pre-installed. The Ostia navigation program is available with maps of the U.S., Canada, or Europe, and it's priced at \$110-\$120. The Pharos GPS Phone 600 is priced at \$600-\$650. Pharos products are sold by Expansys-usa.com and other third-party vendors. A list of these is available on the Pharos Web site (pharosgps.com/sales/us_resellers.htm).

(Comments from: Tim Hillebrand)



Route 66 Navigate: Main 2D map screen (left), POI selection (right).

Route 66 Navigate 7

- More info/purchase: 66.com
- Available for: Windows Mobile touch screen devices; related product (Mobile 7) available for non-touch screen smartphones

As mentioned in the introduction, we reviewed this solution in last year's Buyer's Guide. That review can be found on our Web site (smartphonemag.com/archives/Dec06/GPSSolutions.aspx). Route 66 has not released a new version of the software since then, but they have fixed some bugs and made minor upgrades.

Navigate 7 is available for touch screen devices. A related product, Mobile 7, is available for non-touch screen smartphones. You can purchase the software alone or in a kit with a Bluetooth GPS receiver (one of the smallest ones you'll ever see). The kit version contains the software, GPS receiver, a car charger, an SD/USB adapter, and a stick-anywhere mounting plate to hold your Windows Mobile device. It also includes a plastic case with an SD caddy for the miniSD card that contains the program and preinstalled maps of the U.S. and Canada along with thousands of POIs, as well as an adapter that allows you to use the miniSD card in an SD slot.

The software/GPS receiver bundle (Navigate 7 or Mobile 7) is priced at \$299. The software-only package is priced at \$149.95.

TomTom Navigator 6

- More info/purchase: tomtom.com
- Available for: Windows Mobile touch screen devices

TomTom Navigator 6 is an impressive program with an intuitive, easy to use interface. The program starts quickly and satellites are acquired in seconds. I was amazed at how well all the functions worked, especially its ability to quickly select starting and ending points from Outlook Mobile's Contacts list.

The main screen is uncluttered, with a large arrow indicating the next turn, distance to turn, name of street for next turn, mileage, ETA, travel time, current time, speed, and a compass that shows travel direction and North. The large icons and keyboard allow you to control the program and enter addresses with your fingers.

If you encounter construction or blocked traffic, or deviate from your

TomTom Navigator 6 map views, overhead (top) and 3D (bottom).



route, Navigator 6 quickly recalculates a new one. Its "Find Alternative" option lets you "Avoid part of route," "Avoid roadblock," or "Travel Via" (which gives 8 ways of entering an intermittent way point).

Itinerary planning for numerous destinations is very easy, and it can be saved for future use. When setting up a new route, you can set the time you have to be at your destination, and TomTom will show you how many minutes you will be late or have to spare. This is updated as you drive. In addition, there are numerous options that let you check the route. The most impressive is "demo route," which displays the route you've planned with voice prompts, screen changes, and the like, at up to 5 times the normal speed.

My wish list

Now that TomTom owns TeleAtlas maps, I hope they improve the accuracy of their maps. I tested the program in Toronto, Canada, and one time, when I was entering a thruway, I was directed by both voice prompts and the map display to turn left. Unfortunately, that would have had me heading the wrong way onto a thruway exit—not a pleasant experience! I encountered wrong directions a few other times. In addition, I encountered inaccuracies in other situations.

TomTom allows the creation of your own POIs, which is a handy feature that has a few problems. When you create a POI, you must create a new category for it—you can't put it in an existing one. This makes it harder to find it at a later time because you have to remember which category you created. The Points of Interest list shows the POI's address name and distance to it. However, it is difficult to choose if there are many branches by distance only. This is OK if you're in an unfamiliar location; however, with the many errors, I recommend checking the Web or phone book first. Phone numbers appear when the POI icon is clicked on the map.

Tom Tom Navigator 6 does have many excellent features and options, and is a good solution if you are using it in areas that you are familiar with. However, I was disappointed that TomTom, supposedly the largest GPS navigation solutions vendor, had a product that was not as accurate as others.

(Comments from: Jerry Stevens and Myron Swartz)

Making GPS more useful and compelling

Although a couple new PDAs were released recently by HP, the vast majority of Windows Mobile devices now have built-in phones. In response to this trend, GPS navigation solutions are including features that take advantage of this, including weather and traffic alerts, up-to-the-minute radar warnings, access to online Yellow Pages, and other services. All this is making GPS more useful and compelling.

In addition, the latest versions of these navigation programs have improved user interfaces with more intuitive screens, more attractive and useful maps, larger soft buttons, and the ability to program GPS features to hardware buttons on the device.

The ultimate enhancement would be voice capability, where you could simply say "take me to 300 South Broadway in MyCity" and the software would do the rest. This is a must-have feature for real estate agents, salesman, and other mobile pros, and would turn GPS into a killer app. ■

GPS Navigation Programs Comparison Chart

FEATURES / PROGRAMS	Co-Pilot	Destinator	iGuidance	OnCourse	Pharos Ostia	Route 66	TomTom
Thumb size button icons for easy use	•	•	•	•	•	•	•
Features can be mapped to hardware buttons	•		•				
To Home/work button for quick routing	•	•	•	•	•	•	•
Tap & hold context dropdown menu		•	2D view only	•			
Change screen orientation within program				•			
Textured polygons (see Note 1)		•	•	•			COLOR ONLY
QWERTY keyboard option (see Note 2)	•	•	•		•		•
CONFIGURATION FEATURES							
Choice of voices for audible notifications	•			•			•
Use custom voices for notifications	•	•			Limited		•
Customize data can be displayed on screen	•			•			•
Adjust distance for before-turn alert	•	•	•				
Pedestrian setting (use GPS on foot)	•	•	•	•		•	•
Adjust font size		•					
Customize map colors	•		•			•	•
Speed warning		•	•	•			
Automatically locates GPS port	•	•	•	•	•		
ROUTE PLANNING							
Route planning on Pocket PC	•	•	•	•	•	•	•
Desktop PC component for map selection	•	•	•				
Desktop PC component for route planning	•	•	•				
Route across county and state boundaries	•	•	•	•	•	•	
Waypoints (RO = with route optimization)	RO	•	•		RO	•	•
Input coordinates	•			•			•
Cross border planning				•			
Use Outlook Contacts for start/destination	•	•	•		•	•	•
Save/recall route with playback	Planning only	•	•				
Avoid specific roads and/or detours	•	•	•	•			•
Save current location	•		•		•		•
Recent destinations	•	•	•	•	•	•	•
Save & recall route	•	•	•				
Route optimization	•				•		
TRIP GUIDANCE FEATURES							
Speaks side of road of destination (see Note 3)	TTS		•	•			
Speaks destination address	TTS only						
Displays destination address on screen			•	•	•		
Speaks street name			•				
Speaks street names at turns (See Note 4)			•				
Audible warning: low or no GPS signal	•	•					
Fixed distance alert warning			•			•	

Chart continues next page

GPS Navigation Programs Comparison Chart (continued)

FEATURES / PROGRAMS	Co-Pilot	Destinator	iGuidance	OnCourse	Pharos Ostia	Route 66	TomTom
Proximity alerts (Visual or Audible)	A/V		A/V			A/V	V
Speed limit warning (Visual or Audible)		A	A/V	•		A	
Automatically switches to day-night screen			•	•			
Automatically reroutes when off track	•	•	•	•	•	•	•
Text directions displayed on map	•	•	•	•	•		•
Speaks list of turns on current route							
Can navigate to city name or city center	•	•	•	•	•	•	•
Phone integration (Dial from POI list)					•	•	•
Logging and/or trail (See Note 5)	•		•	•	•		
Tracking via SMS	•				Fee		
Trip log (See Note 6)			•		•	•	
Fog warning: announces intersections			•				
Speed warning			•	•			
Turn Bluetooth on & off automatically	•						•
Built-in Data backup & Restore				•			
Low or lost signal warning	•	•					
Supports Sirf & NMEA	•	•	•	•	NMEA	•	•
SD card & MINI				•		•	
MAPS / POINTS OF INTEREST							
Map coverage USA & Canada	•	•	•	•	•	•	•
Custom maps		•					
Includes POIs with phone numbers & addresses	Can add #	•	•	•	•	•	•
User can add POIs	•					•	•
PRICE, INSTALLATION, ETC.							
Price (navigation software + U.S. maps)	\$199	\$124.95	\$119	\$129.95	\$119.95	\$149	\$149.95
Free demo tutorial (see Note 7)	•		•				
Must install to main memory; MB required	11 MB	5.3 MB			5.5 MB	1.8 MB	5.26 MB
Non-touch screen smartphone version available separately		•			In development	•	
Non-touch screen version included in package	•			•		•	
Laptop PC & UMPC version included			•				
Other languages supported	•-14	•	•	•-4		•	•
Additional fee-based features							
Traffic alerts	•				•	•	•
Weather alerts							•
Maps (See Note 8)	•						
POI Finder					•		•
Follow Me					•		

NOTES: 1) Enable the "show textured polygons" function to display river, lakes, forests in a more realistic way on the map. 2) Displays a QWERTY instead of an A,B,C style keyboard for entering destinations and waypoints. CoPilot also has Block & Letter recognition. Pharos Ostia can't use quick search in this mode. 3) TTS: Text to Speech. 4) Street names at turns: Speaks the street name to turn at, as opposed to "turn left," etc. 5) Logging and/or trail: Records a list of waypoints or shows a line on the screen of where you have been as you travel. Good for walking, hiking, or driving on unknown roads. 6) Trip log: Records and displays distance traveled, time traveled, average speed, etc. 7) There are no free demo versions of the programs available. 8) Additional fee-based maps: Product offers map packages to extend geographical coverage, in addition to maps bundled with the basic product.

Get More from GPS by Sharing Your Location with Family and Friends

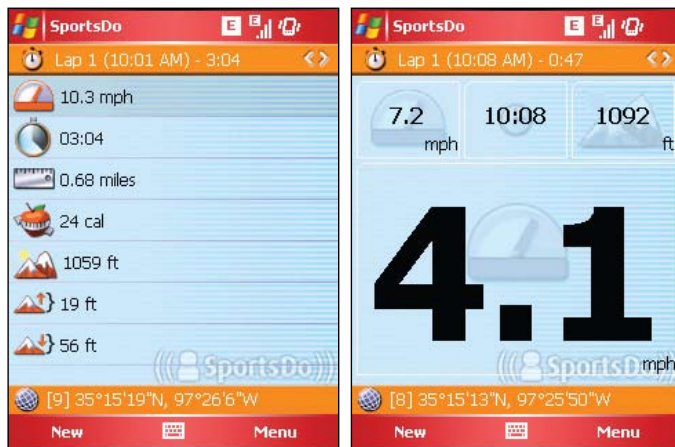
by Dan Hanttula (Oct 2007)

A GPS receiver is a small device that can pinpoint your location almost anywhere on Earth via signals received from the U.S. Global Positioning System satellites. Some Windows Mobile devices have GPS receivers built into them. If yours doesn't, one can be added to it via an inexpensive accessory.

This article looks at a number of location-aware applications with "social" features that let your family and friends see your location and interact with you while you're on-the-go. For each of these applications, you'll need a "live" connection to the Internet via phone (get an unlimited data plan) or Wi-Fi hotspot.

SportsDo: Share more than just exercise information

SportsDo from SportsDo LTD is the best example I've seen of the power of location-based applications. It's an exercise monitor that tracks your every move using GPS signals and converts this into useful information (Fig. 1), including the number of calories you've burned and distance traveled for exercise and diet purposes. You can select which specific activity you're partaking in (like jogging, biking, or skiing) and create custom screens (Fig. 2) that only display the minimal information required for that specific exercise.



Figs. 1 & 2: SportsDo uses GPS signals to translate your activity levels during sports into useful information like distance and calories burned (left) or offers a simpler screen with sport-specific information (right).

After you've finished your activity, you can upload the log to the SportsDo Web site. If your SportsDo account is set as "Public," other members can see the activities that you've participated in. If your account is "Private," then only the users that you invite (your "Buddies") can see your activities. The software also has the ability to display your current location, with the same public or private security features.

The SportsDo team also offers Web tools to help you integrate your SportsDo data into your personal Web site or blog. The embeddable map feature allows you to add a satellite, street, or hybrid map simply by pasting a piece of HTML code into any Web page. The company also launched an innovative RSS feed that publishes all activities on the site or lets you publish your own activities.

Get More from the SportsDo RSS Feed!

The SportsDo RSS feed is an interactive list of all the activities recorded by SportsDo products around the world. By adding tags at the end of the RSS feed, you can customize the information that is displayed within the feed. The main URL for the RSS feed is sportsdo.net/RssFeed.aspx but, for example, if you only want to pull down "running activities" you can do so by entering sportsdo.net/RssFeed.aspx?activity=Run into your RSS reader.

The SportsDo Buddy feature provides a list of your friends who are currently logged into the SportsDo service with their Windows Mobile devices. This screen includes the direction (e.g. SW) and their distance (in miles or kilometers) from your current location. Your buddies who do not have the SportsDo or cannot access the SportsDo Web site can also receive your location by SMS text message at predefined intervals. You can also get "location packs" that contain Points of Interest for more than 65 ski resorts around the world.

Finally, any pictures that you take with your Windows Mobile device using SportsDo are automatically geo-coded so that the location of the photograph is saved in your SportsDo activity log.

SportsDo is packed with features and doesn't come cheap. The software alone is \$94.95 and a Silver Subscription is \$10 per month or \$100 per year. The subscription allows you to see all of your past activities online (instead of just the last ten), as well as granting you access to the My Buddies feature. Also, if you let your subscription lapse, then sign up again, your activities will be restored on the Web site. The Location Packs (for dozens of ski resorts worldwide) are available from \$5.95 to \$9.95 each. Finally, the company is also working on TrackMe.com, which they describe as "a location broker for social networks and online media sites."

GpsGate: Share your GPS data with other applications and your location with anyone

If you plan on running multiple GPS applications at one time and want to share your location information, you might want to take a look at GpsGate from Franson Technology AB (franson.com). The software was originally designed to share location information available from your GPS receiver with multiple programs. So, for example, you could use the program to share info with a turn by turn mapping program and software that uses your current location to display nearby points of interest. But, earlier this year, Franson Technology launched an update that allowed users to share their current location (Fig. 3) with "buddies" invited to the Web site.

Dan Hanttula has covered the handheld market for more than a decade, lecturing at PDA conferences, vertical market trade associations, and appearing on popular television series like TechTV's Screen Savers show. He created an entire curriculum of Pocket PC training classes for the Moore-Norman Technology Center and has published hundreds of articles including guest pieces for ZDTV, CNET, Microsoft, Leo Laporte's 2003 Technology Almanac, and other print media and online news sources. His Web site (SemperAptus.com) is designed to promote Internet-connected devices and has become a popular resource for Pocket PC users and gadget lovers alike. In March 2001, he published his first book, the Official Hewlett-Packard Pocket PC Handbook by IDG Books. He can be reached via e-mail at danh@semperaptus.com.



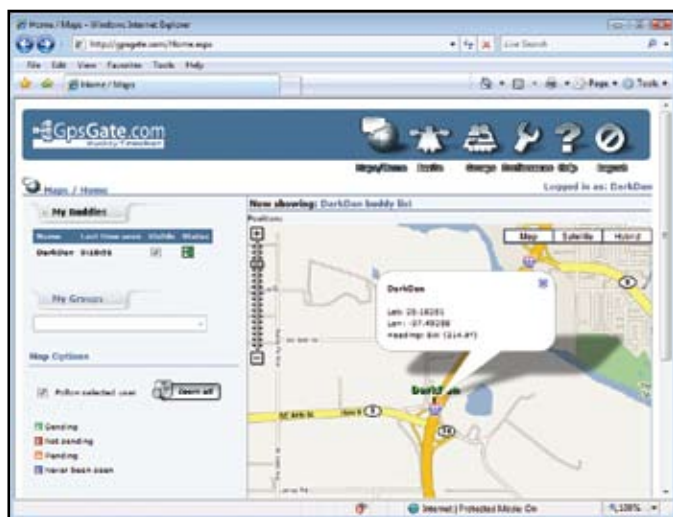


Fig. 3: The GpsGate.com Web site allows authorized people to view your current location and heading overlaid on a Google Map.

The on-device software application has a no-frills interface, and you need to manually set up the connection to GpsGate.com in order to begin sharing your location. (Complete information on how to do this is available at franson.com/gpsgate.) However, what the software lacks in polish, it more than makes up for in stability. The application ran well in the background and seamlessly connected to my Bluetooth GPS system without any tinkering. GpsGate periodically transmits your location to the Web server (you set the time period), or whenever you've moved a specific distance from your last location (which you can designate in feet, yards, or miles).

GpsGate Standard has a 14-day trial version or is available to purchase for \$29.95 (franson.com/gpsgate). The Standard version supports an unlimited number of applications to connect to the GPS, while an "express" version is available for \$9.95, which only allows you to connect two applications at once and does not allow you to send your location information to the GpsGate Web site.

Get More from GpsGate!

When you create an account on GpsGate.com, you will have the ability to create public or private "groups." These groups are perfect for gathering people with the same interests. For example, you might make one group for your cross-country running team and another for your private pilot's club. Now, on one easy Web site, you can track the location of all of your teammates.

Navizon: Location detection and sharing with or without GPS hardware

Navizon started out as a Wi-Fi location service that would pinpoint your location using the names or "SSIDs" (service set identifiers) of wireless networks in your area. Based on the assumption that other users with GPS had previously "mapped" the area, it could create a reasonably accurate estimate of your location. With version 3.0, Navizon supports on-device mapping of your own location (Fig. 4) and your buddies.



Fig. 4: Navizon can pinpoint your location using GPS or Wi-Fi data.

Like the other applications, Navizon allows your friends and family to track you using a Web browser or on their Windows Mobile device. When viewing Buddies on the mobile device, Navizon features one-touch menu items to display their location on the map or call their phone. The software supports groups, so that you can easily manage several different sets of users and also includes a feature called Geotags.

Geotags are the 21st century equivalent of a thumbtack on a paper map. As you travel, you can mark any location with a Geotag and add a description, keywords, and even a related Web address. Once you've created Geotags (or downloaded a list of Geotags from the Navizon server), you can program Navizon to alert you as you approach each Geotag with a pop-up message, an alarm, or completely disable the feature so that you do not receive Geotag notifications. You can also review your entire list of Geotags and display one on the map, even if you are nowhere near the location. Geotags also appear on the Navizon Web site, where you can choose between viewing all members Geotags, or display a map with only Geotags you have created.

Get More from Navizon!

The Navizon software allows you to make Geotags with associated URLs. That means you can become a "virtual tour guide" by creating Geotags and linking to them from your own Web site, or the site of a company at that location. A great example would be to create a Geotag on the top of a mountain and link to a Web site containing photos that you took there, or link to a site with facts about the surrounding area.

Navizon also includes a unique point of interest search feature. You can select one of four predefined categories (Club, Cinema, Pizza, or Taxi) and click the Search button. Navizon will display the closest businesses in that category and list the exact distance from your location, the company name, and the phone number. Selecting one of the companies and pressing the Menu soft key will give you options to call the location, display it on a map, or add it to your Contacts.

Finally, Navizon includes on-device turn-by-turn directions to any location. By typing in a street address, the software will show you the exact distance, provide an estimated time of arrival, and guide you to your destination using a text list of turn-by-turn directions, or by displaying the route on the map.

Navizon is free, but the Virtual GPS software (which will establish your real-time location if you do not have GPS hardware) is \$24.99. The software is available from Navizon.com, and a 15-day trial of the Virtual GPS software is included with Navizon.

Mologogo: Chat with friends and help them locate you

One of the most helpful applications is Mologogo, a program that includes an instant messaging application built into the location-finding software. So, once you've established your GPS location (Fig. 5) and added a set of buddies who are also running the Mologogo software, you can send them an instant message and include your location (Fig. 6).

The software updates your position on the map in timed intervals that you designate and also updates the Mologogo Web site with your real-time position, indicated with an arrow. Your recent locations (up to 100 "points") are stored on the Mologogo site, and are also displayed on the map, which can be useful for tracking your direction of travel and where you've been. Mologogo also includes a rudimentary address lookup, which centers the on-device map on an address that you enter into the device.

Mologogo is free, but as the Java-based version of the software has seen more development progress than the Windows Mobile Virtual GPS software, it might not see as much future improvement as other applications in this review. Complete information on the application and a download is available at Mologogo.com.



Figs. 5 & 6: Mologogo displays your location on a beautiful satellite map (left) and allows you to chat with other users (right) running the software on their Windows Mobile device.

Get More from Mologogo!

The chat feature in Mologogo is the perfect way to notify a friend that you're going to be late. While you're chatting, select Send on the Map menu and it will IM your exact location (displayed on a Google Map) to your contact. This way, they can see exactly how far away you are, and estimate your time of arrival.

imov Messenger: The all-in-one IM application with location-based services

Although Mologogo allows you to chat with others, they too have to be running the Mologogo application. An alternative to this closed IM system is imov Messenger, an application that features an all-in-one IM system that allows you to log into your MSN Messenger, AOL Instant Messenger (AIM), Yahoo Messenger, and ICQ chat accounts. After you log in, imov Messenger attempts to ascertain your position using a GPS fix or by manually entered coordinates. Then, you can share your position with other users of the imov service or allow friends and family to track you on the mov Software locator site (Fig. 7).

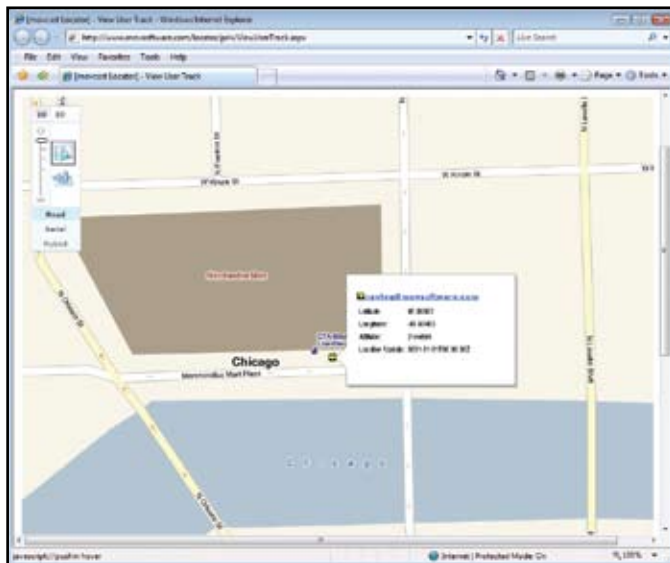


Fig. 7: The mov Software locator pinpoints the location of any user on your buddy list and displays their last reported GPS information including latitude, longitude, and altitude.

Unfortunately, the imov Messenger software launches Pocket Internet Explorer to display the locations of other users, instead of displaying maps and positions embedded in the applications (as nearly all the

other software applications in this article do). It also requires PC users to create an account to see your position, so there isn't a smooth way to quickly "IM" your position to friends on your normal chat lists.

The imov Messenger application is available in Basic (free) and Enterprise (\$19.95) editions. The Basic edition includes the all-in-one chat application, including the ability to send offline instant messages and encrypt your communications. The Enterprise edition adds the location-based services and the ability to chat with multiple users at once. More information on the application is available at movsoftware.com. The Basic edition free download is available at the *Smartphone & Pocket PC Magazine* software store (smartphonemag.com/swstore).

Get More from imov Messenger!

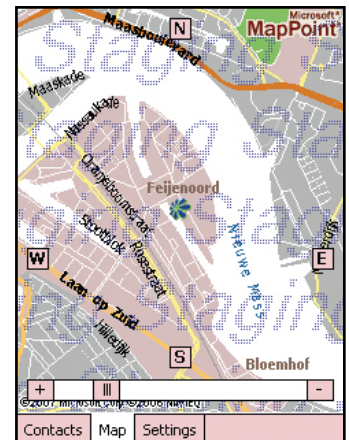
The chat feature in imov is perfect for the "chatty Cathy" user. You can keep all of your favorite Instant Message clients running and broadcast your position to trusted friends and family at the same time. If you run a lot of IM applications at the office, then this is the handheld social location-sharing solution for you!

Livecontacts: Let others view your location on their Windows Mobile device

Livecontacts sports a super-cool interface with tons of features, but the performance from this application can be quirky. I was consistently disconnected from the service initially, and I experienced problems using it with my Bluetooth GPS in secure mode. Also, the software wasn't able to map coordinates in the United States because of the negative longitudinal coordinates. However, I was able to fix my GPS connection issues by disabling the Secure Connection mode in Windows Mobile, and the developers released a fix for the longitude bug while I was still writing this article.

Once you get past the technical difficulties, you'll find an amazing application. The software looks like your standard instant messaging application, and when you tap on a contact, you'll see options to call, text message, or e-mail that person. But the most impressive feature is that, when you press the Livecontacts icon to the far right of a user on your list, their real-time location is highlighted on a map (Fig. 8).

Fig. 8: Tap on the icon to the far right of each user, and if that person is also using Livecontacts on a GPS-enabled phone, their location is displayed on a map.



Although on-device location finding is one of the most impressive features of Livecontacts, the company is also developing their own MSN Chatbot. By adding webintegration_bot@hotmail.com to your MSN Messenger buddy list, you can send an instant message and receive the location of one or all of your Livecontact friends and view and update your settings. Another exciting feature that is currently being developed is Livespots. This feature allows you to upload photos taken with your Windows Mobile device and "tag" a physical location.

Livecontacts is available at no-charge for Windows Mobile (as well as Symbian) devices from Livecontacts.com. The site will automatically send the application to your device by entering your phone number, or you can download the .CAB file and install the application manually on your device. Messaging, mapping, and tracking features require that you (and people who wish to track you) set up an account, at no-cost, on

Get More from Livecontacts!

This application is the perfect software to use while traveling. Your friends and family can find out exactly where you are by visiting the Livecontacts Web site or pinging the Chatbot, and you'll always have their up-to-date contact information in your Livecontacts address book (if they change their contact information on the Livecontacts Web site, it will automatically update on the Livecontacts application on your handheld). Plus, if you need to meet up with someone during your travels, simply ask them to install Livecontacts, and you can pinpoint their current location and quickly rendezvous!

the Livecontacts site. A "lite" version of the software, with the ability to track your friends is also available.

Pocket CoPilot: Let family and friends see, talk to, and re-route you

The innovator in the area of social-focused location sharing has to be Pocket CoPilot, a turn-by-turn mapping system by ALK Technologies Incorporated (alk.com). In April 2003, the company launched a feature called "CoPilot Live," which allowed drivers to share their vehicle location, send and receive text messages (Fig. 9), and even features the ability for other people to add a destination to the itinerary of the mobile user from an Internet-connected PC anywhere in the world. In the few years since then, ALK has made massive usability improvements on the CoPilot Live features and now they're working on the ability to send your location to your friends and family via SMS or MMS.

Fig. 9: Pocket CoPilot is a turn-by-turn directions application with the ability to receive and respond to text messages within the application.



When you send a message to a mobile user from your computer, you have the ability to enter a list of responses (as shown in the "what do you want to eat for dinner" message in Fig. 9). This gives the person who's driving a multiple choice list of answers which they can select simply (and safely) by tapping once on the screen.

In addition, friends and family whom you invite can log into the CoPilot Live Web site (live.alk.com) and view the driver's exact position on a map, along with the destination they are traveling toward and the estimated time at which they will arrive at that location. Another unique feature about Pocket CoPilot is that it lets you create invitations that expire, so if you wish to invite a cousin to view your location for the next seven days while you're visiting their town, you can do so.

The software is available on CD (including street level maps for the entire continental United States) for \$149, or on a 2 GB miniSD card which will automatically install Pocket CoPilot when you insert it into your Windows Mobile device for \$199. I cannot praise ALK enough for the ease of installation using the miniSD solution and the added benefit it offers. More information on Pocket CoPilot is available on the ALK Web site (alk.com/copilot).

Navideo sends your location via e-mail or text message

One truly unique application is Navideo by Dr. Günter Gutoff. The software, which looks akin to a control panel on Star Trek (Fig. 10), has a unique "SOS" feature which sends your exact location to the auto repair club of your choice (currently only available in Germany). You can also send your location via text message to any phone or to any e-mail address by adding a friend or family member to the address book.

Fig. 10: Navideo combines a space-age GPS control panel with the ability to send your location to anyone via e-mail or text message.



Unlike many other applications that display maps within the application, Navideo displays locations on a Google map by launching Pocket Internet Explorer. Although this is a detriment for mobile users, it is a benefit for users who receive their location via e-mail or SMS. They can simply click a link and see their exact location, and there's no need for them to register or log into a special Web site.

Navideo includes a number of advanced features, like the ability to auto-respond to location requests from other users, which means you can "ping" friends for their locations and the software will automatically reply with a message containing their coordinates. A special "Target Finder" screen points the way to their exact location, and even includes distance and altitude information if their location is above or below yours (useful when climbing or descending mountainous terrain).

The application integrates with the TomTom mapping software, so many of the most common functions in Navideo are available from within TomTom, and any location that is sent to you can be converted into turn-by-turn driving directions. In fact, it's even designed to share GPS data with TomTom, so that you can keep both applications open at the same time. Additionally, if your friends are also running Navideo with TomTom, you can send them street addresses, and they'll be able to use it to navigate to that location.

There's also the Navideo Controller, which allows you to remotely manage several mobile units from your computer. It integrates with your Outlook profile to send and receive location information from the handhelds running Navideo. You can forward position information of one handheld user to another, which would be helpful for coordinating

Get More from Navideo!

The Navideo logging system includes the ability to tag a trip as "business" or "personal," enter comments, and even note who's driving. That makes this application perfect for creating mileage reports for business travel. Just enter the client or business purpose for the trip and Navideo takes care of the rest.

emergency teams who may not have time to send out updates to more than one handheld on their own. The desktop software also allows you to view location information in Mapquest, Google Maps, or Google Earth, and the company is working on a browser-based tracking solution that should be available by the time this article hits the newsstand.

The software is available in four versions: Basic, Plus, Pro, and Ultimate. Basic (free) is "handicapped" to be only accurate to within 100 meters of your actual location, only records up to 5 minutes of logs, and includes TomTom compatibility, Online Mapping, and the ability to send location messages to other users via the navideo.net Messaging service. The Plus version (approximately \$55 U.S.) improves the accuracy to within 10 meters, features logging for an unlimited period of time, and has all of the features discussed in this article. The Pro version (approximately \$410 U.S.) adds the ability to receive locations from "black box" GPS trackers from several companies including San Jose Navigation (sanav.com), Global Sat (globalsat.com.tw), and Innotec (itdata.de). The Ultimate edition features advanced reporting features including the ability to store any incoming position, which is most useful for police agencies using the "black box" GPS integration.

VITO FindMe: Automated location information via text message

The newest entry into this category is VITO FindMe. The software adds a scrolling message to the Windows Mobile Today screen (Fig. 11) that alerts anyone who looks at the device that its location can be tracked. The scrolling message reads "VITO FindMe is installed. This phone can be located via SMS," and could provide a great theft deterrent.

Fig. 11: VITO FindMe is a Today screen plug-in that provides an automatic reply with the device's location.

Behind the scenes, VITO FindMe has a single setup screen that allows you to create any password you wish. When an SMS is sent to your phone containing the password, it will automatically send a response back containing the GPS coordinates of the phone. Two additional options allow you to password-protect the settings menu and to select an e-mail account on the device that will also send the location via e-mail.

VITO FindMe is available for free (by providing your e-mail address to receive an activation code) from VITO Technology (vitotechnology.com/en/products/findme.html). An unregistered version can be used to locate the phone three times before the device must be soft-reset.

Oops, I'm Late: Notify people when you're going to be tardy

Oops I'm Late automatically integrates with your Windows Mobile Calendar and looks up your next appointment. Using complex algorithms and other information you provide for each appointment, the software calculates what time you're likely to arrive at the destination and displays it on-screen (Fig. 12). Then, if the application thinks that you're going to be late, it will send a customized, pre-written message to the person that is waiting for you.

Get More from VITO FindMe!

Because VITO FindMe has the ability to respond to an SMS without any user interaction, it's a great way to locate your phone if it has been lost or stolen. Simply pick up a friend's handheld and send a text message to your phone with the password. You'll know where to find your phone by following the coordinates.

The software uses the Windows Mobile GPS Intermediate Driver (a feature built-in to Windows Mobile 5 and 6), which eases software setup and allows you to share the GPS data with more than one application at a time. However, this created some initial problems in getting the software to detect my Bluetooth GPS unit in Windows Mobile 5. (If you experience any problems, visit the Windows Mobile team's blog entry on this topic at blogs.msdn.com/windowsmobile/archive/2006/06/07/620387.aspx. My problems were solved through their suggestions.)

Oops I'm Late requires the latest version of the .NET Compact Framework 2.0 and is available in three versions: Economy (\$34.99), Standard (\$69.99), and Professional (\$99.99). The Professional edition adds the ability to set a "default contact" who will receive a copy of all messages (such as a secre-



Fig. 12: Oops I'm Late displays your next appointment along with your distance and arrival time details, and allows you to set up a custom message to be sent to the person that is waiting for you.

tary) and the added option of being able to e-mail messages instead of sending a text message. A 3-day trial version of Oops I'm Late Standard edition is available at oopsimlate.com.

Get More from Oops I'm Late!

You can customize the message that's sent out to your contacts to include special fields, like the song that you're listening to, or how many missed calls are on your phone. The "internal field" that uses Oops I'm Late data is %ETA%, which sends the user your estimated time of arrival. In addition, you can display any of more than 150 Windows Mobile system fields. Simply add the field name (the complete list is available at msdn2.microsoft.com/en-us/library/microsoft.windowsmobile.status.systemproperty.aspx) inside this text: %SYSPROP<fieldname>%. For example, %SYSPROPTasksActive% will display the number of active tasks on your Windows Mobile devices.

Perdiemco Location & Tracking: For GPS aficionados

If you're comfortable with more advanced applications, you might be interested in Perdiemco Location & Tracking. The application tracks your position on a feature-packed main screen (Fig. 13) and offers mainstream features like buddy tracking and sending your location via e-mail or text message. PLT also has a number of unique and exciting features, including location-based satellite weather maps (Fig. 14) and the ability to remotely activate and deactivate GPS tracking.



Figs. 13 & 14: Perdiemco Location & Tracking has a very complex main screen (left) but offers unique features like location-based satellite weather maps (right).

PLT starts out like most other applications. After completing setup, the system acquires your location from the GPS hardware and reports it to the Perdiemco Web site at pre-defined intervals. You can send your location to any cellular phone or e-mail in your Contacts application. PLT also allows you to see the location of your buddies or a group of PLT users, but unfortunately, you must use Pocket Internet Explorer and manually enter a device ID and PIN code into a Web form before you can see them. Desktop users can also see your location on a map by entering the same two fields.

Once you get past the basic location sharing services, you'll find a few pleasant surprises that make this application truly worth trying. Weather maps including satellite weather, rain in the past hour, total rain, and relative motion maps can be displayed within the application. Creating a "Geo-fence" allows you to draw a line on a map, and trigger an alert when the device crosses that line. Finally, various features within the PLT software can be remotely activated and deactivated by sending an SMS to the device along with your device's secret PIN code. For example, you can remotely turn on the GPS connection, activate real-time tracking, and disable the geo-fence monitor all via text messages.

PLT is available for no charge from perdiemco.com and the company is constantly adding new features. To check in on the latest software advancements added to the PLT application, visit perdiem.typepad.com.

GPS Hardware and Accessories for Windows Mobile

by Mike Riley (Oct 2007)

Global Positioning System (GPS) functionality is one of the most sought after add-ons to a Windows Mobile hardware and software platform, and for good reason. With the ability to not only find and track but also to extend services to Internet location-based services (the “killer apps” for this category), GPS technology can bring an entirely new and exciting experience to the Windows Mobile platform. (See the article on page 28 for more on location-based services.)

Forward-thinking Windows Mobile manufacturers have been embedding GPS receivers into their devices for a few years now, negating the need for a third-party receiver. But until such options become a standard feature, GPS hardware and software will continue to be a popular add-on category. This article takes a snapshot of the diverse GPS hardware and accessories available today for the broad line of Windows Mobile designs.

RECEIVERS

All GPS receivers collect signals from GPS satellites and relay them to navigation programs and other software. But the performance of these receivers can vary. The trend with all mobile devices is toward smaller, more powerful hardware with longer battery life. This evolutionary path is reflected in the GPS hardware market as well. Many of today’s advanced GPS receivers are based on SiRF III, a low power, high performance chip set that vastly enhances GPS lock-on reception capability due to its fast Time To First Fix (TTFF) combined with its ability to simultaneously interpret up to 20 different satellite signals. This makes SiRF III-embedded GPS devices especially well suited for signal acquisition and tracking in variable terrain, from densely populated cities to deep forests.

Currently, nearly all new portable GPS receivers designed for laptop PCs and mobile devices communicate with them via Bluetooth. And while these receivers can certainly be used with Bluetooth-enabled desktop PCs, there’s little reason to do so unless such a PC is stationed on a moving platform.

The receivers featured here represent a cross-section of the most sophisticated GPS devices available today that have been specifically optimized for the WM platform. Each device has its own shape and size, but they all deliver the same data. Few are bundled with software, so it’s important to verify if there are any com-

patibility concerns between the device and your preferred GPS mapping applications.



Globalsat BT-359, SD-502

\$159.99 BT-359, \$199.99 SD-502

usglobalsat.com

Globalsat is a company that has been an aggressive player in the GPS market and has manufactured several sophisticated GPS receivers ranging in size and connectivity design. For example, their popular BT-359 Bluetooth model shown here is optimal for both Bluetooth-enabled laptop and mobile devices. They also offer the SD-502 SDIO, a receiver designed for “legacy” PDAs with SD card slots. The SD-502 is based on the earlier SiRF II chipset, which is less powerful (and more power hungry) than the SiRF III. While I eventually got the SD-502 to work with my device, the BT-359 was easier to set up.

Haicom HI-406BT

\$149.95 haicom.com.tw/hi_406bt.shtml

Of all the devices I had the pleasure of testing, I found the Haicom HI-406BT Bluetooth GPS receiver shown here especially well suited for rugged use such as during extended bike and hike trips. In addition to the nearly 10 hours



of operation on a single charge, I appreciated its durable casing and ease of use. While the HI-406BT is bulkier than other receivers

featured in this article, I preferred its sturdy design because I didn’t have to treat it with special care, and it was big enough so I didn’t have to worry about accidentally misplacing it somewhere. And like other Bluetooth devices, it was also the easiest to connect to my Bluetooth-enabled WM devices because it just worked—no additional drivers were necessary.



Holux GPSlim 240

\$75 BuyGPSnow.com (keyword 616)

This slim GPS device roughly the size of a pack of gum contains the latest SiRF StarIII chip innovations along with up to 8 hours of battery life. While not as small as Visiontac’s device, the Holux GPSlim still offers GPS hardware buyers an excellent, lightweight design well suited for cross-town jaunts or countryside explorations.

OnCourse Edition 4

\$69.95 BuyGPSnow.com (keyword 896)

OnCourse Edition 4 is one of the most sophisticated and powerful GPS receivers available, capable of acquiring GPS signals from a cold start in as fast as 5 seconds and operating for up to 17 hours on a fully charged battery. It has other impressive features, including a vibration sensor that automatically turns on and reconnects to the previously paired Bluetooth device when you pick it up. To conserve power, it automatically disconnects and powers down after 5 minutes of inactivity. The device is based on a 44 channel SkyTraq chipset (more than twice as many tracking channels than the standard SiRF III). This gives it its fast acquisition time and fairly remarkable location accuracy. Unlike other devices I used, the OnCourse hardly ever lost track of where I was, even when I was in the city surrounded by tall buildings. OnCourse Edition 4 comes with Assisted GPS, a program that improves accuracy but can slow down acquisition time when used. It’s a very cost-effective solution, especially when you consider the features it offers.



Mike Riley was previously employed by RR Donnelley as the company’s Chief Scientist, responsible for determining innovative technical approaches that improved the company’s internal and external content services. Mike is a frequent contributor to several technical publications and specializing in emerging technologies and new development trends. Mike was also the co-host of Computer Connection, a technology enthusiast show broadcast on Tribune Media-owned CLTV. You can contact Mike at mikeriley.com.





Visiontac VGPS-700

\$89.95 visiontac.com

One of the most impressive and certainly the smallest SiRF III-equipped GPS receiver I tested was Visiontac's VGPS-700. It works remarkably well considering the unit's diminutive 2.1 by 1.2-inch size (which isn't much larger than an oversized Lego block). The device is so small, in fact, that it can be attached to a keychain without adding too much bulk (see image). Like the other Bluetooth devices I tested, Visiontac's was immediately recognized by my PDA, and while the battery didn't quite last as long as 17-20 hour estimate, I couldn't get over how they packed so much capability into such a small device. I was also impressed by the design of the device and the packaging it came in. The VGPS-700 is small and attractive—an ideal combination for mobile users.

DATA LOGGERS

Data loggers take GPS hardware a step further by adding the ability to capture and store GPS coordinates continuously during a trip. These "waypoints" can be referenced later to review the route you traveled and for other purposes. An application could certainly be written to do this on a GPS-equipped WM device. But the device would have to be on all the time to capture the data, and this would drain the battery. A dedicated data logging device is a better way to go.

Data loggers are excellent companions for people who participate in Geocaching; a kind of high-tech treasure hunt where you use GPS to find caches of trinkets and messages left by other Geocachers.

Qstarz BT-Q1000

\$99 BuyGPSnow.com (keyword 865)

If you're looking for a data logger combined with the features of a standard Bluetooth-enabled GPS receiver, take a look at the

Qstarz BT-Q1000. It can capture up to 100,000 data points (twice as many as the next product) and it ships with software that lets you extract this data from the device and use it with programs like Google Earth. This allows you to review your trips

and analyze the routes you take for efficiency. While the BT Q1000 doesn't offer the cool solar panel collector of the next product, it is smaller and more ruggedly designed, making it a more than acceptable device for anyone wishing to track their travels for later plotting.



I-Blue757 Pro

\$149.99 transystem.com.tw

The I-Blue757 Pro is a solar powered Bluetooth GPS receiver with data logging capability. Its attached solar panel recharges the Pro's battery, which keeps the unit running for hours. In addition, its 8 MB of onboard RAM can store up to 50,000 waypoints for later plotting on a data log application. (The device comes with a less powerful version of the data extraction software described in the previous review.)

ACCESSORIES

GPS receivers like the ones mentioned above are yet another mobile device to carry around with you. And even if the receiver is built into your Windows Mobile device, you can't hold it in your hand when you're driving a car. Some vendors bundle carrying cases and dashboard mounts with their GPS receivers to help you out. In addition, third-party accessory providers offer a number of excellent products that help you transport and use your newly acquired GPS capabilities.

Arkon CM910 and SM210

\$29.95 arkon.com

Arkon Resources is a company that built its reputation on PDA mounts. They have a wide variety of products, including the CM910 Universal PDA Mounting Kit and the SM210 Universal Cell Phone Mounting Kit (the latter is shown here). Rather than fumble with a loose Windows Mobile Pocket PC or Smartphone sliding around on a car seat, the CM910 and SM210 are designed to hold the device se-



curely and position the device for easy visual access of the display—both of which are vital for in-vehicle GPS use.



Civilian Lab Tech-recon LT

\$55.45 civilianlab.com

Civilian Labs has developed a family of gadget bags and backpacks perfect for the portable device enthusiast, and I found their Tech-recon LT design to be the best for rugged "hike 'n bike" excursions. The Tech-recon is optimized for carrying mobile devices, GPS, digital cameras, and other small gadgets, and its ultra-cool tech look is a sophisticated fashion statement. I received more "Wow, where did you get that" type comments wearing the Tech-recon than I have with any other gadget bag. In addition to being attractive, the Tech-recon is also incredibly functional, combining beauty and brains in a single affordable package. I can't wait to see what cool designs Civilian Lab has in store in their next generation of products!

A BRIGHT FUTURE FOR GPS

With its expanding popularity and incorporation into intelligent mobile devices, GPS is considered a fertile ground for the development of killer apps. Some excellent contenders in the Windows Mobile arena are reviewed in this issue, beginning on page 38. It will be a few years before embedded GPS is as ubiquitous as Wi-Fi and Bluetooth is now. In the meantime, there are plenty of third-party solutions to fill in the gaps.

