13146 U.S.PTO 032206

JDM/002 CON

Applicant : Jeffrey D. Mullen

For : SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

113268 U.S.PTO 11/387384 032206

EXPRESS MAIL CERTIFICATION

"Express Mail" mailing label number:

Date of Deposit: March 22, 2006

I hereby certify that this transmittal letter and the other papers and fees identified in this transmittal letter as being transmitted herewith are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated above and are addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Isatta B. Smith

Hon. Commissioner For Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

TRANSMITTAL LETTER FOR RULE 53(b)
CONTINUING PATENT APPLICATION

Sir:

This is a request for filing a ☒ continuation, ☐ divisional, application of pending prior Application No. 10/400,296, (Confirmation No. 8666), filed March 25, 2003.

Transmitted herewith for filing are the ☒ specification; ☒ claims; ☒ abstract; ☒ declaration; ☒ printEFS; for the above-identified patent application.

The enclosed declaration is:

☐ Newly executed (original or copy).

☒ Copy from a prior application (37 C.F.R. § 1.63(d)).

☐ A signed statement is attached deleting inventors named in the prior application (37 C.F.R. §§ 1.63(d)(2) and 1.33(b)).

☒ The entire disclosure of the prior application, from which a copy of the declaration is supplied, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

☐ The prior application, Application No._____, filed _____, is assigned of record to
_____
_____
_____.

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EV669671713US

Google Exhibit 1002
Google v. Mullen

Also transmitted herewith are:

☒ Seventeen (17) of:

☐ Formal Drawings.

☒ Informal drawings. Formal drawings will be filed during the pendency of this application.

☐ An assignment of the invention to _____.

☐ A check in the amount of $40.00 to cover the recording fee.

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☒ A Preliminary Amendment.

☒ Small Entity Status is respectfully requested.

The filing fee has been calculated as shown below:

FOR	NUMBER FILED		NUMBER EXTRA		RATE		FEE
BASIC FEE							$ 500.00
TOTAL CLAIMS	11	- 20 =	0	x	$25	=	$ 0.00
INDEPENDENT CLAIMS	3	- 3 =	0	x	$100	=	$ 0.00
☐ A MULTIPLE DEPENDENT CLAIM				+	$	=	$ 0.00
					TOTAL		$ 500.00

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☐ The Director is hereby authorized to charge payment of any additional filing fees required under 37 C.F.R. § 1.16 in connection with the paper(s) transmitted herewith, or credit any overpayment of same, to Deposit Account No. _____. A duplicate copy of this transmittal letter is transmitted herewith.

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PATENTS
Attorney Docket No. JDM/002 CON

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jeffrey D. Mullen		
Application No.	:	Not yet known	Confirmation No. :	Not yet assigned
Filed	:	Concurrently herewith		
For	:	SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME		
Art Unit	:	Not yet assigned		
Examiner	:	Not yet assigned		

New York, New York 10020
March 22, 2006

Hon. Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

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Transmittal Letter for Continuing Application (in duplicate);
Print EFS data sheet;
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Isatta B. Smith

SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

Background of the Invention

[0001] This invention relates to systems and methods for determining a device's location. More particularly, this invention relates to systems and methods for remotely determining a device's location.

[0002] The Global Positioning System (GPS) has been developed in which a ground-based system can receive GPS signals from satellites and determine its location based on the time that it takes the GPS signals to reach the ground-based system. Generally, three satellite signals are needed to determine where in the world a receiver is located (i.e., position triangulation).

[0003] GPS systems have been integrated into cellular phones. However, these systems are deficient because the location of a device that is determined by these GPS signals are only minimally utilized. It is therefore desirable to provide systems and methods which better utilize the information about a device's location.

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Summary of the Invention

[0004] In accordance with the present invention, systems and methods are provided for locating cellular phones. More particularly, the present invention provides systems and methods for allowing a user of a cellular phone (e.g., a requesting user or a requestor) to locate the position of a different user's cellular phone (e.g., a requested user) based upon requestor-assigned access rights.

[0005] One object of the present invention is to provide a security feature which allows a user to limit and/or deny location access to a particular user. In preferred embodiments, only the users that have been granted access to the location of a user's cellular phone can actually locate that user's cellular phone. Furthermore, different types of access levels may be provided that allow a user to filter location information to a different user. In this manner, a cell phone user may give access, through his or her cell phone, to a friend so that the friend can locate him or her dependent on the level of access that is granted to that friend.

[0006] For example, suppose that Phil tells Bill that he will be shopping in Manhattan and that Bill should locate him when Bill gets to Manhattan through their cell phones. In such an example, Phil may grant Bill access the exact location of his cell phone for a specific period of time (e.g., the next two hours). As a result, when Bill tries to access Phil's location, Bill will be told exactly where in Manhattan Phil's cell phone is located. Thus, Bill does not have to contact Phil directly to see where he is and, therefore, Phil does not have to spend any time giving

Bill verbal directions; Bill can simply see what store Phil is currently in and go to it.

[0007] As mentioned previously, levels in the scope of access may be controlled by a user such that, for example, only a user's exact location, approximate location, city, state, or country can be accessed by a particular user.

[0008] Location alerts and monitoring features are also provided. For example, Phil may give Jen, a resident of Pittsburgh, city access so that when Phil travels into Pittsburgh, Jen will be alerted of Phil's presence. Such an alert may take the form of, for example, a display on Jen's cell phone that communicates to Jen "Phil is in Pittsburgh."

[0009] Locating a cellular phone may be accomplished in several ways. For example, satellite positioning systems such as the Global Positional System and the soon to be deployed Galileo system may be used to locate a user's cell phone.

[0010] User positions and security settings may be regularly or manually transmitted to a remote system, such a remote database so that requesting users can locate a requested user's position even if the requested user turns his/her cell phone OFF. Placing the security measures on a remote system (e.g., remote database, computer, or server) provides an information brokering scheme such that the system is still operable even when cell phones are added, removed, or modified from the system.

[0011] Additionally, the present invention may be configured to provide additional information about the location of a user. Such additional information may be, for example, a map, a location marker on a map, a

map that changes as the user moves, a compass, coordinates of the located cell phone, directions to the located cell phone, where a user is in relation to another user, and information about the location the located user is currently positioned in or nearby locations such as landmarks. Such information may be provided by a remote information provider (e.g., a remote map information provider) and accessed by an information broker through a communications network.

[0012] Many other features are also employed that realizes advantageous locating functionality. As per an example, suppose that a wife wants to see if her husband has left work yet. She can locate her husband, without having to talk to him, and realize that he is driving home on a highway. Thus, a travel time option may be provided to the user. This option would compute the distance between the wife's location and husband's location by taking multiple location readings of the husband's location to see how fast the husband is traveling. Alternatively, because the husband's position will map to a highway, the system may assume that the user is driving and may provide the wife with an estimate on the husband's arrival time based on an assumed route. In this manner, the present invention may determine how much time it will take the husband to reach the wife and display this information to the wife.

[0013] As per other examples, a "see my friends" option may also be provided that brings up a map of a desired area. Dots or symbols may be present on the map to signify the location of all user's from which the requesting user has location information for. Similarly, a "find closest friend" option may be

employed which finds the closest user with which the requesting user has location access to.

[0014] A cell phone location may by accessed by a variety of other devices. Alternatively, a cell phone may be used to access the location of a variety of other devices. For example, if the wife was at home, that wife may connect to the internet and access a remote database to either provide the most recent location information about the husband's cell phone to her or request a location update from the husband's cell phone. The wife's location may be already stored in such a database by associating the location to the IP address of the computer or by a manual input of the wife's location. The wife's identity may be determined by, for example, a login and password on a website. Thus, the above-identified security measures are not limited to device-to-device locating rather user to user locating; the wife may only access the husband's location if the husband has granted access for the wife to do so. If, by accident, the wife's cell phone breaks, she may login on a friend's cell phone and determine the husband's location according to the device that the husband is logged into.

[0015] Security is preferably taken into account in the present invention and, therefore, location rights for a specific user may be given to a different user only by that specific user. However, a user may request location access rights from a different user. For example, a user may be provided with a request location screen on his cell phone and that user (e.g., user "X") may enter in the cell phone number of the cell phone whose location is desired. The user associated to the entered cell phone number may then

receive an alert that says "user X has requested access to your location." Location access may then be given or denied on multiple levels and the requesting user notified of the decision.

[0016] The location feature of the present invention may be turned ON or OFF at any time. Users may be added, individually or in groups, to a list of users with location access rights to a specific user by that specific user. A specific user may, at any time, modify, delete, or add users allowed to access his or her location. Login and password information may be included to increase security or to create a user profile, allowing a specific user to log into any cell phone and be recognize by the present invention (and thereby be located with that cell phone or locatable device).

Brief Description of the Drawings

[0017] The principles and advantages of the present invention can be more clearly understood from the following detailed description considered in conjunction with the following drawings, in which the same reference numerals denote the same structural elements throughout, and in which:

[0018] FIG. 1 is a network topology of a cell phone locating network in accordance with the principles of the present invention;

[0019] FIG. 2 is a flow chart of the locating feature in accordance with the principles of the present invention;

[0020] FIG. 3 is an illustration of a cell phone in accordance with the principles of the present invention;

[0021] FIG. 4 is a display screen for a locate feature in accordance with with the principles of the present invention;

[0022] FIG. 5 is a display screen for a retrieving location status feature in accordance with the principles of the present invention;

[0023] FIG. 6 is a display screen for a displaying location feature in accordance with the principles of the present invention;

[0024] FIG. 7 is a display screen listing options for a locate feature in accordance with the principles of the present invention;

[0025] FIG. 8 is a display screen of a failed locate feature due to insufficient rights in accordance with the principles of the present invention;

[0026] FIG. 9 is a display screen of adding and modifying locate rights and options to a user in accordance with the principles of the present invention;

[0027] FIG. 10 is a display screen of assigning location rights to a user in accordance with the principles of the present invention;

[0028] FIG. 11 is a display screen of alert options in accordance with the principles of the present invention;

[0029] FIG. 12 is a display screen of an alert feature in accordance with the principles of the present invention;

[0030] FIG. 13 is a display screen of a login feature in accordance with the principles of the present invention;

[0031] FIG. 14 is a display screen of a login feature in accordance with the principles of the present invention;

[0032] FIG. 15 is a wireless device in accordance with the principles of the present invention;

[0033] FIG. 16 is an embodiment of a network topology in accordance with the principles of the present invention;

[0034] FIG. 17 is an embodiment of a locating feature in accordance with the principles of the present invention; and

[0035] FIG. 18 is an embodiment of a communications signal in accordance with the principles of the present invention.

Detailed Description of the Invention

[0036] FIG. 1 depicts a network topology of device location network 100 incorporating principles of the present invention. Network 100 includes one or more positioning satellites 110, 112, and 114 that can locate the position of one or more cell phones 120, 122, 126, and 124 (and other locatable devices) on Earth 101. Positioning satellites 110, 112, and 114 may be, for example, the Global Positioning System (GPS) or the upcoming Galileo satellite network.

[0037] Preferably, any cell phone in network 100 may locate a different cell phone, as long as access to location information is allowed, through the utilization of positioning satellites 110, 112, and 114. Persons skilled in the art will appreciate that other positioning systems and methods may be used in locating the position of a user on a cell phone of network 100.

[0038] To route information to and from a cell phone of network 100 additional facilities and communication paths may be included. For example, a main facility (not shown in FIG. 1) containing user location access rights may be included in network 100. Such a main facility may retrieve location information directly from a positioning system or a cellular phone and then route this information to a cellular phone or positioning system.

[0039] Persons skilled in the art will appreciate that if the Global Positioning System (GPS) is used as the positioning system then GPS receivers will be incorporated into cellular phones of the present invention. Persons skilled in the art will also appreciate that devices other than cellular phones may include positioning features. For example, watches, clothing, laptop computers, personal digital assistants (PDAs), may all contain location systems (e.g., GPS) and utilize the security principles of the present invention to allow different user's to access these locations.

[0040] FIG. 2 shows flow chart 200 of a simplified locating feature constructed in accordance with the principles of the present invention. Step 202 initiates when a user requests the location of another user's cell phone. Step 206 evaluates if the user initiating the location request has the rights to access the location of the desired user. If no access rights for the requesting user have been granted then step 204 will preferably inform the requesting user that he/she has not been given access to the requested location. In this manner, every user may assign rights (e.g. govern the security) to whom may or may not

locate him/her. In preferred embodiments, these rights will be stored in, or functionality executed from, a remote facility and accessed and utilized by a user's cell phone or other requesting device (e.g., a watch or PDA).

[0041] If access has been given by a particular user that allows for the requesting user to locate that particular user, step 208 is initiated and the allowed location information is provided to the user in step 210. Step 208 may optionally filter the location information such that only a portion information is passed to the requesting user. The requested user may have, for example, defined that the requesting user only can obtain the city, state, or country of his/her location. Persons skilled in the art will appreciate that only the location of the desired user needs to have a cell phone or a positioning system. The requesting user may user other means (e.g., the internet) to request the location of the desired user.

[0042] Persons skilled in the art will appreciate that the location of a user's cell phone may be retrieved, in step 208, from a remote database, facility, distribution center, or any other system. More particularly, a remote database may periodically request the location of a cell phone user with a positioning system and store this information. This database may also keep a record of those people allowed to access that user's location, the extent to which access is allowed, and the extent to which a user has requested a user's location. A user may update, add, manipulate, or remove access at any time by doing so at this database. Thus, a requesting user only has to contact the remote database, have his/her identity

recognized, have his/her access rights for the requested user location determined, and, if the requesting user has the correct access rights, be provided with the requested user's location.

[0043] Instead of a remote database periodically obtaining location information for a user, the database can obtain a user's locations when a request is made for that user's location, providing the requesting user has access to the requested user's location. However, persons skilled in the art will recognize that a remote database is utilized in the above examples that contains the locations, in most circumstances, of a multitude of users. Thus, to increase security even more, a requesting user's cell phone may directly request a user's location from the requested user's cell phone without the need for a database. In such an example a user adds, manipulates, or removes access rights locally on his/her cell phone and does not have to worry about security issues that surround placing his location on a remote database. Furthermore, in such an embodiment a user's location does not have to be saved anywhere, a positioning system can just be "read" by a requesting user with the appropriate access rights.

[0044] However, by recording a user's location on a device, e.g., a cell phone's memory or in a remote database, novel applications may be utilized. For example, whenever a user makes a credit card purchase, a credit card authorization system can record the location of a cell phone associated to the purchasing user. In this manner, a new system and method of fraud protection is introduced. The credit card authorization system may, for example, reject a

purchase if the purchaser's cell phone (or watch, clothing, PDA, or other positioning enabled device) is not in the vicinity of the purchase. Alternatively, the credit card authorization system may request a second form of identification if the purchaser's cell phone location does not correlate to the location of the purchase. Additionally, the credit card authorization system may call the purchaser's cell phone and request authorization for the credit card purchase. However, such features would preferably first involve the user/purchaser giving the credit card authorization system access to the location of his/her cell phone.

[0045] As per another application, a unique dating/matching service could be embodied. For example, a user may store a number of preferences in a matching profile. These preferences may describe what type of person he is interested in meeting. Additionally, a user may store, preferably locally (for the dating/matching feature) but alternatively at a remote location, his/her own profile that has data describing similar attributes for what he/she is looking for. For example, an entry in a user's profile may be "male" and an entry in "looking for" profile may be "female." When a user comes within a certain distance of a user (determined by comparing locations of a user) that fits his/her "looking for" profile, the user may be alerted of the proximity of a matching user. Preferably, the particular user is only alerted if the "looking for" user has entered in attributes similar to the particular user's attributes and is also alerted of the particular user. The next stages of such an application could include, for example,

requesting access to a form of communication. Such a form of communication could be for example, talking on the phone, instant messaging, or delivering an email address. Persons skilled in the art will therefore appreciate that many useful applications may be constructed using the principles of the present invention.

[0046] FIG. 3 depicts cell phone 300 constructed in accordance with the principles of the present invention. Cell Phone 300 preferably includes speaker 330, antenna 310, display screen 320, control keys 360, alpha-numeric keys 350, and microphone 340. Cell phone 300 also preferably may include, for example, a communications transmitter (not shown), communications receiver (not shown), memory (not shown), positioning device (not shown), and a microprocessor (not shown).

[0047] Cell phone 300 may also include locate button 380. Cell phone 300 may be configured such that if locate button 380 is pressed, a locate feature is initiated (e.g., display screen 400 of FIG. 4 is initiated). Alternatively, cell phone 300 may be configured such that if locate button 380 is pressed, a location signal is sent to a remote storage area (e.g., a remote database), thus manually updating the user's location. This latter functionality may be useful when a user does not want his/her location accessed. As in another alternative embodiment, cell phone 380 may be configured such that if locate button 380 is pressed, the locating features of cell phone 300 are toggled between ON and OFF. Person skilled in the art will appreciate that locate button 380 may be configured to produce a variety of useful functionalities.

[0048] FIG. 4 depicts display screen 400 that is displaying a locate feature constructed in accordance with the principles of the present invention. The locate feature of display screen 400 may be included, for example, in cell phone 300 of FIG. 3 and displayed to the user of cell phone 300 of FIG. 3 when that user requests the location of a different user of the present invention. The programming for the feature may, for example, be stored in the memory of the cell phone and executed by the processor at a user's request. Locate Feature 400 includes identifier list 410 of alpha-numeric identifiers for users stored in the memory on cell phone 300 (FIG. 3) or at a remote location. More particularly the user of display 410 may locate a user contained in identifier list 410 by selecting an appropriate user identifier 420.

[0049] The user identifiers (e.g., "Susan Pracht") in identifier list 410 are selectable and may be selected by control keys 360 of FIG. 3. Highlight window 410 may be used to prompt the user what identifier from list 410 is currently selected any may be controlled, for example, by the input keys of the cell phone (e.g., keys 350 and 360 of FIG. 3). Identifiers may be associated to, for example, cellular telephone number, user profiles, or any other identifier that may be associated to a locatable device or user interacting with a locatable device.

[0050] Persons skilled in the art will appreciate that display screen 400 may be provided to a user of devices other than wireless devices. For example, display screen 410 may be provided to a user of a personal computer with no positioning system. Preferably, however, the security measures in

accordance with the principles of the present invention are still abided to (e.g., access has been granted to the identifier associated to the requesting user). In this manner, a user can control who can access his/her wireless device (e.g., cell phone).

[0051] Persons skilled in the art will appreciate that identifier list 410 may be configured, for example, to contain only those users in which the user of cell phone 300 (FIG. 3) has locate access rights to or any user stored in cell phone 300. Persons skilled in the art will also appreciate that devices other than cell phone 300 may be used to incorporate the features of the present invention. Such devices could include, for example, personal digital assistants (PDAs), laptop, GPS pagers, GPS watches, car positioning devices, or any other devices that can be located. One advantage of the present invention is that it allows a mobile device with a positioning system to locate a different mobile device with a positioning system while still retaining a high level of location security and privacy.

[0052] FIG. 5 is display screen 500 for retrieving location status feature in accordance with the principles of the present invention. The selected identifier may be incorporated into display screen 500 through location status display 510 to inform the user of the status of the location retrieval. For example, display screen 500 may display "locating user" while a request is being processed by a remote facility or database.

[0053] FIG. 6 shoes display screen 600 for a display location feature constructed in accordance with the principles of the present invention. When a location

is retrieved for the requested user, the location may be displayed on Display Screen 600 through primary location information 610. Depending on what scope the requesting user has access to primary location information 610 may include, for example, the country, state, city, exact location, or any combination thereof of location information to the user. For example, if the user requesting the location of a desired user has been given unlimited location access by the desired user, primary information 610 may include the exact location of the user.

[0054] Secondary location information 620 may be included to supplement the requested users exact location so that the requesting user may have more of an idea of where the requested user is located. For example, if the desired user is located in a mall, primary location information 610 may be the address of the mall. In such an example, secondary location information 620 may be included and display, to the requesting user, the name of the mall.

[0055] Directional information 630 may also be included on display 600 or any other display of the present invention. Directional information 630 may include a digital compass 632 so that the user of cell phone 300 (FIG. 3) knows what direction he or she is facing in. Digital compass 632 may be connected to a direction sensitive device (e.g, mechanical compass) in order to gather directional information. Directional arrow 633 may also be included in Display 600 to indicate where the requested user's location is relative to the location and direction of cell phone 300 (FIG. 3) (e.g, the requesting user). Persons skilled in the art will appreciate that for some

directional information 630 the location of the requesting user must be obtained. This information may be obtained either from cell phone 300, a remote facility, or by any other suitable means. If the information is gathered from a location gathering device other than the requesting user's device (e.g, cell phone 300 (FIG. 3)), then the user's device may communicate from this other location gathering device. Once both the locations of the requesting and requested/desired users are known, this information may be utilized in a number of features incorporating the principles of the present invention.

[0056] Distance information 634 is one such feature that displays the distance between the locations of the requested and requesting users (e.g., distance between the locations of the requested and requesting devices). Directional information 630 may contain many other elements to enhance the utility of the present invention. For example, a map (not shown in FIG. 6) may be included in display 600. This map may be of the area surrounding either the requested, the requesting user's location or both. Information may be included on the map to show the shortest path between the location as well as information about the surrounding area (e.g, area names, store names, etc.). Other information may include, for example, time to reach the destination according to specific types of travel (e.g, subway, walking, running, driving) and the direction the requested user is traveling in.

[0057] Many uses for this information may be utilized by a user. For example, if Jane calls Bill and Bill says "I am roaming midtown manhattan shopping why don't you join me", no other call to Bill is

needed. Bill simply has to give Jane access to his location and Bill can continue shopping without having to worry about meeting up with Jane at a specific location.

[0058] In some instances, it may be beneficial to find the speed and direction of a requested user. For example, if a wife wants to see how long before her husband arrives home, the wife can use this feature of the present invention. This feature may find the husbands location multiple times in a determined amount of time. Through this information the feature may determine the speed and direction that the user is traveling. Using this speed, for example, this feature may display to the wife that the husband "is 10 minutes away" in directional information 630. In doing so, the need for a call to the husband to determine his location is eliminated.

[0059] Persons skilled in the art that the location of multiple users may be displayed on display screen 600. For example, suppose Jeff, Susan, and Chrissy are at a concert. If all three of these users have unlimited access to the other users, principles of the present invention would allow for a map to be displayed on each of the three locating devices with locator designations for each of the users. Using such map, the group may be able to find themselves in relative location to one another and decide, if need be, on the easiest location for them to meet. Thus map 660 may be included on display screen 600 and display the locations of multiple users (e.g., user's 621 and 622).

[0060] More region 640 designates that more options or information may be retrieved or performed using principles of the present invention. A user may use

control keys 340 (FIG. 3) on cell phone 300 (FIG. 3) to perform the functionality associated with more region 640.

[0061] FIG. 7 shows display screen 700 for locate listing options in accordance with the principles of the present invention. Display screen 700 includes selectable options list 710 and highlight window 720 and may be displayed to the user, for example, through the activation of functionality associated by more region 640 (FIG. 6). Options list 710 may include any of the features of the present invention. For example, options list 710 may include options activating a display screen of a map of the requesting user's location, a map of the requested user's location, directions to the requested user's location from the requesting user's location, travel time for the requesting user, travel time for the requested user, and options to set location alerts.

[0062] FIG. 8 shows display screen 800 of a failed locate feature due to insufficient rights in accordance with the principles of the present invention. Display scree 800 may be displayed if a requesting user attempts to located a requested user but has not been given access rights by the request user to his or her location. In such an instance insufficient rights message 801 may be prompted on display screen 800.

[0063] FIG. 9 shows display screen 900 of adding and modifying locate rights and options to a user in accordance with the principles of the present invention. A user may give or modify access rights through display 900 to a user identifier in selectable user identifier listing 910. Highlight window 920 may be included to enhance the selecting process.

[0064] FIG. 10 shows display screen 1000 of assigning location rights to a user in accordance with the principles of the present invention. Display screen 1000 may be displayed, for example, after a user has been selected to be given location rights. Display screen 1000 contains selectable location rights listing 1010, in which the selecting process may be enhanced by highlight window 1020. Possible location access rights may be, for example, by country, state, city, exact location, or any other scope of location. Other rights may be assigned such as particular times in the day or time periods at which locations may be accessed.

[0065] FIG. 11 shows display screen 1100 of alert options in accordance with the principles of the present invention. Display screen 1100 allows for a user to set up alerts depending on the location of specific users. Selectable alert listings 1110 are included and may be selectable with highlight window 1120. Examples of alerts that may be included in display screen 1100 may occur, for example, if the requested user is in a specific city or the same city as the user of display 1100, is within a certain distance, or if a user located the user of display 1100.

[0066] The alerts of the present invention may realize useful functionality. For example, suppose Susan Pracht lives in Pittsburgh and rarely comes to the city of the user of display screen 1100 on cell phone 300 (FIG. 3) which is New York City. The user of cell phone 300 (FIG. 3) may then use display screen 1100 and set an alert such that if Susan Pracht ever enters New York City, he or she would be alerted of Susan Pracht's presence.

[0067] FIG. 12 shows display screen 1200 of an alert feature in accordance with the principles of the present invention. Display screen 1200 includes an alert message and is displayed to a user when an event occurs that is designated by the user in display screen 1100 (FIG. 11). Continuing the example from FIG. 11, if Susan Pracht enters New York City, alert message 1210 would prompt the user that this event has occured.

[0068] FIG. 13 shows display screen 1300 of a login feature in accordance with the principles of the present invention. In order for users to be identified by other user's cell phones or locating devices a user profile may need to be stored remotely from such devices. In such instances user profiles would be used as the locating identifier and the devices into which these profiles are logged into (recognized by) would allow for the user to be located. Display screen 1300 allows for a user to log into a locating device of the present invention. Logging into a device also adds a level of security to the present invention, especially when combined with a password. A user may use the controls of the device of the present invention to enter login 1310 of display 1300.

[0069] In this manner a user may use another user's location device (e.g., cell phone) to locate a user or may use, for example, the internet to locate a user. Additionally, in this manner, a user may change the device being located. For example, a user may use his or her car GPS system or other systems in accordance with the principles of the present invention to be located instead of his or her cell phone. To further this example, a user may log into a web site on the internet and designate his or her current location as

home, or any other location, thus eliminating the need for locatable device entirely.

[0070] FIG. 14 shows display screen 1400 of a login feature in accordance with the principles of the present invention. Display screen 1400 may be used by a user to enter a password associated to his profile, identity, or cell phone functionality access. A user may enter password 1410 using the controls of the device of display screen 1400 (e.g., cell phone 300 of FIG. 3). By including a login/password scheme a user can be identified by a remote facility (e.g., a remote database) so that the user's location can be recorded/updated by multiple devices. Additionally, a login/password adds an extra level of security.

[0071] FIG. 15 shows cell phone 1500 that may be utilized to carry out the functionality in accordance with the principles of the present invention. Cell phone 1500 includes receiver/transmitter 1510, microprocessor 1520, positioning system 1530, and memory 1540.

[0072] Persons skilled in the art will appreciate that receiver/transmitter 1510 may directly communicate with memory 1540 if receiver/transmitter 1510 does not have its own memory (e.g., if receiver/transmitter 1510 are configured to utilize a buffer for capturing incoming communications bursts before demodulation and decryptions).

[0073] Positioning system 1530 may be, for example, a GPS system or a similar positioning system. Positioning system 1530 may include its own receiver for receiving particular signals utilized in positioning cell phone 1500.

[0074] FIG. 16 shows network topology 1600, in which all components of, or a part of the components of, may be utilized to carry out the features in accordance with the principles of the present invention. In this manner, persons skilled in the art will appreciate that multiple system configurations may be utilized. Topology 1600 introduces the diversity of systems that can be utilized to realize such configurations.

[0075] Generally, topology 1600 includes muliple mobile devices (e.g., multiple instances of mobile device 1601), access control devices and location broker devices (e.g., database 1602 and cell phone base station 1603), and non-mobile devices (e.g., grounded non-wireless device 1605). Persons skilled in the art will appreciate that other devices or facilities may be included in topology 1600. For example, one or more positioning systems 1601 may be included in topology 1600 in order to locate particular devices. For example, a positioning receiver (e.g., GPS receiver) may be included in wireless device 1601 with positing system 1601 being a positioning transmitter (e.g., GPS satellite network).

[0076] One or more wireless devices 1601 may be included in topology 1600 and may be, for example, watches, PDAs, cellular phones, radios, cars, or any other mobile device whose location can be determined.

[0077] As previously mentioned, access control and location broker devices may be included in topology 1600. Such devices may be utilized, for example, to store user access rights for a particular user and may contain functionality to request and route a device's location. These devices may be considered information broker's such that devices may be added, removed, or

modified without creating the necessity of having to modify the other devices of topology 1600.

[0078] Database 1602 is one such information broker. Database 1602 may, for example, be located in cell phone base station 1603 if database 1602 is utilized to assist in cell phone locating. Database 1602 may be utilized, for example, to store a history a of a device's locations, a user's list of assigned access rights to other users, a log of a user's call activity, a log of a location initiations, a user profile, login/password information, or any other sort of information. Many features may be provided that utilize such information, For example, n approximate location may be determined for a device that is turned OFF (e.g., by utilizing the device's location history). As per another example, if a cell phone is lost and a new one replaced, information such as, for example, phone books, activity logs, and assigned user access rights may be downloaded/flashed into the cell phone.

[0079] Database 1602 may be accessed either directly (e.g., manually by an user of the device) or indirectly (e.g., periodically) by a cell phone or other device. Alternatively, a device or cell phone may access database 1602 directly (e.g., manually by an administrator of the database) or indirectly (e.g., periodically) by database 1602.

[0080] A credit card authorization system is an example of additional system 1606 that may be added to topology 1600 to realize new features. Such a credit card authorization system, as described above, could utilize a devices location in order to decrease credit card fraud. System 1600 may also be, for example, systems needed to realize the described dating

functionalities or another information provider (e.g., a map information provider).

[0081] Non-wireless devices 1605 (e.g., a personal computer) may be included in topology 1600. Such devices may have locations associated to them or contain a positioning system. These locations may then be associated to a user that is recognized as using the device. For example, if a particular user logs into a non-mobile personal computer, that user's location will be recognized as being the location associated to the personal computer.

[0082] The devices of topology 1600 communicate with each other through communications network 1610. Communications network 1610 may include, for example, any type of communications, routing, amplification, encryption, decryption, parsing, modulation, or demodulation technologies. For example, positioning system 1601 may communicate with wireless device 1601 by sending multiple wireless positioning signals. At the same time, database 1602 may be providing non-wireless device 1605 with a device's location over conventional telephone wires.

[0083] FIG. 17 shows locating feature 1700 in accordance with the principles of the present invention. Locating feature 1701 starts at step 1701 and waits at step 1702 until a location is requested. As stated, a location can be requested in a number of instances and by a variety of different means.

[0084] For example, a location may be requested by a user of a cell phone that desires to locate a friend by locating that friend's cell phone. Alternatively, a device may be triggered to request a location of a mobile device when an event occurs. For example, a

credit card authorization system may request the location of a user's cell phone and the location of a store that just used a credit card associated to the requested user.

[0085] If a location is requested, access rights to the requested location for the requesting device and/or user are obtained at step 1703. Step 1703 may be employed for example, as a call to a database storing a list of assigned access rights for the requested device/user and finding if any access rights were assigned to the requestor's identity. As per another example, step 1703 may be employed as a direct call to the requested device/user.

[0086] Step 1704 determines if the requestor has been assigned access rights to obtain the requested device/user's location. Persons skilled in the art will appreciate that some devices may always have access to a user's location regardless if a user has assigned access rights to the requesting device. In this manner, a device may be set up to always let a user access a location. For example, a mother may purchase a cell phone for a minor and may configure the cell phone to always allow her location information.

[0087] If access rights do exist for the requesting device/user at step 1704 then step 1705 may be initiated and location information may be provided to the requestor. Such location information may be filtered according to the assigned access rights. For example, if a user has only been assigned access rights to obtain the requested user's city location, only the city that the requested user/device is currently located in (or the last city location available) may be obtained. The process then finishes at step 1707 after

the assigned location information has been delivered to the requestor at step 1705. Persons skilled in the art will appreciate that steps may be added to, removed, or modified from locating feature 1700. For example, instead of finish step 1707, step 1702 may be initiated after step 1706 has completed.

[0088] If a requestor has not been assigned rights to access the requested user/device's location as determined by step 1704, then step 1712 may be initiated. Step 1712 informs the requestor that the requestor does not have access rights to obtain the location of a user/device. Step 1711 may follow and provide an opportunity for the requestor to obtain the access rights. More particularly, step 1711 asks the requestor if the requestor would like to request access rights. If the requestor does not want to request access rights, locating feature 1700 may, for example, return to step 1702. Else, access rights may be requested at step 1721. Step 1722 follows and if access rights were given then step 1705 may be initiated. Else, step 1712 may, for example, be re-initiated.

[0089] FIG. 18 shows one embodiment of a cell phone burst that has been configured to embed a device or user's location 1801 between control signals (e.g., synchronization signals) and data signals. Persons skilled in the art will appreciate that some cell phone burst standards (e.g., TDMA and CDMA) have signal portions that are reserved for future technologies. In one embodiment, this reserved portion is utilized to house location information 1801. A cell phone tower or base information may then strip received signals 1800 of location information 1801, store location

information 1801 into a database or other storage device, and deliver the received signals to its desired location. In this manner, a user may refresh his/her location information every time that a cell phone base station receives or routes information for the user. By stripping location information 1801 from signal 1800, the intended receiver does not have access to the location of the device transmitting signal 1800. A signal similar to signal 1800 may be sent to a cell phone that has requested, and has the appropriate location access rights, to location 1801. Location 1701 may also be stored in other portions of signal 1700 that are not reserved portions. For example, a received signal 1800 may store location information in the data portions of signal 1800. In embodiments where additional information is sent about location 1801 (e.g., a map associated with location 1801) utilizing a main data portion of signal 1800 is preferred. Persons skilled in the art will appreciate that signal burst 1800 may actually be any type of communication signal such as, for example, information returned from a database inquiry.

[0090] Persons skilled in the art will also appreciate that the systems and methods of the present invention may be implemented using other locating features and configurations. For example, a user may be manually requested to allow location access rights every time his/her location is requested. As per another example, a user may organize his/her user list into groups and assign access rights to that group (e.g., family member user group, close friend user group). All such modifications are within the scope of

the present invention, which is limited only by the claims that follow.

What is Claimed is:

1. A method of mobile-to-mobile locating, said method comprising:

requesting a location of a first wireless device by a second wireless device;

assigning location access rights to said second wireless device by said first wireless device;

determining said access rights assigned by said first wireless device to said second wireless device; and

providing said location to said second wireless device dependent upon said access rights.

2. The method of claim 1 wherein said first and second wireless devices are cellular phones.

SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

Abstract of the Disclosure

Systems and methods for locating a cellular phone are provided. More particularly, systems and methods for providing the location of a requested user's cellular phone from a requesting user's device (e.g., a second cellular phone) based on access rights defined by the requested user. Location descriptions may be provided at a multitude of levels. For example, if a cellular phone, or an identity associated to (e.g., logged into) a cellular phone, has been given access rights to a cell phone's exact location for an indefinite amount of time, that cell phone can receive, on command, the exact location of the approved cell phone. Other levels of location information that can be granted include, for example, proximities, states, and countries.

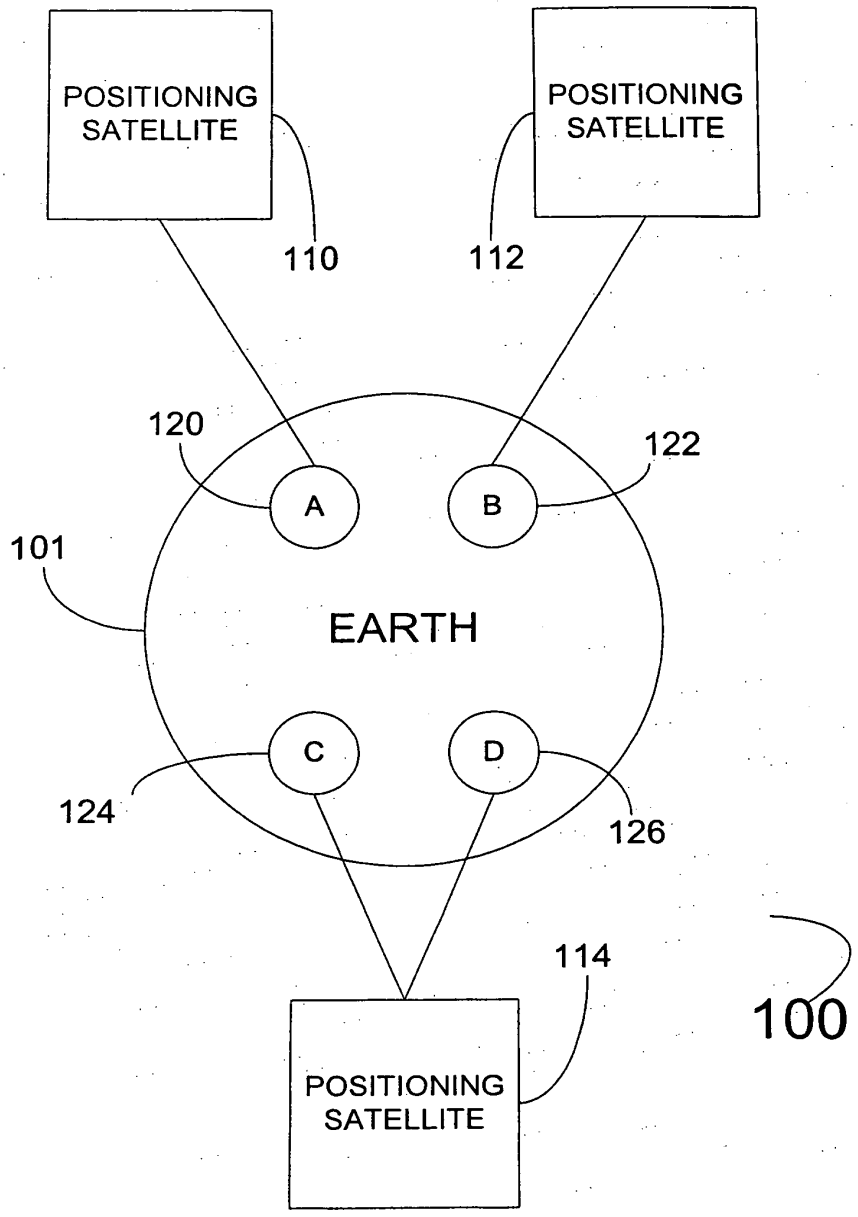


FIG. 1

Express Mail Label No.
EV669671713US

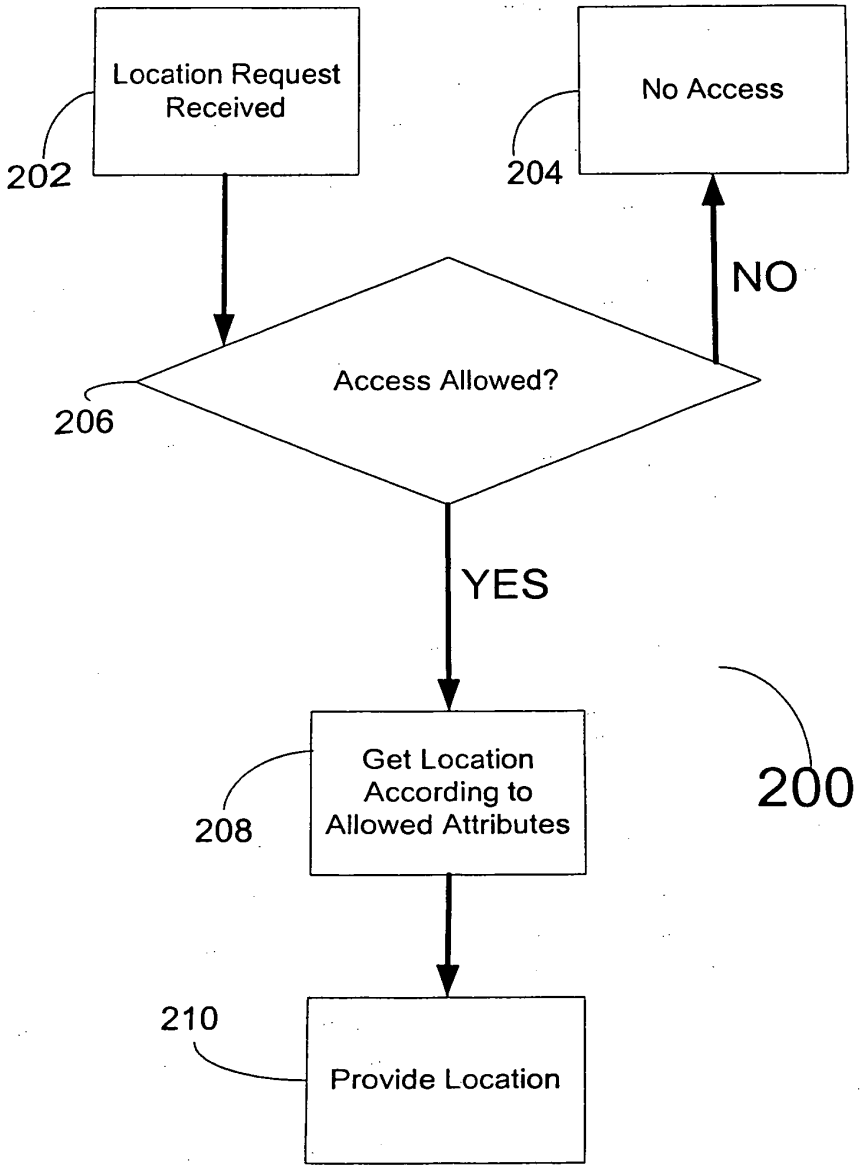


FIG. 2

Express Mail Label No.
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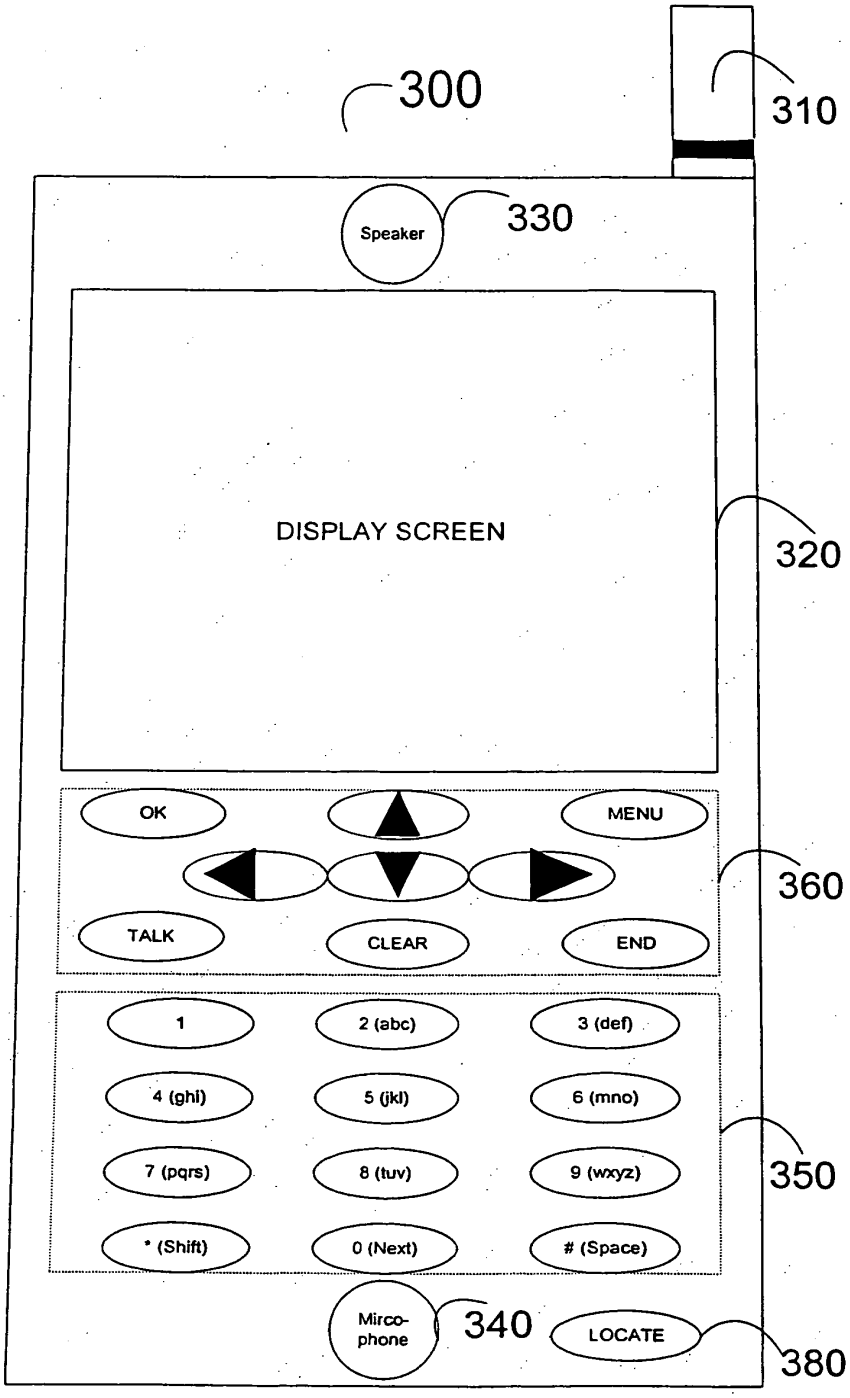


FIG. 3

Express Mail Label No.
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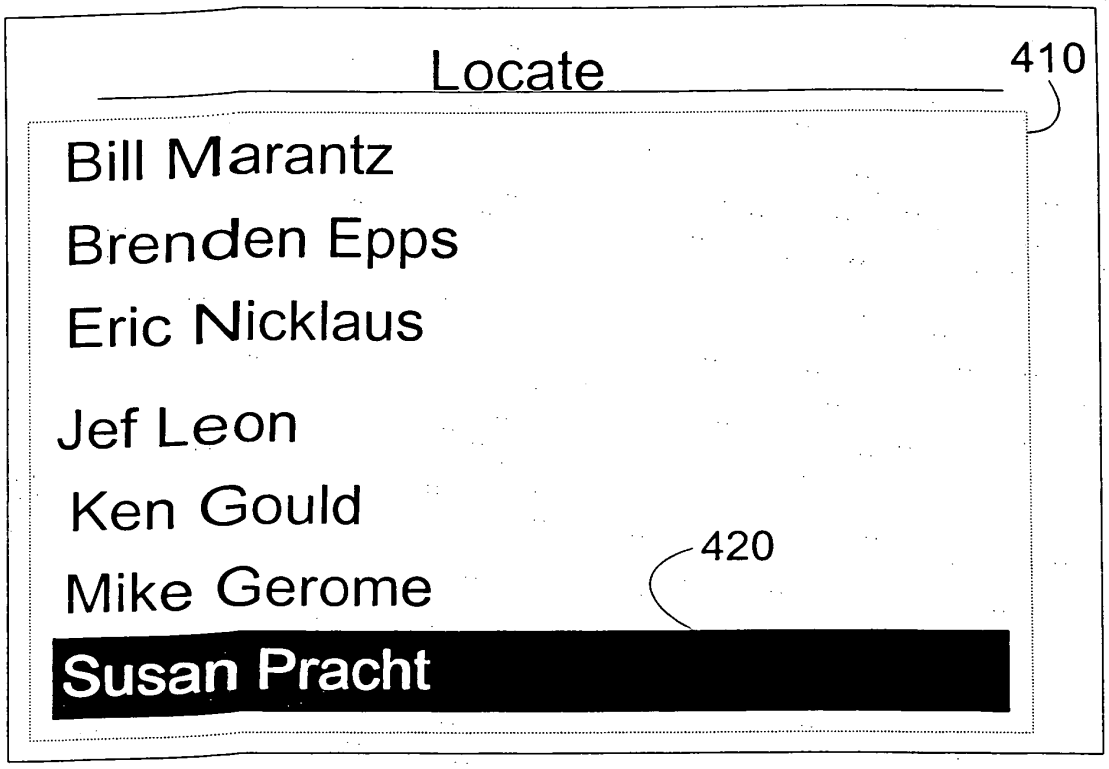


FIG. 4

400

Express Mail Label No.
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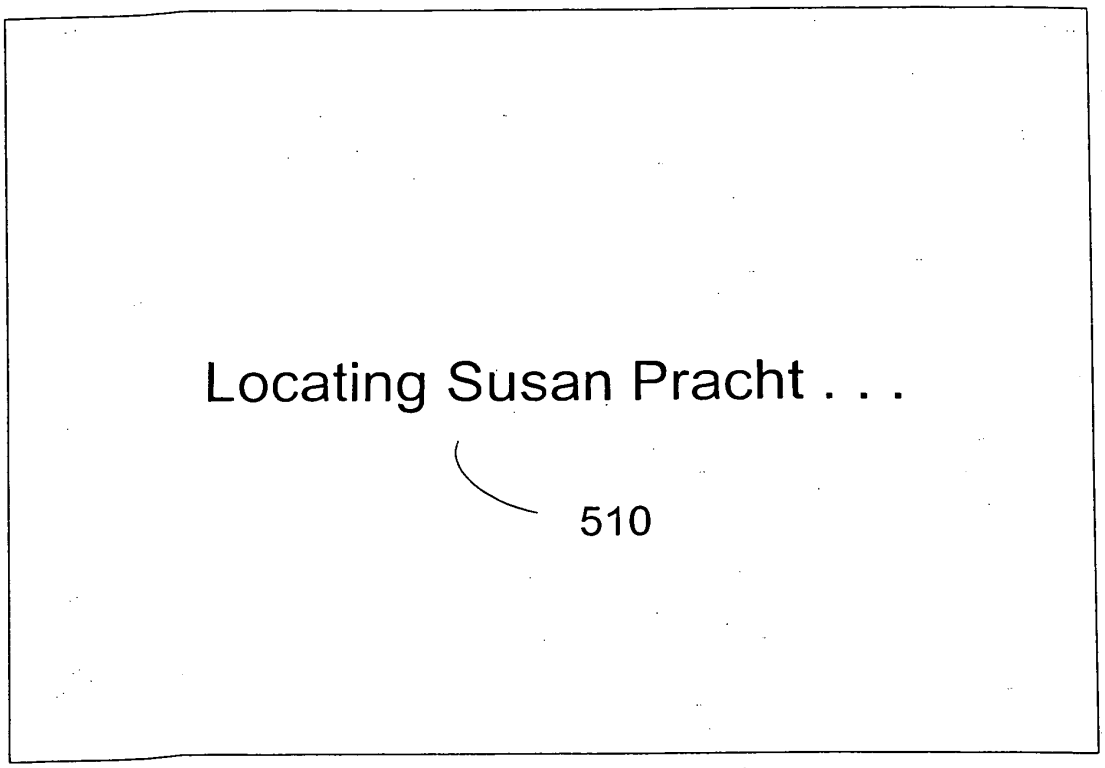


FIG. 5

Express Mail Label No.
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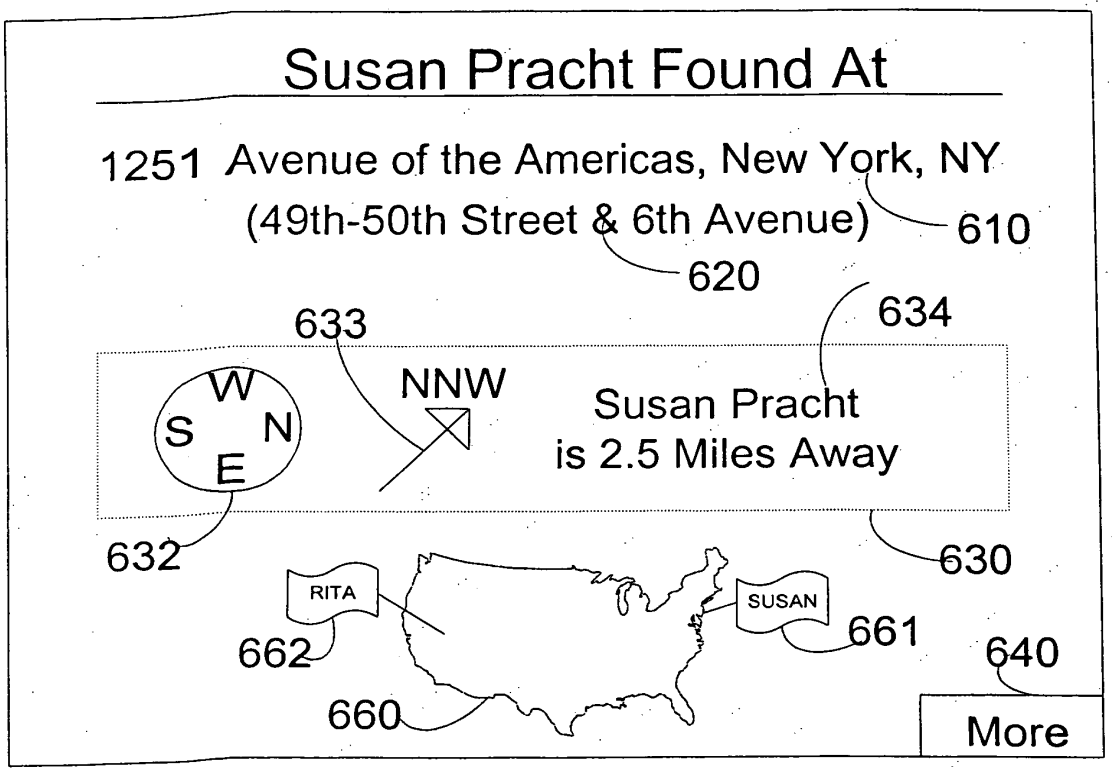

Susan Pracht Found At
1251 Avenue of the Americas, New York, NY
(49th-50th Street & 6th Avenue)
610
620
633
634
W
S
N
E
NNW
Susan Pracht
is 2.5 Miles Away
632
630
RITA
SUSAN
662
661
640
660
More

FIG. 6

600

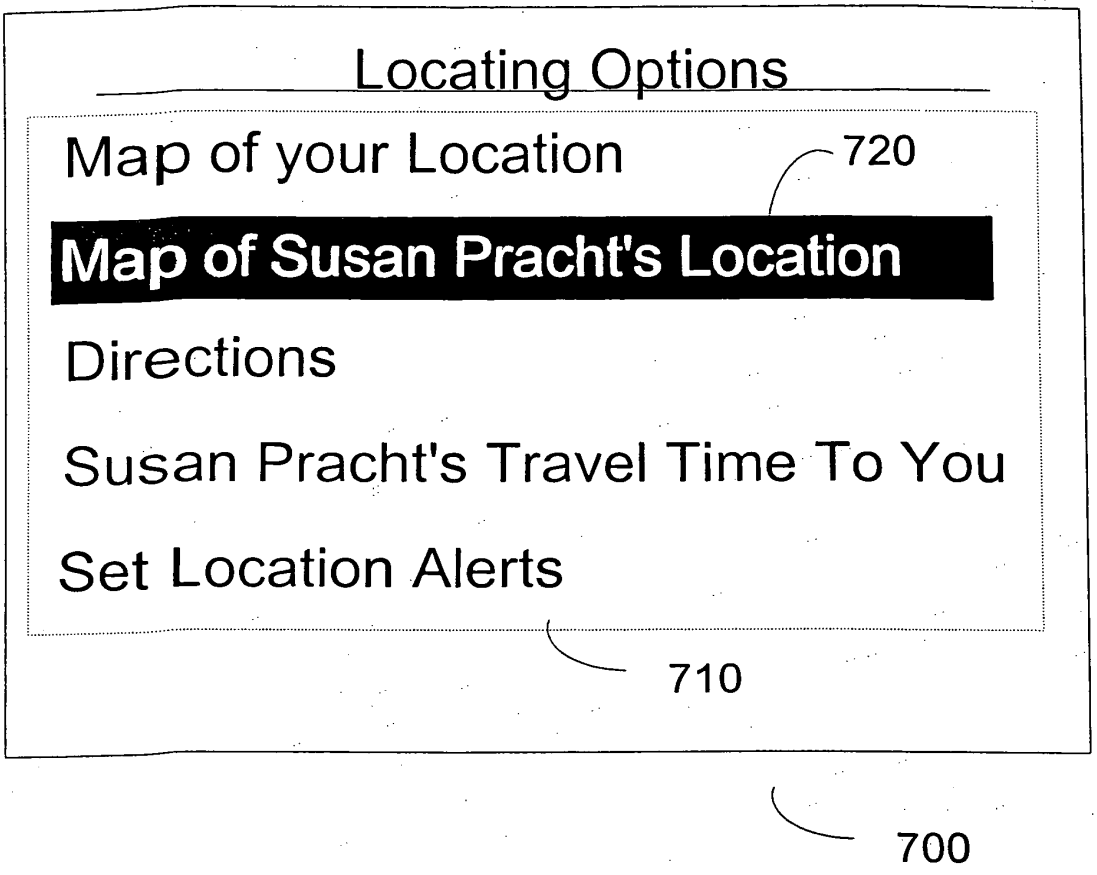


FIG. 7

Express Mail Label No.
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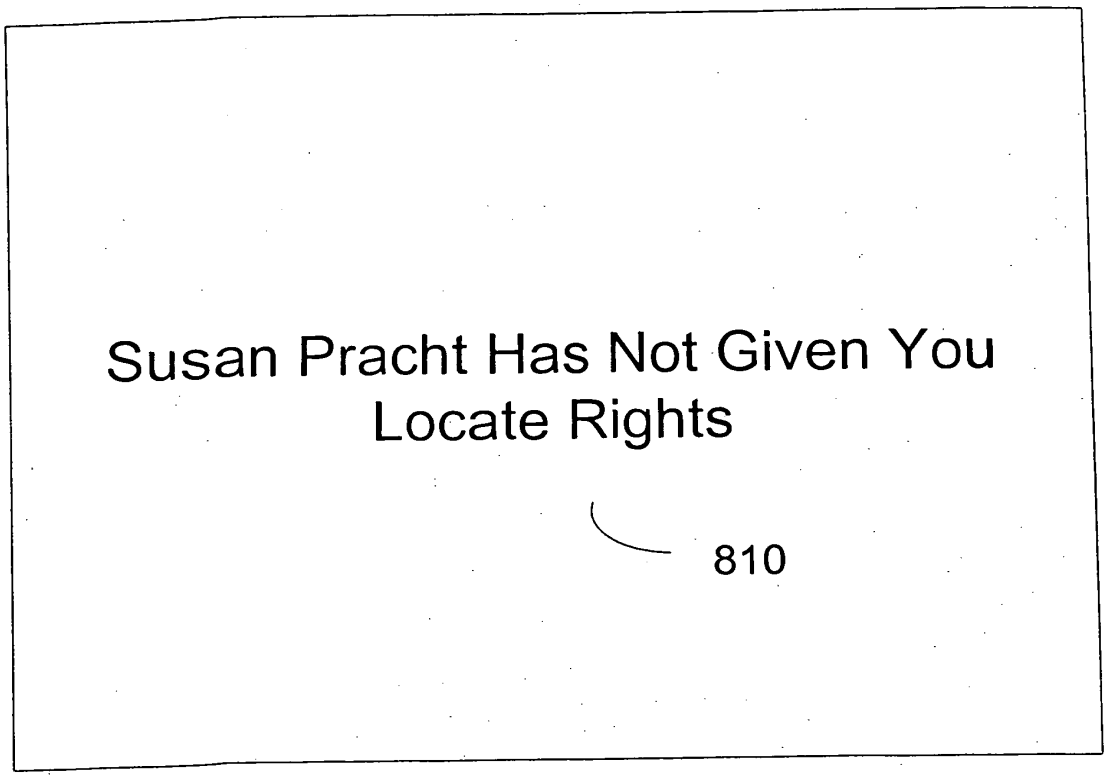


FIG. 8

Express Mail Label No.
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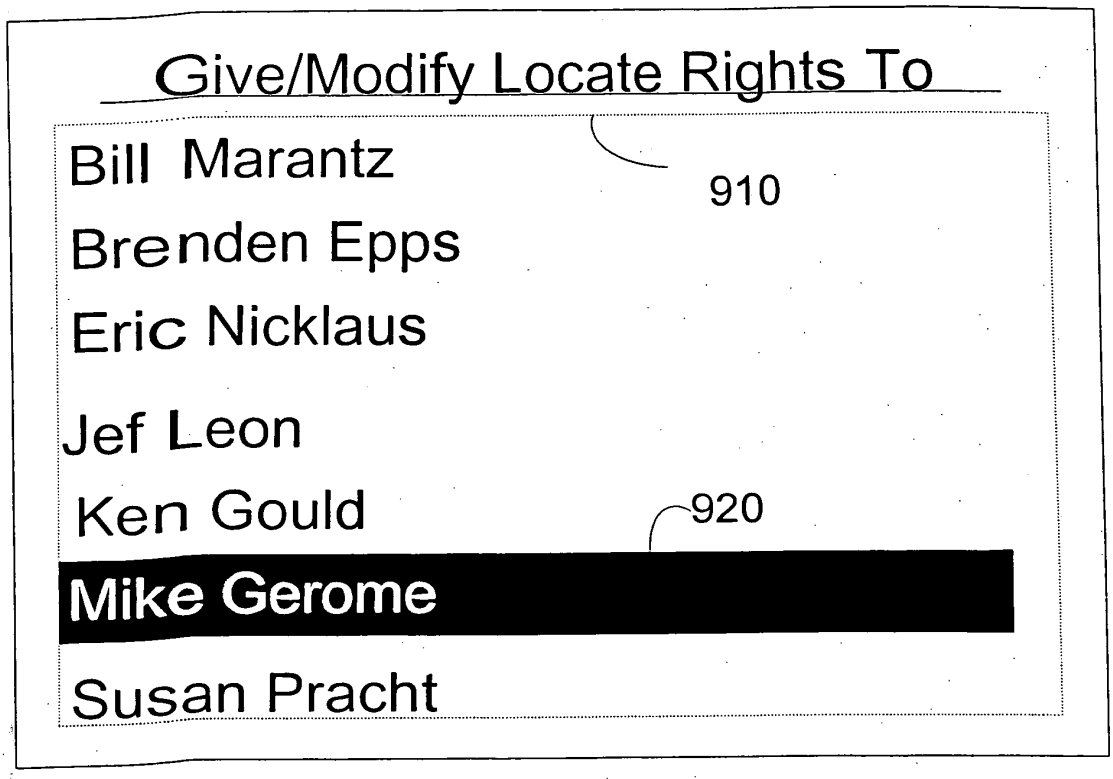


FIG. 9

Express Mail Label No.
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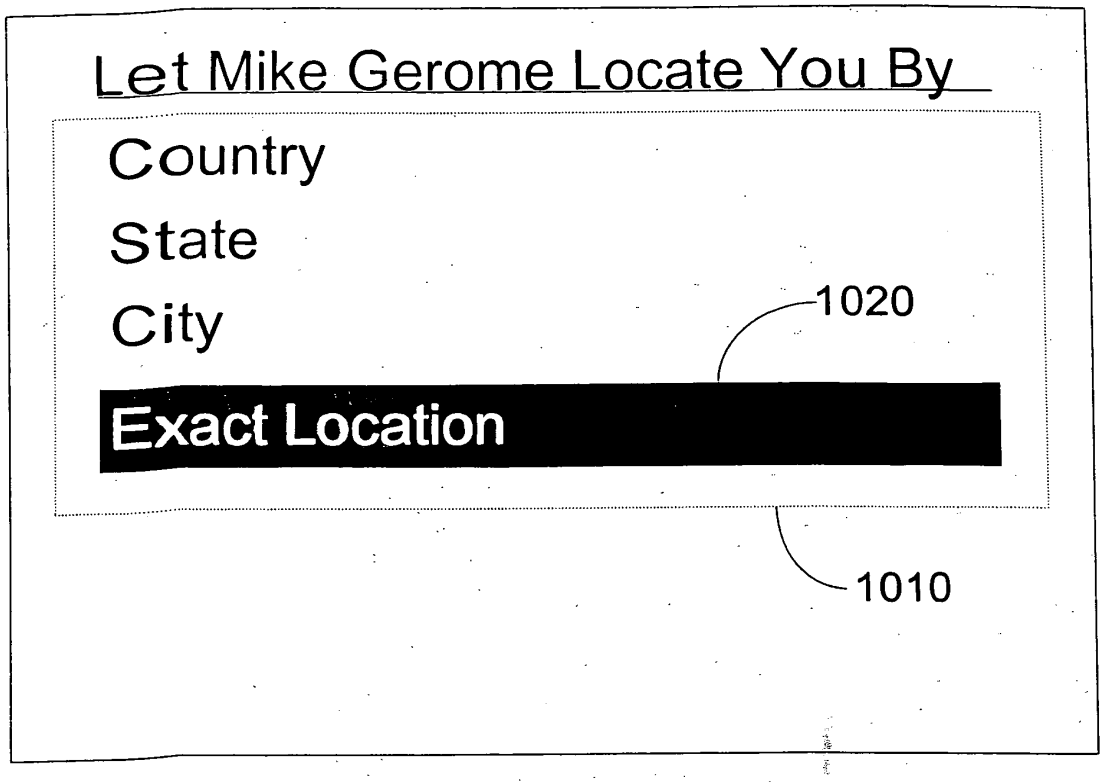

Let Mike Gerome Locate You By
Country
State
City
Exact Location
1020
1010
1000

FIG. 10

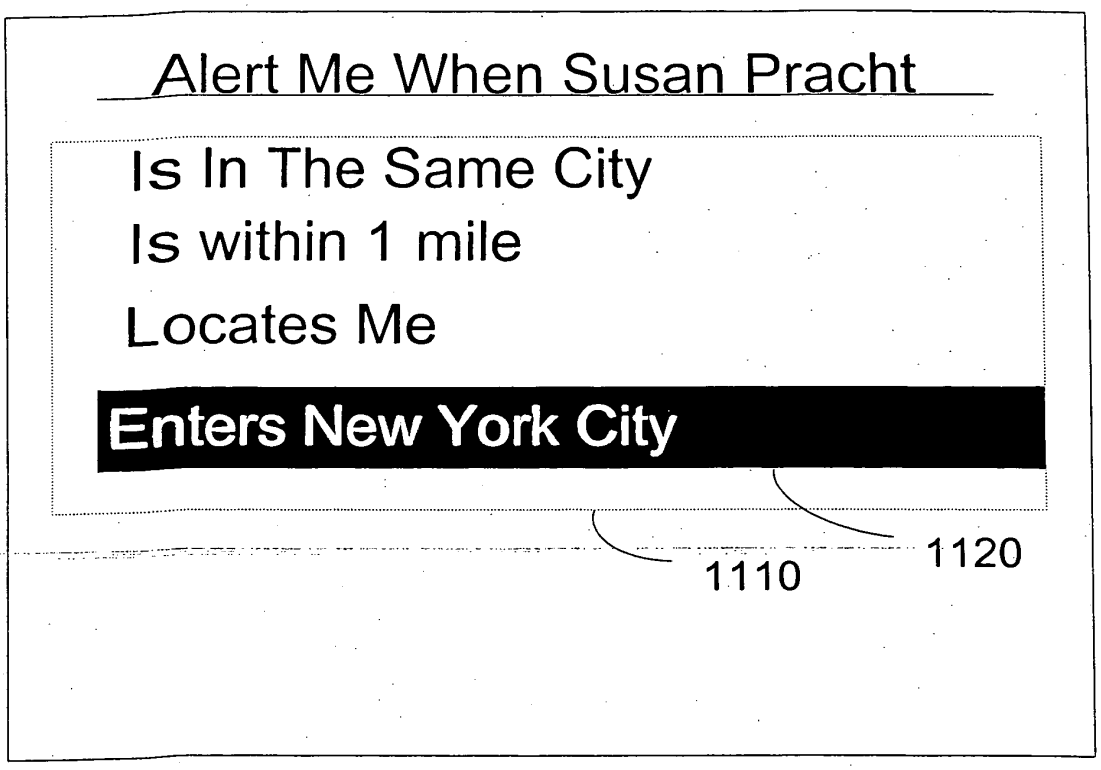


FIG. 11

Express Mail Label No.
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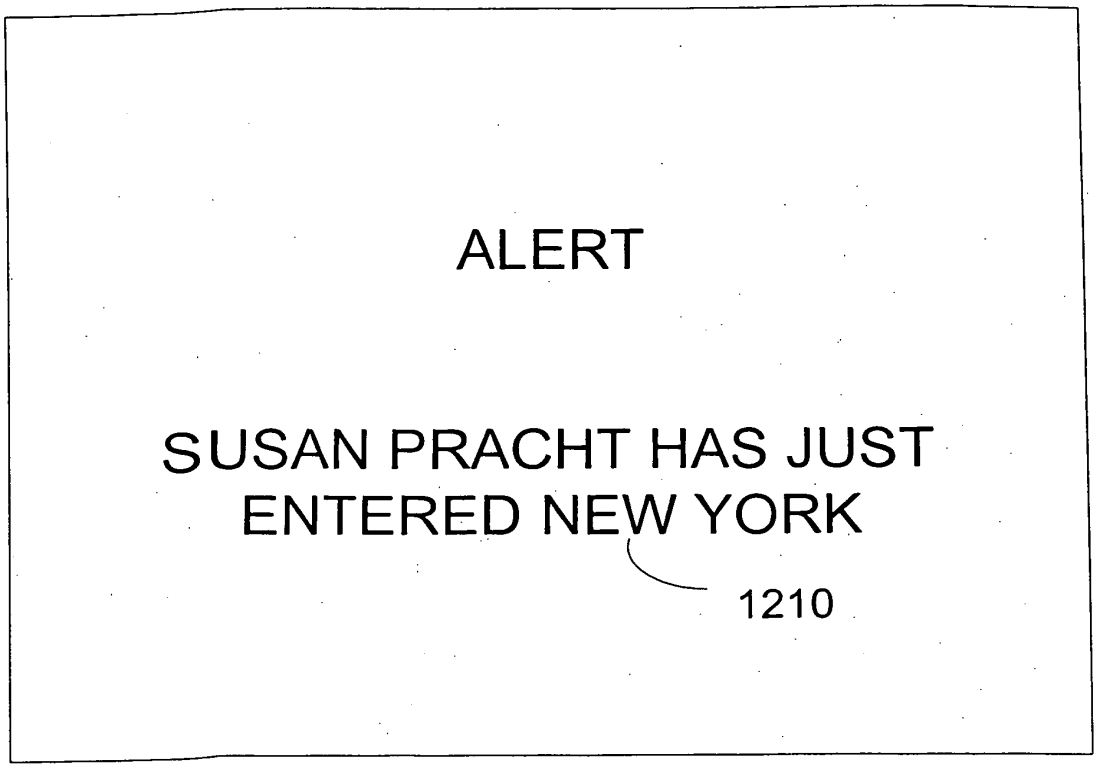


FIG. 12

Express Mail Label No.
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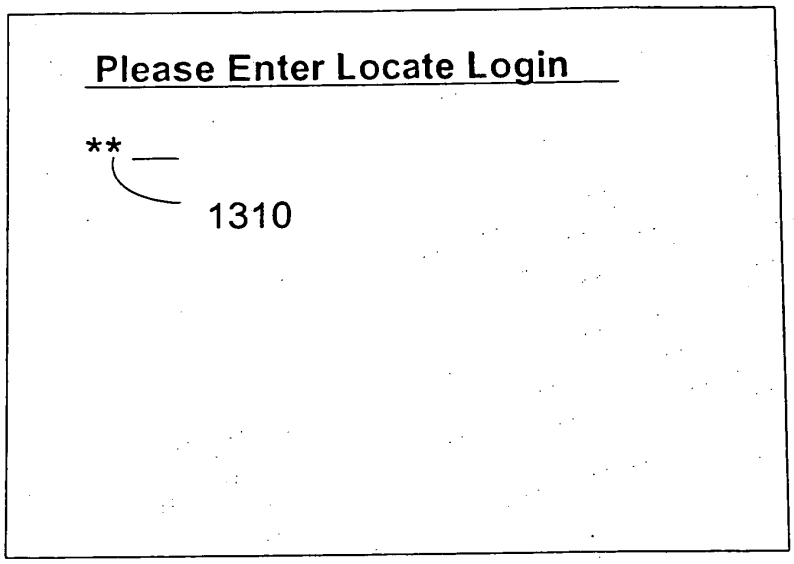


FIG. 13

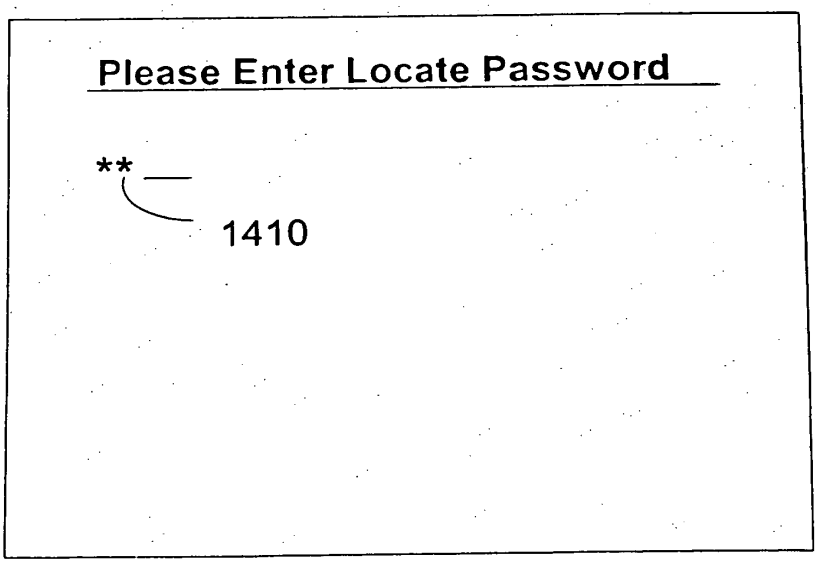


FIG. 14

Express Mail Label No.
EV669671713US

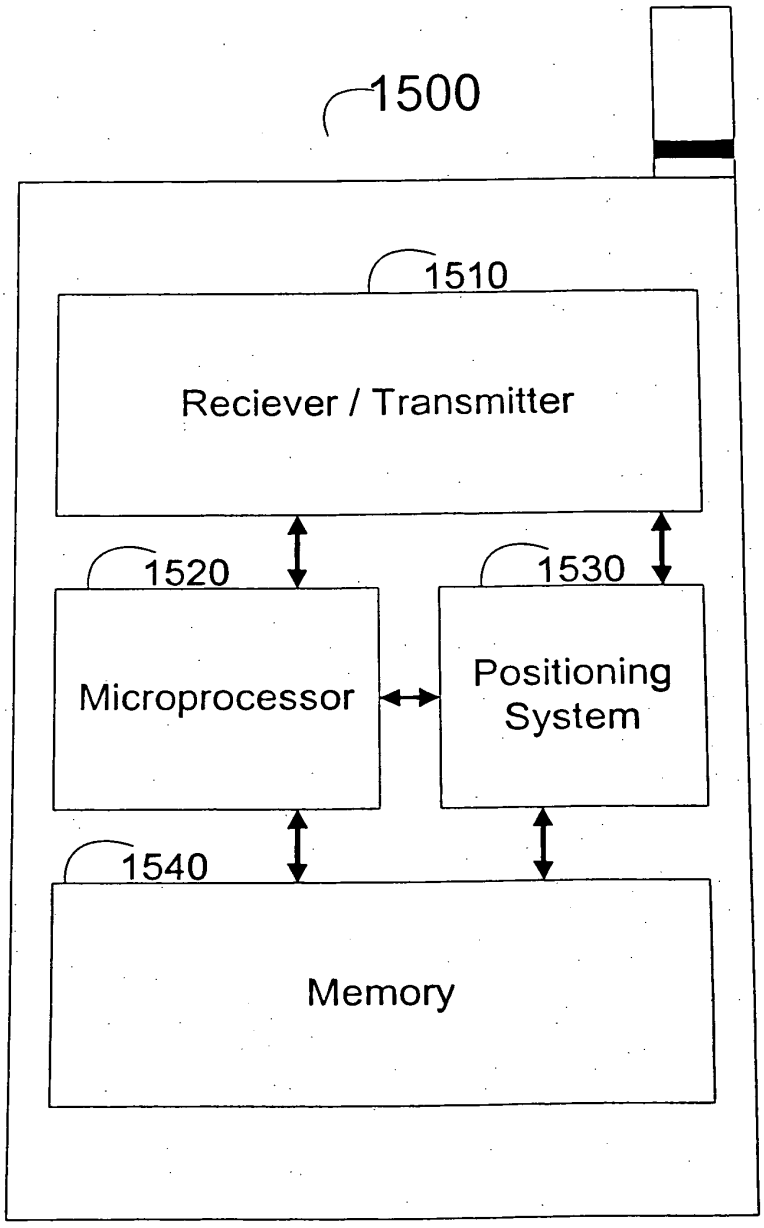


FIG. 15

Express Mail Label No.
EV669671713US

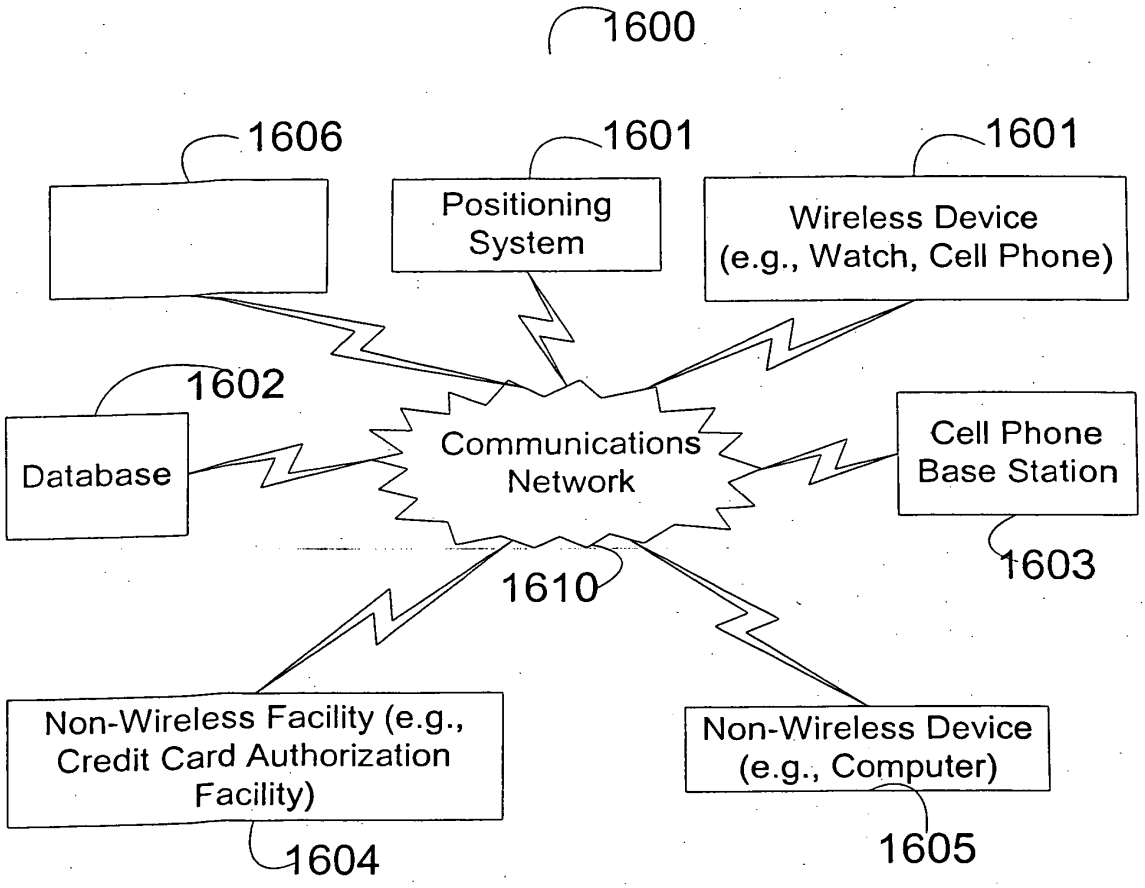


FIG. 16

Express Mail Label No.
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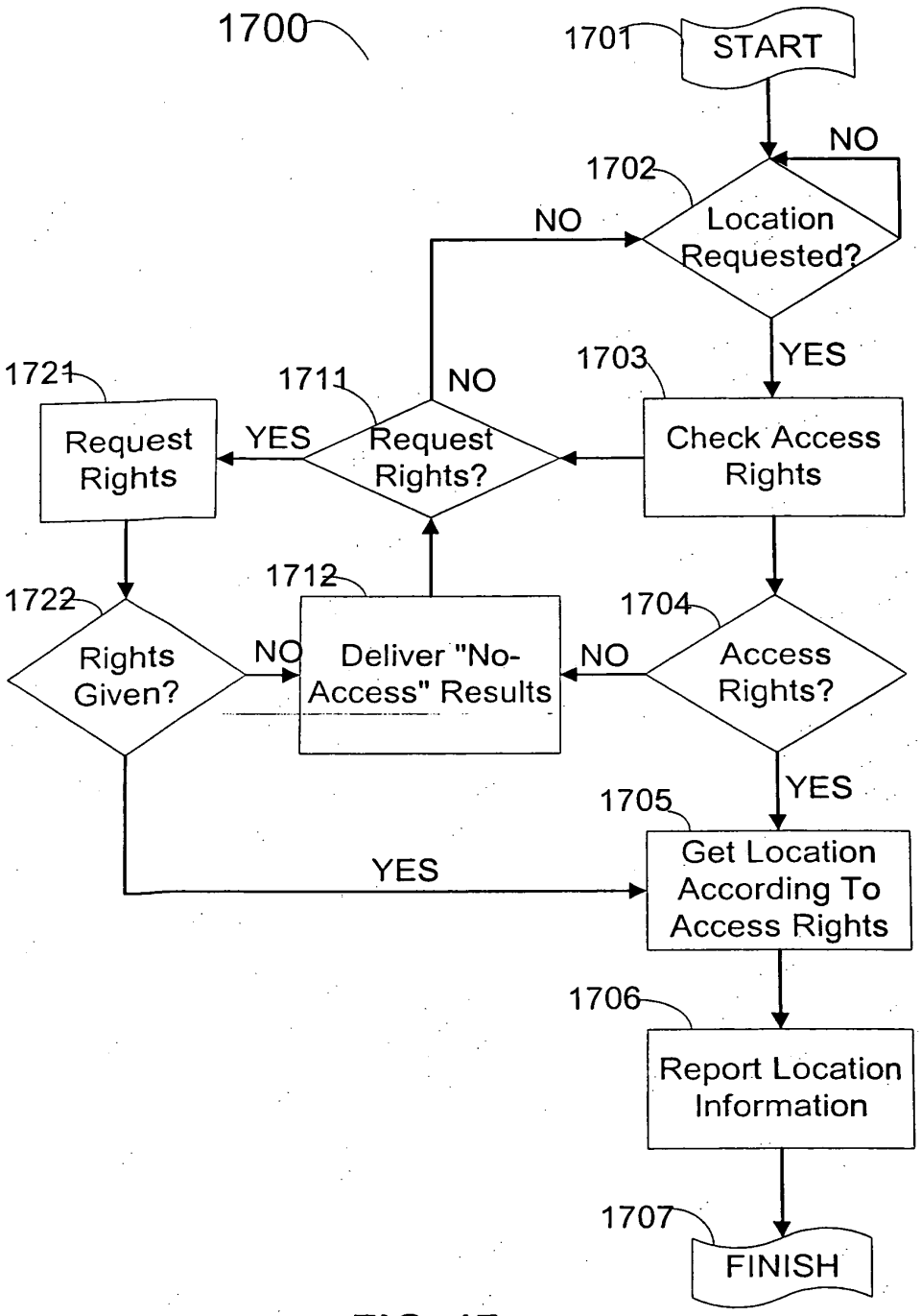


FIG. 17

Express Mail Label No.
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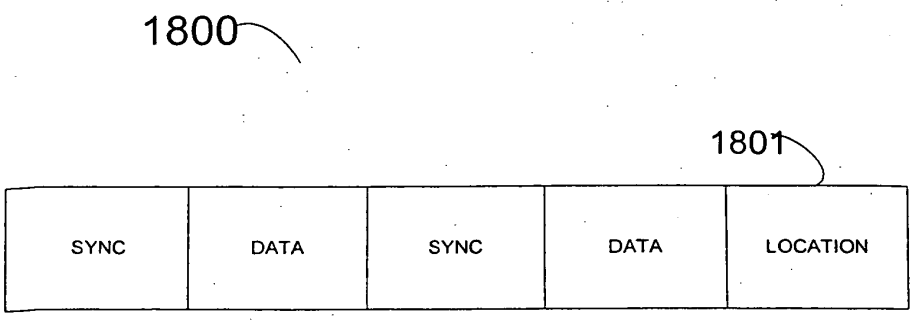


FIG. 18

Express Mail Label No.
EV669671713US

DECLARATION

I, Jeffrey D. Mullen, declare that I am a citizen of the United States of America, respectively residing at and having post office addresses at 1 Mercer Court, Scarsdale, New York 10583; and

that I verily believe myself to be the original and first inventor of the invention or discovery in:

SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

which is described and claimed in the attached specification, and for which a patent is sought;

that I have reviewed and do understand the content of said specification, including the claims, and acknowledge my duty to disclose to the United States Patent and Trademark Office information known by myself to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56;

that I do not know and do not believe that this invention or discovery was ever known or used in the United States of America before my invention or discovery thereof, or patented or described in any printed publication in any country before my invention or discovery thereof, or more than one year prior to this application; or in public use or on sale in the United States of America more than one year prior to this application; that this invention or discovery has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an

application filed by myself or my legal representatives or assigns more than twelve months prior to this application; and that no application for patent or inventor's certificate on this invention or discovery has been filed in any country foreign to the United States of America by myself or my legal representatives or assigns;

I hereby claim the benefit under Title 35, United States Code § 119(e) to the United States provisional application listed below.

60/367,967	March 25, 2002
(Application Serial No.)	(Filing Date)

and I request that communications be sent to:

Jeffrey D. Mullen
1 Mercer Court
Scarsdale, New York 10583

and that telephone calls be directed to:

Jeffrey D. Mullen
(914) 837-7741

Wherefore, I pray that Letters Patent be granted to myself for the invention or discovery described and claimed in the attached specification and claims, and I hereby subscribe my name to the foregoing specification, claims, and declaration.

I declare, further, that I understand the English language and that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and, further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

3/25/03
Date

Jeffrey D. Mullen

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

03/27/2006 SSITHIB1 00000005 11387384

01 FC:2011	150.00	OP
02 FC:2111	250.00	OP
03 FC:2311	100.00	OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002 — 469-267/69033

PTO/SB/06 (12-04)
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875 Effective December 8, 2004

Application or Docket Number: 11387384

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	150.00		N/A	300.00
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	$250		N/A	$500
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	$100		N/A	$200
TOTAL CLAIMS (37 CFR 1.16(i))	2 minus 20 =	*	X$ 25 =		OR	X$50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X100 =			X200 =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			+180=			+360=	
			TOTAL	500		TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED – PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X$ 25 =		OR	X$50 =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X100 =		OR	X200 =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=		OR	+360=	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X$ 25 =		OR	X$50 =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X100 =		OR	X200 =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=		OR	+360=	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

INVENTOR INFORMATION

Inventor One Given Name:: Jeffrey D
Family Name:: Mullen
Postal Address Line One:: 350 West 43rd St., Apt. 5H
City:: New York
State or Province:: New York
Country:: USA
Postal or Zip Code:: 10036
City of Residence:: New York
State or Province of Residence:: New York
Country of Residence:: USA
Citizenship Country:: USA

CORRESPONDENCE INFORMATION

Correspondence Customer Number:: 32733
Electronic Mail One:: jmullen54@aol.com

APPLICATION INFORMATION

Title Line One:: SYSTEMS AND METHODS FOR LOCATING CELLULA
Title Line Two:: R PHONES AND SECURITY MEASURES FOR THE S
Title Line Three:: AME
Total Drawing Sheets:: 17
Formal Drawings?:: No
Application Type:: Utility
Docket Number:: JDM/002 CON
Secrecy Order in Parent Appl.?:: No

REPRESENTATIVE INFORMATION

Representative Customer Number:: 32733

CONTINUITY INFORMATION

This application is a:: CONTINUATION OF
> Application One:: 10/400296
Filing Date:: 03-25-2003

Which is a::NON PROV. OF PROVISIONAL
>> Application Two:: 60/367967
Filing Date:: 03-25-2002

Source:: PrintEFS Version 1.0.1

JDM/002 CON

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jeffrey D. Mullen
Application No.	:	Not Yet Assigned
Confirmation No.	:	Not Yet Assigned
Filed	:	Herewith
For	:	SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME
Group Art Unit	:	Not Yet Assigned
Examiner	:	Not Yet Assigned

Mail Stop: Amendment
Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

New York, NY 10020
March 22, 2006

PRELIMINARY AMENDMENT

Sir:

Before examination of the application, please amend the application as follows:

Amendments to the Specification are reflected on page 2.

Amendments to the Claims are reflected in the listing of claims which begins on page 3 of this paper.

Remarks/Arguments begin on page 6 of this paper.

Express Mail Label No.
EV669671713US

Amendments to the Specification:

Please add the following after page 1, line 2 and before page 1, line 3 of the specification.

--Cross-Reference To Related Applications

This application is a continuation of U.S. Patent Application No. 10/400,196, filed on March 25, 2003, which claims the benefit of U.S. Provisional Application No.60/367,967, filed on March 25, 2002, both of which are incorporated by reference herein in their entirety.--

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2. (cancelled).

3. (new) A method comprising:

receiving manual input to a first wireless telephone representative of a location of said first wireless device;

transmitting said location from said first wireless telephone to a remote server;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote database to at least one of said users of said list of users.

4. (new) The method of claim 3, wherein said maintaining comprises adding an additional user to said list of users.

5. (new) The method of claim 3, further comprising transmitting the address of said location to said at least one of said users of said list of users.

6. (new) The method of claim 3, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

7. (new) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless devices; and

displaying said location on said at least one of said plurality of wireless telephones.

8. (new) The method of claim 3, further comprising determining a second location associated with one of said plurality of wireless telephones.

9. (new) The method of claim 3, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

10. (new) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless devices; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

11. (new) The method of claim 3, further comprising determining the distance between said first

wireless telephone and at least one of said plurality of wireless telephones.

12. (new) A method comprising:

receiving manual input to a first wireless telephone representative of a location of said first wireless device;

transmitting said location from said first wireless telephone to a remote server;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising said first location, from said remote database to one of said users of said list of users when said one user is within a certain distance of said first location.

13. (new) A method comprising:

determining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising said first location, from said remote database to one of said users of said list of users when said one user is within a certain distance of said first location.

REMARKS

Summary of Applicant's Amendments

Applicant has cancelled claims 1 and 2 without prejudice. Applicant reserves the right to claim the subject matter lost in the cancellation of claims 1 and 2 in a continuation or divisional application.

Applicant has added claims 3-13 in order to more particularly point out and distinctly claim the subject matter that applicant regards as the invention.

Conclusion

Applicant respectfully submits that this application, including claims 3-13, is in condition for allowance.

Reconsideration and prompt allowance of this application are respectfully requested.

Respectfully Submitted,

Jeffrey D. Mullen
Applicant (Reg. No. 52,056)
Customer No. 32733
350 West 43rd Street, Apt. 5H
New York, NY 10036
Tel.: (914) 837-7741

PTO/SB/06 (12-04)
Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 11,387,384

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))				150			300
SEARCH FEE (37 CFR 1.16(k), (i), or (m))				250			500
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))				100			200
TOTAL CLAIMS (37 CFR 1.16(i))	11 minus 20 =	*	X$ 25		OR	X$50	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	X$100			X$200	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			N/A			N/A	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	500		TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDI-TIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDI-TIONAL FEE ($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
						TOTAL ADD'T FEE		OR	TOTAL ADD'T FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDI-TIONAL FEE ($)	OR	RATE ($)	ADDI-TIONAL FEE ($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
						TOTAL ADD'T FEE		OR	TOTAL ADD'T FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/06 (12-04)
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875 Effective December 8, 2004

Application or Docket Number: 11387384

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	150.00		N/A	300.00
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	$250		N/A	$500
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	$100		N/A	$200
TOTAL CLAIMS (37 CFR 1.16(i))	2 minus 20 = *		X$ 25 =		OR	X$50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		X100 =			X200 =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			+180=			+360=	
			TOTAL	500		TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED – PART II

3/22/2006

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 11	Minus	** 20	= X	X$ 25 =	X	OR	X$50 =	
Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= X	X100 =	X	OR	X200 =	
Application Size Fee (37 CFR 1.16(s))						X			
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=	X	OR	+360=	
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X$ 25 =		OR	X$50 =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X100 =		OR	X200 =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=		OR	+360=	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/387,384	03/22/2006	Jeffrey D. Mullen	JDM/002 CON	7999

32733 7590 09/25/2006

JEFFREY D. MULLEN
350 WEST 43RD ST., APT. 5H
NEW YORK, NY 10036

EXAMINER	
TIEU, BENNY QUOC	

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 09/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	Benny Q. Tieu	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 March 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 3-13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-79 of copending Application No. 10/400,296. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application are broader in scope than the claims of the co-pending application '296. Omission of an element and its function in a combination is an obvious expedient if the remaining elements perform the same functions as before. In re KARLSON (CCPA) 136 USPQ 184 (1963).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Meadows et al. (U.S. Patent No. 6,716,101) teach a system for monitoring the geographical location of a subscriber's mobile cellular telephone, and for providing the location information to an authorized user through the world wide web. Smith (U.S. Patent Application Publication No. 2002/0042277) teaches a Subscriber Information Service Center (SISC) in a wireless telecommunications network provides location and status information about identified mobile subscribers to a requesting subscriber. Kall (U.S. Patent Application Publication No. 2004/0180669) teaches a telecommunications system comprises at least one station, means for determining the location of said station in said system, and means for providing information on said location of said station to a location service client. The system is also provided with means

for defining in dependence on information relating to the client, the accuracy of the location information to be provided to the client. Different accuracy classes.

4. Any response to this action should be mailed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Or faxed to:
(571) 273-8300, (for formal communications intended for entry)
Or:
(571) 273-7490, (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to:
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benny Q. Tieu whose telephone number is 571-272-7490. The examiner can normally be reached on Monday-Friday: 6:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Benny Q. Tieu
Primary Examiner
Art Unit 2614

September 17, 2006

Notice of References Cited	Application/Control No. 11/387,384	Applicant(s)/Patent Under Reexamination MULLEN, JEFFREY D.	
	Examiner Benny Q. Tieu	Art Unit 2614	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,716,101	04-2004	Meadows et al.	455/456.1
	B	US-2002/0042277	04-2002	Smith, Steven W.	455/456
	C	US-2004/0180669	09-2004	Kall, Jan	455/456.1
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

S arch Notes	Applicati n/C ntrol N .	Applicant(s)/Pat nt under Re xaminati n
	11/387,384	MULLEN, JEFFREY D.
	Examiner	Art Unit
	Benny Q. Tieu	2614

SEARCHED			
Class	Subclass	Date	Examiner
455	404.1 404.2 410 456.1- 456.3 457	9/17/2006	BQT

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
EAST	9/17/2006	BQT

Index of Claims

Applicati n/C ntrol N .	Applicant(s)/Patent under R examination
11/387,384	MULLEN, JEFFREY D.
Examiner	**Art Unit**
Benny Q. Tieu	2614

√	Reject d	–	(Through numeral) Cancelled	N	N n-Elected	A	App al
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date
Final	Original	9/17/06
	1	-
	2	-
	3	√
	4	√
	5	√
	6	√
	7	√
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	9	√
	10	√
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Claim		Date
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Claim		Date
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Bib Data Sheet

CONFIRMATION NO. 7999

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/387,384	03/22/2006 RULE	455	2614	JDM/002 CON

APPLICANTS

Jeffrey D. Mullen, New York, NY;

**** CONTINUING DATA **************************** Yes BRT

This application is a CON of 10/400,296 03/25/2003 which claims benefit of 60/367,967 03/25/2002

**** FOREIGN APPLICATIONS ******************** None BRT

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 04/14/2006

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed	☐ yes ☒ no	NY	17	11	3
35 USC 119 (a-d) conditions met	☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature Initials				

ADDRESS
32733

TITLE

Systems and methods for locating cellular phones and security measures for the same

FILING FEE RECEIVED		
500	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

JDM/002 CON

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jeffrey D. Mullen
Application No.	:	11/387,384
Confirmation No.	:	7999
Filed	:	March 22, 2006
For	:	SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME
Group Art Unit	:	2614
Examiner	:	Benny Quoc Tieu

Mail Stop: Amendment
Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

New York, NY 10036
March 25, 2007

REPLY TO OFFICE ACTION

Sir:

This is in Reply to the Office Action mailed September 25, 2006. A three-month extension of time is applicable hereto and is being submitted herewith. In reply to the Office Action, applicant amends the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 14 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2. (cancelled).

3. (currently amended) A method comprising:

receiving manual input to a first wireless telephone representative of a location of said first wireless telephone ~~device~~;

transmitting said location from said first wireless telephone to a remote server;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote ~~database~~ server to at least one of said users of said list of users.

4. (previously presented) The method of claim 3, wherein said maintaining comprises adding an additional user to said list of users.

5. (previously presented) The method of claim 3, further comprising transmitting the address of said location to said at least one of said users of said list of users.

6. (previously presented) The method of claim 3, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

7. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless devices; and

displaying said location on said at least one of said plurality of wireless telephones.

8. (previously presented) The method of claim 3, further comprising determining a second location associated with one of said plurality of wireless telephones.

9. (previously presented) The method of claim 3, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

10. (currently amended) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones ~~devices~~; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

11. (previously presented) The method of claim 3, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

12. (currently amended) A method comprising:

receiving manual input to a first wireless telephone representative of a location of said first wireless telephone ~~device~~;

transmitting said location from said first wireless telephone to a remote server;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said first location, from said remote server ~~database~~ to a user ~~one of said users~~ of said list of users when said ~~one~~ user is within a certain distance of said first location.

13. (currently amended) A method comprising:

determining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone

that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said first location, from said remote server ~~database~~ to a user ~~one of said users~~ of said list of users when said ~~one~~ user is within a certain distance of said ~~first~~ location.

14. (new) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying a map on said at least one of said plurality of wireless telephones with a marker representative of said location.

15. (new) The method of claim 3, wherein said manual input is received by way of a locate button provided on said first wireless telephone.

16. (new) The method of claim 3, further comprising:

determining a second location of a device based on the IP address of said device;

transmitting said location to said device; and

17. (new) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login, wherein said second user is associated with said manually input second location.

18. (new) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login; and

transmitting said location to said device, wherein said second user is associated with said manually input second location.

19. (new) The method of claim 12, wherein said maintaining comprises adding an additional user to said list of users.

20. (new) The method of claim 12, further comprising transmitting the address of said location to at least one of said users of said list of users.

21. (new) The method of claim 12, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

22. (new) The method of claim 12, further comprising determining a second location associated with said wireless telephone associated with said user.

23. (new) The method of claim 12, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

24. (new) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

25. (new) The method of claim 12, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

26. (new) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

27. (new) The method of claim 13, wherein said maintaining comprises adding an additional user to said list of users.

28. (new) The method of claim 13, further comprising transmitting the address of said location to at least one of said users of said list of users.

29. (new) The method of claim 13, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

30. (new) The method of claim 13, further comprising determining a second location associated with said wireless telephone associated with said user.

31. (new) The method of claim 13, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

32. (new) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

33. (new) The method of claim 13, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

34. (new) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

35. (new) A method comprising:

receiving manual input to a first wireless telephone representative of a location of said first wireless telephone;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

36. (new) The method of claim 35, wherein said maintaining comprises adding an additional user to said list of users.

37. (new) The method of claim 35, further comprising transmitting the address of said location to said at least one of said users of said list of users.

38. (new) The method of claim 35, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

39. (new) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless devices; and

displaying said location on said at least one of said plurality of wireless telephones.

40. (new) The method of claim 35, further comprising determining a second location associated with one of said plurality of wireless telephones.

41. (new) The method of claim 35, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

42. (new) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

43. (new) The method of claim 35, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

44. (new) A method comprising:

receiving manual input to a first wireless telephone representative of a location of said first wireless telephone;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said first location, from said remote server to a user of said list of users when said user is within a certain distance of said first location.

45. (new) The method of claim 44, wherein said maintaining comprises adding an additional user to said list of users.

46. (new) The method of claim 44, further comprising transmitting the address of said location to at least one of said users of said list of users.

47. (new) The method of claim 44, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

48. (new) The method of claim 44, further comprising determining a second location associated with said wireless telephone associated with said user.

49. (new) The method of claim 44, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

50. (new) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

51. (new) The method of claim 44, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

52. (new) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

53. (new) The method of claim 44, wherein said manual input is received by way of a locate button provided on said first wireless telephone.

REMARKS/ARGUMENTS

Summary of Applicant's Amendments

Claims 3-13 are pending.

Claims 3-13 were provisionally rejected under a non-statutory obviousness type double patenting rejection.

Summary of Applicant's Amendments

Applicant has amended claims 3, 10, 12, and 13 in order to expedite prosecution.

Applicant has added new claims 14-53 in order to more particularly point out and distinctly claim the subject matter that applicant regards as the invention.

Applicant respectfully traverses the Examiner's rejections. Applicant reserves the right to claim any subject matter lost in any claim amendment or cancellation in any number of continuation or divisional applications.

The Double Patenting Rejection

Claims 3-13 were provisionally rejected under a non-statutory obviousness type double patenting rejection in view of claims 1-79 of copending Application No. 10/400,296.

Applicant submits herewith a Terminal Disclaimer solely in order to expedite prosecution. Accordingly, applicant respectfully requests that the Examiner's double patenting rejection be withdrawn.

New Claims 14-34

Applicant has added claims 14-18, 19-26, and 27-34 that depend from claims 3, 12, and 13, respectively. As shown above, claims 3, 12, and 13 are patentable. Accordingly, applicant respectfully submits that claims 14-18, 19-26, and 27-34 are patentable because the claims depend from patentable independent claims.

New Claims 35-53

Applicant has added new claims 38-52. New claims 35-43 include patentable features similar to features included in claim 3. New Claims 44-53 include patentable features similar to features included in claim 12. Accordingly, applicant respectfully submits that claims 38-53 are patentable.

Conclusion

Applicant respectfully submits that this application, including the pending claims, is in condition for allowance. A favorable action is respectfully requested.

The Director is hereby authorized to charge any fees associated with this filing, or credit any overpayment of the same, to Deposit Account No. 50-3855.

Respectfully Submitted,

/Jeffrey D. Mullen/

Jeffrey D. Mullen
Applicant (Reg. No. 52,056)
Customer No. 32733
350 West 43rd Street, Apt. 5H
New York, NY 10036
Tel.: (914) 837-7741

PTO/SB/25 (09-06)
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TERMINAL DISCLAIMER TO OBVIATE A PROVISIONAL DOUBLE PATENTING REJECTION OVER A PENDING "REFERENCE" APPLICATION	Docket Number (Optional) JDM/002 CON

In re Application of: Jeffrey D. Mullen

Application No.: 11/387,384

Filed: March 22, 2006

For: SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

The owner*, Jeffrey D. Mullen, of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending **reference** Application Number 10/400,296, filed on March 25, 2003, as such term is defined in 35 U.S.C. 154 and 173, and as the term of any patent granted on said **reference** application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending **reference** application. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the **reference** application are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of any patent granted on said **reference** application, "as the term of any patent granted on said **reference** application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending **reference** application," in the event that: any such patent: granted on the pending **reference** application: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

Check either box 1 or 2 below, if appropriate.

1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☐ The undersigned is an attorney or agent of record. Reg. No. _____

JDM 3/25/07
Signature Date

Jeffrey D. Mullen
Typed or printed name

914-837-7741
Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) is included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner). Form PTO/SB/96 may be used for making this statement. See MPEP § 324.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal

Application Number:	11387384
Filing Date:	22-Mar-2006
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Filer:	Jeffrey David Mullen
Attorney Docket Number:	JDM/002 CON
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	31	25	775
Independent claims in excess of 3	2201	2	100	200
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Statutory disclaimer	2814	1	65	65
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	510	510
Miscellaneous:				
		Total in USD ($)		**1550**

Electronic Patent Application Fee Transmittal

Application Number:	11387384
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First Named Inventor/Applicant Name:	Jeffrey D. Mullen
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Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	31	25	775
Independent claims in excess of 3	2201	2	100	200
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Statutory disclaimer	2814	1	65	65
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	510	510
Miscellaneous:				
		Total in USD ($)		**1550**

Electronic Acknowledgement Receipt	
EFS ID:	1621655
Application Number:	11387384
International Application Number:	
Confirmation Number:	7999
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Customer Number:	32733
Filer:	Jeffrey David Mullen
Filer Authorized By:	
Attorney Docket Number:	JDM/002 CON
Receipt Date:	25-MAR-2007
Filing Date:	22-MAR-2006
Time Stamp:	16:13:33
Application Type:	Utility

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$1550
RAM confirmation Number	1499
Deposit Account	503855
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 and 1.17	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
1		JDM-002CON-Reply.pdf	39050	yes	16
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Amendment - After Non-Final Rejection		1	1	
	Claims		2	13	
	Applicant Arguments/Remarks Made in an Amendment		14	16	
Warnings:					
Information:					
2	Terminal Disclaimer Filed	JDM-002CON-TD.pdf	361528	no	1
Warnings:					
Information:					
3	Fee Worksheet (PTO-06)	fee-info.pdf	8582	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	409160		

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Acknowledgement Receipt	
EFS ID:	1621655
Application Number:	11387384
International Application Number:	
Confirmation Number:	7999
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Customer Number:	32733
Filer:	Jeffrey David Mullen
Filer Authorized By:	
Attorney Docket Number:	JDM/002 CON
Receipt Date:	25-MAR-2007
Filing Date:	22-MAR-2006
Time Stamp:	16:13:33
Application Type:	Utility

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$1550
RAM confirmation Number	1499
Deposit Account	503855
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 and 1.17	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
1		JDM-002CON-Reply.pdf	39050	yes	16
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Amendment - After Non-Final Rejection		1	1	
	Claims		2	13	
	Applicant Arguments/Remarks Made in an Amendment		14	16	
Warnings:					
Information:					
2	Terminal Disclaimer Filed	JDM-002CON-TD.pdf	361528	no	1
Warnings:					
Information:					
3	Fee Worksheet (PTO-06)	fee-info.pdf	8582	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	409160		

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/387,384	03/22/2006	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	03/25/2007	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 51	Minus	** 20	= 31	X $25 =	775	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 5	Minus	***3	= 2	X $100 =	200	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	975	OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
Stella Little

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination
	11/387,384	MULLEN, JEFFREY D.

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : March 25, 2007	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:
Henry D. Jefferson

U.S. Patent and Trademark Office

PTO/SB/25 (09-06)
Approved for use through 09/30/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A PROVISIONAL DOUBLE PATENTING REJECTION OVER A PENDING "REFERENCE" APPLICATION	Docket Number (Optional) JDM/002 CON

In re Application of: Jeffrey D. Mullen

Application No.: 11/387,384

Filed: March 22, 2006

For: SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

The owner*, Jeffrey D. Mullen, of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending reference Application Number 10/400,296, filed on March 25, 2003, as such term is defined in 35 U.S.C. 154 and 173, and as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the reference application are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of any patent granted on said reference application, "as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application," in the event that: any such patent: granted on the pending reference application: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

Check either box 1 or 2 below, if appropriate.

1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☐ The undersigned is an attorney or agent of record. Reg. No. _____

JDM — 3/25/07
Signature — Date

Jeffrey D. Mullen
Typed or printed name

914-837-7741
Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) is included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner). Form PTO/SB/96 may be used for making this statement. See MPEP § 324.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	2424	location near3 (mobile wireless portable cellular).ab,ti.	US-PGPUB; USPAT	OR	ON	2007/05/12 11:46
S101	95	list and S100	US-PGPUB; USPAT	OR	ON	2007/05/12 11:47
S100	122	location near3 (mobile wireless portable cellular) with manual$2 with (enter$3 input$4 key$3)	US-PGPUB; USPAT	OR	ON	2007/05/12 11:47

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/387,384	03/22/2006	Jeffrey D. Mullen	JDM/002 CON	7999

32733 7590 05/18/2007

JEFFREY D. MULLEN
350 WEST 43RD ST., APT. 5H
NEW YORK, NY 10036

EXAMINER	
TIEU, BENNY QUOC	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
05/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	Benny Q. Tieu	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on March 25, 2007 has been entered. Claims 3, 10, 12, and 13 have been amended. Claims 1 and 2 have been canceled. Claims 14-53 have been added. Claims 3-53 are still pending in this application, with claims 1, 12, 13, 35, and 44 being independent.

Terminal Disclaimer

2. The terminal disclaimer filed on March 25, 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent Application No. 10/400,296 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 3-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walsh (U.S. Patent No. 6,662,014) in view of Calvert et al. (U.S. Patent Application Publication No. 2002/0102989).

Regarding claims 3-53, Walsh teaches that a wireless communication device receives a request for location information associated with the wireless communication device. The wireless communication device determines whether the request is received from a location privacy manager or a location-enabled service. The wireless communication device determines whether or not the wireless communication device is registered to operate with the location privacy manager responsive to the step of determining that the request is received from the location privacy manager. The wireless communication device determines whether or not an identity of the location-enabled service is acceptable to the wireless communication device responsive to the step of determining that the request is received from the location-enabled service. The wireless communication device sends the location information to the location-enabled service responsive to the step of determining that the identity of the location-enabled service is acceptable to the wireless communication device. The wireless communication device rejects the request from the location-enabled service responsive to the step of determining that that the identity of the location-enabled service is not acceptable to the wireless communication device (Fig. 6).

Walsh does not explicitly teach receiving manual input a location of a wireless telephone and transmitting the location from the wireless telephone to a remote server. However, Calvert et al. teach a method and apparatus for accurately locating a communication device in a wireless communication system wherein the communication device displays the map to a user of the device and responsive to user input, transmits the more accurate location of the device to the system infrastructure (Fig. 9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of manual input a location

taught by Calvert into the method disclosed by Walsh in order to determine more accurate geographic location of the device.

Response to Arguments

5. Applicant's arguments with respect to claims 3-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benny Q. Tieu whose telephone number is 571-272-7490. The examiner can normally be reached on Monday-Friday: 6:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on 571-272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Benny Q. Tieu
Primary Examiner
Art Unit 2614

Notice of References Cited	Application/Control No. 11/387,384	Applicant(s)/Patent Under Reexamination MULLEN, JEFFREY D.	
	Examiner Benny Q. Tieu	Art Unit 2614	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,662,014	12-2003	Walsh, Patrick Jay	455/456.2
*	B	US-2002/0102989	08-2002	Calvert et al.	455/456
*	C	US-2002/0183059	12-2002	Noreen et al.	455/427
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
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	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
11/387,384	MULLEN, JEFFREY D.
Examiner	**Art Unit**
Benny Q. Tieu	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	9/17/06	5/12/07							
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	11/387,384	MULLEN, JEFFREY D.
	Examiner: Benny Q. Tieu	Art Unit: 2614

SEARCHED			
Class	Subclass	Date	Examiner
455	404.1 404.2 410 456.1- 456.3 457	9/17/2006	BQT

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
EAST	9/17/2006	BQT
EAST	5/12/2007	BQT

PTO/SB/30 (10-07)
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Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	11/387,384
Filing Date	03/22/2006
First Named Inventor	Jeffrey D. Mullen
Art Unit	2614
Examiner Name	Benny Quoc Tieu
Attorney Docket Number	JDM/002 CON

This is a Request for Continued Examination (RCE) under 37 CFR 1 .114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☒ Enclosed

      i. ☒ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☐ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a

   a. ☐ period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
   The Director is hereby authorized to charge the following fees any underpayment of fees or credit any overpayments to

   a. ☒ Deposit Account No. 50-3855 . I have enclosed a duplicate copy of this sheet.

      i. ☒ RCE fee required under 37 CFR 1.17(e)

      ii ☒ Extension of time fee (37 CFR 1.136 and 1.17)

      iii ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	/Jeffrey D. Mullen/	Date	10/31/2007
Name (Print/Type)	Jeffrey D. Mullen	Registration No.	52,056

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature			
Name (Print/Type)		Date	

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jeffrey D. Mullen
Application No.	:	11/387,384
Confirmation No.	:	7999
Filed	:	March 22, 2006
For	:	SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME
Group Art Unit	:	2614
Examiner	:	Benny Quoc Tieu

Mail Stop: Amendment
Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Pittsburgh, PA 15232
October 31, 2007

REPLY TO FINAL OFFICE ACTION

Sir:

This is in Reply to the Final Office Action mailed May 18, 2007. A Request for Continued Examination and three-month extension of time is being submitted herewith. In reply to the Office Action, applicant amends the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 14 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2. (cancelled).

3. (currently amended) A method comprising:

~~receiving manual input to a first wireless telephone representative of~~ obtaining a location of a ~~said~~ first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

4. (previously presented) The method of claim 3, wherein said maintaining comprises adding an additional user to said list of users.

5. (previously presented) The method of claim 3, further comprising transmitting the address of said location to said at least one of said users of said list of users.

6. (previously presented) The method of claim 3, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

7. (currently amended) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones ~~devices~~; and

displaying said location on said at least one of said plurality of wireless telephones.

8. (previously presented) The method of claim 3, further comprising determining a second location associated with one of said plurality of wireless telephones.

9. (previously presented) The method of claim 3, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

10. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

11. (previously presented) The method of claim 3, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

12. (currently amended) A method comprising:

~~receiving manual input to a first wireless telephone representative of~~ obtaining a location of said first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said ~~first~~ location, from said remote server to a user of said list of users when said user is within a certain distance of said ~~first~~ location.

13. (currently amended) A method comprising:

determining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user

of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said ~~first~~ location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

14. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying a map on said at least one of said plurality of wireless telephones with a marker representative of said location.

15. (currently amended) The method of claim 3, wherein the location is obtained by way of ~~said~~ manual input that is received by way of a locate button provided on said first wireless telephone.

16. (previously presented) The method of claim 3, further comprising:

determining a second location of a device based on the IP address of said device;

transmitting said location to said device; and

17. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login, wherein said second user is associated with said manually input second location.

18. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login; and

transmitting said location to said device, wherein said second user is associated with said manually input second location.

19. (previously presented) The method of claim 12, wherein said maintaining comprises adding an additional user to said list of users.

20. (previously presented) The method of claim 12, further comprising transmitting the address of said location to at least one of said users of said list of users.

21. (previously presented) The method of claim 12, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

22. (previously presented) The method of claim 12, further comprising determining a second location associated with said wireless telephone associated with said user.

23. (previously presented) The method of claim 12, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

24. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

25. (previously presented) The method of claim 12, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

26. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

27. (previously presented) The method of claim 13, wherein said maintaining comprises adding an additional user to said list of users.

28. (previously presented) The method of claim 13, further comprising transmitting the address of said location to at least one of said users of said list of users.

29. (previously presented) The method of claim 13, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

30. (previously presented) The method of claim 13, further comprising determining a second location associated with said wireless telephone associated with said user.

31. (previously presented) The method of claim 13, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

32. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

33. (previously presented) The method of claim 13, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

34. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

35. (currently amended) A method comprising:

~~receiving manual input to a first wireless telephone representative of~~ obtaining a location of said first wireless telephone;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

36. (previously presented) The method of claim 35, wherein said maintaining comprises adding an additional user to said list of users.

37. (previously presented) The method of claim 35, further comprising transmitting the address of said location to said at least one of said users of said list of users.

38. (previously presented) The method of claim 35, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

39. (currently amended) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones ~~devices~~; and

displaying said location on said at least one of said plurality of wireless telephones.

40. (previously presented) The method of claim 35, further comprising determining a second location associated with one of said plurality of wireless telephones.

41. (previously presented) The method of claim 35, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

42. (previously presented) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

43. (previously presented) The method of claim 35, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

44. (currently amended) A method comprising:

~~receiving manual input to a first wireless telephone representative of~~ obtaining a location of said first wireless telephone;

maintaining a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said ~~first~~ location, from said remote server to a user of said list of users when said user is within a certain distance of said ~~first~~ location.

45. (previously presented) The method of claim 44, wherein said maintaining comprises adding an additional user to said list of users.

46. (previously presented) The method of claim 44, further comprising transmitting the address of said location to at least one of said users of said list of users.

47. (previously presented) The method of claim 44, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

48. (previously presented) The method of claim 44, further comprising determining a second location associated with said wireless telephone associated with said user.

49. (previously presented) The method of claim 44, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

50. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

51. (previously presented) The method of claim 44, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

52. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

53. (currently amended) The method of claim 44, wherein ~~said~~ location is obtained by way of manual input manual input that is received by way of a locate button provided on said first wireless telephone.

REMARKS/ARGUMENTS

Summary of Applicant's Amendments

Claims 3-53 are pending.

Claims 3-53 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Walsh U.S. Patent No. 6,662,014 (hereinafter "Walsh") in view of Calvert et al. U.S. Patent Application Publication No. 2002/0102989 (hereainfter "the '989 publication").

Summary of Applicant's Amendments

Applicant has amended claims 3, 7, 12, 13, 15, 35, 39, 44, and 53 in order to expedite prosecution and more particularly point out and distinctly claim the subject matter that applicant regards as the invention.

Applicant reserves the right to file any number of continuation or divisional applications in the present application, including continuations filed on subject matter related to applicants claim cancellations and/or amendments.

The 35 U.S.C. § 103(a) Rejection

Claims 3-53 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Walsh in view of the '989 publication.

Walsh allegedly discusses a service, such as a map service, that provides a password in order to obtain information from a device. At least the identity or location of the device is prohibited from being known to the service.

The ‘989 publication allegedly discusses transmitting a more accurate location of a devise responsive to user input.

Claim 3

The Examiner stated that:

> “it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of manual input a location taught by Calvert into the method disclosed by Walsh.” (Office Action, page 4).

Applicant has broadened claim 3 by removing the element of receiving manual input to a first wireless telephone representative of a location. Accordingly, the Examiner’s argument in view of the ‘989 publication is rendered moot. Nonetheless, as shown below, neither Walsh nor the ‘989 publication show or suggest applicant’s invention of claim 3.

Generally, neither Walsh nor the ‘989 publication show or suggest almost any element of applicant’s pending claims. In fact, the Examiner’s arguments appear ignore almost every element of applicant’s pending claims.

Neither Walsh nor the ‘989 publication, used either alone or in combination, show or suggest applicant’s invention of claim 3 that includes maintaining a list – let alone a list of users on a remote server for a profile associated with a first wireless telephone – let alone ones that are allowed to access the location.

Furthermore, neither Walsh nor the ‘989 publication, show or suggest each user of the list of users, where each user of the list is representative of one of a plurality of wireless telephones and transmitting the

location from a remote server to at least one of said users of said list of users.

The Examiner's rejection does not appear to correlate with applicant's various features. The Examiner merely states that Walsh discusses:

> "a device [that] sends the location information to the location-enabled service responsive to the step of determining that the identity of the location-enabled service." (Office Action, page 3)

Walsh's alleged service is not applicant's wireless telephone – let alone a list of users representative of a plurality of wireless telephones. Additionally, providing Walsh's service is clearly not maintaining a list nor transmitting a location from a server to at least one of a user of a list of users.

Furthermore, the Examiner stated that the '989 publication "transmits the more accurate location of the device to the system infrastructure" (Office Action, page 3). The '989 publication's system clearly does not show or suggest applicant's invention of claim 3 of providing a location from a server to at least one of a user of a list of users, where each user of the list of users is representative of one of a plurality of wireless telephones.

In light of the foregoing, none of the prior art, used either alone or in combination, shows or suggests applicant's invention of claim 3. Accordingly, applicant respectfully requests that the Examiner's rejection of claim 3, and any claims dependent therefrom, be withdrawn.

Furthermore, Walsh and the '989 publication are alien to one another. Additionally, both are precision systems. Any combination between Walsh and the '989

publication is merely the result of hindsight reconstruction and only provides an inoperable device. The Examiner cannot pick and chose unrelated elements of unrelated devices and put them together as the Examiner sees fit in order to create a new device. Additionally, any combination of Walsh and the '989 publication would eviscerate the spirit of the individual Walsh and the '989 publication devices.

Claim 12

Similar to applicant's amendments of claim 3, applicant has broadened claim 12 by removing the element of receiving manual input to a first wireless telephone representative of a location. Accordingly, associated arguments are applicable hereto.

Neither Walsh nor the '989 publication, used either alone or in combination, show or suggest applicant's invention of claim 12 that includes maintaining a list of users – let alone on a remote server for a profile associated with a first wireless telephone that are allowed to access the location, where each user of said list of users is representative of one of a plurality of wireless telephones.

Additionally, neither Walsh nor the '989 publication, used either alone or in combination show or suggest applicant's invention of claim 12 of transmitting an alert message, comprising information associated with the location, to a user of a list of users when said user is within a certain distance of the location.

Furthermore, as shown above, neither Walsh nor the '989 publication can be combined.

In light of the foregoing, none of the prior art, used either alone or in combination, shows or suggests

applicant's invention of claim 12. Accordingly, applicant respectfully requests that the Examiner's rejection of claim 12, and any claims dependent therefrom, be withdrawn.

Claim 13

Neither Walsh nor the '989 publication, used either alone or in combination, show or suggest applicant's invention of claim 13 that includes maintaining a list of users – let alone on a remote server for a profile associated with a first wireless telephone that are allowed to access the location, where each user of the list of users is representative of one of a plurality of wireless telephones

Furthermore, neither Walsh nor the '989 publication, used either alone or in combination, show or suggest; and transmitting an alert message from said remote server to a user of the list of users when the user is within a certain distance of said location.

Furthermore, as shown above, neither Walsh nor the '989 publication can be combined.

In light of the foregoing, none of the prior art, used either alone or in combination, shows or suggests applicant's invention of claim 13. Accordingly, applicant respectfully requests that the Examiner's rejection of claim 13, and any claims dependent therefrom, be withdrawn.

Claim 35

Similar to applicant's amendments of claim 3, applicant has broadened claim 35 by removing the element of receiving manual input to a first wireless telephone representative of a location. Accordingly, associated arguments are applicable hereto.

Neither Walsh nor the ‘989 publication, used either alone or in combination, show or suggest applicant’s invention of claim 35 of maintaining a list of users – let alone on a remote server for a profile associated with said first wireless telephone that are allowed to access the location, where each user of said list of users is representative of one of a plurality of wireless telephones.

Furthermore, neither Walsh nor the ‘989 publication, used either alone or in combination, show or suggest applicant’s invention of claim 35 of transmitting the location from the remote server to at least one of the users of said list of users.

Furthermore, as shown above, neither Walsh nor the ‘989 publication can be combined.

In light of the foregoing, none of the prior art, used either alone or in combination, shows or suggests applicant’s invention of claim 35. Accordingly, applicant respectfully requests that the Examiner’s rejection of claim 35, and any claims dependent therefrom, be withdrawn.

Claim 44

Similar to applicant’s amendments of claim 3, applicant has broadened claim 44 by removing the element of receiving manual input to a first wireless telephone representative of a location. Accordingly, associated arguments are applicable hereto.

Neither Walsh nor the ‘989 publication, used either alone or in combination, show or suggest applicant’s invention of claim 44 that includes maintaining a list of users on a remote server for a profile associated with said

first wireless telephone that are allowed to access the location, wherein each user of said list of users is representative of one of a plurality of wireless telephones.

Furthermore, neither Walsh nor the '989 publication, used either alone or in combination, show or suggest applicant's invention of claim 44 of transmitting an alert message, comprising information associated with the location, from the remote server to a user of said list of users when said user is within a certain distance of the location.

Furthermore, as shown above, neither Walsh nor the '989 publication can be combined.

In light of the foregoing, none of the prior art, used either alone or in combination, shows or suggests applicant's invention of claim 44. Accordingly, applicant respectfully requests that the Examiner's rejection of claim 44, and any claims dependent therefrom, be withdrawn.

The Dependent Claims

The Examiner rejected all 51 of the pending claims, but only addressed applicant's independent claims. The substance of the Examiner's rejection for 51 claims was roughly a page in length.

Such a rejection is counterproductive and merely undermines prosecution on the merits. Accordingly, applicant reserves the right to at least file any number Requests for Continued Examinations or any number of continuations based on any of the subject matter included in the present case. Applicant also reserves the right to petition for Patent Term Extension/Adjustment at any time.

Walsh does not show or suggest numerous features in applicant's independent claims – let alone applicant's various dependent claims.

If the Examiner has rejected applicant's dependent claims in view of Official Notice, for rejections under 35 U.S.C. § 103(a), the Examiner has the burden of showing each and every element of applicant's invention in the prior art combination. MPEP § 2144.03 requires that the facts of which notice are being taken be capable of instant and unquestionable demonstration as being well known in the art. *See In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). Applicant believes that the "facts" of which the Examiner may have taken Official Notice do not meet that standard, and invoke his right under MPEP § 2144.03 to have the Examiner provide documentary proof that those facts are actually well known.

The Examiner "cannot simply reach conclusions based on its own understanding or experience – or on its assessment of what would be basic knowledge or common sense. Rather, ... [the Examiner] ... must point to some concrete evidence in the record in support of these findings." *In re Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697 (Fed. Cir. 2001). If the Examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth factual statements and explanation to such a finding. *See* MPEP 2144.03(c). Accordingly, for any rejection in view of Official Notice, applicant requests that the Examiner provide a specific reference.

Applicant contends that should the Examiner locate a sufficient reference that the reference could not

be combined with Walsh due to at least the precision nature of Walsh. Furthermore, as shown above, the Examiner's combination – even if appropriate – falls short of showing or suggesting any of applicant's various inventions.

For at least the above reasons, applicant respectfully requests that the Examiner's rejections in view of Official Notice be withdrawn.

Additionally, as shown above, applicant's independent claims are patentable. Accordingly, applicant's dependent claims are patentable because applicant's dependent claims depend from patentable independent claims.

Neither Walsh nor any prior art reference (e.g., the '989 publication), used either alone or in combination, show or suggest applicant's dependent claims. Included below are a few examples of just some of the dependent claims with features not shown or suggested by Walsh or the '989 publication. Example arguments for a particular example feature may apply to any claim with that feature. Examples are provided, for example, in order to highlight the patentability of particular claims as well as to mature additional arguments for appeal.

Claim 4

Neither Walsh nor the '989 publication, used either alone or in combination, show or suggest applicant's invention of claim 4 where maintaining comprises adding an additional user to the list of users.

Claim 5

Neither Walsh nor the ‘989 publication, used either alone or in combination, show or suggest applicant’s invention of claim 5 of transmitting the address of the location to the at least one of the users of the list of users.

Claim 6

Neither Walsh nor the ‘989 publication, used either alone or in combination, show or suggest applicant’s invention of claim 6 of transmitting the address of the location of the location to at least one of the users of the list of users as well as obtaining the address of the location from a remote information provider.

Claim 7

Neither Walsh nor the ‘989 publication, used either alone or in combination, show or suggest applicant’s invention of claim 7 of receiving the location by at least one of the plurality of wireless devices.

Claim 8

Neither Walsh nor the ‘989 publication, used either alone or in combination, show or suggest applicant’s invention of claim 8 of determining a second location associated with one of the plurality of wireless telephones.

Claim 9

Neither Walsh nor the '989 publication, used either alone or in combination, show or suggest applicant's invention of claim 9 of determining a second location associated with one of the plurality of wireless telephones as well as providing directional information to one of the plurality of wireless telephones, where the directional information is representative of directions between the location and the second location.

Claim 10

Neither Walsh nor the '989 publication, used either alone or in combination, show or suggest applicant's invention of claim 10 of receiving the location by at least one of the plurality of wireless devices as well as displaying the name of the location on the at least one of the plurality of wireless telephones.

Claim 11

Neither Walsh nor the '989 publication, used either alone or in combination, show or suggest applicant's invention of claim 11 of determining the distance between the first telephone and at least one of the plurality of wireless telephones.

Claim 14

Neither Walsh nor the '989 publication, used either alone or in combination, show or suggest applicant's invention of claim 14 of receiving the location by at least one of the plurality of wireless

telephones as well as displaying a map on the at least one of the plurality of wireless telephones with a marker representative of the location.

Claim 15

Neither Walsh nor the '989 publication, used either alone or in combination, show or suggest applicant's invention of claim 15 where the location is obtained by way of manual input that is received by way of a locate button provided on the first wireless telephone.

Claim 16

Neither Walsh nor the '989 publication, used either alone or in combination, show or suggest applicant's invention of claim 16 of determining a second location of a device based on the IP address of the device and transmitting the location to the device.

Claim 17

Neither Walsh nor the '989 publication, used either alone or in combination, show or suggest applicant's invention of claim 17 of receiving manual input for a second location and determining an identity of a second user for a device by way of a login, where the second user is associated with the manually inputted second location.

Claim 18

Neither Walsh nor the '989 publication, used either alone or in combination, show or suggest

applicant's invention of claim 18 of receiving manual input for a second location as well as determining an identity of a second user for a device by way of a login as well as transmitting a location to a device, wherein the second user is associated with the manually input second location.

Conclusion

Applicant respectfully submits that this application, including the pending claims, is in condition for allowance. A favorable action is respectfully requested.

The Director is hereby authorized to charge any fees associated with this filing, or credit any overpayment of the same, to Deposit Account No. 50-3855.

Respectfully Submitted,

/Jeffrey D. Mullen/
Jeffrey D. Mullen
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Pittsburgh, PA 15232
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Electronic Patent Application Fee Transmittal

Application Number:	11387384
Filing Date:	22-Mar-2006
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Filer:	Jeffrey David Mullen
Attorney Docket Number:	JDM/002 CON
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	525	525

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**930**

Electronic Patent Application Fee Transmittal

Application Number:	11387384
Filing Date:	22-Mar-2006
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Filer:	Jeffrey David Mullen
Attorney Docket Number:	JDM/002 CON
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	525	525

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**930**

Electronic Acknowledgement Receipt	
EFS ID:	2399615
Application Number:	11387384
International Application Number:	
Confirmation Number:	7999
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Customer Number:	32733
Filer:	Jeffrey David Mullen
Filer Authorized By:	
Attorney Docket Number:	JDM/002 CON
Receipt Date:	31-OCT-2007
Filing Date:	22-MAR-2006
Time Stamp:	02:47:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$930
RAM confirmation Number	6427
Deposit Account	503855
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 and 1.17	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	JDM-002CON-RCE.pdf	91891 744aebdd4e305648d5f0fd3fb9eb6a29bae516ad	no	1
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2		JDM-002CON-Reply.pdf	111861 1af0c8e7ce567c3e0d3ed0e8ba2d0ee0d09019c2	yes	26

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment After Final	1	1
	Claims	2	13
	Applicant Arguments/Remarks Made in an Amendment	14	26

Warnings:					
Information:					
3	Fee Worksheet (PTO-06)	fee-info.pdf	8331 252d48cbbaa58df45ac46267cfdd911b7ffaccfc	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	212083		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 11/387,384	Filing Date 03/22/2006	☒ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
AMENDMENT	**10/31/2007**	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 51	Minus	** 51	= 0	X $25 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 5	Minus	***5	= 0	X $105 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
Katrina Harling

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/387,384	03/22/2006	Jeffrey D. Mullen	JDM/002 CON	7999

32733 7590 12/18/2007

JEFFREY D. MULLEN
731 SOUTH NEGLEY
APT. 2
PITTSBURGH, PA 15232

EXAMINER	
NGUYEN, QUYNH H	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
12/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	Quynh H. Nguyen	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *RCE and amendment filed 10/31/07*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 3-52 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 3-52 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Amendment

2. Applicant's amendment filed 10/31/07 has been entered. Claims 3, 7, 12-13, 15, 35, 39, 44, and 53 have been amended. No claims have been canceled. No claims have been added. Claims 3-53 are still pending in this application, with claims 3, 12-13, 35, and 44 being independent.

Claim Objections

3. Claim 16 is objected to because of the following informalities: Claim 16 is incomplete because the last limitation of the claim reads "transmitting said location to said device; and". For the purpose of examination, Examiner will read the last limitation of claim 16 as "transmitting said location to said device.". Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 3-15 and 19-53 are rejected under 35 U.S.C. 102(e) as being anticipated by Grube et al. (U.S. Patent 6,885,874).

As to claims 3 and 35, Grube et al. teaches a method comprising obtaining a location of a first wireless telephone (col. 6, lines 48-50); transmitting the location from the first wireless telephone to a remote server (col. 6, lines 52-54; col. 8, lines 41-45; col. 5, lines 33-37); maintaining a list of users on the remote server (col. 8, lines 33-35) for a profile associated with the first wireless telephone that are allowed to access the location (col. 8, line 66 through col. 9, line 2), wherein each user of the list of users is representative of one of a plurality of wireless telephones (*communication units 102-113*); and transmitting the location from the remote server to at least one of the users of the list of users (col. 8, line 66 through col. 9, line 2).

As to claims 4, 19, 27, 36, and 45, Grube et al. teaches wherein the maintaining comprises adding an additional user to the list of users (col. 8, lines 27-33).

As to claims 5, 20, 28, 37, and 46, Grube et al. teaches transmitting the address of the location to the at least one of the users of the list of users (col. 6, lines 52-55).

As to claims 6, 21, 29, 38, and 47, Grube et al. teaches obtaining the address of the location from a remote information provider (col. 6, lines 22-26); and transmitting the

address of the location to the at least one of the users of the list of users (col. 6, lines 52-55).

As to claims 7 and 39, Grube et al. teaches receiving the location by at least one of the plurality of wireless telephones; and displaying the location on the at least one of the plurality of wireless telephone (col. 6, lines 14-26).

As to claims 8, 22, 30, 40, and 48, Grube et al. teaches determining a second location associated with one of the plurality of wireless telephone (col. 5, lines 2-4).

As to claims 9-10, 23-24, 31-32, 41-42, and 49-50, Grube et al. teaches determining a second location associated with one of the plurality of wireless telephones; and providing directional information to the one of the plurality of wireless telephones, wherein the directional information is representative of directions between the location and the second location (col. 5, lines 2-4; col. 6, lines 14-26).

As to claims 11, 25, 33, 43, and 51, Grube et al. teaches determining the distance between the first wireless telephone and at least one of the plurality of wireless telephones (col. 6, line 59 through col. 7, line 6; col. 16, lines 11-26).

Claims 12-13 and 44 are rejected for the same reasons as discussed above with respect to claim 3. Furthermore, Grube et al. teaches transmitting an alert message comprising information associated with the location, from the remote server to a user of the list of users when the user is within a certain distance of the location (col. 6, line 59 through col. 7, line 20; col. 16, lines 11-26).

As to claims 14, 26, 34, and 52, Grube et al. teaches receiving the location by at least one of the plurality of wireless telephones (col. 45-50); and displaying a map on

the at least one of the plurality of wireless telephones with a marker representative of the location (col. 6, lines 14-32).

As to claims 15 and 53, Grube et al. teaches wherein the location is obtained way of manual input that is received by way of a locate button provided on the first wireless telephone (col. 5, line 65 through col. 6, line 13).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grube et al. (U.S. Patent 6,885,874) in view of Bates et al. 2003/0013456.

As to claim 16, Grube et al. does not explicitly teach determining a second location of a device based on the IP address of the device; transmitting the location to the device.

Bates et al. teach determining a second location of a device based on the IP address of the device; transmitting the location to the device (paragraphs [0022], [0024], and [0026]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the IP network environment into the teachings of

Grube for the purpose of having a more efficient system by having a wide variety collection of networks that handle Grube's system.

As to claims 17-18, Bates et al. teaches receiving manual input for a second location; determining an identity of a second user for a device by way of a login, wherein the second user is associated with the input (paragraph [0050]); transmitting the location to the device (paragraphs [0055] - [0056]).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Almassy (US Patent 7,717,651) teaches system and method for the exchange of location information in a telephone network.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh H. Nguyen whose telephone number is 571-272-7489. The examiner can normally be reached on Monday - Thursday from 6:30 A.M. to 5:00 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on 571-272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Quynh H. Nguyen

Quynh H. Nguyen
Primary Examiner
Art Unit 2614

Notice of References Cited	Application/Control No. 11/387,384	Applicant(s)/Patent Under Reexamination MULLEN, JEFFREY D.	
	Examiner Quynh H. Nguyen	Art Unit 2614	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,885,874	04-2005	Grube et al.	455/520
*	B	US-7,177,651	02-2007	Almassy, Nikolaus P. W.	455/456.1
*	C	US-2003/0013456	01-2003	Bates et al.	455/456
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
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	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
11/387,384	MULLEN, JEFFREY D.
Examiner	**Art Unit**
Quynh H. Nguyen	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	11/387,384	MULLEN, JEFFREY D.
	Examiner	Art Unit
	Quynh H. Nguyen	2614

SEARCHED			
Class	Subclass	Date	Examiner
455	404.1 404.2 410 456.1- 456.3 457	12/12/07	QN

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Searched: East, USPGPub, USPAT, EPO, JPO	12/12/07	QN
Inventor searched in PALM	12/12/07	QN

JDM/002 CON

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jeffrey D. Mullen
Application No.	:	11/387,384
Confirmation No.	:	7999
Filed	:	March 22, 2006
For	:	SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME
Group Art Unit	:	2614
Examiner	:	Quynh H. Nguyen

Mail Stop: Amendment
Hon. Commissioner for Patents
P.O. Box 1450 Pittsburgh, PA 15232
Alexandria, VA 22313-1450 June 18, 2008

REPLY TO OFFICE ACTION

Sir:

This is in Reply to the Office Action mailed December 18, 2007. A three-month extension of time is being submitted herewith. In reply to the Office Action, applicant amends the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 14 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2. (cancelled).

3. (currently amended) A method comprising:

obtaining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

~~maintaining~~ changing, at the direction of said first wireless telephone, a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

4. (currently amended) The method of claim 3, wherein said ~~maintaining~~ changing comprises adding an additional user to said list of users.

5. (previously presented) The method of claim 3, further comprising transmitting the address of said location to said at least one of said users of said list of users.

6. (previously presented) The method of claim 3, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

7. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

8. (previously presented) The method of claim 3, further comprising determining a second location associated with one of said plurality of wireless telephones.

9. (previously presented) The method of claim 3, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

10. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

11. (previously presented) The method of claim 3, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

12. (currently amended) A method comprising:

obtaining a location of said first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

~~maintaining~~ changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

13. (currently amended) A method comprising:

determining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

~~maintaining~~ changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said

location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

14. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying a map on said at least one of said plurality of wireless telephones with a marker representative of said location.

15. (previously presented) The method of claim 3, wherein the location is obtained by way of manual input that is received by way of a locate button provided on said first wireless telephone.

16. (currently amended) The method of claim 3, further comprising:

determining a second location of a device based on the IP address of said device; and

transmitting said location to said device. ~~device; and~~

17. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login, wherein said second user is associated with said manually input second location.

18. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login; and

transmitting said location to said device, wherein said second user is associated with said manually input second location.

19. (currently amended) The method of claim 12, wherein said ~~maintaining~~ changing comprises adding an additional user to said list of users.

20. (previously presented) The method of claim 12, further comprising transmitting the address of said location to at least one of said users of said list of users.

21. (previously presented) The method of claim 12, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

22. (previously presented) The method of claim 12, further comprising determining a second location

associated with said wireless telephone associated with said user.

23. (previously presented) The method of claim 12, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

24. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

25. (previously presented) The method of claim 12, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

26. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

27. (currently amended) The method of claim 13, wherein said ~~maintaining~~ changing comprises adding an additional user to said list of users.

28. (previously presented) The method of claim 13, further comprising transmitting the address of said location to at least one of said users of said list of users.

29. (previously presented) The method of claim 13, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

30. (previously presented) The method of claim 13, further comprising determining a second location associated with said wireless telephone associated with said user.

31. (previously presented) The method of claim 13, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

32. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

33. (previously presented) The method of claim 13, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

34. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

35. (currently amended) A method comprising:

obtaining a location of said first wireless telephone;

~~maintaining~~ changing, at the direction of said first wireless telephone, a list of users on a ~~said~~ remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

36. (currently amended) The method of claim 35, wherein said ~~maintaining~~ changing comprises adding an additional user to said list of users.

37. (previously presented) The method of claim 35, further comprising transmitting the address of said location to said at least one of said users of said list of users.

38. (previously presented) The method of claim 35, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

39. (previously presented) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

40. (previously presented) The method of claim 35, further comprising determining a second location associated with one of said plurality of wireless telephones.

41. (previously presented) The method of claim 35, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

42. (previously presented) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

43. (previously presented) The method of claim 35, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

44. (currently amended) A method comprising:

obtaining a location of said first wireless telephone;

~~maintaining~~ changing a list of users on a ~~said~~ remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

45. (currently amended) The method of claim 44, wherein said ~~maintaining~~ changing comprises adding an additional user to said list of users.

46. (previously presented) The method of claim 44, further comprising transmitting the address of said location to at least one of said users of said list of users.

47. (previously presented) The method of claim 44, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

48. (previously presented) The method of claim 44, further comprising determining a second location associated with said wireless telephone associated with said user.

49. (previously presented) The method of claim 44, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

50. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

51. (previously presented) The method of claim 44, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

52. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

53. (previously presented) The method of claim 44, wherein location is obtained by way of manual input manual input that is received by way of a locate button provided on said first wireless telephone.

REMARKS/ARGUMENTS

Summary of Applicant's Amendments

Claims 3-53 are pending.

Claim 16 was objected to for having an informality.

Claims 3-15 and 19-53 were rejected under 35 U.S.C. § 102(e) as being unpatentable over Grube U.S. Patent No. 6,885,874 (hereinafter "Grube").

Claims 16-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Grube in view of Bates U.S. Patent Application No. 2003/0013456 (hereinafter "Bates").

Summary of Applicant's Amendments

Applicant has amended claim 16 in order to correct a typographical error.

Applicant has amended claims 3, 4, 12, 13, 19, 27, and 44 without prejudice and solely in order to expedite prosecution.

Applicant traverses the Examiner's rejections. Applicant reserves the right to file any number of continuation or divisional applications in the present application, including continuations or divisionals filed on subject matter related to any claim cancellations and/or amendments.

The Claim Objection

Claim 16 was objected to for not ending with a period. Applicant has amended claim 16 to end with a period. Applicant respectfully requests that the objection of claim 16 be withdrawn.

The 35 U.S.C. § 102(e) Rejection

Claims 3-15 and 19-53 were rejected under 35 U.S.C. § 102(e) as being unpatentable over Grube.

Claim 3 and 35

Grube alleges initiating a service for a talkgroup call. Once initiated, the service for that talkgroup is controlled by a controller without the use of the initiating device.

Applicant's inventions of amended claims 3 and 35 include changing a list of users for a profile of a wireless device at the direction of the wireless telephone.

The Examiner stated that:

> "Grube et al. teaches … maintaining a list of users on the remote server (col. 8, lines 33-35) for a profile associated with the first wireless telephone that are allowed to access the location" (Office Action, page 3).

The communications unit of Grube, however, merely initiates a talkgroup service via a push-to-talk activator. Grube's controller performs the subsequent operations. Initiating a talkgroup service by Grube's unit is not changing a list of users on a server for a profile associated with a wireless telephone at the direction of the wireless telephone.

None of the prior art, used either alone or in combination, shows or suggests applicant's inventions of claims 3 and 35 that include changing a list of users on a server for a wireless telephone at the direction of the wireless telephone. In light of the foregoing, applicant respectfully requests that the Examiner's rejection of claims 3 and 35, and any claims dependent therefrom, be withdrawn.

Claims 12, 13, and 44

Grube allegedly discusses sending information in response to certain subscribers being within a geographic area. Alternatively, a synthesized voice message is allegedly provided if the distance between a vehicle and an incident location, such as an accident, reaches a threshold.

Applicant's invention of claims 12, 13, and 44 includes transmitting an alert message including information associated with a location of a wireless telephone from a remote server to a user of a list of users when the user is within a certain distance of the location.

The Examiner stated:

> "Grube … teaches … transmitting an alert message … when the user is within a certain distance of the location (col. 6, line 59 through col. 7, line 20; col. 16, lines 11-26)" (Office Action, page 4).

Grube, however, only alleges when a unit "is within a particular geographic area" or within a distance threshold of an "incident." Applicant's inventions of claims 12, 13, and 14, however, include transmitting an alert when a user of a list of users is within a distance of the location of the first telephone for which the list of users is associated with. A stationary "incident" or a "particular geographic area" is not the location of a wireless telephone.

In light of the foregoing, applicant respectfully requests that the Examiner's rejection of claim 12, 13, and 44 be withdrawn.

The 35 U.S.C. § 103(a) Rejection

Claims 16-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Grube in view of Bates. As shown above, claim 3 is patentable. Claims 16-18 depend from claim 3. Accordingly, claims 16-18 are patentable for depending from a patentable claim.

Rejections in view of Official Notice

It appears that the Examiner may have desired to reject claims in view of Official Notice.

For rejections under 35 U.S.C. § 103(a), the Examiner has the burden of showing each and every element of applicant's invention in the prior art combination. MPEP § 2144.03 requires that the facts of which notice are being taken be capable of instant and unquestionable demonstration as being well known in the art. *See In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). Applicant believes that the "facts" of which the Examiner may have taken Official Notice do not meet that standard, and invoke his right under MPEP § 2144.03 to have the Examiner provide documentary proof that those facts are actually well known.

The Examiner "cannot simply reach conclusions based on its own understanding or experience - or on its assessment of what would be basic knowledge or common sense. Rather, ... [the Examiner] ... must point to some concrete evidence in the record in support of these findings." *In re Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697 (Fed. Cir. 2001). If the Examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or

declaration setting forth factual statements and explanation to such a finding. *See* MPEP 2144.03(c).

Regardless, as for the reasons discussed above, applicant respectfully submits that applicant's independent claims are in condition for allowance.

Conclusion

Applicant respectfully submits that this application, including the pending claims, is in condition for allowance. A favorable action is respectfully requested.

The Director is hereby authorized to charge any fees associated with this filing, or credit any overpayment of the same, to Deposit Account No. 50-3855.

Respectfully Submitted,

/Jeffrey D. Mullen/
Jeffrey D. Mullen
Applicant (Reg. No. 52,056)
Customer No. 32733
731 South Negley, Apt. 2
Pittsburgh, PA 15232
Tel.: (914) 837-7741

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Applicant's invention of claims 12, 13, and 44 includes transmitting an alert message including information associated with a location of a wireless telephone from a remote server to a user of a list of users when the user is within a certain distance of the location.

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Respectfully Submitted,

/Jeffrey D. Mullen/
Jeffrey D. Mullen
Applicant (Reg. No. 52,056)
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Electronic Patent Application Fee Transmittal

Application Number:	11387384
Filing Date:	22-Mar-2006
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Filer:	Jeffrey David Mullen
Attorney Docket Number:	JDM/002 CON
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	525	525

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**525**

Electronic Acknowledgement Receipt	
EFS ID:	3475789
Application Number:	11387384
International Application Number:	
Confirmation Number:	7999
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Customer Number:	32733
Filer:	Jeffrey David Mullen
Filer Authorized By:	
Attorney Docket Number:	JDM/002 CON
Receipt Date:	18-JUN-2008
Filing Date:	22-MAR-2006
Time Stamp:	12:28:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$525
RAM confirmation Number	6718
Deposit Account	503855
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		JDM-002CON-Reply.pdf	88710 0ff3eeb03d9ff84104ef1e3ff424f9470faab790	yes	18

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment - After Non-Final Rejection	1	1
Claims	2	13
Applicant Arguments/Remarks Made in an Amendment	14	18

Warnings:

Information:

2	Fee Worksheet (PTO-06)	fee-info.pdf	8163 9f525f3e05d96894db3eecb7ca1b7b3d9c12174a	no	2

Warnings:

Information:

Total Files Size (in bytes):	96873

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/387,384	03/22/2006	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	06/18/2008	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 51	Minus	** 51	= 0	X $25 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 5	Minus	***5	= 0	X $105 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/Ruby Johnson/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/387,384	03/22/2006	Jeffrey D. Mullen	JDM/002 CON	7999

32733 7590 09/08/2008

JEFFREY D. MULLEN
731 SOUTH NEGLEY
APT. 2
PITTSBURGH, PA 15232

EXAMINER	
NGUYEN, QUYNH H	
ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
09/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	QUYNH H. NGUYEN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *amendment filed 6/18/08*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Amendment

2. Applicant's amendment filed 6/18/08 has been entered. Claims 3-4, 7, 12-13, 16, 19, 27, 35-36, 39, and 44 have been amended. No claims have been canceled. No claims have been added. Claims 3-53 are still pending in this application, with claims 3, 12-13, 35, and 44 being independent.

Claim Rejections - 35 USC § 103

3. Claims 3-7, 14-15, 19-21, 26-29, 34-39, 45-47, and 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh (U.S. Patent 6,999,777) in view of Bernas et al. (2004/0077359).

As to claims 3 and 35, Ganesh teaches a method comprising obtaining a location of a first wireless telephone (col. 2, lines 19-22 and lines 38-45); transmitting the location from the first wireless telephone to a database 34 (col. 4, lines 15-26 - *in order to provide location information of a wireless device to a requested user, the location information is transmitted and accumulated in database 34*); changing, at a direction of the first wireless telephone, a list of users for a profile at the wireless device (col. 5, lines 15-22) associated with the first wireless telephone that are allowed to access the

location (col. 5, lines 18-21), wherein each user of the list of users is representative of one of a plurality of wireless telephones (col. 10, lines 6-10 and lines 29-31); and transmitting the location to at least one of the users of the list of users (col. 2, lines 45-46; col. 10, lines 6-10 and lines 29-31).

Ganesh does not teach a list of users on the remote server for a profile associated with the wireless telephone.

Bernas et al. teaches a list of users on the remote server for a profile associated with the wireless telephone (see abstract, lines 5-8, [0018] and [0045]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made that whether the list of users profile stored at the wireless device or at the remote server is users' choice and design choice. The latter one is the preferred one in the instant application.

As to claims 4, 19, 27, 36, and 45, Ganesh teaches wherein the changing comprises adding an additional user to the list of users (col. 5, lines 21-22 - *where Ganesh discussed creating and maintaining user profile, hence including adding users to the list*).

As to claims 5, 20, 28, 37, and 46, Ganesh teaches transmitting the address of the location to the at least one of the users of the list of users (col. 5, lines 18-21; col. 10, lines 29-31).

As to claims 6, 21, 29, 38, and 47, Ganesh teaches obtaining the address of the location (col. 2, lines 19-22); and transmitting the address of the location to the at least one of the users of the list of users (col. 10, lines 6-10 and lines 29-31).

As to claims 7 and 39, Ganesh teaches receiving the location by at least one of the plurality of wireless telephones (col. 2, lines 38-46); and displaying the location on the at least one of the plurality of wireless telephone (col. 10, lines 27-31).

As to claims 14, 26, 34, and 52, Ganesh teaches receiving the location by at least one of the plurality of wireless telephones (col. 2, lines 38-46); and displaying a map on the at least one of the plurality of wireless telephones with a marker representative of the location (col. 10, lines 27-29).

As to claims 15 and 53, Ganesh teaches wherein the location is obtained way of manual input that is received by way of a locate button (col. 5, lines 62-67). Ganesh does not explicitly teach a locate button provided on the first wireless telephone. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the feature of have the locate button right on the wireless telephone for convenient purposes.

4. Claims 8-13, 22-25, 30-33, 40-44, and 48-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bernas and further in view of Grube et al. (US 6,885,874).

As to claims 8, 22, 30, 40, and 48, Ganesh and Bernas do not explicitly teach determining a second location associated with one of the plurality of wireless telephone. Grube et al. teaches determining a second location associated with one of the plurality of wireless telephone (col. 5, lines 2-4). It would have been obvious to one of ordinary skill in the art that if one can determine a first location of the wireless telephone then a

second location or third location and so on are also can be determined since mobile telephone's users tend to move around frequently.

As to claims 9-10, 23-24, 31-32, 41-42, and 49-50, Grube et al. teaches determining a second location associated with one of the plurality of wireless telephones; and providing directional information to the one of the plurality of wireless telephones, wherein the directional information is representative of directions between the location and the second location (col. 5, lines 2-4; col. 6, lines 14-26).

As to claims 11, 25, 33, 43, and 51, Grube et al. teaches determining the distance between the first wireless telephone and at least one of the plurality of wireless telephones (col. 6, line 59 through col. 7, line 6; col. 16, lines 11-26).

Claims 12-13 and 44 are rejected for the same reasons as discussed above with respect to claim 3. Furthermore, Grube et al. teaches transmitting an alert message comprising information associated with the location, from the remote server to a user of the list of users when the user is within a certain distance of the location (col. 6, line 59 through col. 7, line 20; col. 16, lines 11-26).

5. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bernas and further in view of Bates et al. 2003/0013456.

As to claim 16, Grube et al. does not explicitly teach determining a second location of a device based on the IP address of the device; transmitting the location to the device.

Bates et al. teach determining a second location of a device based on the IP address of the device; transmitting the location to the device (paragraphs [0022], [0024], and [0026]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the IP network environment into the teachings of Grube for the purpose of having a more efficient system by having a wide variety collection of networks that handle Grube's system.

As to claims 17-18, Bates et al. teaches receiving manual input for a second location; determining an identity of a second user for a device by way of a login, wherein the second user is associated with the input (paragraph [0050]); transmitting the location to the device (paragraphs [0055] - [0056]).

Response to Arguments

6. Applicant's arguments with respect to claims 3-53 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUYNH H. NGUYEN whose telephone number is 571-272-7489. The examiner can normally be reached on Monday - Thursday from 6:30 A.M. to 5:00 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on 571-272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Quynh H Nguyen/
Primary Examiner, Art Unit 2614

Notice of References Cited	Application/Control No. 11/387,384	Applicant(s)/Patent Under Reexamination MULLEN, JEFFREY D.	
	Examiner QUYNH H. NGUYEN	Art Unit 2614	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,999,777	02-2006	Ganesh, Rajamani	455/456.1
*	B	US-2004/0077359	04-2004	Bernas et al.	455/456.1
	C	US-			
	D	US-			
	E	US-			
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	QUYNH H. NGUYEN	2614	

SEARCHED			
Class	Subclass	Date	Examiner
455	404.1 404.2 410 456.1- 456.3 457	12/12/07	QN
above	updated	9/3/2008	QN

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Searched: East, USPGPub, USPAT, EPO, JPO	12/12/07	QN
Inventor searched in PALM	12/12/07	QN

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
11/387,384	MULLEN, JEFFREY D.
Examiner	**Art Unit**
QUYNH H. NGUYEN	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
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PTO/SB/30EFS (10-08)
Approved for use through 11/30/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	11/387,384	Filing Date	2006-03-22	Docket Number (if applicable)	JDM/002 CON	Art Unit	2614
First Named Inventor	Jeffrey D. Mullen			Examiner Name	Quynh H. Nguyen		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 503855

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☐ Patent Practitioner Signature

☒ Applicant Signature

PTO/SB/30EFS (10-08)
Approved for use through 11/30/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Applicant Signature			
Applicant 1		Remove	
Signature	/Jeffrey D. Mullen/	Date (YYYY-MM-DD)	2009-03-08
Name	Jeffrey D. Mullen		
Click ADD for additional Applicant Signature		Add	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

JDM/002 CON

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jeffrey D. Mullen
Application No.	:	11/387,384
Confirmation No.	:	7999
Filed	:	March 22, 2006
For	:	SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME
Group Art Unit	:	2614
Examiner	:	Quynh H. Nguyen

Mail Stop: Amendment
Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Pittsburgh, PA 15232
March 8, 2009

REPLY TO OFFICE ACTION

Sir:

This is in Reply to the Office Action mailed September 8, 2009. A three-month extension of time and a Request for Continued Examination is applicable hereto and is being submitted herewith. In reply to the Office Action, applicant amends the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 14 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2. (cancelled).

3. (previously presented) A method comprising:

obtaining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing, at the direction of said first wireless telephone, a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

4. (previously presented) The method of claim 3, wherein said changing comprises adding an additional user to said list of users.

5. (previously presented) The method of claim 3, further comprising transmitting the address of said location to said at least one of said users of said list of users.

6. (previously presented) The method of claim 3, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

7. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

8. (previously presented) The method of claim 3, further comprising determining a second location associated with one of said plurality of wireless telephones.

9. (previously presented) The method of claim 3, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

10. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

11. (previously presented) The method of claim 3, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

12. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

13. (previously presented) A method comprising:

determining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user

of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

14. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying a map on said at least one of said plurality of wireless telephones with a marker representative of said location.

15. (previously presented) The method of claim 3, wherein the location is obtained by way of manual input that is received by way of a locate button provided on said first wireless telephone.

16. (previously presented) The method of claim 3, further comprising:

determining a second location of a device based on the IP address of said device; and

transmitting said location to said device.

17. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login, wherein said second user is associated with said manually input second location.

18. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login; and

transmitting said location to said device, wherein said second user is associated with said manually input second location.

19. (previously presented) The method of claim 12, wherein said changing comprises adding an additional user to said list of users.

20. (previously presented) The method of claim 12, further comprising transmitting the address of said location to at least one of said users of said list of users.

21. (previously presented) The method of claim 12, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

22. (previously presented) The method of claim 12, further comprising determining a second location associated with said wireless telephone associated with said user.

23. (previously presented) The method of claim 12, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

24. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

25. (previously presented) The method of claim 12, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

26. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

27. (previously presented) The method of claim 13, wherein said changing comprises adding an additional user to said list of users.

28. (previously presented) The method of claim 13, further comprising transmitting the address of said location to at least one of said users of said list of users.

29. (previously presented) The method of claim 13, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

30. (previously presented) The method of claim 13, further comprising determining a second location associated with said wireless telephone associated with said user.

31. (previously presented) The method of claim 13, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

32. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

33. (previously presented) The method of claim 13, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

34. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

35. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

changing, at the direction of said first wireless telephone, a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

36. (previously presented) The method of claim 35, wherein said changing comprises adding an additional user to said list of users.

37. (previously presented) The method of claim 35, further comprising transmitting the address of said location to said at least one of said users of said list of users.

38. (previously presented) The method of claim 35, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

39. (previously presented) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

40. (previously presented) The method of claim 35, further comprising determining a second location associated with one of said plurality of wireless telephones.

41. (previously presented) The method of claim 35, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

42. (previously presented) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

43. (previously presented) The method of claim 35, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

44. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

changing a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

45. (previously presented) The method of claim 44, wherein said changing comprises adding an additional user to said list of users.

46. (previously presented) The method of claim 44, further comprising transmitting the address of said

location to at least one of said users of said list of users.

47. (previously presented) The method of claim 44, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

48. (previously presented) The method of claim 44, further comprising determining a second location associated with said wireless telephone associated with said user.

49. (previously presented) The method of claim 44, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

50. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

51. (previously presented) The method of claim 44, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

52. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

53. (previously presented) The method of claim 44, wherein location is obtained by way of manual input manual input that is received by way of a locate button provided on said first wireless telephone.

REMARKS/ARGUMENTS

Summary of Applicant's Amendments

Claims 3-53 are pending.

Claims 3-7, 14-15, 19-21, 26-29, 34-39, 45-47, and 52-53 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ganesh U.S. Patent No. 6,999,777 (hereinafter "Ganesh") in view of Bernas U.S. Patent Publication No. 2004/0077359 (hereinafter "Bernas").

Claims 8-13, 22-25, 30-33, 40-44, and 48-51 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bernas and further in view of Grube U.S. Patent No. 6,885,874 (hereinafter "Grube").

Claims 16-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bernas and further in view of Bates Publication No. 2003/00134656 (hereinafter "Bates").

Summary of Applicant's Amendments

Applicant traverses the Examiner's rejections. Applicant reserves the right to file any number of continuation or divisional applications in the present application, including continuations or divisionals filed on subject matter related to any claim cancellations and/or amendments.

The 35 U.S.C. § 103(a) Rejection

Claims 3-7, 14-15, 19-21, 26-29, 34-39, 45-47, and 52-53 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ganesh U.S. in view of Bernas.

Ganesh allegedy discusses allowing a mother and a father to log-into a website to obtain call-log information

for a wireless device of a dependent. The call-log information is provided from the service provider.

Bernas allegedly discusses a directions service that provides direction information to a mobile device.

Claim 3

The Examiner stated:

> "Ganesh teaches … transmitting the location from the first wireless telephone to a database." (Office Action, page 2)

However, Ganesh does not show or suggest applicant's invention of claim 3 of transmitting a location from the first wireless telephone to a server. Ganesh's service provider provides the call-log information. Particularly:

> "Call history log compilation subprocess 94 is executed to provide approximate location information … by examining the call history…. Subprocess 94 is executed … by a server system of a service provider, or by a third party contracted by the service provider, utilizing existing technology and information retained as call records … in comprehensive call history database 34." (Ganesh, col. 6, lines 42-51).

Bernas does not correct for this deficiency. Neither Ganeth nor Bernas, used either alone or in combination, show or suggest providing location information from a wireless telephone to a server and then from the server to at least one of a plurality of users. Bernas merely provides information to a directions service such that the Bernas device can obtain directions to local points of interest.

Accordingly, applicant respectfully requests that the Examiner's rejection of claim 3, and any claims dependent therefrom, be withdrawn.

Furthermore, the Examiner also stated:

> "Ganesh teaches … changing, at a direction of the first wireless telephone, a list of users for a profile at the wireless device (col. 5, lines 15-22) … wherein each user of the list of users is representative of one of a plurality of wireless telephones (col. 10, lines 6-10 and lines 29-31)" (Office Action, pages 2-3)

However, Ganesh does not show or suggest a list of users that are each representative of one of a plurality of wireless telephones. In fact, Ganesh discusses the exact opposite. Ganesh alleges a parent being able to monitor his/her dependent's wireless device by having a login/password to access information about that wireless device. Accordingly, no wireless device is associated to the parents – just a login/password (e.g., *See* Ganesh, FIG. 4). The parents in Ganesh do allegedly enter their dependent's mobile telephone number at the website (e.g., *See* Ganesh, FIG. 5) – but are not themselves associated with a wireless telephone.

Bernas does not correct for this deficiency. Neither Ganesh nor Bernas, used either alone or in combination, show or suggest providing location information from a wireless telephone to a server and then from the server to at least one of a plurality of users. Bernas merely provides information to a directions service such that the Bernas device can obtain directions to local points of interest.

Accordingly, applicant respectfully requests that the Examiner's rejection of claim 3, and any claims dependent therefrom, be withdrawn.

Moreover, he Examiner also stated:

> " Ganesh does not teach a list of users on the remote server for a profile associated with the wireless telephone.

> Bernas et al. teaches a list of users on the remote server for a profile associated with the wireless telephone (see abstract, lines 5-8, [0018] and [0045]).” (Office Action, page 3)

Bernas, however, does not show or suggest a list of users at all – let alone sending information to at least one user from this list of users. Bernas merely provides location information to a directions service such that directions can be obtained to local points of interest.

Accordingly, applicant respectfully requests that the Examiner’s rejection of claim 3, and any claims dependent therefrom, be withdrawn.

Additionally, the Examiner further stated:

> “It would have been obvious to one of ordinary skill in the art at the time the invention was made that whether the list of users profile stored at the wireless device or at the remote server is users’ choice and design choice. The latter one is the preferred one in the instant application.” (Office Action, page 3).

Ganesh, however, does not appear to provide any “users’ choice.” In fact, the user of a Ganesh device appears not to have any say in the initiation of the user’s wireless device whatsoever. For example, the “parents or guardians … [that facilitate] control and supervision of their dependants” (col. 1, lines 40-41) appear to perform alleged initialization (FIG. 4) such that the user (e.g., the dependant) has no choice in who can access his/her device. Barnes only discusses a directions service.

Barnes is far removed from Ganesh. The Examiner cannot pick and chose unrelated portions of unrelated devices and stitch them together, in hindsight, to form an entirely new device. Ganesh and Barnes directly teach away from being combined and, if combined, the combination would

only eviscerate the spirits of the individual devices and result in an inoperable device.

Accordingly, applicant respectfully requests that the Examiner's rejection of claim 3, and any claims dependent therefrom, be withdrawn.

Claim 35

As shown above, claim 3 includes a number of patentable features. Claim 35 includes patentable features similar to patentable features of claim 3.

Neither Ganesh nor Bernas, used either alone or in combination, show or suggest transmitting location information from a server to at least one user of a list of users – each representative of at least one of a plurality of telephones.

Accordingly, applicant respectfully requests that the Examiner's rejection of claim 35, and any claims dependent therefrom, be withdrawn.

The 103(a) Rejections Under Ganesh, Bernas, and Grube

Claims 8-13, 22-25, 30-33, 40-44, and 48-51 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bernas and further in view of Grube.

Ganesh allegedly discusses allowing a mother and a father to log-into a website to obtain call-log information for a wireless device of a dependent. The call-log information is provided from the service provider.

Bernas allegedly discusses a directions service that provides direction information to a mobile device.

Grube allegedly discusses sending information in response to certain subscribers being within a geographic area. Alternatively, a synthesized voice message is

allegedly provided if the distance between a vehicle and an incident location, such as an accident, reaches a threshold.

As shown above, claim 3 is patentable in view of Ganesh and Bernas. Claims 12, 13, and 44 include patentable features similar to patentable features of claim 3. Accordingly, applicant respectfully requests that the Examiner's rejections of claims 12, 13, and 44 be withdrawn.

Furthermore, applicant's invention of claims 12, 13, and 44 includes transmitting an alert message including information associated with a location of a wireless telephone from a remote server to a user of a list of users when the user is within a certain distance of the location.

The Examiner stated:

> "Grube … teaches … transmitting an alert message … when the user is within a certain distance of the location (col. 6, line 59 through col. 7, line 20; col. 16, lines 11-26)" (Office Action, page 6).

Grube, however, only alleges when a unit "is within a particular geographic area" or within a distance threshold of an "incident." Applicant's inventions of claims 12, 13, and 14, however, include transmitting an alert when a user of a list of users is within a distance of the location of the first telephone for which the list of users is associated with. A stationary "incident" or a "particular geographic area" is not the location of a wireless telephone.

In light of the foregoing, applicant respectfully requests that the Examiner's rejection of claim 12, 13, and 44 be withdrawn.

Additional Dependent Claims

Claims 16-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bernas and further in view of Bates.

Claims 16-18, however, depend from claim 3. As shown above, claim 3 is patentable. Accordingly, applicant respectfully submits that claims 16-18 are patentable for depending from a patentable independent claim. In this manner, applicant respectfully requests that the Examiner's rejections of claims 16-18 be withdrawn.

Rejections in view of Official Notice

It appears that the Examiner may have desired to reject claims in view of Official Notice (e.g., at least claims 15 and 53).

For rejections under 35 U.S.C. § 103(a), the Examiner has the burden of showing each and every element of applicant's invention in the prior art combination. MPEP § 2144.03 requires that the facts of which notice are being taken be capable of instant and unquestionable demonstration as being well known in the art. *See In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). Applicant believes that the "facts" of which the Examiner may have taken Official Notice do not meet that standard, and invoke his right under MPEP § 2144.03 to have the Examiner provide documentary proof that those facts are actually well known.

The Examiner "cannot simply reach conclusions based on its own understanding or experience - or on its assessment of what would be basic knowledge or common sense. Rather, ... [the Examiner] ... must point to some

concrete evidence in the record in support of these findings." *In re Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697 (Fed. Cir. 2001). If the Examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth factual statements and explanation to such a finding. *See* MPEP 2144.03(c).

Regardless, as for the reasons discussed above, applicant respectfully submits that applicant's independent claims are in condition for allowance.

Conclusion

Applicant respectfully submits that this application, including the pending claims, is in condition for allowance. A favorable action is respectfully requested.

The Director is hereby authorized to charge any fees associated with this filing, or credit any overpayment of the same, to Deposit Account No. 50-3855.

Respectfully Submitted,

/Jeffrey D. Mullen/
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Electronic Patent Application Fee Transmittal

Application Number:	11387384
Filing Date:	22-Mar-2006
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Filer:	Jeffrey David Mullen
Attorney Docket Number:	JDM/002 CON

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	555	555

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**960**

Electronic Acknowledgement Receipt	
EFS ID:	4924392
Application Number:	11387384
International Application Number:	
Confirmation Number:	7999
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Customer Number:	32733
Filer:	Jeffrey David Mullen
Filer Authorized By:	
Attorney Docket Number:	JDM/002 CON
Receipt Date:	08-MAR-2009
Filing Date:	22-MAR-2006
Time Stamp:	22:01:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$960
RAM confirmation Number	5433
Deposit Account	503855
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	JDM-002CON--RCE.pdf	38000 458d62759ff0bf6a9288cdd3a42d99bc9cd9c5d7	no	3
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2		JDM-002CON--Reply.pdf	96315 677e43f2af5d5f1ed5bbee56909504ffc81b3abc	yes	21

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment After Final	1	1
	Claims	2	13
	Applicant Arguments/Remarks Made in an Amendment	14	21

Warnings:					
Information:					
3	Fee Worksheet (PTO-06)	fee-info.pdf	31930 6791e90c61d46c7df2529822f649d53286e948bc	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	166245		

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/387,384	03/22/2006	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	03/08/2009	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 50	Minus	** 51	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 5	Minus	***5	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/TARA J. WITCHER/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/387,384	03/22/2006	Jeffrey D. Mullen	JDM/002 CON	7999

32733 7590 05/14/2009

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EXAMINER	
NGUYEN, QUYNH H	
ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
05/14/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	QUYNH H. NGUYEN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *RCE filed 3/8/09*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Amendment

2. Applicant's RCE filed 3/8/09 has been entered. No claims have been amended. No claims have been canceled. No claims have been added. Claims 3-53 are still pending in this application, with claims 3, 12-13, 35, and 44 being independent.

Claim Rejections - 35 USC § 103

3. Claims 3-7, 14, 19-21, 26-29, 34-39, 45-47, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh (U.S. Patent 6,999,777) in view of Bassett et al. (US Patent 7,248,872).

As to claims 3 and 35, Ganesh teaches a method comprising obtaining a location of a first wireless telephone (col. 2, lines 19-22 and lines 38-45); transmitting the location from the first wireless telephone to a database 34 (col. 4, lines 15-26 - *in order to provide location information of a wireless device to a requested user, the location information is transmitted and accumulated in database 34*); changing, at a direction of the first wireless telephone, a list of users for a profile with the wireless device (col. 5, lines 15-22) associated with the first wireless telephone that are allowed to access the

location (col. 5, lines 18-21), transmitting the location to at least one of the users of the list of users (col. 5, lines 18-21; col. 2, lines 45-46; col. 10, lines 6-10 and lines 29-31).

Ganesh does not teach transmitting the location information to and from a server; and each user of the list of users is representative of one of a plurality of wireless telephones.

Bassett teaches transmitting the location information to and from a server (col. 2, lines 5-8 and lines 30-32 and lines 43-44; col. 7, lines 10-19 - *where Bassett discussed user location stored in the database in a remote server*); and each user of the list of users is representative of one of a plurality of wireless telephones (col. 2, lines 6-7 - *where Bassett discussed transmitting information to the wireless device of the user on the list*).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Bassett into the teachings of Ganesh for the purpose of having a more efficient system by having location information centralized stored in a server for better management and maintenance purposes.

As to claims 4, 19, 27, 36, and 45, Ganesh teaches adding an additional user to the list of users (col. 5, lines 21-22 - *where Ganesh discussed creating and maintaining user profile, hence including adding users to the list*).

As to claims 5, 20, 28, 37, and 46, Ganesh teaches transmitting the address of the location to the at least one of the users of the list of users (col. 5, lines 18-21; col. 10, lines 29-31).

As to claims 6, 21, 29, 38, and 47, Ganesh teaches obtaining the address of the location (col. 2, lines 19-22); and transmitting the address of the location to the at least one of the users of the list of users (col. 10, lines 6-10 and lines 29-31).

As to claims 7 and 39, Bassett teaches receiving the location by at least one of the plurality of wireless telephones (col. 2, lines 6-7); and Ganesh teaches displaying the location on the at least one of the plurality of wireless telephone (col. 10, lines 27-31).

As to claims 14, 26, 34, and 52, Bassett teaches receiving the location by at least one of the plurality of wireless telephones (col. 2, lines 6-7); and Ganesh teaches displaying a map on the at least one of the plurality of wireless telephones with a marker representative of the location (col. 10, lines 27-29).

4. Claims 8-11, 22-25, 30-33, 40-43, and 48-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Grube et al. (US 6,885,874).

As to claims 8, 22, 30, 40, and 48, Ganesh and Bernas do not explicitly teach determining a second location associated with one of the plurality of wireless telephone. Grube et al. teaches determining a second location associated with one of the plurality of wireless telephone (col. 5, lines 2-4). It would have been obvious to one of ordinary skill in the art that if one can determine a first location of the wireless telephone then a second location or third location and so on are also can be determined since mobile telephone's users tend to move around frequently.

As to claims 9-10, 23-24, 31-32, 41-42, and 49-50, Grube teaches determining a second location associated with one of the plurality of wireless telephones; and providing directional information to the one of the plurality of wireless telephones, wherein the directional information is representative of directions between the location and the second location (col. 5, lines 2-4; col. 6, lines 14-26).

As to claims 11, 25, 33, 43, and 51, Grube teaches determining the distance between the first wireless telephone and at least one of the plurality of wireless telephones (col. 6, line 59 through col. 7, line 6; col. 16, lines 11-26).

5. Claims 12-13 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Miller et al. (US Patent 5,956,644)

Claims 12-13 and 44 are rejected for the same reasons as discussed above with respect to claim 3. Ganesh and Bassett do not teach transmitting an alert message comprising information associated with the location, from the remote server to a user of the list of users when the user is within a certain distance of the location.

Miller teaches transmitting an alert message when the subscriber moves far enough (certain distance) away from his last registered location (col. 6, lines 11-16).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Miller into the teachings of Ganesh and Bassett and further modify Miller to alert when the user is within certain distance for the purpose of having a more efficient and user-friendly system by notifying users when they are near or within vicinity of other users that he or she trying to locate.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Fournier et al. (US Patent 7,215,965).

As to claims 15, Ganesh teaches wherein the location is obtained way of manual input that is received by way of a locate button (col. 5, lines 62-67). Ganesh and Bassett do not explicitly teach a locate button provided on the first wireless telephone.

Fournier teaches a locate button provided on the first wireless telephone (col. 3, lines 38-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Fournier into the teachings of Ganesh and Bassett for the purpose of having a more efficient system and conveniently pushing the button for location information on the wireless telephone.

7. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Bates et al. 2003/0013456.

As to claim 16, Ganesh and Bassett do not explicitly teach determining a second location of a device based on the IP address of the device; transmitting the location to the device.

Bates teaches determining a second location of a device based on the IP address of the device; transmitting the location to the device (paragraphs [0022], [0024], and [0026]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the IP network environment into the teachings of Ganesh and Bassett for the purpose of having a more efficient system by having a wide variety collection of networks that handle Grube's system.

As to claims 17-18, Bates teaches receiving manual input for a second location; determining an identity of a second user for a device by way of a login, wherein the second user is associated with the input (paragraph [0050]); transmitting the location to the device (paragraphs [0055] - [0056]).

8. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh, Bassett, Grube and further in view of Fournier et al. (US Patent 7,215,965).

Claim 53 is rejected for the same reasons as discussed above with respect to claim 15.

Response to Arguments

9. Applicant's arguments with respect to claims 3-53 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments are addressed in the above claims rejections.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUYNH H. NGUYEN whose telephone number is 571-272-7489. The examiner can normally be reached on Monday - Thursday from 6:30

A.M. to 5:00 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on 571-272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Quynh H Nguyen/
Primary Examiner, Art Unit 2614

Notice of References Cited	Application/Control No. 11/387,384	Applicant(s)/Patent Under Reexamination MULLEN, JEFFREY D.	
	Examiner QUYNH H. NGUYEN	Art Unit 2614	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,248,872	07-2007	Bassett et al.	455/433
*	B	US-7,215,965	05-2007	Fournier et al.	455/456.1
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
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	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	QUYNH H. NGUYEN	2614	

SEARCHED			
Class	Subclass	Date	Examiner
455	404.1 404.2 410 456.1- 456.3 457	12/12/07	QN
above	updated	9/3/2008	QN
above	updated	5/8/2009	QN

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Searched: East, USPGPub, USPAT, EPO, JPO	12/12/07	QN
Inventor searched in PALM	12/12/07	QN

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
11/387,384	MULLEN, JEFFREY D.
Examiner	**Art Unit**
QUYNH H. NGUYEN	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date									
Final	Original	12/18/07	9/3/08	5/12/09							
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jeffrey D. Mullen
Application No.	:	11/387,384
Confirmation No.	:	7999
Filed	:	March 22, 2006
For	:	SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME
Group Art Unit	:	2614
Examiner	:	Quynh H. Nguyen

Mail Stop: Amendment
Hon. Commissioner for Patents
P.O. Box 1450 Pittsburgh, PA 15232
Alexandria, VA 22313-1450 November 16, 2009

REPLY TO OFFICE ACTION

Sir:

This is in Reply to the Office Action mailed May 14, 2009. A three-month extension of time is applicable hereto and is being submitted herewith. In reply to the Office Action, applicant amends the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 14 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2. (cancelled).

3. (previously presented) A method comprising:

obtaining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing, at the direction of said first wireless telephone, a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

4. (previously presented) The method of claim 3, wherein said changing comprises adding an additional user to said list of users.

5. (previously presented) The method of claim 3, further comprising transmitting the address of said location to said at least one of said users of said list of users.

6. (previously presented) The method of claim 3, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

7. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

8. (previously presented) The method of claim 3, further comprising determining a second location associated with one of said plurality of wireless telephones.

9. (previously presented) The method of claim 3, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

10. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

11. (previously presented) The method of claim 3, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

12. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

13. (previously presented) A method comprising:

determining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user

of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

14. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying a map on said at least one of said plurality of wireless telephones with a marker representative of said location.

15. (previously presented) The method of claim 3, wherein the location is obtained by way of manual input that is received by way of a locate button provided on said first wireless telephone.

16. (previously presented) The method of claim 3, further comprising:

determining a second location of a device based on the IP address of said device; and

transmitting said location to said device.

17. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login, wherein said second user is associated with said manually input second location.

18. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login; and

transmitting said location to said device, wherein said second user is associated with said manually input second location.

19. (previously presented) The method of claim 12, wherein said changing comprises adding an additional user to said list of users.

20. (previously presented) The method of claim 12, further comprising transmitting the address of said location to at least one of said users of said list of users.

21. (previously presented) The method of claim 12, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

22. (previously presented) The method of claim 12, further comprising determining a second location associated with said wireless telephone associated with said user.

23. (previously presented) The method of claim 12, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

24. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

25. (previously presented) The method of claim 12, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

26. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

27. (previously presented) The method of claim 13, wherein said changing comprises adding an additional user to said list of users.

28. (previously presented) The method of claim 13, further comprising transmitting the address of said location to at least one of said users of said list of users.

29. (previously presented) The method of claim 13, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

30. (previously presented) The method of claim 13, further comprising determining a second location associated with said wireless telephone associated with said user.

31. (previously presented) The method of claim 13, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

32. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

33. (previously presented) The method of claim 13, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

34. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

35. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

changing, at the direction of said first wireless telephone, a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

36. (previously presented) The method of claim 35, wherein said changing comprises adding an additional user to said list of users.

37. (previously presented) The method of claim 35, further comprising transmitting the address of said location to said at least one of said users of said list of users.

38. (previously presented) The method of claim 35, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

39. (previously presented) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

40. (previously presented) The method of claim 35, further comprising determining a second location associated with one of said plurality of wireless telephones.

41. (previously presented) The method of claim 35, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

42. (previously presented) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

43. (previously presented) The method of claim 35, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

44. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

changing a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

45. (previously presented) The method of claim 44, wherein said changing comprises adding an additional user to said list of users.

46. (previously presented) The method of claim 44, further comprising transmitting the address of said

location to at least one of said users of said list of users.

47. (previously presented) The method of claim 44, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

48. (previously presented) The method of claim 44, further comprising determining a second location associated with said wireless telephone associated with said user.

49. (previously presented) The method of claim 44, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

50. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

51. (previously presented) The method of claim 44, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

52. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

53. (previously presented) The method of claim 44, wherein location is obtained by way of manual input manual input that is received by way of a locate button provided on said first wireless telephone.

REMARKS/ARGUMENTS

Summary of Applicant's Amendments

Claims 3-53 are pending.

Claims 3-7, 14, 19-21, 26-29, 34-39, 45-47, and 52 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ganesh U.S. Patent No. 6,999,777 (hereinafter "Ganesh") in view of Bassett et al. U.S. Patent Publication No. 7,248,872 (hereinafter "Bassett").

Claims 8-11, 22-25, 30-33, 40-43, and 48-51 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Grube U.S. Patent No. 6,885,874 (hereinafter "Grube").

Claims 12-13 and 44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Miller et al. U.S. Patent No. 5,956,644 (hereinafter "Miller").

Claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Fournier et al. U.S. Patent No. 7,215,965 (hereinafter "Fournier").

Claims 16-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Bates et al. U.S. Publication No. 2003/0013456 (hereinafter "Bates").

Claim 53 was rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh, Bassett, and Grube and further in view of Fournier.

Summary of Applicant's Amendments

Applicant traverses the Examiner's rejections. Applicant reserves the right to file any number of

continuation or divisional applications in the present application, including continuations or divisionals filed on subject matter related to any claim cancellations and/or amendments.

The 35 U.S.C. § 103(a) Rejection

Claims 3-7, 14, 19-21, 26-29, 34-39, 45-47, and 52 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ganesh in view of Bassett.

Ganesh allegedy discusses allowing a mother and a father to log-into a website to obtain call-log information for a wireless device of a dependent. The call-log information is provided from the service provider.

Bassett allegedly discusses providing information on users to a personal information manager to provide event scheduling.

Claim 3

The Examiner stated:

> "Ganesh teaches … transmitting the location from the first wireless telephone to a database … *in order to provide location information of a wireless device to a requested user, the location information is transmitted and accumulated in database*." (Office Action, page 2)

However, Ganesh does not show or suggest applicant's invention of claim 3 of transmitting a location from the first wireless telephone to a server. Ganesh's transceiver sites are allegedly indicative of coverage areas. Ganesh does not show or suggest applicant's invention of claim 3 of a location that is transmitted from the telephone to a server. Particularly, Ganesh discusses:

> "At task 123, location information for the most recent call 120 is defined as the coverage area 26 (FIG. 1) of the particular one of cell sites 22 (transceiver sites) through which most recent

> call 120 was routed." (Ganesh, col. 7, lines 50-54).

Bassett does not correct for this deficiency and is far removed from Ganesh. Bassett is directed to calendars and event scheduling.

The Examiner cannot, in hindsight, pick and chose unrelated elements of different precision systems only to create an entirely, new inoperable device neither shown nor suggested by the individual devices. In doing so, the Examiner merely eviscerates the spirit of the individual devices. Basset directly teaches away from Ganesh. In fact, modifying Ganesh to provide anything other than coverage areas would eviscerate the spirit of the Ganesh device.

Accordingly, applicant respectfully requests that the Examiner's rejection of claim 3, and any claims dependent therefrom, be withdrawn.

Furthermore, the Examiner also stated:

> "Ganesh does not teach … each user of the list of users is representative of one of a plurality of wireless telephones." (Office Action, pages 3)

Bassett does not correct for this deficiency. Bassett is directed to calendars and event scheduling. Ganesh is directed towards providing information to web pages (e.g., carrier web pages) so that parents and guardians can monitor their dependents. Modifying Ganesh in hindsight merely creates an inoperable device as well as eviscerates the spirit of both the Ganesh and Bassett devices. Ganesh teaches directly away from Bassett.

Neither Basset nor Ganesh, used either alone or in combination, show or suggest changing, transmitting a location from a wireless telephone to a server and changing, at the direction of the wireless telephone, a

list of users on the server, where each user is representative of one of a plurality of wireless telephones and transmitting the location to at least one user on the list.

Accordingly, applicant respectfully requests that the Examiner's rejection of claim 3, and any claims dependent therefrom, be withdrawn.

Claim 35

As shown above, claim 3 includes a number of patentable features. Claim 35 includes patentable features similar to patentable features of claim 3.

Neither Ganesh nor Bassett, used either alone or in combination, show or suggest transmitting location information from a server to at least one user of a list of users – each representative of at least one of a plurality of telephones and changing, at the direction of the wireless telephone, the list of users.

Accordingly, applicant respectfully requests that the Examiner's rejection of claim 35, and any claims dependent therefrom, be withdrawn.

103(a) Rejections Under Ganesh, Bassett, and Miller

Claims 12-13 and 44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Miller.

As shown above, claim 3 is patentable in view of Ganesh and Bassett. Claims 12, 13, and 44 include patentable features similar to patentable features of claim 3. Miller does not correct for these deficiencies. In fact, Miller is far removed and merely discusses operating telephones in satellite communications systems.

Accordingly, applicant respectfully requests that the Examiner's rejections of claims 12, 13, and 44 be withdrawn.

Moreover, applicant's invention of claims 12, 13, and 44 includes transmitting an alert message including information associated with a location of a wireless telephone from a remote server to a user of a list of users when the user is within a certain distance of the location.

The Examiner stated:

> "Miller … teaches … transmitting an alert message … when the subscriber moves far enough (certain distance) away from his last registered location (col. 6, lines 11-16)." (Office Action, page 5)

Miller merely alleges a processor for re-registering a user based on a prediction of when a re-registration distance will be exceeded. Miller's re-registration is irrelevant and is directed to a distance of two points of the same device.

Applicant's inventions of claims 12, 13, and 14, however, include an alert based on a location of a first wireless telephone to a user of a list of users, each representative of a plurality of wireless telephones, when that user is within a certain distance from the first wireless telephone.

Accordingly, none of the prior art, used either alone or in combination, show or suggests applicant's invention of claims 12, 13, and 14 of an alert based on the location of a first wireless telephone and a user associated with one of a plurality of wireless telephones.

In light of the foregoing, applicant respectfully requests that the Examiner's rejection of claim 12, 13, and 44 be withdrawn.

Additional Dependent Claims

Claims 8-11, 22-25, 30-33, 40-43, and 48-51 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Grube. Claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Fournier. Claims 16-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh and Bassett and further in view of Bates. Claim 53 was rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh, Bassett, and Grube and further in view of Fournier. These dependent claims each depend from either independent claim 3, 12, 13, 35, or 44. As shown above, claims 3, 12, 13, 35, and 44 are patentable. Accordingly, the above dependent claims are patentable for depending from a patentable independent claim.

Conclusion

Applicant respectfully submits that this application, including the pending claims, is in condition for allowance. A favorable action is respectfully requested.

The Director is hereby authorized to charge any fees associated with this filing, or credit any overpayment of the same, to Deposit Account No. 50-3855.

Respectfully Submitted,

/Jeffrey D. Mullen/
Jeffrey D. Mullen
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Electronic Patent Application Fee Transmittal

Application Number:	11387384
Filing Date:	22-Mar-2006
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Filer:	Jeffrey David Mullen
Attorney Docket Number:	JDM/002 CON

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	555	555

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**555**

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Basic Filing:				
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Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	555	555

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**555**

Electronic Acknowledgement Receipt	
EFS ID:	6455922
Application Number:	11387384
International Application Number:	
Confirmation Number:	7999
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Customer Number:	32733
Filer:	Jeffrey David Mullen
Filer Authorized By:	
Attorney Docket Number:	JDM/002 CON
Receipt Date:	16-NOV-2009
Filing Date:	22-MAR-2006
Time Stamp:	01:35:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$555
RAM confirmation Number	9638
Deposit Account	503855
Authorized User	MULLEN,JEFFREY D.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		JDM-002CON--Reply.pdf	93624 276ad23ce47cfb1b66330a1f9e805458300d5213	yes	19

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	13
	Applicant Arguments/Remarks Made in an Amendment	14	19

Warnings:

Information:

2	Fee Worksheet (PTO-875)	fee-info.pdf	29840 d64e021d1fd6921d4f31312af3ebb075fe4eb6a0	no	2

Warnings:

Information:

Total Files Size (in bytes):	123464

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 11/387,384	Filing Date 03/22/2006	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	11/16/2009	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 51	Minus	** 51	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 5	Minus	***5	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/WANDA LAWSON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/387,384	03/22/2006	Jeffrey D. Mullen	JDM/002 CON	7999

32733 7590 01/27/2010

JEFFREY D. MULLEN
731 SOUTH NEGLEY
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PITTSBURGH, PA 15232

EXAMINER	
NGUYEN, QUYNH H	
ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
01/27/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	QUYNH H. NGUYEN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 November 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Amendment

2. Applicant's remarks filed 11/16/09 have been entered. No claims have been amended. No claims have been canceled. No claims have been added. Claims 3-53 are still pending in this application, with claims 3, 12-13, 35, and 44 being independent.

Claim Rejections - 35 USC § 103

3. Claims 3-7, 19-21, 27-29, 35-39, and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis et al. (US Patent 6,360,102).

As to claims 3 and 35, Havinis teaches a method comprising obtaining a location of a first wireless telephone (col. 2, lines 7-8); transmitting the location from the first wireless telephone to a server (*Mobile Location Center MLC 270*) (col. 2, lines 20-26); changing, at a direction of the first wireless telephone, a list of users for a profile (*Subscriber Location Privacy Profile SLPP*) associated with the first wireless telephone that are allowed to access the location (col. 4, lines 5-18; col. 5, lines 35-59),wherein each user of the list of users is representative of one of a plurality of wireless telephones (col. 5, lines 12-15 - *member(s) of a group of mobile subscribers who need*

to position the mobile subscriber); and transmitting the location from the MLC 270 to at least one of the users of the list of users (col. 2, lines 26-28).

Havinis does not explicitly teach a remote server or the Mobile Location Center is remotely located. However, Havinis teaches the Mobile Location Center can be a separate node with the MSC/VLR (col. 8, lines 30-39). Hence, it would have been obvious that the Mobile Location Center is remotely located.

As to claims 4, 19, 27, 36, and 45, Havinis teaches the mobile subscriber can define, activate, deactivate, delete the Subscriber Location Privacy Profile which contains a list of preferred subscribers that have permission to position the mobile subscriber (col. 4, lines 23-27; col. 4, lines 5-18; col. 5, lines 35-59), and put limits on the ability of other subscribers (col. 3, lines 39-56). Hence, it would have been obvious that adding an additional user to the list of users

As to claims 5, 20, 28, 37, and 46, Havinis teaches transmitting the address of the location to the at least one of the users of the list of users (col. 4, lines 5-10).

As to claims 6, 21, 29, 38, and 47, Havinis teaches obtaining the address of the location; and transmitting the address of the location to the at least one of the users of the list of users (col. 9, lines 21-38).

As to claims 7 and 39, Havinis teaches receiving the location by at least one of the plurality of wireless telephones (col. 2, lines 26-28); and displaying the location on the at least one of the plurality of wireless telephone (col. 5, lines 7-20 - *where Havinis discussed the users are member(s) of group of mobile subscribers, hence it would have*

been obvious that mobile subscriber would own at least a cellular or wireless device that having displayed capable to received the inquired location).

4. Claims 14, 26, 34, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Younis (US 2002/0164998).

As to claims 14, 26, 34, and 52, Havinis does not teach receiving the location by at least one of the plurality of wireless telephones; and displaying a map on the at least one of the plurality of wireless telephones with a marker representative of the location.

Younis teaches receiving the location by at least one of the plurality of wireless telephones; and displaying a map on the at least one of the plurality of wireless telephones with a marker representative of the location ([0008]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Younis into the teachings of Havinis for the purpose of having a more efficient system and providing users directions and where about the subscriber is.

5. Claims 8-11, 22-25, 30-33, 40-43, and 48-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Grube et al. (US 6,885,874).

As to claims 8, 22, 30, 40, and 48, Havinis does not explicitly teach determining a second location associated with one of the plurality of wireless telephone. Grube teaches determining a second location associated with one of the plurality of wireless telephone (col. 5, lines 2-4). It would have been obvious to one of ordinary skill in the

art that if one can determine a first location of the wireless telephone then a second location or third location and so on are also can be determined since mobile telephone's users tend to move around frequently.

As to claims 9-10, 23-24, 31-32, 41-42, and 49-50, Grube teaches determining a second location associated with one of the plurality of wireless telephones; and providing directional information to the one of the plurality of wireless telephones, wherein the directional information is representative of directions between the location and the second location (col. 5, lines 2-4; col. 6, lines 14-26).

As to claims 11, 25, 33, 43, and 51, Grube teaches determining the distance between the first wireless telephone and at least one of the plurality of wireless telephones (col. 6, line 59 through col. 7, line 6; col. 16, lines 11-26).

6. Claims 12-13 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Jones (US Patent 6,975,998)

Claims 12-13 and 44 are rejected for the same reasons as discussed above with respect to claim 3. Havinis does not teach transmitting an alert message comprising information associated with the location, from the remote server to a user of the list of users when the user is within a certain distance of the location.

Jones teaches transmitting an alert message from the system manager 30 to the user (*the recipient's communications device 18*) when the delivery vehicle is within a certain distance of the location (col. 7, lines 25-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Jones into the teachings of Havinis for the purpose of having a more efficient and user-friendly system by reporting package deliveries and of more precisely alerting a recipient of when to expect delivery of a package, as discussed by Jones (col. 1, line 66 through col. 2, line 2).

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Fournier et al. (US Patent 7,215,965).

As to claims 15, Ganesh teaches wherein the location is obtained way of manual input that is received by way of a locate button (col. 5, lines 62-67). Ganesh and Bassett do not explicitly teach a locate button provided on the first wireless telephone.

Fournier teaches a locate button provided on the first wireless telephone (col. 3, lines 38-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Fournier into the teachings of Havinis for the purpose of having a more efficient system and conveniently pushing the button for location information on the wireless telephone.

8. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Bates et al. 2003/0013456.

As to claim 16, Havinis does not explicitly teach determining a second location of a device based on the IP address of the device; transmitting the location to the device.

Bates teaches determining a second location of a device based on the IP address of the device; transmitting the location to the device (paragraphs [0022], [0024], and [0026]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the IP network environment into the teachings of Havinis for the purpose of having a more efficient system by having a wide variety collection of networks that handle Grube's system.

As to claims 17-18, Bates teaches receiving manual input for a second location; determining an identity of a second user for a device by way of a login, wherein the second user is associated with the input (paragraph [0050]); transmitting the location to the device (paragraphs [0055] - [0056]).

9. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis, Grube in view of Fournier et al. (US Patent 7,215,965).

Claim 53 is rejected for the same reasons as discussed above with respect to claim 15.

Response to Arguments

10. Applicant's arguments with respect to claims 3-53 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments are addressed in the above claims rejections.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUYNH H. NGUYEN whose telephone number is 571-272-7489. The examiner can normally be reached on Monday - Thursday from 6:30 A.M. to 5:00 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on 571-272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Quynh H Nguyen/
Primary Examiner, Art Unit 2614

Notice of References Cited	Application/Control No. 11/387,384	Applicant(s)/Patent Under Reexamination MULLEN, JEFFREY D.	
	Examiner QUYNH H. NGUYEN	Art Unit 2614	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,360,102	03-2002	Havinis et al.	455/457
*	B	US-6,975,998	12-2005	Jones, Martin Kelly	705/8
*	C	US-2002/0164998	11-2002	Younis, Saed	455/456
	D	US-			
	E	US-			
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	G	US-			
	H	US-			
	I	US-			
	J	US-			
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	QUYNH H. NGUYEN	2614	

SEARCHED			
Class	Subclass	Date	Examiner
455	404.1 404.2 410 456.1- 456.3 457	12/12/07	QN
above	updated	9/3/2008	QN
above	updated	5/8/2009	QN
above	updated	1/20/2010	QN

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Searched: East, USPGPub, USPAT, EPO, JPO	12/12/07	QN
Inventor searched in PALM	12/12/07	QN

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
11/387,384	MULLEN, JEFFREY D.
Examiner	**Art Unit**
QUYNH H. NGUYEN	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	12/18/07	9/3/08	5/12/09	1/20/10					
	1									
	2									
	3	√	√	√	√					
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	5	√	√	√	√					
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Claim		Date								
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	2275	(location (location adj server) (location adj center)) and 455/466.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/21 10:43
L3	222	2 and proximity	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/21 10:43
L4	109	3 and delivery	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/21 10:43
L5	39	4 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/21 10:44
L6	29	5 and (notif$7 alert$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/21 11:16
S1	39	profile with (authorized near2 users) with location	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/02 23:45
S2	1	re39406	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 10:48

S3	2	"5751803".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 10:49
S4	2	"5887252".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 19:27
S5	2	"6023625".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 19:28
S6	2	"6104709".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 19:29
S7	2	"6144615".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 19:30
S9	2	"5721780".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 22:03
S10	601	(users near3 list) with (stor$3 database server) with (remote)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 22:13
S11	289	S10 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 22:14
S12	13	S11 and "455"/$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 22:14

S13	972	(users near3 profile) with (stor $3 database server) with (remote)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 22:24
S14	609	S13 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 22:24
S15	59	S14 and "455"/$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 22:24
S16	56	S15 not S12	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/03 22:24
S17	2	"6885874".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/04 11:55
S18	2	"6333921".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/04 13:20
S19	2	"20010010691"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/09/04 21:04
S20	348	remote$2 with determin$3 with ((wireless cell cellular mobile) near2 location)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/26 23:14
S21	21	transmit$4 with ((wireless cell cellular mobile) near2 location) with (remote near server)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/26 23:15

S22	6	S20 and S21	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/26 23:15
S23	1	S22 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/26 23:16
S24	8	S21 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/26 23:35
S25	575	(add$3) with user with list with (cell mobile cellular wireless)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 08:46
S26	196	(add$3) with user with profile with (cell mobile cellular wireless)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 09:36
S27	59	S26 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 09:39
S28	0	S26 and loaction and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 09:39
S29	49	S26 and location and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 09:39
S30	515	((chang$3 modify$3 updat$3 add$3) near3 user) with (mobile cell cellular wireless) with list	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 09:52

S31	0	S30 and (loaction near3 (wireless mobile cell cellular))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 09:53
S32	2	"20030163251"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 09:58
S33	2	"6813502".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 10:00
S34	2	"6999777".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 10:03
S35	2	"20010014911"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 10:05
S36	2	"6785868".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 11:39
S37	21	transmit$4 with ((wireless cell cellular mobile) near2 location) with (remote near server)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 12:18
S38	8	S37 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 12:18
S39	2	"20040077359"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 13:56

S40	0	(push$3 near2 button) with ((wireless cell cellular mobile) near2 location) with (request $3 near3 location)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 22:53
S41	6	(button) with ((wireless cell cellular mobile) near2 location) with (request$3 near3 location)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 22:53
S42	5	S41 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 22:53
S43	11	((wireless cell cellular mobile) near2 location) with (request $3 near3 button)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 22:56
S44	10	S43 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 22:57
S45	14463	determin$3 with ((wireless cell cellular mobile) near2 location)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 23:32
S46	1	S45 and ((alert$3 adj message) with (within near certain near distance))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 23:33
S47	463	S45 and (alert$3 adj message)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 23:33
S48	11	S45 and ((alert$3 adj message) with distance)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 23:34

S49	6	S48 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 23:34
S50	20	(determin$3 track$3) with ((wireless cell cellular mobile) near2 location) with (alert adj message)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 23:36
S51	12	S50 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 23:36
S52	11	transmit$4 with (alert adj message) with distance	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 23:39
S53	7	S52 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/27 23:39
S54	13	(alert adj message) with location with distance	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/28 08:00
S55	4	S54 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/04/28 08:00
S56	1742	455/433.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/07 14:29
S57	15	S56 and (privacy adj profile)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/07 14:29

S58	2	S57 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/07 14:30
S59	2	"6999777".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/19 09:32
S60	2	"20070014283"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/19 10:04
S61	1	11/387384	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 08:00
S62	2	"7248872".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 22:03
S63	3854	(receiv$3 adj3 (location position)) and (display$3 with map with (wireless device cell cellular))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 22:07
S64	2086	(receiv$3 adj3 (location position)) and (display$3 adj3 map with (wireless device cell cellular))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 22:08
S65	739	S64 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 22:08
S66	5	455/433.ccls. and (display$3 adj3 map with (wireless device cell cellular))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 22:09

S67	2	S66 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 22:09
S68	82	(receiv$3 adj3 (location position) adj3 request$3) and (display$3 adj3 map with (wireless device cell cellular))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 22:25
S69	24	S68 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 22:25
S70	0	455/433.ccls. and ((alert near2 message) with certain with distance)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 22:57
S71	56	455/433.ccls. and ((alert near2 message))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 22:59
S72	0	455/433.ccls. and ((alert near2 message) with distance)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:00
S73	3	455/433.ccls. and (alert with distance)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:01
S74	3	S73 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:01
S75	0	(privacy adj profile) and (alert with distance)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:02

S76	1	(transmit$4 send$3) with messag$3 with (authori$6 adj2 (user subscriber)) with distance	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:06
S77	0	S76 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:06
S78	0	alert$3 with messag$3 with (authori$6 adj2 (user subscriber)) with distance	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:12
S79	216	alert$3 with messag$3 with distance	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:12
S80	30	alert$3 with messag$3 with (certain threshold) with distance	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:13
S81	15	S80 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:13
S82	39	alert$3 and (privacy adj profile)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:27
S83	20	S82 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:27
S84	8	(alert$3 near3 messag$3) and (privacy adj profile)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:28

S85	4	S84 and (@rlad<="20020325" @ad<="20020325")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/20 23:28

1/21/10 12:11:06 PM
C:\Documents and Settings\qnguyen\My Documents\EAST\Workspaces\11387384.wsp

JDM/002 CON

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jeffrey D. Mullen
Application No.	:	11/387,384
Confirmation No.	:	7999
Filed	:	March 22, 2006
For	:	SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME
Group Art Unit	:	2614
Examiner	:	Quynh H. Nguyen

Mail Stop: Amendment
Hon. Commissioner for Patents
P.O. Box 1450 Pittsburgh, PA 15232
Alexandria, VA 22313-1450 July 27, 2010

REPLY TO OFFICE ACTION

Sir:

This is in Reply to the Office Action mailed January 27, 2010. A three-month extension of time is applicable hereto and is being submitted herewith. In reply to the Office Action, applicant amends the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 14 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2. (cancelled).

3. (previously presented) A method comprising:

obtaining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing, at the direction of said first wireless telephone, a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

4. (previously presented) The method of claim 3, wherein said changing comprises adding an additional user to said list of users.

5. (previously presented) The method of claim 3, further comprising transmitting the address of said location to said at least one of said users of said list of users.

6. (previously presented) The method of claim 3, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

7. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

8. (previously presented) The method of claim 3, further comprising determining a second location associated with one of said plurality of wireless telephones.

9. (previously presented) The method of claim 3, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

10. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

11. (previously presented) The method of claim 3, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

12. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

13. (previously presented) A method comprising:

determining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user

of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

14. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying a map on said at least one of said plurality of wireless telephones with a marker representative of said location.

15. (previously presented) The method of claim 3, wherein the location is obtained by way of manual input that is received by way of a locate button provided on said first wireless telephone.

16. (previously presented) The method of claim 3, further comprising:

determining a second location of a device based on the IP address of said device; and

transmitting said location to said device.

17. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login, wherein said second user is associated with said manually input second location.

18. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login; and

transmitting said location to said device, wherein said second user is associated with said manually input second location.

19. (previously presented) The method of claim 12, wherein said changing comprises adding an additional user to said list of users.

20. (previously presented) The method of claim 12, further comprising transmitting the address of said location to at least one of said users of said list of users.

21. (previously presented) The method of claim 12, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

22. (previously presented) The method of claim 12, further comprising determining a second location associated with said wireless telephone associated with said user.

23. (previously presented) The method of claim 12, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

24. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

25. (previously presented) The method of claim 12, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

26. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

27. (previously presented) The method of claim 13, wherein said changing comprises adding an additional user to said list of users.

28. (previously presented) The method of claim 13, further comprising transmitting the address of said location to at least one of said users of said list of users.

29. (previously presented) The method of claim 13, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

30. (previously presented) The method of claim 13, further comprising determining a second location associated with said wireless telephone associated with said user.

31. (previously presented) The method of claim 13, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

32. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

33. (previously presented) The method of claim 13, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

34. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

35. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

changing, at the direction of said first wireless telephone, a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

36. (previously presented) The method of claim 35, wherein said changing comprises adding an additional user to said list of users.

37. (previously presented) The method of claim 35, further comprising transmitting the address of said location to said at least one of said users of said list of users.

38. (previously presented) The method of claim 35, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

39. (previously presented) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

40. (previously presented) The method of claim 35, further comprising determining a second location associated with one of said plurality of wireless telephones.

41. (previously presented) The method of claim 35, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

42. (previously presented) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

43. (previously presented) The method of claim 35, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

44. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

changing a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

45. (previously presented) The method of claim 44, wherein said changing comprises adding an additional user to said list of users.

46. (previously presented) The method of claim 44, further comprising transmitting the address of said

location to at least one of said users of said list of users.

47. (previously presented) The method of claim 44, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

48. (previously presented) The method of claim 44, further comprising determining a second location associated with said wireless telephone associated with said user.

49. (previously presented) The method of claim 44, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

50. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

51. (previously presented) The method of claim 44, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

52. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

53. (previously presented) The method of claim 44, wherein location is obtained by way of manual input manual input that is received by way of a locate button provided on said first wireless telephone.

REMARKS/ARGUMENTS

Summary of Applicant's Amendments

Claims 3-53 are pending.

Claims 3-7, 19-21, 27-29, 35-39, and 45-47 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Havinis U.S. Patent No. 6,360,102 (hereinafter "Havinis").

Claims 14, 26, 34, and 52 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Younis U.S. Patent Application Publication No. 2002/0164998 (hereinafter “Younis”).

Claims 8-11, 22-25, 30-33, 40-43, and 48-51 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Grube U.S. Patent No. 6,885,874 (hereinafter “Grube”).

Claims 12-13 and 44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Jones U.S. Patent No. 6,975,998 (hereinafter “Jones”).

Claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Fournier et al. U.S. Patent No. 7,215,965 (hereinafter “Fournier”).

Claims 16-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Bates et al. U.S. Publication No. 2003/0013456 (hereinafter “Bates”).

Claim 53 was rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and Grube and further in view of Fournier.

Summary of Applicant's Amendments

Applicant traverses the Examiner's rejections. Applicant reserves the right to file any number of continuation or divisional applications in the present application, including continuations or divisionals filed on subject matter related to any claim cancellations and/or amendments.

The 35 U.S.C. § 103(a) Rejection Under Havinis

Claims 3-7, 19-21, 27-29, 35-39, and 45-47 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Havinis.

Claim 3

The Examiner stated:

> "Havinis does not explicitly teach a remote server." (Office Action, page 2)

Applicant's invention of claim 3, however, includes obtaining a location of a first wireless telephone and transmitting said location from said first wireless telephone to a remote server. Havinis does not show or suggest such a feature. Havinis alleges a MLC that utilizes TA values from Base Stations. Havinis' MLC is not a wireless telephone.

Applicant's invention of claim 3, however, includes changing, at the direction of said first wireless telephone, a list of users on the remote server. Havinis does not show or suggest this feature. Havinis alleges an HLR in an MSC. Havinis' MSC is not Havinis' MLC.

Accordingly, applicant respectfully requests that the Examiner's rejection of claim 3, and any claims dependent therefrom, be withdrawn.

Claim 35

As shown above, claim 3 includes a number of patentable features. Claim 35 includes patentable features similar to patentable features of claim 3.

Havinis does not show or suggest applicant's invention of claim 35 of changing, at the direction of said first wireless telephone, a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location and transmitting said location from said remote server to at least one of said users of said list of users. Havinis alleges an HLR in an MSC. Havinis MLC, however, utilizes TA values from Base Stations.

Accordingly, applicant respectfully requests that the Examiner's rejection of claim 35, and any claims dependent therefrom, be withdrawn.

Th 103(a) Rejections Under Havinis and Jones

Claims 12-13 and 44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Jones.

As shown above, claims 3 and 35 are patentable in view of Havinis. Claims 12, 13, and 44 include patentable features similar to patentable features of either claims 3 or 35. Jones does not correct for the deficiencies of Havinis. In fact, Jones is far removed while Havinis is a precision system of precise configurations. Accordingly, applicant respectfully requests that the Examiner's rejections of claims 12, 13, and 44 be withdrawn.

Moreover, applicant's invention of claims 12, 13, and 44 includes transmitting an alert message including

information associated with a location of a wireless telephone from a remote server to a user of a list of users when the user is within a certain distance of the location.

The Examiner stated:

> "Havinis does not teach transmitting an alert message … Jones teaches transmitting an alert message from the system manager 30 to the user (the recipient's device 18) when the delivery vehicle is within a certain distance of the location." (Office Action, page 5)

Jones merely alleges a system manager that determines an expected delivery of a package based on an expected delivery schedule for a vehicle. Jones does allege tracking a vehicle and, here, the system manager transmits a notification (*See Jones,* col. 7). However, this Jones discussion is irrelevant.

Jones' alleged stationary system manager that tracks a separate vehicle and notifies a single device when a package is within a proximity of a single, physical, stationary, pre-determined premise does not show or suggest applicant's inventions of claims 12, 13, and 14 of an alert based on a location of a first wireless telephone to a user of a list of users, each representative of a plurality of wireless telephones, when that user is within a certain distance from the first wireless telephone. A distance to an address is not a distance to a wireless telephone. Neither Havinis nor Jones, used either alone or in combination, show or suggest such a feature.

In light of the foregoing, applicant respectfully requests that the Examiner's rejection of claim 12, 13, and 44 be withdrawn.

Additional Dependent Claims

Claims 3-7, 19-21, 27-29, 35-39, and 45-47 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Havinis. Claims 14, 26, 34, and 52 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Younis. Claims 8-11, 22-25, 30-33, 40-43, and 48-51 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Grube. Claims 12-13 and 44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Jones. Claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Fournier. Claims 16-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Bates. Claim 53 was rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and Grube and further in view of Fournier.

These dependent claims each depend from either independent claim 3, 12, 13, 35, or 44. As shown above, claims 3, 12, 13, 35, and 44 are patentable. Accordingly, the above dependent claims are patentable for depending from a patentable independent claim.

Rejections in view of Official Notice

Many of the rejections made by the Examiner appear to have been rejected in view of Official Notice. Any rejection that does not show each and every element of a claim in one or more references is an inadequate rejection.

For rejections under 35 U.S.C. § 103(a), the Examiner has the burden of showing each and every element of applicant's invention in the prior art combination. If

the Examiner is taking Official Notice, MPEP § 2144.03 requires that the facts of which notice are being taken be capable of instant and unquestionable demonstration as being well known in the art. *See In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). Applicant believes that the "facts" of which the Examiner may have taken Official Notice do not meet that standard, and invoke his right under MPEP § 2144.03 to have the Examiner provide documentary proof that those facts are actually well known.

The Examiner "cannot simply reach conclusions based on its own understanding or experience - or on its assessment of what would be basic knowledge or common sense. Rather, ... [the Examiner] ... must point to some concrete evidence in the record in support of these findings." *In re Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697 (Fed. Cir. 2001). If the Examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affadavit or declaration setting forth factual statements and explanation to such a finding. *See* MPEP 2144.03(c).

The Examiner cannot make rejections using a reference or combination of references where the references do not show each and every element of a particular claim. Applicant respectfully requests that the Examiner withdraw any rejections that do not show the inclusion of each and every element of a particular claim in a reference or a combination of references.

Conclusion

Applicant respectfully submits that this application, including the pending claims, is in condition for allowance. A favorable action is respectfully requested.

The Director is hereby authorized to charge any fees associated with this filing, or credit any overpayment of the same, to Deposit Account No. 50-3855.

Respectfully Submitted,

/Jeffrey D. Mullen/
Jeffrey D. Mullen
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Electronic Patent Application Fee Transmittal

Application Number:	11387384
Filing Date:	22-Mar-2006
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Filer:	Jeffrey David Mullen
Attorney Docket Number:	JDM/002 CON

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	555	555

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**555**

Electronic Patent Application Fee Transmittal

Application Number:	11387384
Filing Date:	22-Mar-2006
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Filer:	Jeffrey David Mullen
Attorney Docket Number:	JDM/002 CON

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	555	555

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**555**

Electronic Acknowledgement Receipt	
EFS ID:	8095936
Application Number:	11387384
International Application Number:	
Confirmation Number:	7999
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Customer Number:	32733
Filer:	Jeffrey David Mullen
Filer Authorized By:	
Attorney Docket Number:	JDM/002 CON
Receipt Date:	27-JUL-2010
Filing Date:	22-MAR-2006
Time Stamp:	12:32:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$555
RAM confirmation Number	10053
Deposit Account	503855
Authorized User	MULLEN,JEFFREY D.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		JDM-002CON--Reply.pdf	32381 3791e4b88791acd41a8bdeaf4c3c0c0c02a05920	yes	20

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Claims	2	13
Applicant Arguments/Remarks Made in an Amendment	14	20

Warnings:

Information:

2	Fee Worksheet (PTO-875)	fee-info.pdf	29839 1ab49bf5242eb229ad3ab18bdd2eb637c3294b96	no	2

Warnings:

Information:

Total Files Size (in bytes):	62220

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<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/387,384	03/22/2006	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	07/27/2010	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 51	Minus	** 51	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 5	Minus	***5	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/Dorretta Brooks/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/387,384	03/22/2006	Jeffrey D. Mullen	JDM/002 CON	7999

32733 7590 09/02/2010

JEFFREY D. MULLEN
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PITTSBURGH, PA 15232

EXAMINER	
NGUYEN, QUYNH H	
ART UNIT	**PAPER NUMBER**
2614	

MAIL DATE	DELIVERY MODE
09/02/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	QUYNH H. NGUYEN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 July 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Amendment

2. Applicant's remarks filed 07/27/10 have been entered. No claims have been amended. No claims have been canceled. No claims have been added. Claims 3-53 are still pending in this application, with claims 3, 12-13, 35, and 44 being independent.

Claim Rejections - 35 USC § 103

3. Claims 3-7, 19-21, 27-29, 35-39, and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis et al. (US Patent 6,360,102).

As to claims 3 and 35, Havinis teaches a method comprising obtaining a location of a first wireless telephone (col. 2, lines 7-8); transmitting the location from the first wireless telephone to a server (*Mobile Location Center MLC 270*) (col. 2, lines 20-26); changing, at a direction of the first wireless telephone, a list of users for a profile (*Subscriber Location Privacy Profile SLPP*) associated with the first wireless telephone that are allowed to access the location (col. 4, lines 5-18; col. 5, lines 35-59),wherein each user of the list of users is representative of one of a plurality of wireless telephones (col. 5, lines 12-15 - *member(s) of a group of mobile subscribers who need to position the mobile subscriber*); and transmitting the location from the MLC 270 to at

least one of the users of the list of users (col. 2, lines 26-28). Havinis does not explicitly show a list of users on the remote server for a profile. However, Havinis teaches that the subscriber's profile (SLPP) which is not in the Mobile Location Center and the MLC can be a separate node with the MSC/VLR (col. 8, lines 30-39). Hence, it would have been obvious that the list of users on the remote Mobile Location Center for a profile (SLPP).

As to claims 4, 19, 27, 36, and 45, Havinis teaches the mobile subscriber can define, activate, deactivate, delete the Subscriber Location Privacy Profile which contains a list of preferred subscribers that have permission to position the mobile subscriber (col. 4, lines 23-27; col. 4, lines 5-18; col. 5, lines 35-59), and put limits on the ability of other subscribers (col. 3, lines 39-56). Hence, it would have been obvious that adding an additional user to the list of users

As to claims 5, 20, 28, 37, and 46, Havinis teaches transmitting the address of the location to the at least one of the users of the list of users (col. 4, lines 5-10).

As to claims 6, 21, 29, 38, and 47, Havinis teaches obtaining the address of the location; and transmitting the address of the location to the at least one of the users of the list of users (col. 9, lines 21-38).

As to claims 7 and 39, Havinis teaches receiving the location by at least one of the plurality of wireless telephones (col. 2, lines 26-28); and displaying the location on the at least one of the plurality of wireless telephone (col. 5, lines 7-20 - *where Havinis discussed the users are member(s) of group of mobile subscribers, hence it would have*

been obvious that mobile subscriber would own at least a cellular or wireless device that having displayed capable to received the inquired location).

4. Claims 14, 26, 34, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Younis (US 2002/0164998).

As to claims 14, 26, 34, and 52, Havinis does not teach receiving the location by at least one of the plurality of wireless telephones; and displaying a map on the at least one of the plurality of wireless telephones with a marker representative of the location.

Younis teaches receiving the location by at least one of the plurality of wireless telephones; and displaying a map on the at least one of the plurality of wireless telephones with a marker representative of the location ([0008]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Younis into the teachings of Havinis for the purpose of having a more efficient system and providing users directions and where about the subscriber is.

5. Claims 8-11, 22-25, 30-33, 40-43, and 48-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Grube et al. (US 6,885,874).

As to claims 8, 22, 30, 40, and 48, Havinis does not explicitly teach determining a second location associated with one of the plurality of wireless telephone. Grube teaches determining a second location associated with one of the plurality of wireless telephone (col. 5, lines 2-4). It would have been obvious to one of ordinary skill in the

art that if one can determine a first location of the wireless telephone then a second location or third location and so on are also can be determined since mobile telephone's users tend to move around frequently.

As to claims 9-10, 23-24, 31-32, 41-42, and 49-50, Grube teaches determining a second location associated with one of the plurality of wireless telephones; and providing directional information to the one of the plurality of wireless telephones, wherein the directional information is representative of directions between the location and the second location (col. 5, lines 2-4; col. 6, lines 14-26).

As to claims 11, 25, 33, 43, and 51, Grube teaches determining the distance between the first wireless telephone and at least one of the plurality of wireless telephones (col. 6, line 59 through col. 7, line 6; col. 16, lines 11-26).

6. Claims 12-13 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Jones (US Patent 6,975,998)

Claims 12-13 and 44 are rejected for the same reasons as discussed above with respect to claim 3. Havinis does not teach transmitting an alert message comprising information associated with the location, from the remote server to a user of the list of users when the user is within a certain distance of the location.

Jones teaches transmitting an alert message from the system manager 30 to the user (*the recipient's communications device 18*) when the delivery vehicle is within a certain distance or time of the location (col. 7, lines 25-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Jones into the teachings of Havinis and modify Jones' predefined distance to a premise to be distance to a wireless telephone for the purpose of having a more efficient and user-friendly system by reporting package deliveries and of more precisely alerting a recipient of when to expect delivery of a package, as discussed by Jones (col. 1, line 66 through col. 2, line 2).

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Fournier et al. (US Patent 7,215,965).

As to claims 15, Ganesh teaches wherein the location is obtained way of manual input that is received by way of a locate button (col. 5, lines 62-67). Ganesh and Bassett do not explicitly teach a locate button provided on the first wireless telephone.

Fournier teaches a locate button provided on the first wireless telephone (col. 3, lines 38-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Fournier into the teachings of Havinis for the purpose of having a more efficient system and conveniently pushing the button for location information on the wireless telephone.

8. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Bates et al. 2003/0013456.

As to claim 16, Havinis does not explicitly teach determining a second location of a device based on the IP address of the device; transmitting the location to the device.

Bates teaches determining a second location of a device based on the IP address of the device; transmitting the location to the device (paragraphs [0022], [0024], and [0026]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the IP network environment into the teachings of Havinis for the purpose of having a more efficient system by having a wide variety collection of networks that handle Grube's system.

As to claims 17-18, Bates teaches receiving manual input for a second location; determining an identity of a second user for a device by way of a login, wherein the second user is associated with the input (paragraph [0050]); transmitting the location to the device (paragraphs [0055] - [0056]).

9. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis, Grube in view of Fournier et al. (US Patent 7,215,965).

Claim 53 is rejected for the same reasons as discussed above with respect to claim 15.

Response to Arguments

10. Applicant's arguments filed 7/27/10 have been fully considered but they are not persuasive.

With respect to claims 3, 35, Applicant mainly argues that Havinis does not teach obtaining a location of a first wireless wireless telephone and transmitting the location from the first wireless telephone to a remote server. Examiner respectfully submits that Havinis teaches obtaining a location of a first wireless telephone (col. 2, lines 7-8 - *where Havinis discussed obtaining the location of MS 20*); transmitting the location from the first wireless telephone to a server (*Mobile Location Center MLC 270*) (col. 2, lines 20-26). Applicant further argues that Havinis' Mobile Location Center is not a wireless phone. Examiner agrees, it is a Mobile Location Center and it is not a wireless phone, and The MLC calculate the location of the MS 200 and the MS 2000 with knowledge of the location of the BTS 220 can determine its location (col. 2, line 60 through col. 3, line 5). Applicant further argues that Havinis does not teach changing, at the direction of the first wireless telephone, a list of users on the remote server. Examiner respectfully submits that Havinis teaches changing, at the direction of the first wireless telephone, a list of users on the remote server (col. 4, lines 5-18; col. 5, lines 35-59), and the subscriber's profile (SLPP) which is not in the Mobile Location Center and the MLC can be a separate node with the MSC/VLR (col. 8, lines 30-39). Hence, it would have been obvious that the list of users on the remote Mobile Location Center for a profile (SLPP). Applicant further argues that Havinis MLC utilizes TA values from Base Stations, this is irrelevant.

With respect to claims 12-13 and 44, Applicant mainly argues that Jones does not teach transmitting an alert message to a user of a list of users within the user is within a certain distance of the location. Examiner respectfully submits that Jones

teaches a base station transmits a notification message to a recipient device at a recipient's premises (col. 3,lines 6-8) when the vehicle is within a predefined proximity of distance or time (col. 7, lines 27-30). Examiner relies on the concept of transmitting alert message when the user is within certain predefined time or distance taught by Jones. It would have been obvious to modify Jones' predefined distance to a premise to be distance to a wireless telephone and incorporate into the teachings of Havinis.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUYNH H. NGUYEN whose telephone number is 571-272-7489. The examiner can normally be reached on Monday - Thursday from 6:30

A.M. to 5:00 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on 571-272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Quynh H Nguyen/
Primary Examiner, Art Unit 2614

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
11/387,384	MULLEN, JEFFREY D.
Examiner	**Art Unit**
QUYNH H. NGUYEN	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	12/18/07	9/3/08	5/12/09	1/20/10	8/30/10				
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Claim		Date								
Final	Original	12/18/07	9/3/08	5/12/09	1/20/10	8/30/10				
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	QUYNH H. NGUYEN	2614	

SEARCHED			
Class	Subclass	Date	Examiner
455	404.1 404.2 410 456.1- 456.3 457	12/12/07	QN
above	updated	9/3/2008	QN
above	updated	5/8/2009	QN
above	updated	1/20/2010	QN
abovve	updated	8/27/2010	QN

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Searched: East, USPGPub, USPAT, EPO, JPO	12/12/07	QN
Inventor searched in PALM	12/12/07	QN

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (10-08)
Approved for use through 11/30/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	11387384	Filing Date	2006-03-22	Docket Number (if applicable)	JDM/002 CON	Art Unit	2614
First Named Inventor	Jeffrey D. Mullen			Examiner Name	Quynh Nguyen		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 503855

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☐ Patent Practitioner Signature

☒ Applicant Signature

PTO/SB/30EFS (10-08)
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Applicant Signature			
Applicant 1		Remove	
Signature	/Jeffrey D. Mullen/	Date (YYYY-MM-DD)	2011-03-02
Name	Jeffrey D. Mullen		
Click ADD for additional Applicant Signature		Add	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

JDM/002 CON

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jeffrey D. Mullen
Application No.	:	11/387,384
Confirmation No.	:	7999
Filed	:	March 22, 2006
For	:	SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME
Group Art Unit	:	2614
Examiner	:	Quynh H. Nguyen

Mail Stop: Amendment
Hon. Commissioner for Patents
P.O. Box 1450 Pittsburgh, PA 15232
Alexandria, VA 22313-1450 March 2, 2011

REPLY TO OFFICE ACTION

Sir:

This is in Reply to the Office Action mailed September 2, 2010. A three-month extension of time and a Request for Continued Examination is applicable hereto and is being submitted herewith. In reply to the Office Action, applicant amends the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 14 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2. (cancelled).

3. (previously presented) A method comprising:

obtaining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing, at the direction of said first wireless telephone, a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

4. (previously presented) The method of claim 3, wherein said changing comprises adding an additional user to said list of users.

5. (previously presented) The method of claim 3, further comprising transmitting the address of said location to said at least one of said users of said list of users.

6. (previously presented) The method of claim 3, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

7. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

8. (previously presented) The method of claim 3, further comprising determining a second location associated with one of said plurality of wireless telephones.

9. (previously presented) The method of claim 3, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

10. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

11. (previously presented) The method of claim 3, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

12. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

13. (previously presented) A method comprising:

determining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user

of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

14. (previously presented) The method of claim 3, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying a map on said at least one of said plurality of wireless telephones with a marker representative of said location.

15. (previously presented) The method of claim 3, wherein the location is obtained by way of manual input that is received by way of a locate button provided on said first wireless telephone.

16. (previously presented) The method of claim 3, further comprising:

determining a second location of a device based on the IP address of said device; and

transmitting said location to said device.

17. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login, wherein said second user is associated with said manually input second location.

18. (previously presented) The method of claim 3, further comprising:

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login; and

transmitting said location to said device, wherein said second user is associated with said manually input second location.

19. (previously presented) The method of claim 12, wherein said changing comprises adding an additional user to said list of users.

20. (previously presented) The method of claim 12, further comprising transmitting the address of said location to at least one of said users of said list of users.

21. (previously presented) The method of claim 12, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

22. (previously presented) The method of claim 12, further comprising determining a second location associated with said wireless telephone associated with said user.

23. (previously presented) The method of claim 12, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

24. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

25. (previously presented) The method of claim 12, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

26. (previously presented) The method of claim 12, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

27. (previously presented) The method of claim 13, wherein said changing comprises adding an additional user to said list of users.

28. (previously presented) The method of claim 13, further comprising transmitting the address of said location to at least one of said users of said list of users.

29. (previously presented) The method of claim 13, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

30. (previously presented) The method of claim 13, further comprising determining a second location associated with said wireless telephone associated with said user.

31. (previously presented) The method of claim 13, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

32. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

33. (previously presented) The method of claim 13, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

34. (previously presented) The method of claim 13, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

35. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

changing, at the direction of said first wireless telephone, a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users.

36. (previously presented) The method of claim 35, wherein said changing comprises adding an additional user to said list of users.

37. (previously presented) The method of claim 35, further comprising transmitting the address of said location to said at least one of said users of said list of users.

38. (previously presented) The method of claim 35, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to said at least one of said users of said list of users.

39. (previously presented) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying said location on said at least one of said plurality of wireless telephones.

40. (previously presented) The method of claim 35, further comprising determining a second location associated with one of said plurality of wireless telephones.

41. (previously presented) The method of claim 35, further comprising:

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

42. (previously presented) The method of claim 35, further comprising:

receiving said location by at least one of said plurality of wireless telephones; and

displaying the name of said location on said at least one of said plurality of wireless telephones.

43. (previously presented) The method of claim 35, further comprising determining the distance between said first wireless telephone and at least one of said plurality of wireless telephones.

44. (previously presented) A method comprising:

obtaining a location of said first wireless telephone;

changing a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location.

45. (previously presented) The method of claim 44, wherein said changing comprises adding an additional user to said list of users.

46. (previously presented) The method of claim 44, further comprising transmitting the address of said

location to at least one of said users of said list of users.

47. (previously presented) The method of claim 44, further comprising:

obtaining the address of said location from a remote information provider; and

transmitting the address of said location to at least one of said users of said list of users.

48. (previously presented) The method of claim 44, further comprising determining a second location associated with said wireless telephone associated with said user.

49. (previously presented) The method of claim 44, further comprising:

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

50. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying the name of said location on said wireless telephone associated with said user.

51. (previously presented) The method of claim 44, further comprising determining the distance between said first wireless telephone and said wireless telephones associated with said user.

52. (previously presented) The method of claim 44, further comprising:

receiving said location by said wireless telephone associated with said user; and

displaying a map on said wireless telephone associated with said user, wherein a marker is displayed on said map that is representative of said location.

53. (previously presented) The method of claim 44, wherein location is obtained by way of manual input manual input that is received by way of a locate button provided on said first wireless telephone.

REMARKS/ARGUMENTS

Summary of Applicant's Amendments

Claims 3-53 are pending.

Claims 3-7, 19-21, 27-29, 35-39, and 45-47 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Havinis U.S. Patent No. 6,360,102 (hereinafter "Havinis").

Claims 14, 26, 34, and 52 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Younis U.S. Patent Application Publication No. 2002/0164998 (hereinafter “Younis”).

Claims 8-11, 22-25, 30-33, 40-43, and 48-51 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Grube U.S. Patent No. 6,885,874 (hereinafter “Grube”).

Claims 12-13 and 44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Jones U.S. Patent No. 6,975,998 (hereinafter “Jones”).

Claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Fournier et al. U.S. Patent No. 7,215,965 (hereinafter “Fournier”).

Claims 16-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Bates et al. U.S. Publication No. 2003/0013456 (hereinafter “Bates”).

Claim 53 was rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and Grube and further in view of Fournier.

Summary of Applicant's Amendments

Applicant traverses the Examiner's rejections. Applicant reserves the right to file any number of continuation or divisional applications in the present application, including continuations or divisionals filed on subject matter related to any claim cancellations and/or amendments.

The 35 U.S.C. § 103(a) Rejection Under Havinis

Claims 3-7, 19-21, 27-29, 35-39, and 45-47 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Havinis.

Claim 3

Applicant's invention of claim 3 includes transmitting a location from said first wireless telephone to a remote server.

The Examiner stated that:

> "Examiner agrees, it is a Mobile Location Center [and] is not a wireless phone…
>
> Applicant further argues Havinis MLC utilizes TA values from Base stations, this is irrelevant" (Office Action, page 8)

Havinis' TA values, however, are utilized to allegedly determine location. The Examiner agrees that the MLC is not a wireless telephone. Base stations are not wireless telephones. Accordingly, the TA values – which are utilized in allegedly determining location and provided from structures that are not a wireless telephone.

Accordingly, providing a location from a device that is not a mobile phone does not show or suggest applicant's invention of claim 3 that includes transmitting a location from said first wireless telephone to a remote server.

Havinis does not discuss any system architecture for coordinating location activities for location methodologies where locations are provided by a Havinis' MS. Accordingly, Havinis is silent on applicant's invention of claim 3 that includes transmitting a location from a wireless telephone to a remote server.

The Examiner also stated:

> "Havinis does not explicitly show a list of users on the remote server for a profile … it would have been obvious …" (Office Action, page 3)

Applicant's invention of claim 3, however, that includes changing, at the direction of said first wireless telephone, a list of users on the remote, where each user of the list of users is representative of one of a plurality of wireless telephones. Havinis does not show or suggest this feature.

It appears that the Examiner has rejected claim 3 in view of Official Notice as the rejection was a single reference 35 U.S.C. 103(a) rejection. For rejections under 35 U.S.C. § 103(a), the Examiner has the burden of showing each and every element of applicant's invention in the prior art combination. If the Examiner is taking Official Notice, MPEP § 2144.03 requires that the facts of which notice are being taken be capable of instant and unquestionable demonstration as being well known in the art. *See In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). Applicant believes that the "facts" of which the Examiner may have taken Official Notice do not meet that standard, and invoke his right under MPEP § 2144.03 to have the Examiner provide documentary proof that those facts are actually well known.

The Examiner "cannot simply reach conclusions based on its own understanding or experience - or on its

assessment of what would be basic knowledge or common sense. Rather, ... [the Examiner] ... must point to some concrete evidence in the record in support of these findings." *In re Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697 (Fed. Cir. 2001). If the Examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affadavit or declaration setting forth factual statements and explanation to such a finding. *See* MPEP 2144.03(c).

The Examiner cannot make rejections using a reference or combination of references where the references do not show each and every element of a particular claim. Applicant respectfully requests that the Examiner withdraw any rejections that do not show the inclusion of each and every element of a particular claim in a reference or a combination of references.

Accordingly, applicant respectfully requests that the Examiner's rejection of claim 3, and any claims dependent therefrom, be withdrawn.

Claim 35

As shown above, claim 3 includes a number of patentable features. Claim 35 includes patentable features similar to patentable features of claim 3.

Havinis does not show or suggest applicant's invention of claim 35 of changing, at the direction of said first wireless telephone, a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location and transmitting said location from said remote server to at least one of said users of said list of users.

Accordingly, applicant respectfully requests that the Examiner's rejection of claim 35, and any claims dependent therefrom, be withdrawn.

Th 103(a) Rejections Under Havinis and Jones

Claims 12-13 and 44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Jones.

As shown above, claims 3 and 35 are patentable in view of Havinis. Claims 12, 13, and 44 include patentable features similar to patentable features of either claims 3 or 35. Jones does not correct for the deficiencies of Havinis.

Applicant's invention of claims 12, 13, and 44 includes transmitting an alert message including information associated with a location of a wireless telephone from a remote server to a user of a list of users when the user is within a certain distance of the location.

The Examiner stated:

> "Havinis does not teach transmitting an alert message … Jones teaches transmitting an alert message from the system manager 30 to the user (*the recipient's device* 18) when the delivery vehicle is within a certain distance of the location." (Office Action, page 5)

Jones merely alleges a system manager that determines an expected delivery of a package based on an expected delivery schedule for a vehicle.

As a result, Jones does not show or suggest even obtaining information associated with a location of a wireless telephone.

Furthermore, Jones alleges tracking a vehicle and having the system manager transmits a notification (*See*

Jones, col. 7) of package delivery to a single, physical stationary, pre-determined premise.

As a result, Jones does not show or suggest even providing information associated with a location of a wireless telephone to a user representative of a wireless telephone.

If even possible, which it is not, combining Jones with Havinis would, at best, merely give Havanis a notification of a package delivery – nothing more or nothing less.

The Examiner cannot pick and choose unrelated devices, in hindsight, and merely put them together to create an entirely new and inoperable device neither shown nor suggested by the individual devices. In doing so, the Examiner merely eviscerates the spirit of the Havinis and Jones devices.

Havinis and Jones are far removed from each other and directly teach away from each other at every corner. As per another example, Jones' distance to an address is not a distance to a wireless telephone.

In light of the foregoing, applicant respectfully requests that the Examiner's rejection of claim 12, 13, and 44 be withdrawn.

Additional Dependent Claims

Claims 3-7, 19-21, 27-29, 35-39, and 45-47 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Havinis. Claims 14, 26, 34, and 52 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis in view of Younis. Claims 8-11, 22-25, 30-33, 40-43, and 48-51 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Grube.

Claims 12-13 and 44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Jones. Claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Fournier. Claims 16-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and further in view of Bates. Claim 53 was rejected under 35 U.S.C. 103(a) as being unpatentable over Havinis and Grube and further in view of Fournier.

These dependent claims each depend from either independent claim 3, 12, 13, 35, or 44. As shown above, claims 3, 12, 13, 35, and 44 are patentable. Accordingly, the above dependent claims are patentable for depending from a patentable independent claim.

Rejections in view of Official Notice

Many of the rejections made by the Examiner appear to have been rejected in view of Official Notice. Any rejection that does not show each and every element of a claim in one or more references is an inadequate rejection.

For rejections under 35 U.S.C. § 103(a), the Examiner has the burden of showing each and every element of applicant's invention in the prior art combination. If the Examiner is taking Official Notice, MPEP § 2144.03 requires that the facts of which notice are being taken be capable of instant and unquestionable demonstration as being well known in the art. *See In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). Applicant believes that the "facts" of which the Examiner may have taken Official Notice do not meet that standard, and invoke

his right under MPEP § 2144.03 to have the Examiner provide documentary proof that those facts are actually well known.

The Examiner "cannot simply reach conclusions based on its own understanding or experience – or on its assessment of what would be basic knowledge or common sense. Rather, ... [the Examiner] ... must point to some concrete evidence in the record in support of these findings." *In re Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697 (Fed. Cir. 2001). If the Examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affadavit or declaration setting forth factual statements and explanation to such a finding. *See* MPEP 2144.03(c).

The Examiner cannot make rejections using a reference or combination of references where the references do not show each and every element of a particular claim. Applicant respectfully requests that the Examiner withdraw any rejections that do not show the inclusion of each and every element of a particular claim in a reference or a combination of references.

Conclusion

Applicant respectfully submits that this application, including the pending claims, is in condition for allowance. A favorable action is respectfully requested.

The Director is hereby authorized to charge any fees associated with this filing, or credit any overpayment of the same, to Deposit Account No. 50-3855.

Respectfully Submitted,

/Jeffrey D. Mullen/
Jeffrey D. Mullen
Applicant (Reg. No. 52,056)
Customer No. 32733
731 South Negley, Apt. 2
Pittsburgh, PA 15232
Tel.: (914) 837-7741

Electronic Patent Application Fee Transmittal

Application Number:	11387384
Filing Date:	22-Mar-2006
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Filer:	Jeffrey David Mullen
Attorney Docket Number:	JDM/002 CON

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	555	555

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**960**

Electronic Patent Application Fee Transmittal

Application Number:	11387384
Filing Date:	22-Mar-2006
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First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Filer:	Jeffrey David Mullen
Attorney Docket Number:	JDM/002 CON

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Utility under 35 USC 111(a) Filing Fees

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Basic Filing:				
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Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	555	555

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**960**

Electronic Acknowledgement Receipt	
EFS ID:	9573358
Application Number:	11387384
International Application Number:	
Confirmation Number:	7999
Title of Invention:	Systems and methods for locating cellular phones and security measures for the same
First Named Inventor/Applicant Name:	Jeffrey D. Mullen
Customer Number:	32733
Filer:	Jeffrey David Mullen
Filer Authorized By:	
Attorney Docket Number:	JDM/002 CON
Receipt Date:	02-MAR-2011
Filing Date:	22-MAR-2006
Time Stamp:	18:10:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$960
RAM confirmation Number	6599
Deposit Account	503855
Authorized User	MULLEN,JEFFREY D.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	JDM-002CON--RCE.pdf	697336 5c17363fc35d46ff5625e9515b5c6dfe4ef63366	no	3
Warnings:					
Information:					
2		JDM-002CON--Reply.pdf	36586 a34ecc28129ed03836ae111a2ed3b89906fbcf3e	yes	22

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment Submitted/Entered with Filing of CPA/RCE	1	1
Claims	2	13
Applicant Arguments/Remarks Made in an Amendment	14	22

Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	fee-info.pdf	31930 7da0a8eab647ae20b7b968144f0891169c62b2c5	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	765852		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 11/387,384	Filing Date 03/22/2006	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	03/02/2011	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 51	Minus	** 51	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 5	Minus	***5	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/STANLEY JORDAN/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

32733 7590 06/27/2011

JEFFREY D. MULLEN
731 SOUTH NEGLEY
APT. 2
PITTSBURGH, PA 15232

EXAMINER
NGUYEN, QUYNH H

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 06/27/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/387,384	03/22/2006	Jeffrey D. Mullen	JDM/002 CON	7999

TITLE OF INVENTION: SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	09/27/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

32733 7590 06/27/2011

JEFFREY D. MULLEN
731 SOUTH NEGLEY
APT. 2
PITTSBURGH, PA 15232

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/387,384	03/22/2006	Jeffrey D. Mullen	JDM/002 CON	7999

TITLE OF INVENTION: SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	09/27/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, QUYNH H	2614	455-404100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/387,384	03/22/2006	Jeffrey D. Mullen	JDM/002 CON	7999

32733 7590 06/27/2011

JEFFREY D. MULLEN
731 SOUTH NEGLEY
APT. 2
PITTSBURGH, PA 15232

EXAMINER	
NGUYEN, QUYNH H	
ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 06/27/2011

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No.	Applicant(s)	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	QUYNH NGUYEN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *RCE filed 3/2/11*.

2. ☒ The allowed claim(s) is/are *3-8,10-22,24-30,32-40,42-48, and 50-53 renumbered as claims 1-46*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *6/20/11* .
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Quynh H Nguyen/
Primary Examiner, Art Unit 2614

Interview Summary	Application No.	Applicant(s)	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	QUYNH NGUYEN	2614	

All participants (applicant, applicant's representative, PTO personnel):

(1) *QUYNH NGUYEN*. (3)_____.

(2) *JEFFREY D. MULLEN*. (4)_____.

Date of Interview: *20 June 2011*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: *original claims 1,12-13,18,35, and 44*.

Identification of prior art discussed: *n/a*.

Agreement with respect to the claims f)☒ was reached. g)☐ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Applicant's Representative authorized Examiner to amend original claims 3,8,12-13,16-18,22,30,35,40,44,48 and cancel claims 9,23,31,41,49 (see examiner's amendment)*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

———

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with Mr. Jeffrey D. Mullen on 6/20/11.

3. Claims 3, 8, 12-13, 16-18, 22, 30, 35, 40, 44, and 48 have been amended as follows:

3. (Currently Amended) A method comprising:

obtaining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing, at the direction of said first wireless telephone, a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; ~~and~~

transmitting said location from said remote server to at least one of said users of said list of users~~.~~;

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

8. (Currently Amended) The method of claim 3, further comprising determining a third ~~second~~ location associated with one of said plurality of wireless telephones.

12. (Currently Amended) A method comprising:

obtaining a location of said first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; ~~and~~

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location~~.~~;

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

13. (Currently Amended) A method comprising:

determining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; ~~and~~

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location~~.~~;

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location

16. (Currently Amended) The method of claim 3, further comprising:

determining a third ~~second~~ location of a device based on the IP address of said device; and

transmitting said location to said device.

17. (Currently Amended) The method of claim 3, further comprising:

receiving manual input for a third ~~second~~ location~~;~~

~~determining an identity of a second user for a device by way of a login~~, wherein said third ~~second~~ user is associated with said manually input third ~~second~~ location.

18. (Currently Amended) ~~The~~ A method ~~of claim 3, further~~ comprising:

obtaining a location of a first wireless telephone;

transmitting said location from said first wireless telephone to a remote server;

changing, at the direction of said first wireless telephone, a list of users on said remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; and

transmitting said location from said remote server to at least one of said users of said list of users;

receiving manual input for a second location;

determining an identity of a second user for a device by way of a login; and

transmitting said location to said device, wherein said second user is associated with said manually input second location.

22. (Currently Amended) The method of claim 12, further comprising determining a third ~~second~~ location associated with said wireless telephone associated with said user.

30. (Currently Amended) The method of claim 13, further comprising determining a third ~~second~~ location associated with said wireless telephone associated with said user.

35. (Currently Amended) A method comprising:

obtaining a location of said first wireless telephone;

changing, at the direction of said first wireless telephone, a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; ~~and~~

transmitting said location from said remote server to at least one of said users of said list of users~~.~~;

determining a second location associated with one of said plurality of wireless telephones; and

providing directional information to said one of said plurality of wireless telephones, wherein said directional information is representative of directions between said location and said second location.

40. (Currently Amended) The method of claim 35, further comprising determining a third ~~second~~ location associated with one of said plurality of wireless telephones.

44. (Currently Amended) A method comprising:

obtaining a location of said first wireless telephone;

changing a list of users on a remote server for a profile associated with said first wireless telephone that are allowed to access said location, wherein each user of said list of users is representative of one of a plurality of wireless telephones; ~~and~~

transmitting an alert message, comprising information associated with said location, from said remote server to a user of said list of users when said user is within a certain distance of said location~~.~~;

determining a second location associated with said wireless telephone associated with said one user; and

providing directional information to said wireless telephone associated with said user, wherein said directional information is representative of directions between said location and said second location.

48. (Currently Amended) The method of claim 44, further comprising determining a third ~~second~~ location associated with said wireless telephone associated with said user.

4. Claims 9, 23, 31, 41, and 49 are canceled.

/Quynh H Nguyen/
Primary Examiner, Art Unit 2614

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11387384	MULLEN, JEFFREY D.
	Examiner	**Art Unit**
	QUYNH NGUYEN	2614

ORIGINAL		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
455	404.1	H	0	4	M	11 / 04 (2006.01.01)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
455	404.2	410	456.1	456.2	456.3
455	457				

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1	12	17	28	33		49								
	2	14	18	29	34	43	50								
1	3	16	19	30	35	44	51								
2	4	17	20	31	36	45	52								
3	5	18	21	32	37	46	53								
4	6	19	22	33	38										
5	7		23	34	39										
6	8	20	24	35	40										
	9	21	25		41										
7	10	22	26	36	42										
8	11	23	27	37	43										
15	12	24	28	38	44										
13	13	25	29	39	45										
9	14	26	30	40	46										
10	15		31	41	47										
11	16	27	32	42	48										

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	46	
/QUYNH NGUYEN/ Primary Examiner.Art Unit 2614	6/23/11	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	16

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
11/387,384	MULLEN, JEFFREY D.
Examiner	**Art Unit**
QUYNH NGUYEN	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	12/18/07	9/3/08	5/12/09	1/20/10	8/30/10	6/23/11			
	1						-			
	2						-			
1	3	√	√	√	√	√	=			
2	4	√	√	√	√	√	=			
3	5	√	√	√	√	√	=			
4	6	√	√	√	√	√	=			
5	7	√	√	√	√	√	=			
6	8	√	√	√	√	√	=			
	9	√	√	√	√	√	-			
7	10	√	√	√	√	√	=			
8	11	√	√	√	√	√	=			
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37	43	√	√	√	√	√	=			
38	44	√	√	√	√	√	=			
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42	48	√	√	√	√	√	=			
	49	√	√	√	√	√	-			
43	50	√	√	√	√	√	=			

Claim		Date								
Final	Original	12/18/07	9/3/08	5/12/09	1/20/10	8/30/10	6/23/11			
44	51	√	√	√	√	√	=			
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Claim		Date								
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	11/387,384	MULLEN, JEFFREY D.	
	Examiner	Art Unit	
	QUYNH NGUYEN	2614	

SEARCHED			
Class	Subclass	Date	Examiner
455	404.1 404.2 410 456.1- 456.3 457	12/12/07	QN
above	updated	9/3/2008	QN
above	updated	5/8/2009	QN
above	updated	1/20/2010	QN
abovve	updated	8/27/2010	QN
above	updated	6/23/11QN	

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner
455	**404.1** 404.2 410 456.1 456.2 456.3 457	**6/23/11**	**QN**
Interference search history printout		6/23/11	QN

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Searched: East, USPGPub, USPAT, EPO, JPO	12/12/07	QN
Inventor searched in PALM	12/12/07	QN

EAST Search History

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	9	(transmit$4 with ((wireless cell cellular mobile) near2 location) with (remote near server)).clm.	US-PGPUB	OR	ON	2011/06/23 19:01
L4	5069	455/404.1,404.2,410,456.1-456.2,457.ccls.	US-PGPUB	OR	ON	2011/06/23 19:02
L5	5	4 and 2	US-PGPUB	OR	ON	2011/06/23 19:02
L6	0	((alert$3 near3 messag$3) and (privacy adj profile)).clm.	US-PGPUB	OR	ON	2011/06/23 19:03
L7	0	((transmit$4 send$3) with messag$3 with (authori$6 adj2 (user subscriber)) with distance).clm.	US-PGPUB	OR	ON	2011/06/23 19:03
L8	8	((receiv$3 adj3 (location position) adj3 request$3) and (display$3 adj3 map with (wireless device cell cellular))).clm.	US-PGPUB	OR	ON	2011/06/23 19:04
L9	102	((chang$3 add$3) with user with profile with (cell mobile cellular wireless)).clm.	US-PGPUB	OR	ON	2011/06/23 19:05
L10	176	((transmit$4 send$3) with location with (remote near2 server)).clm.	US-PGPUB	OR	ON	2011/06/23 19:07
L11	0	9 and 10	US-PGPUB	OR	ON	2011/06/23 19:07

6/23/11 7:08:34 PM
C:\Documents and Settings\qnguyen\My Documents\EAST\Workspaces\11387384.wsp

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/387,384	03/22/2006	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	06/27/2011	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 46	Minus	** 51	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 5	Minus	***5	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/JOY J. DOBBS/

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Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (10-08)
Approved for use through 11/30/2008. OMB 0651-0031
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	11387384	Filing Date	2006-03-22	Docket Number (if applicable)	JDM/002 CON	Art Unit	2614
First Named Inventor	Jeffrey D. Mullen			Examiner Name	Quynh H. Nguyen		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☐ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 503855

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☐ Patent Practitioner Signature

☒ Applicant Signature

PTO/SB/30EFS (10-08)
Approved for use through 11/30/2008. OMB 0651-0031
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Applicant Signature			
Applicant 1		Remove	
Signature	/Jeffrey D. Mullen/	Date (YYYY-MM-DD)	2011-09-27
Name	Jeffrey D. Mullen		
Click ADD for additional Applicant Signature		Add	

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Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (use as many sheets as necessary)				***Complete if known***	
				Application Number	11/387,384
				Filing Date	March 22, 2006
				First Named Inventor	Jeffrey D. Mullen
				Art Unit	2614
				Examiner Name	Quynh H. Nguyen
Sheet	1	of	8	**Attorney Docket Number**	JDM/002 CON

U.S. PATENT DOCUMENTS					
Examiner initials*	Cite No.[1]	Document Number Number – Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		4,654,879	03/31/1987	Goldman et al.	
		5,043,736	08/27/1991	Darnell et. al	
		5,086,390	02/04/1992	Matthews	
		5,097,416	03/17/1992	Matthews	
		5,197,092	03/23/1993	Bamburak	
		5,305,201	04/19/1994	Matthews	
		5,327,144	07/05/1994	Stilp et al.	
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		5,479,482	12/26/1995	Grimes	
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		5,778,315	07/07/1998	Proietti	
		5,796,634	08/18/1998	Craport et al.	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
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				Application Number	11/387,384
				Filing Date	March 22, 2006
				First Named Inventor	Jeffrey D. Mullen
				Art Unit	2614
				Examiner Name	Quynh H. Nguyen
Sheet	2	of	8	**Attorney Docket Number**	JDM/002 CON

		5,805,999	09/08/1998	Inoue	
		5,815,538	09/29/1998	Grell et al.	
		5,832,381	11/03/1998	Kauppi	
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		6,173,182	01/09/2001	Cha	

Examiner Signature		Date Considered	

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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (use as many sheets as necessary)				***Complete if known***	
				Application Number	11/387,384
				Filing Date	March 22, 2006
				First Named Inventor	Jeffrey D. Mullen
				Art Unit	2614
				Examiner Name	Quynh H. Nguyen
Sheet	3	of	8	**Attorney Docket Number**	JDM/002 CON

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Examiner Signature		Date Considered	

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				Application Number	11/387,384
				Filing Date	March 22, 2006
				First Named Inventor	Jeffrey D. Mullen
				Art Unit	2614
				Examiner Name	Quynh H. Nguyen
Sheet	4	of	8	**Attorney Docket Number**	JDM/002 CON

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Examiner Signature		Date Considered	

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				Filing Date	March 22, 2006
				First Named Inventor	Jeffrey D. Mullen
				Art Unit	2614
				Examiner Name	Quynh H. Nguyen
Sheet	5	of	8	**Attorney Docket Number**	JDM/002 CON

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		6,798,358	09/28/2004	Joyce et al.	102(e) 07/03/2001
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		7,203,674	04/2007	Cohen	
		7,177,651	02/2007	Almassy	
		7,215,965	05/2007	Fournier et al.	

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/387,384
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				First Named Inventor	Jeffrey D. Mullen
				Art Unit	2614
(use as many sheets as necessary)				**Examiner Name**	Quynh H. Nguyen
Sheet	6	of	8	**Attorney Docket Number**	JDM/002 CON

		7,269,426	09/2007	Kokkonen et al.	
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		D464,033	10/08/2002	Piano Poirier	102(e) 01/23/2002

FOREIGN PATENT DOCUMENTS						
Examiner	Cite	Foreign Patent Document	Publication Date	Name of Patentee or	Pages, Columns,	T[6]

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.
This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Substitute for form 1449A/PTO				***Complete if known***	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application Number**	11/387,384
				Filing Date	March 22, 2006
				First Named Inventor	Jeffrey D. Mullen
				Art Unit	2614
(use as many sheets as necessary)				**Examiner Name**	Quynh H. Nguyen
Sheet	7	of	8	**Attorney Docket Number**	JDM/002 CON

initials*	No.[1]	Country Code[3] - Number[4] - Kind Code[5] *(if known)*	MM-DD-YYYY	Applicant of Cited Documents	Lines, Where Relevant Passages or Relevant Figures Appear	
		WO 99/000717	02-11-1999	Nokia Telecommunications		
		WO 99/009775	02-25-1999	Nokia Telecommunications		
		WO 99/051051	03-31-1999	Nokia Telecommunications		
		WO 00/028760	05-18-2000	Nokia Networks		
		WO 00/035228	06-15-2000	Nokia Networks		
		WO 00/038350	06-29-2000	Nokia Networks		
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		WO 00/076194	12-14-2000	Nokia Networks		
		WO 00/076243	12-14-2000	Nokia Networks		
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		WO 01/003454	01-11-2001	Nokia Networks		
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		WO 01/039525	05-31-2001	Nokia Networks		
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		WO 01/050544	07-12-2001	Nokia Networks		
		WO 01/086880	11-15-2001	Nokia Networks		
		WO 01/089251	11-22-2001	Nokia Networks		

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.
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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (use as many sheets as necessary)				***Complete if known***	
				Application Number	11/387,384
				Filing Date	March 22, 2006
				First Named Inventor	Jeffrey D. Mullen
				Art Unit	2614
				Examiner Name	Quynh H. Nguyen
Sheet	8	of	8	**Attorney Docket Number**	JDM/002 CON

FOREIGN PATENT DOCUMENTS						
Examiner initials*	Cite No.[1]	Foreign Patent Document Country Code[3] - Number[4] - Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		WO 02/003718	01-10-2002	Nokia Networks		

NON PATENT LITERATURE DOCUMENTS			
Examiner initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T[2]
		ETSI TS 101 513. "Digital Cellular Telecommunications System (Phase 2): Location Services (LCS)," GSM 12.71, version 8.0.1. 1999.	
		ETSI TS 101 527 "Digital Cellular Telecommunications System (Phase 2+): Location Services (LCS): Mobile Station (MS): Serving Mobile Location Centre (SMLC)," Radio Resource LCS Protocol (RRLP), GSM 04.31, version 8.1.0. 1999.	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.
This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

JDM/002 CON

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jeffrey D. Mullen
Application No.	:	11/387,384
Confirmation No.	:	7999
Filed	:	March 22, 2006
For	:	SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME
Group Art Unit	:	2614
Examiner	:	Quynh H. Nguyen

Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Pittsburgh, PA 15237
September 27, 2011

INFORMATION DISCLOSURE STATEMENT

Sir:

An Request for Continued Examination is applicable hereto and being submitted herewith. In accordance with 37 C.F.R. §§ 1.56 and 1.97, applicant wishes to call the attention of the Examiner to the following documents:

Patent Documents

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WO 01/041468	06-07-2001	Nokia Networks
WO 01/050544	07-12-2001	Nokia Networks
WO 01/086880	11-15-2001	Nokia Networks
WO 01/089251	11-22-2001	Nokia Networks
WO 02/003718	01-10-2002	Nokia Networks

Non Patent Literature Documents

ETSI TS 101 513. "Digital Cellular Telecommunications System (Phase 2): Location Services (LCS)," GSM 12.71, version 8.0.1. 1999.

ETSI TS 101 527 "Digital Cellular Telecommunications System (Phase 2+): Location Services (LCS): Mobile Station (MS): Serving Mobile Location Centre (SMLC)," Radio Resource LCS Protocol (RRLP), GSM 04.31, version 8.1.0. 1999.

Copies of the non U.S. patent documents are enclosed. It is respectfully requested that these documents be (1) fully considered by the Patent and Trademark Office during examination of this application; and (2) printed on any patent which may issue on this application. Applicant requests that a copy of Form PTO/SB/08A, as considered and initialed by the Examiner, be returned with the next communication.

The documents above marked with a (1) were cited in Application No. 10/400,296. Applicant respectfully requests the Examiner review the prosecution history of this application including all communications from the United States Patent and Trademark Office contained therein (e.g., the Office Actions contained therein).

The documents above marked with a (3) were cited in Application No. 11/462,201. Applicant respectfully requests the Examiner review the prosecution history of this application including all communications from the United States Patent and Trademark Office contained therein (e.g., the Office Actions contained therein).

The documents above marked with a (4) were cited in Application No. 11/462,201. Applicant respectfully requests the Examiner review the prosecution history of this

application including all communications from the United States Patent and Trademark Office contained therein (e.g., the Office Actions contained therein).

The documents above marked with a (5) were cited in Application No. 11/834,674. Applicant respectfully requests the Examiner review the prosecution history of this application including all communications from the United States Patent and Trademark Office contained therein (e.g., the Office Actions contained therein).

The documents above marked with a (6) were cited in Application No. 11/841,734. Applicant respectfully requests the Examiner review the prosecution history of this application including all communications from the United States Patent and Trademark Office contained therein (e.g., the Office Actions contained therein).

The documents above marked with a (7) were cited in Application No. 11/841,750. Applicant respectfully requests the Examiner review the prosecution history of this application including all communications from the United States Patent and Trademark Office contained therein (e.g., the Office Actions contained therein).

The documents above marked with a (8) were cited in Application No. 11/841,765. Applicant respectfully requests

the Examiner review the prosecution history of this application including all communications from the United States Patent and Trademark Office contained therein (e.g., the Office Actions contained therein).

Applicant hereby submits that not all of the patent documents and non-patent literature submitted herein may be, in fact, prior art to the present application. Applicant reserves the right to dispute whether references, or subject matter within references, are prior art to the present application (e.g., continuation-in-part subject matter filed after the filing date of the present application).

This Statement is being submitted after a first Office Action on the merits. Accordingly, pursuant to 37 CFR 1.97(c), the fee set forth in Section 1.17(p) is provided herewith.

Applicant respectfully submits that this application, including the pending claims, is in condition for allowance. A favorable action is respectfully requested.

The Director is hereby authorized to charge any fees associated with this filing, or credit any overpayment of the same, to Deposit Account No. 50-3855.

Respectfully Submitted,

/Jeffrey D. Mullen/
Jeffrey D. Mullen
Applicant (Reg. No. 52,056)
Customer No. 32733
731 South Negley, Apt. 2
Pittsburgh, PA 15232
Tel.: (914) 837-7741

JDM/002 CON

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Jeffrey D. Mullen
Application No.	:	11/387,384
Confirmation No.	:	7999
Filed	:	March 22, 2006
For	:	SYSTEMS AND METHODS FOR LOCATING CELLULAR PHONES AND SECURITY MEASURES FOR THE SAME
Group Art Unit	:	2614
Examiner	:	Quynh H. Nguyen

Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Pittsburgh, PA 15237
September 27, 2011

Examiner Interview Summary

Sir:

On or about June 2011, applicant held a phone interview with the Examiner, in which the merits of the case were discussed. Applicant approved a claim amendment without prejudice solely in order to expedite prosecution.

Applicant reserves the right to claim any subject matter lost by any claim amendment or cancellation, or any subject matter included in the present application, in one or more continuation or divisional applications.

Applicant respectfully submits that this application, including the pending claims, is in condition for allowance. A favorable action is respectfully requested.

The Director is hereby authorized to charge any fees associated with this filing, or credit any overpayment of the same, to Deposit Account No. 50-3855.

Respectfully Submitted,

/Jeffrey D. Mullen/
Jeffrey D. Mullen
Applicant (Reg. No. 52,056)
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PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : H04Q 7/38 — A2

(11) International Publication Number: **WO 00/28760**

(43) International Publication Date: 18 May 2000 (18.05.00)

(21) International Application Number: PCT/FI99/00925

(22) International Filing Date: 5 November 1999 (05.11.99)

(30) Priority Data:
982417 6 November 1998 (06.11.98) FI

(71) Applicant *(for all designated States except US)*: NOKIA NETWORKS OY [FI/FI]; P.O. Box 300, FIN-00045 Nokia Group (FI).

(72) Inventors; and

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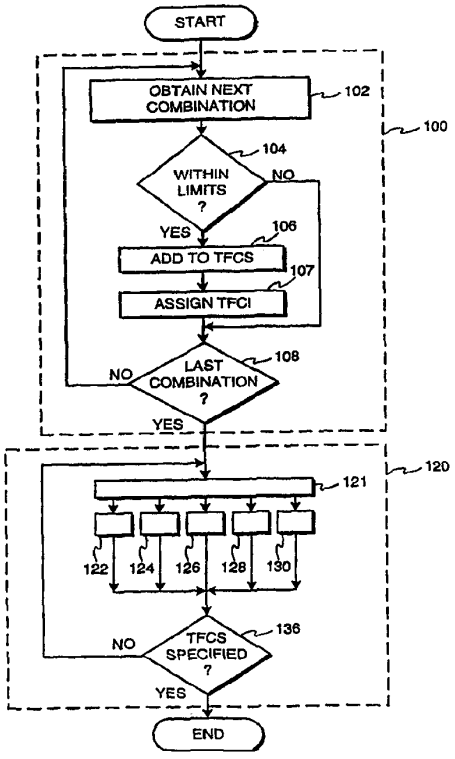
(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
Without international search report and to be republished upon receipt of that report.

(54) Title: METHOD FOR CONTROLLING BEARER PROPERTIES

(57) Abstract

The invention concerns the control of connections in cellular telecommunication systems. According to the invention, the available radio resources are controlled by allowing only certain conbinations of transport formats to be used by a single user. The inventive method restricts the combinations of bearer bit rates which can be used, without strictly limiting some bearers from using highest bit rates. This inventive approach allows flexible overall control of radio resources, while retaining the possibility of bearers to select between different bit rates.



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Method for controlling bearer properties

TECHNICAL FIELD OF THE INVENTION

The invention concerns the control of connections in cellular telecommunication systems.

BACKGROUND OF THE INVENTION

In cellular telecommunication systems a single speech connection or data connection through the cellular telecommunication network is called a bearer. Generally, a bearer is associated with a set of parameters pertaining to data communication between a certain terminal equipment and a network element, such as a base station or an interworking unit (IWU) connecting the cellular network to another telecommunications network. The set of parameters associated with a bearer comprises typically for example data transmission speed, allowed delays, allowed bit error rate (BER), and the minimum and maximum values for these parameters. A bearer may further be a packet transmission bearer or a circuit switched bearer and support for example transparent or non-transparent connections. A bearer can be thought of as a data transmission path having the specified parameters connecting a certain mobile terminal and a certain network element for transmission of payload information. One bearer always connects only one mobile terminal to one network element. However, a bearer can pass through a number of network elements. One mobile communication means (ME, Mobile Equipment) may in some cellular telecommunication systems support one bearer only, in some other systems also more than one simultaneous bearers.

In the new cellular telecommunication systems such as the UMTS system (Universal Mobile Telecommunication System) under development, variable bit rate bearers will be in much more widespread use than in the present systems. Multiple simultaneous bearers with multiple bit rate options will result in high amount of combinations to be supported. It is desirable that also the air interface part of the communications system supports this kind of bearer combinations efficiently, i.e. without excessive use of radio resources. Since the bit rates of bearers may change from frame to frame, the bit rates need to be indicated in the frames. Assuming that all possible combinations of instantaneous bit rates of different bearers shall be supported, the amount of bits required for identification of the transmission rate of a

radio frame may become excessive. On the other hand, fixed allocation of radio resources according to the maximum possible total bit rate is not feasible. Maximum bit rates of the bearers may be rarely used and if the resources allocated for a user are dimensioned based on the worst case combination i.e. all bearers using the highest possible bit rate, scarce radio resources will be wasted.

SUMMARY OF THE INVENTION

An object of the invention is to realize a method for controlling the bearers, which allows the control of maximum total bit rate of all bearers of a user, while aiming to avoid as much as possible restrictions of use of the highest data rates by a bearer. A further object of the invention is to realize a method, which reduces the amount of data transmission needed for communicating the bit rates of bearers from a transmitting entity to a receiving entity.

The objects are reached by restricting the allowed bit rate combinations, associating an identifier with each allowed combination, and identifying the instantaneous transmission rate using the identifier associated with the particular combination.

The method according to the invention is characterized by that, which is specified in the characterizing part of the independent method claim. The system for controlling bearers in a cellular telecommunication system according to the invention is characterized by that, which is specified in the characterizing part of the independent claim directed to a system for controlling bearers in a cellular telecommunication system. The dependent claims describe further advantageous embodiments of the invention.

According to the invention, the available radio resources are controlled by allowing only certain combinations of transport formats to be used by a single user. The inventive method restricts the combinations of bearer bit rates which can be used, without strictly limiting some bearers from using highest bit rates. Consequently, depending on the available resources, one bearer may well use its highest data rate, possibly even more bearers than one, although the total resource usage of all bearers of the user may be restricted. This inventive approach allows flexible overall control of radio resources, while retaining the possibility for bearers to select between different bit rates.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is described in more detail in the following with reference to the accompanying drawings, of which

Figure 1 illustrates a method according to an advantageous embodiment of the invention,

Figure 2 illustrates another method according to an advantageous embodiment of the invention,

Figure 3 illustrates a system according to an advantageous embodiment of the invention, and

Figure 4 illustrates a further method according to an advantageous embodiment of the invention.

Same reference numerals are used for similar entities in the figures.

DETAILED DESCRIPTION

In the following discussion, the term bit rate refers to the bit rate after channel coding, i.e. the bit rate actually transmitted over the air interface, and not the payload data bit rate unless otherwise specified.

According to the present invention, transmission of a single mobile communication means is controlled by controlling the allowed bit rate combinations of the bearers of the mobile communication means. The allowed combinations of bearer bit rates are restricted in such a way, which does not refuse the possibility of using the highest bit rates for some bearers.

To aid in the description of the invention, certain terms are defined in the following.

A transport format (TF) is a set of parameters, which correspond to a single way of preparing a payload data stream for transmission over the air interface. The set of parameters indicate for example payload data rate, the error control coding method used, interleaving method used, and other processing methods used in the particular cellular telecommunications network, i.e. describe the physical layer processing

applied to the data to be transmitted. Consequently, each TF corresponds to a specific instantaneous bearer bit rate. Further, each bearer has at least one transport format. In the case of a bearer supporting for example multiple bit rates, a bearer can have more than one corresponding TF.

Each transport format has a corresponding transport format identifier (TFID). The TFIDs can be assigned to TFs in many ways, for example in ascending order starting from the lowest bit rate, or according to some other predefined rule.

The combination of transport formats of the active bearers is a Transport Format Combination (TFC). The set of all possible transport format combinations form a Transport Format Combination Set (TFCS). Each TFC has a corresponding transport format combination identifier (TFCI), i.e. each TFCI corresponds to a definite group of transport formats. The TFCI is used to inform the current combination of transport formats to the receiver. The TFCI:s are preferably integer numbers.

A. Determination of allowed combinations

The determination about which combinations can be used and which cannot can be made on the basis of many different requirements according to the needs of the particular embodiment of the invention. Some examples of such requirements are given in the following.

A.1. An example of a limit: size of TFCI word

In order to further reduce the amount of data transmission needed for transmission of transport format information over the air interface to the receiver, the size of the TFCI word can be changed. If the TFCI word has m bits, the maximum number N of combinations that can be represented is $N = 2^m$. Consequently, the length of the TFCI word simply limits the number of allowed combinations. The length of the TFCI word can be adjusted to give a suitable compromise between use of transmission resources for transmitting the TFCI word and the variety of transport format combinations available. In an advantageous embodiment of the invention, the length of the TFCI word can be changed during a connection.

A.2. An example of a limit: maximum bit rate for the user

In a further advantageous embodiment of the invention, maximum allowed bit rate of a user is used in the determination of allowed transport format combinations. In such an embodiment, the allowed combinations include all transport combinations, whose total bit rate is less than or equal to the maximum bit rate for a user.

In various embodiments of the invention, the maximum bit rate may be user-dependent, some users having a different maximum limit from that of others. This provides one way of priorization of users, for example to provide high-paying users and otherwise prioritized users such as rescue workers a better service than to the rest of users.

A.3. Other grounds for combination decisions

In addition to the previously mentioned limits, other information can be used in making decisions about allowed transport format combinations. This kind of information may for example comprise priorities of the bearers, measured throughputs for each bearer as well as the aggregate throughput for the user in question, current load in the cell and interference levels.

B. Construction of TFCS

The construction of the transport format combination set and the assigning of transport format combination identifiers to the various combinations can be performed in many different ways. Some examples of these ways are presented in the following.

B.1 A first example

Preferably, a table of the allowed transport format combinations is constructed, whereby the table index can be used as the TFCI. Thereafter, only the table index i.e. the TFCI needs to be communicated between the transmitter and the receiver. However, the invention is not limited to using tables, since other means such as linked lists or other data structures can be used for associating a transport format combination and a TFCI.

B.2 A second example

Further, a predefined algorithm or rule can be used to generate the TFCI corresponding to a TFC, whereafter the TFCI found in this way can be used as the index to a table for storing the different allowed combinations. The TFCI of a TFC can be determined for example according to the following algorithm:

1. *factor = L(K)*
2. *TFCI = TFID(K)*
3. step through all values of *j* from *K*-1 to 1, repeating 3a and 3b:
   - 3a. *TFCI = TFCI + TFID(j) * factor*
   - 3b. *factor = factor * L(j)*

where

factor	is a temporary variable used in the algorithm,
L(j)	is number of TF:s for bearer *j*,
TFID(j)	is TFID of the TF of bearer *j*, and
K	is the number of active bearers.

This algorithm assumes that TFIDs are assigned to TFs in ascending order starting from the lowest bit rate, the first TFID being zero.

B.3 A third example

In a further advantageous embodiment of the invention, the TFCI values are assigned simply by iterating through all combinations of all transport formats of the bearers, checking for each combination whether the combination is allowed or not. If the combination is allowed, the next free TFCI value is assigned to the combination. For example, the allowed combination can be entered into the next free position in a table containing the TFCS, the index of the position then being the assigned TFCI.

B.4 A fourth example

In a still further advantageous embodiment of the invention, TFCI values are classified into two categories: active and inactive values. Active values are those values which are in use, and inactive values those that are not in use. In such an embodiment, new services can be taken into use by specifying the corresponding TFCI values to be active. If some transport format combinations are removed from use, the corresponding TFCI values are simply specified to be inactive. Such an embodiment has the advantage, that the timing of the changes in the TFCS and TFCI values is not very critical, since other active TFCI values remain unchanged. It is enough from the viewpoint of timing, that any new TFCI values are not used before the receiver has had enough time to receive the message specifying the new values and to change the TFCS and TFCI configuration. In such an embodiment, the message specifying that a TFCI value is now active may for example comprise also the specification of the TFC corresponding to the TFCI. In further embodiments of the invention, the TFC corresponding to a TFCI specified to be active may be previously known by the receiver, or may be deduced from the TFCI by the receiver according to a predefined rule. For example, all possible combinations of transport formats of the bearers can be stored in a table whose index values correspond to the TFCI values, and only those TFCI values are used, which are specified to be active.

B.5 A fifth example

In a further advantageous embodiment, the transport format combinations and the corresponding TFCI values are ordered according to the total bit rate of the TFC or some other desired criteria. In such an embodiment, the allowed transport format combinations are indicated simply by indicating the highest allowed TFCI. In such an embodiment, when a new TFC is allowed, the new TFC is inserted in the corresponding location in the ordered sequence of transport format combinations and given the TFCI value corresponding to that position in the sequence. The TFCI values are updated accordingly, i.e. the higher TFCI values are incremented by one. In a similar way, when a TFC is removed from use, it is removed from the ordered sequence, and the TFCI values are updated accordingly.

Preferably, the TFCI of the TFC with lowest bit rate is 0, the TFCI of the TFC with the next lowest bit rate is 1, and so on. However, this numbering scheme is not the only possible method that can be used in various embodiments according to the

section B.5 of this specification. Preferably, the TFCI values form a sequence of consecutive integer numbers.

The ordering of transport format combinations and the corresponding TFCI values may take into account also other parameters than the total bit rate of a TFC. For example, if more than one transport format combination has the same total bit rate, these combinations can be ordered according to their relative priority.

In this embodiment, a mobile station can request more resources simply by indicating a new desired highest allowed TFCI in the resource request, to which the network can reply by allocating more resources if possible, and returning a possibly new highest allowed TFCI limit.

C. Changing of the set of allowed transport formats

The transport format combination set (TFCS) needs to be known both to transmitter and receiver. Each time new variable rate bearer requires establishment of a connection or an old connection is released the TFCS is changed. Further, it may be desirable to restrict the use of certain combinations for some other reasons. To ensure that the transport format combination sets in the transmitter and in the receiver correspond to each other, the set or any changes to the set may need to be signalled from the transmitter to the receiver. Some ways to signal the TFCS according to various advantageous embodiments of the invention are described in the following.

C.1 Signalling of TFCS by explicit recitation

In an advantageous embodiment of the invention, the TFCS is signalled from a first end of a connection to a second end of the connection by explicitly reciting all allowed combinations. This embodiment is advantageous, if the number of allowed combinations is relatively small compared to the total number of combinations. In this embodiment, the first end sends one or more messages to the second end, which messages specify at least all allowed combinations, and for each combination specify one TFID at least for each bearer having more than one transport format.

In a further advantageous embodiment of the invention, the TFCS is signalled from a first end of a connection to a second end of the connection by explicitly reciting all those combinations, which are not allowed. This embodiment is advantageous, if

the number of non-allowed combinations is smaller than the number of allowed combinations. In this embodiment, the first end sends one or more messages to the second end, which messages specify at least all non-allowed combinations, and for each combination specify one TFID at least for each bearer having more than one transport format.

In a further advantageous embodiment of the invention, the message or messages specifying the allowed or non-allowed combinations, also specify whether the recited combinations are allowed or not. This allows the use of the same message type for specifying allowed and non-allowed combinations.

C.2 Signalling of the TFCS by indicating construction limits

In another advantageous embodiment of the invention, the end of the connection deciding about the allowed combinations informs the other end of the connection only about which limits and other information are to be used in construction of the TFCS. Such a limit may be for example the maximum total bit rate of a single user, and such other information may be for example the priorities of the bearers. Thereafter, the other end constructs the TFCS independently following the specified limits. Since the same limits are used at both ends, the resulting TFCS will be the same. The construction of the TFCS may proceed for example by going through all possible transport format combinations, and checking for each one whether the combination is allowed or not.

C.3 Signalling of the TFCS by indicating specific transport formats

If the restriction of the combinations is to be done in such a way that some transport formats of some bearers are not used in any of the allowed combinations, the TFCS can be specified with bearer specific messages restricting the use of one or more transport formats of a specific bearer.

In a further advantageous embodiment of the invention, the TFCS is specified with bearer specific messages indicating, which transport formats can be used.

C.4 Further methods

The previous methods have given examples of methods, in which the TFCS is constructed from scratch by indicating allowed or non-allowed transport formats or

combinations of transport formats. However, a new TFCS may also be defined by specifying the changes in the allowed transport format combinations and transport formats relative to the previous TFCS. The messages may specify whether the item being specified is to be allowed or restricted. The item being specified in a message may be for example a TFC, a bearer, or a single transport format of a bearer. For example, the new TFCS may be specified by a message, which restricts the use of one or more transport formats of a specific bearer.

After specifying the changes in the allowed combinations, transport formats and/or bearers, the TFCS is preferably reconstructed so that the TFCS contains only allowed combinations, and the TFCI values updated to correspond to the new TFCS.

The previously described ways of specifying the TFCS to a receiver are examples only and do not limit the invention in any way. Many other ways of specifying a set of combinations or for example different combinations of the previously described ways can as well be used in various embodiments of the invention.

D. Time of validity

In the previous examples of specifying the TFCS, the message or messages carrying the specifying information of TFCS may also comprise an indication of the starting time, after which the new TFCS is valid. However, the starting time of validity may also be defined implicitly, e.g. the new TFCS may be valid from the time the specifying message arrives or in the case of more than one message being used to specify the TFCS, from the receiving time of the last of these messages.

E. Examples of admission control methods according to the invention

The cellular telecommunications network can use for example the previously described TFCS construction limits at least partly as the admission condition in an admission control method. For example, the system can determine how many TFCI bits would be required to represent all combinations in the TFCS based on the size of the TFCS and the transport formats of all the bearers. If the amount of TFCI bits is less than equal to a maximum TFCI word length, the network can then refuse the bearer request, or for example in the case of a high priority request, refuse the service from other already established bearers. As another example, the maximum

bit rate limit may be considered. In such an example, the bearer is advantageously admitted, if at least some of its transport formats result in an allowed combination. Consequently, a multi-bit-rate bearer may be only partially admitted, i.e. admitted with a restricted selection of bit rates.

If the requested bearer has higher priority than some other bearers, the cellular network preferably allocates resources for the higher priority bearer first and restricts the bit rates of the other bearers to such values, that the resulting TF combination is an allowed combination. This may result in the adjustment of transport format for a bearer having a lower priority, or even refusing the service for a bearer having a lower priority.

Each bearer requiring establishment of a connection preferably indicates the variability of the user bit rate in a predefined way, e.g. using a predefined signalling procedure. The network then determines transport formats for the requested bearer and updates the TFCS accordingly, if the network can provide service for the bearer or for at least some of its transport formats.

Figure 1 shows the flow diagram of an advantageous embodiment of the invention. Figure 1 illustrates one example of the use of the inventive method in admission control. In step 135, a bearer request is received. As a response to the request, a TFCS is constructed in step 100. The step 100 of construction of a TFCS may also take into account the priority of the requested bearer as described previously. After the TFCS is constructed, it is checked in the following step 140 if the bearer belongs to any allowed combination. If the bearer is not a part of any allowed combination, the bearer is refused at step 150, after which the method is ended without taking the newly constructed TFCS into use. If the bearer is found to be a part of at least one TFC, the bearer is admitted in step 145. At the next step 120, the new TFCS is communicated to the receiver, after which the communicated TFCS is taken into use at step 155, after which the method is ended.

In further advantageous embodiments of the invention, the admission requirement may be different from the example of step 140 of Figure 1. For example, the bearer may be allowed only, if at least one transport format of the bearer is allowed in all combinations. Further, the bearer may also be allowed, if at least one transport format of the bearer is allowed in at least a predefined part of all combinations. In a further advantageous embodiment of the invention, a real time bearer is allowed only, if the highest transport format of the bearer is allowed in at least one TFC.

F. An example of a method

In the following, an example of a method according to an advantageous embodiment of the invention is presented. The method is described with reference to Figure 2, which illustrates as a flow diagram the construction 100 of a transport format combination set and the communication 120 of information to the receiver for construction of the same set at the receiver.

In this example, the step of construction 100 of a TFCS comprises the following steps 102, 104, 106, 107, and 108. All combinations are examined one by one, starting with step 102, in which the next, or at the first time after start of the method, the first combination is taken into consideration. In step 104 it is checked, whether the combination is within the predefined limits, such as within a predefined maximum total bit rate limit. If the combination is within the limits, the combination is added to the TFCS at step 106, and a TFCI is assigned to the combination in step 107. If the combination is not within the limits, the method is continued directly at step 108. In either case, in step 108 it is checked if the combination is the last one to be considered. If the combination is not the last one, it is returned back to step 102. If the combination is the last one, the method is continued at step 120.

In this example, the step of communication 120 of information to the receiver for construction of the set at the receiver comprises the following steps 121, 122, 124, 126, 128, 130, and 136. At step 121, the way of communicating the TFCS to the receiver is chosen. In this example, the steps 122, 124, 126, 128, 130, and 136 represent different ways of communicating the TFCS. At step 122, each allowed transport format combination is communicated to the receiver. At step 124, each non-allowed transport format combination is communicated to the receiver. At step 126, predefined limits for construction of the TFCS are communicated to the receiver. At step 128, information specifying at least one transport format of at least one bearer, which at least one transport format of at least one bearer is not a part of any allowed transport format combination is communicated to the receiver. At step 130, differences between the TFCS being communicated and a previous TFCS are communicated to the receiver.

The steps 122, 124, 126, 128, and 130 may comprise communication of all necessary information at one method step, or communication of only part of all necessary information. Therefore, at step 136 it is checked if the whole TFCS has been specified. If the whole TFCS has not been specified, it is returned back to step

121 for continuing the communication of the TFCS to the receiver. If the whole TFCS has been specified, the method is ended.

In the step 107 of assigning a TFCI to a combination, the assignment may be performed simply by assigning the next free TFCI value for the combination. Any other method or predefined rule of assigning TFCI values can be used, for example any of those described in the previous section B in this specification.

G. An example of a system

Figure 3 illustrates an example of a system according to an advantageous embodiment of the invention. Figure 3 shows mobile communication means 505, base stations 510, a network element 520 and the rest of a cellular telecommunications network 550. The network element 520 may be for example a radio network controller (RNC) of the UMTS cellular telecommunications network. The network element further comprises a processing unit 521 such as a microprocessor and a memory element 522 for storing programs for the processing unit and one or more transport format combination sets.

Further, according to this example the system comprises means 521 for construction of a set of allowed transport format combinations in a network element of the cellular telecommunication system, and means 521, 510 for communication of a constructed set of allowed transport format combinations to a mobile communication means 505.

During construction of a TFCS, the processor unit 521 performs the previously described checking whether a single transport format combination is within the predetermined limits. The processor unit 521 can perform this task by executing a program 523 stored in the memory means 522, which program directs the processor unit to perform the task. If a transport format combination is found to be within the limits, the processor unit 521 adds the combination to the set of allowed transport format combinations 529 stored in the memory means 522. Preferably, the processor unit also assigns a transport format combination identifier (TFCI) to each transport format combination. The transport format combination identifiers can also be stored in the memory means 522.

The processor unit 521 can also take care of the communication of the constructed TFCS to the receiver, in this case the mobile communication means 505 with the

help of other components of the cellular telecommunications network such as base stations 510. The previously described method steps, such as for example determining non-allowed transport format combinations or searching the differences between a transport format combination set and said previously stored second set of allowed transport format combinations can be realized using a program 524 stored in the memory means 522, which program directs the processing unit 521 to perform the method step. Further, the system may store more than one TFCS in the memory means, such as a previously constructed TFCS 529b, which can be used for example in determining the differences between a newly created TFCS and a previously created and communicated TFCS, after which a new TFCS can be communicated to the receiver simply by communicating the differences between the old and new TFCS. The receivers 505 store the communicated TFCS 506 in a memory means in the receiver, whereafter they are able to determine the current transport format combination on the basis of a received TFCI.

Preferably, the system also comprises means for assigning a transport format combination identifier to each transport format combination stored in said memory element. These means may comprise for example the processing unit 521, which can assign TFCI values to transport format combinations for example according to any of the embodiments of the invention described previously.

Preferably, the system also comprises means for sending a transport format combination identifier for identifying the transport formats used in a transmission. These means may comprise for example the processing unit 521, which can add the TFCI of the currently used TFC into the data transmitted to a receiver.

In an advantageous embodiment of the invnetion, also a mobile communication means 505 can comprise the means 521, 522, 523, 524, 525, 529, and 529b, or other means providing similar functionality. Although conventionally it is the network which decides about radio resource usage, the mobile communication means preferably has the capability and functionality needed for construction of a TFCS for example, according to the embodiments of the invention described in section C.2 in this specification, or according to other rules and limits set by the network.

H. A further example of a method

The TFCI values can be used to indicate, which transport formats are used in a transmission. For example, a TFCI value can be transmitted in each transmission

frame to describe the transmission format or transmission formats used in the frame. In another exemplary embodiment, a TFCI value can be transmitted each time, when the transport format combination is changed. Figure 4 illustrates one example of signalling according to an advantageous embodiment of the invention. Figure 4 illustrates events during communication between a transmitting party and a receiving party, such as, respectively, a mobile communication means and a base station of a cellular telecommunications network. First, a TFCI is sent from the transmitter to the receiver in step 610 for indicating, which transport formats are used in the next unit of transmission. In the next step 615, data is transmitted from the transmitter to the receiver, using the transport formats specified by the TFCI value transmitted in the previous step. In various embodiments of the invention, the order of sending of the TFCI value and the data which the TFCI value refers to, does not necessarily need to be that shown in figure 4. For example, in such systems in which data is transmitted in frames, such as in the GSM system, the TFCI value can be sent in the same transmission frame as the data which the TFCI value refers to, in which case the exact order of the data and the TFCI value is not important and can be set according to the requirements of the particular application.

I. Further considerations

In some advantageous embodiments of the invention, the TFCS used for transmission by a party and the TFCS used for reception by the same party do not need to be the same. This is advantageous for example when the amount of radio resources reserved for uplink communication is different from the amount of radio resources reserved for downlink communication. Such a situation is possible for example in the HSCSD (High Speed Circuit Switched Data) mode in GSM networks. Such an arrangement is advantageous for example in data terminal use when browsing information databases or the Internet, where only short requests are transmitted from the mobile communication means, but large amounts of information are returned from the data networks. In such embodiments of the invention, a communicating party preferably has at least two transport format control sets, one of which is used for reception and one for transmission.

In a further advantageous embodiment of the invention, multiple transport format combination sets are used to further reduce transport format signalling between a receiver and a transmitter. In such an embodiment, a plurality of transport format combination sets is constructed and communicated to the receiver, after which the current TFCS to be used is selected simply by sending a TFCS identifier to the

receiver. Such an embodiment reduces signalling over the air interface in such a case, in which some transport format combination sets are used relatively often. The plurality of transport format combination sets preferably comprises such sets, which are constructed as a result of most common bearer sets and limits, such as the maximum total bit rate for a user.

In such a case, when the allowed transport format combinations are limited by certain limits, which allow straightforward determination of allowability for a TFC, and the TFCI values are constructed according to a certain rule, explicit construction of a TFCS is not necessary for both parties of the connection. For example, the transmitting party may simply check if a new TFC is allowable according to the limits, and if the TFC is allowed, use the TFC in transmission, generating the TFCI on the fly. The receiving party can then use the TFCI as an index to a table containing the TFCS or, if the transport formats can be deduced from the specified TFCI using an inverse of the rule used for generating the TFCI, determine the used transport formats directly from the TFCI. Therefore, the existence of an explicit TFCS is not necessary in all embodiments of the invention.

In some circumstances, as a result of some kind of an error situation, it may be possible that the receiver and the transmitter have assigned the same TFCI to different transport format combinations. If such an error situation occurs, data transmission does not succeed, since the receiver attempts to interpret the received data stream in a different way than the data stream was constructed. Recovery from such an error situation can proceed in many ways in various embodiments of the invention. For example, according to one advantageous embodiment of the invention, the party which detects the error, informs the other end about the error, whereafter both ends reconstruct their TFCI values for example according to some of the previously described examples, such as those described in sections B.2 or B.3, after which the meaning TFCI values should be the same at both ends. According to another embodiment, the party detecting the error communicates its TFCS and TFCI values to the other party, which takes the communicated values into use. According to a third embodiment, if a mobile communication means detects the error, it requests the network to send the TFCS and the TFCI values used by the network and if the network detects the error, it sends the TFCS and the TFCI values used by the network preferably without waiting for the mobile communication means to request for the information.

In various examples of embodiments described in this specification, the transport formats have been classified as allowed or non-allowed. However, in some embodiments of the invention, a bearer having no allowed transport formats in a TFC can be assigned a null transport format, i.e. a transport format having a zero bit rate. Therefore, a null transport format corresponds to a non-allowed transport format. Therefore, in this specification and the accompanied claims the term allowed transport format refers to a non-null transport format, i.e. a transport format with an essentially nonzero bit rate, which can be used in the TFCS.

The present invention reduces the use of radio resources, while retaining flexibility in the use of different transport formats. The present invention allows restriction of the use of radio resources without making it impossible for some bearers to use high data rates. The flexibility of the inventive method allows such overall control of radio resources, while providing a way to specifically restrict certain specific services as well.

In view of the foregoing description it will be evident to a person skilled in the art that various modifications may be made within the scope of the invention. While a preferred embodiment of the invention has been described in detail, it should be apparent that many modifications and variations thereto are possible, all of which fall within the true spirit and scope of the invention.

Claims

1. Method for controlling bearers in a cellular telecommunication system, **characterized** in that the method comprises steps, in which
- a set of allowed transport format combinations is constructed, and
- information for construction of said set at a receiver is communicated to the receiver.

2. A method according to claim 1, **characterized** in that said set of allowed transport format combinations is constructed by checking for each transport format combination, whether the combination is within predefined limits.

3. A method according to claim 1, **characterized** in that a transport format combination identifier is assigned to each combination of said set of allowed transport format combinations.

4. A method according to claim 3, **characterized** in that said assigning of transport format combination identifiers is performed according to a predefined rule.

5. A method according to claim 4, **characterized** in that said set of allowed transport format combinations is ordered according to at least the total bit rate of the transport format combinations, and said transport format combination identifiers are assigned so that the identifiers form a sequence of consecutive integer numbers.

6. A method according to claim 1, **characterized** in that said step of communicating information for construction of said set comprises the step of communicating of each allowed transport format combination to said receiver.

7. A method according to claim 1, **characterized** in that said step of communicating information for construction of said set comprises the step of communicating of each non-allowed transport format combination to said receiver.

8. A method according to claim 1, **characterized** in that
said step of communicating information for construction of said set comprises the step of communicating at least one limit for construction of said set to said receiver.

9. A method according to claim 1, **characterized** in that
said step of communicating information for construction of said set comprises the step of communicating information specifying at least one transport format of at least one bearer, which at least one transport format of at least one bearer is not a part of any allowed transport format combination.

10. A method according to claim 1, **characterized** in that
said step of communicating information for construction of said set comprises the step of specifying the differences between said set to a previous set of transport format combinations.

11. A method according to claim 1, **characterized** in that
a bearer request is admitted, if at least one of the transport formats of the requested bearer is a part of an allowed transport format combination.

12. A method according to claim 3, **characterized** in that
transport formats used in a transmission between a receiver and a transmitter are identified by sending a transport format combination identifier from the transmitter to the receiver.

13. A method according to claim 3, **characterized** in that
if either party of the connection detects that the transport format combination identifiers of the receiver do not correspond to the transport format combination identifiers of the transmitter, the transport format combination identifiers are reconstructed at at least one party of the connection.

14. A method according to claim 13, **characterized** in that
said step of reconstruction comprises the reconstruction of transport format combination identifiers at both parties of the connection according to a predefined rule.

15. A method according to claim 13, **characterized** in that
in said step of reconstruction, one of the parties of the connection communicates its

transport format combination identifiers to the other party, which takes the communicated identifiers into use.

16. System for controlling bearers in a cellular telecommunication system **characterized** in that the system comprises
- means for construction of a set of allowed transport format combinations in a network element of the cellular telecommunication system, and
- means for communication of a constructed set of allowed transport format combinations to a mobile communication means.

17. A system according to claim 16, **characterized** in that
said means for construction of a set of allowed transport format combinations comprises
- a memory element for storing a set of allowed transport format combinations,
- means for checking whether a single transport format combination is within predetermined limits, and
- means for adding a single transport format combination to said set of allowed transport format combinations stored in said memory element.

18. A system according to claim 16, **characterized** in that
said means for communication of a constructed set of allowed transport format combinations to a mobile communication means comprises
means for determining non-allowed transport format combinations.

19. A system according to claim 16, **characterized** in that the system further comprises means for storing a previously constructed second set of allowed transport format combinations,
and said means for communication of a constructed set of allowed transport format combinations to a mobile communication means comprises
means for searching the differences between a transport format combination set and said previously stored second set of allowed transport format combinations.

20. A system according to claim 16, **characterized** in that the system further comprises means for assigning a transport format combination identifier to each transport format combination stored in said memory element.

21. A system according to claim 16, **characterized** in that the system further comprises means for sending a transport format combination identifier for identifying the transport formats used in a transmission.

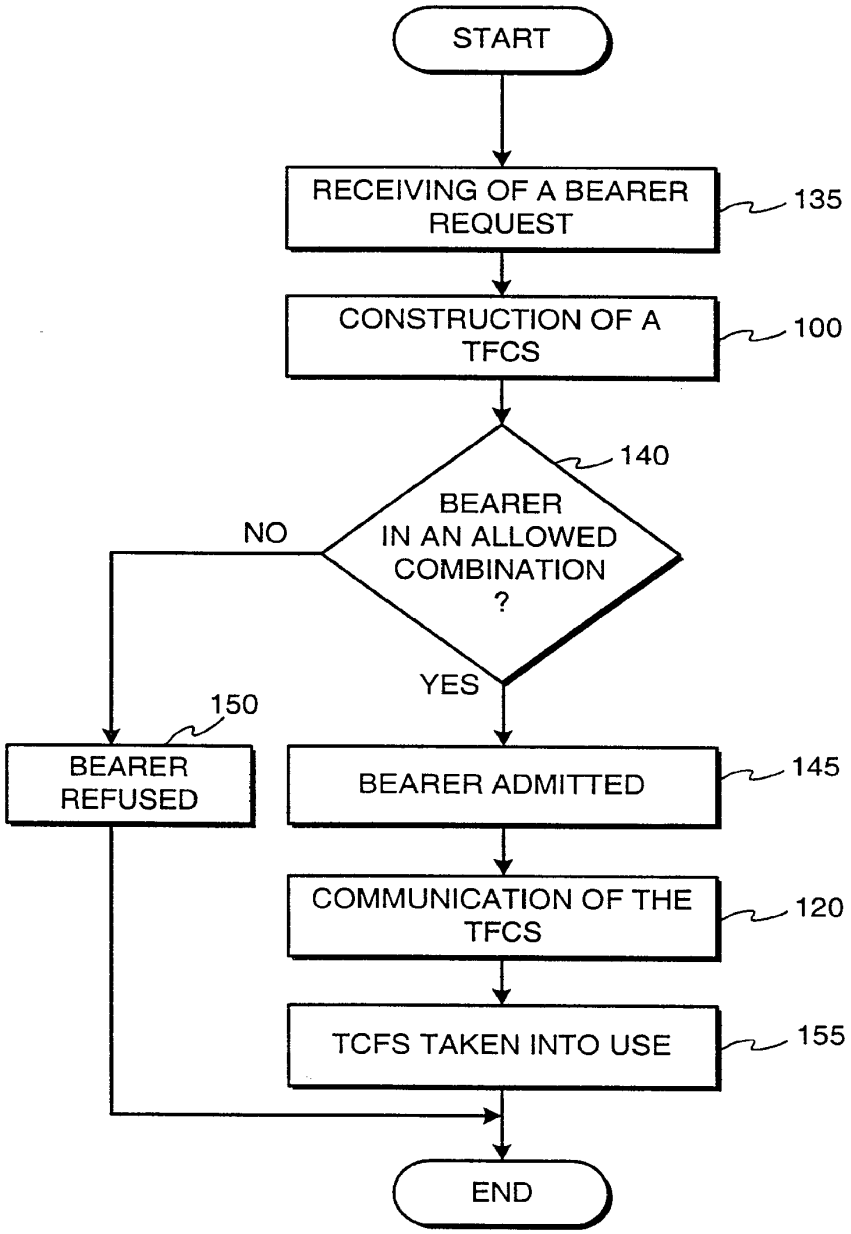

START
RECEIVING OF A BEARER REQUEST
135
CONSTRUCTION OF A TFCS
100
140
BEARER IN AN ALLOWED COMBINATION ?
NO
YES
150
BEARER REFUSED
BEARER ADMITTED
145
COMMUNICATION OF THE TFCS
120
TCFS TAKEN INTO USE
155
END

Fig. 1

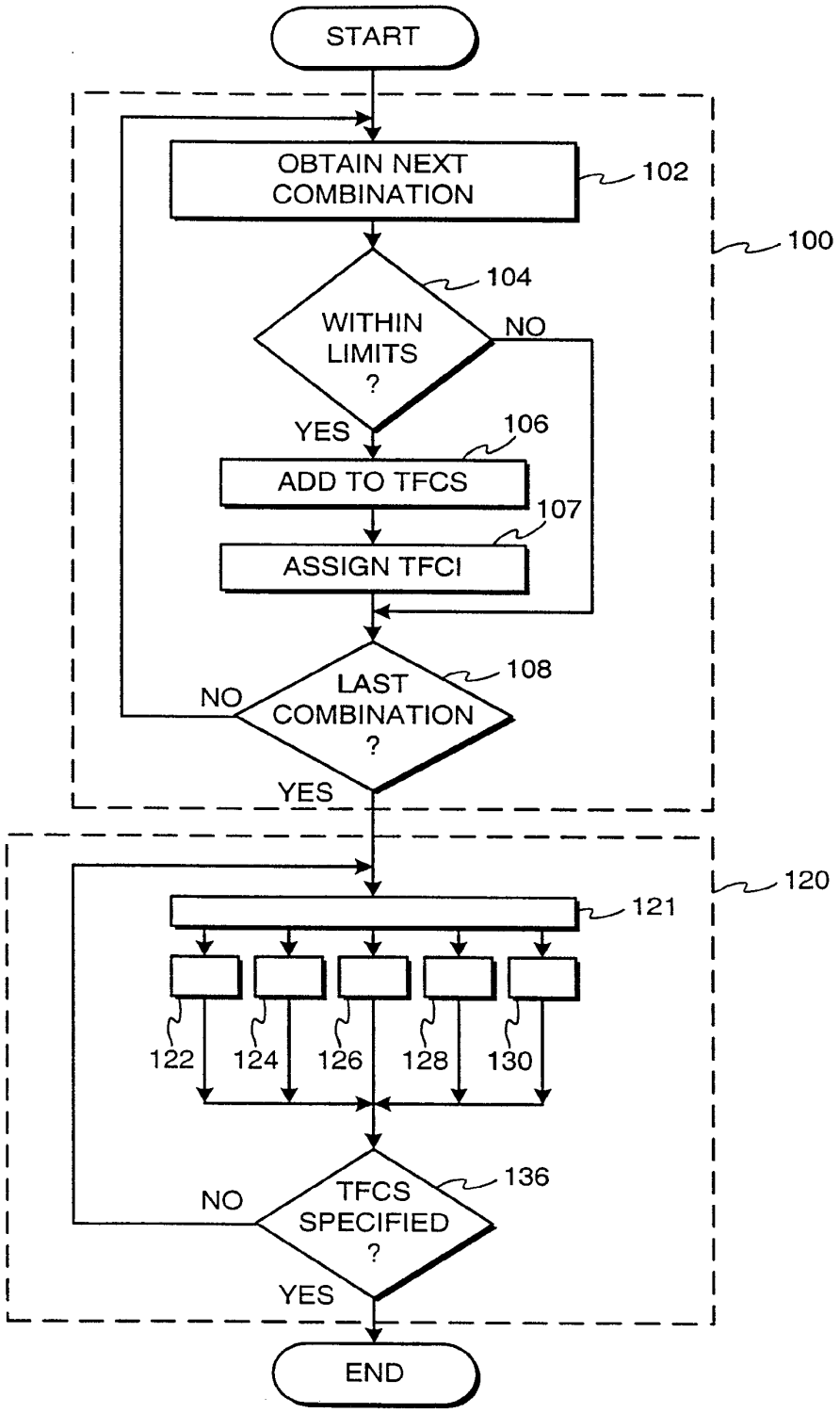

START
OBTAIN NEXT COMBINATION
102
100
104
WITHIN LIMITS ?
NO
YES
106
ADD TO TFCS
107
ASSIGN TFCI
108
LAST COMBINATION ?
NO
YES
120
121
122
124
126
128
130
136
TFCS SPECIFIED ?
NO
YES
END

Fig. 2

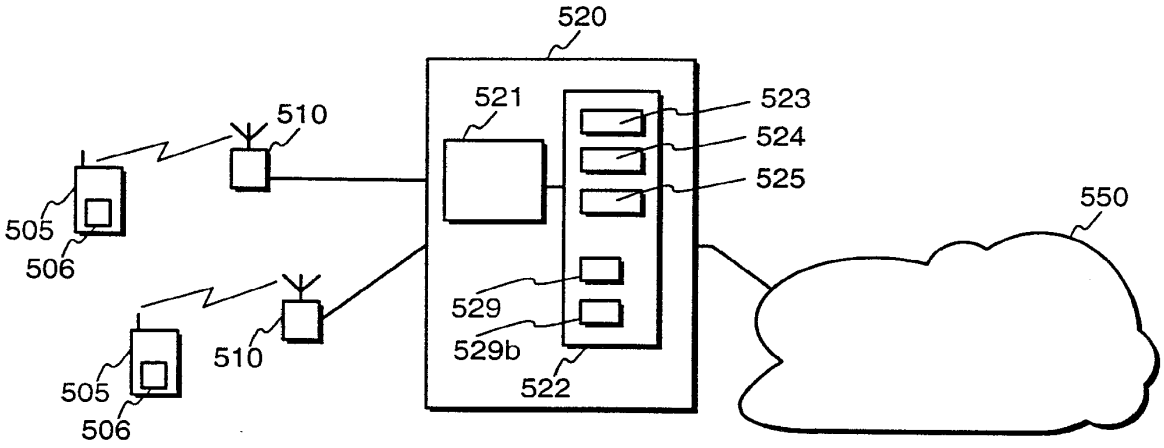

520
521
523
524
525
510
505
506
550
529
529b
522
510
505
506

Fig. 3

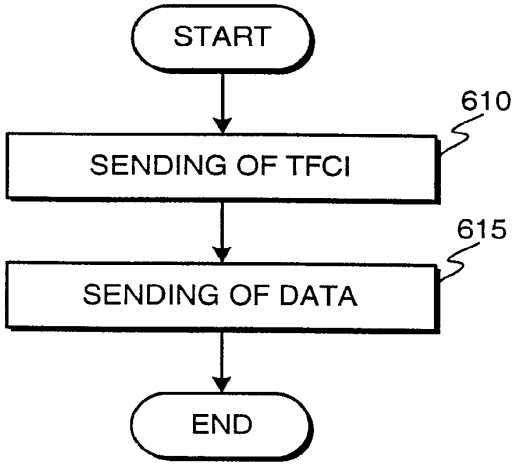

START
610
SENDING OF TFCI
615
SENDING OF DATA
END

Fig. 4

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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : H04Q 7/38 — A1

(11) International Publication Number: **WO 00/35228**

(43) International Publication Date: 15 June 2000 (15.06.00)

(21) International Application Number: PCT/EP98/08065

(22) International Filing Date: 10 December 1998 (10.12.98)

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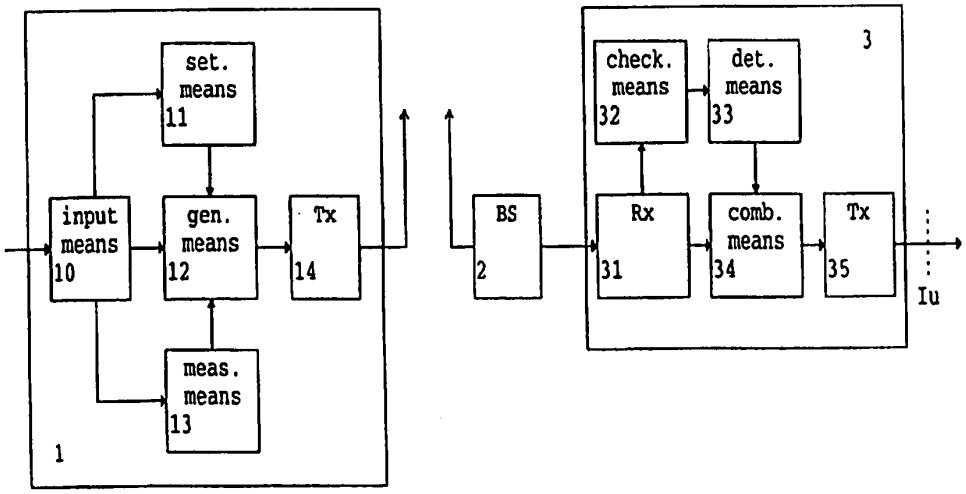
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(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: METHOD AND SYSTEM FOR TRANSMITTING A POSITION INFORMATION



(57) Abstract

A method and system for transmitting a position information from a mobile terminal of a mobile communication network via a network element (3) to a network node, wherein a control information indicating the requirement of a position information of the mobile terminal (1) at the network node is set in the radio interface message. This control information is checked at the network element as to whether a position information has to be forwarded or not. The position information is determined at the network element (3) and may be combined with a higher layer information so as to generate a complete higher layer information to be forwarded to the network node. Thereby, a position information can be supplied to the network node without substantially increasing overhead and processing power required for the radio interface message.

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Method and system for transmitting a position information

FIELD OF THE INVENTION

The present invention relates to a method and system for transmitting a position information from a mobile terminal of a mobile communication network such as a UTRAN (UMTS Radio Access Network) via a network element to a network node such as an SGSN (Serving GPRS Support Node) of the GPRS (General Packet Radio Service) or an MSC (Mobile Switching Center) of the GSM (Global System for Mobile Communications) or their equivalents in the UMTS (Universal Mobile Telecommunications System).

BACKGROUND OF THE INVENTION

Third generation mobile telecommunications systems aim at providing end-users, apart from terminal and personal mobility, with enhanced services. Compared to second generation systems, enhancement that will cover features all the way between the end-user and core network elements are required, i.e. from mobile terminals to radio access and fixed networks.

Fig. 1 shows a mobile communication system such as a UMTS system, wherein a UTRAN system is connected to a GPRS-based core network and to a GSM-based core network. According to Fig. 1, a mobile station (MS) 1 is radio-connected to at least one base station (BS) 2 which is connected to a Radio Network Controller (RNC) 3 of the UTRAN. In Code Division Multiple Access (CDMA) based systems, the MS 1 can be

connected to several BS 2 simultaneously due to macrodiversity.

The RNC 3 is connected to a mobile switching center (MSC) 5 of the UMTS or GSM core network which provides access to a circuit-switched network such as a Public Switched Telephone Network (PSTN) 8 or to a packet-switched network such as the Internet 9.

Additionally, the RNC 3 is connected to an SGSN 6 of the UMTS or GPRS core network. The SGSN 6 is connected to a Gateway GPRS Support Node (GGSN) which provides access to the Internet 9.

Thus, the RNC 3 is connected to two non-coordinated core network nodes which may both establish an active connection with the MS 1.

In the GSM system, a cell information field in the A-interface between a Mobile Switching Center (MSC) and a Base Station Controller (BSC) is bound to certain radio interface messages, called initial layer 3 messages. However, these radio interface messages do not comprise any position information relating to the position of the MS 1.

In the UMTS, the MS 1 may be connected via the RNC 3 of the UTRAN 4 to an independent core network node (CN node) such as the MSC 5 or the SGSN 6. In this case, new services of the CN node may require a position information of the MS 1 for an individual setup of the service.

Moreover, it is possible to use one RRC (Radio Resource Control) connection to two independent higher layer connections (connections at Mobility Management (MM) level or connections at Connection Management (CM) level) of

corresponding CN nodes. However, if another service is already provided to the MS 1, the UTRAN 4 does not automatically insert a position information when forwarding the service setup to the CN node, when existing GSM methods are used.

Thus, a mechanism is required to indicate to the RNC 3 that a higher layer protocol data unit (PDU) received from the MS 1 is an initial layer 3 message that should be sent as a complete layer 3 message including an additionally required MS position information to the CN node even if an active connection to the other CN node exists. In addition, the same mechanism can be used for non-initial layer 3 messages if the MS position information needs to be included therein, e.g. in case of a setup of an additional service.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a method and system for transmitting a position information from a mobile terminal of a mobile communication network via a network element to a network node requiring the position information of the mobile terminal.

This object is achieved by a method for transmitting a position information of a mobile terminal of a mobile communication network to a network node using an intermediate network element, comprising the steps of:
setting a control information in a radio interface message, which indicates the requirement of the position information of the mobile station at the network node,
transmitting the radio interface message to the network element,
checking the control information at the network element, and

determining and forwarding the position information to the network node in response to the result of the checking step.

Furthermore the above object is achieved by a system for transmitting a position information of a mobile terminal of a mobile communication network to a network node using an intermediate network element,
wherein said mobile terminal comprises:
setting means for setting a control information in a radio interface message, which indicates the requirement of a position information of the mobile station at the network node, and
transmitting means for transmitting the radio interface message to the network element, and
wherein the network element comprises:
checking means for checking the control information; and
determining means for determining the position information in response to the checking result of the checking means.

Accordingly, since a control information is added to the radio interface message, this parameter can be used at the RNC 3 to determine whether a position information should be forwarded to the core network through the corresponding Iu interface.

Thereby, the protocol amendments and additionally required information at the RRC level can be kept short so as to minimize message overhead transmitted via the radio interface.

An additional advantage arises when the position of the MS 1 can be detected more accurately than the cell level at the RNC 3 and new services need such an accurate position information. Then, only a short control information has to be transmitted via the radio interface to the RMC 3 in order to

indicate that the position information must be added before forwarding the message to the CN.

A higher layer information may be incorporated into the radio interface message at the mobile terminal, wherein the position information is combined with the higher layer information at the network element in response to the checking result. Thereby, a complete higher layer message including an additionally required MS position information can be forwarded to the network node.

Preferably the control information is provided in a control field used for signaling the requirement of the position information. This control field may have a length of one bit. Accordingly, the required additional overhead of a radio interface message can be restricted to only one bit.

Alternatively, the length of this control field may be more than one bit, if e.g. several accuracy levels of the MS position are possible.

Furthermore, a position measurement information can be incorporated at the MS1 into the radio interface message before transmission, wherein the position information may be determined at the RNC 3 on the basis of the position measurement information.

The position measurement information may also be sent from the MS to the network element, i.e. UTRAN, if no higher layer message is included. This position measurement reporting can be started either by an explicit request from the network element or it can be part of a default measurement started without explicit request from the network element.

In case no position information is required, the higher layer information can be transmitted in a transparent mode to the network node. Thus, the determination of the MS position at the RNC 3 is restricted to those cases, where it is actually required. Thereby, processing capacity is saved and unnecessary delay can be prevented.

Preferably, the network element is a radio network controller of the mobile communication network such as a radio access network of the UMTS, and the network node is a mobile switching center or a serving GPRS support node.

BRIEF DESCRIPTION OF THE DRAWINGS

In the following, the present invention will be described in greater detail on the basis of a preferred embodiment with reference to the accompanying drawings, in which:

Fig. 1 shows a principle block diagram of a mobile communication network connected to two independent core networks,

Fig. 2 shows an RRC Direct Transfer message according to the preferred embodiment of the present invention,

Fig. 3 shows a block diagram of a radio access network according to the preferred embodiment of the present invention, and

Fig. 4 shows a flow diagram of a transmission control procedure according to the preferred embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the following, the preferred embodiment of the method and system according to the present invention will be described on the basis of a mobile communication system such as the UMTS system shown in Fig. 1.

In case a connection is established between the MS 1 and one of the CN nodes MSC 5 or SGSN 6, an RRC connection is used to send a corresponding higher layer PDU via the UTRAN 4. Such a higher layer message could be an MM (Mobility Management) layer message or a CM (Connection Management) layer message and is carried over the radio interface piggypacked into a radio interface message, i.e. an RRC message such as RRC Direct Transfer. Since the MS 1 knows based on the MM layer or the RRC layer, whether the present higher layer message is to be carried to the CN with a position information or not, a position information control field may be provided in the RRC message.

Fig. 2 shows an RRC Direct Transfer message according to the preferred embodiment, which is transmitted by the MS 1 to the RNC 3. The position information control field may consist of one bit which notifies whether a position information is required at the CN, or not. Alternatively, the position information control field may consist of more than one bit, if e.g. several accuracy levels are provided for the position information. In case the MS 1 derives from the MM or RRC layer information that the CN supplying the requested service requires a position information, it sets the position information control bit in the RRC Direct Transfer message to "0". If no position information is required, the position information control bit remains "1". Of course, an opposite setting control of the position information control bit is possible as well.

In addition thereto, a position measurement report can be added to the RRC Direct Transfer message so as to be used by the RNC 3 to calculate the MS position. Alternatively, the position measurement report can be a separate procedure between the MS 1 and the UTRAN 4, independent from the transmitting of the RRC Direct Transfer message.

Other contents of the RRC Direct Transfer message are a message type information used to indicate the type of the RRC message, a CN identifier used as a routing information for routing the higher layer information from the MS 1 to the correct Iu interface connection, and the higher layer information, i.e. higher layer PDU, to be transmitted to the CN.

Thus, upon receiving the above described RRC Direct Transfer message, the RNC 3 can calculate the MS position and generate a corresponding Iu interface message as a complete layer 3 information.

In case the one bit position information control field is set to "1", the RNC 3 detects that no position information is needed at the CN and transmits the higher layer information in a transparent manner over the Iu interface. In this case, a Direct Transfer Application Part (DTAP) of the layer 3 protocol at the RNC 3 is used.

Fig. 3 shows a block diagram of a radio access network such as the UTRAN 4 according to the preferred embodiment of the present invention.

According to Fig. 3, the MS 1 comprises an input means 10 for inputting a higher layer message to be transmitted via the radio interface of the UTRAN 4 and the Iu interface to an

independent CN node such as the MSC 5. Such a higher layer message could be a setup request for a service provided by the MSC 5.

Furthermore, a setting means 11 is provided to which an information derived from the higher layer message is supplied from the input means 10 as to whether the connected CN node requires a position information, or not. In response to this information, the setting means 11 supplies an instruction to a message generating means 12 so as to correspondingly set the position information control field of the RRC message generated by the message generating means 12 on the basis of the higher layer message or PDU supplied from the input means 10.

Optionally, a measurement means 13 may be provided for supplying a position measurement report to a generating means 12, wherein the position measurement report is incorporated at a corresponding field in the RRC message, if the position information is required.

Finally a transmitter Tx 14 is connected to the message generating means 12 so as to transmit the generated RRC message via the radio interface.

The transmitted RRC message is received by the BS 2 of the UTRAN 4 and supplied to the RNC 3, as previously described in connection with Fig. 1.

In the following, the operation of the RNC 3 shown in Fig. 3 is described with reference to the flow diagram shown in Fig. 4, wherein an RRC Direct Transfer message including a higher layer PDU is transmitted to the RNC 3.

The RRC Direct Transfer message including the higher layer PDU for the CN node is received by a receiver Rx 31 of the RNC 3 (step S101). Thereafter, the position information control field of the RRC message is checked by a checking means 32 connected to the Rx 31 (S102). Then, the received RRC message is supplied to a combining means 34. If the checking performed in the checking means 32 reveals in step S103 that no position information is required, the higher layer message (higher layer PDU) is supplied to a transmitter Tx 35 and sent to the desired CN node via the Iu interface in a transparent manner using the DTAP protocol (S104).

Otherwise, if the checking means 32 determines that a position information is required at the CN node, a corresponding information is supplied by the checking means 32 to a determining means 33 which is arranged to determine the position information.

Subsequently, the determining means 33 calculates the position of the transmitting MS 1 using the position measurement report included in the RRC message (step S105). Alternatively, the position information may be calculated or determined based on a corresponding position information of the MS 1 provided in the RNC 3.

Thereafter, the determining means 33 supplies the determined position information to the combining means 34, where the position information is combined with or added to the higher layer message so as to generate a Iu interface message (step S106). Thus, the Iu interface message corresponds to a complete layer 3 information.

Finally, the generated Iu interface message is sent by the Tx 35 to the desired CN node (S107).

Accordingly, a position information can be transmitted via the UTRAN 4 of the UMTS without requiring major changes of the radio interface messages, i.e. the RRC messages. Essentially, only one bit has to be added as a new parameter to each RRC message carrying a higher layer PDU on the radio interface. Alternatively, the position information control field may consist of more than one bit, if e.g. several accuracy levels are provided for the position information.

It is to be pointed out, that the transmission method and system described in the preferred embodiment is not restricted to the UTRAN of a UMTS, but can be used in connection with any mobile communication network where a higher layer message is to be carried on a radio interface message which does not include any position information. The above description of the preferred embodiment and the accompanying drawings are only intended to illustrate the present invention. The preferred embodiment of the invention may vary within the scope of the attached claims.

In summary, a method and system for transmitting a position information from a mobile terminal of a mobile communication network via a network element to a network node is described, wherein a control information indicating the requirement of a position information of the mobile terminal at the network node is set in the radio interface message. This control information is checked at the network element as to whether a position information has to be forwarded or not. The position information is determined at the network element and may be combined with a higher layer information so as to generate a complete higher layer information to be forwarded to the network node. Thereby, the position information can be supplied to the network node without substantially increasing overhead and processing power required for the radio interface message.

Claims

1. A method for transmitting a position information of a mobile terminal **(1)** of a mobile communication network to a network node **(5, 6)** using an intermediate network element **(3)**, comprising the steps of:
a) setting a control information in a radio interface message, which indicates the requirement of said position information of said mobile terminal at said network node;
b) transmitting said radio interface message to said network element;
c) checking said control information at said network element; and
d) determining and forwarding said position information to said network node in response to the result of said checking step.

2. A method according to claim 1, further comprising the step of incorporating a higher layer information into said radio interface massage, and forwarding said position information together with said higher layer information to said network node.

3. A method according to claim 1 or 2, wherein said control information is provided in a control field used for signaling the requirement of said position information.

4. A method according to claim 3, wherein said control field has a length of one bit.

5. A method according to claim 3, wherein said control field has a length of more than one bit, each value of said control field referring to an accuracy level of said position information.

6. A method according to any one of claims 1 to 5, further comprising the steps of incorporating a position measurement information into said radio interface message before said transmission step, and determining said position information on the basis of said position measurement information.

7. A method according to any one of claims 2 to 6, wherein said higher layer information is transmitted in a transparent mode to said network node, when said checking step reveals that no position information is required.

8. A method according to any one of the preceding claims, wherein said network element is a radio network controller **(3)** of said mobile communication network, and wherein said setting step is performed in said mobile terminal.

9. A method according to any one of the preceding claims, wherein said mobile communication network is a radio access network of the UMTS, and wherein said network node is a mobile switching center **(5)** or a serving GPRS support node **(6)**.

10. A system for transmitting a position information of a mobile terminal **(1)** of a mobile communication network to a network node **(5, 6)** using an intermediate network element **(3)**,

a) wherein said mobile terminal **(1)** comprises:

setting means **(11)** for setting a control information in a radio interface message, which indicates the requirement of said position information of said mobile terminal **(1)** at said network node **(5, 6)**; and

transmitting means **(14)** for transmitting said radio interface message to said network element **(3)**; and

b) wherein said network element **(3)** comprises:
checking means **(32)** for checking said control information;
determining means **(33)** for determining said position information in response to the checking result of said checking means **(32)**.

11. A system according to claim 10, wherein said mobile terminal **(1)** comprises a message generating means **(12)** for incorporating a higher layer information into said radio interface message; and wherein said network element **(3)** comprises combining means **(34)** for combining said position information with said higher layer information in response to said checking result.

12. A system according to claim 11, wherein said message generating means **(12)** is arranged to incorporate a position measurement information into said radio interface message, and wherein said determining means **(33)** is arranged to determine said position information on the basis of said position measurement information.

13. A system according to any one of claims 10 or 12, wherein said network element is a radio network controller **(3)** of said mobile communication network **(4)**.

14. A system according to any one of claims 10 to 13, wherein said mobile communication network is a radio access network **(4)** of the UMTS, and wherein said network node is a mobile switching center **(5)** or a serving GPRS support node **(6)**.

15. A mobile terminal for transmitting a radio interface message via a network element **(3)** to a network node **(5, 6)**, comprising:

a) setting means **(11)** for setting a control information in said radio interface message, which indicates the requirement of a position information of said mobile terminal **(1)** at said network node **(5, 6)**; and

b) a transmitting means **(14)** for transmitting said radio interface message to said network element **(3)**.

16. A mobile terminal according to claim 15, further comprising message generating means **(12)** for incorporating a higher layer information into said radio interface message.

17. A mobile terminal according to claim 16, wherein said message generating means **(12)** is arranged to incorporate a position measurement information into said radio interface message.

18. A network element for forwarding a position information of a mobile terminal **(1)** to a network node **(5, 6)**, comprising:

a) checking means **(32)** for checking a control information provided in a radio interface message received from said mobile terminal **(1)**; and

b) determining means **(33)** for determining said position information in response to the checking result of said checking means **(32)**.

19. A network element according to claim 18, further comprising combining means **(34)** for combining said position information of said mobile terminal **(1)** with a higher layer information, to be forwarded to said network node **(5, 6)**, in response to said checking result.

20. A network element according to claim 18 or 19, wherein said determining means **(33)** determines said position

information on the basis of a position measurement information included in said received radio interface message.

21. A network element according to any one of claims 18 to 20, wherein said network element is a radio network controller **(3)** of a radio access network of the UMTS, and wherein said network node is a mobile switching center **(5)** or a serving GPRS support node **(6)**.

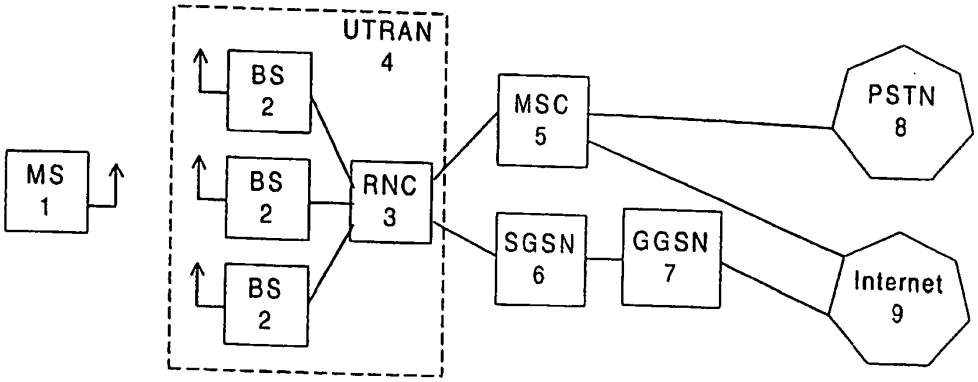

UTRAN
4
BS
2
BS
2
BS
2
MS
1
RNC
3
MSC
5
SGSN
6
GGSN
7
PSTN
8
Internet
9

Fig. 1

RRC Direct Transfer message

Message type	CN id	Pos. info control field	Position measurement report	PDU

Fig. 2

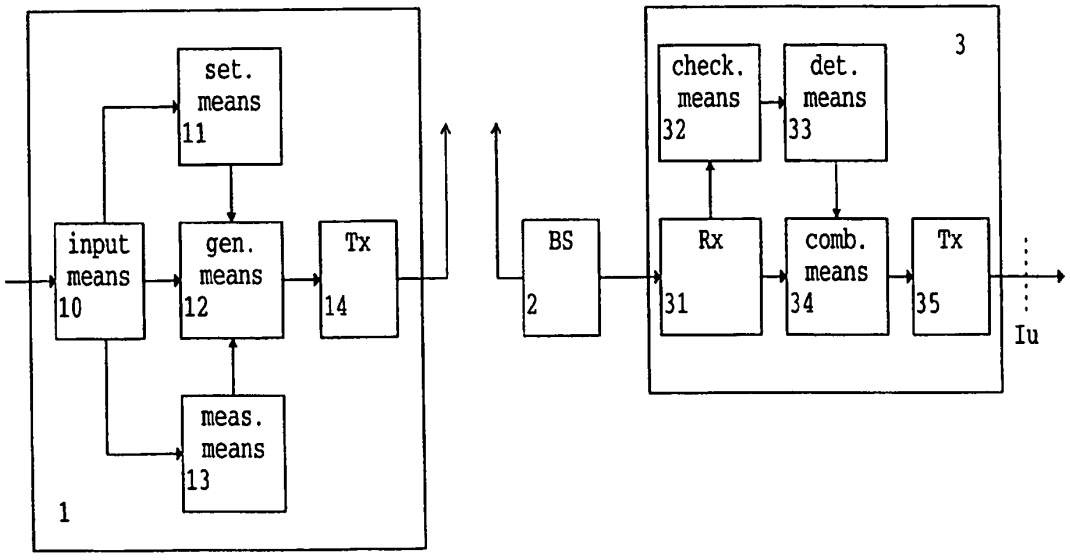


Fig. 3

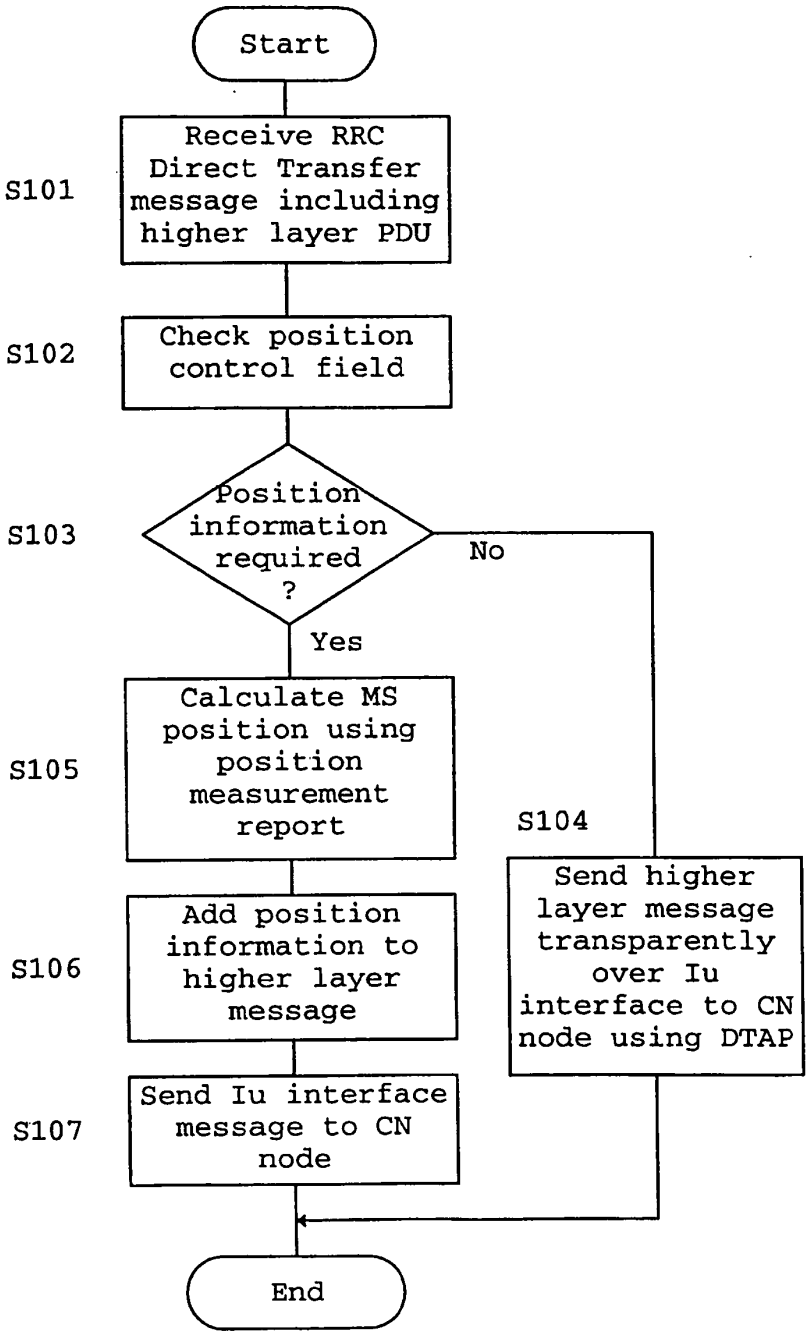

Start
Receive RRC Direct Transfer message including higher layer PDU
S101
Check position control field
S102
Position information required ?
S103
No
Yes
Calculate MS position using position measurement report
S105
S104
Send higher layer message transparently over Iu interface to CN node using DTAP
Add position information to higher layer message
S106
Send Iu interface message to CN node
S107
End

Fig. 4

INTERNATIONAL SEARCH REPORT

Int ional Application No
PCT/EP 98/08065

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04Q7/38

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)
IPC 7 H04Q

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 practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 754 955 A (EKBATANI MEHRDAD) 19 May 1998 (1998-05-19) column 6, line 42 - line 54; claim 4	1,10,15, 18
A	EP 0 805 609 A (HEWLETT PACKARD CO) 5 November 1997 (1997-11-05) column 13, line 19 - column 15, line 4	1,10,15, 18
A	EP 0 546 758 A (MOTOROLA INC) 16 June 1993 (1993-06-16) column 4, line 16 - line 31 column 7, line 33 - line 44 column 9, line 6 - line 24; figure 7	1,10,15, 18

☐ Further documents are listed in the continuation of box C.

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Date of the actual completion of the international search	Date of mailing of the international search report
10 August 1999	18/08/1999

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Schut, G

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Int ional Application No
PCT/EP 98/08065

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		CN 1202297 A	16-12-1998
		EP 0852101 A	08-07-1998
		WO 9711569 A	27-03-1997
EP 0805609 A	05-11-1997	NONE	
EP 0546758 A	16-06-1993	AT 182244 T	15-07-1999
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		JP 5327605 A	10-12-1993
		US 5365451 A	15-11-1994

Form PCT/ISA/210 (patent family annex) (July 1992)

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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : H04B 7/005 — A2

(11) International Publication Number: **WO 00/38350**

(43) International Publication Date: 29 June 2000 (29.06.00)

(21) International Application Number: PCT/FI99/01064

(22) International Filing Date: 21 December 1999 (21.12.99)

(30) Priority Data:
982781 22 December 1998 (22.12.98) FI

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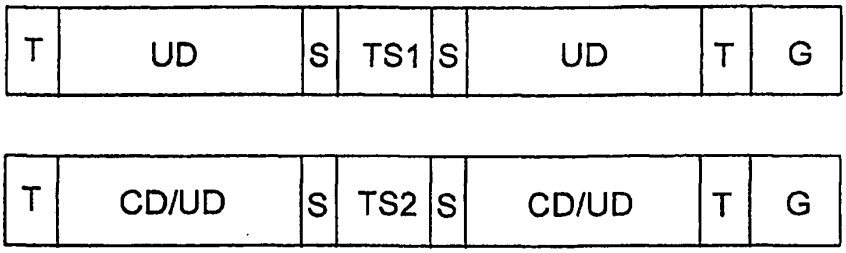
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(81) Designated States: AE, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), DM, EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (Utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
Without international search report and to be republished upon receipt of that report.

(54) Title: SIGNALLING METHOD AND TELECOMMUNICATION SYSTEM



(57) Abstract

A signaling method in a wireless digital telecommunication system between a base station and a terminal, where the signals between the base station and the terminal are generated from bursts comprising symbols, the bursts comprising a known training sequence. The symbols are used for generating a second training sequence of the same length as the known training sequence and a burst comprising said training sequence to be used for transmitting signalling messages. The number of training sequences used can be restricted to two, whereby conventional user data is sent in the burst comprising the known training sequence and information deviating from the conventional user data is sent by the burst comprising the second training sequence, and the stealing symbols in the burst can be used for specifying a signalling message to be transmitted.

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SIGNALLING METHOD AND TELECOMMUNICATION SYSTEM

The invention relates to a signalling method in a wireless digital telecommunication system between a base station and a terminal, where the signals between the base station and the terminal are generated from bursts comprising symbols, the bursts comprising a known training sequence.

The invention further relates to a wireless digital telecommunication system for signalling between a base station and a terminal, where the signals to be transmitted over a radio connection between the base station and the terminal comprise bursts generated from symbols, the bursts comprising a known training sequence, and the system comprising at least one transmitter and at least one receiver, whereof the transmitter comprises means for generating said training sequence and the receiver comprises means for identifying said training sequence.

In digital radio systems, call-related signalling between a base station and a terminal occurs simultaneously with a call to be transferred on a traffic channel. The GSM system, for example, employs two signalling channels for conducting call-related signalling, a SACCH (Slow Associated Control Channel) and a FACCH (Fast Associated Control Channel). The SACCH is a separate low-rate signalling channel associated with each traffic channel. Due to its low rate the channel can be used for non-urgent signalling only. The FACCH is fast signalling within the traffic channel, and can be used for time-critical signalling. However, a part of the traffic channel capacity is then lost.

In digital radio systems, such as the GSM system, data transmission occurs in bursts, and a specific burst structure is determined for each purpose, like data and signalling transmission, synchronization or equalization. A normal burst used for data and signalling transmission comprises in the middle a training sequence including a set of predetermined symbols that the receiver identifies. When comparing the received training sequence with a known training sequence the receiver may create information on the distortion caused by an un-ideal radio path to the received signal. On the basis of this information the receiver can demodulate the received signal more efficiently. The applicant's previous patent application PCT/FI97/00465 describes a signalling method, in which a training sequence is used for signalling, that speeds up the signalling and leaves the entire traffic channel to be used by the payload.

The problem with the above system is the number of different training sequences required for transmitting versatile signals. One training sequence can describe one signalling message only, and if, for example, power control signalling including eight steps is to be performed, eight different training sequences are required. If the aim is to perform several signalling events with the above method, the number of training sequences easily increases significantly. This increases the receiver load and complicates the implementation of the receiver, since the received training sequence must be separately compared with each known training sequence. Particularly distinguishing training sequences from one another becomes more difficult when the reception conditions are poor. Furthermore, when higher data transmission rates are aimed at, the use of a training sequence no longer necessarily guarantees fast enough signalling owing to the above and since the duration of the training sequence is relatively long bearing in mind that the training sequence is capable of transmitting one message only. Due to these drawbacks said method has not been widely employed and the GSM system, for example, still uses signalling channels.

A significant drawback with prior art signalling is that it matches poorly with packet-switched data transmission. In present packet-switched wireless telecommunication systems, such as the GPRS system (General Packet Radio Service) designed on the basis of the GSM system, data transmission from a terminal to a base station (uplink) and vice versa (downlink) takes place irrespective of one another. In said systems a channel is formed between the terminal and the base station only, when either party has data packets to send. In other words, there is no need to maintain a continuous return channel for transmitting signalling or acknowledgement messages in said systems. To utilize such asymmetrical data transmission optimally would require transmission of signalling and acknowledgement messages when the channel capacity is used for other purposes as well.

It is thus an object of the invention to provide a method and an apparatus implementing the method so as to solve the above problems. The objects of the invention are achieved with a method, characterized by

generating from symbols a second training sequence of the same length as the known training sequence,

generating a burst comprising said second training sequence and by

using the burst comprising said second training sequence for transmitting various signalling messages.

The wireless digital telecommunication system of the invention is characterized in that

the transmitter comprises means for generating a second training sequence of the same length as the known training sequence and means for generating a burst comprising said second training sequence and for coding a signalling message into said burst and in that

the receiver comprises means for receiving the burst comprising said second training sequence, means for identifying said second training sequence and means for decoding the coded signalling message in said burst.

According to a preferred embodiment of the invention the number of training sequences to be used is restricted to two. According to another preferred embodiment of the invention the stealing symbols in the burst comprising said second training sequence are used for specifying the signalling message to be transmitted.

The invention is based on the idea that various training sequences are used in the burst structure to indicate the contents of the burst. The recipient then interprets the received burst on the basis of the training sequence. A particular training sequence can preferably be employed in the burst structure to indicate that signalling data in particular is transmitted using the burst. The type of the signalling data to be transmitted can also be indicated in more detail by means of the stealing symbols in the burst. Stealing symbols have typically been used in a normal burst to indicate whether the data bits in a burst are allocated to be used on a traffic channel or stolen to be used on the FACCH. However, in the method of the invention the stealing symbols in the normal burst to be utilized for transmitting user data can also be allocated to transmit user data.

The method and system of the invention provide an advantage that enables transmission of signalling and acknowledgement messages particularly when the channel between the terminal and the base station is also employed for transferring user data. This is particularly advantageous in packet-switched wireless data transmission, as in this case the channel between the terminal and the base station does not have to be separately opened for signalling. Another advantage of the invention is that the data transmission capacity of a normal burst to be used for transmitting user data is not used for

the signalling of the invention. A further advantage of the invention is that it alleviates the implementation of the detection in the receiver, as the received training sequence is compared with the two known training sequences only, thus reducing the receiver load. Still another advantage of the invention is that the data transmission capacity of a normal burst increases, since the stealing symbols in the normal burst can also be utilized for transmitting user data.

In the following the invention will be described in greater detail in connection with the preferred embodiments, with reference to the accompanying drawings, in which

Figure 1 schematically shows a normal burst according to the GSM system;

Figure 2 schematically shows a known normal burst and a burst according to a preferred embodiment of the invention;

Figure 3a shows a burst structure according to a preferred embodiment of the invention;

Figure 3b shows a burst structure according to a second preferred embodiment of the invention;

Figure 3c shows a burst structure according to a third preferred embodiment of the invention;

Figure 3d shows a burst structure according to a fourth preferred embodiment of the invention;

Figure 4 is a block diagram showing a transmitter according to a preferred embodiment of the invention;

Figure 5 is a block diagram showing a receiver according to a preferred embodiment of the invention, and

Figure 6 is a flow chart showing parameter adjustment according to a preferred embodiment of the invention.

In the following the invention will be described by way of example on the basis of a TDMA-based (Time Division Multiple Access) GSM system and the further improvement thereof. It is obvious for those skilled in the art that the invention can be used in any corresponding telecommunication system.

Figure 1 shows the structure of a normal burst according to the GSM system, the length of the normal burst being 156,25 and the duration 0,577 ms. The normal burst comprises one time slot of a TDMA frame comprising eight time slots. The normal burst comprises in the middle a training

sequence (TS) that includes 26 symbols and that is used for correcting the received signal as described above. Stealing symbols (S), which are one symbol in length and located on both sides of the training sequence TS, are used for indicating the possible use of even and/or odd data symbols (DS) for FACCH signalling. The data symbols DS intended to transfer user and signalling data are divided into two sequences of 57 symbols which are located before the first stealing symbol and after the second stealing symbol. Tail symbol sequences (T), which are three symbols in length, are located at the beginning and in the end of a burst, and within the duration of the tail symbols the transmitter is correspondingly switched on and off between the bursts. After the burst, there is a guard period (G) of 8,25 symbols that prevents adjacent time slots from overlapping in base station reception.

According to a preferred embodiment of the invention a new burst type is introduced that deviates from the burst structure described above only in that the training sequence of the burst is different. Here the known training sequence in a normal burst is referred to as TS1 and the training sequence of the invention is referred to as TS2 in accordance with Figure 2. According to a preferred embodiment of the invention the burst according to the invention is employed in particular for transmitting control data (CD), whereby the known normal burst can, if necessary, be allocated to transfer user data (UD) only. User data can also be transmitted using the burst of the invention in situations where the transfer of user data also requires exceptional signalling. Then, in the reception the type of information in the burst can be deduced on the basis of the training sequence. Particularly when a burst comprising the training sequence TS2 is received, the receiver knows that the burst may comprise specific signalling data.

According to another preferred embodiment of the invention the number of various training sequences is restricted to said two training sequences TS1 and TS2. This alleviates the implementation of the detection in the receiver, as the received training sequence is compared with the two known training sequences only, thus reducing the receiver load. Particularly distinguishing training sequences from one another becomes easier in poor reception conditions compared with prior art, since the symbol constellations of the two training sequences can easily be determined to differ greatly from one another, and a large number of symbol errors in the received training sequences cannot either prevent the detection of the training sequence.

According to a preferred embodiment of the invention the stealing symbols in the burst of the invention are used to specify the information in the burst. Then, the stealing symbols of the known normal burst can also, if needed, be utilized when transferring user data. The use of the stealing symbols of the invention is explained in the following in greater detail with reference to the examples in Figures 3a-3d. In order to simplify the description, it is assumed in the following examples that the stealing symbols of the burst structure both comprise one bit. The invention can naturally also be implemented in systems where several bits are modulated into one symbol, in which case the amount of information to be specified using the stealing symbols is multiplied.

Figure 3a shows the burst structure of the invention, where the data symbols DS are allocated to the user data UD, the training sequence is the training sequence TS2 of the invention and both the stealing symbols are 0-bits. On the basis of the indicated training sequence TS2 the receiver knows that the burst comprises some signalling data and checks the specified information indicated by the stealing symbols. This burst may indicate, for example, the last time slot from the user data flow to be transferred on a particular channel. The transmission of a specific end sign is thus avoided in an additional burst.

Figure 3b describes the burst structure of the invention intended for fast signalling in particular. In this burst the data symbols DS are entirely or partly allocated to the signalling data, the training sequence is the training sequence TS2 of the invention and the first of the stealing symbols is preferably a 0-bit and the second a 1-bit. The spreading figure shown in Figure 3b describes in greater detail the signalling and user data fields CD/UD in the data symbols DS. There is a field in the beginning of the data symbols determining the field length of the signalling data (ctrl field length). A signalling discriminator (ctrl discriminator) defines the signalling message in question which is added after the signalling discriminator. Several signalling messages (ctrl field) can preferably also be transferred in the same burst. When the receiver knows, on the basis of the signalling discriminator, which signalling fields are concerned, it can distinguish the transmitted messages from the burst. If all messages to be transmitted and the lengths thereof are predetermined, i.e. standardized messages are concerned, then the field determining the total length of the signalling data is not needed, as the receiver is aware of the

length of the messages. However, it is preferable to keep the field determining the total length of the signalling data as an optional alternative and thereby alleviate the introduction of new signalling messages. If all data symbols are not needed for the signalling message, the unused symbols can be employed for transmitting user data. The burst according to Figure 3b can preferably be used to replace the FACCH signalling according to the GSM system.

Figure 3c describes the burst structure of the invention intended for slow signalling in particular, that is for replacing the SACCH signalling according to the GSM system, for example. A field of a specific length is allocated in the beginning of the data symbol field to the signalling data CD, and the rest of the data symbols can be employed for transmitting user data UD. The training sequence is the training sequence TS2 of the invention and the first of the stealing symbols is preferably a 1-bit and the second a 0-bit. This burst structure provides the advantage that if a known short signalling message is to be transmitted in one burst or if a longer, non-urgent signalling message is interleaved into several bursts, it is not necessary to attach the field determining the total length of the signalling data to the signalling data field.

Figure 3d describes the burst structure of the invention that can be used in applications that enable restricted retransmission of a burst. Such cases include real time speech or video image transmission, in which a sensible use of the application enables retransmission of a burst that is poorly received in the following TDMA frame only. In the burst the data symbols DS are allocated to the user data UD, the training sequence is the training sequence TS2 of the invention and both stealing symbols are 1-bits. Said burst can be employed in situations where the received normal burst is of poor quality and it is requested to be resent in the following time slot allocated to the channel. If the transmitter is able to receive the retransmission request in time, the data symbols of the previous burst are sent in the burst according to Figure 3d. Then, on the basis of the training sequence TS2 and the 1-bit stealing symbols the receiver can deduce that retransmission is concerned. If stealing symbols have been used for transmitting user data in the original normal burst, these have to be punctured before connecting the original burst to the retransmitted burst and attached to the original position in the burst structure when connecting the bursts. If the transmitter cannot receive a retransmission request, then the bursts are continued to be normally transmitted.

The burst of the invention can therefore, if needed, also be used for

transmitting user data. However, the training sequence TS2 in the burst indicates that the information in the burst is somehow exceptional as regards the normal burst.

The following describes the essential parts of the transmitter in the telecommunication system of the invention by means of the block diagram in Figure 4. The transmitter comprises means 100 that include the information to be sent, for example, the information about the last burst in the data flow according to Figure 3a. This information is coded in accordance with the invention into a combination of a determined training sequence and a stealing symbol combination in coding means 101, from where the coded information is applied to means 102 to be connected with the signal to be transmitted and the stealing symbols thereof. Next, the signal is modulated by processing means 103 and applied to conversion means 104 where the signal is converted from digital to analogue mode. The analogue signal is transferred to radio frequency parts 105 where the signal is converted to the transmission frequency. Then the signal is sent by an antenna 106 through the radio path to the receiver.

The essential parts of the receiver in the telecommunication system of the invention are described in the block diagram according to Figure 5. The receiver comprises an antenna 200 for receiving the signal sent through the radio path and wherefrom the signal is applied to radio frequency parts 201 in which the signal is converted to an intermediate frequency. The signal is then transferred to conversion means 202 where the signal is reconverted from analogue to digital mode. The digital signal propagates to processing means 203 where the signal may be filtered and demodulated, the channel impulse response and the energy thereof can be estimated, and the signal distorted on the channel can be restored into its original form. The restored signal is applied to separation means 204 where the identified training sequence and the stealing symbols are separated from the signal. Decoding means 205 decode the received training sequence and the stealing symbols in accordance with the method presented in the invention, and means 206 start the operations according to the preferred embodiments that correspond with the message in the transmitted signalling data.

The above operations in the transmitter and the receiver can be implemented, for example, using general or signal processors or separate logic. To implement single operations is known for those skilled in the art and the

description thereof is not needed in this context.

In the following the application of the invention is explained in greater detail by means of an example describing on-demand adjustment of a parameter to be performed in packet-switched wireless data transmission. Such an adjustment is based on the idea that only those parameters are adjusted that need to be adjusted at a particular time, in which case a separate signalling channel, for example, does not have to be maintained for this purpose.

The uplink and downlik data transmission can be totally independent of one another in packet-switched wireless data transmission. In short-delay real time data transmission, the uplink and downlink traffic channels are maintained only for the time the data packets are sent in either direction. Sending signalling messages and acknowledgement messages becomes more difficult in the opposite direction, as a continuously maintained channel for this purpose does not exist. It is therefore preferable if any maintained channel can be used for transmitting acknowledgement messages. The terminal may simultaneously comprise several active data transmission connections which are determined and restricted in different ways. A terminal may for instance comprise, in addition to a normal telephone connection, a simultaneous packet-switched connection with an outside telephone number service. Then, the signalling between the terminal and the network or the acknowledgement thereof can be selected to be performed through the best available data transmission connection. If, for example, the counterpart speaks on the telephone connection of the terminal, when the uplink speech connection of the terminal is not in use, the signalling messages can be multiplexed to said packet-switched data connection. If, in turn, the downlink signalling takes place through an active call connection and the call is disconnected midst signalling, then the signalling can be transferred to a possible data connection. If no data connections exist, the downlink signalling can preferably be arranged as a broadcast message to all terminals within the cell area. Naturally only the terminals for whom the message is indicated tend to operate as the message requires. However, in this way the frequency band is used more efficiently as compared with opening a separate channel for signalling.

Figure 6 is a flow chart describing the adjustment of an on-demand adaptive parameter where the signalling of the invention can be utilized. The adjustable parameter concerned can, for example, be the transmission power

of a terminal. The adjustment process is started by checking if the time t_{last} that has elapsed from the previous adjustment is sufficient for providing a new adjustment which is determined on the basis of the adjustment frequency *afr*. Next a parameter value *par* is measured and the value is compared with the optimal value par_t of the parameter. If the difference between the parameter value *par* and the optimal value par_t of the parameter exceeds the error threshold e_{th}, then the parameter is adjusted and the value of the adjustment frequency *afr* is increased by a predetermined change afr_{step}. If the error threshold is not exceeded, the parameter does not need to be adjusted either, but the value of the adjustment frequency *afr* is reduced by a predetermined change afr_{step}. In both cases it is confirmed that the value of the adjustment frequency *afr* remain between the predetermined maximum value afr_{max} and minimum value afr_{min}.

Even though the invention has above been described by way of example in connection with power control signalling, the invention is not restricted thereto but the signalling of the invention can be used for any similar purposes, particularly in packet-switched data transmission. One example is the change of the used coding method in connection with link adaptation. However, it should be noted that digital wireless telecommunication systems, particularly TDMA systems, also comprise other types of bursts than the normal burst described in this context and the embodiment of the invention thereof. The burst structure of the invention cannot necessarily be used for sending the signalling data transmitted by these bursts.

Furthermore, even though the invention has above been described by way of example according to the preferred embodiment of the invention in which two training sequences are used, the number of training sequences is not restricted to two, but the invention can also be implemented using several training sequences. Then, the implementation of the receiver becomes more complicated, but the number of signalling messages to be indicated increases when the possible combinations of training sequences and stealing symbols increase.

It is obvious for those skilled in the art that as technology progresses the basic idea of the invention can be implemented in a number of ways. The invention and the embodiments thereof are thus not restricted to the above examples but may vary within the scope of the claims.

CLAIMS

1. A signalling method in a wireless digital telecommunication system between a base station and a terminal, where the signals between the base station and the terminal are generated from bursts comprising symbols, the bursts comprising a known training sequence, **characterized** by

generating from symbols a second training sequence of the same length as the known training sequence,

generating a burst comprising said second training sequence and by

using the burst comprising said second training sequence for transmitting at least one signalling message.

2. A method as claimed in claim 1, **characterized** by indicating the existence of said signalling message, in response to the received burst comprising said second training sequence.

3. A method as claimed in claim 2, **characterized** by restricting the number of the training sequences to be used to two.

4. A method as claimed in claim 3, **characterized** by

sending user data in the burst comprising said known training sequence and

sending signalling data and/or user data in the burst comprising said second training sequence.

5. A method as claimed in any one of the preceding claims, **characterized** by using the stealing symbols in the burst comprising said second training sequence for specifying the signalling message to be transmitted.

6. A method as claimed in any one of the preceding claims, **characterized** by using the burst comprising said second training sequence for transmitting FACCH signalling according to the GSM system.

7. A method as claimed in any one of the preceding claims, **characterized** by using the burst comprising said second training sequence for transmitting SACCH signalling according to the GSM system.

8. A method as claimed in any one of claims 1 to 5, **characterized** by using the method in a packet-switched wireless telecommunication system.

9. A method as claimed in any one of the preceding claims, **characterized** by using the method for adjusting the transmission

power of the mobile station and the base station.

10. A wireless digital telecommunication system for signalling between a base station and a terminal, where the signals to be transmitted over a radio connection between the base station and the terminal comprise bursts generated from symbols, the bursts comprising a known training sequence, the system comprising at least one transmitter and at least one receiver, whereof the transmitter comprises means for generating said training sequence and the receiver comprises means for identifying said training sequence, **characterized** in that

the transmitter comprises means for generating a second training sequence of the same length as the known training sequence and means for generating a burst comprising said second training sequence and for coding a signalling message into said burst and in that

the receiver comprises means for receiving the burst comprising said second training sequence, means for identifying said second training sequence and means for decoding the coded signalling message in said burst.

11. A telecommunication system as claimed in claim 10, **characterized** in that the receiver is arranged to indicate the existence of said signalling message, in response to the received burst comprising said second training sequence.

12. A telecommunication system as claimed in claim 11, **characterized** in that the number of the training sequences to be used in the system is restricted to two.

13. A telecommunication system as claimed in claim 12, **characterized** in that

said burst comprising the known training sequence is arranged to transmit user data and

said burst comprising the second training sequence is arranged to transmit signalling data and/or user data.

14. A telecommunication system as claimed in any one of claims 10 to 13, **characterized** in that at least one stealing symbol in the burst comprising said second training sequence is arranged to specify the contents in the signalling message to be transmitted.

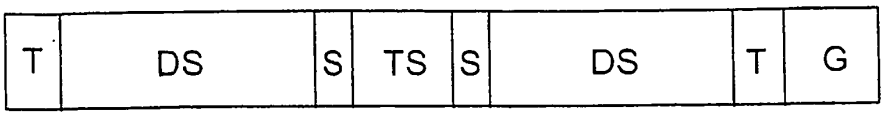


FIG. 1

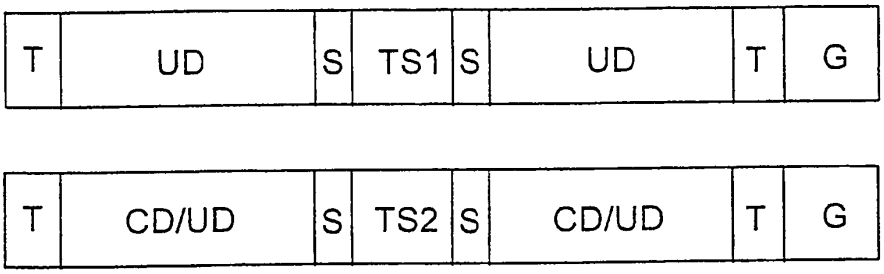


FIG. 2

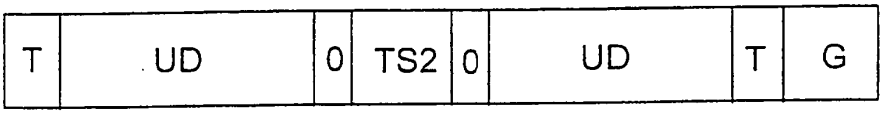


FIG. 3a

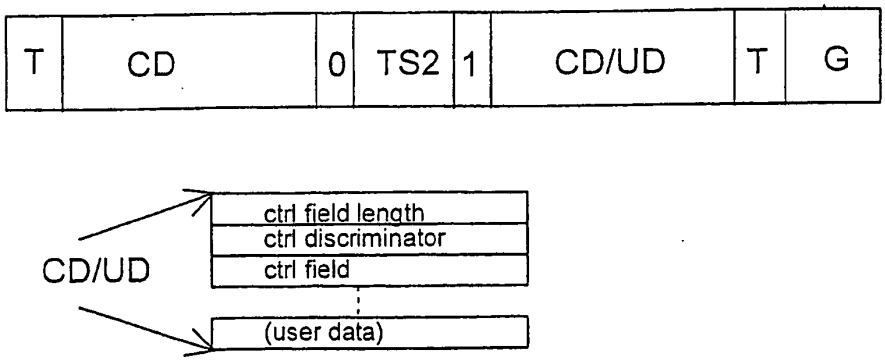


FIG. 3b

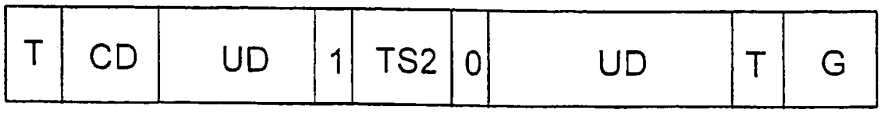


FIG. 3c

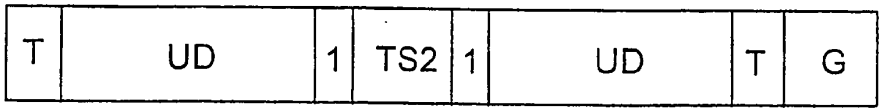


FIG. 3d

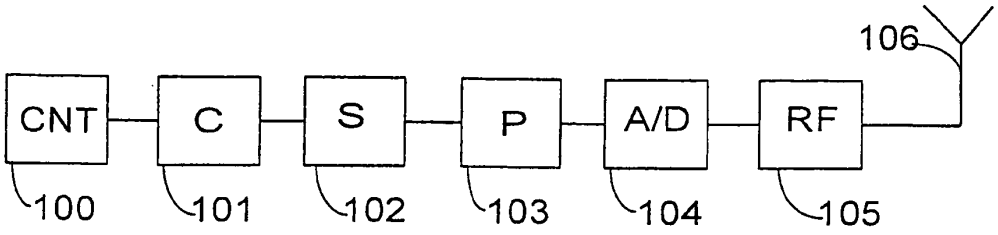


FIG. 4

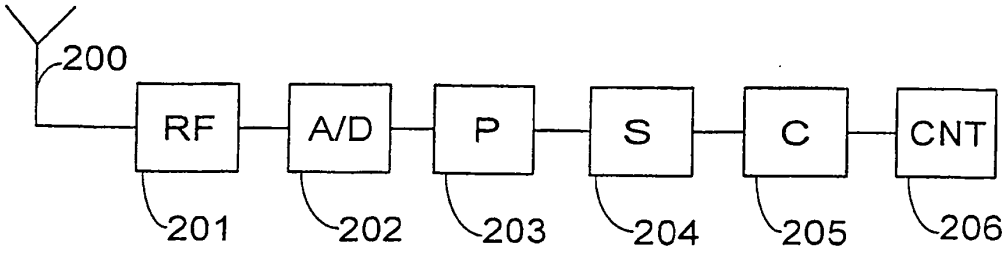


FIG. 5

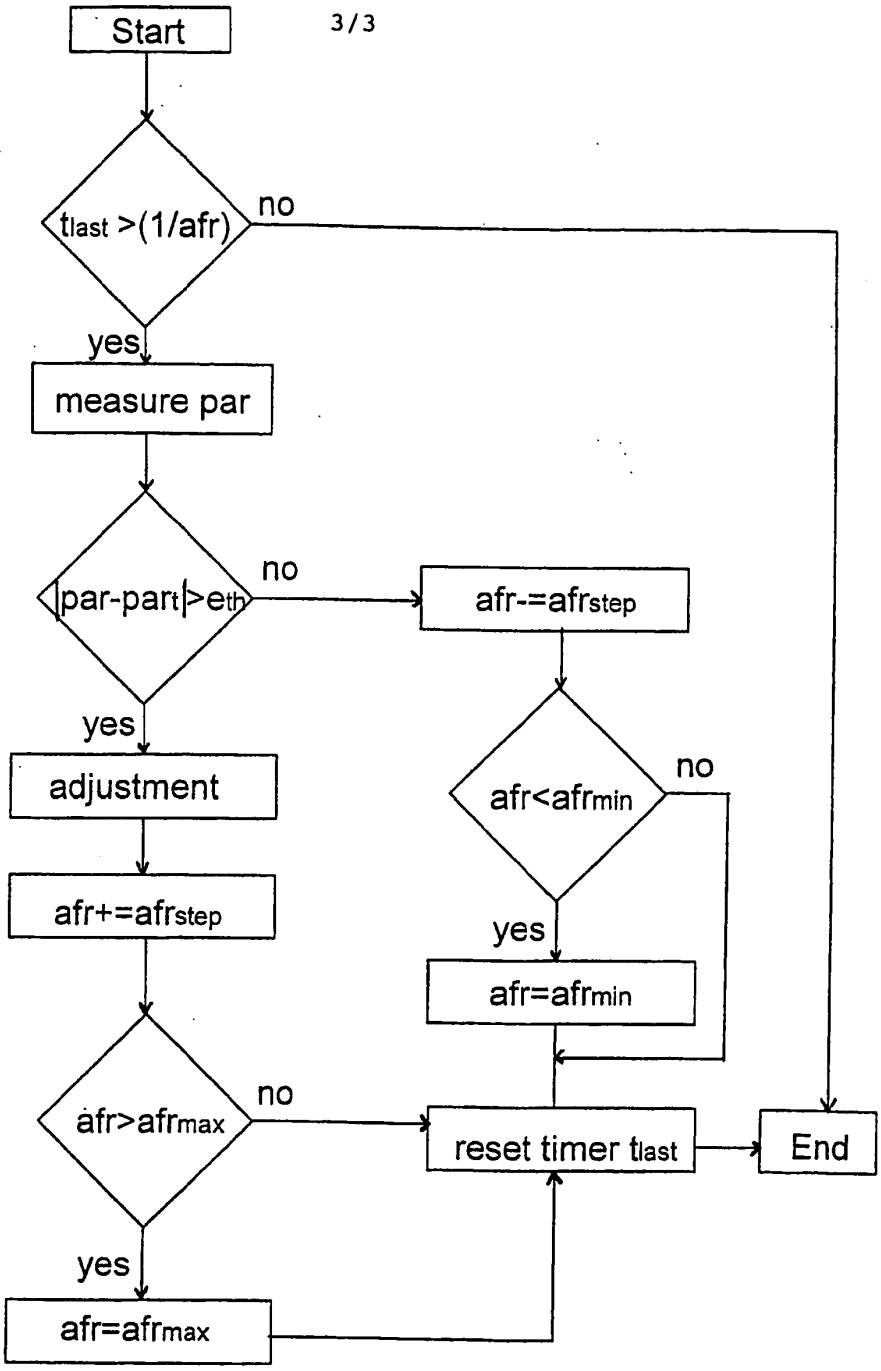

Start
tlast >(1/afr)
no
yes
measure par
par-part>eth
no
afr-=afrstep
yes
adjustment
afr<afrmin
no
afr+=afrstep
yes
afr=afrmin
afr>afrmax
no
reset timer tlast
End
yes
afr=afrmax

FIG. 6

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : H04B 7/26 — A1

(11) International Publication Number: **WO 00/64075**

(43) International Publication Date: 26 October 2000 (26.10.00)

(21) International Application Number: PCT/EP00/03453

(22) International Filing Date: 17 April 2000 (17.04.00)

(30) Priority Data:

9908805.6	16 April 1999 (16.04.99)	GB
9909689.3	27 April 1999 (27.04.99)	GB

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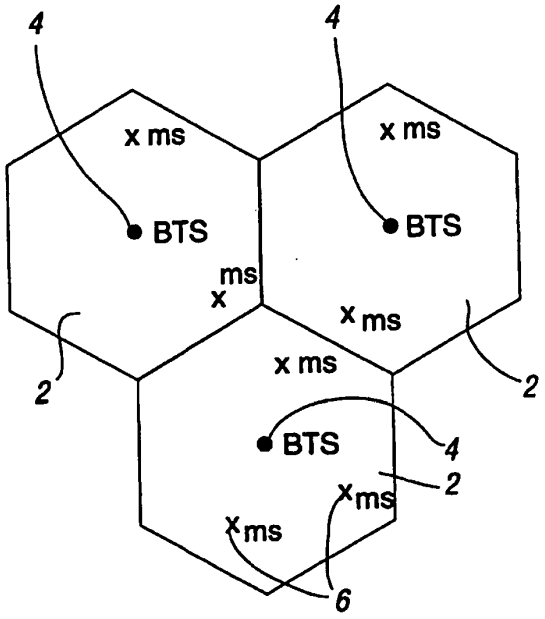
(81) Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: DISCONTINUOUS TRANSMISSION CDMA SYSTEM

(57) Abstract

A method of transmitting from a first node to a second node, said method comprising the steps of transmitting in a first mode at least one data frame from said first node to said second node; and determining if there is no data to be transmitted and if there is no data to be transmitted transmitting at least one empty frame in the first mode; and switching to a second mode in which no transmission is made in the absence of data to be transmitted at least some of the time.



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DISCONTINUOUS TRANSMISSION CDMA SYSTEM

Field of the invention

The present invention relates to a method of transmitting and in particular but not exclusively to a method of transmitting in a wireless telecommunications network.

Background of the invention

The use of code division multiple access (CDMA) is being proposed for the next generation of cellular telecommunication networks. Additionally, code division multiple access is also being used in the IS-95 Standard in the USA. CDMA is a direct sequence spread spectrum technique. In a wireless cellular network using CDMA, the mobile terminals in one cell associated with a first base station will use the same frequency as mobile stations in an adjacent cell associated with a second base station. The different mobile stations can be distinguished by the respective base stations as each mobile station will be using a different spreading code.

In US-A-5101501 a CDMA system is described which uses "soft" handoff. With soft handoff, a mobile station is capable of communicating with more than one base station at the same time. This will typically occur when the mobile station is close to the boundary defined between two cells. The signals sent by the mobile stations will be received and processed by both of the base stations. Likewise, the mobile station will receive the same signal from the two base stations. The signals from the two base stations may be combined. The combined signal may provide better quality than the any of the individual signals received by the mobile station.

Thus, one mobile station can listen to two or more base stations simultaneously. It is therefore important that the information received by the mobile stations from the different base station

be identical. If different information is received from the different base stations, the mobile station will have no way of determining which is the correct information and which information can be ignored. Additionally it will not be possible to combine the signals from the different base stations to provide a meaningful combined signal.

Generally, different information will be received by the mobile station because an error in transmission has occurred and one of the expected transmissions from one or more of the base stations is not transmitted by the base station. The base station may not receive any information to be transmitted to the mobile station for two reasons. Firstly there has been an error in the information received by the base station. Secondly, there is in fact no information to be received. The lack of information may be due to, for example a pause in conversation or because the transmission is a discontinuous transmission. It is therefore necessary to determine whether the lack of received information is intentional or whether it is due to an error.

It has been suggested by the inventor that empty frames of data can be sent to the base station in two different ways. These two ways do not constitute prior art. Firstly, the transmission is suspended. In other words, the base station will be sent nothing. This has the advantage that the processing resources at the base station are saved as well as in other network elements. The load at the interface between the base station and the network controller, which is sending the information to the base station, is reduced. However this method has the disadvantage that it is not possible to distinguish between a transmission error and the fact that there is no data. This leads to two problems.

Firstly, failures in the interface between the base station and the network controller are not detected by the base station in the case of information being sent from the network controller to the base station or by the network controller in the case of information being sent from the base station to the network

controller.

Secondly, if a data frame is not received, due to an error, by a base station, that data frame cannot be transmitted by the base station to the mobile station. If the mobile station is in soft handoff, that is communicating with more than one base station at a time, the mobile station will receive different data streams from the base stations due to the error. This may lead to errors in the mobile station when it attempts to combine the different data streams.

The second method for dealing with empty frames of data is for the base station to be sent empty frames of data. This makes it possible to distinguish between errors and the fact that there is no information. However, this method does have the disadvantage that additional processing capacity is required at the base station and other network elements. Additionally, the load at the interface between the base station and the network controller is increased.

Similar problems can also occur in the uplink directions.

Summary of the invention

It is an aim of embodiments of the present invention to provide a method of dealing with the absence of information or data which addresses the disadvantages of the known methods.

According to one aspect of the present invention, there is provided a method of transmitting from a first node to a second node, said method comprising the steps of transmitting in a first mode at least one data frame from said first node to said second node; and determining if there is no data to be transmitted and if there is no data to be transmitted transmitting at least one empty frame in the first mode; and switching to a second mode in which no transmission is made in the absence of data to be transmitted at least some of the time.

The first and second nodes may be any suitable elements in a telecommunications network.

According to a second aspect of the present invention there is provided a method of receiving transmissions from a first node at a second node, said transmission have a first mode in which if there is no data to be transmitted, empty frames are transmitted and a second mode in which if there is no data to be transmitted nothing is transmitted, said method comprising the steps of: receiving transmissions from said first node, wherein if the transmissions have a first mode and a frame is not received and error is determined to have occurred.

According to a third aspect of the present invention there is provided a first node for transmitting data to a second node, wherein said first node comprises transmitting means for transmitting data to said second node, said transmitting means have a first mode of operation in which data is transmitted in data frames and if there is no data to be transmitted empty frames are transmitted and a second mode of operation in which if there is no data no frames are transmitted.

According to a fourth aspect of the present invention, there is provided a second node for receiving transmissions from a first node at a second node, said transmissions have a first mode in which if there is no data to be transmitted, empty frames are transmitted and a second mode in which if there is no data to be transmitted nothing is transmitted, said second node comprising means for receiving transmissions from said first node, and determining means for determining that if the transmissions have a first mode and a frame is not received, an error has occurred

Brief description of the drawings

For a better understanding of the present invention and as to how the same may be carried into effect, reference will now be made

by way of example to the accompanying drawings in which:
Figure 1 shows a schematic diagram of part of a cellular telecommunications network incorporating base transceiver stations and mobile stations;
Figure 2 shows part of the network of Figure 1 in more detail; and
Figure 3 illustrates the normal and silent modes used by the base stations of Figure 1.

Detailed description of embodiments of the invention

Reference will first be made to Figure 1 in which three cells 2 of a cellular telecommunications network are shown. Each cell 2 is served by a respective base transceiver station (BTS) 4. Each base transceiver station 4 is arranged to transmit signals to and receive signals from the mobile stations 6 located in the cell associated with the given base transceiver station 4. Likewise, each mobile station 6 is able to transmit signals to and receive signals from the respective base transceiver station 4.

The cellular telecommunications network shown in Figure 1 uses a code division multiple access technique. Accordingly, at least some of the mobile stations will be in communication with more than one base station at the same time. This, however, will be described in more detail hereinafter.

Reference is now made to Figure 2. As can be seen from this figure, the base stations are connected to a SRNC (serving radio network controller) 20. Data blocks are transmitted between the SRNC 20 and the base stations 28 and 30 using a frame protocol FP. A data frame contains data which is to be transmitted in one interleaving period and a transport format indicator TFI. The interleaving period is the period over which data is interleaved. The transport format indicator TFI provides information as to the format of the data frame such as the size of the data block, the interleaving period and the like.

Each UE (user equipment for example mobile stations or the like) has an independent transport connection which means that each frame contains the data and current transport format indicator TFI of one bearer only. Typically a call will have more than one bearer, for example a signalling bearer and a data or voice bearer. For downlink communications (from the SRNC 20 to the base station direction), all the data blocks of users having the same user equipment are multiplexed onto a single radio link. The manner in which the multiplexing is done will depend on the transport format indicator TFI of each frame which indicates the amount of data in each frame for the bearers. A transport format combination information TFCI field of the radio frame provided in a dedicated physical control channel DPCCH will indicate the manner in which the multiplexing is carried out. The transport format combination information TFCI field will indicate the transport format indicator TFI for each of the bearers whose data is multiplexed in the radio frame or frames in the dedicated physical data channel DPDCH. In the case of soft handoff where a mobile station is in communication with more than one mobile station at a time, the dedicated physical data channels DPDCH from each of the bases stations communicating with the mobile station in question will be the same as will the rate information RI fields in all the radio links.

The format described hereinbefore is part of the currently proposed UMTS (universal mobile telephone service) standard. It should be appreciated that any other standard can alternatively be used.

In the following, it is assumed for simplicity that there is only one bearer per transport channel and the SRNC does not carry out any multiplexing. The transport format information can have a particular value which indicates that the frame does not contain any data. For simplicity it is assumed that the particular value is zero although the particular value can be any other value.

The SRNC 20 shown in Figure 2 has first and second medium access

controllers MAC 24 which receive the data from respective bearers. For simplicity, the medium access controllers 24 are each shown as receiving information from one bearer only. The medium access controllers can receive information from more than one bearer and carry out the multiplexing function described hereinbefore.

The medium access controller 24 receives an input from a first bearer Bearer 1 and a second bearer, Bearer 2 and outputs a first transport channel 1 and a second transport channel 2. The input from Bearer 1 maps to the first transport channel 1 and the input from Bearer 2 maps to the second transport channel 2. The transport channels are input to respective macrodiversity combiners 26. The macrodiversity combiners 26 output the transport channels to each base station which is in communication with the mobile station for which the transport channel is intended. In the example shown in Figure 2, the first transport channel 1 is output to first and second base stations 28 and 30 as is the second transport channel 2. Thus the first and second base stations are each arranged to transmit the same channels to a single mobile station.

The mode of operation for transmission of information between the SRNC 20 and base stations will now be described with reference to Figure 3. Two modes are defined. The first mode is the normal mode and the second mode is the silent mode. The data which is to be sent to the mobile station is interspersed with periods where there is no data. This may occur during pauses in a conversation between two parties. Alternatively, in the case of non speech data, the data may be discontinuous.

In the normal mode A of operation, on the transmit side, the SRNC 20 transmits a frame F for every interleaving period. As shown in Figure 2, frames F1 and F2 contain data. If no data is present, frames F3, F4 and F5 which are empty frames E are sent. After N consecutively received empty frames E, the frame protocol connection is switched to the silent mode S. N can have any

suitable value such as 1, 2 or 3 or any other suitable value.

In the silent mode S, on the transmit side, the SRNC 20 is prevented from transmitting any frame if there is no data in the frame. The SRNC may transmit K empty frames F6 at the beginning of the silent mode S to ensure that the base station has switched to the silent mode; also if up to K of the N empty frames previously sent have been lost during the transmission. After M consecutive frames F7 and F8 including data are transmitted, the frame protocol connection is switched to the normal mode A again. K may be 0 or 1 or any other suitable number. M can be 1, 2, 3 or any other suitable number.

In the normal mode A, on the receive side, if a frame is not received in an interleaving period, the base station generates an interface failure alarm and decides whether to transmit the radio frame without the data or to not transmit the frame at all. After the base station has received N empty frames, the frame protocol connection is switched to the silent mode S.

In the silent mode S, on the receive side, if a frame is not received in one interleaving period, the base station considers the bearer to be in an inactive state and sets the transport format indicator TFI to zero. After M consecutive data frames with data have been received, the frame control layer connection is switched to the normal mode A.

The parameters M, N and K may be:

1. predetermined, for example fixed in a standard used by the network;
2. Iub/Iur (Iub is the interface between the SRNC and the base station while Iur is the interface between two radio network controllers) interface protocol configurable parameters, that is the parameters can be set at each interface as required; and
3. signalled from the SRNC to base stations every time a new branch or bearer is set. The parameters may be reconfigurable as required.

Control frames which do not contain data but instead contain control information such as power control and synchronisation information are sent in both the normal mode and the silent mode. Control frames may not be present in either or both of these modes.

Reference will now be made to a second embodiment of the present invention which uses explicit signalling in order to switch from the normal mode to the silent mode. In this second embodiment, the base station will not automatically switch to the silent mode when a predetermined number of consecutive empty frames have been received. However, the transmission of a predetermined number of empty frames when in the normal mode can be used as an indication that the silent mode should be used. Of course, any other suitable measure can be used to determine that a switch should be made between the normal and the silent mode.

Once a determination has been made that the base station should stop using the normal mode and start using the silent mode, the radio network controller will include in the next frame sent to the base station a mode bit indicative of this. This mode bit may have a given value for the silent mode and the other value for the normal mode. Alternatively, one value of the bit indicates that the mode should change either from the normal to the silent mode or from the silent mode to the normal mode. The other value of the bit would indicate that the mode is not to be changed.

When the base station receives the frame transmitted by the radio network controller, it checks the mode bit. If this bit indicates that the mode is to change from the normal mode to the silent mode, the base station changes its mode and sends an acknowledgement confirming that the base station has understood that the mode is changed. Once the radio network controller has received the acknowledgement from the base station, the radio network controller will use the silent mode.

Changes from the silent mode to the normal mode can be achieved

in the same way as in the first embodiment. However, it is also possible to alter the mode from the silent to normal mode in the following. When it is determined that the base station is to receive using the normal mode, the radio network controller will alter the mode bit in the next frame sent to the base station, to indicate that the mode should change to the normal mode. If a data frame is being sent to the base station, the mode bit will be altered in that frame. If no data frame is being sent to the base station due to an absence of data, the radio network controller will send an empty frame with the mode bit set accordingly.

The base station will send an acknowledgement indicating that it has received the frame and has noted that the mode is changed to the normal mode. When the radio network controller receives the acknowledgement, the radio network controller will then use the normal mode.

It is possible to use this second method to notify the base station by sending in advance information that the mode will change after a predetermined number of frames or the like.

The method used by the first embodiment has the advantage that the frame structure does not need to be altered. A second advantage of the first method is that two way communication does not have to be set up if one party, for example, the radio network controller is sending data to the base station and the base station is not sending any data to the radio network controller. The second method is advantageous in that both parties are certain as to which mode of operation is being used.

The acknowledgement sent by the base station to the radio network controller may use a mode bit in the frame, as described hereinbefore in relation to the frames sent from the radio network controller to the base station. Thus the acknowledgement may comprise the mode bit in the frame sent by the base station to the radio network changing to reflect the new mode. Either of

the options for the mode bit described hereinbefore may be used.

It should be appreciated that although the transmissions from the SRNC to the base station are described as using the normal and silent mode of operation, this mode of operation can alternatively or additionally be used for transmissions from the base station to the SRNC. The values of the parameters used in the downlink and uplink directions may differ. Embodiments of the present invention may be applied to the communications between any two nodes of a telecommunications network, wired or wireless.

It should be appreciated that although embodiments of the present invention are particularly advantageous when used in a soft handoff or similar context, that is when a mobile station is in communication with more than one base station at the same time, embodiments of the present invention can also advantageously be used where the mobile station is in communication with one base station at a time. In an alternative embodiment of the present invention, the normal and silent mode of operation may only be used when the mobile station is in communication with more than one base station at a time. A different mode of operation may be used when the mobile station is in communication with only one base station. The different mode of operation may be one which incorporates one of the previously known methods for dealing with empty frames.

Whilst preferred embodiments have been described in the context of a code division multiple access system, embodiments of the present invention can be used with any other spread spectrum technique or any other suitable access technique such as time division multiple access, frequency division multiple and space division multiple access as well as hybrids thereof.

CLAIMS:

1. A method of transmitting from a first node to a second node, said method comprising the steps of:

transmitting in a first mode at least one data frame from said first node to said second node; and

determining if there is no data to be transmitted and if there is no data to be transmitted transmitting at least one empty frame in the first mode; and

switching to a second mode in which no transmission is made in the absence of data to be transmitted at least some of the time.

2. A method as claimed in claim 1, wherein said second mode is used if a predetermined number of empty frames are transmitted consecutively.

3. A method as claimed in claim 2, wherein the first station, if using the first mode, switches automatically to the second mode if the predetermined number of empty frames are transmitted consecutively.

4. A method as claimed in claim 1 or 2, comprising the step of the first node sending information to the second node advising that the mode is to change from the first mode to the second mode.

5. A method as claimed in claim 4, wherein the second node is arranged to confirm receipt of said information and when the first node has received the confirmation from the second node, said first node is arranged to use said second mode.

6. A method as claimed in claim 4 or 5, wherein said information is in a frame transmitted from the first node to the second node.

7. A method as claimed in any of claims 4 to 6, wherein said information is sent in advance of the change of mode.

8. A method as claimed in any preceding claim, wherein in said second mode, data to be transmitted is transmitted in data frames and if a predetermined number of data frames are transmitted, the first mode is used.

9. A method as claimed in claim 8, wherein if the predetermined number of data frames is received in said second mode, the first mode is automatically used.

10. A method as claimed in any of claims 1 to 8, wherein when the first node is using the second mode and the mode is to be switched to the first mode, the first node is arranged to transmit information that the mode is to be switched to said second mode.

11. A method as claimed in claim 10, wherein the second node is arranged to confirm receipt of said information that the mode is to be switched from said second mode to the first mode and the first node is arranged to use the first mode when the confirmation has been received by the first node.

12. A method as claimed in claim 2 or any claim appended thereto, wherein said predetermined number of data frames are consecutive data frames.

13. A method as claimed in any one of the preceding claims wherein if no data is to be transmitted at the beginning of the second mode, a predetermined number of empty frames are first transmitted and then no transmission is made in the absence of data to be transmitted.

14. A method as claimed in any one of the preceding claims, wherein said first node is arranged to transmit the same data to a plurality of second nodes, said plurality of second nodes

transmitting the same data to a third node.

15. A method of receiving transmissions from a first node at a second node, said transmission have a first mode in which if there is no data to be transmitted, empty frames are transmitted and a second mode in which if there is no data to be transmitted nothing is transmitted, said method comprising the steps of:

receiving transmissions from said first node, wherein if the transmissions have a first mode and a frame is not received and error is determined to have occurred.

16. A method as claimed in claim 15, wherein if an error is determined to have occurred, said second node transmits an empty frame to a third node.

17. A method as claimed in claim 15, wherein if an error is determined to have occurred, said second node transmits nothing to a third node.

18. A method as claimed in any of claims 15 to 17, wherein after a predetermined number of empty frames are received in said first mode, determining that the second mode is used by the first node.

19. A method as claimed in claim any of claims 6 to 9, wherein when a predetermined number of frames of data are received in said second mode, determining that the first mode is used by the first node.

20. A method as claimed in any of claims 15 to 20, wherein a change in operation of said first node is determined from information received by the second node from the first node.

21. A method as claimed in claim 20, wherein said information is in at least one frame transmitted from the first node to the second node.

22. A method as claimed in claim 16 or any claim appended

thereto, wherein said third node is a mobile station.

23. A method as claimed in any preceding claim, wherein said first node is a base station or a radio network controller in a wireless cellular telecommunications network.

24. A method as claimed in any preceding claim, wherein said second node is a base station or a radio network controller in a wireless cellular telecommunications network.

25. A first node for transmitting data to a second node, wherein said first node comprises transmitting means for transmitting data to said second node, said transmitting means have a first mode of operation in which data is transmitted in data frames and if there is no data to be transmitted empty frames are transmitted and a second mode of operation in which if there is no data no frames are transmitted at least some of the time.

26. A second node for receiving transmissions from a first node at a second node, said transmissions have a first mode in which if there is no data to be transmitted, empty frames are transmitted and a second mode in which if there is no data to be transmitted nothing is transmitted, said second node comprising means for receiving transmissions from said first node, and determining means for determining that if the transmissions have a first mode and a frame is not received, an error has occurred.

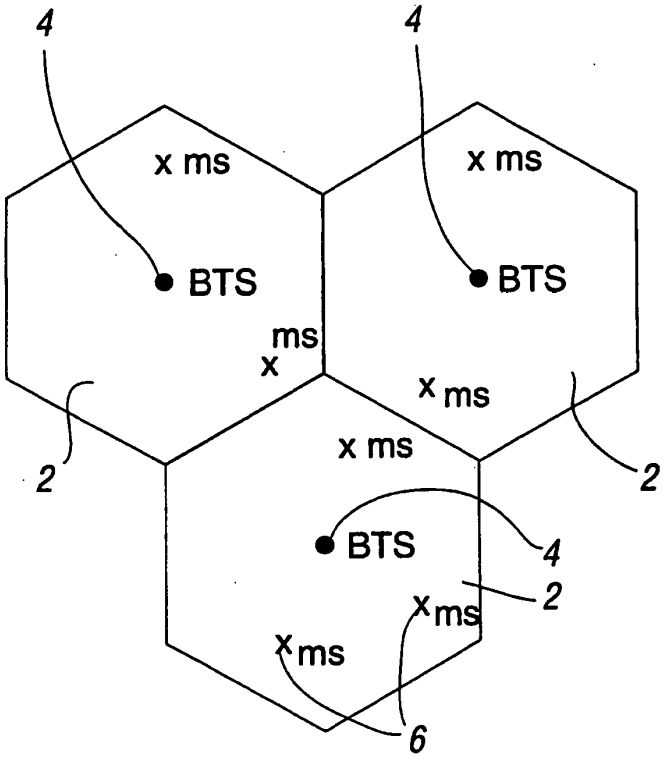


FIG. 1

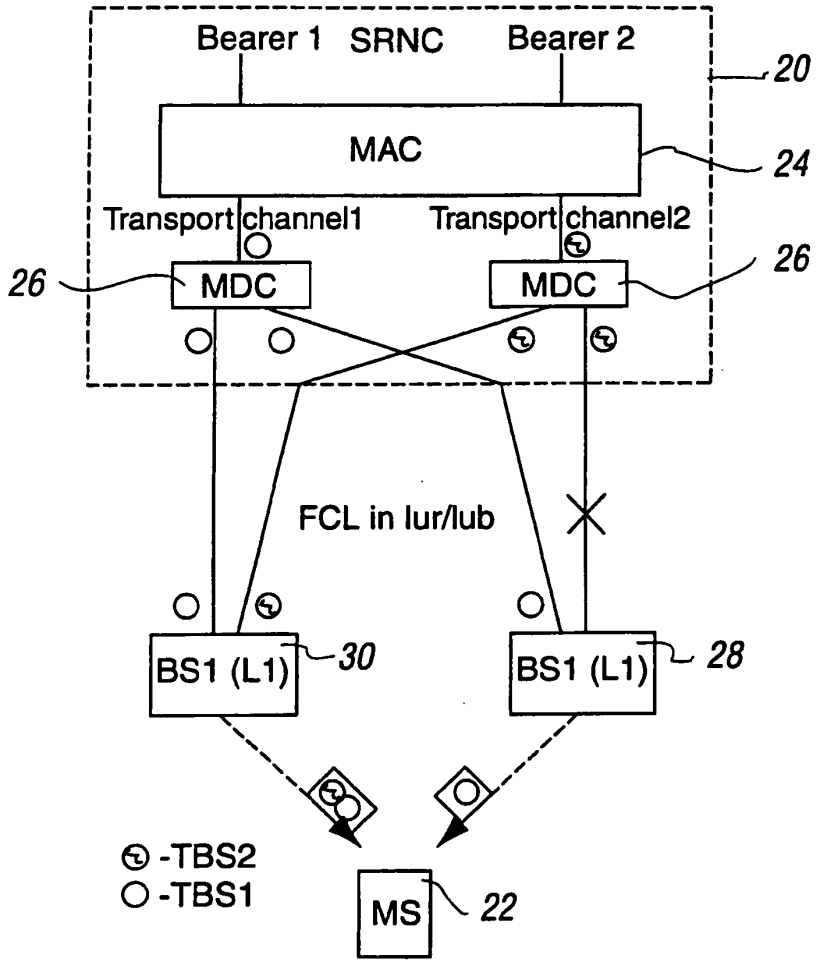

Bearer 1
SRNC
Bearer 2
20
MAC
24
Transport channel1
Transport channel2
26
MDC
MDC
26
FCL in Iur/Iub
BS1 (L1)
30
BS1 (L1)
28
-TBS2
-TBS1
MS
22

FIG. 2

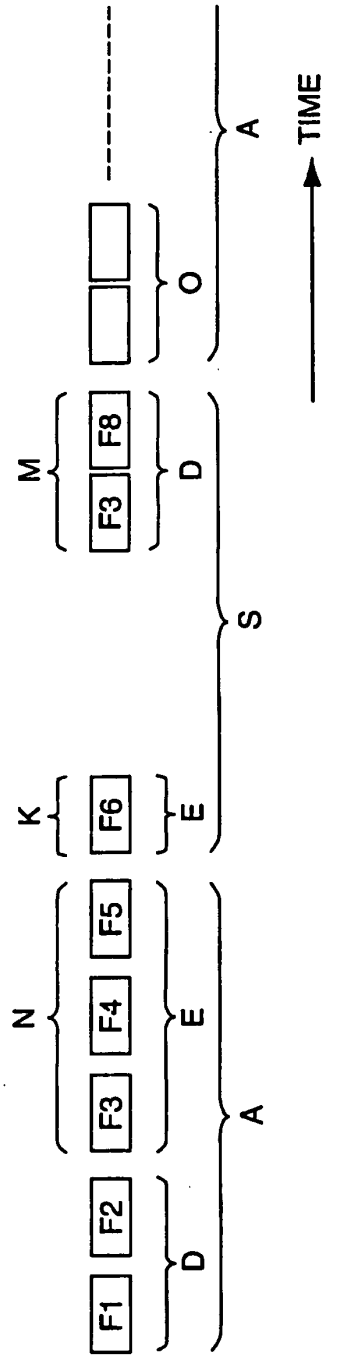


FIG. 3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 00/03453

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04B7/26

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)
IPC 7 H04B

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 practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	EP 0 565 504 A (ERICSSON GE MOBILE COMMUNICAT) 13 October 1993 (1993-10-13) abstract column 3, line 40 -column 4, line 47 claims 1,2	1,25 2-24,26
X	WO 97 02561 A (NOKIA MOBILE PHONES LTD ;KAPANEN PEKKA (FI)) 23 January 1997 (1997-01-23) abstract claim 1; figures 2,4,5	1,25

☐ Further documents are listed in the continuation of box C.

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Date of the actual completion of the international search	Date of mailing of the international search report
29 June 2000	06/07/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Lazaridis, P

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Interna tional Application No
PCT/EP 00/03453

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		US 5835889 A	10-11-1998

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(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
14 December 2000 (14.12.2000)

PCT

(10) International Publication Number
WO 00/76194 A1

(51) International Patent Classification[7]: H04M 7/38

(21) International Application Number: PCT/FI00/00495

(22) International Filing Date: 2 June 2000 (02.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
991283 4 June 1999 (04.06.1999) FI

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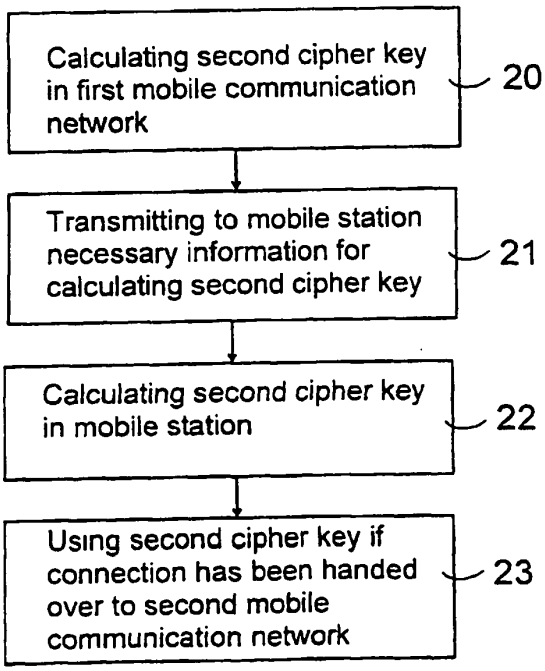
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(81) Designated States *(national)*: AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility

[Continued on next page]

(54) Title: ARRANGING AUTHENTICATION AND CIPHERING IN MOBILE COMMUNICATION SYSTEM



(57) Abstract: A method of arranging authentication and ciphering in a telecommunication system comprising two different mobile communication networks, a mobile station communicating with a first one of the mobile communication networks. In the first mobile communication network, a cipher key according to a second mobile communication network is calculated and information necessary for calculating the cipher key is transmitted to the mobile station, at which the cipher key according to the second mobile communication network is also calculated. After the connection has been handed over to the second mobile communication network, traffic is ciphered by using said precalculated cipher key.

WO 00/76194 A1

model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) **Designated States** *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— *With international search report.*

— *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.*

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ARRANGING AUTHENTICATION AND CIPHERING IN MOBILE COMMUNICATION SYSTEM

BACKGROUND OF THE INVENTION

The invention relates to a method and an arrangement for arranging data protection disclosed in the preambles of the independent claims.

In mobile communication systems, at least one part of a transmission path is comprised of a wireless section, whereby data transmission takes place via a radio path. A radio path is a physically open resource, which puts security at risk. Various solutions have been developed in digital mobile communication systems to arrange data protection, including ciphering methods and methods for identifying, i.e. authenticating, a user or a subscriber.

In mobile communications systems, a mobile network typically carries out subscriber authentication in order to make sure that only correct parties have an access right. For example, a mobile station in a digital GSM system comprises a subscriber identity module SIM application comprising means for authenticating the subscriber. The SIM application further uses a personal identity number PIN check, whereby only the person who knows the PIN code can use the SIM application. In authentication, the mobile station transmits to the GSM network identification information, and the SIM and thus also the subscriber are authenticated on the basis of this information. The SIM comprises mobile-operator-specific information, including an SIM-specific international mobile subscriber identity IMSI of a mobile services subscriber. Typically, the SIM also comprises a temporary mobile subscriber identity TMSI within a location area, which can be used to avoid transferring the IMSI over a radio path.

A mobile switching centre MSC, which typically also comprises a visitor location register VLR, transmits an authentication request to an authentication centre AuC. The authentication centre AuC is typically located as a part of a home location register HLR of the subscriber. Subscriber authentication information and authentication algorithms are stored in the authentication centre. On the basis of the IMSI comprised in the authentication request, the authentication centre AuC selects a subscriber-specific authentication key Ki. In addition, a random-number generator generates a number of random-number parameters RAND, which, together with the key Ki, are used to provide each RAND parameter with a checking parameter SRES by applying authentication algorithm A3. The authentication centre AuC typically transmits

these RAND/SRES parameters simultaneously with a calculated cipher key Kc to the visitor location register VLR to be stored.

When the VLR wishes to authenticate a subscriber, it selects a RAND value for the parameter from a RAND/SRES table corresponding to the present subscriber and transmits the RAND value to the mobile station and further to the SIM application. The SIM comprises the same authentication key Ki and authentication algorithm A3 as those used at the authentication centre AuC. The SIM calculates the SRES parameter, which is the authentication response, by means of the received RAND parameter and the key Ki by applying algorithm A3. The mobile station returns the SRES parameter to the visitor location register VLR. The VLR compares the SRES value transmitted by the mobile station with a stored SRES value, and if they are the same, the authentication has succeeded. In principle, the GSM network can request authentication at any stage when a mobile station is registered in the network. Authentication can be carried out particularly when a mobile station registers in a network.

Ciphering is used in many telecommunication systems to prevent data to be transmitted from becoming subject to unauthorised access. For example, it is possible in the GSM system to use ciphering of data transmission which is difficult to crack, whereby speech and data converted into digital form are ciphered at the mobile station to be transmitted over the radio path. Similarly, received ciphered data in the GSM network is deciphered into plain speech and data. In connection with the present application, ciphering can refer either to ciphering or deciphering of traffic. Ciphering and user authentication utilise cipher keys and ciphering algorithms accessible to the particular transmission and reception equipment only.

When in the GSM system the mobile switching centre MSC/VLR has authenticated the user, ciphering of the traffic to be transmitted can be initiated. The cipher key Kc is calculated in connection with authentication by means of the secret key Ki and the random number RAND by applying algorithm A8 both at the authentication centre AuC and the SIM. Algorithms A3 and A8 are typically implemented such that both the SRES parameter and the cipher key Kc are calculated simultaneously. In the authentication parameters the authentication centre transmits the cipher key Kc with the RAND and SRES parameters to the visitor location register VLR, whereby these three parameters form a "triplet". The cipher key Kc is stored in the visitor location

register VLR. The visitor location register VLR transmits the random number RAND to the SIM application for authentication and cipher key calculation. The SIM calculates the cipher key Kc typically in connection with calculating the SRES parameter on the basis of the RAND parameter and the secret key Ki by applying algorithm A8. Consequently, calculating the cipher key Kc is a part of the GSM authentication. The cipher key Kc is stored in the SIM application. According to the GSM standard, the Kc is 64 bits at most.

When the mobile switching centre MSC/VLR commands ciphering to be initiated, the cipher key Kc is transmitted from the visitor location register VLR to a base station. Furthermore, a command is transmitted to the mobile station, which starts using the Kc calculated at the SIM. The GSM network selects the ciphering algorithm on the basis of the identifier of the ciphering algorithm comprised in a "classmark" identifier transmitted by the mobile station. The base station and the mobile station carry out traffic ciphering and deciphering, depending on the direction of the traffic, by means of the cipher key Kc and the number of the traffic frame by applying algorithm A5. *The GSM System for Mobile Communications* by M. Mouly and M. Pautet, Palaiseau, France, 1992, ISBN: 2-9507190-0-7, for example, discloses a more detailed description of the GSM system.

Third generation mobile communication systems have been developed throughout the world. 3rd generation partnership project 3GPP standardizes a third generation mobile communication system which is based on the GSM system and called a universal mobile telecommunications systems UMTS, which comprises a new radio interface, for example. The UMTS radio interface will be based on the wideband code division multiple access WCDMA technique. The GSM core network will be utilised in the UMTS system, whereby connection management and mobility management will mainly remain the same. The UMTS system will provide circuit-switched services and packet-switched services. The packet-switched services will probably be based on the general packet radio service GPRS in the GSM.

An essential requirement in the UMTS system is the handover requirement between the GSM and the UMTS. In connection with the present application, handover refers to changing a radio traffic connection and radio traffic responsibility from a source system to a target system without the data transfer connection provided for a user service being substantially disconnected. In the GSM/UMTS handover, the connection is thus handed over from

the UMTS system to the GSM system, or vice versa. In the GSM/UMTS handover, the connection provided for the user remains similarly uninterrupted to one in the existing internal handover in the GSM system. This enables the UMTS system to be rapidly introduced since particularly in the beginning, the GSM system with its extensive coverage area can be used as backup. For this purpose, it is probable that devices called dual-mode mobile stations supporting both the GSM system and the UMTS system will appear on the market.

In the UMTS standardization work, it is likely that a solution with mainly similar principles to the GSM procedures will be selected as far as the security architecture is concerned. In such a case, as high compatibility with the GSM architecture as possible can be achieved. Both the UMTS network and a user service identity module USIM application of the SIM identity application kind in the GSM comprise a secret key which is required for carrying out authentication. Changes will primarily relate to key lengths and algorithms used; document TR S3.03 version 0.1.2 "3G Security: Security Architecture" in the 3GPP discusses security requirements in the UMTS system. Particularly the cipher key to be used will probably be longer than in the GSM system.

In order to support the GSM system, a UMTS IC card UICC comprising the USIM application may also comprise the SIM application of the GSM system. The UMTS system further requires that services may be provided to mobile stations with only a smart card comprising a GSM identity SIM application. Furthermore, at the early stage the GSM/UMTS core network may be the same, so the core network of the UMTS system can also support authentication and ciphering according to the GSM system as well.

In the GSM system, in a handover situation, ciphering parameters used in handover between mobile switching centres, such as the cipher key, are transmitted from the source network to the target network. Hence, when a connection is handed over from the GSM network to the UMTS network, the cipher key Kc according to the GSM can be used while the traffic remains ciphered all the time. It is naturally required that the UMTS network supports the ciphering according to the GSM system. It is also possible to carry out authentication according to the UMTS system and start using a UMTS cipher key after handover.

When the mobile station is in the UMTS network, a cipher key according to the UMTS system is available for its use. When handover from the UMTS system to the GSM system is carried out, the problem is the ciphering

since a base station sub-system BSS according to the GSM system is not necessarily able to carry out the ciphering by the UMTS parameters. Consequently, the UMTS cipher key cannot be used as such after handover, according to the GSM principles. According to the prior art, when a change to the GSM system takes place, authentication according to the GSM system can be carried out after handover. In such a case, GSM ciphering can be initiated only after the cipher key Kc has been calculated. This, however, is time-consuming, and some of the traffic will be transferred over the GSM radio interface unciphered.

BRIEF DESCRIPTION OF THE INVENTION

An object of the invention is thus to provide a method and an apparatus implementing the method so as to enable the above-mentioned problems to be alleviated. The objects of the invention are achieved by a method and a system which are characterized by what is disclosed in the independent claims. Preferred embodiments of the invention are disclosed in the dependent claims.

The invention is based on the idea that a cipher key of a "second" mobile communication network according to a mobile communication system, such as a GSM system, is determined in a first mobile communication network typically according to a different mobile communication system, such as a UMTS system, when a mobile station operates in the first mobile communication network. In such a case, a "second" cipher key according to the second mobile communication network can be determined which can preferably be stored both in the mobile station and in the first mobile communication network usually using a "first" cipher key for ciphering traffic. The advantage achieved is that the second cipher key according to the second mobile communication network, such as the GSM network, is already available before a potential handover situation.

In a handover situation, the second cipher key can, according to a preferred embodiment of the invention, be transmitted from the first mobile communication network to a network element performing ciphering, such as a base station, in the second mobile communication network. Furthermore, the second cipher key stored in the subscriber identification application, such as the SIM application, is preferably transmitted to a means in the mobile station which carries out ciphering in the mobile station. Hence, as soon as the logical connection has been handed over to the base station system of the second

mobile communication network, it is possible to start to use ciphering according to the network concerned both at the mobile station and at the network element in the second mobile communication network that carries out the ciphering. The advantage then achieved is that, with the exception of the first signalling messages, no traffic is transferred unciphered over the air interface after handover, as is the case in an internal handover situation in the GSM system.

According to a solution of the invention, a mobile communication network and a mobile station can use several different and alternative methods of ciphering or authentication by using different algorithms or keys. If the mobile communication network and the mobile station support more than one ciphering or authentication method, it is thus possible to e.g. change the cipher key used, if necessary.

According to a preferred embodiment of the invention, a first mobile communication network examines, by means of an IMSI and/or classmark identifier, for example, whether a mobile station supports a second mobile communication network. In such a case, the cipher key according to a second mobile communication network is preferably calculated only if the mobile station supports the second mobile communication network. Furthermore, according to a preferred embodiment of the invention, the second cipher key can be calculated simultaneously with authentication according to the first mobile communication system. In such a case, one message is preferably used for requesting of the authentication centre and further, the mobile station, calculation of a cipher key according to two different systems and, possibly, of an authentication response.

On the other hand, according to another preferred embodiment of the invention, a request can be specified for calculating explicitly a second cipher key according to the second mobile communication system. This can be necessary when, for example, it is detected that handover is necessary to a second mobile communication network. In such a case, calculation of the cipher key according to the second mobile communication network only can be requested preferably in connection with authentication. According to an embodiment of the invention, the second cipher key can be calculated only when necessary, in other words when a decision is made about handover to the second mobile communication network.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is now described in closer detail in connection with the preferred embodiments with reference to the accompanying drawings, in which

Figure 1 shows, by way of example, a UMTS system with a GSM base station sub-system also connected thereto;

Figure 2 shows a method according to a preferred embodiment of the invention in a simplified manner and by means of flow diagram;

Figure 3 shows an authentication implementation according to a preferred embodiment of the invention by means of a signalling diagram;

Figure 4 shows, by way of example and by means of a signalling diagram, a handover function from a UMTS system to a GSM system.

DETAILED DESCRIPTION OF THE INVENTION

In principle, the invention can be applied to any mobile communication system. It is particularly well suited for a UMTS system, which will largely be based on the GSM system. In the following, a preferred embodiment of the invention will be described by using an example wherein GSM authentication functions, calculation of a cipher key in particular, are carried out in a UMTS network before a handover function from the UMTS network to a GSM network (Figures 1 and 3) and a handover function which utilizes, according to the invention, a precalculated cipher key (Figure 4). Figure 2 describes in a simplified manner a method according to a preferred embodiment of the invention independently of the mobile communication system used.

Figure 1 shows, by way of example, a mobile communication network according to the UMTS system, a core network CN of the mobile communication network also being able to control a GSM base station sub-system. A UMTS mobile station MS comprises mobile equipment ME and a UICC smart card. A UMTS radio access network RAN comprises one or more base stations BS, and radio frequencies available to the base stations are controlled by a radio network controller RNC.

For circuit-switched services, the radio network controllers RNC are connected to a mobile switching centre MSC, which is responsible for connection establishment of the circuit-switched services and routing them to correct addresses. Two databases are utilized herein which comprise information on mobile subscribers: a home location register HLR and a visitor location register

VLR. Similarly, a serving GPRS support node SGSN utilizing the home location register HLR is used for packet-switched services. Both the MSC and the SGSN communicate with an authentication centre AuC, typically via the home location register HLR.

The mobile switching centre MSC is via an interworking function IWF connected to other telecommunication networks, such as a public switched telephone network PSTN or an integrated services digital network ISDN. A GPRS gateway support node GGSN communicates with packet data networks PDN.

A base station sub-system BSS according to the GSM system is also connected to the core network CN, the base station sub-system BSS comprising at least one base transceiver station BTS and a base station controller BSC.

A home environment HE specified in the UMTS documents of the 3GPP enters a contract with a subscriber for service provision and provides a USIM application. In such a case, the home location register HLR is located in the home environment HE. A serving network SN refers to a network in the area of which the mobile station is currently located. In roaming situations or in situations in which service provision and network operation are separated from each other, separate home environment HE and serving network SN can be discerned. In Figure 1, the home environment HE and the serving network SN are not separated.

In functions described later, the visitor location register VLR may be located in the serving network SN and the authentication centre AuC may be located in the home environment HE of a different operator or they may belong to a network controlled by the same operator. In connection with the present application, networks elements in the core network CN of Figure 1 are named as in the GSM system; the essential feature is that the network elements are capable of carrying out the functions according to the UMTS system.

The security architecture in the UMTS system will be mainly similar to that in the GSM system. Hence, the procedure described earlier according to the GSM will also be implemented in the UMTS; probable differences will be discussed in the following. Table 1 shows UMTS parameters corresponding to GSM parameters that have been discussed in 3GPP document TR S3.03 version 0.1.2 "3G Security: Security Architecture".

Table 1.

DESCRIPTION	GSM	UMTS
random number parameter	RAND	RANDu
authentication checking parameter to be compared (authentication response)	SRES	XRES
cipher key	Kc	CK
integrity key	-	IK
authentication token	-	AUTN

In authentication according to the UMTS system, the authentication centre AuC produces five parameters in accordance with Table 1 and transmits them to the visitor location register VLR. In the GSM system, three parameters are produced, i.e. a triplet. The random number parameter RANDu corresponds to the RAND parameter in the GSM system, but may vary in length. An authentication checking parameter XRES (Expected Response) and a cipher key CK in particular may also vary in length compared to the GSM parameters SRES and Kc. The GSM lacks an authentication token AUTN; it can be transmitted to the USIM application in the same message as the RANDu parameter. By means of the AUTN token, the USIM application can check whether the serving network has the right to serve UMTS services. As distinct from the GSM system, the USIM generates an XRES parameter and calculates a cipher key CK only if the AUTN parameter is acceptable. As in the GSM system, the USIM transmits the calculated XRES parameter to the network to the visitor location register VLR, which compares it with the authentication checking parameter received from the authentication centre. The authentication has succeeded if the XRES calculated in the network and the XRES parameter calculated in the USIM application correspond to each other.

The GSM system lacks an integrity key IK; in the UMTS system, it will be used for protecting certain signalling messages, such as information on features of a mobile station, for example. The IK is calculated both in the USIM application and in the UMTS network. Since UMTS standardization work is still underway, algorithms necessary for producing the parameters shown in Table 1 have not been determined precisely. They will probably differ from GSM al-

gorithms A3, A5 and A8. The key corresponding to the secret key Ki in the GSM is K in the UMTS, K being used in calculating authentication parameters both in the USIM application and the authentication centre.

In principle, the GSM or the UMTS network can request authentication of a mobile station at any time. Authentication can be carried out e.g. in connection with location update or while providing a paging response when a mobile station receives a call. The invention can be applied to authentication at any time.

In the example according to the invention, the mobile station MS is capable of establishing a connection both to the GSM and the UMTS networks, i.e. it is a so-called dual-mode mobile station. The MS thus comprises functions both according to the GSM system and the UMTS system, and further, functions of the SIM application and the USIM application. The SIM/USIM functions are preferably located on a smart card UICC and they can preferably be provided from the same operator, i.e. home environment HE, as one application. It is assumed that the subscriber identifier, preferably the IMSI, is the same both for the GSM and the UMTS system. Hence, the IMSI identifier identifies both the SIM application and the USIM application. On the basis of the IMSI identifier, the UMTS network can preferably also detect whether a subscriber that has the right to access both GSM and UMTS services is at issue. Even though the IMSI identifier were the same, authentication (comprising calculation of cipher keys) can be carried out in the solution according to a preferred embodiment of the invention for both the SIM application and the USIM application separately.

In the following, a method according to a preferred embodiment of the invention will be described in a simplified manner by means of Figure 2, without being restricted to any certain mobile communication system. In Figure 2, the most important steps of the invention are simplified, not all embodiments being shown. Later, by means of Figures 3 and 4, different steps and embodiments will be described in closer detail, applied to the UMTS and the GSM systems.

When a mobile station operates in a first mobile communication network, traffic being transferred over the air interface is ciphered mainly by using a first cipher key. According to the invention, a second cipher key according to a second mobile communication network is calculated in the first mobile communication network (20). This can take place after the first mobile

communication network has detected a need for handover of the active connection to the second mobile communication network, for example, or in connection with authentication according to the first mobile communication network.

After calculating the second cipher key, the first mobile communication network transmits information necessary for calculating the cipher key to the mobile station (21). The mobile station detects that calculation of the second cipher key according to the second mobile communication network is at issue and carries out calculation of the second cipher key (22). Next, the second cipher key is available both in the first mobile communication network and at the mobile station. If the logical connection provided for the mobile station is handed over to the second mobile communication network, the second cipher key is used both at the mobile station and in the second mobile communication network after the handover (23). The first mobile communication network has then preferably transmitted the second key to the network element carrying out the ciphering in the second mobile communication network before handover. Hence, the traffic between the mobile station and the second mobile communication network can be ciphered immediately after handover.

In the following, a solution according to a preferred embodiment of the invention when applied to circuit-switched connections in the UMTS and GSM networks will be described in closer detail by means of Figure 3. Figure 3 shows an exemplary signalling pattern of an authentication process, i.e. production of a cipher key, production and checking of authentication parameters, only including steps that are essential to the invention. When the mobile station is within the area of the UMTS network, it is further assumed that the traffic between the mobile station and the mobile communication network is ciphered using the UMTS cipher key.

In Figure 3, the mobile station MS transmits a location update request message, for example, in order to request location update (identity, arrow 30). The essential point is that the message (identity, arrow 30) comprises a UMTS subscriber identifier, either a TMSI or an IMSI identifier, for a similar purpose to the one in the GSM system, i.e. for identifying a subscriber. In some UMTS specifications, a temporary mobile user identity TMUI corresponds to the TMSI identifier, and an international mobile user identity IMUI to the IMSI identifier.

The UMTS network may also transmit a request to the mobile station to transmit a subscriber identifier, and the mobile station responds by transmitting the requested subscriber identifier (identity, arrow 30).

It is further possible that in the UMTS system, the IMSI identifier is ciphered over the radio path in order to prevent misuse. If the IMSI identifier is ciphered, the visitor location register VLR has to transmit the ciphered IMSI identifier to the home location register HLR, which transmits the unciphered IMSI identifier back to the visitor location register (not shown).

The visitor location register VLR transmits the request for authentication and the IMSI identifier to the home location register HLR and further to the authentication centre AuC (send authentication info, arrow 31).In the network, the VLR and the HLR communicate using the MAP signalling protocol. In the UMTS system, it is possible to use a different MAP version than in the GSM since, compared to the GSM, the above-described UMTS authentication functions require changes in the MAP protocol. Consequently, the home environment HE and further, the authentication centre AuC in connection with the home location register can infer from, for example, the MAP version that the request (send authentication info, arrow 31) has been received from a network capable of the UMTS.

On the basis of the IMSI identifier the home environment HE, preferably the home location register HLR, can detect that the subscriber has the right to access both the GSM and the UMTS network. According to a preferred embodiment of the invention, the authentication centre AuC calculates both the authentication parameters of the UMTS and the authentication parameters of the GSM (triplet) substantially simultaneously and transmits them to the visitor location register VLR. If the serving network SN is not according to the UMTS (an MAP version according to the GSM system, for example), or on the basis of the IMSI identifier only the SIM application can be used, the authentication centre AuC calculates preferably the GSM authentication parameters only. Furthermore, characteristics of the mobile station MS may also set requirements for the calculation of the GSM parameters, i.e. whether the mobile station supports the GSM system. Then, correspondingly, when the mobile station only supports the UMTS system or when, on the basis of the IMSI identifier, only the USIM application can be used, the AUC can calculate the authentication parameters of the UMTS only.

Alternatively, it is possible for the visitor location register VLR to request authentication information according to a desired system or systems in connection with a (send authentication info, arrow 31) message. This can be implemented, for example, by adding bits indicating the type of authentication requested to the authentication information request (send authentication info, arrow 31).

In order to avoid unnecessary processing power consumption, GSM authentication is carried out in the UMTS network only if the mobile station comprises the SIM application and the GSM functionality (dual-mode mobile station). The UMTS network can discern from the classmark identifier, for example, whether the mobile station supports the GSM system. In such a case, the visitor location register can, the classmark identifier and/or the IMSI identifier having indicated that the mobile station supports the GSM system, request authentication both according to the GSM system and the UMTS system of the authentication centre AuC in connection with the (send authentication info, arrow 31) message.

The authentication centre AuC transmits the calculated authentication information to the visitor location register VLR (authentication info, arrow 32), wherein the information is stored. Since the authentication centre has calculated the GSM authentication parameters, a cipher key Kc according to the GSM network is available in the serving network SN for later use. After this step, the idea of the invention can be applied at least in two different ways: by implicit or explicit GSM authentication, which will be described next.

An implicit GSM authentication according to a preferred embodiment of the invention will be discussed in the following. In this case, the UMTS random-number parameter RANDu received from the authentication centre AuC is equal in length to the GSM random-number parameter RAND (preferably 128 bits). The VLR transmits to the mobile station an authentication request (authentication request, arrow 33) comprising the random-number parameter RANDu of the length of the RAND parameter in the GSM system. Since the authentication at issue is authentication according to the UMTS system, an authentication token AUTN is also preferably transmitted to the USIM application of the mobile station.

According to a preferred embodiment of the invention, the mobile station MS transmits the random-number parameter RANDu both to the SIM and the USIM applications even though the authentication request

(authentication request, arrow 33) were according to the UMTS system. The mobile station may comprise, for example, means for checking the random-number parameter, in which case, when the random-number parameter is according to the GSM system, it is also transmitted to the SIM application. Then, according to a preferred embodiment of the invention, the SIM application calculates the cipher key Kc by using the secret key Ki and the RANDu parameter by applying A8 algorithm. The SIM application does not, however, have to produce the authentication checking parameter SRES. The SIM application stores the Kc for later use preferably in the memory of the smart card UICC.

The USIM application receives the RANDu parameter, and, if the authentication token AUTN is acceptable, carries out the calculation of the authentication checking parameter XRES. Then, by means of the secret key K and the RANDu parameter and the authentication algorithm of the UMTS, the USIM produces the XRES parameter. The cipher key CK of the UMTS can be calculated simultaneously by means of the secret key K and the calculation algorithm of the cipher key. The authentication checking parameter XRES is transmitted from the USIM application to the visitor location register VLR (authentication response, arrow 34), which compares it with the checking parameter received from the authentication centre AuC. If they match, authentication according to the UMTS has succeeded.

According to a preferred embodiment of the invention, in the implicit GSM authentication it is further assumed that the GSM authentication has been carried out when the UMTS authentication has succeeded. Furthermore, the cipher key according to the GSM system exists both in the UMTS network and in the USIM application for potential handover from the UMTS network to the GSM network. When authentication has been carried out, the UMTS network can transmit an approval, i.e. acknowledgement of the authentication to the mobile station MS (acknowledgement, arrow 35). Necessary procedures at a given time can then be continued according to the prior art; for example, the UMTS network may give the mobile station MS a command to initiate ciphering.

Since in the implicit GSM authentication it is only necessary to calculate the cipher key Kc, the authentication centre AuC does not necessarily have to calculate and transmit all authentication parameters of the visitor location register VLR. Only the cipher key Kc has to be calculated and transmitted

to the visitor location register, preferably applying the same random-number parameter as in calculating the cipher key CK of the UMTS.

According to a preferred embodiment of the invention, so-called explicit GSM authentication can also be carried out. In such a case, the RANDu parameter can be of a different length than the RAND parameter of the GSM. The UMTS network then transmits, preferably in the authentication request (authentication request, arrow 33), information on which authentication is desired, the GSM authentication, the UMTS authentication, or possibly both.

The authentication request (authentication request, arrow 33) comprises, for example, a GSM bit and a UMTS bit. When the GSM bit has a value 1, the mobile station detects that it is the GSM authentication that is requested. Similarly, if the UMTS bit is 1, authentication according to the UMTS system will be carried out. If both bits are 1, authentication according to both systems can be carried out. The MS can detect the desired authentication also from the length of the random-number parameter RAND or RANDu. Furthermore, the mobile station MS can discern that it is the UMTS authentication that is desired if the authentication request (authentication request, arrow 33) comprises the authentication token AUTN.

If the serving network SN has requested GSM authentication, the RAND random-number parameter is transmitted to the SIM application and calculation according to the GSM system of the authentication response SRES and the cipher key Kc is carried out. The authentication response SRES is transmitted to the visitor location register VLR to be checked (authentication response, arrow 34) and the cipher key Kc is stored in the SIM application for potential later use.

If the serving network SN has requested UMTS authentication, the RANDu random-number parameter is transmitted to the USIM application and authentication according to the UMTS system is carried out in a manner described earlier. If the UMTS authentication succeeds, nothing, however, is assumed concerning the GSM authentication on the basis thereof, but the GSM authentication has to be carried out separately if the serving network SN so desires.

If the serving network SN requests authentication according both to the GSM and the UMTS systems, it preferably transmits both the RANDu and the RAND parameters in the authentication request (authentication request, arrow 33). When the mobile station has detected from, for example, the two

different random-number parameters that both the UMTS authentication and the GSM authentication are requested, it transmits the RAND parameter to the SIM application and the RANDu parameter to the USIM application. The SIM and the USIM calculate the authentication responses SRES and XRES and the cipher keys Kc and CK. The mobile station MS transmits the SRES parameter transmitted by the SIM application and the XRES parameter transmitted by the USIM application to the visitor location register VLR (authentication response, arrow 34) possibly in different messages. The visitor location register VLR compares the authentication responses received from the mobile station MS with the ones received from the authentication centre AuC, and if they match, the authentications have succeeded.

The explicit method described above can generally be applied to a mobile communication system which supports several authentication methods. For example, it is possible that a new, alternative authentication and/or ciphering method will be developed for the UMTS system. The network element (e.g. the AuC) which carries out authentication and calculation of the cipher key and the means (e.g. the USIM) which carries out the corresponding functions in the mobile station comprise the same algorithms. If the serving mobile communication network and particularly the network element carrying out the functions of the visitor location register VLR know how to apply the parameters according to the alternative authentication method, the explicit method may be used. Hence, the serving mobile communication system can transmit to the authentication centre AuC an identifier of the authentication algorithm or algorithms used, for example.

On the other hand, it is also possible that the AuC is aware of the characteristics of the mobile station and further, the serving mobile communication network. In such a case, on the basis of the characteristics, it can also transmit the parameters according to the alternative method to the serving mobile communication network, to the visitor location register VLR, for example. Furthermore, the serving mobile communication network can preferably transmit to the mobile station information on the authentication method used in connection with the authentication request. This enables, for example, the cipher method used to be flexibly changed by calculating the cipher key according to the new authentication both at the authentication centre and the subscriber application. The cipher method used can, if necessary, be changed by transmitting the new cipher key to the means responsible for ciphering both

in the mobile communication network and at the mobile station. Preferably, the authentication centre AuC is also informed that the cipher method has been changed successfully.

The great advantage achieved by the above-described GSM authentication according to the implicit or explicit method is that the cipher key Kc according to the GSM system is ready for potential handover from the UMTS system to the GSM system. The cipher key Kc is stored both in the UMTS network, preferably in the visitor location register VLR, and in the mobile station, preferably in the SIM application.

The calculation of the cipher key Kc according to the GSM system can be carried out if the serving network SN so desires. It can be carried out, for example, always in connection with the UMTS authentication.

The calculation of the cipher key Kc can, according to a preferred embodiment of the invention, also be carried out when it is detected from the local radio cells that a need exists to carry out handover to the base station sub-system BSS according to the GSM system. Furthermore, the cipher key Kc can be calculated while handover is being carried out, which, however, may cause delay in carrying out the handover.

The cipher key Kc according to the GSM system can also be determined by separating it from the cipher key CK of the UMTS when, for example, the connection is being handed over to the GSM base station. The CK will probably be longer than the Kc. Then, the mobile station MS and the UMTS network, preferably the VLR, make the CK key as short as the Kc key and preferably store it in memory for later use. Hence, the Kc key according to the GSM system is available for a potential handover situation. It is then unnecessary to calculate the GSM parameters at the authentication centre or in the SIM application.

In the following, by means of Figure 4, a handover process will be described in a circuit-switched connection by way of example, only taking into account parts relevant to the invention. The mobile station MS carries out measurements of base stations located in the neighboring area, measuring also base stations of the GSM system when the UMTS network has preferably so requested. The mobile station MS transmits the measurement information to a serving radio network controller RNC (measurement, arrow 40).

The RNC makes a decision about inter-system handover on the basis of, for example, whether a handover threshold has been exceeded as far

as the signal strength is concerned. The RNC transmits an announcement about the necessity of the handover to an anchor mobile switching centre AMSC of the serving UMTS network SN (handover required, arrow 41). In handover, the AMSC is a so-called source mobile switching centre. The AMSC preferably comprises interworking function IWF, which enables a handover request according the GSM system to be produced. If the cipher key Kc is not yet precalculated, the AMSC can request that it be calculated after, for example, the AMSC has received the handover request (handover required, arrow 41). Before the handover request is transmitted to the GSM network, the cipher key Kc is calculated, for example, in the explicit manner described above.

The AMSC retrieves the precalculated cipher key Kc preferably from the visitor location register VLR. The AMSC transmits the cipher key Kc in the handover request to a relay mobile switching centre RMSC according to the GSM system together with other information according to the GSM system and necessary in the handover, such as the classmark information of the mobile station (prepare ho request, arrow 42). It is possible that the UMTS base station sub-system and the GSM base station sub-system to which handover is to be performed are connected to the same core network, as illustrated in Figure 1. In such a case, both the GSM and the UMTS base station sub-systems can be controlled by the same mobile switching centre MSC, which transmits the handover request to the GSM base station sub-system according to the GSM system.

The RMSC transmits the handover request, which also comprises the cipher key Kc, to a base station controller BSC (handover request, arrow 43). The BSC allocates the necessary resources according to the handover request and transmits the reply to the RMSC (ho request ack, arrow 44). The RMSC transmits the reply to the handover request to the AMSC (prepare ho response, arrow 45). The AMSC transmits a command according to the UMTS system to carry out the handover to the radio network controller RNC (handover command, arrow 46).

The RNC transmits to the mobile station MS the handover command between the UMTS and the GSM systems (inter-system ho command, arrow 47). This message comprises all necessary information on, for example, the radio channel for the mobile station to be able to carry out handover according to the GSM system. The mobile station MS recognizes that the han-

dover is to the GSM system, and it activates the GSM functions. Furthermore, the mobile station preferably detects that a cipher key according to the GSM system is needed, whereby the cipher key Kc according to the GSM system is requested of the SIM application. The SIM application transmits the cipher key Kc to the means of the mobile station which carries out ciphering according to the GSM system.

The mobile station MS transmits a handover access message on a GSM channel allocated thereto as in a typical GSM system (handover access, arrow 48). The mobile station MS typically transmits one or more unciphered [HANDOVER ACCESS] messages determined in the GSM specifications. Next, the connection is handed over be served by the GSM base station subsystem according to the GSM system which is known per se and which needs not be described in closer detail here. Traffic to be transmitted can, according to a preferred embodiment of the invention, be ciphered by using the precalculated cipher key Kc and the ciphering algorithm A5 preferably immediately after the (handover access, arrow 48) message. The GSM network can possibly also carry out the authentication although the traffic can already be ciphered.

The great advantage achieved from the solution of a preferred embodiment of the invention is that the traffic between the mobile station and the mobile communication network can be ciphered immediately after handover by means of the cipher key Kc according to the GSM system. If no cipher key Kc for ciphering were available in the mobile station and the GSM base station, it would be necessary to carry out authentication and calculation of the cipher key after handover in the GSM network. In such a case, some of the traffic to be transmitted would remain unciphered and time would be wasted.

In order to implement a preferred embodiment of the invention compared to the prior art implementation, such as the GSM system, changes are mainly required in the functions of the mobile switching centre MSC/VLR, the visitor location register VLR and the mobile station MS. The functions required by the solution of the invention can be implemented by software.

The above-described authentication, calculation of the cipher key and handover implementation describe by way of example the application of the invention to the UMTS and the GSM systems. The invention can also readily be applied to other mobile communication systems, such as wireless local area networks.

It is obvious to one skilled in the art that as technology advances, the basic idea of the invention can be implemented in several different ways. The invention and its embodiments are thus not restricted to the above-described examples but they can vary within the scope of the claims.

CLAIMS

1. A method of arranging data protection in a telecommunication system comprising a first mobile communication network wherein a first cipher key is used for ciphering traffic between a mobile station and a mobile communication network, a second mobile communication network wherein a second cipher key is used for ciphering traffic between a mobile station and a mobile communication network, and a mobile station supporting said mobile communication networks, **characterized** by

calculating said second cipher key in the first mobile communication network when the mobile station operates in the first mobile communication network,

transmitting information necessary for calculating said second cipher key from the first mobile communication network to the mobile station when the mobile station operates in the first mobile communication network, and

calculating said second cipher key at the mobile station.

2. A method as claimed in claim 1, **characterized** by

using said second cipher key for ciphering the traffic between the mobile station and the second mobile communication network if the mobile station is handed over from the first mobile communication network to the second mobile communication network during an active connection.

3. A method as claimed in claim 1 or 2, **characterized** by

transmitting said second cipher key from the first mobile communication network to the second mobile communication network,

transmitting said second cipher key calculated at the mobile station to a ciphering means of the mobile station in response to the fact that the first mobile communication network transmits a request to the mobile station for handover to the second mobile communication network, and

using said second cipher key in ciphering traffic after the handover in the mobile station and in the second mobile communication network.

4. A method as claimed in any one of the preceding claims, **characterized** by

checking, in the first mobile communication network, whether the mobile station supports the second mobile communication network,

calculating said second cipher key in the first mobile communication network in response to the fact that the mobile station supports the second mobile communication network,

transmitting a request for calculation of said second cipher key from the first mobile communication network to the mobile station, and

calculating at the mobile station said second cipher key in response to said request.

5. A method as claimed in claim 4, **characterized** by

calculating said second cipher key in the first mobile communication network in response to the fact that an identifier transmitted by the mobile station, such as an IMSI subscriber identifier, and/or a classmark identifier indicate that the mobile station supports the second mobile communication network.

6. A method as claimed in any one of the preceding claims, **characterized** by

calculating said second cipher key at a network element in the first mobile communication network, such as an authentication centre, in response to the fact that a network element of the first mobile communication network, such as a visitor location register or a home location register, comprising identifiers transmitted by the mobile station requests calculation of said second cipher key, and

transmitting said second cipher key from said network element calculating the cipher key to said network element comprising the identifiers transmitted by the mobile station.

7. A method as claimed in any one of the preceding claims, **characterized** by

the mobile station comprising a subscriber identification application, such as a USIM application, to the first mobile communication network and a subscriber identification application, such as an SIM application, to the second mobile communication network,

transmitting the information necessary for calculating said second cipher key received by the mobile station to the identification application according to the second mobile communication network.

8. A method as claimed in any one of the preceding claims, **characterized** by

calculating said second cipher key in the first mobile communication network in connection with calculating an authentication response according to the first mobile communication network and the first cipher key,

transmitting the information necessary for calculating the first cipher key and said second cipher key, such as a random-number parameter, from the first mobile communication network to the mobile station,

transmitting the necessary information at the mobile station for calculating said first and second cipher keys to the identification applications according to the first and the second mobile communication networks,

calculating said second cipher key in the identification application according to the second mobile communication network and the authentication response in the identification application according to the first mobile communication network,

transmitting said authentication response according to the first mobile communication network from the mobile station to the first mobile communication network, and

acknowledging the authentication of the mobile station to be performed for the second mobile communication network in response to the fact that the first mobile communication network accepts the authentication response transmitted by the mobile station.

9. A method as claimed in any one of claims 1 to 7, **characterized** by

determining a random-number parameter and calculating the authentication response according to the second mobile communication network in connection with calculating said second cipher key in the first mobile communication network,

transmitting a request to the mobile station for calculation of an authentication response according to the second mobile communication network,

transmitting the information necessary at the mobile station for calculating said second cipher key to the identification application according to the second mobile communication network,

calculating, in the identification application according to the second mobile communication network, the authentication response according to the second mobile communication network in connection with calculating said second cipher key,

transmitting the authentication response according to the second mobile communication network calculated at the mobile station to the first mobile communication network, and

checking said authentication response according to the second mobile communication network transmitted by the mobile station in the first mobile communication network.

10. A method as claimed in any one of claims 1 to 7, **characterized** by

calculating said second cipher key by shortening the first cipher key in the first mobile communication network and at the mobile station before the handover to the second mobile communication network takes place.

11. A method as claimed in any one of the preceding claims, **characterized** by

calculating said second cipher key in response to the fact that a decision has been made in the first mobile communication network to carry out handover to the second mobile communication network.

12. A telecommunication system comprising at least a first mobile communication network arranged to use a first cipher key for ciphering traffic between a mobile station and a mobile communication network, a second mobile communication network arranged to use a second cipher key for ciphering traffic between a mobile station and a mobile communication network, and a mobile station arranged to support said different first and second mobile communication networks, **characterized** in that

the first mobile communication network is arranged to calculate said second cipher key when the mobile station operates in the first mobile communication network,

the first mobile communication network is arranged to transmit information necessary for calculating said second cipher key from the first mobile communication network to the mobile station when the mobile station operates in the first mobile communication network, and

the mobile station is arranged to calculate said second cipher key.

13. A telecommunication system as claimed in claim 12, **characterized** in that

the mobile station and the second mobile communication network are arranged to cipher the traffic between the mobile station and the second mobile communication network by using said second cipher key if the mobile

station is handed over from the first mobile communication network to the second mobile communication network during an active connection.

14. A telecommunication system as claimed in claim 12 or 13, **characterized** in that

the first mobile communication network is arranged to transmit said second cipher key to the second mobile communication network before the handover to the second mobile communication network,

the mobile station is arranged to transmit said second cipher key calculated at the mobile station to a ciphering means of the mobile station in response to the fact that the first mobile communication network transmits a request to the mobile station for handover to the second mobile communication network, and

the mobile station and the second mobile communication network are arranged to use said second cipher key in ciphering traffic after the handover.

15. A telecommunication system as claimed in any one of claims 12 to 14, **characterized** in that

the first mobile communication network is arranged to check whether the mobile station supports the second mobile communication network on the basis of an identifier transmitted by the mobile station, such as an IMSI and/or a classmark identifier,

the first mobile communication network is arranged to calculate said second cipher key in response to the fact that the mobile station supports the second mobile communication network,

the first mobile communication network is arranged to transmit a request to the mobile station for calculation of said second cipher key, and

the mobile station is arranged to calculate said second cipher key on the basis of said request.

16. A telecommunication system as claimed in any one of claims 12 to 15, **characterized** in that

a network element comprising identifiers transmitted by the mobile station of the first mobile communication network, such as a visitor location register or a home location register, is arranged to transmit the request for calculation of said second cipher key to a network element of the first mobile communication network, such as an authentication centre,

the network element of the first mobile communication network, such as the authentication centre, is arranged to calculate said second cipher key in response to the fact that the network element comprising the identifiers transmitted by the mobile station requests calculation of said second cipher key, and

said network element calculating said second cipher key is arranged to transmit the calculated second cipher key to said network element comprising the identifiers transmitted by the mobile station.

17. A telecommunication system as claimed in any one of claims 12 to 16, **characterized** in that

the first mobile communication network is arranged to calculate said second cipher key in connection with calculation of an authentication response according to the first mobile communication network and the first cipher key,

the first mobile communication network is arranged to transmit to the mobile station information necessary for calculating the first cipher key and said second cipher key, such as a random-number parameter,

the mobile station comprises an identification application according to the first mobile communication network, such as a USIM application, and an identification application according to the second mobile communication network, such as an SIM application,

the mobile station is arranged to transmit said information necessary for calculating the first cipher key and said second cipher key to the identification applications according to the first and the second mobile communication networks,

said identification application according to the second mobile communication network is arranged to calculate said second cipher key and said identification application according to the first mobile communication network is arranged to calculate the authentication response according to the first mobile communication network, and

the mobile station is arranged to transmit the authentication response according to the first mobile communication network to the first mobile communication network.

18. A telecommunication system as claimed in any one of claims 12 to 16, **characterized** in that

the first mobile communication network is arranged to determine a random-number parameter according to the second mobile communication

network and to calculate the authentication response in connection with calculating said second cipher key,

the first mobile communication network is arranged to transmit a request to the mobile station for calculating the authentication response according to the second mobile communication network,

the mobile station comprises an identification application according to the first mobile communication network, such as a USIM application, and an identification application according to the second mobile communication network, such as an SIM application,

the mobile station is arranged to transmit the information necessary for calculating said second cipher key to the identification application according to the second mobile communication network,

the identification application according to the second mobile communication network is arranged to calculate said second cipher key and the authentication response according to the second mobile communication network substantially simultaneously,

the mobile station is arranged to transmit the authentication response according to the second mobile communication network to the first mobile communication network, and

the second mobile communication network is arranged to check the authentication response according to the second mobile communication network.

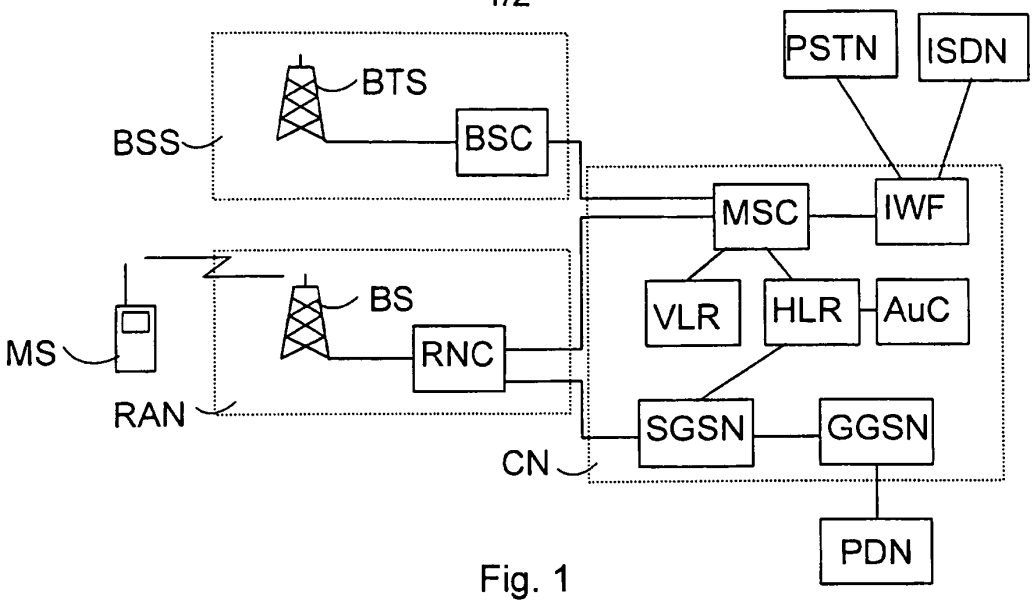

PSTN
ISDN
BTS
BSS
BSC
MSC
IWF
BS
VLR
HLR
AuC
MS
RNC
RAN
SGSN
GGSN
CN
PDN

Fig. 1

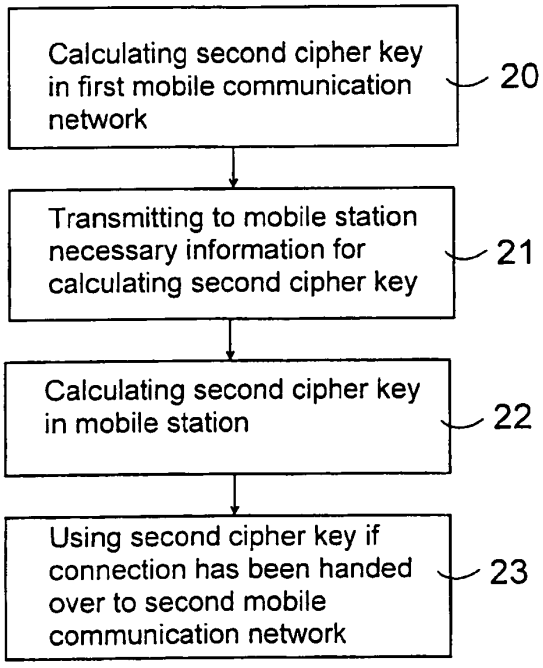

Calculating second cipher key in first mobile communication network
20
Transmitting to mobile station necessary information for calculating second cipher key
21
Calculating second cipher key in mobile station
22
Using second cipher key if connection has been handed over to second mobile communication network
23

Fig. 2

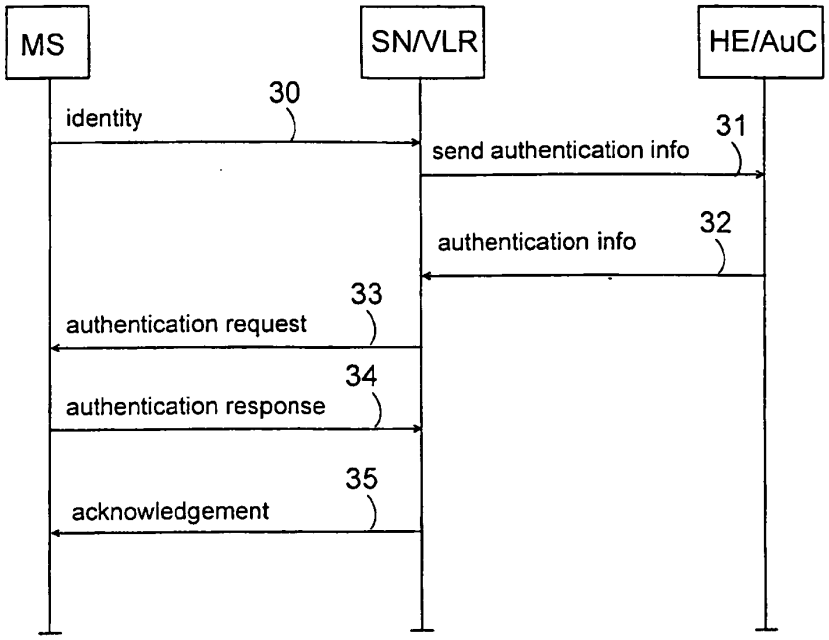

MS
SN/VLR
HE/AuC
30
identity
31
send authentication info
32
authentication info
33
authentication request
34
authentication response
35
acknowledgement

Fig. 3

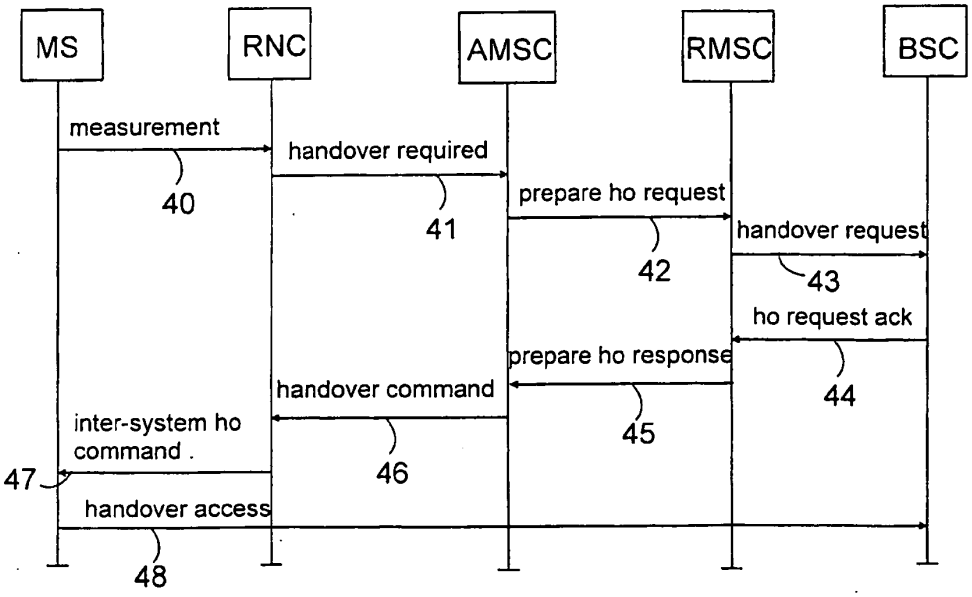

MS
RNC
AMSC
RMSC
BSC
measurement
40
handover required
41
prepare ho request
42
handover request
43
ho request ack
44
prepare ho response
45
handover command
46
inter-system ho command .
47
handover access
48

Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 00/00495

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04M 7/38
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)

IPC7: H04M

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

SE,DK,FI,NO classes as above

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9859513 A1 (NOKIA MOBILE PHONES LTD.), 30 December 1998 (30.12.98), page 1, line 3 - page 2, line 24 ---	1-18
P,A	PUTZ, S.; SCHMITZ, R. "Secure interoperation between 2G and 3G mobile radio networks". In: First International Conference on 3G Mobile Communication Technologies, 2000. (Conf. Publ. No. 471), 27-29 March 2000, pages 28-32. ISBN 0-85296-726-8 --- --------	1-18

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

* Special categories of cited documents:
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
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"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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
13 November 2000	16 -11- 2000
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Tomas Erlandsson /OGU Telephone No. +46 8 782 25 00

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/FI 00/00495

WO	9859513	A1	30/12/98	AU	7656498 A	04/01/99
				EP	0992170 A	12/04/00
				FI	105309 B	00/00/00
				FI	972722 A	25/12/98

Form PCT/ISA/210 (patent family annex) (July 1998)

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
14 December 2000 (14.12.2000)

PCT

(10) International Publication Number
WO 00/76243 A1

(51) International Patent Classification[7]: H04Q 7/38

(21) International Application Number: PCT/EP00/04231

(22) International Filing Date: 9 May 2000 (09.05.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
9913092.4 4 June 1999 (04.06.1999) GB

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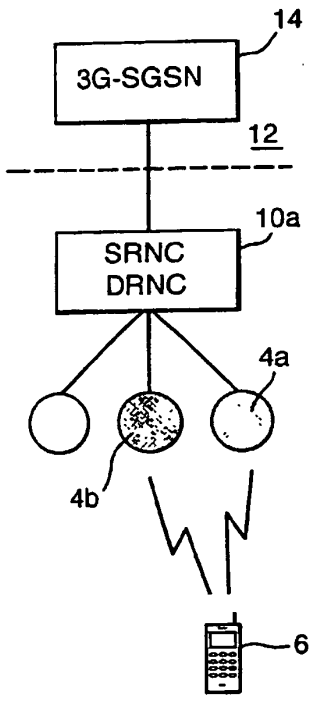
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(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,

[Continued on next page]

(54) Title: RELEASING A CONNECTION IN A WIRELESS COMMUNICATION NETWORK



(57) Abstract: A network element (10a), such as a radio network controller, for use in a communication network (e.g. UMTS), said network element (10a) being arranged between an end station (6) and an end element (14), for example an SGSN, wherein connections are established between said end station (6) and said end element (14) via said network element (10a), said network element (10a) comprising means for determining if the connection between said end element (14) and said end station (6) is to be released.

WO 00/76243 A1



MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *With international search report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

RELEASING A CONNECTION IN A WIRELESS COMMUNICATION NETWORK

Field of the Invention

The present invention relates to a network element for use in a communications network. In particular, but not exclusively, the network element is a radio network controller in a code division multiple access wireless cellular communications network.

Background of the Invention

The use of code division multiple access (CDMA) is being proposed for the next generation of cellular telecommunication networks. Additionally, code division multiple access is also being used in the IS-95 standard in the USA. CDMA is a direct sequence spread spectrum technique. In a wireless cellular network using CDMA, the mobile stations in one cell associated with a first base station will use the same frequency as mobile stations in an adjacent cell associated with the second base station. The different mobile stations can be distinguished by the respective base stations as each mobile station will be using a different spreading code.

In one of the new CDMA standards which is currently being proposed, connections are made between a mobile station to a base station, from the base station to a radio network controller and from the radio network controller to a core network. The core network is arranged to control the establishment and release of connections between the mobile station and the core network. With "bursty" traffic which consists of packets of data which are sent irregularly, the

core network is unable to predict the traffic which is to be transmitted between the core network and the mobile station and vice versa.

It has been proposed that a timer mechanism be used by the core network in order to control the release of the connection. For example, if a packet of data has not been received for X seconds, then the connection is released.

This method has the problem that the core network may not release this connection at an appropriate time. This is because the core network is not aware of parameters of the radio network controller or the mobile station which might indicate that an earlier break in the connection was appropriate. This may result in connections being maintained longer than required. This unnecessarily uses up resources within the network, which may reduce the amount of traffic which can be supported.

Summary of the Invention

It is an aim of embodiments of the present invention to address this problem.

According to one aspect of the present invention, there is provided a network element for use in a communications network, said network element being arranged between an end station and an end element, wherein connections are established between said end station and said end element via said network element, said network element comprising means for determining if the connection between said end element and said end station is to be released.

Brief Description of the Drawings

For better understanding of the present invention and as to how the same may be carried into effect, reference will now be made by way of example to the accompanying drawings in which:-

Figure 1 shows a cellular telecommunication network in which embodiments of the present invention can be incorporated;

Figure 2A shows a mobile station in communication with two base stations under the control of a single radio network controller;

Figure 2B shows a mobile station in communication with two base stations, each of which is connected to a different radio network controller;

Figure 3A shows the connection before the serving radio network controller is changed;

Figure 3B shows the connections after the serving radio network controller has been changed;

Figure 4 shows the various radio resource control modes;

Figure 5 shows a first embodiment of the present invention; and

Figure 6 shows a second embodiment of the present invention.

Detailed Description of Embodiments of the Present Invention

Reference will first be made to Figure 1 in which three cells 2 of the cellular telecommunications network are shown. Each cell 2 is served by a respective base transceiver station (BTS) 4. The base station is sometimes called node B in CDMA systems. Each base transceiver station is arranged to transmit signals to and receive signals from the mobile stations 6 located in the cell

associated with the given base transceiver station 4. Likewise, each mobile station 6 is able to transmit signals to and receive signals from the respective base transceiver station 4.

The cellular telecommunications network shown in Figure 1 uses a code division multiple access technique.

With the proposed new CDMA standard, macro diversity is possible. This means that a mobile station can be connected to more than one radio network controller RNC at the same time. However, as far as the core network is concerned, these connections are controlled by one radio network controller which is defined as the serving radio network controller SRNC. This serving radio network controller SRNC communicates with a third generation serving GPRS support node 3G-SGSN. This serving GPRS support node is analogous to that of the GPRS standard used in conjunction with the GSM standard but has been modified so as to be usable with the CDMA standard.

Reference is made to Figure 2A. In Figure 2A, a mobile station 6 is in communication with two base stations 4a and 4b. Each of these base stations 4a and 4b is connected to the same radio network controller RNC 10a. The common radio network controller 10a is thus the serving radio network controller and is connected to the core network 12. This core network 12 is represented by the dashed line and is the part of the network upstream of the serving radio network controller. The serving radio network controller 10a is in fact connected to the third generation serving GPRS support node 3G-SGSN 14 of the core network 12.

Reference is now made to Figure 2B which shows the mobile station 6 connected to two base stations 4c and 4d. However, unlike in Figure 2A, one base station 4c is connected to one radio network controller 10c whilst the other base station 4d is connected to a second radio network controller 10b. One of these radio network controllers acts as the serving radio network controller SRNC 10b. In the embodiment shown in Figure 2B, the second radio network controller 10b acts as the serving radio network controller. The other radio network controller 10c is defined as being a drift radio network controller DRNC. The drift radio network controller 10c is connected to the serving radio network controller 10b. The serving radio network controller 10b is, as in the arrangement shown in Figure 2A, connected to the SGSN 14. In the arrangement shown in Figure 2A, the drift radio network controller and the serving radio network controller are the same radio network controller.

The serving radio network controller 10a or b is able to combine information received from the mobile station 6 via the two different base stations 4a-d, regardless of whether or not the base stations are connected to the same radio network controller or different radio network controllers. In the latter situation, the drift radio network controller 10c would forward information from the respective base station 4c to the serving radio network controller 10b. The serving radio network controller 10b also copies information which is intended for a given mobile station 6 to the relevant drift radio network controller 10c so that the base station 4c connected to the serving radio network controller 10b as well as the base station connected to the drift radio

network controller 10c can be transmit the same information, where appropriate, to the mobile station 6.

The serving radio network controller SRNC is arranged to control the information transfer and request for radio resources from the appropriate drift radio network controllers DRNC. The drift radio network controllers only relay information between the mobile station and the serving radio network controller SRNC.

It is preferred that the same serving radio network controller SRNC be used for packet switched traffic (i.e. data transmitted in packet form) and circuit switched traffic i.e. speech.

When a mobile station moves, the base station or base stations with which the mobile station is in communication needs to change. This may mean that a different serving radio network controller may be required. This is described in relation to Figures 3A and 3B. In the arrangement shown in Figure 3A, the mobile station 6 is in communication with a single base station 4. This base station 4 is connected to the drift radio network controller 10c. The drift radio network controller is connected to the serving radio network controller 10b, as shown in Figure 2B. The serving radio network controller is connected to the current SGSN 14 which is in turn connected to the gateway GPRS serving node 16. Accordingly, signals to and from the mobile station follow the following path: mobile station 6 to the base station 4c connected to the drift RNC 10c, to the drift RNC 10c, from the drift RNC 10c to the serving RNC 10b, from the serving RNC 10b to the current SGSN 14 and from the current SGSN 14

to the GGSN 16. The same path is used for signals from the GGSN 16 to the mobile station 6, but in reverse.

The SGSN 14 also has a connection to a home location register 18. Each radio network controller 10b and 10c is connected to respective 3G mobile services switching centres 20a and 20b. The drift radio network controller 10c is connected to a different serving GPRS support node 22, which is not in use in this mode. There is also a connection between the home location register 18 and the third generation mobile services switching center 20a connected to the serving radio network controller 10b.

Reference is now made to Figure 3B which shows the connections which are established once the serving radio network controller has changed. In this arrangement, the drift radio network controller 10c becomes the serving radio network controller. The serving radio network controller 10b may become a drift radio network controller or may not be involved in communications with the mobile station 6. The mobile station continues to send and receive signals from the base station 4c connected to the new serving radio network controller 10c. The new serving radio network controller 10c has established a connection with the SGSN 22 to which it is connected. Signals from the serving GPRS node 22 connected to the new serving radio network controller 10c are passed to the GGSN 16. A connection is established between the home location register HLR 18 and the mobile services switching centre 20b connected to the new serving radio network controller 10c. A connection is also established between the home location register 18 and the SGSN 22 connected to the new serving radio network controller 10c.

This relocation procedure takes place when the target radio network controller (i.e. a drift radio network controller) is controlling all of the communications to and from the mobile station. In other words, the serving radio network controller does not communicate with the mobile station 6 with any of the base stations which it controls.

The connection between the mobile station 6 and the GGSN 16 is now via the base station 4c, the new serving radio network controller 10c, and the new SGSN 22.

Radio resource control provides the common control and signalling between the radio network controller and the mobile station. The same radio resource control connection is used both by speech and packet data traffic. The radio resource control (RRC) modes are illustrated schematically in Figure 4. In the RRC-idle mode 30, there is no connection established between the mobile station and the universal mobile telecommunications system terrestrial radio access network (UTRAN). UTRAN is the combination of RNC(s) and BTS(s). If the user equipment is attached to the network, but in RRC-idle mode (which implies that the mobile is not in active communication), the location is tracked by the SGSN. In this mode, there is no signalling between the UTRAN and the mobile station except for system information that is sent from the network downlink on a broadcast channel to the user equipment. The user equipment can also receive paging messages in this mode. No information on the mobile station is stored in the UTRAN in this state.

In the connected mode 32, the main states are the cell connected state 34 and the UTRAN Registration Area (URA)

connected state 36. One radio network controller will be acting as the serving radio network controller and a radio resource control connection is established between the mobile station and the serving radio network controller. When the position of the mobile station is known on the cell level, the mobile station is in the cell connected state. The radio resource control connection mobility is handled by hand over procedures. In this state, the radio link may be use different channels:-

1. Dedicated Channel (DCH). In this channel, a spreading code is allocated to the mobile station and is solely used by that mobile station.

2. Dedicated Shared Channel (DSCH). In this channel, a spreading code is shared amongst a number of mobile stations. The radio channel is optimised for packet traffic.

3. Common Channel on the downlink and Random Access Channel on the uplink. These are common channels and are suitable for use with short packets.

When the mobile position is known only on the URA level, i.e. which group of cells it is in, the mobile station is in the URA connected state. The URA comprises a set of cells of the network. In other words, the mobile station is in one of a plurality of cells which together define the URA. The URA updating procedures provide the mobility functioning. Paging is performed for downlink packet transfer.

A radio access bearer represents the connection between the SGSN and the mobile station. The radio access bearer comprises two branches. The first branch is the GTP (GPRS tunnelling protocol) tunnel between the radio network controller and the SGSN. The second branch is between the mobile station and the radio network controller. Between one mobile station and the SGSN, there are as many radio access bearers as there are PDP (packet data protocol) context activated when a radio access bearer is established. A radio resource control connection is established between the mobile station and the radio network controller, for signalling. However, no radio access bearer may be established. A radio access bearer is established only when the connection between the radio network controller and the SGSN is also established.

Reference is now made to Figure 5. In this arrangement inside the radio network controller 50, a process determines that the RRC connection of a particular mobile station should be released to optimise the use of resources. By releasing the connection which otherwise uses unnecessary signalling, the radio resources of the network are conserved, thus improving capacity and/or quality. The radio network controller 50 therefore sends an Iu release request 54 to the SGSN 52. Iu is the interface between the radio network controller and the SGSN 52. The request sent to the SGSN 52 indicates the reason why the bearer should be released. In the embodiments of the invention, the connection may be broken in order to optimise resources. This will be described in more detail hereinafter.

It is known to release the connection if the operation and maintenance controller of the network has intervened and

wants the connection to be broken or if there is equipment failure at some point between the mobile station and the SGSN 52.

The SGSN 52 decides whether or not to confirm the request for the release of the radio bearer. If the SGSN 52 agrees that the connection should be broken, a release command 56 is sent to the radio network controller 50 via the Iu interface.

If the radio resource connection between the radio network controller 50 and the mobile station 58 has not already been released, the radio network controller sends a radio resource control connection release message 60 to the mobile station. The mobile station releases the connection and sends a radio resource control connection released message 62 to the radio network controller 50. The radio network controller 50 then sends a confirmation 59 that the connection has been released to the SGSN 52 on the Iu interface.

Reference is now made to Figure 6 which shows an alternative embodiment to that shown in Figure 5. In the embodiment shown in Figure 6, the radio network controller 50 does not send a release request to the SGSN 52. Instead, the RNC 50 sends a release radio connection message 64 to the mobile station 58. The mobile station sends an acknowledgement message 66 to the radio network controller 50 and the connection therebetween is broken. The radio network controller 50 then advises the SGSN 52 via the Iu interface that the connection has been released. The SGSN 52 then releases all of the Iu connections. This alternative signalling is applicable particularly if there is no need of

confirmation from the SGSN. The RNC process which triggers the signalling procedure shown in Figure 5 or 6, should make the decision to release the RRC connection of a particular mobile station based (among other things) on the quality of service profile of the radio access bearer established. The process may only release the RRC connection, if the quality of service profile indicates that this bearer(s) are used for bursty traffic between the SGSN 52 and the mobile station 58. This type of traffic is indicated by the traffic class parameter.

One class of traffic is referred to background traffic whilst the other type of traffic is interactive traffic. Background traffic is, for example message traffic which is not time sensitive whilst interactive traffic is, for example traffic resulting in web browsing. With both of these types of traffic, the SGSN is unable to predict when and what traffic is to be forwarded to the mobile station and likewise when and what traffic is going to be received from the mobile station. The radio network controller carries out a process to control the release of the bearer for one or more of the following reasons:

1. The radio network controller has a timer which measures the time since the last packet was transferred to or received from the mobile station. If a given time lapses without a packet being transferred, then the radio network controller releases the connection. Different times may be used depending on the quality of services profile, in particular whether or not the traffic is interactive or background traffic. A shorter time may be provided for background traffic.

2. The radio network controller can take into account the radio state of the mobile station. For example, the RNC may release the RRC connection only in the URA connected mode.

3. The connection may be kept when another radio bearer is established, for example from the mobile switching centre to the mobile station via the radio network controller. The reason is that the RNC has to keep this mobile RRC-connected for this circuit switched connection, so that it can maintain the radio access bearer for a packet connection without using additional resources.

4. The radio network controller can take into account the movement of the mobile station. If the mobile station is moving above a given speed, the bearer connection may be released. A fast moving mobile station uses up a relatively large amount of radio resources for updates (e.g. URA updates). The radio network controller could set a maximum number of URA updates, for example 10 and if no user data traffic has been received within that time, the connection could be released. This is an elegant way to take into account the mobile movement.

5. The radio network controller may release the connection if the mobile station enters an area controlled by a different radio network controller. In this regard, reference is made to Figures 3a and 3b.

As mentioned hereinbefore, a combination of these methods may be used for determining if a radio network controller should release the bearer. For example, if a mobile station, which is in the URA update state enters a new radio network controller area, the serving radio network

controller can be arranged to release the radio bearer. This may in turn trigger a routing area update from the mobile station. The routing area update is used by mobile to inform the SGSN of its location in RRC-idle mode.

If the bearer is released the internal resources of the radio network controller can be conserved. For example, each time a connection is established, the radio network controller requires some buffer resource to be allocated thereto If a connection is not being used, the buffer resource may be wasted.

In another example, if a mobile station has a circuit switch connection i.e. speech connection, the radio network controller could keep the packet bearer established longer than otherwise. This is because a user is more likely to transfer data during or after a call and the radio network controller would merely have to re-establish that bearer otherwise.

In one modification of the embodiments described hereinbefore, the SGSN could be arranged to give an indication in the bearer set up procedure to the radio network controller whether or not the radio network controller is permitted to suggest the release of the bearer. Rules associated with this may also be transferred from the SGSN to the radio network controller. Those rules may take any suitable form. The indication in the bearer set up may be implicitly derived by the radio network controller from quality of service parameters provided by the SGSN to the radio network controller.

The SGSN could indicate the timer value, or indicate not to release RRC connection if a bearer with particular quality

of service profile is established. The SGSN can thus instruct the RNC as to how it should interpret the rules which it has for determining when to release a connection.

Whilst the present invention has referred to mobile stations, it should be appreciated that embodiments of the present invention are applicable to other types of user equipment, for example computer terminals. These computer terminals may be fixed or mobile.

Embodiments of the present invention have been described in the context of a code division multiple access system. It should be appreciated that embodiments of the present invention can be used with any other suitable spread spectrum access technique, frequency division multiple access techniques, time division multiple access technique or hybrids thereof.

CLAIMS:

1. A network element for use in a communication network, said network element being arranged between an end station and an end element, wherein connections are established between said end station and said end element via said network element, said network element comprising means for determining if the connection between said end element and said end station is to be released.

2. A network element as claimed in claim 1, wherein said network element is arranged to release said connection when the determining means determines that the connection is to be released.

3. A network element is claimed in claim 2, wherein said network element is arranged to release the connection between the network element and said end station.

4. A network element as claimed in claim 2 or 3, wherein said network element is arranged to send a message to the end element indicating that said connection has been released.

5. A network element as claimed in claim 1, wherein said network element is arranged to send a request for the connection to be released to said end station.

6. A network element as claimed in claim 5, wherein the end element sends a connection release command to said network element in response to the release request received by said network element, said network element controlling the release of said connection.

7. A network element as claimed in claim 6, wherein said network element is arranged to send a release request to said end station in response to the release command received from said end element.

8. A network element as claimed in claim 7, wherein said network element is arranged to send a message to said end element advising that the connection has been released.

9. A network element as claimed in any preceding claim, wherein said determining means determines that the connection is to be released if the connection has not been used for a predetermined time.

10. A network element as claimed in claim 9, wherein the predetermined time depends on the type of traffic for which the connection is intended.

11. A network element as claimed in claim 9, wherein the predetermined time depends on the quality of service profile of the traffic for which the connection is intended.

12. A network element as claimed in any preceding claim, wherein said determining means is arranged to determine if the connection is to be released based on the state of the end station.

13. A network element as claimed in any preceding claim, wherein said determining means is arranged to determine if the connection should be released based on the movement of the end station.

14. A network element as claimed in claim 13, wherein the amount of updating information received in a given time from the end station is used as a measure of the movement of the end station.

15. A network element as claimed in claim 14, wherein said updating information comprises URA updates.

16. A network element as claimed in any preceding claim, wherein said determining means is arranged to determine if the connection should be released based on the location of said end station.

17. A network element as claimed in claim 16, wherein said determining means determines that the connection should be released if the end station is associated with a different network element.

18. A network element as claimed in any preceding claim, wherein said network element is a radio network controller.

19. A network comprising a network element as claimed in any preceding claim, an end station and an end element.

20. A network as claimed in claim 19, wherein said end station is a mobile station.

21. A network element as claimed in claims 19 or 20, wherein said end element is a SGSN.

22. A network as claimed in claims 19, 20 or 21 wherein said network operates in accordance with the UMTS Standard.

Fig.1.

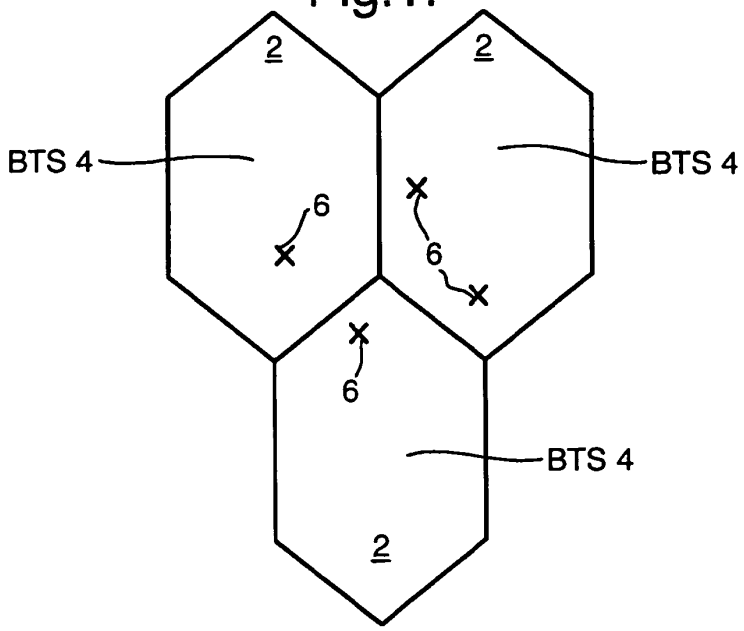


Fig.2A.

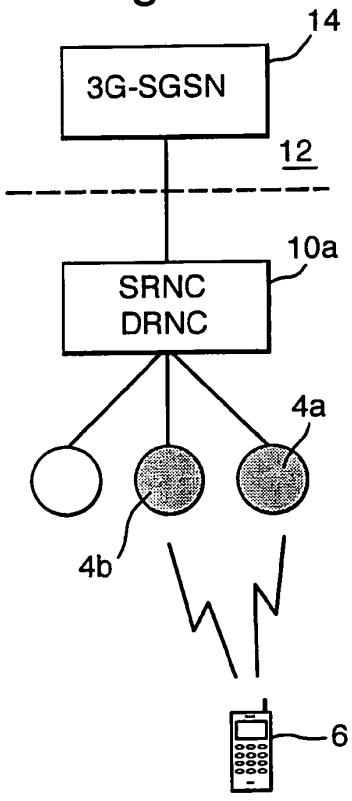


Fig.2B.

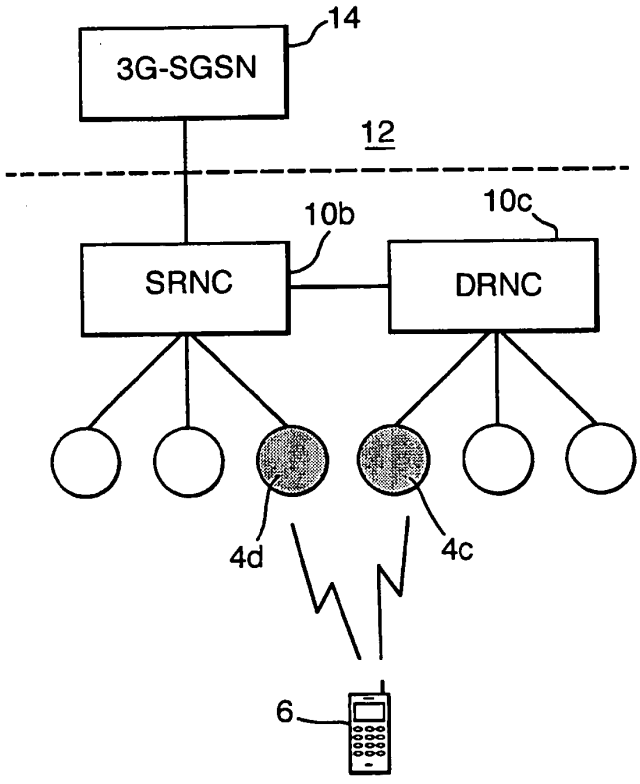


Fig.3A.

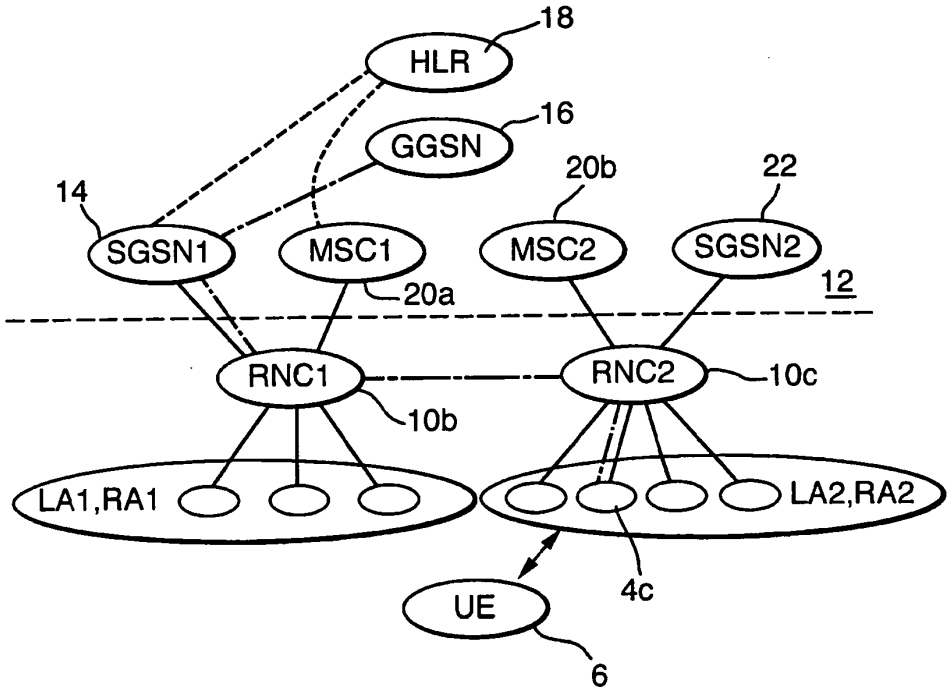

18
HLR
16
GGSN
20b
22
14
SGSN1
MSC1
MSC2
SGSN2
20a
12
RNC1
RNC2
10c
10b
LA1,RA1
LA2,RA2
4c
UE
6

Fig.3B.

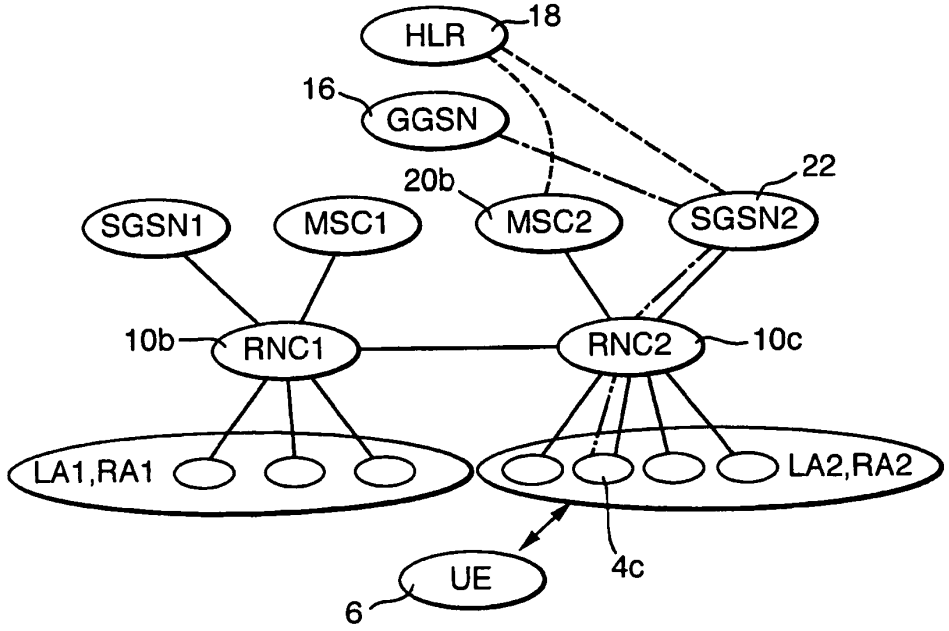

18
HLR
16
GGSN
22
20b
SGSN1
MSC1
MSC2
SGSN2
10b
RNC1
RNC2
10c
LA1,RA1
LA2,RA2
4c
UE
6

Fig.4.

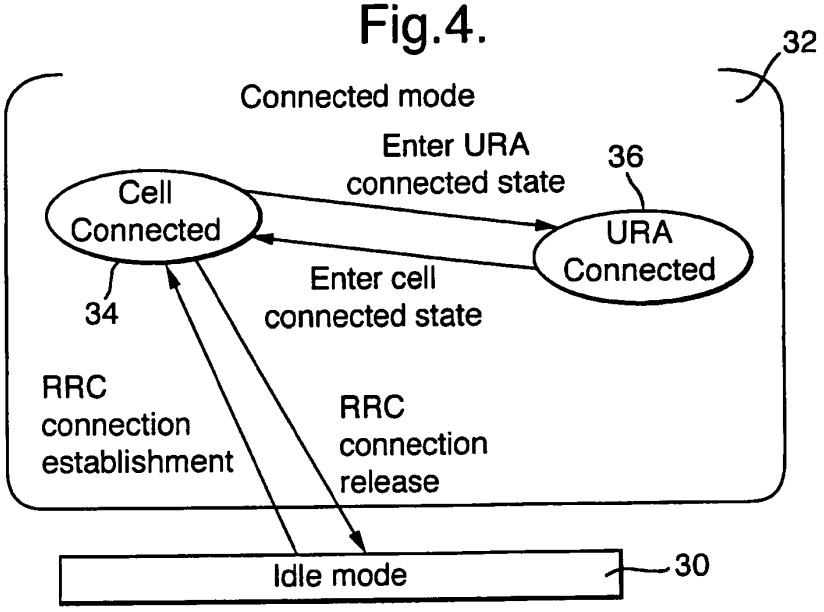


Fig.5.

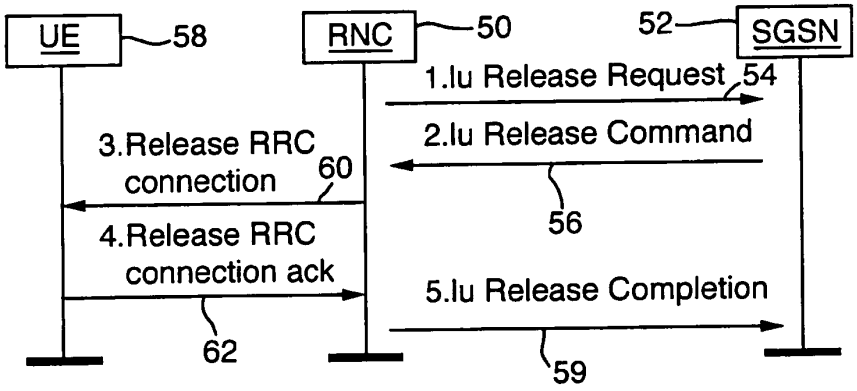
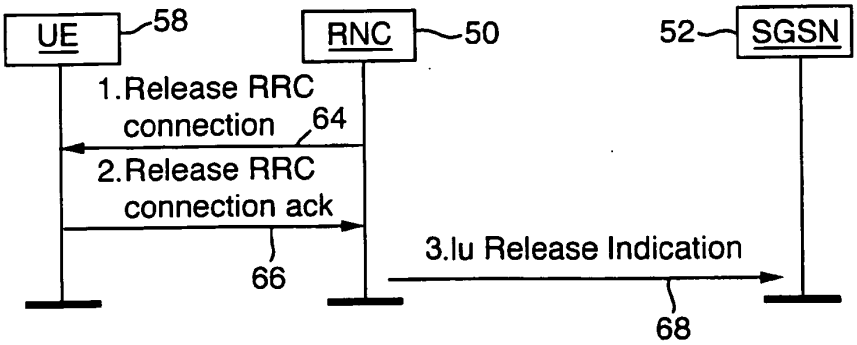


Fig.6.



INTERNATIONAL SEARCH REPORT

Inte onal Application No
PCT/EP 00/04231

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04Q7/38

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)
IPC 7 H04Q

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 practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP 0 568 212 A (NOKIA MOBILE PHONES LTD) 3 November 1993 (1993-11-03) column 4, line 34 -column 5, line 28 ---	1-3,16, 17,19,20 4
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A	WO 95 08898 A (NOKIA TELECOMMUNICATIONS OY ;MUSZYNSKI PETER (FI)) 30 March 1995 (1995-03-30) page 15, line 5 - line 35 --- -/--	1-4,16, 17,19,20

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

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"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

"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

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 August 2000	22/08/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Schut, G

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INTERNATIONAL SEARCH REPORT

Inter ...nal Application No
PCT/EP 00/04231

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

Inter nal Application No
PCT/EP 00/04231

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Form PCT/ISA/210 (patent family annex) (July 1992)

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
4 January 2001 (04.01.2001)

PCT

(10) International Publication Number
WO 01/01711 A1

(51) International Patent Classification[7]: H04Q 7/22

(21) International Application Number: PCT/IB00/00770

(22) International Filing Date: 9 June 2000 (09.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/339,116 24 June 1999 (24.06.1999) US

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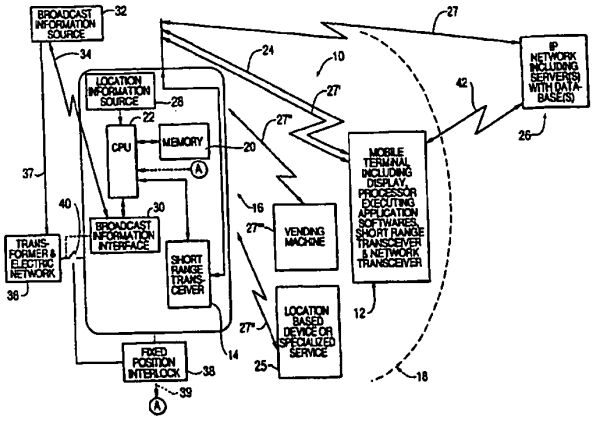
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *With international search report.*
— *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.*

[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR CONNECTING A MOBILE TERMINAL TO A DATABASE



(57) Abstract: The invention is a communication system (10) and a method of communication. The communication system includes an information source (20); a position transceiver (14) disposed at a broadcast location (16) and coupled to the information source, the position transceiver broadcasting information from the information source within a broadcast area (18) where the position transceiver is located, the information including identification information relating to the information source; a mobile terminal (12) within the broadcast area comprising first and second transceivers (44 and 46), the first transceiver communicating with the position transceiver; a network (42) communicating with the second transceiver; and a database (26), communicating with the network, storing information which is transmitted to the second transceiver associated with the identification information in response to the database receiving at least the identification information by transmission of the network from the mobile terminal to the database.

WO 01/01711 A1

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

METHOD AND SYSTEM FOR CONNECTING A MOBILE TERMINAL TO A DATABASE

BACKGROUND OF THE INVENTION

The invention relates to a system and method for transmitting information to a mobile terminal from an information source which transmitted information is transmitted by the mobile terminal to a database to fetch information associated with the transmitted information stored in the database for transmission back to the mobile terminal.

BACKGROUND ART

Advertisement media in publicly travelled places have the objective of obtaining the interest of a passerby. Typically, advertisements contain information which is directed to the consumer to obtain the consumers interest and further provide contact information, such as a telephone number or a fax number, where further information about the advertised goods or services may be obtained. Since the advent of IP networks (e.g., the internet), a uniform resource locator (URL) reference is also typically given in advertisements which enables the user to download information to a computer from an IP network about the advertisement to provide a more detailed consideration of the advertised goods or services.

Additionally, systems have been proposed in which the location of a user controls the accessing of an information source, such as a server based service. These systems may use a GPS receiver or a mobile telephone to provide the user's location to a system to control accessing of the information source which is particular to the users location.

Location services and location based services are becoming more important in telecommunication networks. It is possible to localize and indicate the position of a mobile telephone

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used, for example, for emergency calls. Many existing and new telecommunications services will benefit from knowing the position of the terminal being used. The drawback in current and planned telecommunications networks is that it is not possible to determine the position of the terminal being used or in an idle state accurately enough for all types of position dependent services in all circumstances. The achievable position determining accuracy is around 100m within a cellular network and around 10m with GPS. Not all mobile terminals will have GPS functionality.

Mobile terminals, which utilize cellular communications, are suitable for connecting a user to a website or other database to obtain information. The obtaining of information by a mobile terminal typically uses a linkage between a cellular telephone network to which the terminal subscribes and an IP network. However, the user of a mobile terminal, in order to access advertisement information or other sources of information, is required to write down from the advertisement the information for linking the mobile terminal to the website or other database, and use that information to connect the mobile terminal to an IP service provider to fetch information from the website or database. While it is possible to link an advertisement with a mobile terminal using cellular communications, such a cellular linkage has the disadvantage in highly crowded places, such as airports, of requiring substantial network capacity to link the advertisement to a large number of persons carrying mobile terminals which are passing by the advertisement.

Low power RF systems have been proposed, e.g. Bluetooth, for providing communications between a number of transceivers without or in a local area network by a short range radio link having a broadcast range of a few meters. Such systems will be commercially available in the near future and are designed to operate in open spectrum, e.g. 2.4 gigahertz.

Additionally, low power optical communication systems using an infrared carrier have been proposed which will provide

a linkage between a number of transceivers over a short range. These systems will perform functions similar to Bluetooth.

DISCLOSURE OF THE INVENTION

The present invention is a communication system and a method of communication which provides connectivity between at least one information source which provides information, such as information relating to location based services, at least one mobile terminal and at least one database. With the invention, at least one position transceiver is disposed at a broadcast location and is coupled to the information source. The information source provides information to the position transceiver which is broadcast to the at least one mobile terminal.

The position transceiver overcomes the location problems of the prior art by indicating and transmitting its own very exact predefined position to at least one mobile terminal within range and which is able to receive this information. The at least one mobile terminal can then communicate this position to a network and servers connected to the network to access information, such as information related to or part of position dependent services offered to the user of the mobile terminal.

In one preferred embodiment of the invention, the position transceiver is connected to a network server by fixed telephone lines or wireless connections. This connectivity enables the network server to update the information which is broadcasted by the position transceiver.

In another preferred embodiment of the invention, the information which is broadcasted is changed using a keyboard of the position transceiver or a PC connected to the position transmitter. The position transmitter only accepts appropriately authenticated changes.

The position transceiver can broadcast information to the mobile terminal continuously or on request of the user of the mobile terminal or only when the position transceiver

recognizes by any known mechanism that a mobile terminal or a mobile user of the mobile terminal is in the vicinity of the position transceiver.

The at least one position transceiver broadcasts information directed to the user of each mobile terminal to induce the user to communicate with the at least one database to retrieve information stored in each database over a network. The information broadcast by each position transceiver includes identification information which is related to and identifies the information source and which is transmitted by the mobile terminal over the network to the at least one database to address or identify the information in each database which is transmitted by the network back to the mobile terminal to enable the user thereof to use the retrieved information which is associated with the information source at the broadcast location. A display, which is part of each mobile terminal, enables the user to selectively review the information broadcast from a plurality of position transceivers and choose which information sources in each database from which the user wishes to obtain additional information associated with any of the identification information broadcast from the position transceivers. The broadcast information, may without limitation, be diverse types of information such as, but not limited to, advertising information and includes identification information relating to the source of the broadcast information.

Each mobile terminal is located within a broadcast area defined by the broadcast range of the at least one position transceiver located at a broadcast location. The at least one position transceiver preferably has a limited broadcast range so that the broadcast range is limited within the optical view of the users of the mobile terminals as they pass by the broadcast location.

Each mobile terminal is a multimode transceiver which operates in short range and cellular modes, and includes first and second transceivers. The first transceiver communicates

with at least one position transceiver and receives broadcasts therefrom which preferably are of limited range. While not limited thereto, the first transceiver may use a low power optical or RF broadcast communications to connect each position transceiver at the broadcast location to the first transceiver and the information source. A network communicates with the second transceiver which may be, without limitation, a cellular network connected to an IP network. Each database communicates with the network and stores information which is transmitted to the second transceiver of each mobile terminal associated with the identification information.

In a preferred operational mode of the present invention, the user of the mobile terminal passes within the broadcast area of at least one position transceiver disposed at a broadcast location. Each position transceiver either continually broadcasts information to the broadcast area, which permits each user of a mobile terminal to view with a display which is part of the mobile terminal information received by the first transceiver thereof which is being broadcast to the user, such as advertisement information and the identification information, which is used to fetch the information stored in each database by transmission from the second transceiver by the network to each database or broadcasts upon demand of the user of the mobile terminal to the mobile terminal.

Each mobile terminal includes a processor and associated memory. The associated memory stores the information received from each position transceiver by the first transceiver permitting the user of the mobile terminal at the time of reception or at a later time to utilize the second transceiver to connect to addressable areas in each database using the identification information transmitted to the first transceiver.

The identification information which is used to retrieve information for transmission to the second transceiver may be of many different types. For example, the identification information may be a function of a geographic position of the

broadcast location at which each information transceiver is located and may comprise one or more of geographical coordinates, the elevation of the broadcast location, an address of the broadcast location, including street address, or a pointer, or a uniform resource locator, which is an address or provides an identification of the information stored in the database associated with the identification information. While the invention is not limited thereto, the network in a preferred embodiment includes a cellular telephone network which is connected to an IP network which facilitates transmission by the transmission control protocol/internet protocol (TCP/IP).

In a preferred embodiment of the present invention, the broadcast location includes a plurality of information sources and a plurality of position transceivers disposed at the broadcast location respectively coupled to a different one of the plurality of information sources. Each position transceiver broadcasts information including identification information relating to one of the information sources from the broadcast location. The broadcast location includes a display which displays information relating to the information which is broadcast including the identification information broadcasted by each of the plurality of position transceivers. Each database stores information which is transmitted to the second transceiver associated with the identification information of the plurality of position transceivers in response to each database receiving at least the identification information by transmission by the network from the mobile terminal to each database.

A billboard type display may be utilized to display advertisement information or other information from a plurality of information sources which are viewed from a public place, such as an airport, through which multiple users of mobile terminals pass to attract their attention in a classic advertising manner. The billboard may continuously broadcast via the plurality of position transceivers over a limited range

(low power) RF or optical transmission medium information which is directed to the passersby with mobile terminals from each of the information sources. An activation switch may be associated with each of the information sources to permit the passers by to selectively activate the position transceiver associated with the information source to which the passerby is attracted by display of information on the billboard type display. Finally, the broadcast may be activated by detecting the presence of the passersby by a known mechanism, such as a motion detector, to activate the position transceivers to broadcast the information.

There are numerous applications for the position transceiver besides transmitting advertisement information. These additional applications are: emergency calls; navigational services in which the user of the mobile terminal is provided information how to travel from point A to point B; calibration of the location of the mobile terminal in a cellular network and calibration of the cellular network to determine location of mobile terminals; location based services, e.g. printing a document at the closest available printer; informing the user of the mobile terminal of special services available only at the broadcast location of the position transmitters, such as special telecommunications services; transmission of price information about goods and services and payment information, the user of the mobile terminal in response thereto sends the requested payment as a short message service (SMS) to a network server, and the position transceiver in response thereto receives payment acknowledgment from the network server receiving the payment and transmits the payment acknowledgment to the user of the mobile terminal and provides a transmission permitting the user of the mobile terminal to have access to the purchased goods or services.

A method of transmitting data in a communications system including an information source, a position transceiver coupled to the information source and disposed at a broadcast location,

a mobile terminal within a broadcast area, the mobile terminal comprising first and second transceivers with the first transceiver communicating with the position transceiver, a network communicating with the second transceiver and at least one database, communicating with the network and storing information associated with the identification information includes broadcasting information including identification information relating to the information source with the position transceiver to the first transceiver within the broadcast area; transmitting at least the identification information from the second transceiver with the network to the database; and in response to the database receiving at least the identification information, transmitting from the database the stored information associated with the identification information to the second transceiver. The identification information comprises information which is a function of a geographic position of the broadcast location which may be one or more of geographical coordinates, elevation of the broadcast location, an address of the broadcast location, which may be a street address, and further, a location within the street address, or a pointer, or a uniform resource locator which is an address of or identifies the information associated with the identification information in the database.

In a preferred embodiment of the method, the broadcast location comprises a plurality of information sources; a plurality of position transceivers disposed at the broadcast location respectively coupled to a different one of the plurality of information sources, each position transceiver broadcasting information including identification information relating to one of the information sources from the broadcast location; and a display which displays information relating to the information broadcasted by each of the plurality of position transceivers. Information which is stored in the database is transmitted to the second transceiver associated with the identification information of the plurality of position transceivers in response to the database receiving at

least the identification information by transmission by the network from the second transceiver of the mobile terminal to the database. The information which is broadcasted from each of the plurality of position transceivers may include a webpage or application software which is executed by a processor in the mobile terminal which controls the first and second transceivers. The application software may comprise without limitation a program for opening a window or a web browser for searching the information stored in the database identified by the identification information.

The broadcasted information may be encrypted. The position information transmitted from the second transceiver to the database may be signed by the user of the mobile terminal of when the information was transmitted from the information transceiver to the mobile terminal to indicate the user's current location to permit database verification that the user is where the user should be; and the database checks validity of the signature, decrypts the information which is received from the network and checks validity of the time stamp and if the time stamp and signature are valid, the database transmits the stored information associated with the identification information with the network to the second transceiver.

The plurality of position transceivers of the broadcast location may cease to broadcast the information when the plurality of information transceivers are moved. A device may be provided at the broadcast location which senses when the plurality of position transceivers are moved and which disables transmission of the information when movement is sensed. The device for sensing movement may be of diverse designs and may be a mechanical connection between the information transceivers and a physical location at which the information transceivers are located which, when opened, disables their normal function, e.g. by disconnecting electrical power. As an alternative, the position transceiver can start transmitting an error indication if the position transceiver is moved.

In a preferred embodiment of the method, each position transceiver broadcasts the information with a limited range RF carrier or a limited range infrared carrier and the network comprises a cellular telephone network and an IP network.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 illustrates a system diagram of an embodiment of the present invention.

Fig. 2 illustrates a schematic diagram of a mobile terminal in accordance with the present invention.

Fig. 3 illustrates a preferred embodiment of the broadcast location at which a plurality of position transceivers are located which are designed to communicate with multiple users of terminals in a public place which pass within broadcast range of the plurality of information transceivers.

Fig. 4 illustrates a memory map of a preferred embodiment of the database of the system of Fig. 1.

Like reference numerals identify like parts throughout the drawings.

BEST MODE FOR CARRYING OUT THE INVENTION

Fig. 1 illustrates a communication system 10 in accordance with the present invention. The communication system 10 provides a mechanism by which a user of a mobile terminal 12 receives information broadcast by a position transceiver 14 which without limitation has a short (limited) range and which is part of a broadcast location 16 which broadcasts information within a broadcast area 18. Only one position transceiver 14 is illustrated, but it should be understood that in a preferred embodiment of the present invention, a plurality of position transceivers are part of the broadcast location as described below in conjunction with Fig. 3. The position transceiver 14 broadcasts information, which is stored in memory 20, under the control of CPU 22, by means of a low power RF or infrared link 24. In a preferred form of the present invention, the link 24 may be in accordance with the Bluetooth specification

which has been proposed in unregulated spectrum, such as 2.4 GHz or known or proposed infrared communication links. In a preferred embodiment of the specification as illustrated in Fig. 2, a plurality of information transceivers 14, simultaneously, on demand or upon detection of a user of the mobile terminal 12 by any known mechanism within broadcast area 18, broadcast information via the low power RF or infrared link 24 to one or more mobile terminals 12 located within the broadcast area.

The information which is broadcast via the link 24 is diverse in nature and includes identification information. The information which is broadcast by at least one position transceiver 14 includes without limitation advertisements, information relating to making emergency calls, information relating to providing navigation services to enable a user of the mobile terminal 12 to move from a first position to a second position, information for calibrating a position of the mobile terminal 12 within a cellular network providing connection to the network transceiver therein or for calibrating the network positioning determination function, information relating to location and location based devices or services 25 which are proximate to the broadcast location and the mobile terminal from which the user of the mobile terminal receives goods or services after communication of the mobile terminal with a database within IP network including servers with database 26, such as printing a document by a closest available printer, information informing a user of the special services, such as telecommunications available only at the location of the position transceiver with the advertisement information including a price of goods or services and a requested form of payment indication with the user sending with the mobile terminal the requested form of payment to the database using a short message system (SMS) format and the network transmitting acknowledgment of payment 27 from the database to the position transmitter 14 and the position transmitter transmitting the acknowledgment 27' of payment to

the user of the mobile terminal and access 27'' location based device or specialized service 25 or to machine 27''' providing the purchased goods or receiver.

Broadcast advertising information may be diverse in nature. Advertising information may be a webpage and identification information which provides the mobile terminal 12 with the ability to access an IP network, including server(s), with database 26 and specifically, information stored in the database associated with the identification information transmitted from the position transceiver 14 to the mobile terminal 12 via link 24. The identification information provides an address of the server, database, or a portion of the database at which the information associated with the identification information is stored.

The broadcast location 16 further includes a location information source 28, which may be a GPS receiver which informs the CPU 22 of the physical location of the position transceiver 14, to provide the CPU with one possible form of the identification information which is a function of the geographic position of the broadcast location, e.g. geographical coordinates, and the elevation of the broadcast location. Alternatively, the physical location may be programmed into the memory 20 at the time of setup of the system and entered by keyboard and a PC. The identification information may be a physical address of the broadcast location, such as the street address, and further information defining the location of the broadcast location 16 within the street address, such as floor and room number at which at least one position transceiver is located which is stored in the memory 20 as a consequence of this information being readily programmable. Furthermore, the identification information may be a pointer, which may be numerically based or a uniform resource locator (URL).

The function of the identification information, regardless of its content as described above, is to provide a linkage between the user of the mobile terminal 12, the information

source of the information transmitted by at least one position transceiver 14 and the information which is transmitted from the database within the IP network including servers with database 26 to the mobile terminal which is associated with the identification information broadcast from the at least one position transceiver 14 by the link 24 to the mobile terminal 12.

The broadcast location 16 facilitates the diverse applications discussed above, including marketing and advertising. The broadcast location obtains the initial interest of the user of the mobile terminal 12 by the displays 50 of information associated with the broadcast location 16 as described below in association with Fig. 3, or from a display 49' in Fig. 2 associated with the mobile terminal indicating the nature of the information being transmitted from the at least one position transceiver 14 to the mobile terminal 12, e.g. a webpage, etc. The user of the terminal 12 is then induced by the initial visual contact with the displays 49' and/or 50 to contact the database within the IP network, including server(s) with database, to obtain more information associated with the identification information.

The broadcast location 16 further includes a broadcast information interface 30. The broadcast information interface 30 is coupled to the CPU 22 and associated memory 20. The memory 20 functions as the source of broadcast information after it is inputted through the broadcast information interface 30. A broadcast information source 32, which may be a server in a network, is coupled to the broadcast information interface 20 by wireline (not illustrated), RF link 34, which may be cellular or other RF communications, or through modulation of information transmitted over the electric mains 37 to transformer and electric network 36. The broadcast information source 32 may be proximate to the broadcast location 16 or remote therefrom and provides the broadcast location with the capability of having the information which is broadcast updated. Alternatively, the broadcast information

source 32 may be eliminated by use of a keyboard or local PC at the location 16 to directly provide the information including identification to the memory 20 which is broadcast by the at least one position transceiver 14. A fixed position interlock 38 may be used to disable the application of electrical power from the transformer and electrical network 36 to the broadcast location 16 by opening switch 40 when the broadcast location 16 is physically moved or to cause an error message to be broadcast in response to signal 39 generated by the fixed position interlock. The fixed position interlock 38 may be, for example without limitation, a mechanical lock, hidden seals, a movement detector or magnetic sensor which, upon movement, causes switch 40 to open to disconnect electric power from the broadcast location 16 or to generate the signal 39 to cause the error message to be broadcast.

The mobile terminal 12 includes first and second transceivers which respectively are a transceiver which is connected to the broadcast location 16 via links 24 and 27 and a network transceiver, which is preferably a cellular transceiver, that is connected by RF link 42 to the IP network, including servers with database 26. However, it should be understood that the present invention is not limited to the use of a cellular network connected to an IP network including server(s) with database 26. Alternatively, the cellular network or other communication network may link the second transceiver directly to a database with or without a server.

Fig. 2 illustrates a block diagram of one form of a mobile terminal 12 which may be used to practice the invention. The mobile terminal 12 is a multimode receiver including a first transceiver 44 which communicates with the position transceiver 14 and may operate as a short range device without limitation in accordance with the Bluetooth RF specification or a limited range infrared specification and a second transceiver which operates as a network transceiver 46 which without limitation may be a cellular transceiver over which the user of the terminal 12 receives voice, PCS, etc.,

communications. The mobile terminal 12 has a main CPU 48 and associated memory 49 which stores the information which is transmitted and received by the first and second transceivers 44 and 46. The main CPU 48 executes software which transfer the information received by the first transceiver 44 to the second transceiver 46 and drives the display 49' which displays the information received from the at least one position transceiver 14 including, but not limited to, the identification information and other information for the above-identified diverse applications including advertising, such as a web page, browser, etc.

As has been described above, identification information, which is transmitted by the link 24, performs the function of addressing or identifying particular blocks of data within the database of the IP network, including servers with database 26, which are transmitted by link 42 to the network transceiver 46 within the mobile terminal 12. The information which is received from the database 26 by the network transceiver 46 enables the user of the mobile terminal 12 to obtain more detailed information about the information which is broadcast by the link 24 including display on display 49'. This function enhances the diverse applications discussed above, including an advertising function, by providing a complete linkage to the detailed source of information associated with the identification information broadcast by the broadcast location 16 stored within the database within the IP network including server(s) with database 26.

In normal operation, each mobile terminal 12, when it is within the broadcast area 18, displays on the display 49' information regarding the information being broadcast from the broadcast location 16. This enables the user of each mobile terminal 12, when multiple short range position transceivers 14 are used, to pick and choose from the information which is most interesting which is being broadcast from a plurality of information sources at the broadcast location 16. This information, which is displayed on the display 49' of the

mobile terminal 12, has associated with it the identification information which is transmitted via links 24 and 42 to the database within the IP network, including server(s) with database 26, to fetch the more detailed information stored in the database which is associated with the identification information for transmission back to the users of each mobile terminal 12 to enable the users to learn of more information regarding the source of the broadcast information from the location 16. This functionality facilitates advertisement and the other applications discussed above by obtaining the attention of users of mobile terminals 12 while at the same time not having to rely upon calls being made to cellular transceivers within the broadcast area 18. With the present invention, the information that is broadcast to each mobile terminal 12 when the users are within the broadcast area 18 contains sufficient information to obtain the attention of the users and to enable the users to obtain complete access to information stored in the remote databases, such as manufacturer's information to induce a sale, which is associated with the information, which is broadcast and/or displayed at the broadcast location 16, as described below in conjunction with Fig. 3.

The CPU 48 within the mobile terminal 12, which controls overall operation thereof, coordinates the transmission of information between the broadcast location 16 and the IP network, including server(s) with database 26. The CPU 48 processes the identification information which is received by the first short range transceiver 44 from the broadcast location 16 and is transmitted by the second network cellular transceiver 46 to the IP network including server(s) with database 26. The CPU 48 provides accessability to the memory 49 therein to both of the first and second transceivers 44 and 46 so as to facilitate transmission of information between the transceivers to provide the requisite information flow.

While the invention is not limited thereto, the identification information sent by the location position 16, may contain added information for security reasons. The information which is transmitted from the broadcast location 16 by link 24 to the mobile terminal 12 may include unencrypted information and encrypted information. The encrypted information may include as part of its identifying information, a time stamp with all of the encrypted information being encrypted by a MLC public key which may be encrypted, for example, with RSA public key cryptography. The encrypted message may be signed by the user with secret key. The server in the IP network, including server(s) with database 26, checks the signature, decrpyts the transmission of information from the mobile terminal 12, and determines if the time stamp is valid. If all of this information is verified, the server within the IP network including server(s) with database 26 may conclude with a high probability that the user of the mobile terminal 12 is in fact an authorized user and provide the user of the mobile terminal 12 with access thereto.

Fig. 3 illustrates a preferred embodiment of the broadcast location 16. The location source 16 includes a plurality of information sources 50 which are N in number. Each information source 50 provides a display of information and has an associated display driver including processor which is designed to attract the attention of the users of the mobile terminal 12 to induce the users to communicate with the databases within the IP network, including server(s) with database 26, to obtain more detailed information associated with the identification information which is transmitted by the communication link 24. Each information source 50 is associated with a particular position transceiver 14 so that the visual impression produced by the display thereof is related to the information which is transmitted to the mobile terminals 12 and displayed on the display 49' thereof and is related to the identification information which performs the function of addressing or identifying particular information stored in the database of

the IP network, including server(s) with database 26. The stored information, which is identified by the identification information, is transmitted by link 42 back to the second transceiver 46, as described below in association with Fig. 4 or via link 27 to the broadcast location 16. Each information transceiver 14 may include an on/off switch 52 which is associated with a correspondingly identified display 50 and which, upon activation by the user of the mobile terminal 12 within the broadcast area 18, causes the information, including identification information, to be transmitted by the link 24 to the user's terminal 12.

The displays 50 are a form of billboard and may contain diverse information but in environments where marketing is to be performed, the information is directed to soliciting the attention of the users of the mobile terminals 12 to obtain more information about the goods or services available for purchase which are described in the display. The particular displays 50 are not limited to any particular configuration and the overall broadcast location 16 of Fig. 3 may be located at a table with each of the individual transceivers 14 being located on the table.

Fig. 4 illustrates a memory map 100 of an individual server in the IP network including server(s) with database 26. The database 102 includes a plurality of bodies of information which are N in number which correspond to the N information sources of the broadcast location 16. Each information source 104 is addressed or identified by the identification information broadcasted over the link 24 to the mobile terminal 12 and transmitted by the network over link 42 to the server including the database 102. The server associated with the database 102, in response to the identification information, fetches a particular block of information 104 associated with the identification information. The fetched information is transmitted over communication link 42 to the mobile terminal 12 to enable the user thereof to learn more about the goods or services or other information associated

with the individual information sources 50 of the broadcast locations of Fig. 2.

While the invention has been described in terms of its preferred embodiments, it should be understood that numerous modifications may be made thereto without departing from the spirit and scope of the invention as defined in the appended claims. It is intended that all such modifications fall within the scope of the appended claims.

CLAIMS

1. A communication system comprising:

an information source;

a position transceiver disposed at a broadcast location and coupled to the information source, the position transceiver broadcasting information from the information source within a broadcast area where the position transceiver is located, the broadcasted information including identification information relating to the information source;

a mobile terminal within the broadcast area comprising first and second transceivers, the first transceiver communicating with the position transceiver;

a network communicating with the second transceiver; and

a database, communicating with the network, storing information which is transmitted to the second transceiver associated with the identification information in response to the database receiving at least the identification information by transmission of the network from the mobile terminal to the database.

2. A communication system in accordance with claim 1 wherein:

the identification information comprises information which is a function of a geographic position of the broadcast location.

3. A communication system in accordance with claim 2 wherein:

the identification information comprises geographical coordinates.

4. A communication system in accordance with claim 3 wherein:

the identification information further comprises elevation of the broadcast location.

5. A communication system in accordance with claim 2 wherein:
the identification information comprises an address of the broadcast location.

6. A communication system in accordance with claim 5 wherein:
the address is a street address.

7. A communication system in accordance with claim 6 wherein:
the identification information further defines a location within the street address.

8. A communication system in accordance with claim 1 wherein:
the identification information is a pointer which identifies a location of the position transceiver associated with corresponding data of the database where the information which is transmitted to the second transceiver is stored.

9. A communication system in accordance with claim 1 wherein:
the identification information, which is broadcasted from the position transceiver, includes a uniform resource locator which is an address of the information associated with the identification information in the database in the network.

10. A communication system in accordance with claim 1 wherein the broadcast location comprises:
a plurality of information sources;
a plurality of position transceivers disposed at the broadcast location respectively coupled to a different one of

the plurality of information sources, each position transceiver broadcasting information including identification information relating to one of the information sources from the broadcast location; and

a display which displays information relating to the information broadcasted by each of the plurality of position transceivers; and wherein

the database stores information which is transmitted to the second transceiver associated with the identification information of the plurality of position transceivers in response to the database receiving at least the identification information by transmission of the network from the mobile terminal to the database.

11. A communication system in accordance with claim 10 wherein:

the identification information, which is broadcasted from each of the plurality of position transceivers, includes a uniform resource locator which is an address of the information associated with the identification information in the database in the network.

12. A communication system in accordance with claim 10 wherein:

the information, which is broadcasted from each of the plurality of position transceivers, includes a web page.

13. A communication system in accordance with claim 10 wherein:

the information, which is broadcasted from each of the plurality of position transceivers, includes application software which is executed by a processor in the mobile terminal.

14. A communication system in accordance with claim 13 wherein:

the application software comprises an application program for opening a window.

15. A communication system in accordance with claim 13 wherein:

the application software comprises a web browser for searching the information stored in the database identified by the identifying information.

16. A communication system in accordance with claim 1 wherein:

the information is encrypted.

17. A communication system in accordance with claim 16 wherein:

the transmission of the information from the mobile terminal to the database is signed by a user of the mobile terminal with a time stamp of when the information was transmitted from the position transceiver to the mobile terminal to indicate the user's current location to permit database verification that the user is where the user should be; and

the database checks validity of the signature, decrypts the encrypted information which is received from the network and checks validity of the time stamp and if the time stamp and signature are valid, the database transmits the stored information associated with the identification information via the network to the second transceiver.

18. A communication system in accordance with claim 10 wherein:

the plurality of position transceivers of the broadcast location cease to broadcast the information when the plurality of position transceivers are moved.

19. A communication system in accordance with claim 18 wherein:

the broadcast location includes a device which senses when the plurality of position transceivers are moved and which disables transmission of the information when movement of the plurality of position transceivers is sensed.

20. A communication system in accordance with claim 1 wherein:

the position transceiver broadcasts the information with a limited range RF carrier.

21. A communication system in accordance with claim 1 wherein:

the position transceiver broadcasts the information with an infrared carrier.

22. A communication system in accordance with claim 10 wherein:

the broadcast location includes a device which senses when the plurality of position transmitters are moved; and

the plurality of position transceivers transmit an error indication when the device senses the plurality of information transceivers are moved.

23. A communication system in accordance with claim 1 wherein:

the broadcasted information includes an advertisement.

24. A communication system in accordance with claim 1 wherein:

the broadcasted information includes an emergency call.

25. A communication system in accordance with claim 1 wherein:

the broadcasted information includes information providing a service to enable a user of the mobile terminal to move from a first location to a second location.

26. A communication system in accordance with claim 1 wherein:

the broadcasted information provides calibration of where the mobile terminal is located in the network.

27. A communication system in accordance with claim 1 wherein:

the broadcasted information provides position calibration of the network.

28. A communication system in accordance with claim 1 wherein:

the broadcasted information relates to services which are available to a user of the mobile terminal when the user is in a vicinity of the broadcast location.

29. A communication system in accordance with claim 1 wherein:

the broadcasted information relates to communication services which are available to a user of the mobile terminal only when the user is in a vicinity of the broadcast location.

30. A communication system in accordance with claim 1 wherein:

the broadcasted information relates to a price for goods or services and an indication where payment may be transmitted if a user of the mobile terminal wishes to purchase the goods or services; and

the mobile terminal transmits payment for purchasing the goods or services to the database.

31. A communication system in accordance with claim 30 wherein:

acknowledgment of the payment is transmitted to the position transmitter and;

the position transceiver transmits the payment acknowledgment to the mobile terminal.

32. A communication system in accordance with claim 31 wherein:

the transmission of the payment acknowledgment to the mobile terminal also permits the user of the mobile terminal to have access to the purchased goods or services.

33. A method of transmitting data in a communication system including an information source, a position transceiver coupled to the information source and disposed at a broadcast location, a mobile terminal within a broadcast area comprising first and second transceivers with the first transceiver communicating with the position transceiver, a network communicating with the second transceiver and a database, communicating with the network, storing information associated with the identification information comprising:

broadcasting with the position transceiver information including identification information relating to the information source to the first transceiver within the broadcast area;

transmitting at least the identification information from the second transceiver with the network to the database; and

in response to the database receiving at least the identification information, transmitting from the database the stored information associated with the identification information to the second transceiver.

34. A method in accordance with claim 33 wherein:

the identification information comprises geographical coordinates.

35. A method in accordance with claim 34 wherein:
the identification information further comprises an elevation of the broadcast location.

36. A method in accordance with claim 35 wherein:
the identification information comprises an address of the broadcast location.

37. A method in accordance with claim 36 wherein:
the identification information further defines a location within a street address.

38. A method in accordance with claim 33 wherein:
the identifying information is a pointer which identifies a location of the position transceiver associated with corresponding data of the database where the information which is transmitted to the second transceiver is stored.

39. A method in accordance with claim 33 wherein:
the broadcast location comprises a plurality of information sources, a plurality of position transceivers disposed at the broadcast location respectively coupled to a different one of the plurality of information sources, each position transceiver broadcasting information including identification information relating to one of the information sources from the broadcast location;
a display which displays information relating to the information broadcasted by each of the plurality of position transceivers; and
information, stored in the database associated with the identification information of the plurality of position transceivers, is transmitted to the second transceiver in response to the database receiving at least the identification

information by transmission by the network from the mobile terminal to the database.

40. A method in accordance with claim 33 wherein:
the identification information, which is broadcasted from the position transceiver, includes a uniform resource locator which is an address of the information associated with the identification information in the database in the network.

41. A method in accordance with claim 39 wherein:
the identification information, which is broadcasted from each of the plurality of position transceivers, includes a uniform resource locator which is an address of the information associated with the identification information in the database in the network.

42. A method in accordance with claim 39 wherein:
the information, which is broadcasted from each of the plurality of position transceivers, includes a web page.

43. A method in accordance with claim 39 wherein:
the information, which is broadcasted from each of the plurality of position transceivers, includes application software which is executed by a processor in the mobile terminal.

44. A method in accordance with claim 43 wherein:
the application software comprises an application program for opening a window.

45. A method in accordance with claim 43 wherein:
the application software comprises a web browser for searching the information stored in the database identified by the identifying information.

46. A method in accordance with claim 33 wherein:
the information is encrypted.

47. A method in accordance with claim 46 wherein:
the transmission of the information from the second transceiver to the database is signed by a user of the mobile terminal with a secret key and includes a time stamp of when the information was transmitted from the position transceiver to the mobile terminal; and
the database checks validity of the signature, decrypts the information which is received from the network and checks validity of the time stamp and if the time stamp and signature are valid, the database transmits the stored information associated with the identification information via the network to the second transceiver.

48. A method in accordance with claim 39 wherein:
the plurality of position transceivers of the broadcast location cease to broadcast the information when the plurality of information transceivers are moved.

49. A method in accordance with claim 48 wherein:
the broadcast location includes a device which senses when the plurality of position transceivers are moved and which disables transmission of the information when movement is sensed.

50. A method in accordance with claim 33 wherein:
the position transceiver broadcasts the information with a limited range RF carrier.

51. A method in accordance with claim 33 wherein:
the position transceiver broadcasts the information with a limited range infrared carrier.

52. A method in accordance with claim 33 wherein

the network comprises a cellular telephone network and an IP network.

53. A method in accordance with claim 33 wherein:
the broadcast location includes a device which senses when the plurality of position transmitters are moved; and
the plurality of position transceivers transmit an error indication when the device senses the plurality of information transceivers are moved.

54. A method in accordance with claim 33 wherein:
the broadcasted information includes an advertisement.

55. A method in accordance with claim 33 wherein:
the broadcasted information includes an emergency call.

56. A method in accordance with claim 33 wherein:
the broadcasted information includes information providing a service to move from a first location to a second location.

57. A method in accordance with claim 33 wherein:
the broadcasted information provides calibration of where the mobile terminal is located in the network.

58. A method in accordance with claim 33 wherein:
the broadcasted information provides calibration of the network.

59. A method in accordance with claim 33 wherein:
the broadcasted information provides calibration of position determination by the network.

60. A method in accordance with claim 33 wherein:

the broadcasted information relates to services which are available to a user of the mobile terminal when the user is in a vicinity of the broadcast location.

61. A method in accordance with claim 33 wherein:
the broadcasted information relates to communication services which are available to a user of the mobile terminal only when the user is in a vicinity of the broadcast location.

62. A method in accordance with claim 33 wherein:
the broadcasted information relates to a price for goods or services and an indication where payment may be transmitted if a user of the mobile terminal wishes to purchase the goods or services; and
the mobile terminal transmits payment for purchasing the goods or services to the database.

63. A method in accordance with claim 62 wherein:
acknowledgment of the payment is transmitted to the position transmitter and;
the transceiver transmits the payment acknowledgment to the mobile terminal.

64. A method in accordance with claim 63 wherein:
the transmission of the payment acknowledgment to the mobile terminal also permits the user of the mobile terminal to have access to the purchased goods or services.

65. A method in accordance with claim 33 wherein:
the information broadcasted with the position transceiver is continuously broadcast.

66. A method in accordance with claim 33 wherein:
the information broadcasted with the position transceiver is broadcasted upon activation of the position transmitter by the user of the mobile terminal.

67. A method in accordance with claim 33 wherein:

the information broadcasted with the position transceiver detection is broadcasted when presence of a user of the mobile terminal in a vicinity of the position transmitter is detected.

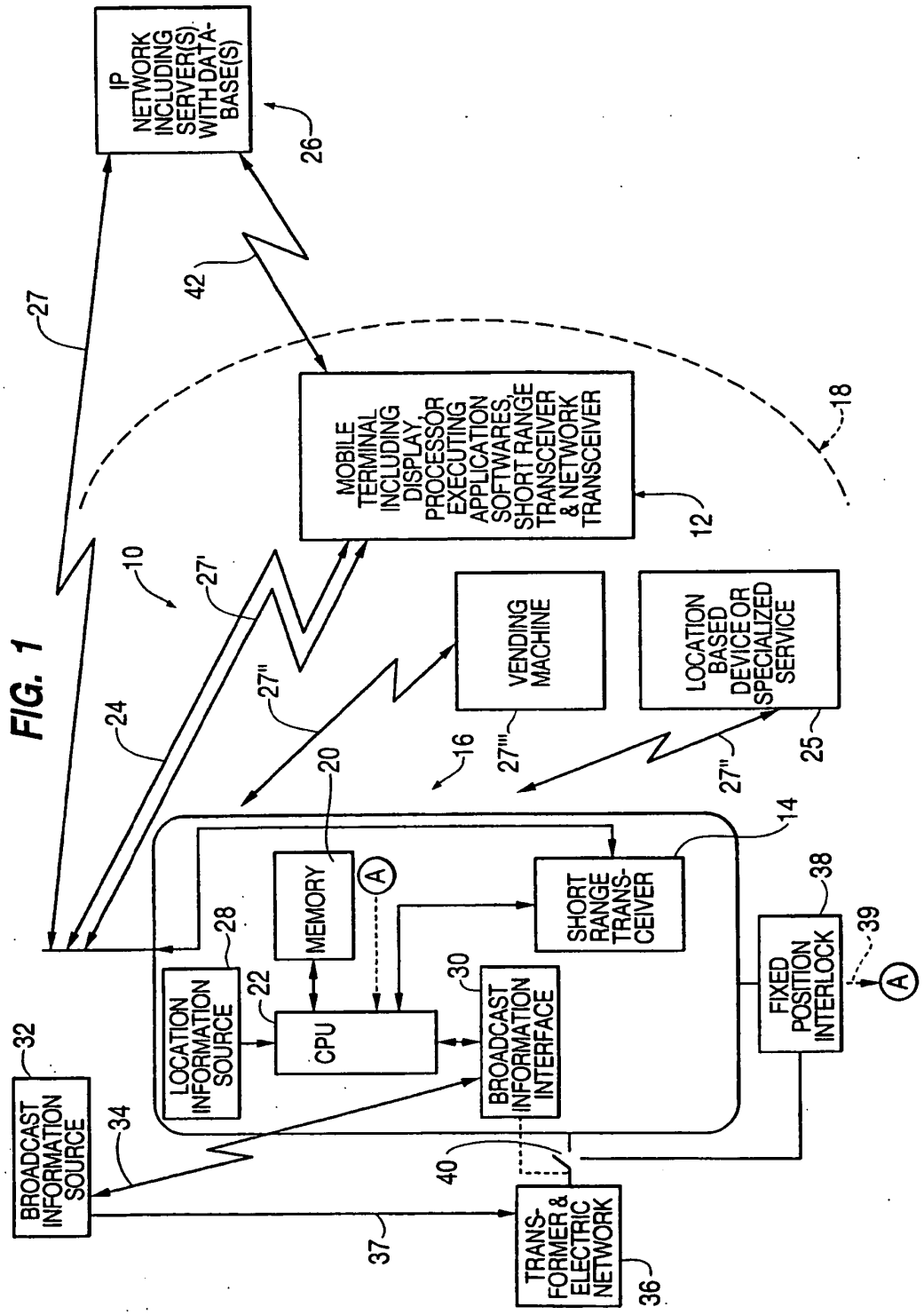

IP NETWORK INCLUDING SERVER(S) WITH DATA-BASE(S)
26
42
27
MOBILE TERMINAL INCLUDING DISPLAY, PROCESSOR EXECUTING APPLICATION SOFTWARES, SHORT RANGE TRANSCEIVER & NETWORK TRANSCEIVER
12
18
10
27'
VENDING MACHINE
LOCATION BASED DEVICE OR SPECIALIZED SERVICE
27"
27'''
16
25
24
20
14
MEMORY
A
SHORT RANGE TRANS-CEIVER
38
28
30
39
LOCATION INFORMATION SOURCE
22
CPU
BROADCAST INFORMATION INTERFACE
FIXED POSITION INTERLOCK
32
34
40
BROADCAST INFORMATION SOURCE
37
TRANS-FORMER & ELECTRIC NETWORK
36

FIG. 1

FIG. 2

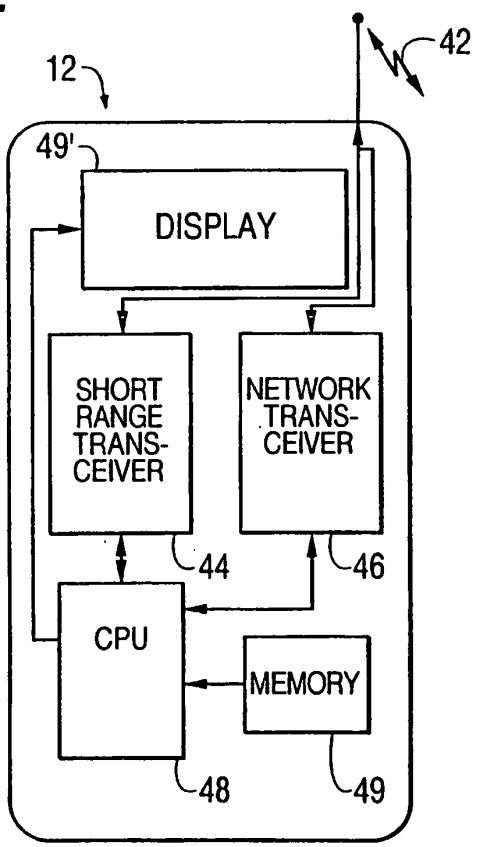

42
12
49'
DISPLAY
SHORT RANGE TRANS-CEIVER
NETWORK TRANS-CEIVER
44
46
CPU
MEMORY
48
49

FIG. 3

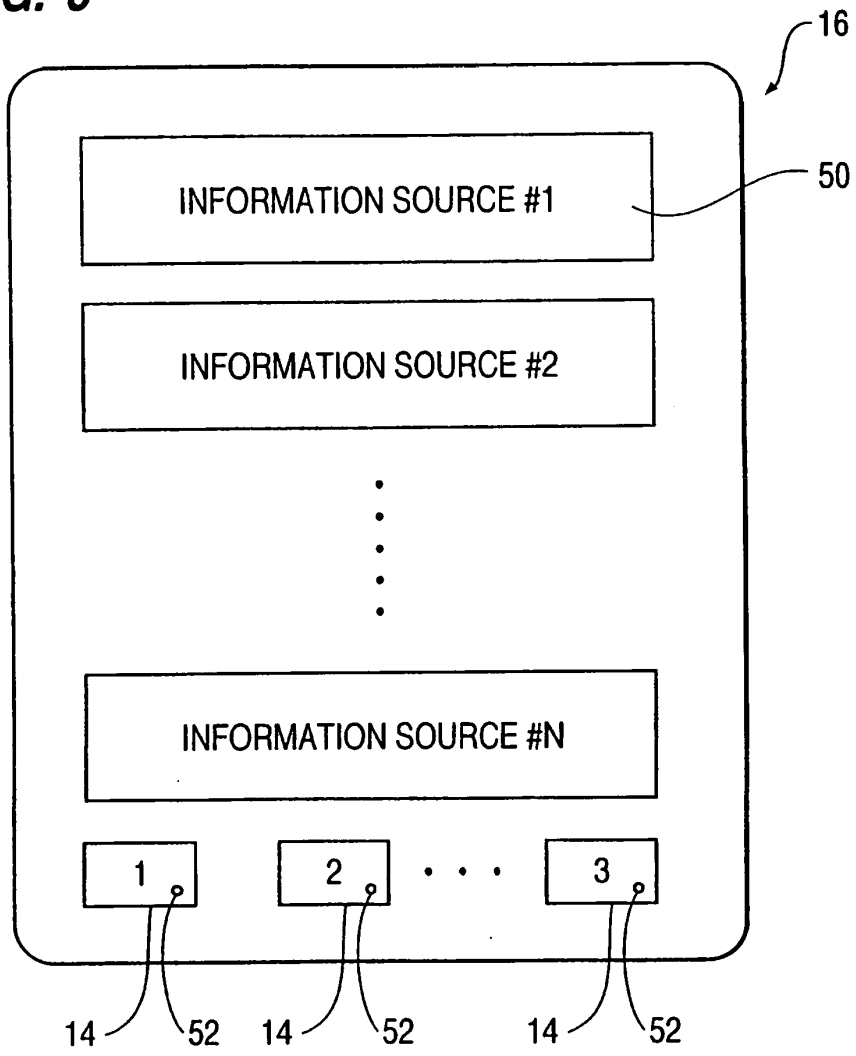
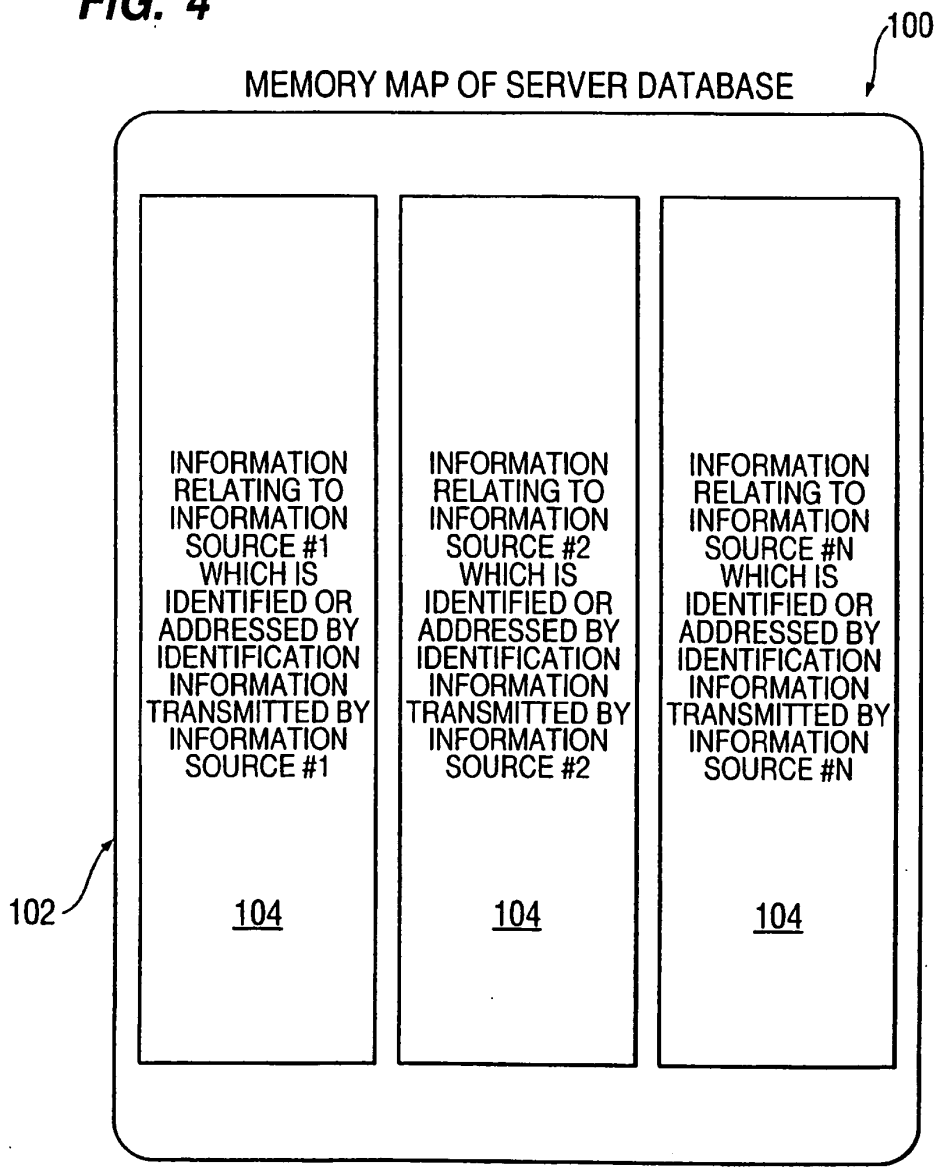

16
50
INFORMATION SOURCE #1
INFORMATION SOURCE #2
INFORMATION SOURCE #N
1
2
3
14
52
14
52
14
52

FIG. 4


100
MEMORY MAP OF SERVER DATABASE
INFORMATION RELATING TO INFORMATION SOURCE #1 WHICH IS IDENTIFIED OR ADDRESSED BY IDENTIFICATION INFORMATION TRANSMITTED BY INFORMATION SOURCE #1
INFORMATION RELATING TO INFORMATION SOURCE #2 WHICH IS IDENTIFIED OR ADDRESSED BY IDENTIFICATION INFORMATION TRANSMITTED BY INFORMATION SOURCE #2
INFORMATION RELATING TO INFORMATION SOURCE #N WHICH IS IDENTIFIED OR ADDRESSED BY IDENTIFICATION INFORMATION TRANSMITTED BY INFORMATION SOURCE #N
102
104
104
104

INTERNATIONAL SEARCH REPORT

Int ional Application No
PCT/IB 00/00770

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04Q7/22

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)
IPC 7 H04Q G01S H04M

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 practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 796 351 A (YABUKI TSUTOMU) 18 August 1998 (1998-08-18) column 1, line 57 -column 2, line 54 figure 1 — -/—	1-9,16, 20,21, 23, 26-30, 33-38, 40,46, 50-52, 54, 57-62, 65-67

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"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)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
2 November 2000	20/11/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Janyszek, J-M

3

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INTERNATIONAL SEARCH REPORT

Int ional Application No
PCT/IB 00/00770

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 848 564 A (BOSCH GMBH ROBERT) 17 June 1998 (1998-06-17) column 2, line 24 - line 57 column 4, line 18 - line 24 figure 1	1-9,16, 20,21, 23, 26-30, 33-38, 40,46, 50-52, 54, 57-62,65
A	EP 0 697 670 A (AT & T CORP) 21 February 1996 (1996-02-21) column 2, line 33 -column 4, line 32 figures 1-3	1,30-33, 62-64
A	EP 0 785 535 A (MITSUBISHI ELECTRIC CORP) 23 July 1997 (1997-07-23) column 4, line 15 -column 5, line 50 column 7, line 31 -column 8, line 16 claims 1,4,6,7,9 figures 2,3,8-10	1-3, 9-15,33, 34,40-44
A	WO 98 47116 A (ERICSSON TELEFON AB L M) 22 October 1998 (1998-10-22) page 3, line 24 -page 4, line 6 page 23, line 24 -page 24, line 1 figure 1	1,16,17, 33,46,62

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte onal Application No
PCT/IB 00/00770

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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EP 0848564 A	17-06-1998	DE 19651453 A	18-06-1998
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		BR 9808534 A	23-05-2000
		CN 1260895 T	19-07-2000
		EP 0976116 A	02-02-2000
		NO 995031 A	16-12-1999

Form PCT/ISA/210 (patent family annex) (July 1992)

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
4 January 2001 (04.01.2001)

PCT

(10) International Publication Number
WO 01/01718 A1

(51) International Patent Classification[7]: H04Q 7/38

(21) International Application Number: PCT/FI00/00357

(22) International Filing Date: 26 April 2000 (26.04.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
991466 28 June 1999 (28.06.1999) FI

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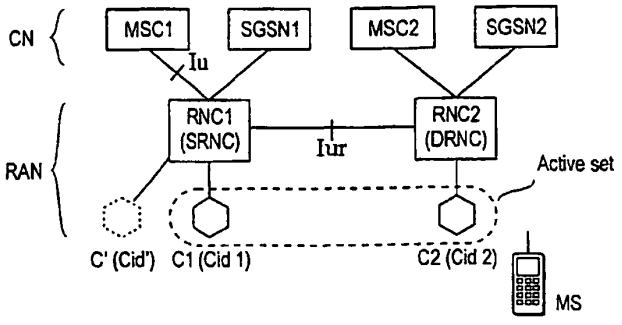
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *With international search report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: LOCATION MANAGEMENT FOR CELLULAR SYSTEMS



(57) Abstract: A method for indicating a mobile station's (MS) location. A first radio network controller, RNC, acts as the mobile station's serving RNC (SRNC), for reporting the mobile station's location to the core network (CN). A second RNC acts as the mobile station's drift RNC (DRNC), for maintaining a radio connection with the mobile station. In response to fulfilment of at least one criterion in a first set of criteria, the mobile station (MS) sends location information about its location to the second RNC (DRNC) which forwards the location information to the first RNC (SRNC) for reporting to the core network (CN). There is also a second set of criteria for transforming the location information. In response to fulfilment of at least one criterion in the second set, the first RNC (SRNC) sends falsified information about the mobile station's location to the core network (CN).

WO 01/01718 A1

Location management for cellular systems

Background of the invention

The invention relates to methods and equipment for reporting a mobile terminal's location. The invention can be used e.g. for implementing handover in a mobile communications system. The invention is particularly useful in a system which is at least partly a third generation (3G) mobile communications system. 3G mobile communications systems, such as the UMTS (Universal Mobile Telecommunications System) are being standardised by the UMTS Forum and the European Telecommunication Standard Institute ETSI. The current vision is that 3G systems will include both circuit-switched and packet-switched components.

Fig. 1 is a block diagram of a telecommunications system showing the components which are essential for understanding the invention. A UMTS Mobile Station MS consists of Mobile Equipment ME and a USIM card (User and Services and Identity Module). There is a radio interface Uu between the MS and a Radio Access Network RAN, which comprises Base Stations BS under control of Radio Network Controllers RNC. For circuit-switched services, the RNCs are connected, via an Iu interface, to Mobile services Switching Centres MSC, and for packet-switched services, there is a connection, via a Gb interface, to Serving GPRS Support Nodes SGSN (GPRS = General Packet Radio Service). The MSC and SGSN elements may include separate UMTS addition sections. Subscriber data related to the MS is stored permanently in a Home Location Register HLR and for circuit-switched operation, the data is transferred to the Visitor Location Register VLR of the MSC which currently serves the MS. There may be separate Interworking units IWU for adapting the A and Gb interfaces of GSM/GPRS systems to the Iu interface of the UMTS. For storing equipment-related data, the network comprises an Equipment Identity Register EIR. For entering and updating subscriber-specific data, there is an Operation and Maintenance O&M section having a Man-Machine Interface MMI. For creating and managing supplementary services, there is typically a dedicated Service Control Node SCN which can be seen as an evolved version of a Service Control Point (SCP) of Intelligent Networks.

Only the packet-switched section will be described in more detail, and it is assumed that this section will resemble a GPRS system. The GPRS infrastructure comprises support nodes such as a GPRS gateway support node (GGSN) and a GPRS serving support node (SGSN). The main functions

of the GGSN nodes involve interaction with the external data network. The GGSN updates the location directory using routing information supplied by the SGSNs about an MS's path and routes the external data network protocol packet encapsulated over the GPRS backbone to the SGSN currently serving the MS. It also decapsulates and forwards external data network packets to the appropriate data network and handles the billing of data traffic.

The main functions of the SGSN are to detect new GPRS mobile stations in its service area, handle the process of registering the new MSs along with the GPRS registers, send/receive data packets to/from the GPRS MS, and keep a record of the location of the MSs inside of its service area. The subscription information is stored in a GPRS register (HLR) where the mapping between a mobile's identity (such as MS-ISDN or IMSI) and the PSPDN address is stored. The GPRS register acts as a database from which the SGSNs can ask whether a new MS in its area is allowed to join the GPRS network.

The GPRS gateway support nodes GGSN connect an operator's GPRS network to external systems, such as other operators' GPRS systems, data networks 11, such as an IP network (Internet) or a X.25 network, and service centres. Fixed hosts 14 can be connected to the data network 11 e.g. by means of a local area network LAN and a router 15. A border gateway BG provides access to an inter-operator GPRS backbone network 12. The GGSN may also be connected directly to a private corporate network or a host. The GGSN includes GPRS subscribers' PDP (Packet Data Protocol) addresses and routing information, i.e. SGSN addresses. Routing information is used for tunnelling protocol data units PDU from data network 11 to the current switching point of the MS, i.e. to the serving SGSN. The functionalities of the SGSN and GGSN can be connected to the same physical node.

The home location register HLR of the GSM network contains GPRS subscriber data and routing information and it maps the subscriber's IMSI into an SGSN address and one or more pairs of the PDP type and PDP address. The HLR also maps each PDP type and PDP address pair into a GGSN node. The SGSN has a Gr interface to the HLR (a direct signalling connection or via an internal backbone network 13). The HLR of a roaming MS and its serving SGSN may be in different mobile communication networks.

The intra-operator backbone network 13, which interconnects an operator's SGSN and GGSN equipment, can be implemented, for example, by

means of a local network, such as an IP network. It should be noted that an operator's GPRS network can also be implemented without the intra-operator backbone network, e.g. by providing all features in one computer.

Fig. 2 shows the protocol stacks used at various points in a 3G network.

A mobile station (MS) engaged in GPRS traffic sends a CELL UPDATE (CU) message after detecting that it has changed its cell. A number of cells constitute a routing area (RA), and when the routing area changes, the MS sends a ROUTING AREA UPDATE (RAU) message. In the UMTS the cell update messages are not sent to the SGSN, only to the RNC. Therefore the SGSN is not aware of the exact cell of the MS. For an active MS, the SGSN only knows an identifier of the RNC which handles the MS. For an idle MS, the SGSN only knows the MS's routing area identifier.

A first problem underlying the invention will now be described with reference to Fig. 3. A 3G system may pose certain problems which do not exist in 2G systems, such as the GSM and the GPRS. For example, when the MS is changing its cell, it is possible that a connection-oriented connection is not handled by the RNC controlling the MS's active cells but by another RNC. The former RNC is called a 'drift RNC' and the latter RNC is called a 'serving RNC'. In Fig. 3, RNC1 is the serving RNC (SRNC) and RNC2 is the drift RNC (DRNC). In such a case, the CU and RAU messages are transmitted over the air interface piggybacked to the channel which is reserved for the circuit-switched connection (connection-oriented connection), and they terminate at the serving RNC. In a GPRS core network, if the Radio Access Network (RAN) inserts a cell ID (identifier) into the CU or RAU messages, thereby indicating where the MS is actually located, and if that cell is not controlled by the serving RNC, the SGSN may use another RNC for the packet-switched connections. This is not possible, however, because all simultaneous connections for one user should be handled by one RNC. In other words, there may be an ambiguity concerning the RNC which the SGSN should use. The same holds in a UMTS system if the Radio Access Network (RAN) inserts a cell ID (identifier) into a RAU message or an equivalent.

A second, related problem is that current GPRS or 3G systems do not offer a smooth Inter-SGSN routing area update (RAU) procedure. A lot of signalling is needed between the new SGSN and the old SGSN, the HLR, MSC and the GGSN(s). In particular, the new SGSN must receive the sub-

scriber data from the old SGSN before it can be sure that it can accept the RAU and continue signalling. This signalling causes a delay of up to several seconds, which in some cases could be unacceptable. Moreover, in packet traffic a virtual connection can last for several days. Therefore, the existing concepts of an anchor-MSC and float-MSC are not appropriate.

Disclosure of the invention

It is an object of the invention to provide a method and equipment for eliminating the first problem associated with prior art systems. The object is attained with the method and equipment which are characterized by what is disclosed in the characerizing part of the appended independent claims. Solutions to the second problem and preferred solutions to the first problem are disclosed in the appended dependent claims.

The invention is based on the idea that for a terminal sending information on the basis of which its location can be determined (such as a mobile station having a connection-oriented connection while sending a CU or RAU message), the terminal's location information (e.g. its cell ID) can betransformed, e.g. by using a masked or falsified (faked) location information, such as a fake cell ID. The fake location information is preferably chosen so that the SGSN assumes the location of the MS to be under the serving RNC. A certain pool or group of cell addresses can be used for this purpose. It might be beneficial to choose the addresses so that the SRNC (or SGSN) can detect that the traffic has been forwarded.

According to various preferred embodiments of the invention, the information about the MS's location indicates one or more of the following:

a location (e.g. a cell) which is controlled by the SRNC and which is part of the MS's active set, if such a cell exists;

a virtual location (e.g. cell), which is not controlled by either RNC, in case the MS's active set does not comprise a cell which is controlled by the SRNC;

the last location (e.g. a cell) which is controlled by the SRNC and which has been part of the MS's active set in case the MS's active set does not comprise a cell which is controlled by the SRNC;

a location (e.g. a cell) controlled by the DRNC in case the MS's active set does not comprise a cell controlled by the SRNC; and/or

a location (e.g. a cell) whose location information the MS received last.

The fact that the MS's location information indicates one of these cells has two possible interpretations. The MS's location information may indicate such a cell either explicitly or implicitly. An explicit indication means that the location information contains actual cell identifiers. An implicit indication means that the location information contains some information (e.g. one or more routing or location area identifiers) on the basis of which a cell can be identified (if so desired). It is also feasible to transfer only some location-related data and use it for calculating the MS's location.

The criteria for sending location information preferably comprises a change of the MS's location, activation of a PDP context for the MS and expiry of a recurring period of time.

As briefly noted above, the information about the MS's location may indicate a location, such as a cell, whose location information the MS received last. When a mobile station has at least one active connection, it receives system information only via its dedicated signalling connection. This system information comprises e.g. current location (such as routing area, location area and cell identity) of the mobile station. The system information is similar in nature to the information which the MS receives via a broadcast control channel BCCH when it does not have any active connections. The SRNC only sends system information about the cells controlled by it. In other words, it does not send system information about cells controlled by the DRNC. Based on the system information, the MS can determine whether or not it has moved into a new routing or location area. The SRNC sends this information as necessary. One suitable criterion for sending it is that the MS has moved and its active set does not contain the cell whose system information the SRNC has sent last, or after an SRNC handover (relocation).

Use of the transformed location, such as a fake cell ID, causes another problem, however. When the MS's last connection-oriented connection is terminated and the serving RNC deleted from the MS-URAN connection, the SGSN must be informed about the new (correct) RNC. This holds also for cases where the serving RNC is changed. This problem can be solved as follows. If the MS's last connection-oriented connection is terminated or if the serving RNC is changed, an additional CU or RAU must be performed for the MS, even if the MS's location information has not changed.

The location reporting functionality performed by a serving RNC can be summarised as follows:

1. Check if RNC handover should be performed. If not, then:

2. Select a location, such as a cell which is controlled by the serving RNC and which is part of the MS's active set, if such a cell exists. (N.B. The active set must also comprise at least one cell controlled by the drift RNC, otherwise the concept of drift RNC would not exist.)

If no handover was performed in step 1 or no cell was found in step 2, then do one of the following:

3A. Select a virtual location, such as a cell. A virtual cell is not a real cell (i.e. it is not covered by radio transceivers); or

3B. Select, among the cells controlled by the serving RNC, the last one used by the MS.

If step 3A is taken, i.e. a virtual location is selected, the core network elements (the MSC and/or the SGSN) must determine that the location information does not refer to reallocation. Such a determination can be made on the basis of a suitable cell ID numbering plan or a translation table.

Brief description of the drawings

The invention will now be described in connection with its preferred embodiments, with reference to the accompanying drawings, in which:

Fig. 1 is a block diagram of a telecommunications system showing the components which are essential for understanding the invention;

Fig. 2 shows the protocol stacks used at various points in a 3G network;

Fig. 3 is a simplified block diagram for pointing out the problem more clearly;

Fig. 4 shows a routing area update (RAU) procedure for a GPRS network; and

Fig. 5 shows an alternative Inter-SGSN routing area update procedure according to a preferred embodiment of the invention.

Detailed description of the invention

Fig. 4 shows a routing area update (RAU) procedure for a GPRS network. In step 4-1 the MS sends a ROUTING AREA UPDATE REQUEST via RNC2 (drift RNC) to RNC1 (serving RNC). In step 4-2 RNC1 adds the MS's location information and forwards the RAU Request to SGSN1. In step 4-3 SGSN2 requests the MS's PDP context from SGSN1 which responds in step 4-4. In step 4-5 SGSN1 begins to forward MS-terminated (MT) packets to

SGSN2. Security functions have been shown as step 4-6. In step 4-7 SGSN2 sends an UPDATE PDP CONTEXT REQUEST to the GGSN node which responds in step 4-8. In step 4-9 the MS's location is updated in the HLR. In step 4-10 the HLR cancels the MS's location in SGSN1 which acknowledges this in step 4-11. In step 4-12 the HLR sends an INSERT SUBSCRIBER DATA to SGSN2 which acknowledges in step 4-13. In step 4-14 the HLR sends to SGSN2 an acknowledgement to the message sent in step 4-9. In step 4-15, if the MS is IMSI-attached and does not have a circuit-switched connection, the SGSN-VLR association must be updated. SGSN2 updates the MS's location and SGSN number in the VLR, which acknowledges these in step 4-16. In steps 4-17 and 4-18 the RAU process is completed.

Fig. 5 shows an alternative Inter-SGSN routing area update procedure according to a preferred embodiment of the invention. This embodiment and its alternative modifications solve the second problem underlying the invention.

Due to macrodiversity, the triggering of a RAU is less clear than in 2G systems. A RAU could be triggered e.g. if all cells in the MS's active set belong to the new RA, or if more than half of the cells belong to it. In step 5-1 the MS sends a ROUTING AREA UPDATE REQUEST via RNC2 (drift RNC) to RNC1 (serving RNC). The MS sends the RAU request via its uplink connection, if one exists. Because of the coexistence of the drift RNC and the serving RNC, the update is received by the SRNC which does not control the MS's new routing area. The MS should suspend its session management procedures. In step 5-2 RNC1 adds the MS's location information and forwards the RAU REQUEST to SGSN1. This is in contrast to prior art GPRS systems where the RAU REQUEST is sent to SGSN2. In step 5-3 security functions may be performed, as usual. A benefit of sending the RAU REQUEST to SGSN1 is that SGSN1 already knows the MS's digital signature (PTMSI signature in GPRS terms), and it is likely to have authentication triplets for it. Thus there is no need to fetch these separately, whereby the delays due to the inter-SGSN handover can be shortened.

In step 5-4, if the security functions are completed successfully, the SGSN1 sends a FORWARD RAU REQUEST to SGSN2. This message includes parameters for resuming the connection(s) after the RAU. Such parameters include session management data and eventually Iu information (address of

RNC2). SGSN1 may start a timing period during which it will keep the MS's data in its memory.

In step 5-5 SGSN2 updates the MS's location (IMSI, SGSN address) in the HLR. In step 5-6 the HLR inserts the subscriber data (IMSI, subscription details) into SGSN2 which validates the MS's presence in the new RA. If all regional and other checks are passed, SGSN2 establishes an MM (Mobility Management) context for the MS and returns an acknowledgement to the HLR in step 5-7.

In step 5-8 SGSN2 may establish an Iu link to RNC2 which may send some radio parameters to resume quickly a connection with the MS. This feature is especially useful if the MS has a delay-sensitive application (this can be determined by checking the MS's session management context).

In step 5-9 SGSN2 returns an accept message to the message sent in step 5-4. The accept message includes the new RA index, the MS's new temporary identity (P-TMSI in GPRS terms) and/or its new digital signature. Additionally, some radio parameters or codes obtained from RNC2 may be sent. SGSN1 should immediately acknowledge this message to facilitate error handling. In step 5-10 SGSN1 sends to the MS an RAU ACCEPT message which preferably contains the same parameters as the message of step 5-9. Additionally, if an acknowledgement transmission is active, it may contain some protocol state information known by SGSN1 (this corresponds to LLC acknowledgement in GPRS).

In step 5-11 SGSN1 suspends downlink data transmission for acknowledged mode, in order to keep the protocol state intact. Depending on the QoS, SGSN1 may continue data transmission for unacknowledged mode.

In step 5-12 the MS acknowledges with a RAU COMPLETE message which contains the new temporary identity (P-TMSI) and some protocol state information known by the MS, such as an LLC acknowledgement for each LLC connection used by the MS (which confirms all MT N-PDUs transferred succesfully before the start of the update procedure. If the packet acknowledgement (equivalent to LLC acknowledgement in GPRS) confirms reception of certain N-PDUs, these N-PDUs will be discarded by SGSN1. This message will trigger RNC relocation (which in this embodiment is triggered by the MS).

In step 5-13 the MS establishes a radio connection with RNC2. If radio parameters were sent in step 5-10 (RAU ACCEPT), the MS could set up a radio connection immediately with these parameters. Otherwise, the MS

should re-establish the radio connection by accessing the common channel, which causes a longer break in the connection. This is why sending the radio parameters in step 5-10 may be QoS-dependent. The MS should send an uplink packet (not shown) to SGSN2 in case the RAU COMPLETE message was lost because of error handling. An alternative embodiment, omitting step 5-13, will be described later.

In step 5-14 SGSN1 sends a FORWARD RAU COMPLETE message to SGSN2. In step 5-15 SGSN1 cancels the Iu links towards RNC1 and begins to forward downlink packets to SGSN2. It may keep the MS's context and forward MT packets until the expiry of the optional timing period which was started in step 5-4. In step 5-16, when SGSN2 receives the FORWARD RAU COMPLETE message, it resumes data transmission towards the MS.

In step 5-17 SGSN2 sends to the relevant GGSN(s) an UPDATE PDP CONTEXT REQUEST (SGSN2 address, Tunnel Identifier, QoS Negotiated). The GGSNs update their PDP context fields and return a response in step 5-18. N.B: Steps 5-17 and 5-18 may take place any time after step 5-5.

In step 5-19 the HLR cancels the MS's location in SGSN1. This message contains the MS's IMSI, and the cancellation type is set to Update procedure. If the optional timer was not set in step 5-4, SGSN1 deletes the MS's MM and PDP contexts. Otherwise it waits until the timer expires. The timing period allows SGSN1 to complete forwarding of N-PDUs. It also ensures that the MS's MM and PDP contexts are kept in case the MS initiates another Inter-SGSN RAU before completing the ongoing RAU. In step 5-20 SGSN1 acknowledges with a CANCEL LOCATION ACK.

According to an alternative embodiment step 5-13 is omitted. Instead, during step 5-15 RNC1 receives an indication from SGSN1 that the RNC could now be relocated. RNC1 will inform RNC2 which will start handling the MS directly.

In general, the invention is equally applicable if the SGSN is replaced by a 3G MSC (or an MSC/SGSN combination). For this embodiment, the MSC and/or SGSN could be called 'switching elements' since they route packets and/or establish circuit-switched connections.

In GSM systems no location area updates are performed during connection, in order not to confuse the relay and anchor MSCs. With macro diversity the LAU could reach the old MSC directly, whereby it is possible to have a LAU during a call. However, in a hard inter-MSC handover, a special

message (LAU with an active call indication) may be needed. Such a message could trigger the new MSC to establish a connection with the old MSC and try to resume the call. A problem is that this would happen especially between the GSM and the UMTS, which means that a GSM MSC would need to interpret this special LAU message.

It should be noted that figures 4 and 5 illustrate worst-case scenarios in the sense that both RNCs are under different SGSN nodes or MSCs. If the SGSNs or the MSCs are the same, these scenarios could be simplified accordingly.

Claims

1. A method for indicating a terminal's (MS) location in a telecommunications system comprising:

a core network (CN); and

an access network (RAN) comprising a first network controller, which at least temporarily acts as the terminal's serving network controller (SRNC), for reporting the terminal's location to the core network, and a second network controller, which at least temporarily acts as the terminal's drift network controller (DRNC), for maintaining a connection with the terminal; wherein

there is a first set of predetermined criteria for sending information about the terminal's (MS) location to the core network (CN); and

in response to fulfilment of at least one criterion in the first set, the terminal (MS) sends to the second network controller (DRNC) location information (4-1, 5-1) on the basis of which the terminal's location can be determined; and the second network controller (DRNC) forwards the location information to the first network controller (SRNC) for reporting to the core network (CN);

characterized in that

there is a second set of at least one predetermined criterion for transforming the location information;

the first network controller (SRNC) checks whether at least one criterion in the second set is fulfilled; and

in response to fulfilment of at least one criterion in the second set, the first network controller (SRNC) sends transformed information (4-2, 5-2) about the terminal's location to the core network (CN).

2. A method according to claim 1, characterized in that in response to terminating the last connection-oriented connection with the terminal, the first network controller (SRNC) reports the terminal's correct location to the core network (CN).

3. A method according to claim 1 or 2, characterized in that the information about the terminal's (MS) location indicates a location which is controlled by the first network controller (SRNC) and which is part of the terminal's active set, if such a location exists.

4. A method according to claim 3, characterized in that if the terminal's active set does not comprise a location which is controlled by the first network controller (SRNC), the information about the terminal's (MS) location indicates a virtual location, which is not controlled by either of said network controllers.

5. A method according to claim 3, characterized in that if the terminal's active set does not comprise a location which is controlled by the first network controller (SRNC), the information about the terminal's (MS) location indicates the last location which is controlled by the first network controller and which has been part of the terminal's active set.

6. A method according to claim 3, characterized in that if the terminal's active set does not comprise a location which is controlled by the first network controller (SRNC), said information about the terminal's (MS) location indicates a location which is at least partially controlled by the first network controller.

7. A method according to any one of the preceding claims, characterized in that the information about the terminal's (MS) location indicates a location the location information of which the terminal received last.

8. A method according to any one of the preceding claims, characterized in that if the terminal's (MS) active set does not comprise a location controlled by the first network controller (SRNC), the information about the terminal's (MS) location indicates a location controlled by the second network controller (DRNC).

9. A method according to any one of the preceding claims, characterized in that said information about the terminal's (MS) location indicates at least one cell identifier, routing area identifier or location area identifier.

10. A method according to any one of the preceding claims, characterized in that said first set of criteria comprises a change of the terminal's location, activation of a PDP context for the terminal and expiry of a recurring period of time.

11. A method according to any one of the preceding claims, characterized in that

the first and the second network controller (RNC1, RNC2) are associated, respectively, with a first and a second switching element (SGSN1, SGSN2) for maintaining subscription information related to the terminal (MS); and

information about the terminal's location is received by the first switching element (SGSN1) sends (5-4) information about the terminal's location to the second switching element (SGSN2) without a separate request.

12. A method according to claim 11, characterized in that said information about the terminal's location comprises the terminal's Packet Data Protocol and/or Mobility Management context.

13. A method according to claim 11 or 12, characterized in that each of the first and the second switching element (SGSN1, SGSN2) is substantially an SGSN node, a Mobile services Switching Centre or a combination of both.

14. A method according to any one of the preceding claims, characterized in that said terminal is a mobile station, said access network is a radio access network and said network controller is a radio network controller.

15. A first network controller for supporting a terminal (MS) in a telecommunications system which comprises a core network (CN) and an access network (RAN);

wherein said first network controller is adapted to act, at least temporarily, as the terminal's serving network controller (SRNC) in said access network (RAN), for reporting the terminal's location to the core network (CN); and

the first network controller (SRNC) is adapted to receive location information from a drift network controller (DRNC) and to report it to the core network (CN) for determining the terminal's (MS) location;

characterized in that

the first network controller (SRNC) is adapted to transform said information about the terminal's location before reporting it to the core network (CN).

Fig. 1

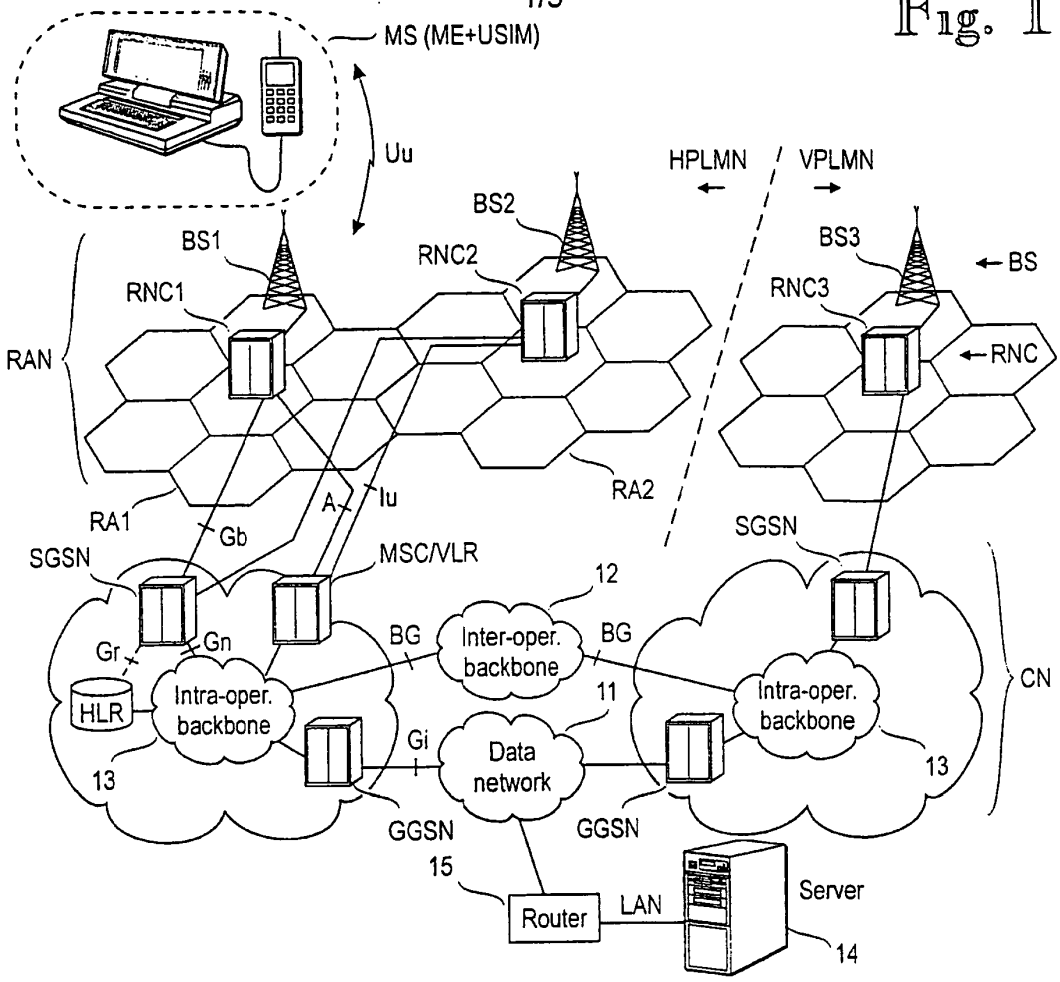
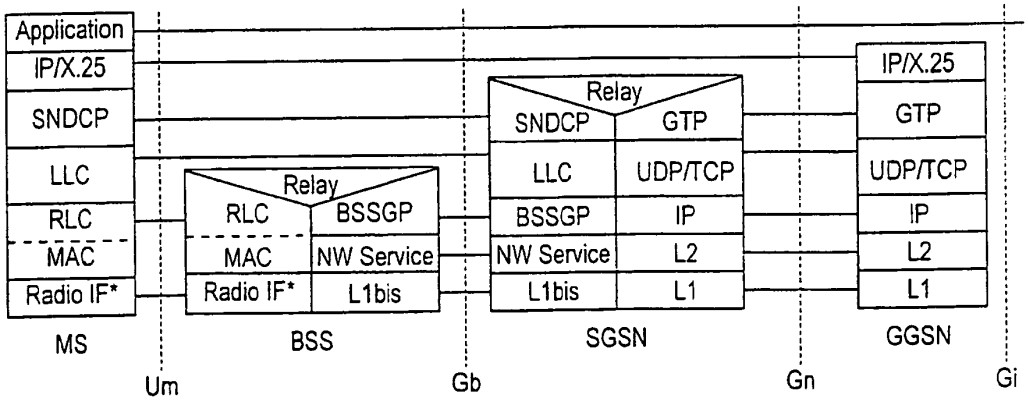


Fig. 2



*WCDMA in 3G

Fig. 3

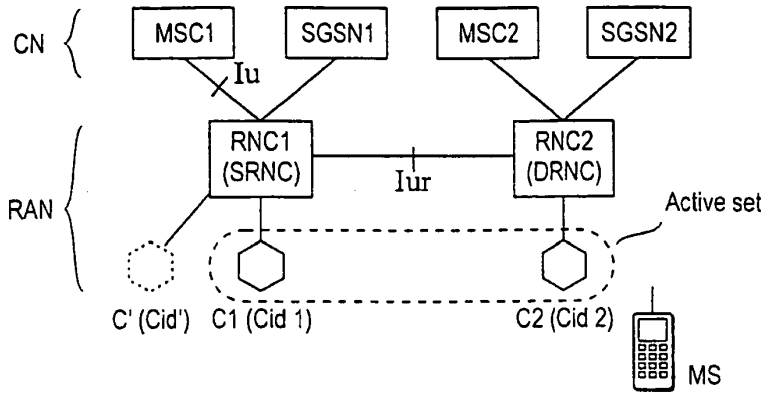

CN
MSC1
SGSN1
MSC2
SGSN2
Iu
RAN
RNC1
(SRNC)
Iur
RNC2
(DRNC)
Active set
C' (Cid')
C1 (Cid 1)
C2 (Cid 2)
MS

Fig. 4

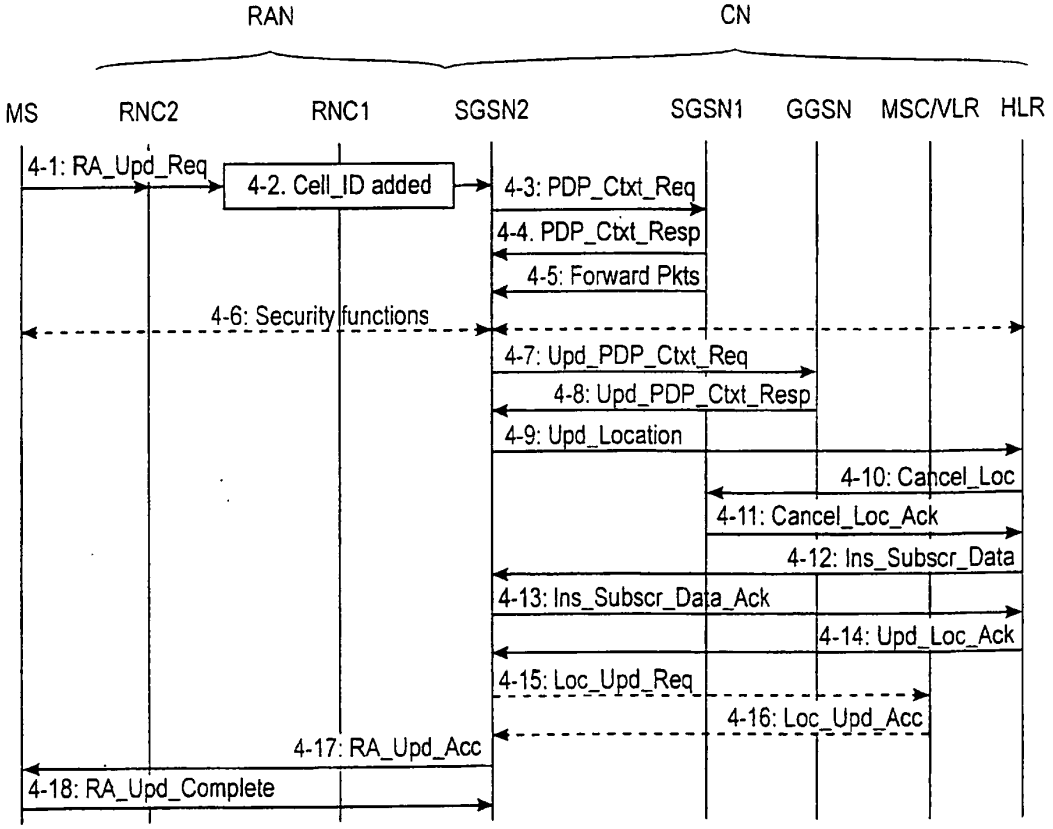
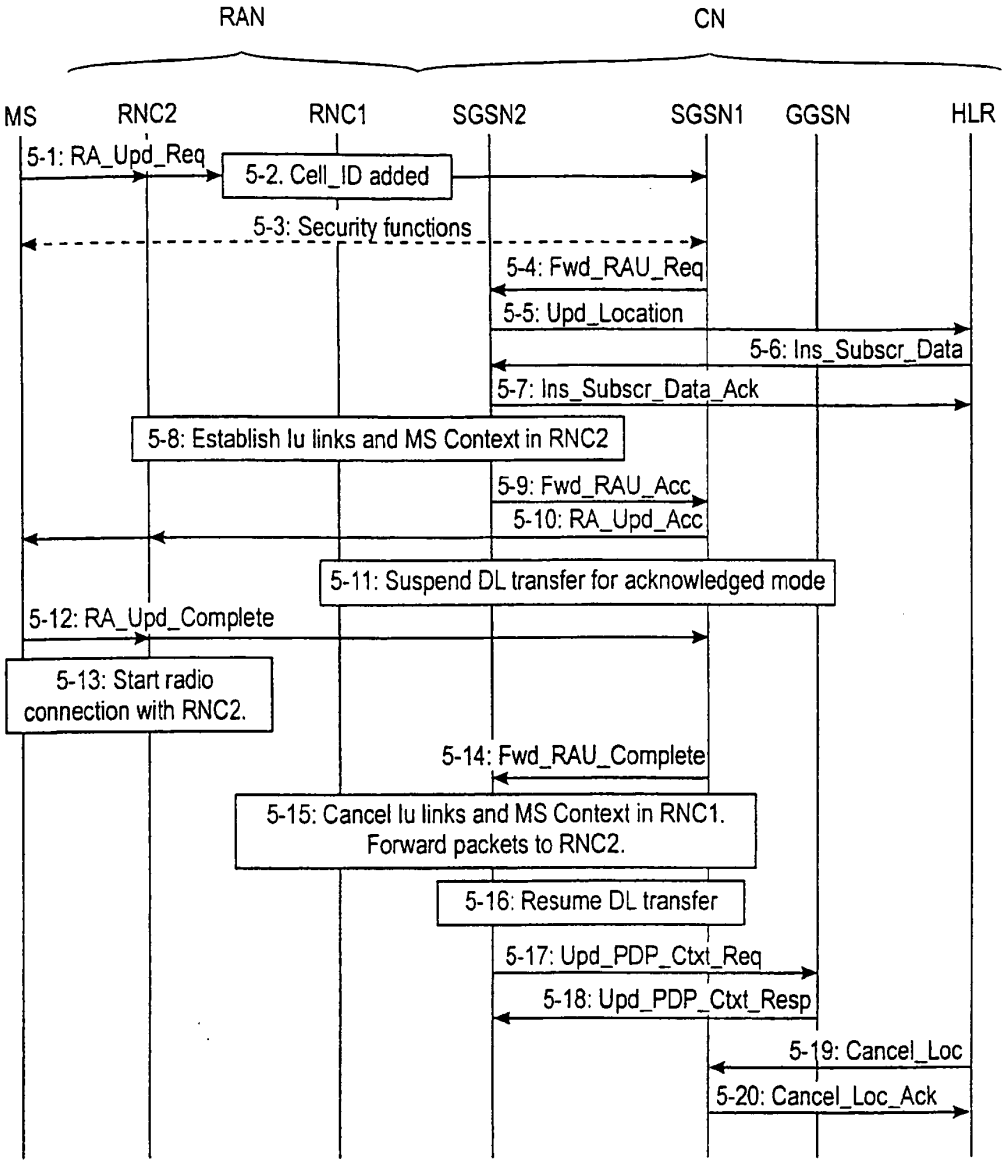

RAN
CN
MS
RNC2
RNC1
SGSN2
SGSN1
GGSN
MSC/VLR
HLR
4-1: RA_Upd_Req
4-2. Cell_ID added
4-3: PDP_Ctxt_Req
4-4. PDP_Ctxt_Resp
4-5: Forward Pkts
4-6: Security functions
4-7: Upd_PDP_Ctxt_Req
4-8: Upd_PDP_Ctxt_Resp
4-9: Upd_Location
4-10: Cancel_Loc
4-11: Cancel_Loc_Ack
4-12: Ins_Subscr_Data
4-13: Ins_Subscr_Data_Ack
4-14: Upd_Loc_Ack
4-15: Loc_Upd_Req
4-16: Loc_Upd_Acc
4-17: RA_Upd_Acc
4-18: RA_Upd_Complete

Fig. 5


RAN
CN
MS
RNC2
RNC1
SGSN2
SGSN1
GGSN
HLR
5-1: RA_Upd_Req
5-2. Cell_ID added
5-3: Security functions
5-4: Fwd_RAU_Req
5-5: Upd_Location
5-6: Ins_Subscr_Data
5-7: Ins_Subscr_Data_Ack
5-8: Establish Iu links and MS Context in RNC2
5-9: Fwd_RAU_Acc
5-10: RA_Upd_Acc
5-11: Suspend DL transfer for acknowledged mode
5-12: RA_Upd_Complete
5-13: Start radio connection with RNC2.
5-14: Fwd_RAU_Complete
5-15: Cancel Iu links and MS Context in RNC1. Forward packets to RNC2.
5-16: Resume DL transfer
5-17: Upd_PDP_Ctxt_Req
5-18: Upd_PDP_Ctxt_Resp
5-19: Cancel_Loc
5-20: Cancel_Loc_Ack

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 00/00357

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04Q 7/38
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)

IPC7: H04Q

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

SE,DK,FI,NO classes as above

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 9966740 A2 (EINOLA), 23 December 1999 (23.12.99), page 3, line 7 - page 7, line 24	15
P,A	--	1-14
P,A	WO 0011878 A2 (TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)), 2 March 2000 (02.03.00), page 6, line 18 - page 8, line 13	1-15
	--	
A	WO 9920071 A1 (TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)), 22 April 1999 (22.04.99), page 5, line 6 - page 7, line 3, abstract	1-15
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☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
13 October 2000	17 -10- 2000
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Jaana Raivio/mj Telephone No. +46 8 782 25 00

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INTERNATIONAL SEARCH REPORT
Information on patent family members

01/08/00

International application No.
PCT/FI 00/00357

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9966740 A2	23/12/99	AU 4554499 A	05/01/00
		AU 5900699 A	21/03/00
		EP 1025668 A	09/08/00
		WO 0012593 A	09/03/00
WO 0011878 A2	02/03/00	AU 5664599 A	14/03/00
WO 9920071 A1	22/04/99	AU 9468798 A	03/05/99
		SE 9703697 A	11/04/99

Form PCT/ISA/210 (patent family annex) (July 1992)

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
11 January 2001 (11.01.2001)

PCT

(10) International Publication Number
WO 01/03406 A1

(51) International Patent Classification[7]: H04M 1/57

(21) International Application Number: PCT/EP99/04519

(22) International Filing Date: 30 June 1999 (30.06.1999)

(25) Filing Language: English

(26) Publication Language: English

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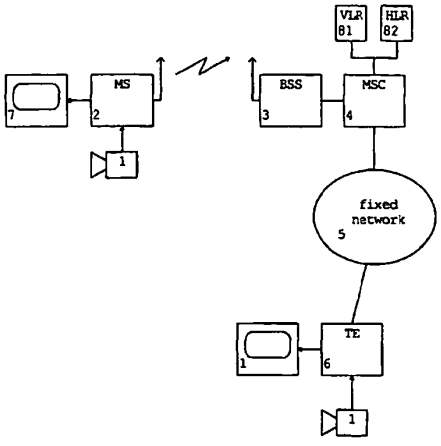
(81) Designated States *(national)*: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *With international search report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND SYSTEM FOR PROVIDING A CALLER PICTURE



(57) Abstract: The present invention relates to a method and system for providing a caller picture via a telecommunication network to a called party. When the calling party makes a call, the caller picture is transferred to the network and further to the terminal of the called party. The caller picture is generated and transmitted to a network element at the beginning of the call. Then, the network element stores the caller picture. Thereby, it is possible to achieve a better quality and to generate any caller picture at the terminal of the calling party in real-time, so as to provide an up-to-date picture. Alternatively, the caller picture can be stored in advance, such that the user may edit the caller picture before it is sent to the network. Furthermore, the caller picture presentation can be defined as a supplementary service which subscribers can subscribe to.

WO 01/03406 A1

Method and System for Providing a Caller Picture

FIELD OF THE INVENTION

The present invention relates to a method and system for providing a caller picture via a telecommunication network to a called party.

BACKGROUND OF THE INVENTION

Conventionally, multi-media communication apparatuses capable of performing speech and image communication via a communication line are known.

Document US 5,414,457, for example, discloses a communication apparatus, wherein, in a reception state, an image of a calling party and a selection signal for a telephone number are registered in a volatile memory in correspondence with each other, and the registered image is displayed on an image display section. When a calling operation is performed to a party corresponding to the registered image, an operator need only designate the image of the party to be called from displayed images, and a CPU automatically outputs a selection signal for a telephone number corresponding to the designated image. Therefore, the image of a party to be called can be visually recognized before calling. Thus, since calling can be made after confirmation of an image such as a face of a party to be called, a dialing error can be prevented. However, a subscriber B may only store an image information transmitted from a subscriber A and to be used when the subscriber B is about to make a call to the subscriber A. Thus, the subscriber B does not receive a caller picture

from the subscriber A, before answering to the phone, if the subscriber A has not phoned him up before.

Furthermore, document US 5,761,279 discloses a system for displaying a graphic information such as a facial representation on a communication's terminal. The facial representation is digitized, compressed and stored in a memory at an appropriate control center of a communication network. Upon receipt of a display command, the digitized data is retrieved from a memory and transmitted to the called party's display terminal using a modem technology. However, the user has to provide a photo to the service provider in advance, who digitizes it. Thus, the caller pictures are not real-time pictures and their quality is not very high.

Thus, a drawback of the above prior art ist that the caller picture is determined in advance and cannot be changed according to the actual needs of the calling party.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a method and system for providing a caller picture to a called party in a more flexible manner.

This object is achieved by a method for providing a caller picture via a telecommunication network to a called party, comprising the steps of:

generating the caller picture at a terminal of a calling party;

transmitting the caller picture to the telecommunication network at the beginning of a call;

storing the caller picture at a network element of the telecommunication network; and

transmitting the caller picture from the network element to a terminal of the called party.

Furthermore, the above object is achieved by a system for providing a caller picture to a called party via a telecommunication network, having a plurality of terminals and at least one network element for routing calls,

wherein said plurality of terminals comprise camera means for generating the caller picture, display means for displaying the caller picture, and transmitting means for transmitting the caller picture to the at least one network element at the beginning of a call; and

wherein the network element comprises receiving means for receiving the caller picture, storing means for storing the caller picture, and transmitting means for transmitting the caller picture to a terminal of the called party.

Accordingly, a camera function is provided at the terminal of a calling party, such that the terminal both digitizes a caller picture and transmits it to the network element of the telecommunication network. Then, the network element which may be a switching means, stores the picture. Thereby, a much better quality of the caller picture can be achieved, and not only a facial representation, but anything just like post cards can be transmitted in real-time to the called party. Therefore, the picture is up-to-date and a selection function for selecting one of a plurality of centrally stored caller pictures based on the calling person is not required.

Preferably, the transmission of the caller picture to the network element, the storing of the caller picture at the