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(54) Title: A METHOD OF ENABLING A WIRELESS INFORMATION DEVICE TO ACCESS DATA SERVICES

(57) Abstract: A method of enabling a wireless information device to access data from several data services providers in which the method comprises the step of the device using an extensible framework which handles data passing to and from several applications resident on the device, the framework being shared by each of the applications resident on the device and also being shared by each of the data services providers.

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A METHOD OF ENABLING A WIRELESS INFORMATION DEVICE TO ACCESS DATA SERVICES

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BACKGROUND OF THE INVENTION

1.   Field of the Invention

This invention relates to a method of enabling a wireless information device to access data
10   services, particularly from several data services providers.   The term 'wireless information
device' used in this patent specification should be expansively construed to cover any kind of
device with one or two way wireless information capabilities and includes without limitation
radio telephones, smart phones, communicators, personal computers, computers and
application specific devices. It includes devices able to communicate in any manner over any
15   kind of network, such as GSM or UMTS, CDMA and WCDMA mobile radio, Bluetooth,
IrDA etc.   A data service provider is an entity which supplies information of interest to a
user; the term encompasses commercial entities, as well as individuals.

20   2.   Description of the Prior Art

The convergence of communications and computing is delivering a new generation of
wireless information devices, often referred to as smart phones or communicators.   The
most capable of these devices utilise operating systems and related applications such as the
Symbian platform from Symbian Limited of the United Kingdom. Wireless information
25   devices based on the Symbian platform, are 'smarter' than current generation GSM phones
in being able to offer multiple, advanced, robust client based applications.   For example,
current designs of communicators based on the Symbian platform include all of the
applications found on a fully featured PDA, such as a contacts manager, messaging
application, word processor, spreadsheet, synchronisation etc.

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One difficulty faced by designers of wireless information devices is how to effectively allow a user to obtain data from data service providers (e.g. commercial organisations who can supply news, sport, weather, shopping information, location information - in essence any data which users are willing to pay for.). One common approach in WAP enabled mobile

5   telephones is to use a micro-browser to access a WAP portal with links to various sites of interest; another is to use a search engine (e.g. Google.com). But each of these PC based approaches fails to transfer effectively to wireless information devices. There are three main reasons for this. First, the small screen size in, for example, a WAP enabled mobile telephone, is such that using a micro-browser can be difficult for many people. Secondly,

10   experience shows that the non-computer literate users of mobile telephones find using a portal and also a search engine inherently difficult. Thirdly, the small screen size and lack of computer skills makes it unlikely that a user will follow multiple hyperlinks or scroll though multiple windows to find the information they need. Yet without a compelling and simple approach to allowing people to find the information they need, they are unlikely to be willing

15   to pay money to obtain data. Since 3G systems are commercially based on the premise of users paying to obtain data, this is a serious problem.

SUMMARY OF THE PRESENT INVENTION

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In a first aspect there is provided a method of enabling a wireless information device to access data from several data services providers in which the method comprises the step of the device using an extensible framework which handles data passing to and from several applications resident on the device, the framework being shared by each of the applications

25   resident on the device and also being shared by each of the data services provider.

The present invention therefore moves away from the conventional model of the internet browser as being the sole application which displays on the user's device information from data services providers. Instead, it proposes that multiple applications on the device

30   (although clearly not all applications on the device) can each receive data from multiple data services providers. The consequences and advantages are described below.

The framework may comprise standardised APIs presented by several applications resident on the wireless information device to data services components, also resident on the wireless information device (or which can be loaded onto or plugged-into the device). These
5   components allow each application to obtain and display data provided by commercial data service providers. The APIs may share common elements, leading to significant code savings, a major advantage in a wireless information device with limited resources.

A data services component can provide new functionality to more than one application
10   resident on the wireless information device and will typically be a plug-in. Coupling an application (e.g. a calendar application) with a component which provides a mechanism and pathway for data services for that application *and any others with which it is compatible* has not been done before and leads to several advantages. For example, a directory application (which contains a user's contacts list, and is capable of acting as a directory for any other
15   name/contact data), a location application (which gives a user's location and includes digital maps) and a shopping application (which allows a user to pay for purchases using the wireless information device) might all be resident on a device; each present a common set of APIs. A Yellow Pages™ data services plug-in is downloaded off air and is accessed by *each* of these applications, although in different ways. The Yellow Pages plug-in allows different
20   services to be located through the directory application; for example, a search request performed in the directory application (e.g. search: 'cameras') could be routed to a Yellow Pages remote server, which responds with the required data, including detailed maps in the location application; special shopping offers are be pushed into the shopping application; nearby shops/services are shown in the location application. The Yellow Pages data
25   services provider may charge a fee per hit to each shop etc. featured in a user's search and a further fee if an e-commerce transaction results from the query. An Amazon™ plug-in could integrate into a calendar and a shopping application, giving daily special offers and information on when books etc have been dispatched to the calendar and allowing shopping via the Amazon site etc. This would also allow Amazon functionality (e.g. 'Find books on
30   this topic') to be accessed in various applications – e.g. when reading a newspaper in a News application, or reading e-mail in an e-mail client. Another example would be a digital

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rights management plug-in which could work with (a) a digital music player for compressed audio (e.g. mp3 format) and (b) a conventional CD audio format player and (c) a still image manipulation program (e.g. Photoshop) and (d) a digital video player . Data from multiple sources could be subject to the DRM technique or techniques supported by the plug-in and
5   be available to the device.

The APIs may be extensible, with extensions conforming to a common standard so that new functions offered by a component are defined by certain new APIs; these APIs can then be re-used whenever the same new functionality has to be offered by a different application. A
10   new data service can be readily written since there is a common, standardised set of APIs; once loaded onto a device, the device simply has to work out which existing, resident applications can use the features offered by the new service.

Data component plug-ins can be dynamically added as a user moves into new locations –
15   e.g. in an airport, there could be a flight schedule plug-in, which automatically loads (subject to user consent) when the user is in or close to the airport, generating an icon in the user's calendar application. When selected, the user can locate flight details and these will subsequently appear, regularly updated, in the user's calendar entry – with, for example, 'Proceed to Gate 3' at occurring at the relevant time with an alarm.
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Another feature of an implementation is that data sent from a commercial data service provider can automatically populate one or more applications (such as PIM applications) on the wireless information device. Because the data goes automatically into an application on a user's wireless information device, where it is likely to be looked at and found useful, this
25   approach overcomes the drawback with the browsing model – (a) people give up before they find the information of interest because navigating to it takes too many clicks and (b) browsing on a small screen device is difficult. Instead, getting the right data becomes fast and convenient. For example, sporting fixtures and entertainment listings could be transmitted from a data service provider placed straight into a user's calendar application,
30   with the entries being listed at the applicable times and dates; the user could click on these for more information and to perform e-commerce actions (e.g. buy tickets). News headlines

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