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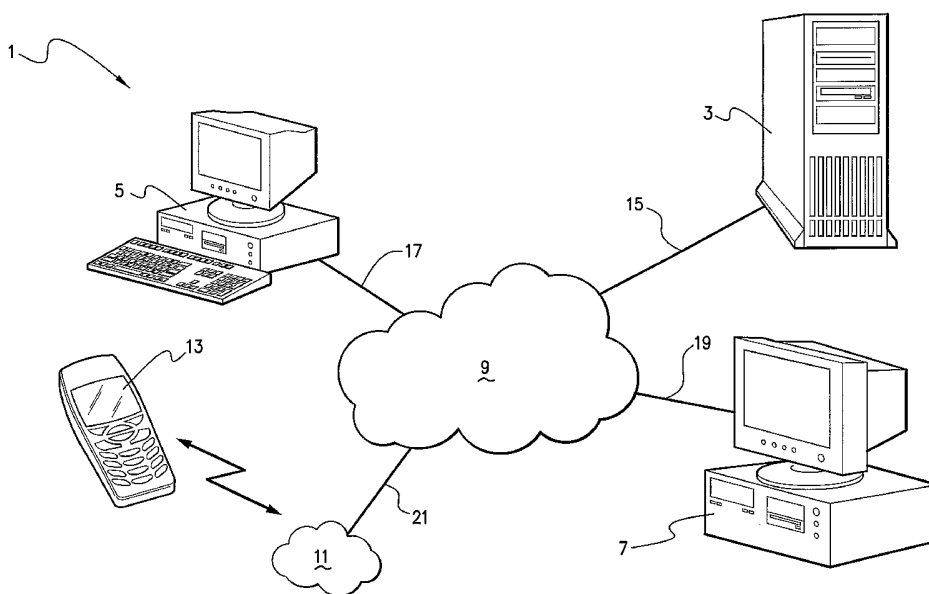
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(54) Title: A SYSTEM AND METHOD FOR ASSISTING A FIRST PERSON TO LOCATE A SECOND PERSON



(57) Abstract: A system (1) for assisting a first person to locate a second person, the system (1) comprising: determining means operable to determine a location of the second person based on a status of at least one electronic device (7) that is associated with the second person; and providing means operable to provide location information, which represents the location of the second person, to a computing device (5) and (13) that is arranged to communicate the location information to the first person to thereby assist the first person to locate the second person.



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A SYSTEM AND METHOD FOR ASSISTING A FIRST PERSON TO LOCATE
A SECOND PERSON

FIELD OF THE INVENTION

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The present invention relates generally to a system and method for assisting a first person to locate a second person.

10 BACKGROUND OF THE INVENTION

In today's highly mobile society, it can be very difficult to determine exactly where a person is and what they are doing. Knowing where a person is and what they are doing enables people to select the most efficiently and effectively means for contacting the person. For instance, if it were known that a person was out of their office, people wishing to contact the person would realise that the best chance of contacting the person would be to call, for example, the person's mobile telephone instead of their office phone. If it was also known that the person was out of their office and currently in a meeting, people wishing to contact the person would realise that a good way to contact the person would be, for example, to send an SMS message to the person's mobile telephone. This is because the person would be unlikely to answer their mobile phone if it rang during the meeting. However, by sending an SMS message the person would probably read the SMS message after the meeting as they would probably check their mobile phone shortly after the meeting was over to see if any person had called.

Consequently, it would be advantageous if people wishing to contact the person could readily ascertain where the person is located and/or details of an activity they are currently engaged in (for example, a meeting).

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SUMMARY OF THE INVENTION

According to a first aspect of the present
5 invention there is provided a system for assisting a first
person to locate a second person, the system comprising:
determining means operable to determine a
location of the second person based on a status of at least
one electronic device that is associated with the second
10 person; and
providing means operable to provide location
information, which represents the location of the second
person, to a computing device that is arranged to
communicate the location information to the first person to
15 thereby assist the first person to locate the second
person.

Thus, the first person can readily ascertain
where the second person is located due to the fact that the
20 providing means provides the location information to the
computing device. An advantage that the present invention
has over existing location technologies (particularly those
based on GPS technology) is that it does not require the
use of high resolution location information (such as GPS
25 receivers), which is not always available to people. For
instance, if the electronic device associated with the
second person was a desktop computer located in the second
person's office and the status of that desktop computer was
"currently being used", then there is a good chance that
30 the second person is located in their office.

Preferably, the determining means is further
operable to determine details of an activity, which the
second person has scheduled, by using appointment
35 information maintained by the electronic device, and
wherein the location information provided to the computing
device also represents the activity.

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Thus, the first person can readily ascertain what the second person is doing due to the fact that the providing means provides the location information to the computing device. For instance, by using the location information it can be possible to determine that the second person is in their office and is currently in a meeting with a colleague.

10 Preferably, the status of the electronic device comprises a locality of the electronic device and/or an indication as to whether the second person is using the electronic device.

15 Preferably, the determining means is operable to determine the status by interrogating the electronic device in a manner that is not evident to the second person when using the electronic device.

20 Interrogating the electronic device in a manner that is not evident to the second person is advantageous because it minimises disruption to the second person when they are using the electronic device.

25 Preferably, the determining means is such that it determines the location of the electronic device on a reoccurring basis.

30 Determining the location on a reoccurring basis is desirable because the system is able to reflect changes in the second person's location and changes in the details of the activity that the second person has scheduled.

35 Preferably, the providing means is operable to provide the location information to the computing device by using a communication network to transfer the information to the computing device, which is connected to the

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communication network.

Preferably, the communication network comprises a public access packet switched network.

5

Preferably, the system further comprises creating means operable to allow the second person to create a record that identifies the first person, wherein the providing means is such that it uses the record to
10 determine whether it should communicate the location information to the computing device.

Creating the record provides the second person with an ability to control who is allowed to know the
15 location of the second person and the details of the activity which the second person has scheduled. This is particularly desirable for privacy and security reasons.

Preferably, the information provided to the
20 computing device is such that it enables the location and the details of the activity to be presented in a manner that is meaningful to the first person.

Thus, enabling the first person to quickly and
25 easily determine the location and the details of the activity. Unlike existing technologies (particularly GPS based technology) that typically display geographic coordinates such as 28 06 37S, 153 28 70E, presenting the location of the second person in a meaningful manner
30 enables the first person to readily discern the location of the second person. Instead of merely presenting the geographic coordinates, the present invention would display the location as something along the lines of "Brisbane CBD, Starbucks on Queen Street".

35

Preferably, the location information is in a format that accords with either HTML or XML.

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5 This is advantageous because it, enables the computing device to readily present the location information to the second person using, for example, a web browser.

10 Preferably, the determining means, the providing means and the creating means comprise software that runs on hardware.

15 According to a second aspect of the present invention there is provided a method for assisting a first person to locate a second person, the method comprising:
determining a location of the second person based
on a status of at least one electronic device that is
associated with the second person; and
providing location information, which represents
the location of the second person, to a computing device
that is arranged to communicate the location information to
20 the first person to thereby assist the first person to
locate the second person.

25 Preferably, the method further comprises the step of determining details of an activity, which the second person has scheduled, by using appointment information contained in the electronic device, and wherein the location information provided to the computing device is such that it represents the activity.

30 Preferably, the status of the electronic device comprises a locality of the electronic device and/or an indication as to whether the second person is using the electronic device.

35 Preferably, the step of determining the location further comprises the step of determining the status by interrogating the electronic device in a manner that is not

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evident to the second person when using the electronic device.

Preferably, the step of determining the location
5 is performed on a reoccurring basis.

Preferably, the step of providing the location information further comprises the step of providing the location information to the computing device by using a
10 communication network to transfer the location information to the computing device, which is connected to the communication network.

Preferably, the communication network comprises a
15 public access packet switched network.

Preferably, the method further comprises the step of creating a record that identifies the first person, wherein the step of providing the location information is
20 such that it uses the record to determine whether the location information can be provided to the computing device.

Preferably, the location information is such that
25 it enables the location and the details of the activity to be presented in a manner that is meaningful to the first person.

Preferably, the location information is in a
30 format that accords with either HTML or XML.

According to a third aspect of the present invention there is provided a method of obtaining location information that represents a location of a person, the
35 method comprising the step of obtaining the location information from a system that comprises:

determining means operable to determine a

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location of the person based on a status of at least one electronic device that is associated with the person; and providing means operable to provide the location information, which represents the location of the person, to a computing device that is arranged to present the location information.

Preferably, the determining means is further operable to determine details of an activity, which the person has scheduled, by using appointment information contained in the electronic device, and wherein the location information provided to the computing device also represents the activity.

Preferably, the status of the electronic device comprises a locality of the electronic device and/or an indication as to whether the person is using the electronic device.

Preferably, the determining means is operable to determine the status by interrogating the electronic device in a manner that is not evident to the person when using the electronic device.

Preferably, the determining means is such that it determines the location of the electronic device on a reoccurring basis.

Preferably, the providing means is operable to provide the location information to the computing device by using a communication network to transfer the information to the computing device, which is connected to the communication network.

Preferably, the communication network comprise a public access packet switched network.

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Preferably, the system further comprises creating means operable to allow the person to create a record that identifies another person, wherein the providing means is such that it uses the record to determine whether it should
5 communicate the location information to the computing device.

Preferably, the information provided to the computing device is such that it enables the location and
10 the details of the activity to be presented in a manner that is meaningful to other persons.

Preferably, the location information is in a format that accords with either HTML or XML.
15

Preferably, the determining means, the providing means and the creating means comprise software that runs on hardware.

20 According to a fourth aspect of the present invention there is provided software comprising at least one instruction for causing an electronic device to carry out the method according to the second aspect of the present invention.

25 According to a fifth aspect of the present invention, there is provided a computer readable medium comprising the software according to the fourth aspect of the present invention.

30 According to a sixth aspect of the present invention, there is provided software comprising at least one instruction for causing an electronic device to carry out the method according to the third aspect of the present
35 invention.

According to a seventh aspect of the present

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invention there is provided a computer readable medium comprising the software according to the sixth aspect of the present invention.

5 BRIEF DESCRIPTION OF THE DRAWINGS

Notwithstanding any other embodiments that may fall within the scope of the present invention, an embodiment of the present invention will now be described,
10 by way of example only, with reference to the accompanying figures, in which:

figure 1 provides a schematic diagram of a system in accordance with an embodiment of the present invention;
15

figure 2 shows information created by the system of figure 1;

figure 3 provides a block diagram of the
20 technology that is used in the system of figure 1;

figure 4 is a flow chart showing various steps that are performed by the system of figure 1; and

25 figure 5 is a flow chart showing other steps that are performed by the system of figure 1.

AN EMBODIMENT OF THE INVENTION

30 Figure 1 provides a schematic diagram of a system 1 in accordance with an embodiment of the present invention. The system 1 comprises: a central computer 3; a first personal computer 5; a second personal computer 7; a computer network 9; and a mobile telephone network 11,
35 which comprises a mobile telephone handset 13. The system 1 also comprises several data links 15, 17, 19 and 21 that electrically connect the central computer 3, the first

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and second personal computers 5 and 7 and the mobile telephone network 11 to the computer network 9. The data links 15, 17, 19 and 21 essentially enable the central computer 3, the first and second personal computers 5 and 7 and the mobile telephone network 11 to send and receive data via the computer network 9. The data links 15, 17, 19 and 21 are in the form of broadband datalinks based on, for example, xDSL. The computer network 9 is in the form of a packet switched network based on the Internet Protocol (IP) suite of data communication standards. Consequently, any data that the central computer 3, the first and second personal computers 5 and 7 and the mobile telephone network 11 send or receive via the computer network 11 are in the form of IP packets. The computer network 9 is basically made up of numerous interconnected routers.

The first personal computer 5 and the mobile telephone 11 are used by the same person. In this embodiment of the present invention the first personal computer 5 is located in the person's office and is typically used by the person to send and receive emails, and to perform basic word processing tasks. The mobile telephone handset 13 is used by the person to communicate with other people when, for example, the person is away from their office.

The system 1 also comprises determining means (not shown in the figures), which is essentially in the form of a distributed software application that determines the location and activities of the person making use of the first computer 5 and the mobile telephone 13. As outlined in more detail in the subsequent paragraphs of this specification, the distributed software application is basically arranged to determine the location and activities of the person by analysing the status of the first computer 5 and the status and/or approximate location of the mobile telephone 13. In regard to determining the activity of the

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person, the distributed application is arranged to use activity information maintained on the first computer 5. To enable the location and activity of the person to be determined, the distributed software application comprises
5 several software modules. The first computer 5 and the central computer 3 are each loaded with, and execute, one of the software modules.

The software module loaded on the first computer
10 5 is based on the Java programming language and is arranged to generate status information that reflects the status of the first computer 5. The software module is also arranged to generate activity information that reflects one or more activities that the person may have scheduled. Whilst the
15 software module loaded on the first computer 5 is based on the Java language so as to provide a level of portability across different hardware platforms, it is envisaged that in an alternative embodiment of the present invention the software module is based on another programming language
20 such as C++. The status information generated by the software module loaded on the first computer 5 comprises, for example, information about the presence or absence of activity on user interfaces such as a keyboard or a mouse, information about whether a screen saver is active and the
25 period of time the screen saver has been active, and/or information about whether the first computer 5 is in a power save mode. The activity information that the software module generates comprises, for example, details of any meetings, travel or appointments that involve the person.

30

In order to generate the status information, the software module loaded on the first computer 5 is arranged to interact with an operating system that is controlling the operation of the first computer 5 in order to determine
35 the status of the first computer 5. In this regard, the software module's interaction with the operating system is via the Application Programming Interfaces (APIs)

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associated with the operating system. To generate the activity information the software module loaded onto the first computer 5 is arranged to interrogate a personal organiser application (such as Microsoft Outlook) that is running on the first computer 5. The software module is arranged to interrogate the personal organiser application via the APIs that are associated with the organiser application. Furthermore, the nature of the interrogations that the software module makes via the APIs are such that the interrogations are not readily apparent to the person when using the first computer 5. This has the advantageous of minimising disruptions to the person when using the first computer 5.

The software module loaded on the first computer 5 is such that it generates the status information and the activity information on a reoccurring basis to ensure that changes in the person's location and activity can be tracked. The software module loaded on the first computer 5 is such that it generates the status information and the activity information in response to one or more events. One of these events, for example, includes the operating system APIs signalling that a change in the status of the first computer 5. For instance, this might include signalling the detection of user input via the keyboard of the first computer 5. Similarly, the activity information can be generated in response to an API of the personal organiser application signalling that the person has scheduled a new meeting. Another event that may prompt the software module loaded on the first computer 5 to generate status information or the activity information is, for example, an explicit request (or polling) received from the central computer 3 for the status and/or activity information. The explicit request received from the central computer 3 is in the form of a data packet, which accords with the IP standard. As discussed in subsequent paragraphs of this specification the central computer 3 uses its respective

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data link 15 to send the request (IP data packet) to the computer network 9, which in turn forward the explicit request onto the first computer 5 via the data link 17.

5 Persons skilled in the art will readily appreciate that another event that could be used to trigger the generation of the status and/or activity information is the detection of the presence of an electronic device at a particular location. For example, this could be effected
10 by enabling the mobile telephone 13 with Bluetooth technology, and detecting the presence of the mobile telephone 13 via the Bluetooth technology. Similarly, other electronic devices could be augmented with an RFID and the signal from the RFID could be used to detect the
15 presence of the electronic device.

 Once the software module on the first computer 5 has generated the status information and/or the activity information, it proceeds to effect a transfer of the status
20 information and/or the activity information to the central computer 3. To effect the transfer the software module on the first computer 5 interacts with a data communication process running on the first computer 5, which involves the software module providing the status and/or activity
25 information to the data communication process running on the central computer 3. On receiving the status and/or activity information, the data communication process effectively encapsulates the status information into an IP data packet and forwards the IP data packet onto the data
30 link 17 associated with the first computer 5. The result of this is that the IP data packet is transferred to the computer network 9, which transfers the IP data packet to the central computer 3 (for further processing) via the data link 15. The data communication process running on
35 the first computer 5 can optionally secure the status and activity information for transmission across the computer network 9 by encrypting the status and activity

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information. The status and activity information could be encrypted using, for example, Triple-DES or IDEA.

As mentioned previously, the central computer 3 is also loaded with a software module that forms part of the distributed software application (the determining means). The software module loaded on the central computer 3 is based on the Java programming language and performs several functions. It is envisaged that in an alternative embodiment of the present invention the software module loaded on the central computer 3 is based on another language such as C++. One of the functions that the software module loaded on the central computer 3 performs is to obtain status and/or approximate location information about the mobile telephone handset 13. In this regard, the software module on the central computer 3 is arranged to interact with the mobile telephone network 11 via the respective data links 15 and 21 and the computer network 9. As persons skilled in the art will readily appreciate the status and/or approximate location information about the mobile telephone handset 13 is generally not information that the operator of the mobile telephone network 11 is likely to make freely available for security and privacy reasons. Consequently, the operator of the central computer 3 would need to enter into negotiations with the operator of the mobile telephone network 11 in order to gain the appropriate level of access to the telephone network 11 that would enable the software module on the central computer 3 to obtain (download) the status and/or approximate location information about the mobile telephone 13. The status information about the mobile telephone includes, for example, that the mobile telephone 13 is turned off or is out of radio range.

The software module loaded on the central computer 3 is capable of obtaining the status and/or approximate location information of the mobile telephone 13

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in several different ways. First, the software module can send an explicit request for the information to the mobile telephone network 11. The explicit request is such that it can be used by the mobile telephone network 11 (or more specifically, the computer system controlling the network 11) to determine that the central computer 3 requires the status and/or approximate location information for the mobile telephone handset 13. In this regard, the software module can send the request by interacting with a data communication process running on the central computer 3. More specifically, the data communication process encapsulates the request into an IP data packet and transfers the IP data packet to the computer network 9 via the data link 15 associated with the central computer 3. On receiving this IP data packet, the computer network 9 would transfer it to the mobile telephone network 11 via the data link 21 that is associated with the telephone network 11.

In response to receiving the IP data packet, the mobile telephone network 11 processes the IP data packet and determines that the central computer 3 has requested the status and/or approximate location information about the mobile telephone 13. The mobile telephone network 11 responds to this request by sending the status and/or location information to the central computer 3, encapsulated in IP data packets, via the associated data links 15 and 21 and the computer network 9. To ensure that the information that the telephone network 11 sends to the central computer 3 remains secure, the information can be encrypted, typically using Triple-DES or IDEA. The approximate location information that the telephone network 11 sends to the central computer 3 is basically the cell location information that base stations in the network 11 send to mobile telephones.

The software module loaded on the central computer 3 can also receive the status and/or approximate

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location information in an unsolicited manner. In this scenario, the central computer 3 would not send an explicit request to the telephone network 11. Instead, the mobile telephone network 11 sends the status and/or approximate location information to the central computer 3 upon detecting a change in the status and/or location of the mobile telephone 13. For example, if the mobile telephone network 11 determines that the mobile telephone 13 has moved into a new area, the mobile telephone network 11 would automatically convey the change in location to the central computer 3 without waiting for an explicit request from the central computer 3.

Once the software module on the central computer 3 receives new status information and/or activity information from the first computer 5, or status and/or approximate location information about the mobile telephone 13, the software module proceeds to determine (or infer) the location of the person based on the received information. However, before processing any information the first step that the software module carries out is to decrypt any information that may have been encrypted by the first computer 5 or the telephone network 11. Subsequent to decrypting the information the software module determines the location. In this regard, if, for example, the status information about the first computer 5 indicates that the screen saver has been on for the last five hours, the status and approximate information about the mobile telephone 13 indicates that the mobile telephone 13 is located in the Brisbane CBD and that calls have been made from the telephone 13 in the last 5 minutes, then the software module would infer that the person is not in their office but is out somewhere in the CBD. Furthermore, by using the activity information (received from the first computer 5) the software module could determine whether the person had any particular activities scheduled. For example, if the activity information indicated that the

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person had a meeting scheduled in the CBD, the software module would infer that the person is in the Brisbane CBD to attend a meeting. This would also confirm that the person is not in the office and is in the CBD. The software module on the central computer 3 regularly determines the location and/or activity of the person in response to receiving information from the first computer 5 or the mobile telephone 13.

10 Once the software module on the central computer 3 has determined details of the location and any activities of the person, the software module essentially places the details into a format that can be readily discerned by people. In this embodiment of the present invention this
15 format is an English language description of the location and activities of the person. For example, the description might be "Brisbane CBD and in a meeting from 1.00 pm until 2.30 pm". The software module on the central computer 3 is arranged to store the details (which are in the format that
20 can be readily discerned by the people) into a database for retrieval therefrom at a later date. The database is internal to the central computer 3 and is in the form of an Oracle database. It is envisaged that the database is external to the central computer 3 in an alternative
25 embodiment of the present invention. The software module on the central computer 3 is such that the information that it stores in the database is in accordance with the eXensible Markup Language (XML) or HyperText Markup Language (HTML).

30 The system 1 also comprises providing means (not shown in the figures), which is in the form of an application server loaded on the central computer 3. The application server is basically responsible for distributing the information stored in the database (that
35 is, location and activity details of the person). More specifically, in order to determine the location and/or activities of the person that is associated with the first

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computer 5 and the mobile telephone 13, one can simply log onto the central computer 3 using a web browser loaded on the second computer 7. As persons skilled in the art will readily appreciate, this can be achieved by simply typing
5 the web page address of the central computer 3 into the web browser. When logging onto the central computer 3, the web browser on the second computer 5 effectively establishes contact with the application server running on the central computer 3. The application server of the central computer
10 3 functions as a web server. Consequently, when the web browser on the second computer 7 establishes contact with the application server, the application server responds by sending an initial web page to the web browser on the second computer 7. The initial page is sent to the second
15 computer 7 via the data links 15 and 19 and the computer network 9.

On receiving the initial web page, the web browser on the second computer 7 displays the initial web
20 page to a user of the second computer 7. The initial web page is basically a dialogue box that prompts the user to enter a username and password. The username and password were previously assigned to the user of the second computer 7 by the operator of the central computer 3. The username
25 and password entered in the dialogue box are sent to the application server on the central computer 3, via the data links 15 and 19 and the computer network 9, for processing. On receiving the username and password, the application server processes the username and password to determine
30 whether the user of the second personal computer 7 has been given permission to access the central computer 3. This is done by checking a record of authorised users to see if the username and password are contained therein.

35 If the application server determines that the username and password are valid, the application server proceeds to issue the web browser on the second computer 7

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with another webpage. As with the initial web page, the subsequent web page is transferred to the web browser via the data links 15 and 19 and the computer network 9. On receiving the next webpage, the web browser presents the web page to the user of the second computer 7. The subsequent web page that is presented to the user of the second computer 7 prompts the user to identify the person they are interested in finding out the location and/or activities of. In response to this prompt, the user of the second personal computer 7 types in the person's name into the web browser and submits it to the central computer 3. The person's name is submitted to the application server running on the central computer 3 via the data links 15 and 19 and the computer network 9. It is noted that even though the description of the embodiment is in the context of a single person associated with the first computer 5 and the mobile telephone 13. The present invention has application to tracking the locations and activities of many people. It is for this reason that the application server dispenses a web page issuing a prompt for the name of the person whose location and activities are required.

On receiving the person's name, the first step that the application server takes is to ascertain whether in fact the person wants the user of the second computer 7 to have access to their location and activity information. To determine this, the application server checks to see whether the user of the second computer 7 is recorded in a list of persons allowed to access the location and activity information for the specified person. If the user is contained in the list, the application server proceeds to retrieve the person's location and activity information from the database. Subsequent to retrieving the location and activity information (which as mentioned previously mentioned accords with XML or HTML), the application server sends it to the web browser on the second computer 7 via the data links 15 and 19 and the computer network 9. On

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receiving the location and activity information, the web browser presents the information to the user of the second computer 7. Figure 2 provides a screen shot of this information as presented by the web browser. It can be seen
5 in figure 2 that when this information is presented it contains the person's name in the top left hand corner of the display box, telephone and address details in the middle of the display box, and the location and details of the activity at the bottom of the display box. In order to
10 specify whether the person associated with the first computer 5 and mobile telephone 13 wants to allow the user of the second computer 7 to access the location and/or activity information, the person simply logs onto the application server to provide the names of those people who
15 are allowed to view the information.

As persons skilled in the art will readily appreciate, the web pages sent between the central computer 3 and the second computer 7 are sent using HyperText
20 Transfer Protocol (HTTP).

A block diagram of the technology used in the embodiment of the present invention is shown in figure 3, whilst figures 4 and 5 show the various steps that are
25 performed by the system 1.

It is noted that even though this description of the embodiment of the present invention has been in the context of one computer (the first computer 5) and one
30 telephone (the mobile telephone 13), person skilled in the art will readily appreciate that the present application is not restrict to these type of electronic devices and can in fact be used with other devices such as a laptop computer or PDA connected to a wireless LAN. Furthermore, the
35 present invention is not limited to just two devices and could be used in conjunction with more than two electronic devices.

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Those skilled in the art will also appreciate that the invention described herein is susceptible to variations and modifications other than those specifically
5 described. It should be understood that the invention includes all such variations and modifications which fall within the spirit and scope of the invention.

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CLAIMS:

1. A system for assisting a first person to locate a second person, the system comprising:

5 determining means operable to determine a location of the second person based on a status of at least one electronic device that is associated with the second person; and

10 providing means operable to provide location information, which represents the location of the second person, to a computing device that is arranged to communicate the location information to the first person to thereby assist the first person to locate the second person.

15 2. The system as claimed in claim 1, wherein the determining means is further operable to determine details of an activity, which the second person has scheduled, by using appointment information maintained by the electronic device, and wherein the location information provided to the computing device also represents the activity.

25 3. The system as claimed in claim 1 or claim 2, wherein the status of the electronic device comprises a locality of the electronic device and/or an indication as to whether the second person is using the electronic device.

30 4. The system as claimed in any one of the preceding claims, wherein the determining means is operable to determine the status by interrogating the electronic device in a manner that is not evident to the second person when using the electronic device.

35 5. The system as claimed in any one of the preceding claims, wherein the determining means is such

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that it determines the location of the electronic device on a reoccurring basis.

5 6. The system as claimed in any one of the preceding claims, wherein the providing means is operable to provide the location information to the computing device by using a communication network to transfer the information to the computing device, which is connected to the
10 communication network.

 7. The system as claimed in claim 6, wherein the communication network comprises a public access packet switched network.

15

 8. The system as claimed in any one of the preceding claims, wherein the system further comprises creating means operable to allow the second person to create a record that identifies the first person, wherein
20 the providing means is such that it uses the record to determine whether it should communicate the location information to the computing device.

 9. The system as claimed in claim 2, wherein
25 the information provided to the computing device is such that it enables the location and the details of the activity to be presented in a manner that is meaningful to the first person.

30 10. The system as claimed in any one of the preceding claims, wherein the location information is in a format that accords with either HTML or XML.

 11. The system as claimed in any one of the
35 preceding claims, wherein the determining means, the providing means and the creating means comprise software that runs on hardware.

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12. A method for assisting a first person to locate a second person, the method comprising:

5 determining a location of the second person based on a status of at least one electronic device that is associated with the second person; and

10 providing location information, which represents the location of the second person, to a computing device that is arranged to communicate the location information to the first person to thereby assist the first person to locate the second person.

13. The method as claimed in claim 12, wherein the step of determining the location further comprises the
15 step of determining details of an activity, which the second person has scheduled, by using appointment information contained in the electronic device, and wherein the location information provided to the computing device is such that it represents the activity.

20

14. The method as claimed in claim 12 or claim 13, wherein the status of the electronic device comprises a locality of the electronic device and/or an indication as to whether the second person is using the electronic
25 device.

15. The method as claimed in any one of claims 12 to 14, wherein the step of determining the location further comprises the step of determining the status by
30 interrogating the electronic device in a manner that is not evident to the second person when using the electronic device.

16. The method as claimed in any one of claims
35 12 to 15, wherein the step of determining the location is performed on a reoccurring basis.

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17. The method as claimed in any one of claims 12 to 16, wherein the step of providing the location information further comprises the step of providing the location information to the computing device by using a communication network to transfer the location information to the computing device, which is connected to the communication network.

18. The method as claimed in claim 17, wherein the communication network comprises a public access packet switched network.

19. The method as claimed in any one of claims 12 to 18, wherein the method further comprises the step of creating a record that identifies the first person, wherein the step of providing the location information is such that it uses the record to determine whether the location information can be provided to the computing device.

20. The method as claimed in claim 13, wherein the location information is such that it enables the location and the details of the activity to be presented in a manner that is meaningful to the first person.

21. The method as claimed in any one of claims 12 to 20, wherein the location information is in a format that accords with either HTML or XML.

22. A method of obtaining location information that represents a location of a person, the method comprising the step of obtaining the location information from a system that comprises:

determining means operable to determine a location of the person based on a status of at least one electronic device that is associated with the person; and providing means operable to provide the location information, which represents the location of the person,

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to a computing device that is arranged to present the location information.

23. The method as claimed in claim 22, wherein
5 the determining means is further operable to determine details of an activity, which the person has scheduled, by using appointment information contained in the electronic device, and wherein the location information provided to the computing device also represents the activity.

10

24. The method as claimed in claim 22 or claim 23, wherein the status of the electronic device comprises a locality of the electronic device and/or an indication as to whether the person is using the electronic device.

15

25. The method as claimed in any one of claims 22 to 24, wherein the determining means is operable to determine the status by interrogating the electronic device in a manner that is not evident to the person when using
20 the electronic device.

26. The method as claimed in any one of claims 22 to 25, wherein the determining means is such that it determines the location of the electronic device on a
25 reoccurring basis.

27. The method as claimed in any one of claims 22 to 26, wherein the providing means is operable to provide the location information to the computing device by
30 using a communication network to transfer the information to the computing device, which is connected to the communication network.

28. The method as claimed in claim 27, wherein
35 the communication network comprise a public access packet switched network.

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29. The method as claimed in any one of claims 22 to 28, wherein the system further comprises creating means operable to allow the person to create a record that identifies another person, wherein the providing means is
5 such that it uses the record to determine whether it should communicate the location information to the computing device.

30. The method as claimed in claim 23, wherein
10 the information provided to the computing device is such that it enables the location and the details of the activity to be presented in a manner that is meaningful to other persons.

31. The method as claimed in any one of claims 22 to 30, wherein the location information is in a format that accords with either HTML or XML.
15

32. The method as claimed in any one of claims 22 to 31, wherein the determining means, the providing means and the creating means comprise software that runs on hardware.
20

33. Software comprising at least one instruction
25 for causing an electronic device to carry out the method as claimed in any one of claims 12 to 32.

34. A computer readable medium comprising the software as claimed in claim 33.

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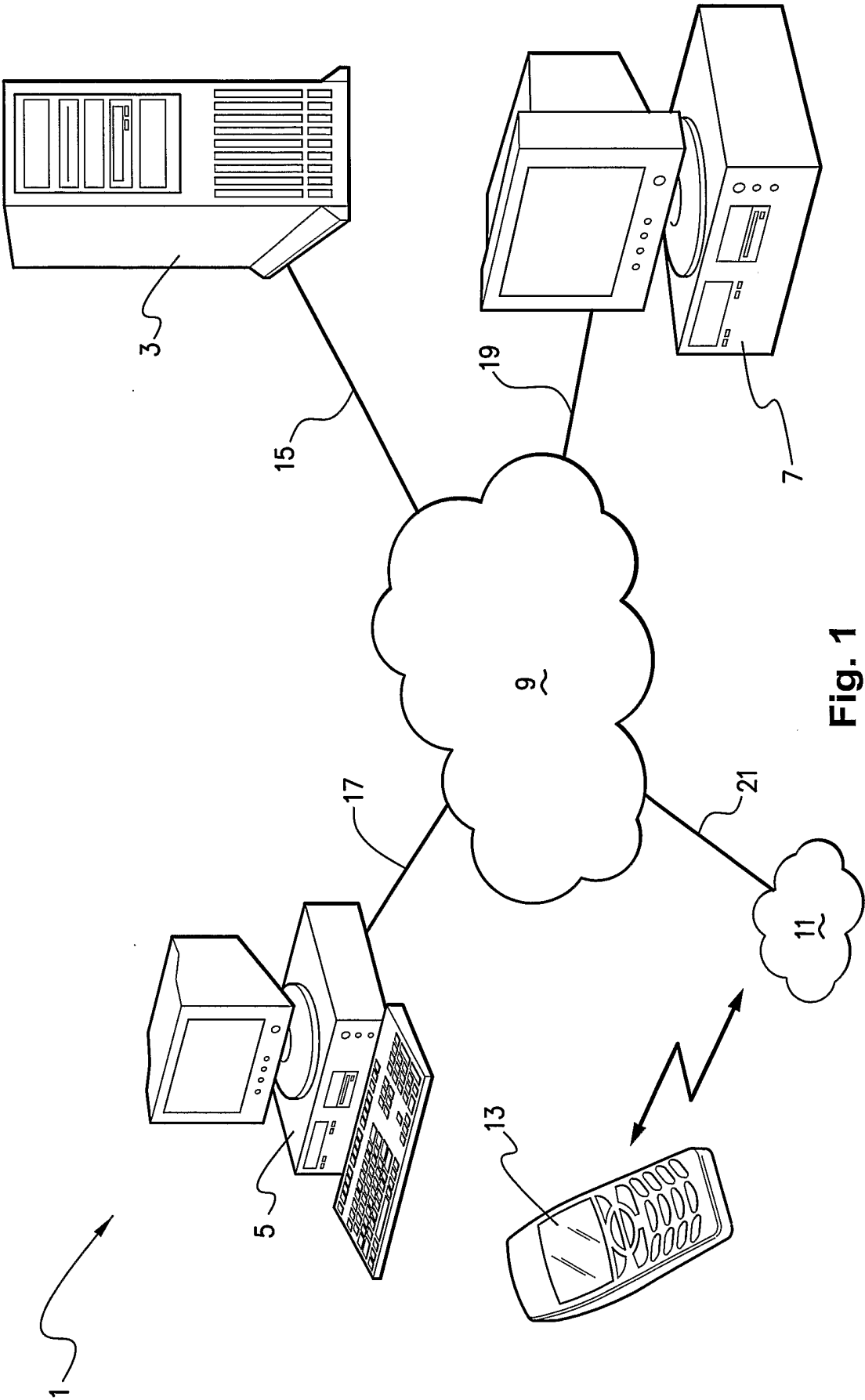


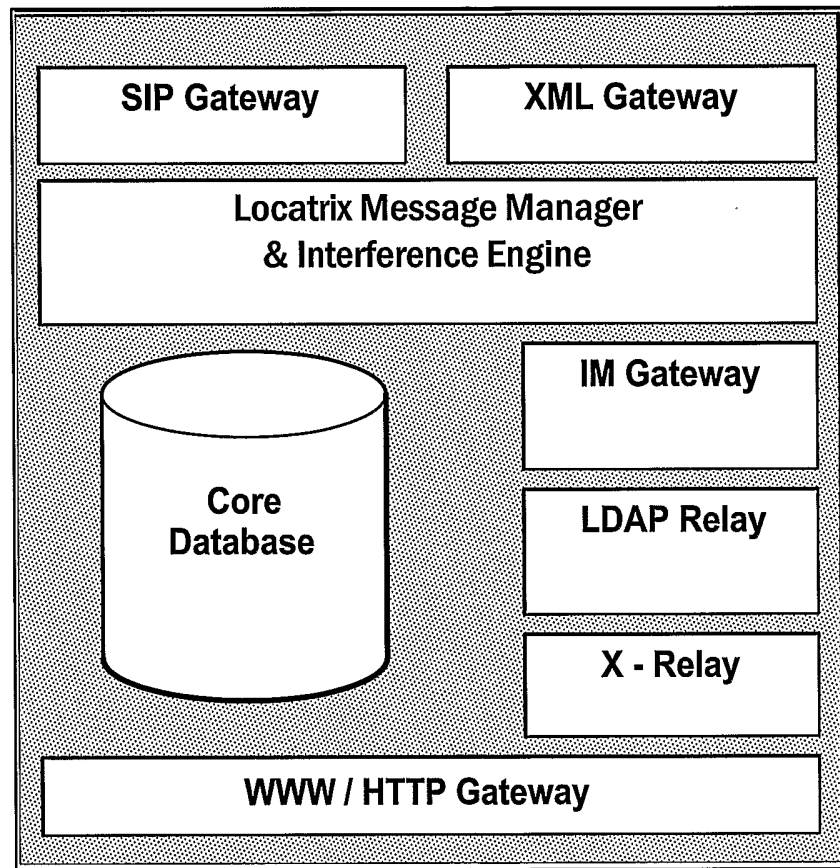
Fig. 1

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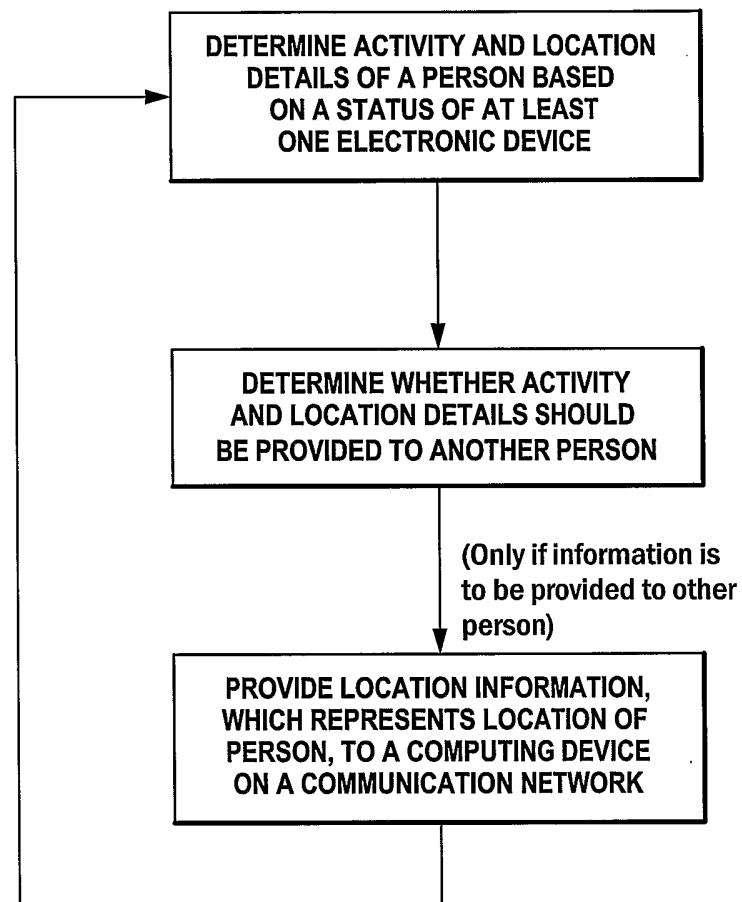
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Updated 22 : 05 23rd June 2003		

Fig. 2

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**Fig. 3**

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**Fig. 4**

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**OBTAIN LOCATION INFORMATION
FROM A SYSTEM THAT COMPRISES:
DETERMINING MEANS OPERABLE TO
DETERMINE ACTIVITY AND LOCATION
DETAILS OF A PERSON BASED ON
A STATUS OF AT LEAST ONE
ELECTRONIC DEVICE**

Fig. 5

INTERNATIONAL SEARCH REPORT

 International application No.
PCT/AU2004/001671

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. ⁷: G08C 21/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI: IPC G08C 21/00 and keywords: location, position, tracking, monitor, find, person, people, status, mode and similar terms, Google with keywords

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Hibino, S. & Mockus, A. (2002). HandiMessenger: Awareness-Enhanced Universal Communication for Mobile Users. <i>Proceedings of the 4th International Symposium on Mobile HCI</i> , Pisa, Italy, September 2002, LNCS 241 1, pp 170-183. Entire document	1-34
X	US 6377179 B (FULTON) 23 April 2002 Entire document, see in particular column 3 line 37 to column 4 line 67, column 6 lines 38 to 61	1-34
X	US 6028514 A (LEMELSON et al.) 22 February 2000 Entire document, see in particular column 2 line 66 to column 3 line 27	1,3-7,10-12, 14-18,21,22, 24-28,31-34

☒ Further documents are listed in the continuation of Box C☒ See patent family annex

* "A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
21 January 2005

Date of mailing of the international search report

1 FEB 2005

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2004/001671

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5043736 A (DARNELL et al.) 27 August 1991 Entire document, see in particular column 1 line 47 to column 2 line 56	1,5-7,11,12, 16-18,22, 26-28,32-34
X	WO1999/035625 A (SEA MARSHALL RESCUE SYSTEMS, LTD.) 15 July 1999 Entire document, see in particular page 6 lines 13-31	1,5,12,16, 22,26
A	US 6119014 A (ALPEROVICH et al.) 12 September 2000 Abstract	1-34

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2004/001671

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member			
US	6377179	NONE			
US	6028514	NONE			
US	5043736	AU	82677/91	CA	2049818
		JP	6186318	EP	0528090
WO	9935625	AU	20248/99	BR	9906747
		EE	200000403	CA	2317764
		NZ	505913	EP	1046145
				NO	20003473
				US	6183328
				ZA	9811955
US	6119014	AU	34584/99	CA	2326220
		NZ	506952	GB	2353190
				WO	9951048
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.					
END OF ANNEX					