



GIS in your pocket

BY MATTHEW TOON

Psion has been producing them for years, Microsoft has ploughed a small fortune into them and Apple has been trying to forget what it did with them. They're handheld computers—the gadgets of the early 1990s that matured into digital filofaxes and are set to develop into the portable companions of the late 1990s. Yet it was not until USRobotics introduced PalmPilot that the world woke up to their vast market potential. Since then, all sorts of software has hit the market for such machines, from office tools to image viewers, games, Internet browsers and even GIS.

Collecting data for GIS can mean spending hours in terrain where it is not possible to reach a convenient plug to charge up your laptop. The small cost and size, the light weight and long battery life have made handheld computers popular for data collection. Surveyors have long been using early versions like the Psion Series II. The provision of RS232 connectors on such machines (and their descendants) made it possible to hook GPS receivers up to them to extend their ability to record spatial information.

Early handheld products were simple character affairs, and those that tried to go beyond this, such as the first versions of Apple's Newton and its brave attempt to read handwriting, did not perform well. It took a company from "good old Blighty" to develop such machines, and Psion has had success after success with its handheld computer. Today, the Series 5 looks like an underdeveloped laptop, with a fully functional keyboard and touch screen. Psion's real success, though, was the Series 3, for which a host of unknown programmers

developed spatially enabled software, from specialist data-logging and differential GPS processing to fully fledged route planners. Series 3 systems still fetch £200–300 because of the range of software available for them.

Mighty Microsoft

Until recently, Psion has led in terms of capabilities, and for integrating hardware and software it still does. But like Apple before it, Psion is about to feel the might of the marketing arm of Microsoft. Windows CE is Microsoft's cut-down version of the Windows operating system for handheld computers. Its initial incarnation, termed "wince" by its detractors, had many failings. For software developers, its greatest fault was an absence of CE

development tools, which resulted in a dearth of applications. Consequently, take-up of CE machines was slow.

However, Microsoft hopes to reverse this trend. In December, the company released version 2.0, whose features enable developers to produce applications that take handheld GIS

beyond simple data collection and basic route planning. Windows CE 2.0 provides a wealth of development tools, including a Java virtual machine. Given the compatibility between Windows versions, it should be easier to produce cut-down versions of Windows 95 and

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NT applications. New features are available in version 2.0, such as colour support, increased device support and connectivity options. Coupled with the touch screens that are supported already, these will enable a full range of GIS functionality, from on-screen digitising (admittedly, only if you are undaunted by the small screen) to Internet Map Server browsing.

Cut-down GIS

Windows CE 2.0 allows true, if cut-down, GIS to be developed for handheld machines, and such systems will be of immense benefit. One of the most popular handheld spatial applications is the personal route finder, but as these systems become more widespread and industry uses them for more general mobile tasks, expect to see their range of spatial applications increase. Handheld computers are limited, so real-time 3D visualisations of three Terrabytes of satellite imagery may never be possible, but do expect to be able to display, pan, zoom and analyse vector data.

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