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(54) Title: A TELEPHONE NUMBER GUIDANCE SYSTEM USING GIS AND A METHOD THEREFOR

(57) Abstract: To improve defects of the existing telephone number guidance systems, this invention aims to offer a system and a method that can provide the telephone number only with a partial information about a specific shop despite of the unit of an administrative district, and comprises a database built by the service provider with subscriber data received from a telephone company, a web server providing Internet service to a service applicant, a voice recognition system processing voice data of the service applicant, a character recognition system processing character data of the service applicant, a management server managing the system of the service provider as a whole, a wired/wireless automatic switching system providing wired/wireless telephone service, a geographic information system (GIS) providing geographic information of a specific area, and a data transformation system transforming voice data, character data, e-mail into a form of data requested by said management server, or conversely, transforming data in said management server into a form of a data requested by the service applicant, and according to this system, the telephone number guidance center can provide the telephone number of a specific shop nearest to a specific position or a company in a specific area.



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Description

A TELEPHONE NUMBER GUIDANCE SYSTEM USING GIS AND A METHOD THEREFOR

Technical Field

- [1] This invention relates to a system and a method for a telephone number guidance, particularly that guides the telephone number using a geographic information system even though the information of the subscriber provided by the client is partial or imprecise.

Background Art

- [2] In general, when we want to talk over the telephone with someone whose telephone number is unknown, we telephone to the telephone number guidance center (for example 114 in Korea) and tell the operator the name of the person or the company, and gets the corresponding telephone number from the operator. This method is that the operator inputs the requested name of the person or the company to the terminal of the computer connected to the telephone number database, and informs the searched telephone number by voice.
- [3] But there are many cases when we want to get the telephone number of the nearest shop doing a specific business, or the telephone number of a company located in a specific area, rather than the telephone number of a specific person or a company.
- [4] In this case, we can get the telephone number by searching the telephone directory, but this method is troublesome and very often we can hardly find the desirable number, above all things, this method is not available when we have no telephone directory.
- [5] And some of the Internet portal sites are providing the information of the telephone number and the location of a specific company located in a specific area in these days, but this service is available only when we can connect to the Internet.
- [6] And we cannot get the telephone number of a shop from the telephone number guidance center only with a partial information of the shop(for example, the name of area, partial name of the shop etc). For example, if we want to get the telephone number of a barbershop that is nearest to the exit 6 of Suraksan station of the subway line 7 in Seoul, the operator cannot find the telephone number of the corresponding shop even if we inform all of the information that we have. This is because the existing subscriber database of the telephone number guidance center only consists of the character data, so the operator cannot find the telephone number only with a partial in-

formation of the shop.

Disclosure of Invention

Technical Problem

[7] As described above, the existing telephone number guidance system cannot provide the telephone number in case that a client does not know the precise name of a man or a company. To solve this problem, the service of the telephone number of a specific shop located in a specific area has been disclosed lately, but this service system also uses said character subscriber database, so the area is limited to a specific administrative district (at present "dong" unit in Korea).

[8] Therefore, the existing telephone number guidance system cannot provide the telephone number of a specific shop (for example, a barbershop) that is nearest to a specific area smaller than "dong" (for example, the exit 6 of Suraksan station of the subway line 7 in Seoul). So if we want to get it, we have to go to the corresponding area and search the shop, or have to find out all telephone numbers of the shops located in corresponding "dong" and phone to the shops one by one.

[9] To improve said defects of the existing telephone number guidance system, this invention aims to offer a system and a method that can provide the telephone number only with a partial information about a specific shop despite of the unit of an administrative district.

Technical Solution

[10] The telephone number guidance system of this invention to achieve said purpose comprises a database built by the service provider containing at least name, company name, telephone number, and address of a subscriber received from a telephone company, to which the subscriber provided when he/her subscribed the company;

[11] a web server providing Internet service to a service applicant;

[12] a voice recognition system processing voice data of the applicant;

[13] a character recognition system processing character data of the applicant;

[14] a management server managing the system of the service provider as a whole;

[15] a wired/wireless automatic switching system providing wired/wireless telephone service;

[16] a geographic information system (GIS) providing geographic information of a specific area; and

[17] a data transformation system transforming voice data, character data, e-mail into a form of data requested by said management server, or conversely, transforming data in

said management server into a form of a data requested by the applicant.

[18] The telephone number guidance system of this invention uses a geographic information system. This system is an integrated information system designed to be applied to all fields related to topography by collecting, analyzing, and processing data based on this geographic information obtained through getting and managing maps and geographic information by using a computer.

[19] The telephone number database of this invention using this technique is built by obtaining the position data of all kinds of natural and artificial things and inputting these into a computer as a form of numerical data and connecting necessary character data including telephone number with those data.

Advantageous Effects

[20] According to this invention, the telephone number guidance center can provide the telephone number of a specific shop nearest to a specific position or a company in a specific area, which a client is interested in despite of the unit of the district through a telephone number database of subscribers and a GIS, so can provide better service to the clients.

Brief Description of the Drawings

[21] Figure 1 is a structural view of a preferred embodiment of a telephone number guidance system using a GIS according to this invention.

[22] Figure 2 is a flow chart of a preferred embodiment of a method of guiding telephone number using a GIS according to this invention.

Best Mode for Carrying Out the Invention

[23] Now we make a detailed explanation about the best mode of guiding the telephone number using a telephone number guidance system according to this invention.

[24] A service applicant connects to a service provider through a means of communication having more than one among voice data transmission service, character data transmission service, and e-mail transmission service.

[25] If the connection is made, the applicant sends the whole or partial information of a subscriber as a form of voice data, SMS character data, or e-mail to the service provider and requests the telephone number of the subscriber. The information may contain the form of data in which the applicant wants for the telephone number information to be provided.

[26] The service provider receives the information of the subscriber from the applicant and transmits it to the management server, then the management server analyzes the

received information. The step of analyzing comprises the steps that the management server discriminate the kind of the information, if the received information is voice data then the management server sends it to the voice recognition system and the contents of the information is analyzed and reported to the management server, if the received information is character data then the management server sends it to the character recognition system and the contents of the information is analyzed and reported to the management server.

[27] The management server decides whether it will search corresponding subscriber data from database or operate the GIS on the basis of the subscriber information. If the applicant provides precise subscriber information then the corresponding data is searched from the database, but if the information is partial or imprecise then the GIS is operated.

[28] In case of searching the subscriber data from the database, the management server searches corresponding subscriber data from the database. If the subscriber data is searched then the telephone number of the subscriber is transmitted to the applicant, but if the subscriber data is not searched or operating a GIS was decided then a GIS is operated on the basis of the subscriber information.

[29] If a GIS is operated, the management server selects at least one subscriber who corresponds to the most closely to the information provided from the applicant and transmits the telephone number to the applicant. It is preferable to select a subscriber by the applicant's most preferred information, and to transmit the telephone number as a form of data used when the applicant requested the telephone number.

[30] If the applicant transmitted the subscriber information as a form of voice, the management server is connected to a voice recognition system and functions as an operator to the applicant by linking a data transformation system.

Mode for the Invention

[31] Now we make a detailed explanation about another mode of guiding the telephone number using a telephone number guidance system according to this invention.

[32] A service applicant connects to a service provider through a means of communication having more than one among voice data transmission service, character data transmission service, and e-mail transmission service.

[33] If the connection is made, the applicant sends the whole or partial information of a subscriber to the service provider and requests the telephone number of the subscriber.

[34] The service provider receives the information of the subscriber from the applicant and analyzes the received information.

- [35] The service provider decides whether it will search corresponding subscriber data from a database and operate a GIS on the basis of the subscriber information. If the applicant provides precise subscriber information then the corresponding data is searched from the database, but if the information is partial or imprecise then the GIS is operated.
- [36] In case of searching the subscriber data from a database, the service provider searches corresponding subscriber data from the database. If the subscriber data is searched then the telephone number of the subscriber is transmitted to the applicant, but if the subscriber data is not searched or operating GIS was decided then a GIS is operated on the basis of the subscriber information.
- [37] If a GIS is operated, the service provider selects at least one subscriber who corresponds to the most closely to the information provided from the applicant and transmits the telephone number to the applicant. It is preferable to select the subscriber by the applicant's most preferred information. For example, we think about the case of searching a barbershop that is the nearest one to the exit 6 of Suraksan station of the subway line 7 in Seoul. Suppose there are 3 barbershops within a 200 meter radius from the exit 6. The service provider informs the applicant that there are 3 barbershops, and asks the applicant's preferred additional information. Then the applicant designates the priority order as a member of "BLUECLUB®" or a barbershop that is the nearest one to the exit. Then according to this, the service provider selects the most suitable barbershop and informs the applicant of the telephone number of it.
- [38] In this method of guiding a telephone number, the applicant and the service provider provide information mutually interactively. The service provider exchanges information with the applicant using the voice recognition system and the data transformation system or the operator exchanges information with the applicant directly.
- [39] We have explained this invention through the embodiments for working, but it is obvious to a person having ordinary skill in the art to which this invention pertains that this invention can be modified into various forms. Therefore this description has to be understood to be illustrative not to be restrictive, and this invention has to be interpreted as including all modifications and replacements inferred from the meaning, scope, and equivalence of the claims.

Industrial Applicability

- [40] As described above, this invention provides a system and a method that can guide telephone number using a GIS only with a partial information of a specific shop, and

this invention is applicable to the industry of providing telephone number requested by the applicant with the database of the subscriber information.

Claims

- [1] A telephone number guidance method that provides a telephone number of a subscriber based on information of the subscriber received from a service applicant through a means of communication having more than one among voice data transmission function, character data transmission function, and e-mail transmission function, with a database built by a service provider containing at least name, company name, telephone number, and address of a subscriber received from a telephone company, to which the subscriber provided when he/her subscribed the company, wherein the service provider comprises a web server providing Internet service to a service applicant; a voice recognition system processing voice data of the service applicant; a character recognition system processing character data of the service applicant; a management server managing the system of the service provider as a whole; a wired/wireless automatic switching system providing wired/wireless telephone service; a geographic information system (GIS) providing geographic information of a specific area; and a data transformation system transforming voice data, character data, e-mail into a form of data requested by said management server, or conversely, transforming data in said management server into a form of a data requested by the service applicant, said method comprising the steps for: connecting to the service provider through said means of transformation by the service applicant; if said connection is made, sending the whole or partial information of the subscriber as a form of voice data, SMS character data, or e-mail to the service provider through the means of communication used in said connection and requesting the telephone number of the subscriber by the service applicant; transmitting said information of the subscriber received from the service applicant to the management server by the service provider; analyzing said received information by the management server; deciding whether to search corresponding subscriber data from the database or to operate the GIS on the basis of the subscriber information by the management server; in case of searching the subscriber data from the database, searching the corresponding subscriber data from the database and if the subscriber data is searched, transmitting the telephone number of the subscriber to the service

applicant by the management server;
if the subscriber data is not searched or operating a GIS was decided, operating the GIS on the basis of the subscriber information by the management server;
and
if a GIS is operated, selecting at least one subscriber who corresponds to the most closely to the information provided from the service applicant and transmitting the telephone number to the service applicant by the management server.

- [2] A telephone number guidance method as set forth in claim 1, wherein in transmitting the telephone number to the service applicant, the management server transmits the telephone number as a form of data used when the service applicant requested the telephone number.
- [3] A telephone number guidance method as set forth in claim 1, wherein said step for analyzing said received information by the management server comprises the steps for:
discriminating the kind of said received information; and
if said received information is voice data, sending it to the voice recognition system and getting said analyzed contents of the information, if said received information is character data, sending it to the character recognition system and getting said analyzed contents of the information.
- [4] A telephone number guidance method as set forth in claim 1, wherein in deciding whether to search corresponding subscriber data from database or to operate the GIS on the basis of the subscriber information, if the service applicant provides precise subscriber information, then the corresponding data is searched from the database, but if the information is partial or imprecise, then the GIS is operated.
- [5] A telephone number guidance method as set forth in claim 1, wherein in selecting at least one subscriber who corresponds to the most closely to the information provided from the service applicant, the management server selects a subscriber by the service applicant's most preferred information.
- [6] A telephone number guidance method as set forth in claim 1, wherein in case that the service applicant transmitted the subscriber information as a form of voice, the management server is connected to a voice recognition system and functions as an operator to the service applicant by linking a data transformation system.

- [7] A telephone number guidance method as set forth in claim 1, wherein in sending the information of a subscriber, the information contains the form of data in which the service applicant wants for the telephone number information to be provided.
- [8] A telephone number guidance method as set forth in claim 7, wherein said form of data in which the service applicant wants for the telephone number information to be provided is voice data, SMS character data, or e-mail.
- [9] A telephone number guidance method that provides a telephone number of a subscriber based on information of the subscriber received from a service applicant through a means of communication having more than one among voice data transmission function, character data transmission function, and e-mail transmission function, with a database built by a service provider containing at least name, company name, telephone number, and address of a subscriber received from a telephone company, to which the subscriber provided when he/her subscribed the company, wherein the service provider comprises a web server providing Internet service to a service applicant; a voice recognition system processing voice data of the service applicant; a character recognition system processing character data of the service applicant; a management server managing the system of the service provider as a whole; a wired/wireless automatic switching system providing wired/wireless telephone service; a geographic information system (GIS) providing geographic information of a specific area; and a data transformation system transforming voice data, character data, e-mail into a form of data requested by said management server, or conversely, transforming data in said management server into a form of a data requested by the service applicant, said method comprising the steps for: connecting to the service provider through said means of transformation by the service applicant; if said connection is made, sending the whole or partial information of the subscriber to the service provider through the means of communication used in said connection and requesting the telephone number of the subscriber by the service applicant; analyzing said information of the subscriber received from the service applicant by the service provider; deciding whether to search the corresponding subscriber data from the database or to operate the GIS on the basis of the subscriber information by the service

provider;

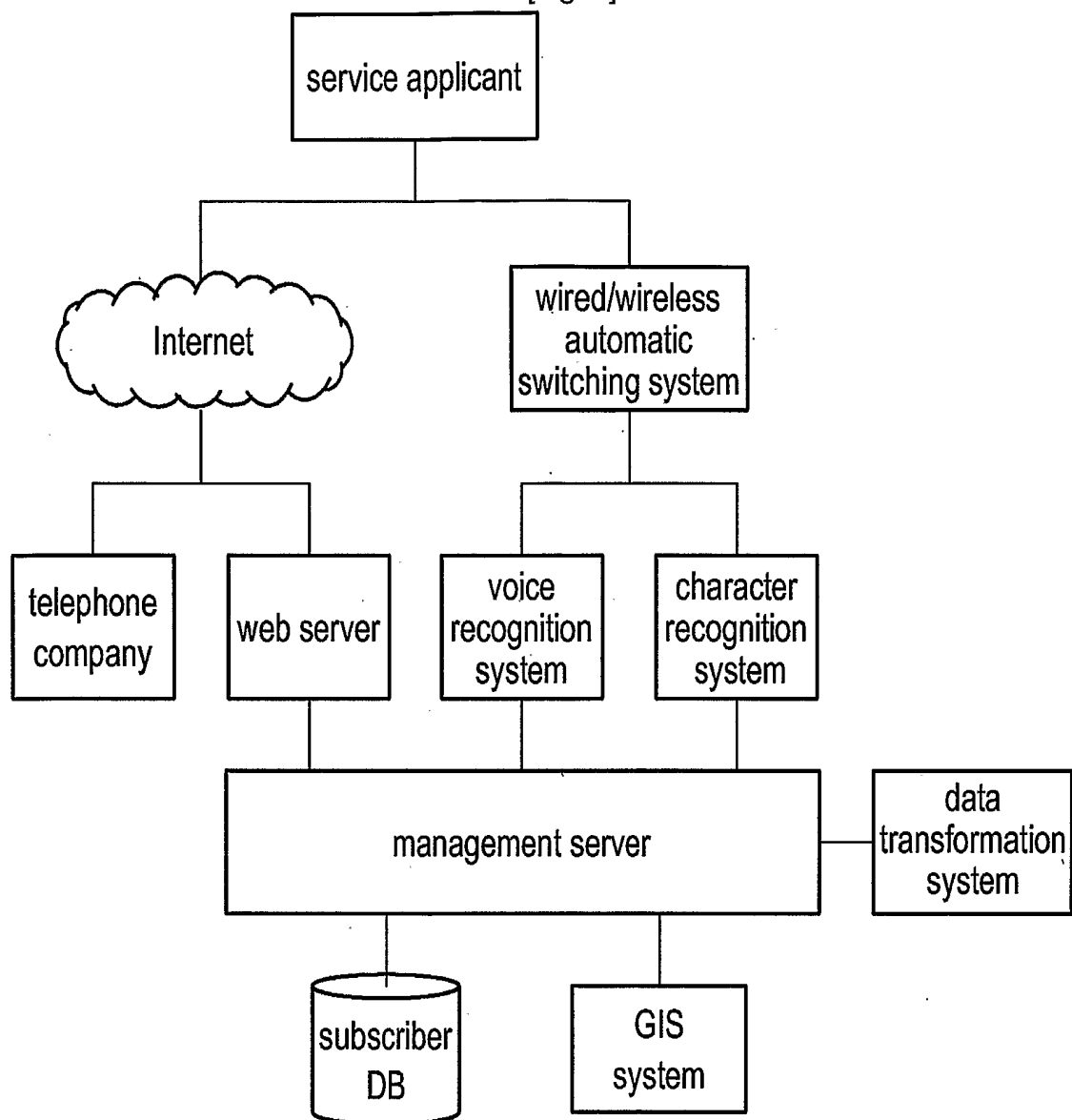
in case of searching the subscriber data from the database, searching the corresponding subscriber data from the database and if the subscriber data is searched, transmitting the telephone number of the subscriber to the service applicant by the service provider;

if the subscriber data is not searched or operating the GIS was decided, operating the GIS on the basis of the subscriber information by the service provider; and if the GIS is operated, selecting at least one subscriber who corresponds to the most closely to the information provided from the service applicant and transmitting the telephone number to the service applicant by the service provider.

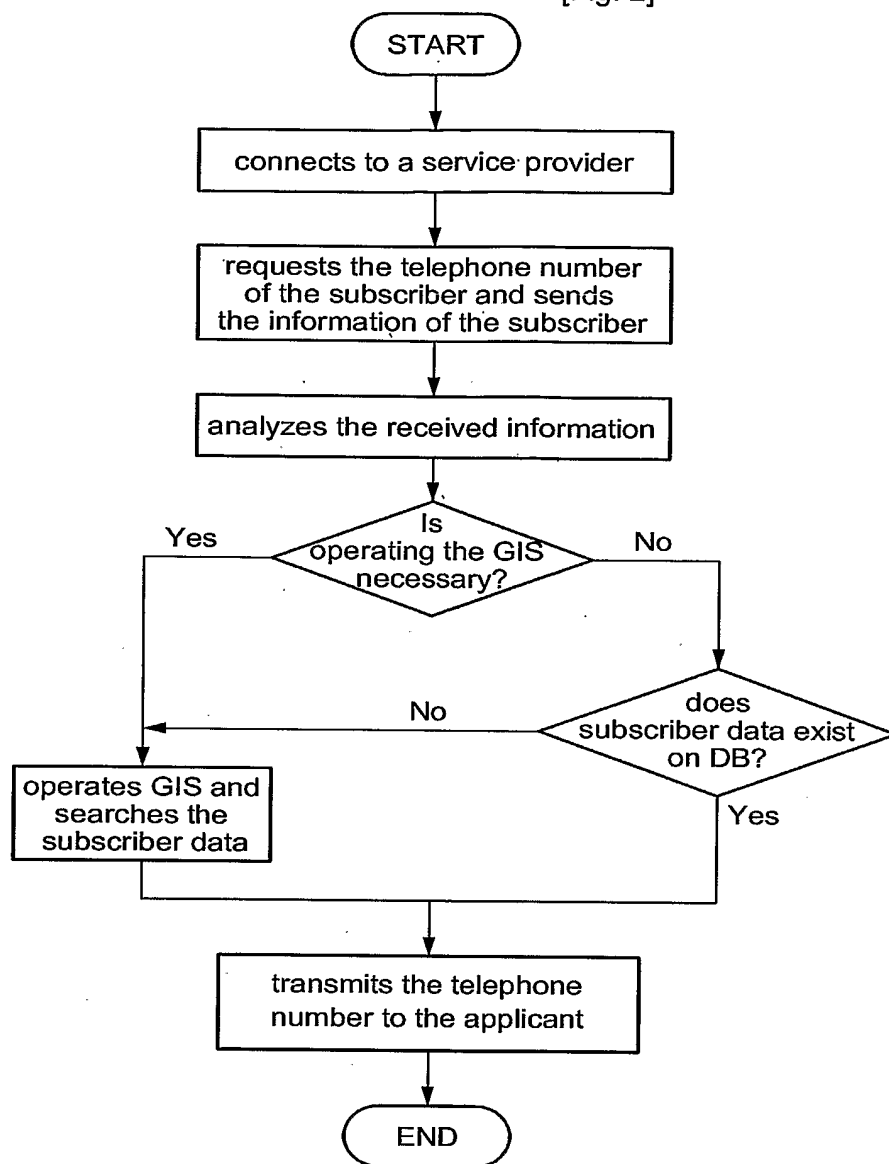
- [10] A telephone number guidance method as set forth in claim 9, wherein in deciding whether to search the corresponding subscriber data from the database or to operate the GIS on the basis of the subscriber information, if the service applicant provides precise subscriber information, the corresponding data is searched from the database, but if the information is partial or imprecise, the GIS is operated.
- [11] A telephone number guidance method as set forth in claim 9, wherein in selecting at least one subscriber who corresponds to the most closely to the information provided from the service applicant, the management server selects a subscriber by the service applicant's most preferred information.
- [12] A telephone number guidance method as set forth in claim 9, wherein the service applicant and the service provider provide information mutually interactively.
- [13] A telephone number guidance method as set forth in claim 12, wherein the service provider exchanges information with the service applicant by using the voice recognition system and the data transformation system or the operator exchanges information with the service applicant directly.
- [14] A telephone number guidance system that provides a telephone number of a subscriber based on information of the subscriber received from a service applicant through a means of communication having more than one among voice data transmission function, character data transmission function, and e-mail transmission function, said system comprising:
a database built by the service provider containing at least name, company name, telephone number, and address of a subscriber received from a telephone company, to which the subscriber provided when he/her subscribed the

company;
a web server providing Internet service to the service applicant;
a voice recognition system processing voice data of the service applicant;
a character recognition system processing character data of the service applicant;
a management server managing the system of the service provider as a whole;
a wired/wireless automatic switching system providing wired/wireless telephone service;
a geographic information system (GIS) providing geographic information of a specific area; and
a data transformation system transforming voice data, character data, e-mail into a form of data requested by said management server, or conversely, transforming data in said management server into a form of a data requested by the service applicant.

[Fig. 1]



[Fig. 2]



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2005/001966

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. ⁷: H04Q 7/22, 7/32

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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

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

WPAT, USPTO, Esp@cenet: phone, mobile, geographic, location, subscriber, service, business, shop, sms, internet, email and similar terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6512922B1 (BURG et al), 28 January 2003 whole document	
A	US 2002/0037744A1 (BHATIA et al), 28 March 2002 whole document	
A	WO 2002/009461A1 (TELEFONAKTIEBOLAGET LM ERICSSON (publ)), 31 January 2002 whole document	
A	WO 2000/035216A1 (SPOTCAST COMMUNICATIONS, INC.), 15 June 2000 whole document	
A	WO 2000/004730A1 (SIGNAL SOFT CORP.), 27 January 2000 whole document	

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

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

Date of the actual completion of the international search

5 September 2005

Date of mailing of the international search report

9 SEP 2005

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2005/001966

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 1998/059506A2 (TELIA AB), 30 December 1998 whole document	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2005/001966

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

Patent Document Cited in Search Report		Patent Family Member	
US	6512922	EP	1069792
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		CA	2337508
WO	1998/059506	SE	9702388

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX