Title: TOP-LEVEL DOMAIN SYSTEM AND METHOD OF UTILIZING THE SAME!

![Diagram of domain system](image)

Abstract: Disclosed herein is a top-level domain system and method of utilizing the same. The present invention constructs a top-level domain of a domain with numerals, so that the Internet can be conveniently used, thus enabling a mobile phone or other communication terminals to conveniently access the Internet using numerals. The present invention can use numerals, not English characters, as a top-level domain in internationalized domains. Further, a top-level domain including an identifier is omitted, and, thereafter, characters of a domain are recognized to automatically add the top-level domain including the identifier "." to the domain, thus enabling Internet communications to be performed using the original domain. Further, a top-level domain constructed with English characters is coded into numerals and then the coded top-level domain is converted into the original domain in the Internet terminal, thus performing the Internet communications.
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.
TOP-LEVEL DOMAIN SYSTEM AND METHOD OF UTILIZING THE SAME

Technical Field

The present invention relates, in general, to a domain input for an Internet address used to access an Internet site and, more particularly, to a system for constructing top-level domains of domains with numerals and utilizing domains with the respective top-level domains thereof omitted, and a method of utilizing the system.

Background Art

Generally, top-level domains 100 and 200 of conventional domains are constructed with English characters, as in the case of info, com, biz, net, org, us or fr, so that it is very inconvenient for a numeral-based terminal (hereinafter referred to as "numeric-type terminal"), such as a mobile phone, to access the Internet (also designated as the wireless Internet) using the top-level domains constructed with English characters.

Further, it is inconvenient for non-English speaking peoples unfamiliar with English to use top-level domains constructed with English characters. Even in the case of internationalized domains using a native language together like "한국.com", English characters are included in the domains, so that it is also inconvenient for peoples unfamiliar with English to use the internationalized domains.

Each of current top-level domains is constructed with English characters, like info, com, biz, net and org, as shown in FIG. 1. The top-level domains are classified into a generic top-level domain 100 and a country code top-level domain 106, such as us or fr. As shown in a hierarchical structure of a three-level country code domain shown in FIG. 2, each of top-level domains 210, 220 and 230 and second-level domains 221, 231 and 241 is constructed with English
characters even in the case of the three-level country code domain.

Therefore, it is inconvenient for the numeric-type Internet terminal, such as a mobile phone, to access the Internet, and also inconvenient for non-English speaking peoples to use the top-level domains constructed with English characters.

Moreover, it is also inconvenient to input a top-level domain (.com) including an identifier in the numeric-type Internet terminal, as in the case of “korea.com”.

A method of shortening a Uniform Resource Locator (URL), which is different from a method of omitting a top-level domain, as in the case of Korean Internet addresses provided by a site “netpia.com” is described. That is, in a method of replacing a URL by another phrase and utilizing the phrase, a URL is replaced by a phrase irrelevant to the URL and then the phrase is used, and a conversion server (computer), which converts a Korean Internet address into the original URL, is a remote server operated by Netpia.com, Inc. Therefore, the Korean Internet address is not determined by a user through his or her Internet terminal, but determined by an intention of a service company. For example, if the user utilizing Korean Internet addresses provided by netpia.com enters “전자상가”, the “전자상가” is inquired from the conversion server located in a remote place and then converted into “http://mall.computerink.co.kr”, so that the user accesses the corresponding site. Therefore, the above method is inconvenient in that the determination of whether to access a required site is performed not by the user but by the service company, and Korean Internet addresses are inquired from the conversion server of the service company located in a remote place.

Disclosure of the Invention

Accordingly, the present invention has been made keeping in mind the above problems occurring in the prior art, and an object of the present invention is
to provide a top-level domain system and method of utilizing the domain system, which constructs top-level domains (or second-level domains) of domains with numerals, thus allowing Internet terminals to conveniently access the Internet, and allowing non-English speaking peoples unfamiliar with English to conveniently access the Internet through the use of numerals as top-level domains in all Internet terminals, without using English.

In order to accomplish the above object, the present invention provides a top-level domain system and method of utilizing the domain system, in which a special character (*, #, etc.) on a keypad of a numeric-type Internet terminal is input instead of an identifier ".” (or “;" in case of IPv6) and then converted into the identifier “.” (or “;”) through an application program, so that Internet communications can be performed, or in which an identifier “;” (or “;”) key is newly added to the keypad, so as to solve serious inconveniences that it is impossible to input the identifier used for a domain or an IP address, or the identifier is input in a complicated manner.

Further, the present invention provides a top-level domain system and method of utilizing the domain system, in which an Internet telephone number (iTEL), such as “123-4989” or “82-2-4989” is defined as a number used in a telephone communication between Internet terminals accessing the Internet, and a domain system (for example, 4989.123) has order reverse to that of a general telephone number system (for example, 123-4989). Therefore, for convenience of use, it is preferable that the Internet telephone number (iTEL) system complies with the general telephone number system. Accordingly, in the case of a domain “4989.123”, when the domain is used in the terminal, “4989*123” can be input and used as the domain, or “123-4989” can be input and used as the domain after the order of the “4989*123” is reversed in the Internet telephone number (iTEL) manner. In this case, the “4989*123” or “123-4989” is converted into “4989.123” through an application program of the terminal, thus performing Internet communications. That is, input character strings, which include “-” without the identifier “.”, and numerals, such as 82 (Korea), 81 (Japan), and 123
(if a numeric-type top-level domain is newly added) used for the Internet telephone number (iTEL) and registered in a database, are recognized as the Internet telephone number (iTEL) through the application program and processed thereby.

Moreover, because it is also inconvenient to input an entire domain, such as "korea.com", the present invention enables the domain to be shortened and then used as "korea".

Brief Description of the Drawings

FIG. 1 is a view showing a hierarchical structure of a two-level domain;

FIG. 2 is a view showing a hierarchical structure of a three-level domain;

FIG. 3 is a view showing an example of a two-level domain in which a top-level domain is constructed with numerals according to the present invention;

FIG. 4 is a view showing an example of a three-level country code domain in which a top-level domain and a second-level domain are each constructed with numerals according to the present invention;

FIG. 5 is a view showing an example of a country code domain having a top-level domain constructed with numerals, in which a general telephone number system is identical to an Internet telephone number (iTEL) system, according to the present invention;

FIG. 6 is a view showing an example of an existing internationalized domain and an internationalized domain using a top-level domain constructed with a numeral (123) according to the present invention;

FIG. 7 is a flowchart showing an application program of an Internet terminal according to the present invention;

FIG. 8 is a view showing an example in which a pair of "*" and ".", and a pair of "#" and "-" are indicated on two keys of a keypad of a numeric-type Internet terminal according to the present invention, respectively;

FIG. 9 is a view showing an example in which a pair of "*" and "-", and
a pair of "#" and "." are indicated on two keys, respectively, of the keypad of the numeric-type Internet terminal according to the present invention;

FIG. 10 is a view showing a procedure of converting a generic top-level domain constructed with English characters into an Internet telephone number (iTEL) by coding the generic top-level domain into numerals according to an embodiment of the present invention;

FIG. 11 is a view showing a procedure of converting a country code (Korea) top-level domain constructed with English characters into an Internet telephone number (iTEL) by coding the country code top-level domain into numerals according to an embodiment of the present invention;

FIG. 12 is a view showing an example in which a generic top-level domain (international domain) constructed with English characters is coded into numerals and used as a numeric top-level domain according to the present invention;

FIG. 13 is a view showing an example in which a country code top-level domain constructed with English characters is coded into numerals using country codes, and used as a numeric country code top-level domain according to the present invention; and

FIG. 14 is a view showing an example in which a second-level domain constructed with numerals identical to an area code is used in a country code (Korea) domain constructed with English characters according to the present invention.

*Description of importance components of drawings *

100, 300: generic top-level domain
106, 200, 301, 400, 500: country code top-level domain
110, 120: generic top-level domain
121, 122, 311, 312, 331, 332, 412, 413, 523: host name
160: country code top-level domain of USA
170: country code top-level domain of France
210, 220, 230: examples of country code top-level domain of country using three-level country code domain

221, 231, 241: examples of second-level domain of country using three-level country code domain

310, 320, 330: examples of top-level domain constructed with numerals of the present invention

410, 420, 430, 440: examples of country code top-level domain constructed with numerals of the present invention

411, 431: example of second-level domain constructed with numerals used in country code domain

510, 520, 530, 540: examples of numeric top-level domain using country code

521, 531: examples of second-level domain constructed with numerals identical to area code

522, 532: examples of third-level domain constructed with numerals identical to exchange number

705: key input module of Internet terminal keypad

710: URL processing module

720: input key determining module of Internet terminal

730: Internet telephone number (iTEL) processing module

740: general telephone call processing module

750: ULR converting module

760: connecting module for connecting to general telephone and Internet terminal

761: Internet and telephone network (public switched telephone network and mobile communication network)

770: converting module for converting Internet telephone number (iTEL) into domain address

780: DB (numeric code information, shortcut domain information and the like can be set to fixed values or changed)
790: DB (database) setting menu
800: embodiment in which "." is added to an upper or lower position of
     "*" key on a numeric-type Internet terminal
810: embodiment in which "." is added to a left or right position of "*"
     key on a numeric-type Internet terminal
820: embodiment in which "-" is added to an upper or lower position of
     "#" key on a numeric-type Internet terminal
830: embodiment in which "-" is added to a left or right position of "#"
     key on a numeric-type Internet terminal
900: embodiment in which "-" is added to an upper or lower position of
     "*" key on a numeric-type Internet terminal
910: embodiment in which "." is added to a left or right position of "*"
     key on a numeric-type Internet terminal
920: embodiment in which "." is added to an upper or lower position of
     "#" key on a numeric-type Internet terminal
930: embodiment in which "." is added to a left or right position of "#"
     key on a numeric-type Internet terminal.
1010: domain 4989.com
1020: conversion of domain 4989.com into 4989.0 through numerical
     coding
1030: conversion as 4989.com \rightarrow 4989.0 \rightarrow 4989*0
1040: procedure of converting 4989.com into iTEL 1-4989
1110: country code (Korea) domain 4989.busan.kr
1120: conversion of 4989.busan.kr into 4989.51.82 through numerical
     coding
1130: conversion as 4989.busan.kr \rightarrow 4989.51.82 \rightarrow 4989*51*82
1140: procedure of converting 4989.busan.kr into iTEL 82-51-4989

Best Mode for Carrying Out the Invention
To achieve the object of the present invention, a top-level domain is constructed with numerals. Further, in the present invention, a domain can be shortened by omitting a top-level domain thereof including an identifier "." or "::", and a shortcut domain can be used instead of the domain.

Terminals using the Internet (including the Intranet), such as a mobile phone, an Internet telephone, a Personal Digital Assistant (PDA), and a computer used when accessing Internet sites, are defined as "Internet terminals".

Methods of constructing a top-level domain with numerals can be classified into methods of constructing a generic Top-Level Domain (gTLD) 310 known as an international domain, country code top-level domains 320 and 330 used in respective countries, second-level domains 411 and 413 used in the respective countries, and existing top-level domains, such as com, info and biz, with numerals.

First, the method of constructing the generic top-level domain with numerals can be implemented by utilizing desired numerals, such as 123, 12, 1, 7, 77, 777, and 999. FIG. 3 shows an example in which the generic top-level domain is constructed with a numeral "123" 310, which is commonly used as an indication to designate a numerical object. When the numeral "123" is used as the generic top-level domain and the languages of respective countries are used as host names, the top-level domain becomes "123" for internationalized domains in such a way that a Korean domain is expressed as "한국.123", a Chinese domain is expressed as "한국.123", a Japanese domain is expressed as "한국.123", an English domain is expressed as "korea.123", and a numeric domain used in a numeric-type Internet terminal, such as a mobile phone, is expressed as "4989.123" (4989*123 or 123-4989). In this way, it is convenient to use numerals commonly used all over the world in constructing top-level domains.

In order to input an Internet address identifier "." (or "::") in a numeric-type Internet terminal, such as a mobile phone, in which the Internet address identifier "." (or "::") cannot be directly input, a special character "*", "#" or etc. on a keypad is used and input instead of the "." (or "::"), and then converted into
the "." through an application program, thus enabling Internet communications to be performed. That is, if the "*" is input instead of the "." used in an Internet address field of the mobile phone when the "." is input, the application program of the numeric-type Internet terminal converts the "*" into the "." thus enabling communications to be performed. For example, when "4989.123" is input to the Internet address field of the mobile phone, "4989*123" (123-4989) is actually input, and the application program of the mobile phone converts the "*" into ".", thus performing the Internet communication using "4989.123".

FIG. 7 is a flowchart showing the application program of the Internet terminal according to the present invention for examining the characters of respective countries, numerals and special characters of a character string input to the Internet address field of the Internet terminal by a user. That is, the application program of the Internet terminal includes an input key determining module 720, a URL converting module 750, a connecting module 760, an Internet telephone number converting module 770, a DB 780 and a DB setting menu 790. That is, the application program of the Internet terminal determines whether an input character string represents a Uniform Resource Locator (URL) (including a numerical Internet address and a shortcut domain), an Internet telephone number (iTEL, for example: 123-4989), or a telephone number (mobile phone number or general telephone number). The input key determining module 720 determines whether an input character string represents a URL (including a numerical Internet address, such as 4989.123 or 4989*123, and a shortcut domain), an Internet telephone number (iTEL), or a general telephone number by examining characters, numerals, and special characters, such as ".", "*", or "+", included in the character string input to the Internet address field of the Internet terminal by the user. If the input character string includes numerals and "**" like "4989*123", the input key determining module 720 determines that the input character string is a numerical Internet address, and then sends the numerical Internet address to a URL processing module 710. Thereafter, the URL converting module 750 converts the numerical Internet address into a domain or
an IP address. Further, if the input character string represents a shortcut domain without a top-level domain, the URL converting module 750 adds a top level domain based on respective languages, such as "\.kr" in Korean, "\.cn" in Chinese, and "\.jp" in Japanese, to the shortcut domain depending on the setting of information stored in the DB 780, thus restoring an original domain. If the input character string is comprised of numerals and expressed in the form of a telephone number, the input key determining module 720 determines that the input character string represents the telephone number, and then sends the input character string to a general telephone call processing module 740. Therefore, the connecting module 760 executes general telephone call processing. Further, in order to determine the input character string input to the Internet address field as the Internet telephone number (iTEL), the input key determining module 720 determines that an input character string, comprised of numerals, "-" and iTEL format information (numeric code information of the top-level domain stored in the DB 780), represents the Internet telephone number (iTEL) by examining the input character string input to the address field of the Internet terminal through a key input module 705. Then, modules 730, 770, 780 and 790 execute corresponding processing operations, so that the Internet telephone number (iTEL) is converted into a domain, thus enabling a telephone communication to be performed in the iTEL manner using the Internet. The Internet telephone number converting module 770 converts the iTEL into a domain address. That is, when the Internet telephone number (iTEL) is input to the Internet address field of the Internet terminal in the form of a telephone number (for example: 2-1234-2580) instead of a domain address, the iTEL converting module 770 converts the Internet telephone number (iTEL) into the numerical Internet address through the application program, and then converts the numerical Internet address into the domain address. As shown in FIGS. 12 to 14, the DB setting menu 790 and the DB 780 are used to set information coded into numerals, numerical Internet address information and Internet telephone number information, which are stored in the DB 780, to fixed values or to be changed.
As described above, the application program of the Internet terminal examines a character string input to the Internet address field to determine whether the input character string represents an IP address, a domain, a numerical Internet address, a shortcut domain, an Internet telephone number (iTEL), or a general telephone number (including a mobile phone number), converts the numerical Internet address and the shortcut domain into domains or converts the Internet telephone number into a domain address, thus enabling the Internet terminal to access an Internet site or an opposite Internet terminal.

A domain system (for example: 4989.123) has order reverse to that of a general telephone number system. Therefore, for convenience of use, it is preferable that the Internet telephone number (iTEL) system complies with the general telephone number system. Accordingly, in the case of a domain “4989.123”, when the domain is used in the terminal, “4989*123” can be input and used as the domain, or “123-4989” can be input and used as the domain after the order of the “4989*123” is reversed in the Internet telephone number (iTEL) manner. In this case, the “4989*123” or “123-4989” is converted into “4989.123” through the application program of the terminal, thus performing Internet communications.

Second, FIG. 4 is a view showing an example of three-level country code domains in which top-level domains 410, 420, 430 and 440 and second-level domains 411 and 413 are each constructed with numerals according to the present invention. In this case, country codes of corresponding countries are used as the numeric top-level domains 410, 420, 430 and 440 in a country code top-level domain 400, as shown in FIG. 13, so that the top-level domains can be conveniently memorized, and may correspond to country codes of the existing telephone number system. A country code of Korea is “82”, so that the numeric top-level domain “82” 410 of Korea is identical to the country code of Korea in FIG. 4. Further, the numeric top-level domain “86” 430 of China is identical to a country code of China, thus increasing convenience in memorization. In FIG. 4, the numeric second-level domain “2” 411 of Korea is identical to an area code.
of Seoul of Korea, and the numeric second-level domain “10” 431 of China is identical to an area code of Beijing of China, thus increasing convenience in memorization.

FIG. 5 is a view showing an example of country code domains having top-level domains constructed with numerals, in which a general telephone number system is identical to an Internet telephone number (iTEL) system, according to the present invention. In the case of a country code domain “4989.2690.2.82”, when the domain is input in the terminal, “4989*2690*2*82” is input, or “82-2-2960-4989” is input in the iTEL manner. The “4989*2690*2*82” or “82-2-2960-4989” is converted into the “4989.2690.2.82” through the application program of the terminal, thus enabling Internet communications to be performed. As shown in FIG. 5, the “4989*2690*2*82” represents “4989.2690.2.82”, and the “4989.2690.2.82” represents “82-2-2960-4989” in the iTEL manner. Such a conversion is performed by the application program of the terminal to perform the Internet communications.

Third, as shown in FIG. 12, existing top-level domains constructed with English characters, such as com, info, biz, net and org, are coded into numerals, so that the existing top-level domains can be used in numeric-type Internet terminal. That is, in order to input “4989.com” (4989.1) in the numeric-type Internet terminal, such as a mobile phone, if “4989*1” (1-4989) is input to an Internet address field of the numeric-type Internet terminal, the application program of the numeric-type Internet terminal converts the “4989*1” (1-4989) into “4989.com”, thus performing Internet communications.

Further, as shown in FIG. 13, country code top-level domains, constructed with numerals identical to country codes, can be used to increase convenience in memorization by equalizing numerals of country code top-level domains to country codes of respective countries. Further, as shown in FIG. 14, second-level domains of country code domains are constructed with numerals identical to area codes, thus increasing convenience in memorization, and enabling the second-level domains to be identical to the area codes of general
telephone numbers.

Fourth, a scheme of the Internet terminal for utilizing a domain as a shortcut domain by omitting a top-level domain including an identifier so as to shorten and use the domain includes the application program as shown in FIG. 7. The application program includes the input key determining module 720, the URL processing module 710, the URL converting module 750, the DB 780, and the menu setting module 790. The input key determining module 720 of the Internet terminal examines characters of an input character string input to the Internet address field of the Internet terminal by the user through the key input module 705, and then determines that the input character string represents a shortcut domain if the identifier “.” does not exist in the input character string. However, in the Internet terminal using a telephone number (including iTEL), such as a mobile phone and an Internet telephone, the determination of the shortcut domain constructed with numerals is performed by examining the number of digits, exchange number information, and country code information, which are used in the telephone number and the Internet telephone number, through the use of information stored in the DB 780. The URL processing module 710 transmits the shortcut domain to the URL converting module 750. The URL converting module 750 converts the shortcut domain into a domain using the information stored in the DB 780. The DB 780 stores information used to convert the shortcut domain into the original domain. The DB setting menu 790 can set the information stored in the DB 780. In this way, the scheme searches input character strings, adds top-level domains including an identifier, corresponding to languages of respective countries to shortcut domains, so that original domains are restored. That is, through the use of the information stored in the DB 780, if an input shortcut domain is a Korean domain, “.kr” is added to the shortcut domain. If the input shortcut domain is a Chinese domain, “.cn” is added to the shortcut domain. If the input shortcut domain is a Japanese domain, “.jp” is added to the shortcut domain. If the input shortcut domain is an English domain, “.com” is added to the shortcut domain. If the input shortcut
domain is a numeric domain, “.123” is added to the shortcut domain. In this way, the Internet terminal converts the shortcut domain into the original domain and then performs communications.

In the meantime, an email address can also be converted and processed using the above system and method of utilizing the system.

**Industrial Applicability**

As described above, the present invention provides a top-level domain system and method of utilizing the system, which constructs top level domains with numerals commonly used all over the world, so that a numeric-type Internet terminal can directly access the Internet, and Internet communications can be conveniently performed, thus providing convenience to non-English speaking peoples. That is, in the case of an internationalized domain, a Korean domain is expressed as “한국.123”, a Chinese domain is expressed as “韓國.123” and a Japanese domain is expressed as “カンコク.123”. Therefore, even in the internationalized domain, a top-level domain thereof is constructed with numerals, which are commonly used all over the world, so that the domain can be conveniently used.

Further, even in a domain, such as “korea.com”, a top-level domain including an identifier “.” is omitted, so that the domain can be shortened as “korea” and conveniently used. Further, the setting of an added top-level domain can be arbitrarily performed by a user and then conveniently used. That is, for Korean, the setting of the added top-level domain is performed in such a way that “.kr” is set in South Korea, and “.kp” is set in North Korea, and, for Arab languages, the setting thereof is performed with respect to countries in such a way that “.sy” is set in Syria and “.ye” is set in Yemen. Therefore, the user can conveniently set the top-level domain at need.
Claims

1. A top-level domain system for domains, wherein:
   a top-level domain of each domain is constructed with numerals, so that
   non-English speaking peoples can conveniently use the Internet by using the
   numerals commonly used by people of all over the world, a numeric-type Internet
   terminal, such as a mobile phone, can conveniently access the Internet, an Internet
   terminal can be conveniently used by the numerals, and the top-level domain is
   convenient to use in internationalized domains, such as “한국.123”, “韓國.123”,
   “カンコク.123”, and “korea.123”, and
   a top-level domain including an identifier “.” may be omitted and used
   with respect to all top-level domains including the top-level domain constructed
   with the numerals.

2. The top-level domain system according to claim 1, wherein:
   the domain (for example: korea.com) is shortened by omitting the top-
   level domain thereof including the identifier “.”, and then a shortcut domain (for
   example: korea) is used instead of the domain, when an Internet address is input
   through the Internet terminal,
   the shortcut domain is automatically converted into the original domain
   using information stored in a database (DB) (780) so that the top-level domain
   including the identifier “.”, such as “.kr”, “.cn”, “.jp”, “.com”, “.info”, “.biz” and
   “.123” (if a numeric top-level domain is newly added) is omitted, thus performing
   Internet communications, and
   the top-level domain including the identifier, such as “.kr” in Korean,
   “.cn” in Chinese, “.jp” in Japanese, “.com” in English, and “.123” in numeric (if a
   numeric top-level domain is newly added), is automatically added to the shortcut
   domain and converted into the original domain depending on analysis of
   languages and characters of respective countries for the shortcut domain, thus
   performing Internet communications.
3. The top-level domain system according to claim 1, wherein the toplevel domain is constructed so that a generic top-level domain, which is internationally used, is constructed with a numeral “123” as in the case of “한국.123”, “韓國.123”, “カンコク.123”, “korea.123”, and “4989.123”.

4. The top-level domain system according to claim 1, wherein the toplevel domain is constructed so that a country code top-level domain used in respective countries is constructed with numerals and is allowed to be identical to country codes of the respective countries (for example: “82” in the case of Korea), thus enabling the country code top-level domain to be constructed with numerals identical to the country codes for convenience of memorization when an Internet telephone or the like is used.

5. The top-level domain system according to claim 1, wherein the toplevel domain is constructed so that a second level (second-level domain) of a country code domain used in respective countries is constructed with numerals with the numerals being identical to area codes (for example: “02” or “2” in the case of Seoul) for convenience of memorization.

6. The top-level domain system according to claim 1, wherein the toplevel domain is constructed so that a special character (“*” or “#”) on a keypad of the numeric-type Internet terminal, such as the mobile phone, is input instead of the identifier “.” (or “.”) used in domains and IP addresses in the numeric-type Internet terminal so as to enable the special character (“*” or “#”) to be used instead of the identifier “.” (or “.”), and the special character (“*” or “#”) is converted into the identifier “.” (or “.”) through an application program, thus enabling the Internet communications to be performed.

7. The top-level domain system according to claim 1 or 6, wherein the
keypad is provided with an identifier "." key so that the identifier "." used in the domains and the IP addresses in the numeric-type Internet terminal, such as the mobile phone, can be input in the terminal.

8. The top-level domain system according to claim 1, wherein the numeric-type Internet terminal is implemented so that a top-level domain comprised of English characters is constructed with numerals when a domain is input to an Internet address field of the numeric-type Internet terminal, in such a way that a top-level domain comprised of English characters, such as "4989.com" is coded into numerals using information stored in the DB (780), and then used as a numerical Internet address (for example: 4989.1, 4989*1, 1-4989).

9. The top-level domain system according to claim 1, wherein the numeric-type Internet terminal, such as the mobile phone, comprises:

- an input key determining module (720) for examining characters (including numerals and special characters, such as ".", "+", "/", and "-") of a character string input to the Internet address field of the Internet terminal by the user, and then determining whether the input character string represents a Uniform Resource Locator (URL) (including a numerical Internet address and a shortcut domain), an Internet telephone number (iTEN), and a general telephone number;

- a URL converting module (750) for converting the numerical Internet address into a domain and converting the shortcut domain into a domain after the input key determining module (720) determines that the input character string represents the URL (including the numerical Internet address) and transmits the input character string to a URL processing module (710) if the input character string includes "numerals" and "+" like "4989*123" (numerical Internet address) or if the input character string represents the URL;

- a connecting module (760) for performing a corresponding connecting operation after the input key determining module (720) determines that the input
character string represents the general telephone number and then transmits the input character string to a general telephone call processing module (740) if the input character string represents a telephone number format comprised of only numerals;

a converting module (770) for converting the Internet telephone number (iTEL) into a domain to enable a telephone communication to be performed in an iTEL manner using the Internet after the input key determining module (720) determines that the input character string represents the Internet telephone number (iTEL) if the input character string input to the Internet address field of the Internet terminal through a key input module (705) represents an Internet telephone number (iTEL) format comprised of numerals and "-"", the converting module (770) converting the Internet telephone number (iTEL) into a numerical Internet address and converting the numerical Internet address into the domain address in such a way that, if the Internet telephone number is input to the Internet address field of the Internet terminal in the form of a telephone number (for example: 2-1234-2580) instead of a domain, the converting module (770) converts the Internet telephone number (iTEL) into the numerical Internet address and then converts the Internet telephone number (iTEL) into the domain address; and

a DB setting menu (790) and the DB (780) implemented to set information stored in the DB (780), such as numeric code information corresponding to generic top-level domains, numeric code (country code) information corresponding to country code top-level domains, numeric code information corresponding to country code second-level domains (area codes), numerical Internet address information, Internet telephone number (iTEL) information, and shortcut domain information, to fixed values or to be changed,

wherein the Internet terminal examines the character string input to the Internet address field to determine whether the input character string represents a URL (including a numerical Internet address and a shortcut domain), a general telephone number or an Internet telephone number (iTEL), converts the numerical
Internet address into a domain or an IP address, converts the shortcut domain into a domain, and converts the Internet telephone number into a domain address, thus enabling the Internet terminal to access an Internet site or an opposite Internet terminal.

10. The top-level domain system according to claim 1, wherein the identifier "." (or "::") is indicated together on a special character "*" (or "#") key of a keypad, and the "-" is indicated together on a special character "#" (or "*"), key thereof so as to input the domain or the IP address in the numeric-type Internet terminal.

11. The top-level domain system according to claim 1 or 10, wherein the numeric-type Internet terminal analyzes the character ("*" or "#") input through the keypad, converts the character ("*" or "#") into the identifier "." (or ":"), and then uses the identifier, using an application program so as to input the identifier "." (or ":") of the domain or the IP address in the numeric-type Internet terminal.

12. The top-level domain system according to claim 1 or 2, wherein:

the Internet terminal determines that the input character string represents a URL if the identifier "." (or ":") is included in the input character string, and determines that the input character string represents a shortcut domain if the identifier "." (or ":") is not included in the input character string when it is determined whether the character string input to the Internet address field of the Internet terminal represents a shortcut domain, and

an Internet terminal using a telephone number (including the Internet telephone number), such as the mobile phone or an Internet telephone, determines that the input character string represents a shortcut domain constructed with numerals by examining the number of digits, exchange number information and country code information, which are used in the telephone number and the Internet telephone number, through the use of the DB (780).
13. The top-level domain system according to claim 1 or 2, wherein the Internet terminal is operated so that, when the Internet terminal converts a shortcut domain into an original domain, the Internet terminal examines a character string input to the Internet address field of the Internet terminal, and then adds a top-level domain including the identifier "." to the shortcut domain to convert the shortcut domain into the original domain depending on analysis of languages and characters of respective countries using information stored in the DB (780) in such a way that "\.kr" is added in Korean, "\.jp" is added in Japanese, "\.cn" is added in Chinese, and "\.com" is added in English, if the input character string represents the shortcut domain.

14. The top-level domain system according to claim 1 or 2, wherein the Internet terminal is operated so that, when the Internet terminal converts a shortcut email into an original email address in a method of using the shortcut email by omitting the top-level domain, the Internet terminal examines a character string input to the Internet address field of the Internet terminal, and then adds a top-level domain including the identifier "." to the shortcut domain to convert the shortcut domain into the original email address depending on analysis of languages and characters of respective countries and user setting through the use of information stored in the DB (780) in such a way that "\.kr" (or "\.kp" if "kp" is set) is added in Korean, "\.jp" is added in Japanese, and "\.cn" is added in Chinese, if the input character string represents the shortcut email.

15. The top-level domain system according to claim 1 or 2, wherein: the Internet terminal uses a DB setting menu (790) and the DB (780) implemented to set the number of digits, exchange number information, and country code information, which are used in the telephone number and the Internet telephone number as shortcut domain determination information, to fixed values or user setting values and, thus, change the information of the DB (780);
and

the changing of the information of the DB (780) is performed using the DB setting menu (790) in such a way that selection and inputting of setting of a domain identifier are performed using "." and "user input", selection and inputting of setting of an IP address identifier are performed using ".", ":", ". and ." and "user input", selection and inputting of setting of a top-level domain in Korean are performed using ".kr", ".kp" and "user input", selection and inputting of setting of a top-level domain in Japanese are performed using ".jp" and "user input", selection and inputting of setting of a top-level domain in Chinese are performed using ".cn" and "user input", and selection and inputting of setting of a top-level domain in Arab languages are performed using ".sy" (Syria), ".ye" (Yemen), ".kw" (Kuwait) and "user input", thus enabling the top-level domain to be selected according to languages and countries.

16. The top-level domain system according to claim 1, wherein the Internet terminal comprises:

an input key determining module (720) for examining characters, numerals, and special characters of a character string input to an Internet address field of the Internet terminal by a user and then determining whether the input character string represents a URL (including a shortcut domain), an Internet telephone number (iTEL), and a general telephone number;

a URL converting module (750) for converting the shortcut domain into a domain after the input key determining module (720) determines that the input character string represents the URL (including the shortcut domain) and transmits the input character string to a URL processing module (710) if the input character string represents the URL;

a connecting module (760) for performing a corresponding connecting operation after the input key determining module (720) determines that the input character string represents the general telephone number and then transmits the input character string to a general telephone call processing module (740) if the
input character string represents a telephone number format comprised of only numerals (by searching for the number of digits in the telephone number);

an Internet telephone number converting module (770) for converting the Internet telephone number (iTEL) into a domain to enable a telephone communication to be performed in an iTEL manner using the Internet after the input key determining module (720) determines that the input character string represents the Internet telephone number (iTEL) if the input character string input to the Internet address field of the Internet terminal through a key input module (705) represents an Internet telephone number (iTEL) format comprised of numerals and "..", the converting module (770) converting the Internet telephone number (iTEL) into a numerical Internet address and converting the numerical Internet address into the domain address;

a DB setting menu (790) and the DB (780) implemented to set information stored in the DB (780), such as information coded into numerals, Internet telephone number (iTEL) information, and shortcut domain information, to fixed values or to be changed,

wherein the Internet terminal examines the character string input to the Internet address field and then determines whether the input character string represents a URL (including a domain, an IP address, and a shortcut domain), a general telephone number and an Internet telephone number (iTEL), thus enabling the Internet terminal to access an Internet site or an opposite Internet terminal.

17. A method of utilizing a top-level domain system, wherein:

a special character "..." is applied to an Internet telephone number in a scheme of utilizing an Internet telephone by an Internet terminal over the Internet in such a way that, if a general telephone number is "82-2-707-2545", the telephone number is actually used in the form of "8227072545", while if a domain constructed with numerals is "82-2-707-2545.123", the domain becomes "82-2-707-2545" in the case where a top-level domain including an identifier is
omitted in an Internet telephone number (iTEL), and then the "82-2-707-2545" is used as the Internet telephone number, and

the Internet telephone number can be analogized if the general telephone number is known, and can also be used as a URL for accessing an Internet site, thus providing convenience.

18. The method of utilizing a top-level domain system according to claim 17, wherein the Internet telephone number is recognized in such a way that, when a character string input to an Internet address field of the Internet terminal is determined by an input key determining module (720), the input character string is recognized as the Internet telephone number, if the "-" is used in the Internet telephone number and it is determined that the input character string is not a top-level domain (.123) when Internet telephone determination information stored in a DB (780) is searched for, or if a function, which may be recognized as the Internet telephone number, is stopped or selected when the function is used, through a DB setting menu (790).
Fig. 5

Fig. 6

com KOREAN DOMAIN
한국.com

123 KOREAN DOMAIN
한국.123

com CHINESE DOMAIN
韓国.com

123 CHINESE DOMAIN
韓国.123

com JAPANESE DOMAIN
カンコク.com

123 JAPANESE DOMAIN
カンコク.123
### Fig. 12

<table>
<thead>
<tr>
<th>GENERIC TOP-LEVEL DOMAIN</th>
<th>NUMERIC CODE</th>
<th>DOMAIN NAME</th>
<th>EXAMPLE OF NUMERIC TOP-LEVEL DOMAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>com</td>
<td>1</td>
<td>4989.com</td>
<td>4989.1  4989*1  1-4989</td>
</tr>
<tr>
<td>info</td>
<td>2</td>
<td>4989.info</td>
<td>4989.2  4989*2  2-4989</td>
</tr>
<tr>
<td>biz</td>
<td>3</td>
<td>4989.biz</td>
<td>4989.3  4989*3  3-4989</td>
</tr>
<tr>
<td>net</td>
<td>4</td>
<td>4989.net</td>
<td>4989.4  4989*4  4-4989</td>
</tr>
<tr>
<td>org</td>
<td>5</td>
<td>4989.org</td>
<td>4989.5  4989*5  5-4989</td>
</tr>
<tr>
<td>edu</td>
<td>6</td>
<td>4989.edu</td>
<td>4989.6  4989*6  6-4989</td>
</tr>
<tr>
<td>gov</td>
<td>7</td>
<td>4989.gov</td>
<td>4989.7  4989*7  7-4989</td>
</tr>
<tr>
<td>mil</td>
<td>8</td>
<td>4989.mil</td>
<td>4989.8  4989*8  8-4989</td>
</tr>
<tr>
<td>int</td>
<td>9</td>
<td>4989.int</td>
<td>4989.9  4989*9  9-4989</td>
</tr>
</tbody>
</table>

### Fig. 13

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>COUNTRY CODE TOP-LEVEL DOMAIN</th>
<th>COUNTRY CODE</th>
<th>NUMERIC CODE OF COUNTRY CODE TOP-LEVEL DOMAIN</th>
<th>EXAMPLE OF NUMERIC TOP-LEVEL DOMAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>kr</td>
<td>82</td>
<td>82</td>
<td>4989.82  4989*82  82-4989</td>
</tr>
<tr>
<td>Japan</td>
<td>JP</td>
<td>81</td>
<td>81</td>
<td>4989.81  4989*81  81-4989</td>
</tr>
<tr>
<td>Vietnam</td>
<td>vn</td>
<td>84</td>
<td>84</td>
<td>4989.84  4989*84  84-4989</td>
</tr>
<tr>
<td>China</td>
<td>cn</td>
<td>86</td>
<td>86</td>
<td>4989.86  4989*86  86-4989</td>
</tr>
<tr>
<td>Turkey</td>
<td>tr</td>
<td>90</td>
<td>90</td>
<td>4989.90  4989*90  90-4989</td>
</tr>
<tr>
<td>India</td>
<td>in</td>
<td>91</td>
<td>91</td>
<td>4989.91  4989*91  91-4989</td>
</tr>
<tr>
<td>Pakistan</td>
<td>pk</td>
<td>92</td>
<td>92</td>
<td>4989.92  4989*92  92-4989</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>af</td>
<td>93</td>
<td>93</td>
<td>4989.93  4989*93  93-4989</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>lk</td>
<td>94</td>
<td>94</td>
<td>4989.94  4989*94  94-4989</td>
</tr>
<tr>
<td>Myanmar</td>
<td>mm</td>
<td>95</td>
<td>95</td>
<td>4989.95  4989*95  95-4989</td>
</tr>
<tr>
<td>Iran</td>
<td>ir</td>
<td>98</td>
<td>98</td>
<td>4989.98  4989*98  98-4989</td>
</tr>
<tr>
<td>Morocco</td>
<td>ma</td>
<td>212</td>
<td>212</td>
<td>4989.212 4989*212 212-4989</td>
</tr>
<tr>
<td>Algeria</td>
<td>dz</td>
<td>213</td>
<td>213</td>
<td>4989.213 4989*213 213-4989</td>
</tr>
<tr>
<td>Tunisia</td>
<td>tn</td>
<td>216</td>
<td>216</td>
<td>4989.216 4989*216 216-4989</td>
</tr>
<tr>
<td>Libya</td>
<td>lv</td>
<td>218</td>
<td>218</td>
<td>4989.218 4989*218 218-4989</td>
</tr>
<tr>
<td>Senegal</td>
<td>sn</td>
<td>221</td>
<td>221</td>
<td>4989.221 4989*221 221-4989</td>
</tr>
<tr>
<td>Mauritania</td>
<td>mr</td>
<td>222</td>
<td>222</td>
<td>4989.222 4989*222 222-4989</td>
</tr>
<tr>
<td>Mali</td>
<td>ml</td>
<td>223</td>
<td>223</td>
<td>4989.223 4989*223 223-4989</td>
</tr>
<tr>
<td>Guinea</td>
<td>gn</td>
<td>224</td>
<td>224</td>
<td>4989.224 4989*224 224-4989</td>
</tr>
<tr>
<td>Cote d'Ivoire</td>
<td>ci</td>
<td>225</td>
<td>225</td>
<td>4989.225 4989*225 225-4989</td>
</tr>
<tr>
<td>Burkina</td>
<td>bf</td>
<td>226</td>
<td>226</td>
<td>4989.226 4989*226 226-4989</td>
</tr>
<tr>
<td>Niger</td>
<td>ne</td>
<td>227</td>
<td>227</td>
<td>4989.227 4989*227 227-4989</td>
</tr>
<tr>
<td>DOMAIN TYPE</td>
<td>AREA CODE</td>
<td>NUMERIC CODE</td>
<td>SUBSTITUTION NUMERIC</td>
<td>EXAMPLE OF DOMAIN NAME</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------</td>
<td>--------------</td>
<td>----------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>co.kr</td>
<td>1</td>
<td>1.82</td>
<td>4989.co.kr</td>
<td>4989.1.82</td>
</tr>
<tr>
<td>seoul.kr</td>
<td>2(02)</td>
<td>2</td>
<td>4989.seoul.kr</td>
<td>4989.2.82</td>
</tr>
<tr>
<td>re.kr</td>
<td>3</td>
<td>3.82</td>
<td>4989.re.kr</td>
<td>4989.3.82</td>
</tr>
<tr>
<td>ne.kr</td>
<td>4</td>
<td>4.82</td>
<td>4989.ne.kr</td>
<td>4989.4.82</td>
</tr>
<tr>
<td>or.kr</td>
<td>5</td>
<td>5.82</td>
<td>4989.or.kr</td>
<td>4989.5.82</td>
</tr>
<tr>
<td>ac.kr</td>
<td>6</td>
<td>6.82</td>
<td>4989.ac.kr</td>
<td>4989.6.82</td>
</tr>
<tr>
<td>go.kr</td>
<td>7</td>
<td>7.82</td>
<td>4989.go.kr</td>
<td>4989.7.82</td>
</tr>
<tr>
<td>ms.kr</td>
<td>8</td>
<td>9.82</td>
<td>4989.ms.kr</td>
<td>4989.8.82</td>
</tr>
<tr>
<td>pe.kr</td>
<td>9</td>
<td>9.82</td>
<td>4989.pe.kr</td>
<td>4989.9.82</td>
</tr>
<tr>
<td>busan.kr</td>
<td>51(051)</td>
<td>51</td>
<td>4989.busan.kr</td>
<td>4989.51.82</td>
</tr>
<tr>
<td>taegu.kr</td>
<td>53(053)</td>
<td>53</td>
<td>4989.taegu.kr</td>
<td>4989.53.82</td>
</tr>
<tr>
<td>inchon.kr</td>
<td>32(032)</td>
<td>32</td>
<td>4989.inchon.kr</td>
<td>4989.32.82</td>
</tr>
<tr>
<td>kwangju.kr</td>
<td>62(062)</td>
<td>62</td>
<td>4989.kwangju.kr</td>
<td>4989.62.82</td>
</tr>
<tr>
<td>taejon.kr</td>
<td>42(042)</td>
<td>42</td>
<td>4989.taejon.kr</td>
<td>4989.42.82</td>
</tr>
<tr>
<td>ulsan.kr</td>
<td>52(052)</td>
<td>52</td>
<td>4989.ulsan.kr</td>
<td>4989.52.82</td>
</tr>
<tr>
<td>kyounggi.kr</td>
<td>31(031)</td>
<td>31</td>
<td>4989.kyounggi.kr</td>
<td>4989.31.82</td>
</tr>
<tr>
<td>kangwon.kr</td>
<td>33(033)</td>
<td>33</td>
<td>4989.kangwon.kr</td>
<td>4989.33.82</td>
</tr>
<tr>
<td>chungbuk.kr</td>
<td>54(054)</td>
<td>54</td>
<td>4989.chungbuk.kr</td>
<td>4989.54.82</td>
</tr>
<tr>
<td>chungnam.kr</td>
<td>55(055)</td>
<td>55</td>
<td>4989.chungnam.kr</td>
<td>4989.55.82</td>
</tr>
<tr>
<td>chonbuk.kr</td>
<td>63(063)</td>
<td>63</td>
<td>4989.chonbuk.kr</td>
<td>4989.63.82</td>
</tr>
<tr>
<td>chonnam.kr</td>
<td>61(061)</td>
<td>61</td>
<td>4989.chonnam.kr</td>
<td>4989.61.82</td>
</tr>
</tbody>
</table>
# INTERNATIONAL SEARCH REPORT

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC7 G06F 17/00

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

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G06F17/00, G06F17/22, H04L, H04Q

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

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

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>KR 2001-0000877(KOREA TELECOM FREETEL CO.) 05 January 2001 (05. 01. 01) see the whole document</td>
<td>1 - 18</td>
</tr>
<tr>
<td>Y</td>
<td>KR 2001-0000571(JANG, KYEONG CHEOL) 05 January 2001 (05. 01. 01) see the whole document</td>
<td>1 - 18</td>
</tr>
<tr>
<td>A</td>
<td>KR 2001-0044033(NETPIA. COM) 05 June 2001 (05. 06. 01) see the whole document</td>
<td>1 - 18</td>
</tr>
<tr>
<td>A</td>
<td>KR 2002-0016359(NETPIA. COM) 04 March 2002 (04. 03. 02) see the whole document</td>
<td>1 - 18</td>
</tr>
<tr>
<td>A</td>
<td>KR 2002-0054191(ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE) 06 July 2002 (06. 07. 02) see the whole document</td>
<td>1 - 18</td>
</tr>
</tbody>
</table>

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
  - "E" earlier application or patent 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 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**

29 JANUARY 2004 (29.01.2004)

**Date of mailing of the international search report**

30 JANUARY 2004 (30.01.2004)

**Name and mailing address of the ISA/KR**

Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

**Authorized officer**

LEE, Dong Young

**Telephone No.**

82-42-481-5784

Form PCT/ISA/210 (second sheet) (January 2004)