US 20160012199A1

(19) United States

(12) Patent Application Publication

(10) Pub. No.: US 2016/0012199 A1

(43) Pub. Date: Jan. 14, 2016

KIM

(54) HEALTH CARE NETWORK SYSTEM USING SMART COMMUNICATOR AND METHOD THEREOF

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(21) Appl. No.: **14/864,045**

(22) Filed: **Sep. 24, 2015**

Related U.S. Application Data

(63) Continuation of application No. 11/637,980, filed on Dec. 13, 2006, now abandoned.

(30) **Foreign Application Priority Data**

Jan. 16, 2006 (KR) 10-2006-0004275

Publication Classification

(51) **Int. Cl.**

G06F 19/00	(2006.01)
A61B 5/22	(2006.01)
A61B 5/0205	(2006.01)
A61B 5/107	(2006.01)
A61B 5/00	(2006.01)
A61B 5/0402	(2006.01)

(52) **U.S. Cl.**

CPC ***G06F 19/3418*** (2013.01); ***A61B 5/4875*** (2013.01); ***A61B 5/4872*** (2013.01); ***A61B 5/0402*** (2013.01); ***A61B 5/02055*** (2013.01); ***A61B 5/1072*** (2013.01); ***A61B 5/222*** (2013.01); ***A61B 5/7246*** (2013.01); ***A61B 5/7282*** (2013.01); ***A61B 5/486*** (2013.01); ***A61B 5/7264*** (2013.01); ***G06F 19/3456*** (2013.01); *A61B 2505/07* (2013.01)

(57) **ABSTRACT**

The present invention relates to a health care network system and a method thereof utilizing a smart communicator. The health care network system of the present invention includes: a hospital server for providing a prescription based on information of a user's health state and abnormality corresponding to the user's prescription request through the Internet; at least one biological state measuring sensor installed in at least one home instrument to detect the user's various biological states; a home server analyzing the user's health state based on the measured biological states, identifying and transmitting the health abnormality, and receiving and transmitting the prescription by connecting to the hospital server when the prescription is requested; and a smart communicator receiving the user's health state information and health abnormality information transmitted by the home server, transmitting the user's prescription request information to the home server when the prescription request is made, and receiving prescription information transmitted by the home server.

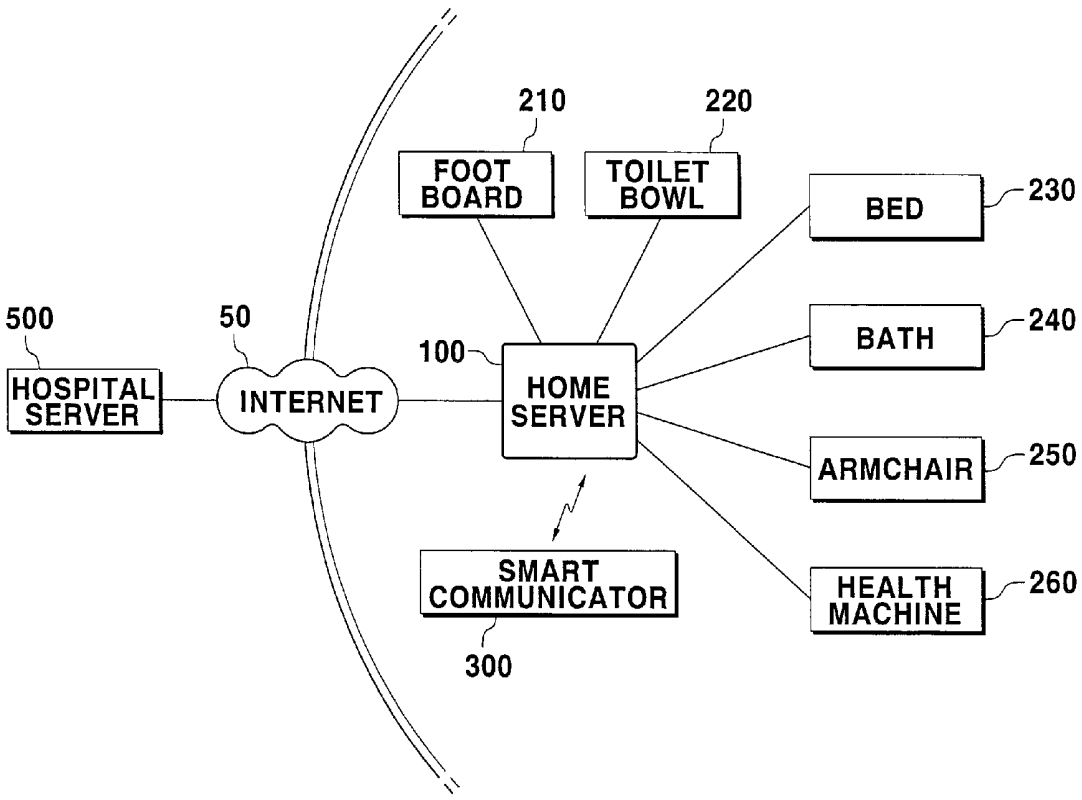


FIG. 1

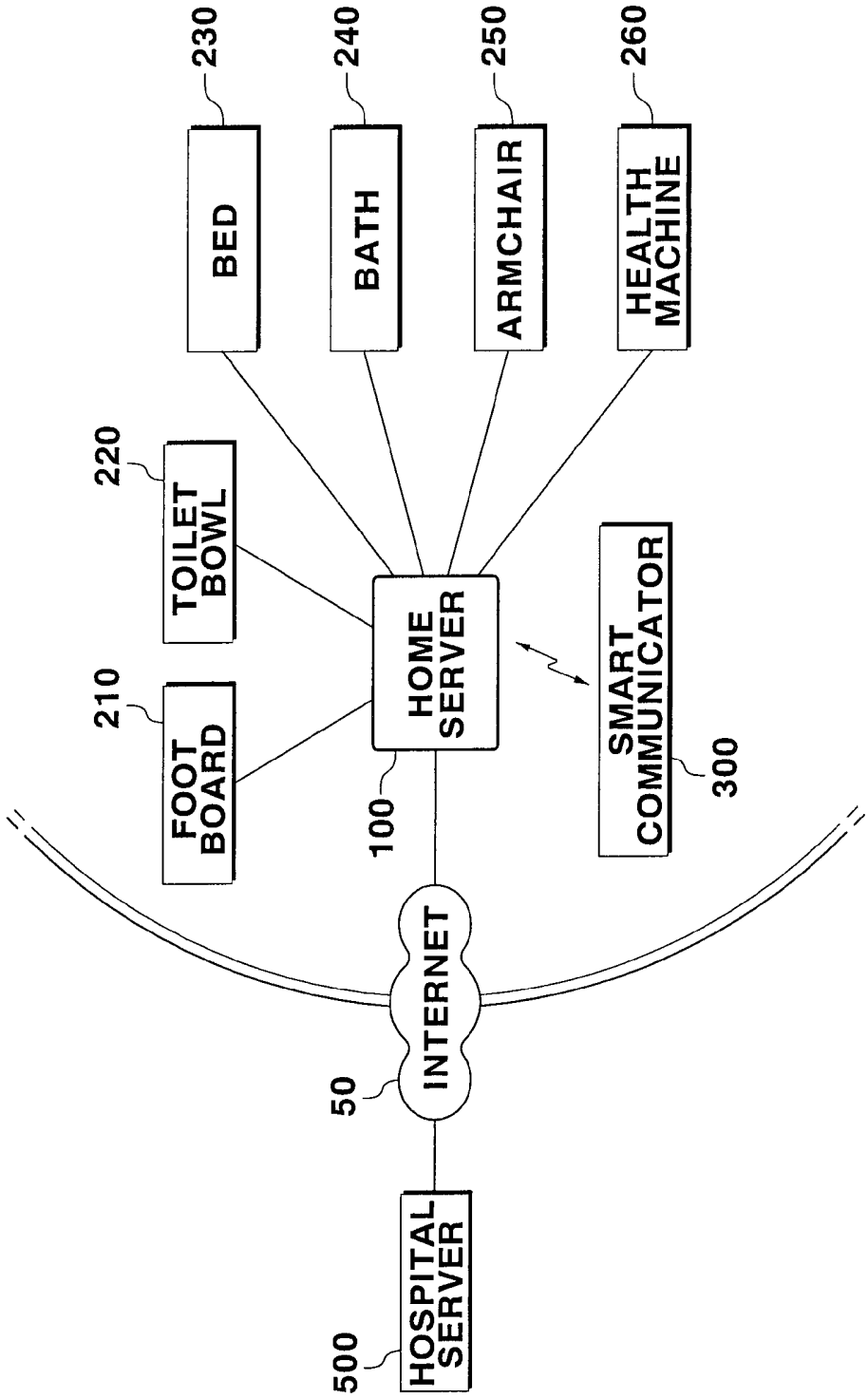

230
BED
240
BATH
250
ARMCHAIR
260
HEALTH MACHINE
220
TOILET BOWL
210
FOOT BOARD
HOME SERVER
100
SMART COMMUNICATOR
300
INTERNET
50
HOSPITAL SERVER
500

FIG. 2

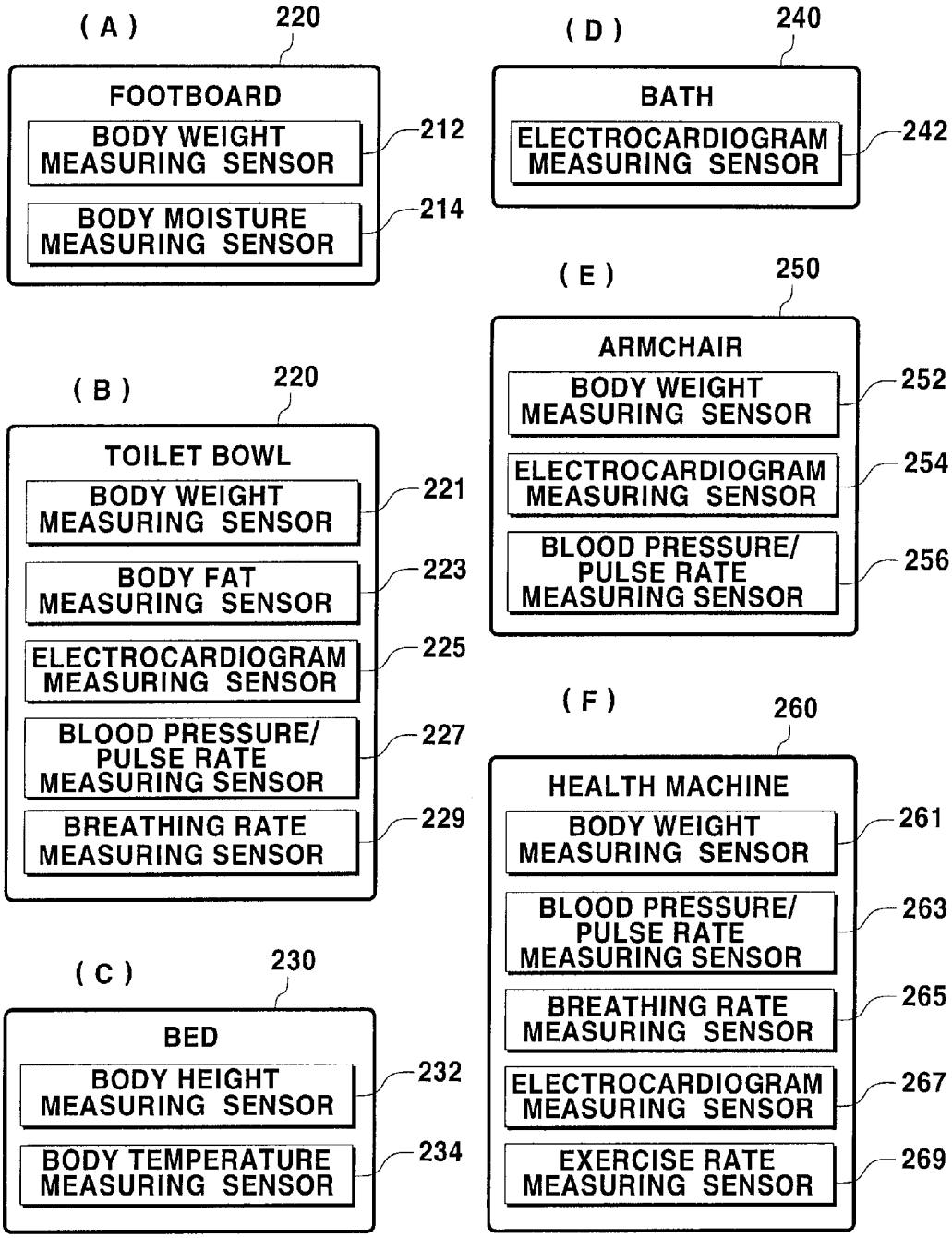

(A)
220
FOOTBOARD
BODY WEIGHT MEASURING SENSOR
212
BODY MOISTURE MEASURING SENSOR
214
(B)
220
TOILET BOWL
BODY WEIGHT MEASURING SENSOR
221
BODY FAT MEASURING SENSOR
223
ELECTROCARDIOGRAM MEASURING SENSOR
225
BLOOD PRESSURE/ PULSE RATE MEASURING SENSOR
227
BREATHING RATE MEASURING SENSOR
229
(C)
230
BED
BODY HEIGHT MEASURING SENSOR
232
BODY TEMPERATURE MEASURING SENSOR
234
(D)
240
BATH
ELECTROCARDIOGRAM MEASURING SENSOR
242
(E)
250
ARMCHAIR
BODY WEIGHT MEASURING SENSOR
252
ELECTROCARDIOGRAM MEASURING SENSOR
254
BLOOD PRESSURE/ PULSE RATE MEASURING SENSOR
256
(F)
260
HEALTH MACHINE
BODY WEIGHT MEASURING SENSOR
261
BLOOD PRESSURE/ PULSE RATE MEASURING SENSOR
263
BREATHING RATE MEASURING SENSOR
265
ELECTROCARDIOGRAM MEASURING SENSOR
267
EXERCISE RATE MEASURING SENSOR
269

FIG. 3

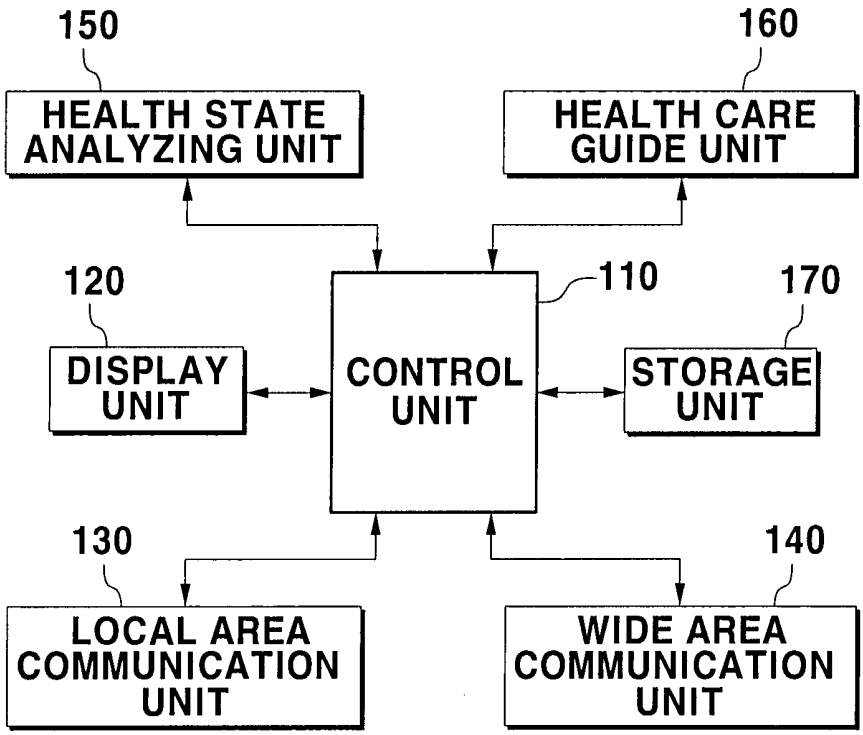

150
HEALTH STATE ANALYZING UNIT
160
HEALTH CARE GUIDE UNIT
120
DISPLAY UNIT
110
CONTROL UNIT
170
STORAGE UNIT
130
LOCAL AREA COMMUNICATION UNIT
140
WIDE AREA COMMUNICATION UNIT

FIG. 4

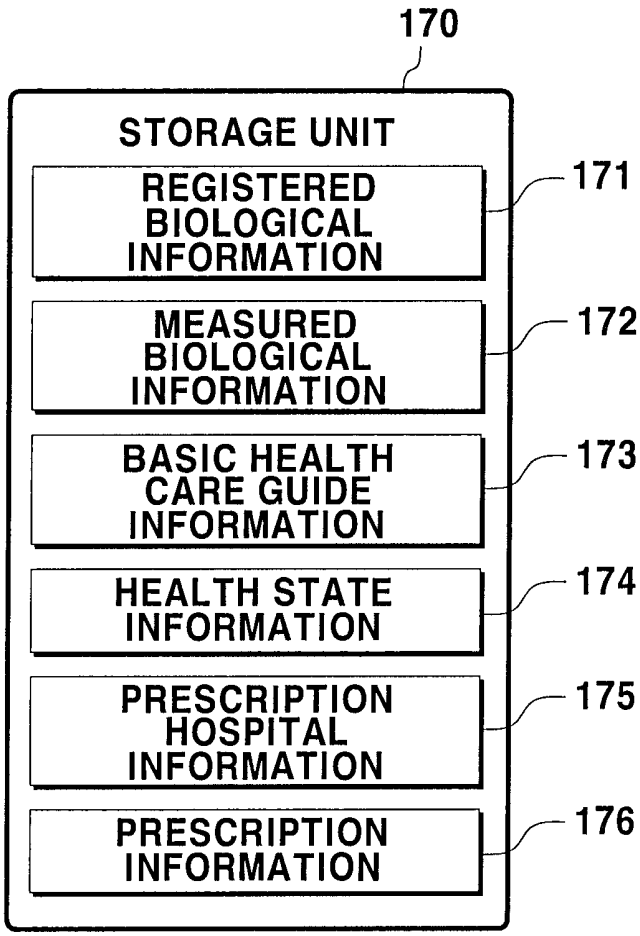

170
STORAGE UNIT
REGISTERED BIOLOGICAL INFORMATION
171
MEASURED BIOLOGICAL INFORMATION
172
BASIC HEALTH CARE GUIDE INFORMATION
173
HEALTH STATE INFORMATION
174
PRESCRIPTION HOSPITAL INFORMATION
175
PRESCRIPTION INFORMATION
176

FIG. 5

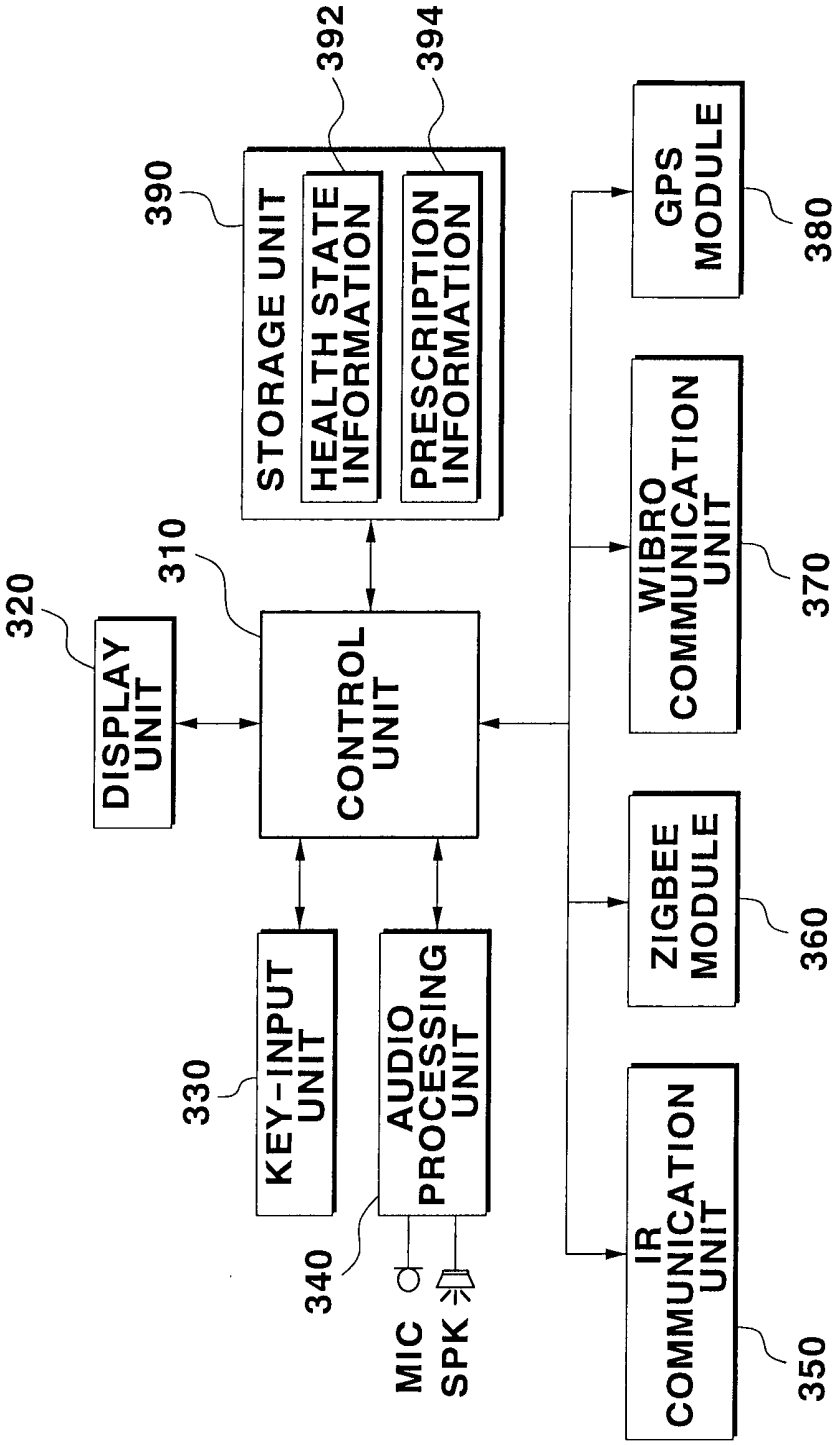

STORAGE UNIT
390
HEALTH STATE INFORMATION
392
PRESCRIPTION INFORMATION
394
CONTROL UNIT
310
DISPLAY UNIT
320
KEY-INPUT UNIT
330
AUDIO PROCESSING UNIT
340
MIC
SPK
GPS MODULE
380
WIBRO COMMUNICATION UNIT
370
ZIGBEE MODULE
360
IR COMMUNICATION UNIT
350

FIG. 6A

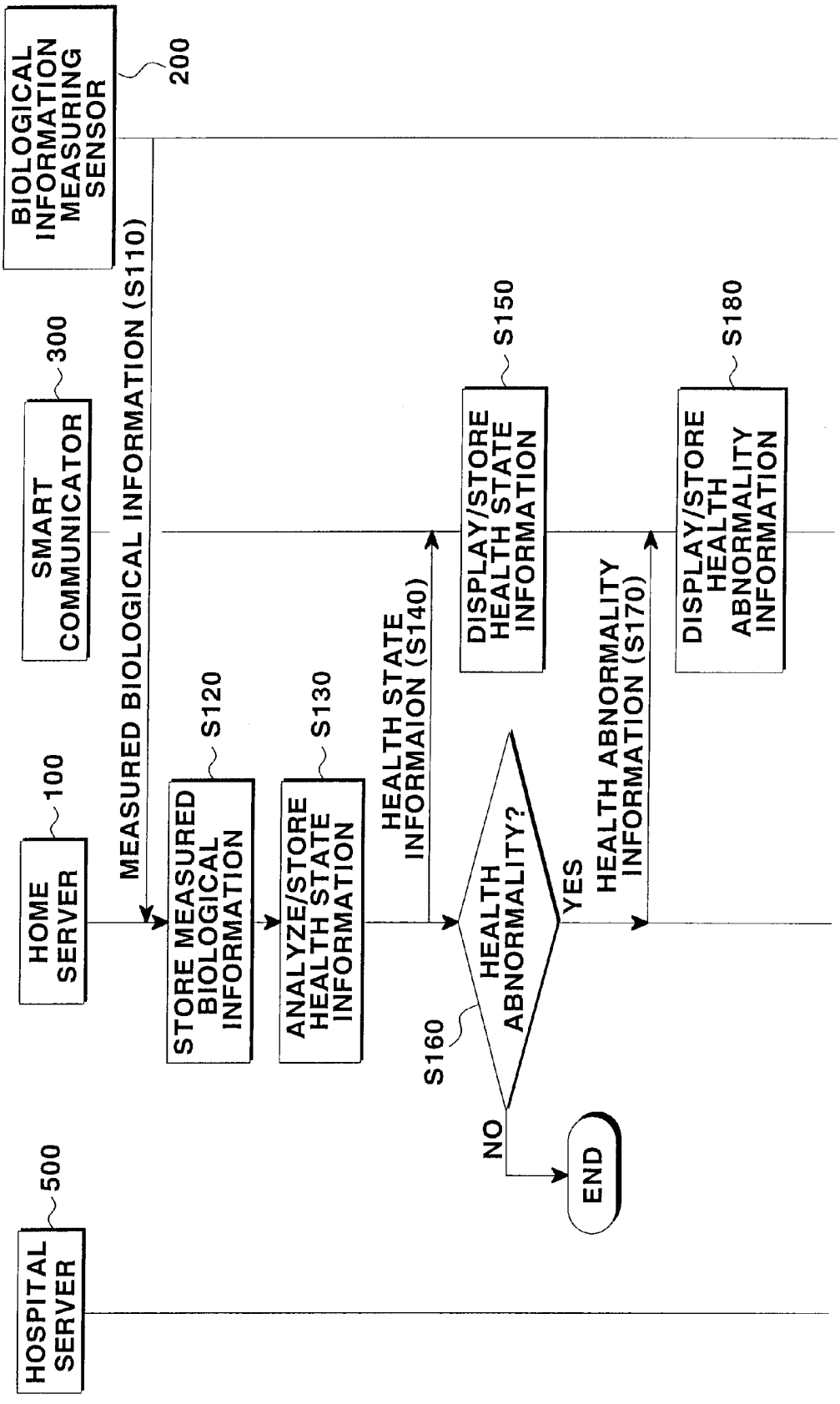
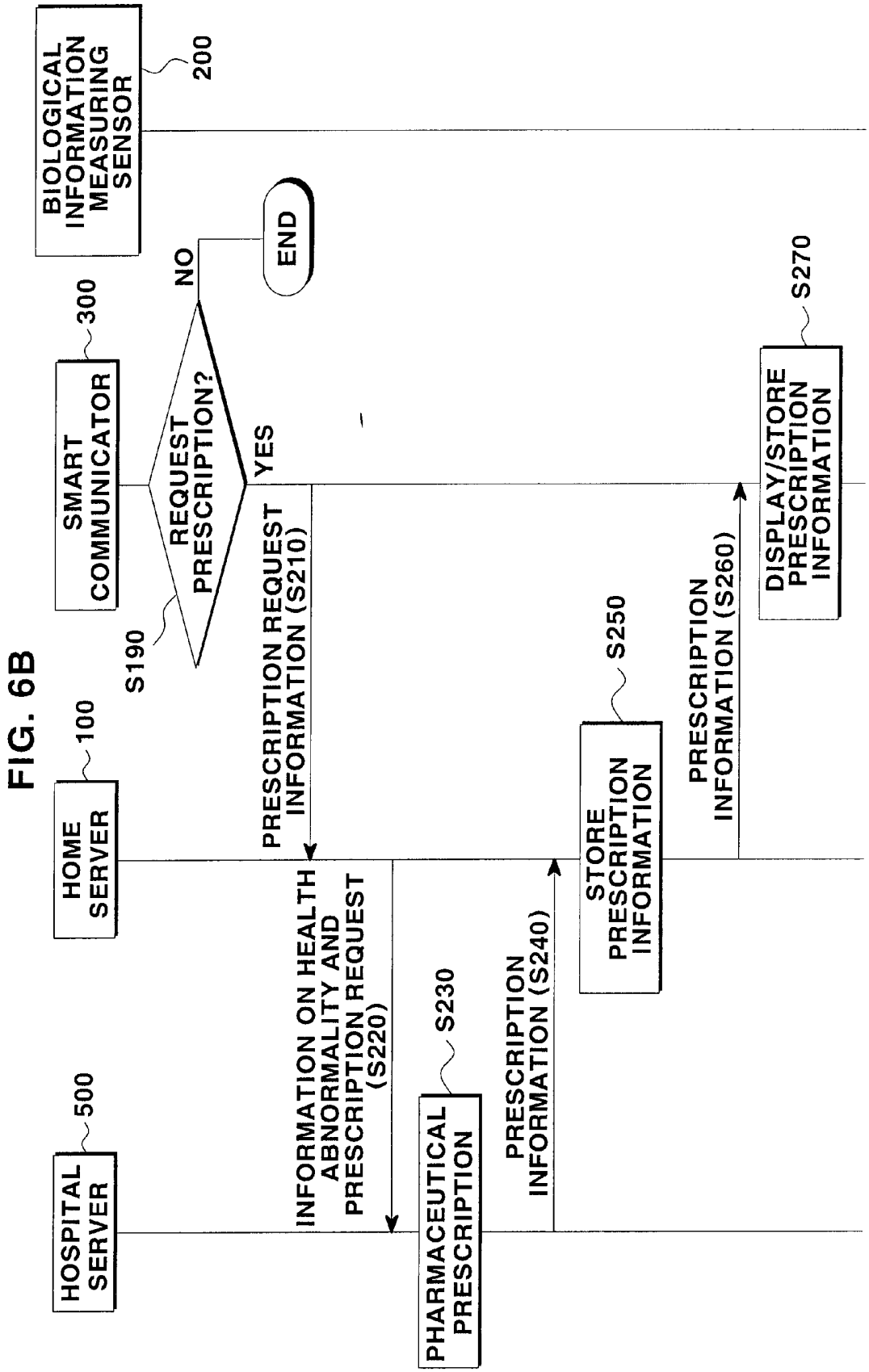

BIOLOGICAL INFORMATION MEASURING SENSOR
200
SMART COMMUNICATOR
300
HOME SERVER
100
HOSPITAL SERVER
500
MEASURED BIOLOGICAL INFORMATION (S110)
STORE MEASURED BIOLOGICAL INFORMATION
S120
ANALYZE/STORE HEALTH STATE INFORMATION
S130
HEALTH STATE INFORMAION (S140)
DISPLAY/STORE HEALTH STATE INFORMATION
S150
HEALTH ABNORMALITY?
S160
YES
NO
HEALTH ABNORMALITY INFORMATION (S170)
DISPLAY/STORE HEALTH ABNORMALITY INFORMATION
S180
END

FIG. 6B


BIOLOGICAL INFORMATION MEASURING SENSOR
200
SMART COMMUNICATOR
300
HOME SERVER
100
HOSPITAL SERVER
500
PHARMACEUTICAL PRESCRIPTION
S230
REQUEST PRESCRIPTION?
S190
NO
END
YES
PRESCRIPTION REQUEST INFORMATION (S210)
INFORMATION ON HEALTH ABNORMALITY AND PRESCRIPTION REQUEST (S220)
PRESCRIPTION INFORMATION (S240)
STORE PRESCRIPTION INFORMATION
S250
PRESCRIPTION INFORMATION (S260)
DISPLAY/STORE PRESCRIPTION INFORMATION
S270

HEALTH CARE NETWORK SYSTEM USING SMART COMMUNICATOR AND METHOD THEREOF

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This is a Continuation application of U.S. patent Ser. No. 11/637,980 filed on Dec. 13, 2006 which claims priority to an application entitled "HEALTH CARE NETWORK SYSTEM USING SMART COMMUNICATOR AND METHOD THEREOF," filed in the Korean Intellectual Property Office on Jan. 16, 2006 and assigned Serial No. 10-2006-0004275, the contents of which are incorporated herein by reference.

BACKGROUND

[0002] 1. Field of the Invention

[0003] The present invention relates to a health care network system, and more particularly, to a health care network system and a method thereof for monitoring a user's biological states at home or at work place.

[0004] 2. Description of the Prior Art

[0005] Presently, many people endeavor to care, conserve, and improve their health by utilizing non-medical facilities such as sports clubs in addition to diagnoses and medical facilities for the purpose of early detection or prevention of diseases. Additionally, various instruments supporting home health care are being developed for treatment of diseases at home.

[0006] It is well known that, in professional medical facilities such as hospitals and clinics, various instruments of detecting biological symptoms are available. Biological states measured by these instruments are transmitted to a host computer (or a workstation of a medical information management room) through a local area network (LAN) or telemeter, so that medical data can be centrally controlled.

[0007] Unless admitted into a professional medical care, patients must frequently visit the medical facilities for check ups. However, this may be a greater burden to certain people and considerable physical and mental fatigue may be induced.

[0008] In a conventional system of collecting biological states and receiving corresponding prescriptions from a professional medical institution, the biological states are measured by specific instruments, which may cause a psychological stress to patients, thus degrading the reliability of measured data. For example, in an electrocardiogram record or blood pressure measuring instruments, the measured data frequently show abnormal values as the object of the measurement is stressed or excited. As a result, the measurement must be repeated often.

[0009] Recently, a method has been proposed to install devices detecting biological symptoms at a patient's home, transmit obtained information on biological states to a host computer of a professional medical facility through a public communication line, and receive corresponding prescriptions. For example, there is a method of receiving prescription by installing a urinalysis instrument in a toilet bowl at home and transmitting the obtained urinalysis data to a remote computer. There is also a health care service method in which a terminal capable of measuring biological states such as blood pressure is disposed at a patient's home. The patient's blood pressure is measured at home according to an instruction from a central station. The measured data is transmitted to the central station, and the central station decides pharmaceutical dosing according to the transmitted data and then instructs the patient.

[0010] However, such a conventional health care service method performs a series of measuring programs that require a user's manipulation of a measuring instrument or a central station. Accordingly, there is a problem in that a user must be engaged in the operation of complicated measurement devices.

SUMMARY

[0011] The present invention provides a health care network system and a method thereof for collecting a user's biological state information and automatically providing health check information and prescription to the user.

[0012] Another aspect of the present invention is to provide such information in real time through an online system, thus eliminating the need to attend medical facilities.

[0013] Another aspect of the present invention is to provide a health care network system and a method thereof for collecting information on a plurality of biological states of a user daily and giving information on health solutions, such as health care, health conservation, and health improvement, to the user based on the collected biological states in the user's daily life.

[0014] In one embodiment, a health care network system according to an embodiment of the present invention includes: a hospital server for providing prescriptions based on a user's health state information and other health abnormality information corresponding to the user's request through the Internet; at least one biological state measuring sensor installed in at least one home instrument to detect the user's various biological states; a home server analyzing the user's health state based on the measured biological states, identifying and transmitting the health abnormality, and receiving and transmitting the prescription by connecting to the hospital server when the prescription is requested; and a smart communicator receiving the user's health state information and health abnormality information transmitted by the home server, transmitting the user's prescription request information to the home server when the prescription request is input and receiving prescription information transmitted by the home server.

[0015] The home server includes: a display unit for displaying information generated according to the operation of the home server; a communication unit for performing a mutual communication with at least one biological state measuring sensor, the smart communicator, and the hospital server; a health state analyzing unit for analyzing the user's health state based on the biological states; a control unit for identifying the user's health abnormality according to the result of the health state analysis, transmitting the user's health state information and health abnormality information to the smart communicator through the communication unit, and receiving the prescription by connecting to the hospital server through the communication unit and then transmitting the prescription to the smart communicator according to the prescription request from the smart communicator; and a storage unit for storing information on the user's biological states, the user's health state and abnormality, and the prescription.

[0016] The storage unit further stores information corresponding to the health abnormality and information on a basic health care guide as a basic guide for the user's health care and conservation.

[0017] The home server further includes a health care guide unit for comparing the result of the health state analyzed by the health state analyzing unit with information on basic health care stored in the storage unit, and generating information on a health care guide for the user's health care according to the information on a basic health care. The control unit transmits the health care guide information generated by the health care guide unit to the smart communicator.

[0018] The smart communicator includes: a communication unit for performing a mutual communication with the home server in a local area and/or in a wide area; a display unit for displaying information transmitted by the home server and information generated by the operation of the smart communicator; a storage unit for storing the health state information and prescription information transmitted by the home server; a key-input unit for command input of the prescription request; and a control unit for displaying and storing, on the display unit and in the storage unit respectively, the health state information and prescription information received through the communication unit, and transmitting information on a prescription request input by the key-input unit to the home server through the communication unit.

[0019] The communication unit includes: an IR (infrared) communication unit for communicating at home with the home server; a Wibro communication unit for providing a bi-directional wireless communication outside the home with the home server through a Wibro communication network; a Zigbee module for providing a function of local area wireless communication for home automation and data network of the home server; and a GPS (Global Positioning System) module for receiving information on longitude and latitude from satellites and identifying the user's current location.

[0020] The biological state measuring sensor includes at least one from the group consisting of: a body weight measuring sensor, body moisture measuring sensor, body fat measuring sensor, electrocardiogram measuring sensor, blood pressure/pulse rate measuring sensor, breathing rate measuring sensor, body height measuring sensor, body temperature measuring sensor, and exercise rate measuring sensor.

[0021] A health care method used in a health care network system utilizing a smart communicator according to the embodiment of the present invention includes: measuring a user's various biological states by utilizing biological state measuring sensors installed at home; analyzing the user's health state based on the measured biological states and identifying health abnormality; transmitting the health state information and health abnormality information to the user's smart communicator; receiving a prescription based on the health state information and health abnormality information by connecting to a registered hospital server, when prescription request information is received from the user's smart communicator; and transmitting the received prescription information to the user's smart communicator.

[0022] Preferably, the health care method further includes a step of storing the health state information and health abnormality information according to the result of the analysis, and a step of storing the prescription information received from the hospital server.

[0023] The biological state measuring sensor includes at least one from the group consisting of: a body weight measuring sensor, body moisture measuring sensor, body fat measuring sensor, electrocardiogram measuring sensor, blood pressure/pulse rate measuring sensor, breathing rate measuring sensor, body height measuring sensor, body temperature measuring sensor, and exercise rate measuring sensor.

[0024] According to the present invention, a home server collects information on biological states measured by sensors having individual measuring functions of the biological states and installed in home instruments, identifies the user's health state and abnormality, and transmits them to the user's smart communicator. If a prescription request is made from the smart communicator in the case of health abnormality, the home server receives a prescription based on the user's health state information and health abnormality information from a registered hospital server, and transmits the prescription to the smart communicator. Accordingly, information on the user's biological states may be collected more precisely in the user's daily life, from which speedy health checking and early detection of health abnormality are possible, and pharmaceutical prescription may more conveniently be provided according to the occurrence of health abnormality.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] FIG. **1** is a block diagram showing a health care network system according to an embodiment of the present invention.

[0026] FIG. **2** is a view showing examples of home instruments installed with sensors having individual functions and enabling easier measurement of biological states in the health care network system of FIG. **1**.

[0027] FIG. **3** is a detailed block diagram of the home server of FIG. **1**.

[0028] FIG. **4** is a view showing various kinds of information stored in the storage unit of FIG. **3**.

[0029] FIG. **5** is a detailed block diagram of the smart communicator of FIG. **1**.

[0030] FIG. **6**A and FIG. **6**B are flow charts showing a health care method utilizing the health care network system according to another embodiment of the present invention.

DETAILED DESCRIPTION

[0031] Hereinafter, embodiments of the present invention will be described in detail with reference to the accompanying drawings. The same reference number will be used for the same or like components in the accompanying drawings. For the purposes of clarity and simplicity, detailed explanations for well-known functions and compositions will be omitted for conciseness.

[0032] FIG. **1** is a block diagram showing a health care network system according to an embodiment of the present invention.

[0033] As shown in FIG. **1**, the health care network system includes a home server **100**, home instruments **210**, **220**, **230**, **240**, **250**, and **260** equipped with sensors for measuring and collecting biological states with corresponding functions, a smart communicator **300**, and a hospital server **500**. The home instruments **210**, **220**, **230**, **240**, **250**, and **260**, installed with sensors for measuring the corresponding biological states, are instruments that a user utilizes daily at home. A footboard **210**, toilet bowl **220**, bed **230**, bath **240**, armchair **250**, and health machine **260** are shown as examples of the

home instruments according to the embodiment. However, it should be noted that the present invention can support other detecting devices, thus the number of instruments shown in FIG. **1** should not impose limitations on the scope of the invention.

[0034] The home server **100** controls the overall operation of home network systems installed at home and also processes a control command transmitted from the user's smart communicator **300** located at home or outside the home. The home server **100** stores information on a registered user received from one or more home instruments **210**, **220**, **230**, **240**, **250**, and **260** and analyzes/checks the health state of the user.

[0035] The home server **100** transmits the analyzed health state information, including information relating to any abnormality found, to the smart communicator **300**.

[0036] If there is a prescription request made by the user in advance or if an option to make such a request is presented to the user and responded via the smart communicator **300**, the home server **100** connects to the hospital server **500** in charge of medical examination of the corresponding symptoms or diseases through the Internet **50**, and then the home server **100** transmits the user's health state information and the found health abnormality information in order to receive an appropriate prescription from the hospital server **500**.

[0037] Thereafter, the home server **100** stores the prescription information received from the hospital server **500** and transmits it to the smart communicator **300**.

[0038] The smart communicator **300** has a function of controlling the operation of the home server **100** with a known communication method known in the art at home and/or outside the home, and utilizes a bi-directional communication with the home server **100** during operation. When the smart communicator **300** is located at home, it transmits/receives data to/from the home server **100** by performing a local area wireless communication. When the smart communicator **300** is located outside the home, it performs a mutual communication with the home server **100** through a wireless data communication network based on data communication, namely a Wibro communication network (not shown). Accordingly, the smart communicator **300** transmits control commands to home network instruments and the home server **100** as well as voice and image data through the wireless data communication network.

[0039] The smart communicator **300** is an information terminal for controlling/monitoring the home network instruments remotely and in real time through the home server **100** according to the user's control. The smart communicator **30** further supports wireless voice/image communication and mobile Internet. For this purpose, the smart communicator **300** may be equipped with a platform for driving Wibro, Zigbee, RFID (Radio Frequency Identification), IrDA (Infrared Data Association), and GPS (Global Positioning System) modules, and a user interface to control individual home network instruments.

[0040] The smart communicator **300** receives the health state information including the user's measured biological states from the home server **100**, then displays and stores the same information. When any health abnormality information is received from the home server **100**, the smart communicator **300** displays and stores the information, and identifies if the user has made or makes a prescription request. If there is a prescription request made from the user, the smart communicator **300** transmits the prescription request information to the home server **100**.

[0041] The home server **100** transmits the health abnormality information and prescription request information to the hospital server **500** according to the request from the smart communicator **300**. The hospital server **500** manages medical examination of diseases and issues prescriptions according to the user's health state, thus authorized to provide a prescription corresponding to the prescription request received through the Internet **50**. The hospital server **500** provides the prescription for the corresponding disease based on the user's health state information and health abnormality information in response to the prescription request from the home server **100** through the Internet **50**.

[0042] Thereafter, if the corresponding prescription information is received from the hospital server **500**, the home server **100** stores the received prescription information and transmits it to the smart communicator **300**.

[0043] The smart communicator **300** then displays and stores the prescription information transmitted by the home server **100**. The prescription information may include information on a guideline for recovering from the health abnormality as well as a pharmaceutical prescription for the user.

[0044] As a result, the user may be provided with a health care instruction for recovering from the health abnormality and obtain prescribed drugs from a drug store by utilizing the prescription information received by the smart communicator **300**.

[0045] FIG. **2** shows examples of home instrument installed with different functions to enable an easier measurement of biological states in the health care network system of FIG. **1**.

[0046] As shown in FIG. **2**, (A) shows a footboard **210** including a body weight measuring sensor **212** and a body moisture measuring sensor **214**.

[0047] (B) shows a toilet bowl **220** including a body weight measuring sensor **221**, body fat measuring sensor **223**, electrocardiogram measuring sensor **225**, blood pressure/pulse rate measuring sensor **227**, and breathing rate measuring sensor **229**.

[0048] (C) shows a bed **230** including a body height measuring sensor **232** and a body temperature measuring sensor **234**.

[0049] (D) shows a bath **240** including an electrocardiogram measuring sensor **242**.

[0050] (E) shows an armchair **250** including a body weight measuring sensor **252**, electrocardiogram measuring sensor **254**, and blood pressure/pulse rate measuring sensor **256**.

[0051] (F) shows a health machine **260** including a body fat measuring sensor **261**, blood pressure/pulse rate measuring sensor **263**, breathing rate measuring sensor **265**, electrocardiogram measuring sensor **267**, and exercise rate measuring sensor **269**.

[0052] Biological information measuring sensors **200**, which will be shown in FIG. **6**A to **6**B, include various sensors **212**, **214**, **221**, **223**, **225**, **227**, **229**, **232**, **234**, **242**, **252**, **254**, **256**, **261**, **263**, **265**, **267** and **269** as shown in FIG. **2**.

[0053] The home instruments **210**, **220**, **230**, **240**, **250**, and **260** individually transmit information on corresponding biological states of a user measured by the individual sensors to the home server **100**.

[0054] FIG. **3** is a detailed block diagram of the home server **100** of FIG. **1**.

[0055] As shown in FIG. **3**, the home server **100** includes a control unit **110**, display unit **120**, local area communication unit **130**, wide area communication unit **140**, health state analyzing unit **150**, health care guide unit **160**, and storage unit **170**.

[0056] The control unit **110** controls the operation of the home server **100** and home instruments connected to the home server **100** by communication means such as a home network. The control unit **110** controls the operation of individual sensors installed in the home instruments **210**, **220**, **230**, **240**, **250**, and **260**, and collects biological state information measured by the corresponding sensors.

[0057] The display unit **120** displays status information according to the operation of the home server **100**, and information transmitted from the instruments connected by communication means. Additionally, the display unit **120** displays the biological state information collected from the corresponding sensors.

[0058] The local area communication unit **130** provides a function of local area wired and/or wireless communication with the smart communicator **300** and home network instruments at home. The local area wireless communication unit **130** performs a local area wireless communication with the smart communicator **300** at home, and provides a function of performing a local area wired and/or wireless communication with the corresponding sensors. Accordingly, the local area communication unit **130** receives biological state information measured by the corresponding sensors.

[0059] The wide area communication unit **140** provides a function to communicate with a smart communicator located outside the home through a Wibro communication network.

[0060] The health state analyzing unit **150** analyzes/checks the user's health state based on the biological state information transmitted by the corresponding sensors. The control unit **110** transmits the checked user's health state information to the user's smart communicator **300**. Additionally, if health abnormality is identified as a result of the analysis of the user's health state, the control unit **110** may include information on the health abnormality into the health state information and transmit it to the user's smart communicator **300**.

[0061] The health care guide unit **160** compares the result of the health state analyzed by the health state analyzing unit **150** with predetermined basic health care information, and generates information to guide the user's health care according to the basic health care information. The control unit **160** transmits the generated health care guide information to the user's smart communicator **300**.

[0062] The storage unit **170** stores programs required for a home networking operation of the home server **100** and stores information required for controlling the health care according to the embodiment of the present invention.

[0063] FIG. **4** shows various types of information stored in the storage unit **170** of FIG. **3**.

[0064] As shown in FIG. **4**, the storage unit **170** stores a user's pre-registered biological state information **171**, biological state information **172** most recently measured by the corresponding sensors, pre-registered basic health care guide information **173**, health state information **174** analyzed by the health state analyzing unit **150**, prescription hospital information **175** having registered server information of the prescription hospital **500** corresponding to the types of health abnormality, and prescription information **176** received from the prescription hospital **500**. The measured biological state information **172** is updated and stored with the registered biological state information **171** if a newly measured biological state information is received. It should be noted that other medical related information relating to a patient can be stored in the storage unit. Although a limited number of medical information is shown in FIG. **4** for illustrative purposes, it is to be understood that the storage unit **170** can support and store a much larger number of health related information. Thus, the number of data in the drawing should not impose limitations on the scope of the invention.

[0065] FIG. **5** is a detailed block diagram of the smart communicator **300** of FIG. **1**.

[0066] As shown in FIG. **5**, the smart communicator **300** includes a control unit **310**, display unit **320**, key-input unit **330**, audio processing unit **340**, IR communication unit **350**, Zigbee module **360**, Wibro communication unit **370**, GPS module **380**, and storage unit **390**.

[0067] The control unit **310** controls the overall operation of the smart communicator **300**, and remotely controls the home server **100** and home network instruments at home. The control unit **310** manages health state information including a user's biological state information transmitted by the home server **100**, requests corresponding prescription to the home server **100** when health abnormality occurs or is detected, and manages prescription information provided corresponding to a prescription request. The control unit **310** may request the prescription to the home server **100** or directly to the hospital server **500** by connecting through the Wibro communication unit **370**.

[0068] The display unit **320** displays information on operation status of the smart communicator **300**, and displays the health state information and prescription information transmitted by the home server **100**.

[0069] The key-input unit **330** inputs commands for the operation control of the smart communicator **300** through the control unit **310**, and includes keys for controlling health care operation of the home server **100** by utilizing the corresponding sensors for measuring biological states, which are installed in the home instruments **210**, **220**, **230**, **240**, **250**, and **260** according to the embodiment of the present invention. Additionally, the key-input unit **330** includes keys to manage the health state information analyzed from the user's biological states and received from the home server **100**, prescription request, and prescription received from the hospital server **500**.

[0070] The audio processing unit **340** outputs to the control unit **310** by converting analog audio signals input from a microphone to digital audio signals, and outputs through a speaker by converting digital audio signals input from the control unit **310** to analog audio signals under the control of the control unit **310**.

[0071] The IR communication unit **350** controls the operation of the home server **100** in a local area IR wireless communication setting at home, and may receive/transmit data by utilizing mutual IR communication. The IR communication unit **350** is used to remote-control the operation of the home server **100** at home.

[0072] The Zigbee module **360** provides a function of local area wireless communication for home automation and data network.

[0073] The Wibro communication unit **370** provides a function of mobile wireless Internet communication and a function of bi-directional wireless communication with the home server **100** outside the home through the Wibro communication network. Therefore, the Wibro communication

unit **370** can transmit/receive/identify short messages in communication with the home server **100** and control commands of the home server **100** and operation status information generated by the control of the home server **100**. The Wibro communication unit **370** based on data communication may optionally be provided with a mobile communication protocol.

[0074] The GPS module **380** receives information on longitude and latitude from satellites, and is used to identify the user's current location.

[0075] The IR communication unit **350**, Zigbee module **360**, Wibro communication unit **370**, and GPS module **380** may be selectively installed according to functional specification of the smart communicator **300**.

[0076] The storage unit **390** stores programs required for the operation of the smart communicator **300** and operational configuration information of the home server **100**. The storage unit **390** stores the programs required to control the health care through the home server **100** according to the embodiment of the present invention. Additionally, the storage unit **390** stores the user's health state information **392** and prescription information **394** provided by the home server **390**. Such information may be displayed on the display unit **320** and transmitted to external instruments in a corresponding method according to the control of the control unit **310**.

[0077] FIG. **6** is a flow chart showing a health care method utilizing the health care network system according to another embodiment of the present invention.

[0078] The sensors **200** installed in home instruments **210**, **220**, **230**, **240**, **250**, and **260** measure a user's individual biological states and transmit them to a home server **100** as shown in FIG. **6**A (S**110**).

[0079] The home server **100** stores biological state information collected and transmitted by each biological state measuring sensor **200** individually for each user (S**120**). The home server **100** analyzes the user's health state from the collected biological state information and stores the result of the analysis (S**130**). Further, the home server **100** transmits the analyzed user's health state information together with the collected biological state information to a smart communicator **300** (S**140**). The user's smart communicator **300** may be located at home or outside the home, and the home server **100** utilizes a correspondingly available communication method to communicate with the smart communicator **300** according to the location of the smart communicator **300**.

[0080] The smart communicator **300** displays the user's health state information received from the home server **100** on a display unit **320** and stores the information in a storage unit **390** (S**150**).

[0081] Additionally, the home server **100** determines whether the user has health abnormality according to the health state information analyzed in the step S**130** (S**160**). If health abnormality is identified, the home server **100** transmits the health abnormality information to the user's smart communicator **300** (S**170**).

[0082] The smart communicator **300** displays and stores the health abnormality information transmitted by the home server **100** (S**180**) as shown in FIG. **6**B. The smart communicator **300** then identifies an input of user's prescription request corresponding to the health abnormality information (S**190**). If an input command for a prescription request is identified, the smart communicator **300** transmits the prescription request information to the home server **100** (S**210**).

[0083] According to the prescription request of the smart communicator **300**, the home server **100** transmits the user's health state, health abnormality, and prescription request information to a registered hospital server **500** (S**220**). The hospital server **500** provides a pharmaceutical prescription according to the user's health state, health abnormality, and prescription request information (S**230**), and transmits the corresponding prescription information to the home server **100** (S**240**).

[0084] The home server **100** stores the prescription information provided by the hospital server **500** (S**250**) and transmits the prescription information to the smart communicator **300** (S**260**). The smart communicator **300** displays and stores the prescription information transmitted by the home server **100** (S**270**).

[0085] Accordingly, reliable biological state information may be collected in real time, and a correct analysis of the health states is enabled. Further, an action corresponding to the occurrence of health abnormality may be taken promptly by measuring the user's health states without the user's consciousness in the user's daily life through transmitting such information to the user's smart communicator **300**, which analyzes the user's health state if health abnormality is identified, connects to a registered hospital server **500** if there is a corresponding prescription request, and receives a pharmaceutical prescription for the user.

[0086] As apparent to those skilled in the art as explained above, the present invention may be very useful in the health care fields as identification of the user's health state in real time and early detection of health abnormality are enabled by measuring and analyzing the user's biological states with sensors in the user's daily life.

[0087] Although example embodiments of the present invention have been described in detail hereinabove, it should be understood that variations and/or modifications of the basic inventive concept herein described, which may appear to those skilled in the art, will still fall within the spirit and scope of the example embodiments of the present invention as defined in the appended claims.

What is claimed is:

1. A home server comprising:

a communication unit configured to communicate with at least one sensor, a smart communicator and a hospital server, and receive various biological states of a user from the at least one sensor, wherein the at least one sensor is respectively installed in at least one home instrument and detects the various biological states of a user;

a analyzing unit configured to analyze a user's health state by comparing the various biological states of the user received from the at least one sensor and pre-stored basic health care information and detect an abnormal condition of the user's health state based on the analyzing result;

a health care guide unit configured to generate a health care guide information according to the basic health care information, when the user's health state is determined the abnormal condition based on result of the analyzing; and

a control unit configured to control to transmit the health care guide information and a prescription received from the hospital server to the smart communicator,

wherein the control unit configured to control to transmit a prescription request information for receiving the pre-

scription to the hospital server only when the prescription request information is received from the smart communicator.

2. The home server of claim **1**, wherein the communication unit performs communication with the smart communicator located at home by using a local area wireless communication, and performs the communication with the hospital server through internet.

3. The home server of claim **1**, further comprising:

a storage unit configured to store the user's biological state information and the basic health care information, and

wherein the control unit updates the stored user's biological state information when the detected various biological states of the user is received from the at least one sensor.

4. The home server of claim **3**, wherein the analyzing unit analyzes the user's health state by comparing the updated biological state information and the basic health care information.

5. The home server of claim **1**, wherein at least one sensor detects the various biological states of the user when the user uses the at least one home instrument.

6. The home server of claim **5**, wherein the communication unit receives each of the biological state of the user from each sensor corresponding to the biological state, respectively.

7. The home server of claim **6**, wherein the at least one sensor includes at least one from the group consisting of:

a body weight measuring sensor, body moisture measuring sensor, body fat measuring sensor, electrocardiogram measuring sensor, blood pressure/pulse rate measuring sensor, breathing rate measuring sensor, body height measuring sensor, body temperature measuring sensor, and exercise rate measuring sensor.

8. A smart communicator comprising:

a display unit;

a communication unit configured to communicate with a home server, and receives a user's health state information detected from the home server;

a key input unit configured to receive an input of the user; and

a control unit configured to control to display the received user's health state information on the display unit, transmit a prescription request information according to the input of the user, and display a prescription received from the home server,

wherein the user's health state information is generated by comparing various biological states of the user detected by at least one sensor and basic health care information stored in the home server,

the at least one sensor is respectively installed in at least one home instrument and detects the various biological states of the user.

9. The smart communicator of claim **8**, wherein the communication unit receives health care guide information from the home server, the display unit displays the health care guide information.

10. The smart communicator of claim **8**, wherein the prescription is generated by a hospital server only when the prescription request information is received from the home server.

11. A method of a home server comprising:

receiving various biological states of a user from the at least one sensor, wherein the at least one sensor is respectively installed in at least one home instrument and detects the various biological states of a user;

analyzing a user's health state by comparing the various biological states of the user received from the at least one sensor and pre-stored basic health care information;

detecting an abnormal condition of the user's health state based on the analyzing result;

generating a health care guide information according to the basic health care information, when the user's health state is determined the abnormal condition based on result of the analyzing

transmitting the user's health state and the health care guide information to a smart communicator;

receiving a prescription request information for receiving a prescription from the smart communicator;

transmitting the prescription request information to a hospital server, only when the prescription request information is received from the smart communicator;

receiving the prescription from the hospital server; and

transmitting the prescription to the smart communicator.

12. The method of claim **11**, wherein the home server performs communication with the smart communicator located at home by using a local area wireless communication, and performs the communication with the hospital server through internet.

13. The method of claim **11**, further comprising:

updating stored user's biological state information when the detected various biological states of the user is received from the at least one sensor.

14. The method of claim **13**, wherein the analyzing the user's health state comprises analyzing the user's health state by comparing the updated biological state information and the basic health care information.

* * * * *

专利名称(译)	使用智能通信器的医疗保健网络系统及其方法		
公开(公告)号	US20160012199A1	公开(公告)日	2016-01-14
申请号	US14/864045	申请日	2015-09-24
[标]申请(专利权)人(译)	三星电子株式会社		
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IPC分类号	G06F19/00 A61B5/00 A61B5/0205 A61B5/0402 A61B5/107 A61B5/22		
CPC分类号	G06F19/3418 A61B5/4875 A61B5/4872 A61B5/0402 A61B5/02055 A61B5/1072 A61B2505/07 A61B5/7246 A61B5/7282 A61B5/486 A61B5/7264 G06F19/3456 A61B5/222 A61B5/0002 A61B5/6887 A61B2560/0271 G06Q10/10 G16H10/60 G16H20/10 G16H40/67 A61H7/003 A61H2201/0157 A61H2201/0161 A61H2201/1685 A61H2205/081 A61N2/06 G01B3/08		
优先权	1020060004275 2006-01-16 KR		
外部链接	Espacenet USPTO		

摘要(译)

本发明涉及一种利用智能通信器的保健网络系统及其方法。本发明的医疗保健网络系统包括：医院服务器，用于通过因特网基于用户的健康状态和与用户的处方请求相对应的异常的信息提供处方;至少一个生物状态测量传感器安装在至少一个家用仪器中以检测用户的各种生物状态;家庭服务器，基于所测量的生物状态分析用户的健康状态，识别和发送健康异常，并且当请求处方时通过连接到医院服务器来接收和发送处方;智能通信器接收由家庭服务器发送的用户的健康状态信息和健康异常信息，在做出处方请求时将用户的处方请求信息发送到家庭服务器，并接收由家庭服务器发送的处方信息。