(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
11 November 2004 (11.11.2004)

PCT

(10) International Publication Number
WO 2004/098216 A1

(51) International Patent Classification[7]: H04Q 7/24

(21) International Application Number:
PCT/KR2004/000604

(22) International Filing Date: 19 March 2004 (19.03.2004)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
10-2003-0026717 28 April 2003 (28.04.2003) KR

(71) Applicant *(for all designated States except US)*: **KT-FREETEL CO., LTD.** [KR/KR]; KTF Tower, 890-20 Daechi-4Dong, Gangnam-Gu, Seoul 135-737 (KR).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **LEE, Dong-Ik** [KR/KR]; 808-1403 Hanjin Apartment, Jeongdeun Maeul, Jeongja-Dong, Bundang-Ku, Seongnam, Kyunggi-Do 463-010 (KR). **AHN, Hee-Jung** [KR/KR]; 6-603 Hanyang Apartment, Ssangmoon-3Dong, Dobong-Ku, Seoul 132-741 (KR). **JE, Kyung-Il** [KR/KR]; 906-1006 Soman Maeul, 793, Haengsin-Dong, Deokyang-Ku, Koyang, Kyunggi-Do 412-731 (KR).

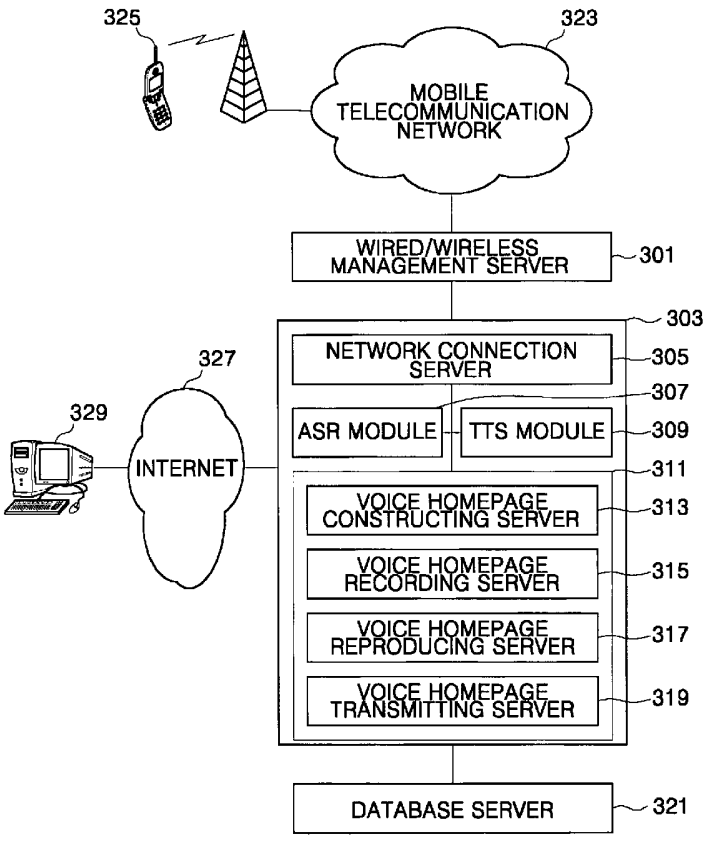
(74) Agents: **CHO, Heum-O** et al.; 9th Floor, Star Tower, 737, Yeoksam1-Dong, Kangnam-Ku, Seoul 135-984 (KR).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR PROVIDING A VOICE HOMEPAGE HAVING A MESSAGE SPACING



(57) Abstract: The present invention relates to a method and apparatus for generating a voice homepage having a message space. The method comprises the steps of receiving a call connection request signal from a T MSC, the call connection request signal is used in order to setup a channel between an originating terminal and a voice homepage generation apparatus, extracting a guide announcement in accordance with a voice homepage service from a database server, transmitting the guide announcement to the originating terminal, receiving a connection request signal to the voice homepage from the originating terminal, extracting at least one from the set of a menu information and a message space information in correspondence with the voice homepage, transmitting at least one from the set of a menu information and a message space information to the originating terminal, receiving a service request signal from the originating terminal and performing a voice homepage services including a message recording service, a message commonly holding service, a message playing service, a message transmitting service, with the message space in correspondence with the service request signal.

WO 2004/098216 A1

GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

— *with amended claims and statement*

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.

DESCRIPTION

METHOD AND APPARATUS FOR PROVIDING A VOICE HOMEPAGE HAVING A MESSAGE SPACING

Technical Field

The present invention relates to a method and apparatus for providing a voice homepage having a message space. Voice homepage of this invention, allowing user to provide various services such as Automatic Response Service(ARS), is constructed by mobile terminal, and user can make self-expression, form a community and easily share information through the message space of the voice homepage.

Background Art

Recently, with the technical development of electrical, electronic and telecommunication fields, various telecommunication services using personal mobile terminals have been widely developed and used. Especially, with the explosive growth of the Internet, a wireless Internet service using mobile terminals is very popularized. For example, for the wireless Internet service, there are information providing service, interactive-type service, entertainment service, mobile electronic commerce service, Location Based Service (LBS), wireless telemetry service, and telematic service. For the information providing service, there are Short Message Service (SMS), Voice Message Service (VMS), Multimedia Messaging Service (MMS), and mobile broadcasting service. For the interactive-type service, there are chatting/meeting service, Video-On-Demand (VOD) service, and

visual telephone service. For the entertainment service, there are mobile library service, image/sound service, and game service. For the mobile electronic commerce service, there are mobile shopping service, post-payment transportation service, mobile payment service including an infrared credit payment service and credit card mobile payment service. For the LBS, there are location tracking service, digital logistic transportation service, and taxi call service. For the wireless telemetry service, there are remote inspection service including power remote inspection service and vending machine remote inspection service, and mobile home-security management service. For the telematic service, there is traffic guidance service.

Furthermore, recently, an Internet voice service enabling a user to use information on the Internet in voice using a mobile terminal is popularized and used. The Internet voice service is provided by a voice solution using, for example, Voice extensible Markup Language (VXML). The voice solution is generally formed of Computer Telephony Integration (CTI) programming, a voice board control module, Interactive Voice Response (IVR), an Automated Speech Recognition (ASR) unit, a Text-To-Speech (TTS) unit, and a VXML interpreter. The voice solution is coupled with wired/wireless telecommunication network and the Internet and provides the Internet voice service through the functions of ASR and TTS.

FIG. 1 is a configuration diagram schematically showing a conventional Internet service system through voice. FIG. 2 is a configuration diagram showing the service types of the Internet service system through voice shown FIG. 1.

Referring to FIGS. 1 and 2, the conventional Internet service system through voice 103 includes an ASR system 105, an Internet server 107 and a TTS system 109. Although not shown in the drawings, a Telephony Interface Module (TIM),

which, for example, is coupled with the ASR system 105 and the TTS system 109 respectively, and also coupled with an Internet server 107 through a certain interpreter, is installed at the end of the system 103 connected to the terminal of a user 101. It is expected that the TIM includes at least a voice board or a voice board control module, and IVR.

With the above-described construction, the conventional Internet service system through voice provides individually-tailored services including an electronic mail, a directory, schedule management, today's weather, today's fortune, today's headline news, today's humor, traffic information, stock information and phone banking, and specific mobile telephone services including a voice Internet search service, a direct Internet access service and a 700 telephone service.

As described above, the conventional Internet voice service allows a user to easily access various types of information on the Internet through a wired/wireless terminal. Additionally, the conventional Internet voice service can be coupled with an conventional Automatic Response System (ARS), and it can provide the information over the Internet to the user through voice.

However, due to the many limitations in voice technology, it is difficult to provide various services, such as the service of an Internet homepage that enables a user to make self-expression, form a community or share information easily under the conventional Internet voice service. Especially, an Internet voice service capable of providing various services, such as various additional telecommunication services provided by a mobile telecommunication network, has not developed yet. Accordingly, if a telecommunication service, which allows a user to make self-expression, form a community and easily

share information using a mobile terminal, can be provided, it can attract explosive attention from users.

Description of Drawings

FIG. 1 is a configuration diagram schematically showing a conventional Internet service system through voice;

FIG. 2 is a configuration diagram showing the service types of the conventional Internet service system through voice shown FIG. 1;

FIG. 3 is a configuration diagram schematically showing a system to which a voice homepage providing service according to a preferred embodiment of the present invention can be applied;

FIG. 4 is a view showing an example of a voice homepage according to a preferred embodiment of the present invention;

FIG. 5 is a flowchart schematically showing a process of servicing a voice homepage according to a preferred embodiment of the present invention;

FIG. 6 is a flowchart showing a process of constructing a voice homepage according to a preferred embodiment of the present invention; and

FIG. 7 is a view showing a process of joining a voice homepage service according to a preferred embodiment of the present invention.

Discousure

Technical Problem

An object of the present invention is to provide a method and apparatus for providing a voice homepage having a message space, the voice homepage of this invention, allowing

to provide various services such as Automatic Response Service(ARS), being constructed by using mobile terminal, and user being able to make self-expression, form a community and easily share information through the message space of the voice homepage.

Another object of the present invention is to provide a method and apparatus for providing a voice homepage having a message space, which enables a user to conveniently construct and use the voice homepage through user's voice, the voice homepage being coupled with various communication services of a mobile telecommunication network.

Technical Solution

In order to accomplish the above object, the present provides a method of providing a voice homepage by a voice homepage providing apparatus being coupled with a terminating Mobile Switching Center(T_MSC), in a mobile telecommunication network including a originating MSC(O_MSC) managing at least one originating terminal, comprising the steps of receiving a call connection request signal from the T_MSC, the call connection request signal being used to set a call path between the originating terminal and the voice homepage providing apparatus, fetching guidance announcement information about the voice homepage service from a database server, transmitting the guidance announcement information to the originating terminal, receiving a voice homepage connection request signal from the originating terminal, fetching at least one of menu information and message space information corresponding to the voice homepage, whose access is requested, from the database server, transmitting the at least one of the menu information and message space information to the originating terminal, receiving a service

request signal from the originating terminal and performing at least one voice homepage service of message recording, message sharing, message reproduction and message transmission in the message space in response to the service request signal.

In a preferred embodiment, the step of performing the voice homepage service comprises at least one of the steps of providing a tool for constructing the voice homepage to the originating terminal, generating or editing the voice homepage in response to a input for generating or editing the voice homepage from the originating terminal, recording the message received from the originating terminal in a message space of the voice homepage and transmitting the message stored in the message space of the voice homepage to a specific third party.

The step of receiving the signal from the originating terminal and the T_MSC may include an interface to access a wired/wireless communication, and is performed by the originating terminal and a network connection server that transmits and receives a voice signal and data signal.

The message sharing may be performed in such a way that a message to be shared is substantially simultaneously registered in respectively message spaces of voice homepages of members registered in the message space.

The message transmission can be performed in such a way that a short message is transmitted to the member's terminals registered in the message space in response to a message transmission request from the mobile terminal, and a selected message is transmitted through a call back or Uniform Resource Location (URL).

The message space may further comprises a one-time message space in which at least one telephone number of the members registered in the message space is dialed and the message is immediately transmitted to the telephone number in

a First In-First Out (FIFO) manner while the message received from the mobile terminal is being buffered or stored at the same time.

The message space may include a reply function that allows user to post a reply or opinion for the message after checking the stored message.

The message space may include at least one additional function of background music insertion, sound effect insertion and voice modulation.

The message space may include at least one additional function of a weather, news, stocks and traffic information providing function, a music outputting function, a and novel reading function.

In accordance with another aspect of the present invention, the present provides an apparatus for providing a voice homepage coupled with a T_MSC in a mobile telecommunication network including a O_MSC managing at least one originating terminal, comprising means for receiving a call connection request signal from the T_MSC, the call connection request signal being used to set a communication path between the originating terminal and the voice homepage providing apparatus, means for fetching guidance announcement information on the voice homepage service from a database server, means for transmitting the guidance announcement information to the originating terminal, means for receiving a voice homepage connection request signal from the originating terminal, means for fetching at least one of menu information and message space information corresponding to the voice homepage, whose access is requested, from the database server, means for transmitting the at least one of menu information and message space information of the voice homepage to the originating terminal, means for receiving a service request signal from the originating terminal and means for performing at least one voice homepage service of

message recording, message sharing, message reproduction and message transmission in the message space in response to the service request signal.

In a preferred embodiment, the means for performing the voice homepage service may comprises a voice homepage constructing server providing a tool for constructing the voice homepage to the mobile terminal or an Internet user terminal, and generating or editing the voice homepage in response to an input signal for generating or editing the voice signal, a voice homepage recording server recording the message in the message space of the voice homepage, a voice homepage reproducing server outputting the message recorded in the message space of the voice homepage in voice and a voice homepage transmitting server transmitting the message stored in the message space of the voice homepage to a specific third party.

The voice homepage providing apparatus may further includes a wired/wireless managing server including a wired/wireless communication network connection interface and managing a customer front end.

The database server may manage at least menu construction information, message space information, guidance announcement information and virtual number information with respect to each user.

The voice homepage providing apparatus may further include an ASR means and a TTS means.

The voice homepage providing apparatus may further include an authentication means for authenticating the originating terminal. In this case, the voice homepage providing apparatus authenticates the originating terminal through information on at least one of a voice signal received from the originating terminal, a DTMF signal, and a originating terminal identifier corresponding to the originating terminal.

Advantageous Effect

As described above, according to the present invention, voice homepage allowing to provide various services such as Automatic Response Service(ARS) can be constructed by using mobile terminal, and user can make self-expression, form a community and easily share information through the message space of the voice homepage.

Furthermore, according to the present invention, a voice homepage having a message space, being coupled with various communication services of a mobile telecommunication network, allows user to conveniently construct and use the voice homepage through user' s voice,.

Furthermore, according to the present invention, the voice homepage, which is used as the fan pages of an entertainer, the public information pages of a company or information common channels, can be provided.

Furthermore, according to the present invention, a next generation wireless Internet service, in which an ARS service, a mobile telecommunication service and an Internet service are coupled together, can be provided.

Best Mode

Referring to the attached drawings, a preferred embodiment of the present invention is described in detail below.

FIG. 3 is a configuration diagram schematically showing a system to which a voice homepage providing service according to a preferred embodiment of the present invention can be applied.

Referring to FIG. 3, the voice homepage providing system includes a voice homepage providing apparatus 303. Additionally, the voice homepage providing system is coupled to a wired/wireless managing server 301 and a database server 321. The voice homepage providing apparatus 303 includes a network connection server 305 and a voice homepage service server 311. Meanwhile, although it is preferable that the voice homepage providing system according to this invention is coupled with a mobile telecommunication network 323 through the wired/wireless managing server 301, the voice homepage providing system can be directly coupled with the mobile telecommunication network 323 through the network connection server 305.

Furthermore, the voice homepage providing system is coupled with the mobile telecommunication network 323 that includes a Mobile Switching Center (MSC) managing at least one originating terminal, for example, a mobile terminal 325. Additionally, the voice homepage providing system is coupled with the Internet 327 that includes an Internet Service Provider (ISP) providing an Internet service to at least one Internet terminal 329 through the voice homepage providing apparatus 303. The voice homepage providing apparatus 303 is described first.

In more detail, the network connection server 305 of the voice homepage providing apparatus 303 includes an ASR module 307 and a TTS module 309. The ASR module 307 and TTS module 309 include all hardware and software to which conventional ASR and TTS technologies have been applied. The network connection server 305 is a means for obtaining user information from a user terminal, such as a originating terminal, a mobile originating terminal or an Internet terminal that makes access through a connection path, such as the wired Internet, the wireless Internet, or the ARS service of a wired/wireless telephone network. The user information

is a means for authenticating a person who is allowed to access the voice homepage, and includes a user terminal identifier corresponding to a user terminal and a signal input from the user terminal.

The network connection server 305 is a means for connecting the voice homepage corresponding to the user information to the user terminal. Furthermore, the network connection server 305 is a means for receiving input signals composed of a voice signal, a Dual Tone MultiFrequency (DTMF) signal, a data signal or a combination of the above-described signals. The input signal includes a signal for editing a voice homepage, a signal for recording a message in the message space of the voice homepage, a signal for reproducing the message recorded in the message space, and a signal for transmitting the message, recorded in the message space, to a specific third party.

Furthermore, although not shown in the drawings, the network connection server 305 may include a certain interpreter to interwork with the voice homepage service server 311. In this case, the interpreter functions to appropriately convert or translate the voice signal or the data signal transmitted between the network connection server 305 and the voice homepage service server 311.

The voice homepage service server 311 includes a voice homepage constructing server 313, a voice homepage recording server 315, a voice homepage reproducing server 317, and a voice homepage transmitting server 319. Furthermore, the voice homepage service server 311 is coupled with the network connection server 305, the ASR module 307, and the TTS module 309.

The voice homepage constructing server 313 provides a user terminal, for example, the mobile terminal 325, with a tool for constructing the voice homepage. Various types of tools conventionally used can be used as the voice homepage

constructing tool. That is, the voice homepage constructing tool provided by the voice homepage constructing server 313 of the present invention includes all homepage generating tools allowing user to construct individualized menus and the sub-menus thereof in response to the voice signal and the DTMF signal and record an introduction to each of the menus.

Furthermore, the voice homepage constructing server 313 includes a voice guidance means like ARS service for providing voice guidance to the mobile terminal 325 of the user and allowing the user to construct or edit the voice homepage according to the voice guidance. The voice guidance means includes a plurality of guidance announcements previously manufactured. By this guidance announcements, user can generate or edit the voice homepage using the voice homepage constructing tool. Additionally, the voice guidance means includes a program or apparatus that performs the above-described function. Furthermore, the voice guidance means transmits information about guidance announcements to the user terminal through the ASR and TTS modules 307 and 309.

Furthermore, the voice homepage constructing server 313 includes not only the function of constructing the voice homepage but also the function of editing the constructed voice homepage. Since the editing function is similar to the constructing function and is apparent to those skilled in the art, a detailed description thereof is omitted.

The voice homepage recording server 315 includes an apparatus and program for recording a voice message received from the mobile terminal 325. The voice homepage recording server 315 stores a voice signal received from the mobile terminal 325 in a separate storage device or the database server 321, when, for example, the user posts text to the voice bulletin board or message space of the voice homepage

in voice, or the user posts a reply in voice after listening to the specific contents of the bulletin board.

Additionally, the voice homepage recording server 315 is used as a means for recording or buffering a one-time message. For example, in the case where a message is intended to be instantly transmitted to other members while the message is posted to the voice bulletin board or the message space in the voice homepage, the voice homepage recording server 315 can be used as the means for buffering or recording the message received from the mobile terminal 325. In this case, the voice homepage recording server 315 or voice homepage service server 311 transmits the one-time message to other members through the network connection server 305 or a separate one-time message transmission apparatus.

The voice homepage reproducing server 317 includes an apparatus and program for outputting the message in voice stored in the message space of the voice homepage, to the user terminal, including the mobile terminal 325 and the Internet terminal 329, through the TTS module 309. The voice homepage reproducing server 317 functions to extract associative data from the storage device or the database server 321 and outputs the message corresponding to the input signal of the user terminal to the user terminal.

The voice homepage transmitting server 319 includes an apparatus and program for transmitting the message stored in the message space of the voice homepage to a random third party or registered members in response to the message transmission input signal of the user terminal. For example, when a message stored in the message space of the voice homepage is requested to be transmitted, the voice homepage transmitting server 319 functions to transmit the message to the telephone number of the random third party directly received from the user terminal, the telephone number

selected by the user from the stored membership information, or the telephone numbers of all members previously registered in the message space.

Although not shown in the drawings, the voice homepage providing apparatus 303 of the present invention can be connected to a separate authentication system, or further comprise an authentication means therein. Such an authentication means is used to authenticate a user or a user terminal in the case of, for example, constructing a new voice homepage, editing a constructed voice homepage, or accessing a message space.

The wired/wireless managing server 301, which is connected to a MSC in the mobile telecommunication network 321 or a Public Switched Telephone Network (PSTN), is a meanss for processing and managing a voice call. That is, the wired/wireless managing server 301 manages a customer front end for a user who accesses this service. Additionally, for the service of the present invention, the wired/wireless managing server 301 can be coupled with the network connection server 305 of the voice homepage providing apparatus 303.

The database server 317 is coupled with the voice homepage providing apparatus 303. The database server 317 manages individualized voice homepage information including at least menu construction information and message space information, and virtual telephone number information set in the message space. The database server 317 can be coupled with the voice homepage providing apparatus 303 through the wired/wireless managing server 301 or Internet 327 not directly coupled with the voice homepage providing apparatus 303 of the present invention.

The above-described voice homepage and the message space of the present invention are described in detail with reference to FIG. 4 below. FIG. 4 is a view showing an

example of a voice homepage according to a preferred embodiment of the present invention. For the easy understanding of the present invention, FIG. 4 shows the voice homepage constructed to be similar to a conventional Internet homepage provided through an Internet terminal.

Referring to FIG. 4, the voice homepage 401 of the present invention includes a salutation, a plurality of menus, and message spaces included in the menus. The voice homepage 401 may further include membership information spaces for a group A and a group B, which enable a user to check or manage the membership information of a group registered in a specific message space. This construction shows the most basic construction of a homepage formed of a salutation, menus and the sub-menus thereof. That is, the voice homepage of the present invention is constructed to enable the user to easily construct a voice homepage in voice through a mobile terminal.

Furthermore, the present invention includes message spaces as sub-menus. The message spaces not only include a first message space and a second message space that enable a user to freely check and post a voice message like a conventional voice bulletin board, but also include, for example, a bulletin board space that enables the user to check notice in voice, or a mail space that enables the user to check and transmit a mail in voice. Furthermore, the message spaces include a shared message space, a transmission message space, a private message space, a one-time message space, a sound effect message space, a karaoke message space, and a novel message space. Furthermore, the message spaces include an information providing space that provides information on weather, news, stocks and traffic in voice, like a service conventionally provided by an ARS service.

In practice, message space can be constructed to allow a message to be shared between the members of a specific group.

The message space may be constructed in such a way that if, for example, a member inputs and stores a message to and in the specific message space of the voice homepage of the member, the message is immediately posted to the shared message spaces of all members who are included in a group set in the specific message space of the member. In this case, all the members included in the group are members who joined the service of the voice homepage, and the message space is a shared message space.

Additionally, the message space may be constructed in such a way that if a user sets a specific telephone number or the virtual telephone number in a message space, any one who accesses the message space through the telephone number can check the message stored in the message space. Furthermore, the user can directly access a specific message space, for example, by manipulating a shortcut key composed of a number key and an identifier key of a mobile terminal. That is, when the user presses the shortcut key, the MSC connected to the apparatus of the present invention routes the mobile terminal in accordance with set information that corresponds to the shortcut key. In this case, the identifier key includes an asterisk * key or a sharp # key, and the message space is a shared message space or a public message space.

Furthermore, in the message space, a public function or a private function can be set to allow only a specific member can check the message stored in the message space. This function is similar to the password function of a voice mailbox. In this case, the message space is a public message space or a private message space.

Furthermore, the message space may be constructed in such a way that the message stored therein can be transmitted to a plurality of members or a random third party. For example, in the case where a user check a message stored in a specific message space and intends to transmit the message to

a random party, the user selects message transmission through a voice signal or a DTMF signal attributable to a key pad, and selects the telephone number of the random party according to guidance for the message transmission, or directly inputs the telephone number of the random party, so that the message is transmitted to the random third party. In this case, the user refers not only to a human but also an apparatus or program capable of accessing a voice homepage or a voice message. In this case, the message space is a transmission message space, and the message stored in the message space is transmitted to the receiving terminal of the random third party by the transmission server of the voice homepage.

Furthermore, the message space may be constructed in such a way that a message input from the mobile terminal of a user is buffered or stored in the message space and, at the same time, transmitted to the destination terminal of a member registered in the message space in a FIFO manner. In this case, the transmission server of the voice homepage of the present invention dials to the user terminal of the registered member, thus functioning to set up a call path with the user terminal. In this case, the message space is a one-time message space.

Furthermore, the message space may be constructed in such a way that a user can directly access a voice homepage through the specific telephone number or virtual telephone number, and freely record desired contents using desired voice, voice modulation, or sound effect.

FIG. 5 is a flowchart schematically showing a process of servicing a voice homepage according to a preferred embodiment of the present invention. FIG. 6 is a flowchart showing a process of constructing a voice homepage according to a preferred embodiment of the present invention.

Referring to FIG. 5, the voice homepage service of the present invention includes service joining step S501, voice homepage constructing step S503, message recording step S505, message reproducing step S507, and message transmitting step S509. Meanwhile, message recording step S505, message reproducing step S507 and message transmitting step S509 were mainly described with reference to FIG. 4 above, so that the descriptions thereof are omitted below.

Service joining step S501 can be performed in such a way that a user accesses an ARS service or a voice mail service through a wired terminal. Additionally, service joining step S501 can be performed in such a way that the user accesses a web server through an Internet terminal. In this case, the ARS service, voice mail service or web server is coupled and interworks with the voice homepage of the present invention. Service joining step S501 is described in detail with reference to FIG. 7 below.

Voice homepage constructing step S503 is performed in such a way that a user can construct or edit a voice homepage by using a homepage generating tool provided by the voice homepage providing apparatus of the present invention. By doing this, user can generates a salutation, menus and message spaces, and performs a set required in the message spaces, so that the voice homepage can be simply constructed.

For example, voice homepage constructing step S503 may be performed as shown in FIG. 6. To construct a voice homepage, a user first accesses a voice homepage service through a wired/wireless communication network or the wired/wireless Internet at step S601. If necessary, the user joins a membership at step S603. Thereafter, the user opens a voice homepage using voice guidance or the provided voice homepage generating tool at step S605. At this time, the user constructs menus including sub-menus at step S607. Next, if necessary, the user records a salutation that

introduces the voice homepage or welcomes guests, and menu introductions that introduce the menus at step S609.

After finishing the schematic construction of the voice homepage, the user generates and constructs message spaces in menus and the sub-menus at step S611. In this case, the message spaces can be the sub-menus themselves. Additionally, if necessary, a salutation and an introduction for each of the message spaces are recorded at step S603.

Thereafter, the user sets access authority for each of the menus and message spaces at step S615. In this case, according to the access authority, the messages spaces may be the public message spaces of the members of a group or the private message space of specific members. Next, the user sets a supplementary service for each of the menus and message spaces at step S617. The setting of the supplementary service includes the setting of functions, such as background music insertion, sound effect insertion and voice modulation. Furthermore, the setting of the supplementary service includes the setting of functions to allow the user to selectively listen to information on weather, news, stocks and traffic, to selectively listen to music, and to selectively listen to a humor or novel. If necessary, the user can set the storing period of messages in the menus and message spaces. In this case, messages whose storing period has elapsed can be moved to the storage space of specific database that is allocated to the user, or can be deleted. Lastly, the user confirms the contents of the voice homepage and stores the settings at step S621.

The voice homepage service of the present invention has the construction in which a general homepage provided by the general Internet and an ARS service provided by a wired/wireless communication network are coupled together. Besides, the voice homepage service according to the present invention is constructed in such a way that the ARS service

is not only coupled with the Internet homepage, but also a user is allowed to use various mobile telecommunication services in the voice homepage. Accordingly, the user can easily construct a voice homepage formed of menus and message spaces using a mobile terminal, and use the various mobile telecommunication services using the voice homepage.

FIG. 7 is a view showing a process of joining a voice homepage service according to a preferred embodiment of the present invention.

Referring to FIG. 7, when the user of a mobile terminal requests joining in the voice homepage service of the present invention at step S701, information on whether the user joins the service or not is stored in the membership database. Thereafter, the membership database transmits the service joining information, which at least includes user information and a mobile terminal identifier, and is provided by the user when the user of the mobile terminal joins the voice homepage service, to a Home Location Register (HLR) at step S703. The HLR sets the voice homepage service in the corresponding profile of the mobile terminal user based on the received service joining information at step S705.

Furthermore, the membership database transmits the membership information of the mobile terminal user, who requests the voice homepage service of the present invention, to the voice homepage providing apparatus at step S707. The voice homepage providing apparatus sets a voice homepage service code by using the received membership information at step S709. In this case, the voice homepage service code corresponds to the voice homepage constructed by the user.

Meanwhile, in the above-described embodiment, the user terminal of the present invention is described based on the mobile terminal. However, the present invention is not limited on the mobile terminal. For example, a user terminal includes all of terminal apparatuses and programs having the

functions of terminals, such as a wired telephone terminal and an Internet terminal using a Voice Over Internet Protocol (VoIP), that can access the voice homepage providing apparatus of the present invention, construct the voice homepage in voice, and use the message spaces.

The present invention is not limited to the above embodiments, and various modifications are possible by those skilled in the art without departing from the spirit of the invention.

CLAIMS

1. A method of providing a voice homepage by a voice homepage providing apparatus being coupled with a terminating Mobile Switching Center(T_MSC), in a mobile telecommunication network including a originating MSC(O_MSC) managing at least one originating terminal, comprising the steps of:

receiving a call connection request signal from the T_MSC, the call connection request signal being used to set a call path between the originating terminal and the voice homepage providing apparatus;

fetching guidance announcement information about the voice homepage service from a database server;

transmitting the guidance announcement information to the originating terminal;

receiving a voice homepage connection request signal from the originating terminal;

fetching at least one of menu information and message space information corresponding to the voice homepage, whose access is requested, from the database server;

transmitting the at least one of the menu information and message space information to the originating terminal;

receiving a service request signal from the originating terminal; and

performing at least one voice homepage service of message recording, message sharing, message reproduction and message transmission in the message space in response to the service request signal.

2. The method according to claim 1, wherein the step of performing the voice homepage service comprises at least one of the steps of:

providing a tool for constructing the voice homepage to the originating terminal;

generating or editing the voice homepage in response to a input for generating or editing the voice homepage from the originating terminal;

recording the message received from the originating terminal in a message space of the voice homepage; and

transmitting the message stored in the message space of the voice homepage to a specific third party.

3. The method according to claim 1, wherein the message sharing is performed in such a way that a message to be shared is substantially simultaneously registered in respectively message spaces of voice homepages of members registered in the message space.

4. The method according to claim 1, wherein the message sharing is performed in such a way that the user can directly access the specific message space by pressing a shortcut key composed of a number key and an identifier key of the mobile terminal by the user.

5. The method according to claim 1, wherein the message transmission is performed in such a way that a short message is transmitted to the member's terminals registered in the message space in response to a message transmission request from the mobile terminal, and a selected message is transmitted through a call back or Uniform Resource Location (URL).

6. The method according to claim 1, wherein the message space further comprises a one-time message space in which at least one telephone number of the members registered in the message space is dialed and the message is immediately transmitted to the telephone number in a First In-First Out

(FIFO) manner while the message received from the mobile terminal is being buffered or stored at the same time.

7. An apparatus for providing a voice homepage coupled with a T_MSC in a mobile telecommunication network including a O_MSC managing at least one originating terminal, comprising:

means for receiving a call connection request signal from the T_MSC, the call connection request signal being used to set a communication path between the originating terminal and the voice homepage providing apparatus;

means for fetching guidance announcement information on the voice homepage service from a database server;

means for transmitting the guidance announcement information to the originating terminal;

means for receiving a voice homepage connection request signal from the originating terminal;

means for fetching at least one of menu information and message space information corresponding to the voice homepage, whose access is requested, from the database server;

means for transmitting the at least one of menu information and message space information of the voice homepage to the originating terminal;

means for receiving a service request signal from the originating terminal; and

means for performing at least one voice homepage service of message recording, message sharing, message reproduction and message transmission in the message space in response to the service request signal.

8. The apparatus according to claim 7, wherein the means for performing the voice homepage service comprises:

a voice homepage constructing server providing a tool for constructing the voice homepage to the mobile terminal or an Internet user terminal, and generating or editing the voice homepage in response to an input signal for generating or editing the voice signal;

a voice homepage recording server recording the message in the message space of the voice homepage;

a voice homepage reproducing server outputting the message recorded in the message space of the voice homepage in voice; and

a voice homepage transmitting server transmitting the message stored in the message space of the voice homepage to a specific third party.

9. The apparatus according to claim 7, further comprising a wired/wireless managing server including a wired/wireless communication network connection interface and managing a customer front end.

10. The apparatus according to claim 7, wherein the database server manages at least menu construction information, message space information, guidance announcement information and virtual number information with respect to each user.

AMENDED CLAIMS
[received by the International Bureau on 25 August 2004 (25.08.04);
original claims 1-10 amended (4 pages)]

CLAIMS

1.(amended) A method for providing a voice homepage by a voice homepage providing apparatus being coupled with a terminating Mobile Switching Center(T_MSC), in a mobile telecommunication network including an originating MSC(O_MSC) managing at least one originating terminal, comprising the steps of:

receiving a call connection request signal from the T_MSC, the call connection request signal being used to set a call path between the originating terminal and the voice homepage providing apparatus;

extracting guidance announcement information about the voice homepage service from a database server;

transmitting the guidance announcement information to the originating terminal;

receiving a voice homepage connection request signal from the originating terminal;

extracting at least one of menu information and message space information corresponding to the voice homepage, whose access is requested, from the database server;

transmitting at least one of the menu information and the message space information to the originating terminal;

receiving a service request signal from the originating terminal; and

performing at least one voice homepage service of message recording, message sharing, message reproduction and message transmission in the message space in response to the service request signal.

2. (amended) The method in claim 1, wherein the step of performing the voice homepage service comprises at least one of the steps of:

providing a tool for constructing the voice homepage to the originating terminal;

generating or editing the voice homepage in response to an input for generating or editing the voice homepage from the originating terminal;

recording the message received from the originating terminal in a message space of the voice homepage; and

transmitting the message stored in the message space of the voice homepage to a specific third party.

3. (amended) The method in claim 1, wherein the message sharing is performed in such a way that a message to be shared is substantially simultaneously registered in respectively message spaces of voice homepages of members registered in the message space.

4. (amended) The method in claim 1, wherein the message sharing is performed in such a way that the user can directly access a specific message space by pressing a shortcut key composed of a number key and an identifier key of the mobile terminal by the user.

5. (amended) The method in claim 1, wherein the message transmission is performed in such a way that a short message is transmitted to the member's terminals registered in the message space in response to a message transmission request from the mobile terminal, and a selected message is transmitted through a call back or Uniform Resource Location (URL).

6. (amended) The method in claim 1, wherein the message space further comprises a one-time message space in which at least one telephone number of the members registered in the message space is dialed and the message is immediately transmitted to the telephone number in a First In-First Out (FIFO) manner while the message received from the mobile terminal is being buffered or stored at the same time.

7. (amended) An apparatus for providing a voice homepage coupled with a terminating Mobile Switching Center(T_MSC), in a mobile telecommunication network including an originating MSC(O_MSC) managing at least one originating terminal, comprising:

means for receiving a call connection request signal from the T_MSC, the call connection request signal being used to set a call path between the originating terminal and the voice homepage providing apparatus;

means for extracting guidance announcement information about the voice homepage service from a database server;

means for transmitting the guidance announcement information to the originating terminal;

means for receiving a voice homepage connection request signal from the originating terminal;

means for extracting at least one of menu information and message space information corresponding to the voice homepage, whose access is requested, from the database server;

means for transmitting at least one of the menu information and the message space information to the originating terminal;

means for receiving a service request signal from the originating terminal; and

means for performing at least one voice homepage service of message recording, message sharing, message reproduction and message transmission in the message space in response to the service request signal.

8. (amended) The apparatus in claim 7, wherein the means for performing the voice homepage service comprises:

a voice homepage constructing server providing a tool for constructing the voice homepage to the mobile terminal or an Internet user terminal, and generating or editing the

voice homepage in response to an input signal for generating or editing the voice signal;

a voice homepage recording server recording the message in a message space of the voice homepage;

a voice homepage reproducing server outputting the message recorded in the message space of the voice homepage in voice; and

a voice homepage transmitting server transmitting the message stored in the message space of the voice homepage to a specific third party.

9. (amended) The apparatus in claim 7, further comprising a wired/wireless managing server including a wired/wireless communication network connection interface and managing a customer front end.

10. (amended) The apparatus in claim 7, wherein the database server manages at least menu construction information, message space information, guidance announcement information and virtual number information with respect to each user.

AMENDED SHEET (ARTICLE 19)

STATEMENT UNDER PCT ARTICLE 19

I/We amended claims 1,2,3,4,5,6,7,8,9 and 10 under the article 19 of PCT. The purpose of these amendments is to limit the scope of the claimed invention. These amendments should have no effect on the description and drawings.

FIG. 1

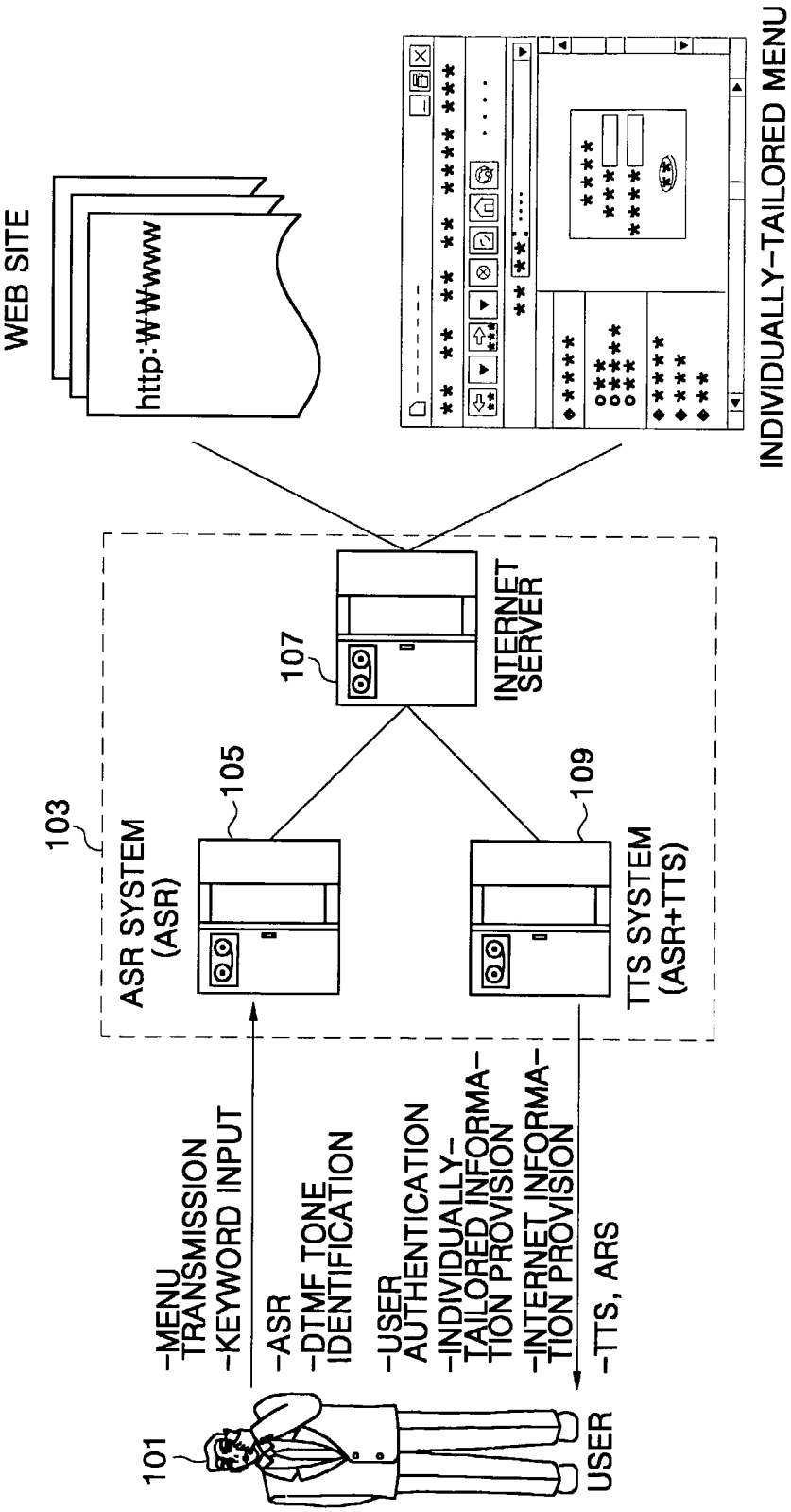

WEB SITE
http://www
INDIVIDUALLY-TAILORED MENU
INTERNET SERVER
107
103
ASR SYSTEM (ASR)
105
109
TTS SYSTEM (ASR+TTS)
-MENU TRANSMISSION
-KEYWORD INPUT
-ASR
-DTMF TONE IDENTIFICATION
-USER AUTHENTICATION
-INDIVIDUALLY-TAILORED INFORMATION PROVISION
-INTERNET INFORMATION PROVISION
-TTS, ARS
101
USER

FIG. 2

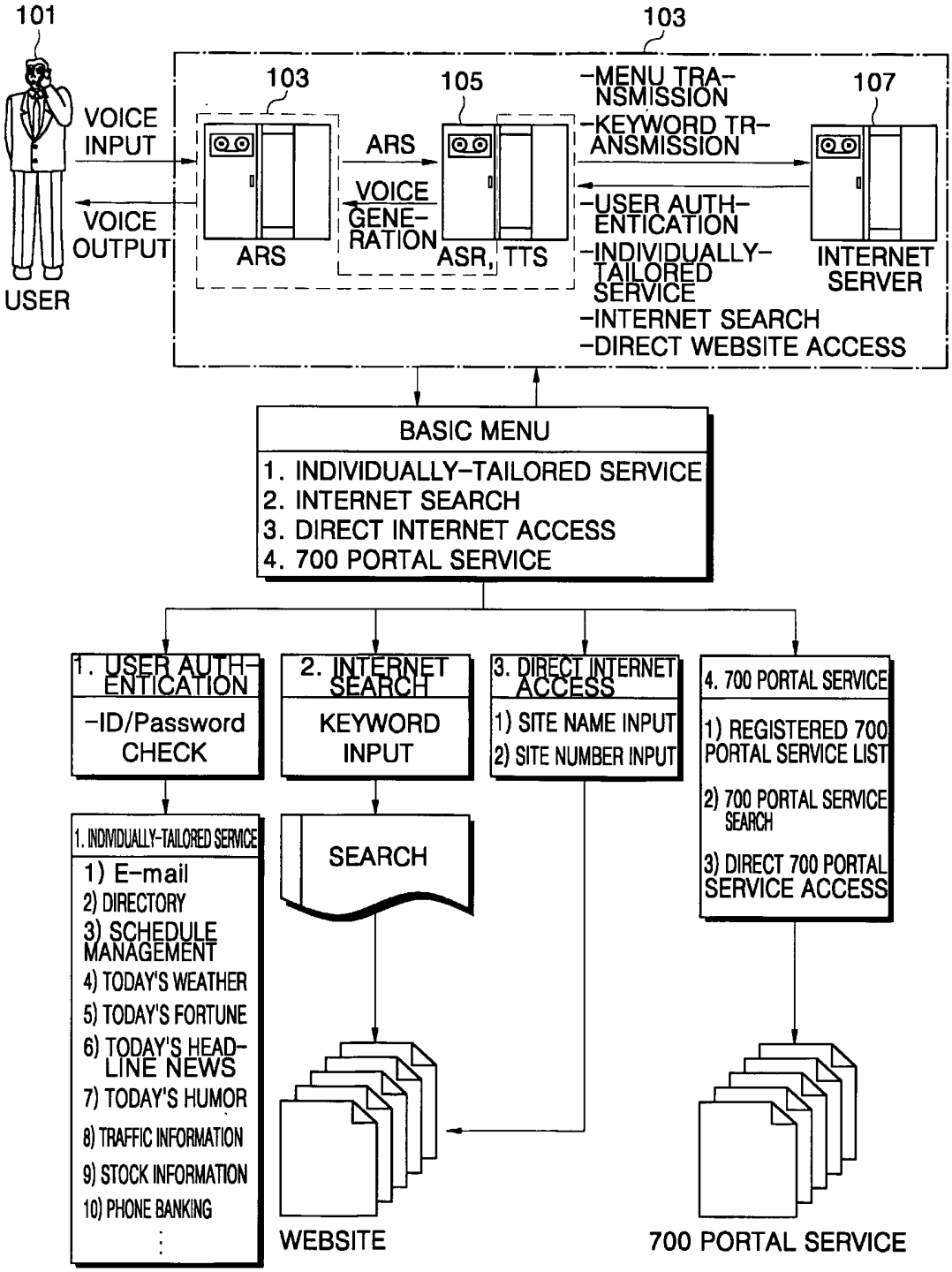

101
USER
VOICE INPUT
VOICE OUTPUT
103
ARS
ARS
VOICE GENE-RATION
105
ASR, TTS
103
-MENU TRA-NSMISSION
-KEYWORD TR-ANSMISSION
-USER AUTH-ENTICATION
-INDIVIDUALLY-TAILORED SERVICE
-INTERNET SEARCH
-DIRECT WEBSITE ACCESS
107
INTERNET SERVER
BASIC MENU
1. INDIVIDUALLY-TAILORED SERVICE
2. INTERNET SEARCH
3. DIRECT INTERNET ACCESS
4. 700 PORTAL SERVICE
1. USER AUTH-ENTICATION
-ID/Password CHECK
2. INTERNET SEARCH
KEYWORD INPUT
3. DIRECT INTERNET ACCESS
1) SITE NAME INPUT
2) SITE NUMBER INPUT
4. 700 PORTAL SERVICE
1) REGISTERED 700 PORTAL SERVICE LIST
2) 700 PORTAL SERVICE SEARCH
3) DIRECT 700 PORTAL SERVICE ACCESS
1. INDIVIDUALLY-TAILORED SERVICE
1) E-mail
2) DIRECTORY
3) SCHEDULE MANAGEMENT
4) TODAY'S WEATHER
5) TODAY'S FORTUNE
6) TODAY'S HEAD-LINE NEWS
7) TODAY'S HUMOR
8) TRAFFIC INFORMATION
9) STOCK INFORMATION
10) PHONE BANKING
SEARCH
WEBSITE
700 PORTAL SERVICE

FIG. 3

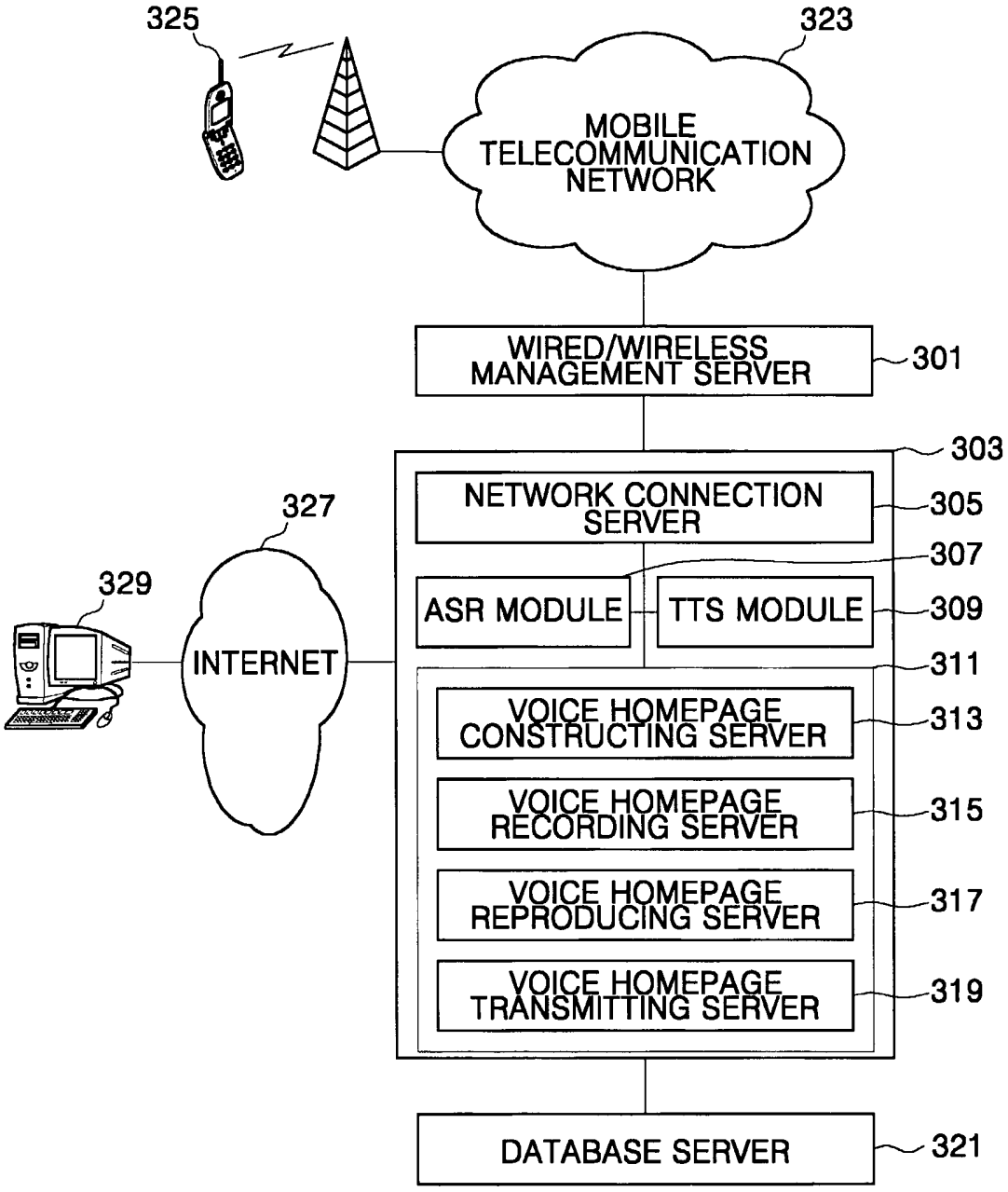

325
323
MOBILE TELECOMMUNICATION NETWORK
WIRED/WIRELESS MANAGEMENT SERVER
301
303
NETWORK CONNECTION SERVER
305
307
ASR MODULE
TTS MODULE
309
311
VOICE HOMEPAGE CONSTRUCTING SERVER
313
VOICE HOMEPAGE RECORDING SERVER
315
VOICE HOMEPAGE REPRODUCING SERVER
317
VOICE HOMEPAGE TRANSMITTING SERVER
319
DATABASE SERVER
321
327
329
INTERNET

FIG. 4

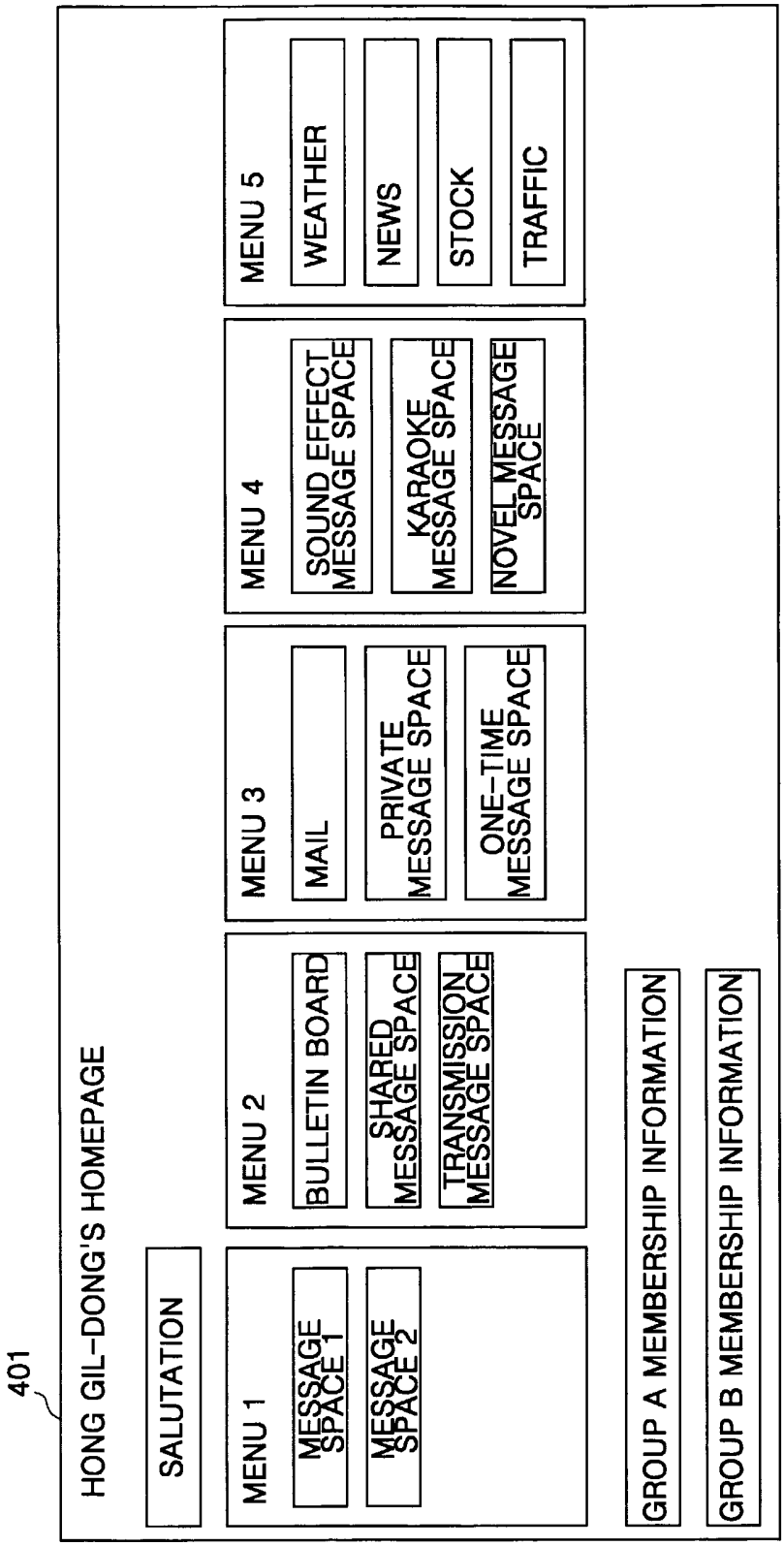

401
HONG GIL-DONG'S HOMEPAGE
SALUTATION
MENU 1
MESSAGE SPACE 1
MESSAGE SPACE 2
MENU 2
BULLETIN BOARD
SHARED MESSAGE SPACE
TRANSMISSION MESSAGE SPACE
MENU 3
MAIL
PRIVATE MESSAGE SPACE
ONE-TIME MESSAGE SPACE
MENU 4
SOUND EFFECT MESSAGE SPACE
KARAOKE MESSAGE SPACE
NOVEL MESSAGE SPACE
MENU 5
WEATHER
NEWS
STOCK
TRAFFIC
GROUP A MEMBERSHIP INFORMATION
GROUP B MEMBERSHIP INFORMATION

FIG. 5

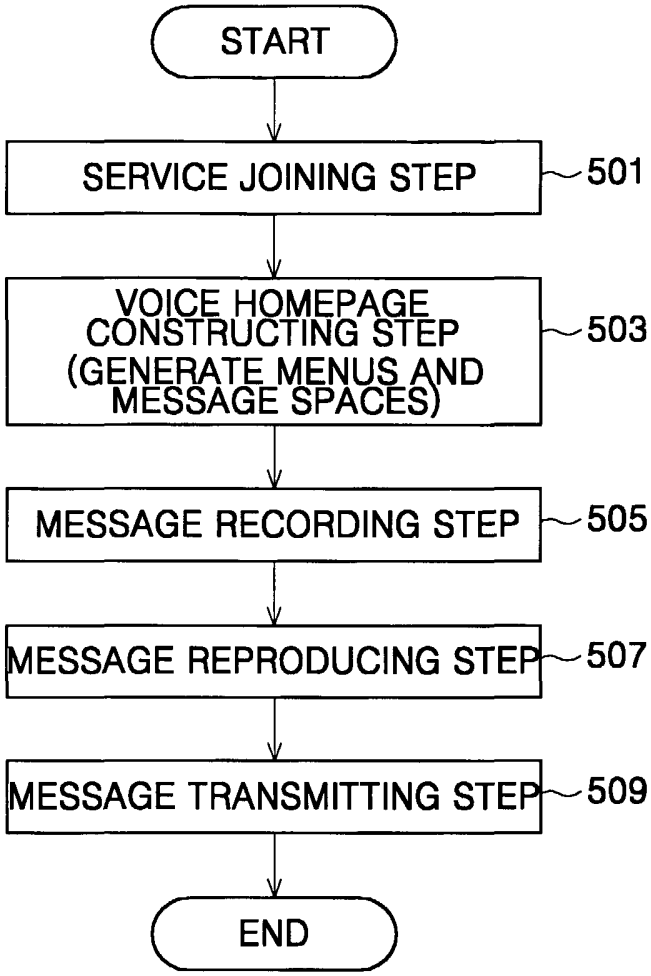

START
SERVICE JOINING STEP
501
VOICE HOMEPAGE CONSTRUCTING STEP (GENERATE MENUS AND MESSAGE SPACES)
503
MESSAGE RECORDING STEP
505
MESSAGE REPRODUCING STEP
507
MESSAGE TRANSMITTING STEP
509
END

FIG. 6

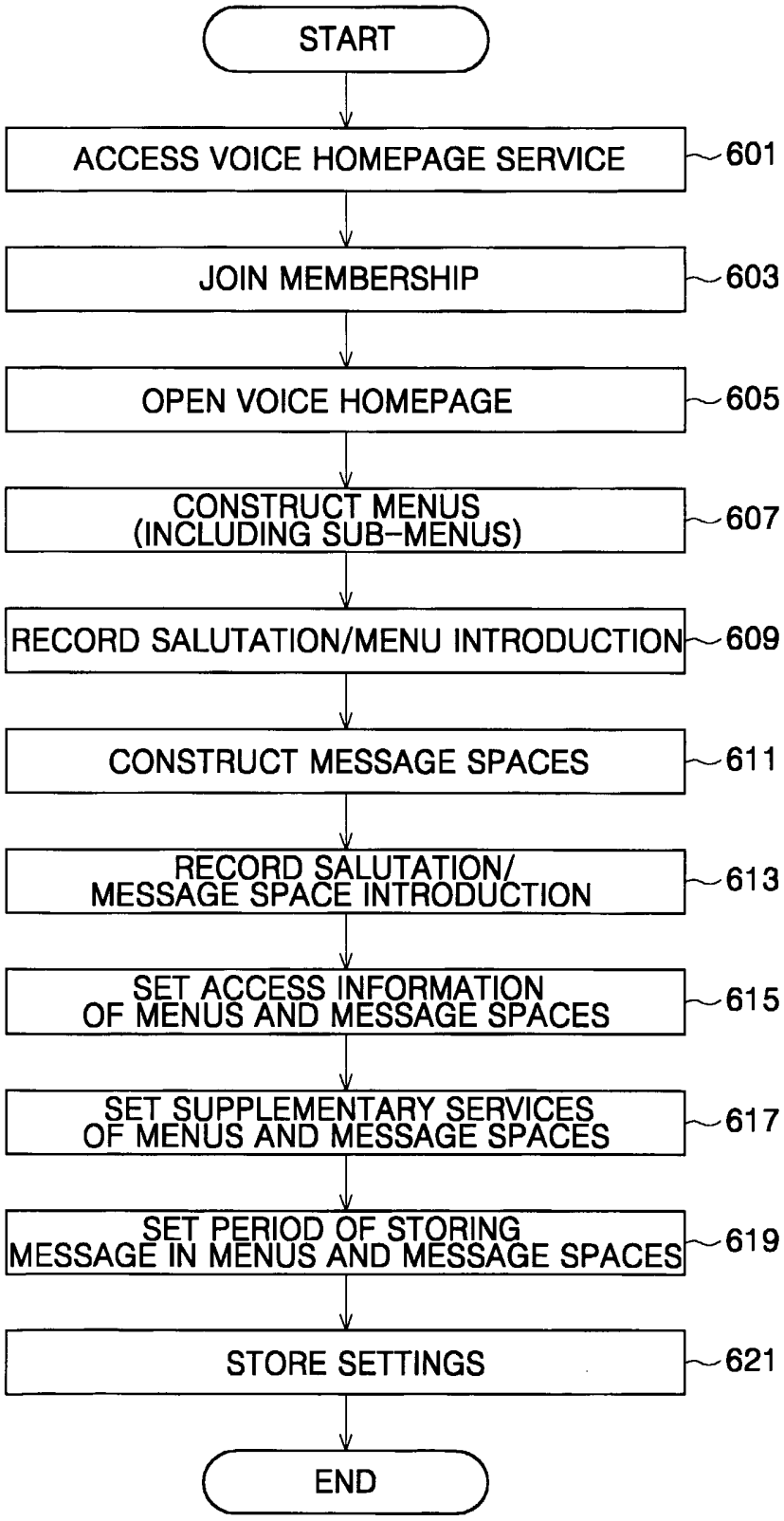
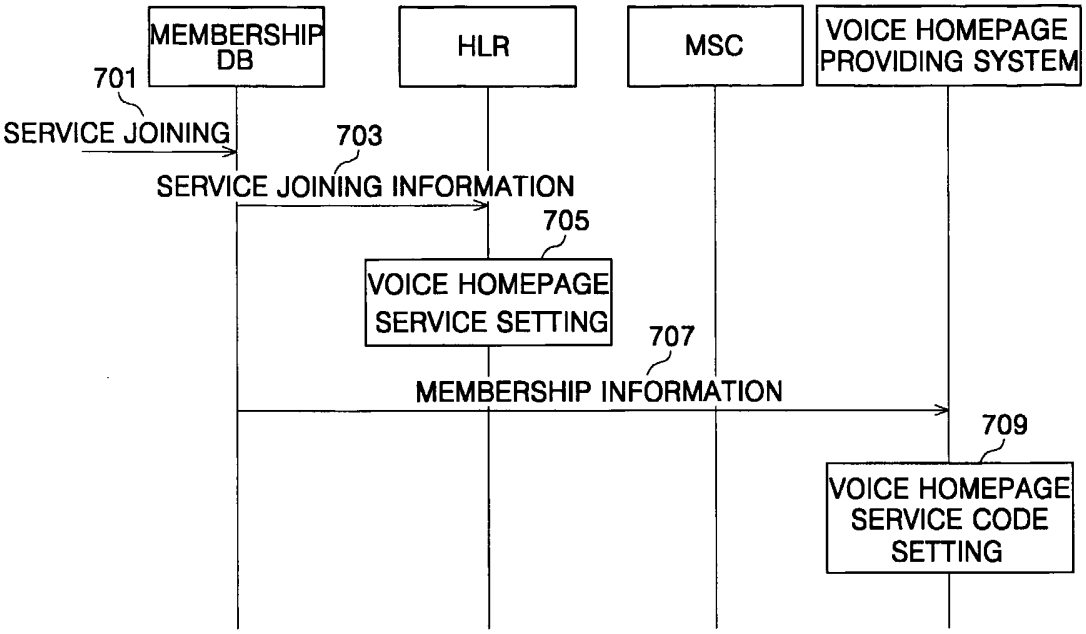

START
ACCESS VOICE HOMEPAGE SERVICE
601
JOIN MEMBERSHIP
603
OPEN VOICE HOMEPAGE
605
CONSTRUCT MENUS (INCLUDING SUB-MENUS)
607
RECORD SALUTATION/MENU INTRODUCTION
609
CONSTRUCT MESSAGE SPACES
611
RECORD SALUTATION/ MESSAGE SPACE INTRODUCTION
613
SET ACCESS INFORMATION OF MENUS AND MESSAGE SPACES
615
SET SUPPLEMENTARY SERVICES OF MENUS AND MESSAGE SPACES
617
SET PERIOD OF STORING MESSAGE IN MENUS AND MESSAGE SPACES
619
STORE SETTINGS
621
END

FIG. 7


MEMBERSHIP DB
HLR
MSC
VOICE HOMEPAGE PROVIDING SYSTEM
701
SERVICE JOINING
703
SERVICE JOINING INFORMATION
705
VOICE HOMEPAGE SERVICE SETTING
707
MEMBERSHIP INFORMATION
709
VOICE HOMEPAGE SERVICE CODE SETTING

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2004/000604

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04Q 7/24

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 7/24, G06F 17/00, 17/60, 3/16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Patents and Applications for inventions, since 1975

Electronic data base consulted during the intertnational 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.
Y	KR2002-11598 A (CHOI JUNG IN) 2002.02.09. see abstract & fig. 1, 2	1-10
Y	KR2002-59983 A (CHOI JUNG IN) 2002.07.16. see abstract & fig. 1, 2, 3, 5 & 7	1-10
A	KR2000-36675 A (KIM YONG HO) 2000.07.05. see abstract	1-10
A	JP2001-229008 A (YOGI COMMUNICATIONS KK.) 2001.08.24. see abstract & fig. 1	1-10

☐ 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	Date of mailing of the international search report
22 JUNE 2004 (22.06.2004)	23 JUNE 2004 (23.06.2004)

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
JEON, Hyun Jin
Telephone No. 82-42-481-5970