



# SPECIAL REPORT

# Windows Mobile

**A concise intro to Microsoft's Windows Mobile OS, the applications built into it, and the devices that use it.**



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by Rich Hall, Managing Editor  
and Dan Hart, Associate Editor  
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Windows Mobile is the brand name Microsoft uses to describe the operating system and software applications it developed for touch screen and non-touch screen mobile devices. Most of the devices described in this magazine come with a version of Microsoft's Windows Mobile 6 OS and a suite of Windows Mobile productivity and multi-media applications built-in and ready to use.

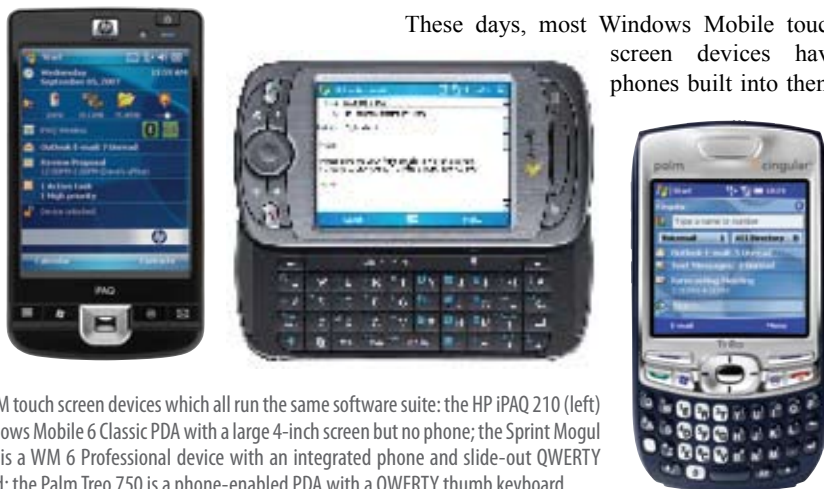
The Windows Mobile OS and applications are embedded programs; Microsoft licenses them to the companies that design and manufacture the devices, and these manufacturers build the software into the devices. With the exception of system-wide upgrades offered by some device vendors, the Windows Mobile software cannot be deleted or reinstalled by the user.

This *Smartphone & Pocket PC* magazine Buyer's Guide describes the Windows Mobile software and the handhelds that incorporate it. These small, full-featured devices come in a variety of shapes and sizes, with a variety of features.

This article focuses on two major types of Windows Mobile devices: those with touch screens and those without them.

### Touch screen devices

These days, most Windows Mobile touch screen devices have phones built into them.



Three WM touch screen devices which all run the same software suite: the HP iPAQ 210 (left) is a Windows Mobile 6 Classic PDA with a large 4-inch screen but no phone; the Sprint Mogul (center) is a WM 6 Professional device with an integrated phone and slide-out QWERTY keyboard; the Palm Treo 750 is a phone-enabled PDA with a QWERTY thumb keyboard.

However a few without phone capability (known as Pocket PCs or Windows Mobile PDAs) are still available. In fact, HP recently released two new Windows Mobile PDAs: the iPAQ 110 and 210. PDAs tend to be larger devices with larger screens; phone-enabled devices tend to be smaller. However, either type of touch screen device fits in the palm of your hand and can easily be carried in your pocket, purse, or briefcase.

The device is designed to be controlled with a small pen-like stylus, which is used to tap or write on the color touch screen. In addition to this, most phone-enabled touch screen devices have small QWERTY or numeric keypads that can be used to enter text and dial phone numbers.

The first touch screen devices—Pocket PCs—were introduced in April of 2000. The most recent versions of the OS and software suite designed for touch screen devices, Windows Mobile 6 (WM 6) Classic and Professional, were released in late spring, 2007. A variety of WM 6 touch screen devices are available, the majority of which have phone capability. You can still find a few new touch screen devices running previous versions of the OS/software suite in the retail chain.

### Non-touch screen smartphones

The non-touch screen smartphone looks and functions more like a mobile phone, but includes PDA functionality similar to that found on touch screen devices. As with the touch screen devices described above, most smartphones are based on Windows Mobile 6, but there are still a few available that use Windows

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Three Windows Mobile non-touch screen smartphones: the HP iPAQ 510 Voice Messenger (left) has a traditional numeric keypad on the front; the HTC S710 (center) has a numeric keypad and slide-out QWERTY keyboard; the Motorola Q (right) has a QWERTY thumb keyboard on its face.

Mobile 5.0. Since these devices do not have touch screens, device control and text entry are accomplished entirely by hardware buttons and a numeric or QWERTY keypad.

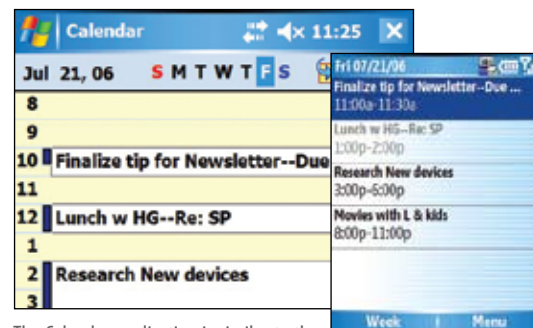
## Familiar Windows software helps you manage your life

All Windows Mobile devices come with a suite of built-in Microsoft applications that help you organize your life and have a little fun. These include the Calendar appointment book, Contacts manager, Tasks manager, and a mobile version of Internet Explorer that's optimized for smaller-sized screens. Also included is a Messaging application, which lets you receive, view, compose, and send e-mail

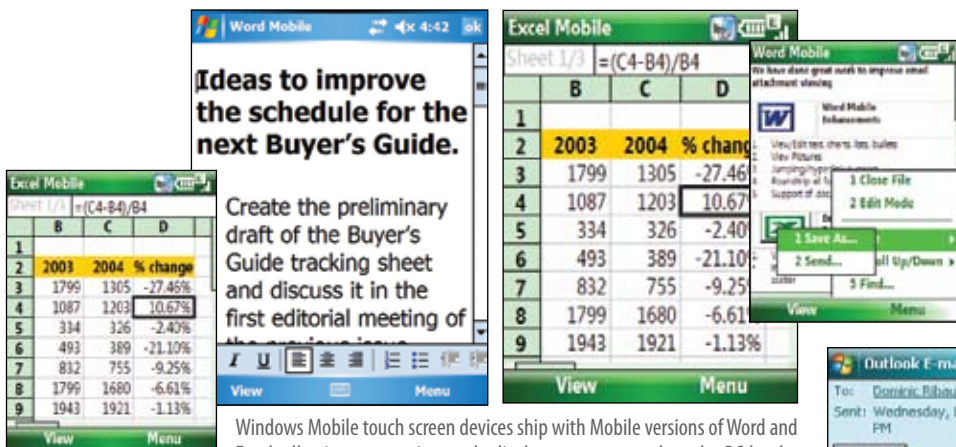
and text messages. All devices also feature Media Player Mobile, which lets you listen to your favorite music and watch videos. The latest version of this program, Media Player Mobile 10, not only allows you to sync music and video with your desktop PC, it lets you sync TV shows recorded on a Windows XP Media Center PC and view them on your Windows Mobile device.

Most Windows Mobile devices also include Voice Recorder, an application that lets you record and play back short voice memos. They also include a suite of utilities that help you configure your device and connect to an Internet service provider or another network server. Finally, they all ship with ActiveSync

The main screens on any of these devices can be customized with images of your choice, and display the information you want to include. Shown here is the standard "Today" screen from a Windows Mobile 6 touch screen device (left) and the "Home" screen from a WM 6 non-touch screen smartphone (right). Touch screen devices running the more recent versions of the OS can switch the display between portrait and landscape viewing modes. With the exception of a few devices with slide-out keyboards, the screen orientation of a non-touch screen smartphone cannot be switched—for some devices it is permanently landscape (as shown here); for others it is permanently portrait.



The Calendar application is similar to the one found in Outlook on a desktop PC. It lets you keep track of appointments, set repeating appointments, view your appointments in agenda, day, week, and month views, and set alarms to remind you of your appointments. Shown here is Calendar's Agenda view from a WM 6 touch screen device (left) and a WM 6 non-touch screen smartphone (right). The "ribbon" bar at the top of the screen indicates full and free time slots.

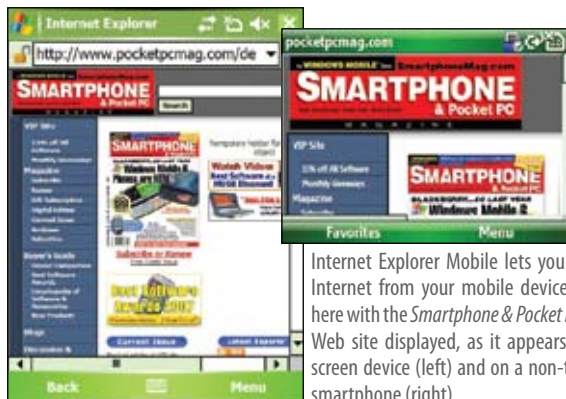


Windows Mobile touch screen devices ship with Mobile versions of Word and Excel, allowing you to view and edit documents created on the PC by the desktop PC versions of those programs. Beginning with Windows Mobile 6, Word and Excel are now available on most non-touch screen smartphones.



Here is the Inbox on a touch screen device displaying a list of current e-mails (left) and open messages displaying HTML formatting on a touch screen device (right).

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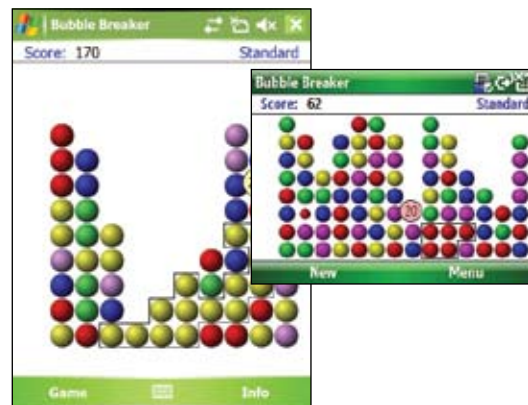
Internet Explorer Mobile lets you browse the Internet from your mobile device. It's shown here with the *Smartphone & Pocket PC* magazine Web site displayed, as it appears on a touch screen device (left) and on a non-touch screen smartphone (right).



Windows Media Player Mobile lets you listen to WMA and MP3 digital music and view Windows Media Video-formatted movies. Shown here is the touch screen (left) and non-touch screen (right) versions of the program.



Pictures & Videos lets you display JPG images in thumbnail view (touch screen, left; non-touch screen smartphone, center) and in full screen view (touch screen, right). The program also displays icons for the WMV videos stored in the file folder you are displaying. Tap or select those icons to play the video in Media Player Mobile.



Windows Mobile devices come with two games built into them: Bubble Breaker (touch screen version, left) and (non-touch screen version, right).

and/or Mobile Device Center, desktop PC programs that let you synchronize files and data with a Windows desktop (or laptop) PC.

In spite of all these similarities, there are significant hardware and software differences. Selecting the appropriate Windows Mobile device requires some careful consideration.

## Overview of Windows Mobile devices

### Phone-enabled touch screen devices

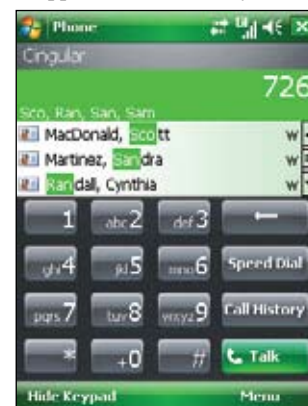
(A.K.A. Windows Mobile 6 Professionals or Windows Mobile Phone Edition devices)

These are the most feature-rich devices in the Windows Mobile stable. Recent examples of these devices include the Palm Treo 750, Sprint Mogul, HTC Touch and Advantage, and the HP iPAQ 900 Business Manager. They not only run the more powerful Windows Mobile 6 Professional software, but also have integrated GSM or CDMA phones. Most have built-in QWERTY keyboards for text entry and messaging. In addition, the majority have integrated Bluetooth capability, which allow you to connect to wireless headsets. Most also have Wi-Fi, which lets you connect to wireless hotspots. The built-in phones also allow you to connect to broadband data networks to browse the Web or upload and download e-mail. If your e-mail account is hosted by a Microsoft Exchange Server, e-mail can be "pushed" to your device as soon as it is received.

The Phone Dialer application on touch screen devices lets you dial phone numbers and access the capabilities of the built-in mobile phone.

These devices have a Phone Dialer application that lets you use your finger or stylus to dial a phone number, check for missed calls, and more. (If the device has a physical keyboard or keypad, you can also use that to place calls.) Phone Dialer comes with a speed dialer, a caller ID function that lets you screen calls, and a call log that lists the calls you've made and received.

The phone dialing capability is integrated with other applications. For example, you can dial a number directly from the Contacts application by just tapping on it. The multitasking capability of these devices means that you can make a conference call using the speakerphone option and access information in other applications while you're talking. You can also send SMS text messages and even customize the ringer by selecting from a number of built-in sounds or importing your own.



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Phone capabilities are integrated into the Contacts manager. Select a contact and dial the phone number, or send a text message or e-mail with a tap on the touch screen.

Phone-enabled touch screen devices, for the most part, are designed and manufactured by one company and then sold and supported by another. For example, HTC of Taiwan designs and manufactures Windows Mobile devices that are branded and sold by T-Mobile, Orange, AT&T, Sprint, Verizon, and other wireless carriers around the world. HTC has

also begun marketing devices under its own brand name.

The latest version of the Microsoft software built into these devices is Windows Mobile 6 Professional, which includes suspend/resume functionality for GSM/GPRS data connections and dormant mode for CDMA connections, making it easier to interrupt a data connection to receive or place a voice call. It also incorporates Microsoft's Direct Push Technology, which enables e-mail servers running Microsoft Exchange Server to immediately forward (push) incoming e-mail to a phone-enabled mobile device over a cellular data network. It also allows updates to e-mail, Calendar items, Contacts, and Tasks to be immediately pushed to the mobile device as they are received by the organization's Exchange Server.

There is also a wide variety of third-party games, utilities, and productivity applications available for Windows Mobile touch screen devices, making them easy to customize to suite your needs.

## Is a phone-enabled touch screen device for you?

Do you want the richer capabilities of the Windows Mobile software designed for touch screen devices? Do you already use and depend on a mobile phone? Do you want to access e-mail and other data wherever you are? If so, you should take a look at one of these devices. The best approach is to find the wireless service provider that suits your needs first, and buy a device that they support.

## Non-touch screen smartphones

### (A.K.A. Windows Mobile smartphones)

Do you prefer the simplicity and size of a mobile phone but are intrigued by the capabilities of Windows Mobile? Then you'll want to check out one of the non-touch screen smartphones. Most smartphones are the size and shape of standard mobile phones. They have color displays of varying sizes. The earliest of these have 2.2-inch diagonal (176 x 220 pixel) screens, but newer devices incorporate 2.4-inch (320 x 240 pixel) displays. These are larger than most mobile phones yet smaller than the displays on touch screen devices. Smartphone displays are not touch screens—all input is accomplished using the number pad and various control buttons.

Microsoft includes a suite of built-in applications similar to the ones found on touch screen devices, but customized for the smaller display size and input method. These include Outlook Mobile (Calendar, Contacts, Tasks, and Messaging), Media Player, and Internet Explorer Mobile. Microsoft gives manufacturers of Windows Mobile 6 Standard smartphones the option of including "Mobile" versions of Word, Excel, and PowerPoint, and the majority of devices we've seen so far include them.

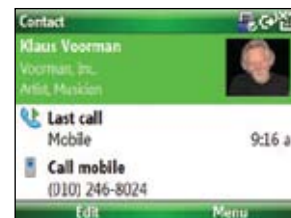
Click on a hyperlink in an e-mail and the Web page opens on your device.



Wireless telephony and data capabilities are integrated into the applications. Phone numbers and Web addresses are hyperlinked in e-mail, Contacts, and Web pages, making it possible to call or go online by using the control buttons to select one of these hyperlinks. You can also listen to music, watch videos, or play multi-user games online.

As you can with the touch screen devices, you can customize these devices with third-party games and productivity apps. However, there are fewer of these solutions available for non-touch screen smartphones.

Contacts on the WM 5 or later versions of the OS supports attaching photos to individual contacts.



## Is a non-touch screen smartphone for you?

Are you looking for a phone first, but want it to have some PDA functionality? Other than text messages and short e-mail replies, is text entry a low priority for you? If so, focus your attention on the non-touch screen smartphones. As with other phone-enabled devices, the best way to shop for a non-touch screen smartphone is to find the wireless service provider that suits you and look for the smartphones the provider sells or supports.

## Touch screen PDAs

### (A.K.A. Windows Mobile 6 Classics or Pocket PCs)

Prior to the release of Windows Mobile 6, Microsoft referred to these devices as Pocket PCs. Microsoft now calls them Windows Mobile PDAs. These devices do not have an integrated phone, but most have Wi-Fi and Bluetooth wireless capability built into them. As mentioned earlier, they also have larger displays that are easier to read. All come with at least one built-in SD expansion card slot, and some have a second CompactFlash card slot for additional expansion.

With the exception of the Phone Dialer application, which is not needed, these devices have the more feature-rich versions of the Windows Mobile applications found on the phone-enabled touch screen devices described earlier. Finally, there is a wide variety of third-party games, utilities, and productivity applications available for Windows Mobile touch screen devices, making them easy to customize to suite your needs.

## Is a Windows Mobile PDA for you?

If you need a device with full PDA capability but don't want or need an integrated phone, check out one of these devices.

## Industrial-strength touch screen devices



A number of Windows Mobile touch screen devices are designed specifically for industrial use. Some are weather-sealed in rubberized cases, and some have built-in numeric keypads. Most have the standard suite of Windows Mobile touch screen applications built in, but may include additional software and hardware features to meet specific corporate needs. Some of the more recently-introduced devices in this category have integrated phone capability, and vendors will often offer them with bar code readers and other accessories.

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Finally, these devices tend to be more expensive than the consumer models.

## Add-on software programs

Included in the box with each Windows Mobile device is a Companion CD that contains a number of user-installable software programs from Microsoft and third-party software developers. You can also find software and accessories online.

### ActiveSync/Windows Mobile Device Center

This desktop PC program is the most important software on the Companion CD because it allows you to synchronize Outlook data between your Windows Mobile device and desktop/laptop PCs. It also lets you transfer files between the two and install software on the Windows Mobile device from the desktop PC.

- ActiveSync 4.5 is designed to run on PCs running Windows XP or earlier versions of Microsoft's operating system. It can also be downloaded from Microsoft ([microsoft.com/windowsmobile/activesync/activesync45.mspx](http://microsoft.com/windowsmobile/activesync/activesync45.mspx)).
- Windows Mobile Device Center 6.1 is built into Windows Vista PCs. the latest version can also be downloaded from Microsoft ([microsoft.com/windowsmobile/devicecenter.mspx](http://microsoft.com/windowsmobile/devicecenter.mspx)).

### Add-on software from device manufacturers

All Windows Mobile devices have a similar suite of Microsoft software built into them. To help differentiate their products from the competition, device manufacturers and wireless carriers include additional software with the device, either built into it, or available on a CD for the user to install.

### Additional software and accessories available online

Third-party software developers have created applications, games, utilities, and more for Windows Mobile devices. Accessory developers provide memory cards, modems, carrying cases, wireless communications devices, and more. In addition, check out *Smartphone & Pocket PC* magazine's online Encyclopedia of Software and Accessories ([smartphonemag.com/encyclopedia.asp](http://smartphonemag.com/encyclopedia.asp)).

## Upgrading WM devices to the most recent version of the OS

As with its PC operating system, Microsoft periodically offers major

upgrades of its mobile OS/software suites. Although most Windows Mobile devices are physically capable of being upgraded to newer versions of the OS, the decision to offer these major upgrades to users of existing devices is made by the individual manufacturers or the wireless carriers that market the devices. When you buy a new Windows Mobile device, there usually is no guarantee that these upgrades will be offered by the vendor.

In addition, Microsoft occasionally offers minor security updates and bug fixes. The newer Windows Mobile 6 OS allows devices to receive these minor updates automatically. Users with devices running previous versions of the OS have to download and install them manually.

As we find out about upgrades and updates, we will announce the details in *Smartphone & Pocket PC* magazine and on the Web at [SmartphoneMag.com](http://SmartphoneMag.com).

## Windows Mobile devices covered in these Special Reports

These Special Reports focus on Windows Mobile devices with and without touch screens.

- Smartphone Professionals or Phone Edition devices: Phone-enabled devices with touch screens and PDA functionality.
- Smartphone Standards or smartphones: Phone-enabled devices without touch screens, more limited PDA functionality, and fewer available third-party software solutions.
- Windows Mobile PDAs or Pocket PCs: Devices with touch screens and PDA functionality, but without integrated phones.

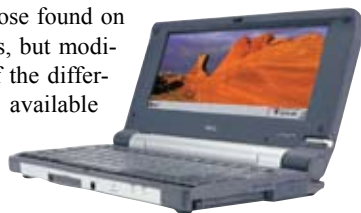
## Summary

### Which Windows Mobile device is for you?

- If you're looking for a phone first, but with some PDA functionality, you should probably focus on the non-touch screen smartphones.
- If you want integrated phone capability and a powerful PDA with plenty of third-party software options, focus on the touch screen devices with integrated phones.
- If you want a powerful, expandable personal information manager without the phone, check out the WM PDAs and Pocket PCs. ■

## Handheld PCs

The very first version of Microsoft's mobile operating system was called Windows CE and the first devices released using this OS were called Handheld PCs. They were mini-notebook computers with a clam-shell design and a keyboard. Handheld PCs came with a built-in suite of Microsoft applications similar to those found on Windows Mobile devices, but modified to take advantage of the different screen size and the available keyboard input. These devices are no longer manufactured, but used and reconditioned devices are still available. If you are interested in one of these devices, do an online search on "Handheld PC" or visit our used equipment Web site: [UsedHandhelds.com](http://UsedHandhelds.com).



NEC's MobilePro 900 and 900c are no longer manufactured, but used/reconditioned units are still available.

## Windows Mobile 6 Enhancements

Many of the current devices incorporate Windows Mobile 6, the latest version of Microsoft's mobile OS and software suite. Three basic versions of Windows Mobile 6 are available: Windows Mobile 6 Standard (for non-touch screen smartphones), Windows Mobile 6 Professional (for phone-enabled touch screen devices), and Windows Mobile 6 Classic (for touch screen PDAs). WM 6 has a number of enhancements over previous versions of the software, including:

- HTML e-mail support displays HTML-formatted messages and allows users to configure their Messaging account to display their preferred format (HTML or plain text).
- SmartFilter allows users to display only those messages that relate to the filtering criteria entry. Note also that SmartFilter is available in other applications.
- Tasks enhancements for non-touch screen smartphones allow users to edit a task's notes and properties, create recurrence patterns for the task, and enable task actions from the list view.
- Calendar Agenda Ribbon view displays a "ribbon" bar at the top of the screen, indicating which time slots already have appointments and which are free for new ones.

- Internet Sharing allows users to share a Web connection with a laptop or PC.
- Internet Explorer Mobile enhancements: The WM 6 Standard (non-touch screen) version of IE Mobile can now change the text size and display pages in one column, desktop PC, and "fit to screen" views. In addition, internal changes to Internet Explorer Mobile enable faster Web page and file downloading, better image rendering, and better support for Web pages designed for more recent Web browsers.

- Windows Live: All WM 6 devices have Windows Live functionality built into them, which adds push e-mail, synchronization with Windows Live Contacts, voice IM, selectable Home screen plug-ins, presence information, Windows Live Spaces, and Office Live e-mail compatibility.
- Windows Mobile Update alerts the user to security updates released by Microsoft and allows them to be sent to and installed on the device.
- Enhancements that require an Exchange Server 2007 account, including easier e-mail setup, the ability to fetch specific messages from the server, Global Address Book Lookup, Out of Office Assistant, e-mail follow-up flagging, and more.

## The Influence of the Apple iPhone

With estimates that 20 million Windows Mobile units will ship this year, Microsoft has been successful in capturing a huge share of the smartphone market! However, Apple's popular iPhone, a smartphone based on the Mac OS X, is providing some serious competition to Microsoft.

The iPhone is a consumer device with personal information and multimedia capability, as well as an incredibly simple user interface. It does what it does relatively well, and it's easy to pick up and use.

Windows Mobile devices are consumer/professional powerhouses with a slightly more complex interface based on the Windows Start menu metaphor.

A rational comparison of strengths and weaknesses would give Windows Mobile the edge with profes-



The Apple iPhone (left) and HTC Touch (right) with its TouchFLO interface.

sional users wanting a full-featured device that can interface with enterprise resources and run hundreds of independently written applications. On the other hand, the iPhone may well be suited to consumers wanting a phone/e-mail/multimedia device.

HTC recently announced that its new TouchFLO user interface, initially included with the HTC Touch, will be included on its future Windows Mobile touch screen devices. TouchFLO is an attempt to make the UI on Windows Mobile devices a little more intuitive and user friendly. It's a good first step, but needs to be developed further and better integrated with the built-in applications. Thanks to the success of the iPhone, we will probably see a lot more effort put into alternate UIs for Windows Mobile devices.