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(54) BIDIRECTIONAL MONITORING SYSTEM CAPABLE OF A MEDICAL DIAGNOSIS AND A COMMERCIAL BROADCAST

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(57) ABSTRACT

The disclosed is a bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast, comprising: a main server for providing commercial information, detailed commercial information in case a certain user selects the commercial information, a service page for receiving a user's request for the commercial information, and offering diagnosis result data in response to a medical diagnosis request which is received; a data communication network for allowing many and unspecified persons to access the main server in an on-line manner; and a monitoring device for receiving the commercial information from the main server to display them on a main screen after getting an on-line access to the main server via the data communication network, creating a subsidiary window on upper portion of one side of the main screen to output another commercial information or display medical diagnosis request data input according to the user's handling and then transmit them to the main server, and outputting a page for outputting diagnosis result data corresponding to the medical diagnosis request data.

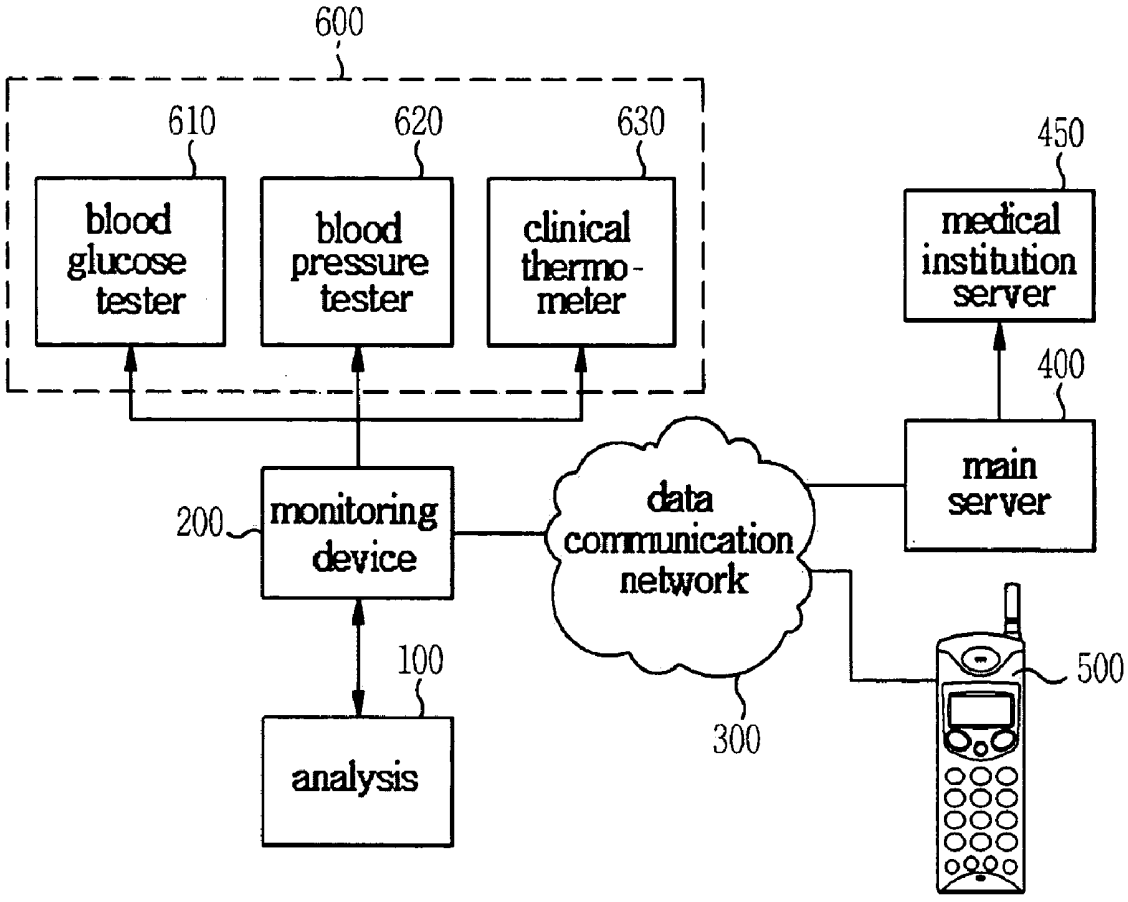


FIG.1

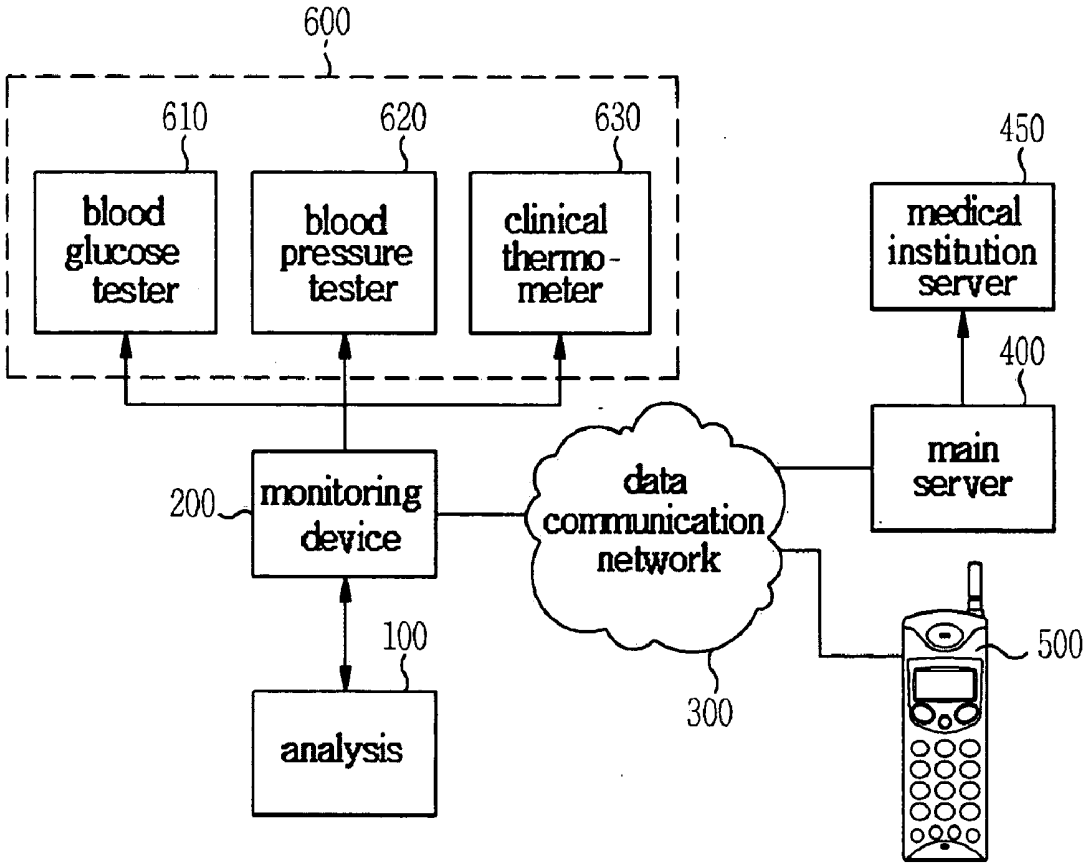

600
610
620
630
blood glucose tester
blood pressure tester
clinical thermo-meter
450
medical institution server
400
main server
200
monitoring device
data communication network
100
analysis
300
500

FIG.2

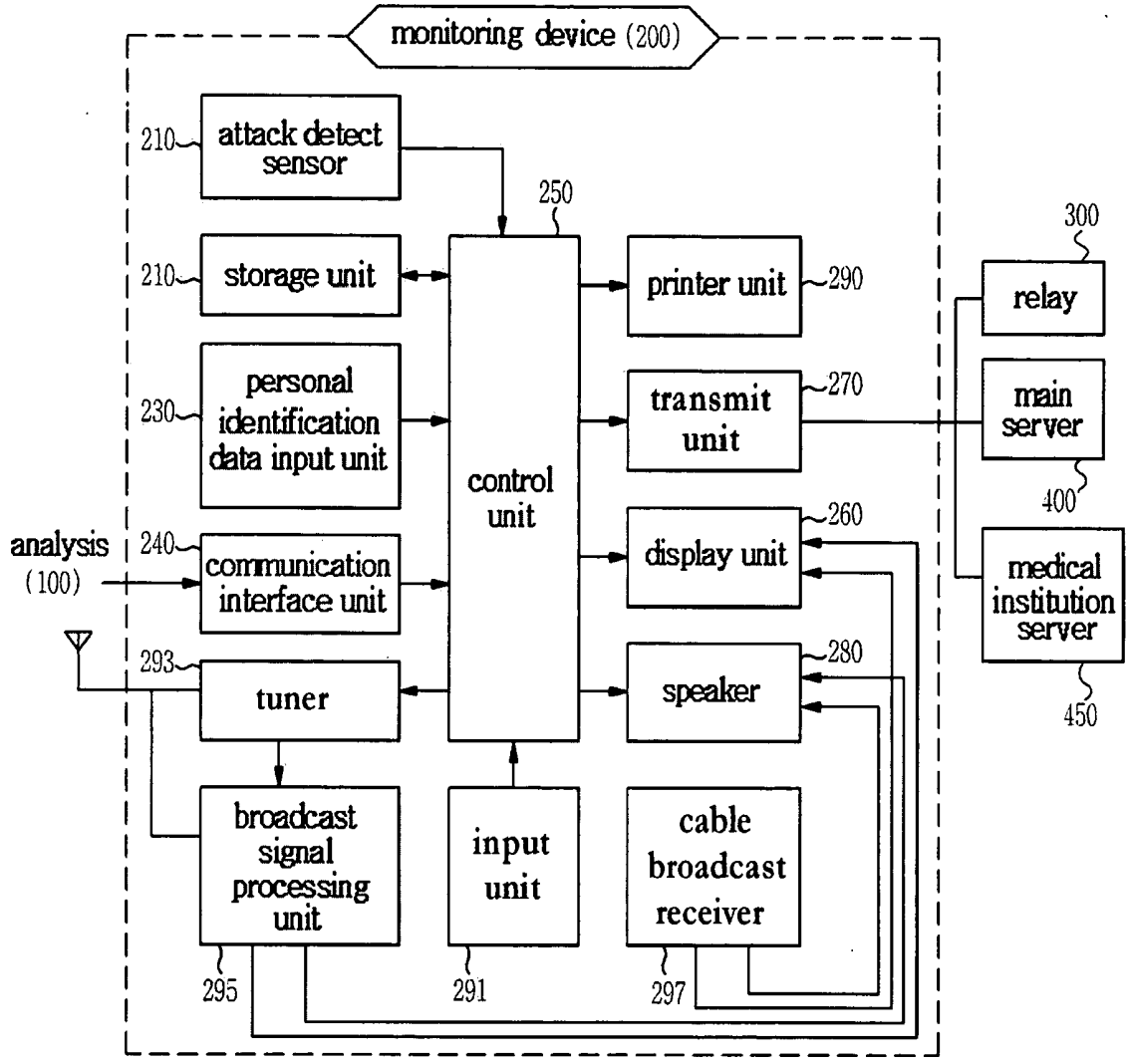

monitoring device (200)
210
attack detect sensor
250
300
210
storage unit
printer unit
290
relay
230
personal identification data input unit
control unit
transmit unit
270
main server
400
analysis (100)
240
communication interface unit
display unit
260
medical institution server
450
293
tuner
speaker
280
broadcast signal processing unit
input unit
cable broadcast receiver
295
291
297

FIG.3

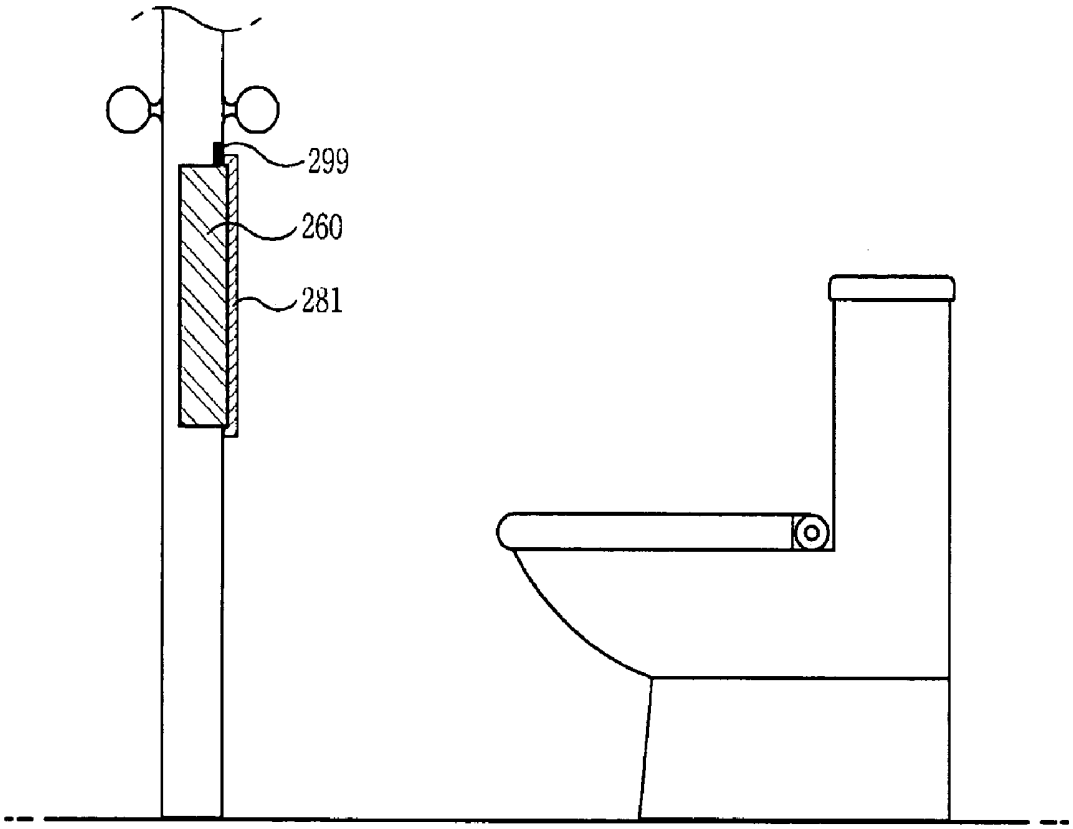


FIG.4

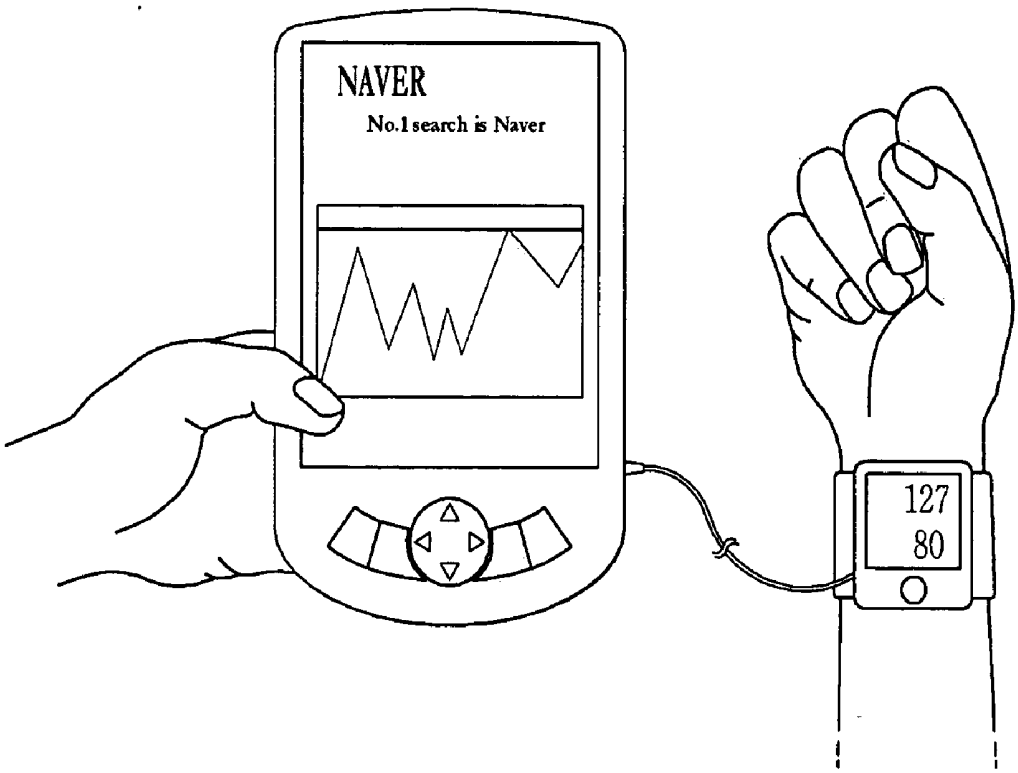


FIG.5

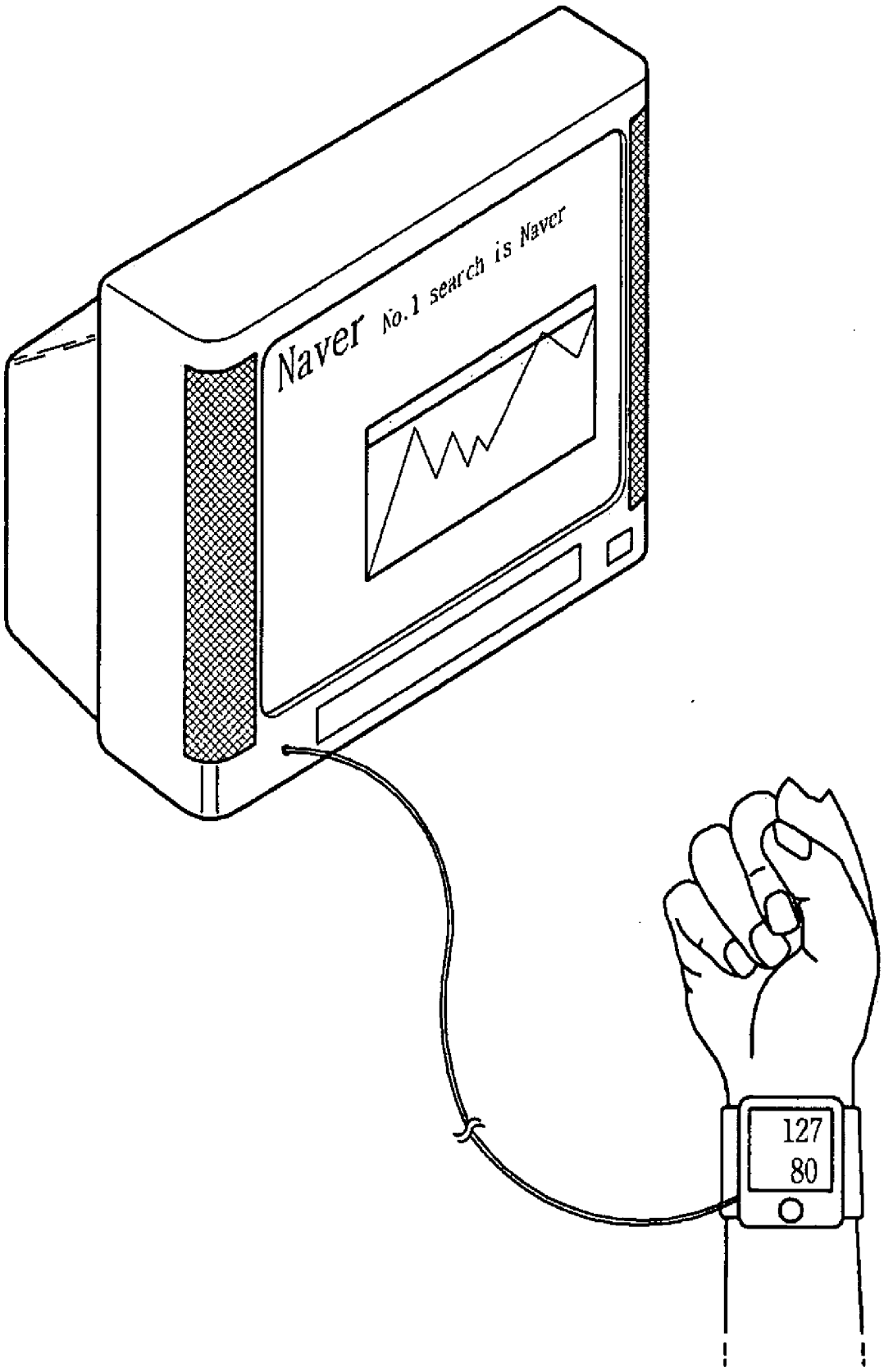


FIG.6

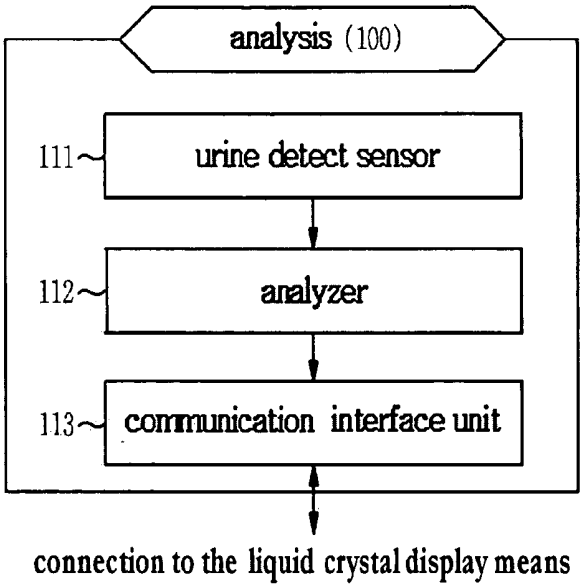

analysis (100)
111
urine detect sensor
112
analyzer
113
communication interface unit
connection to the liquid crystal display means

FIG.7

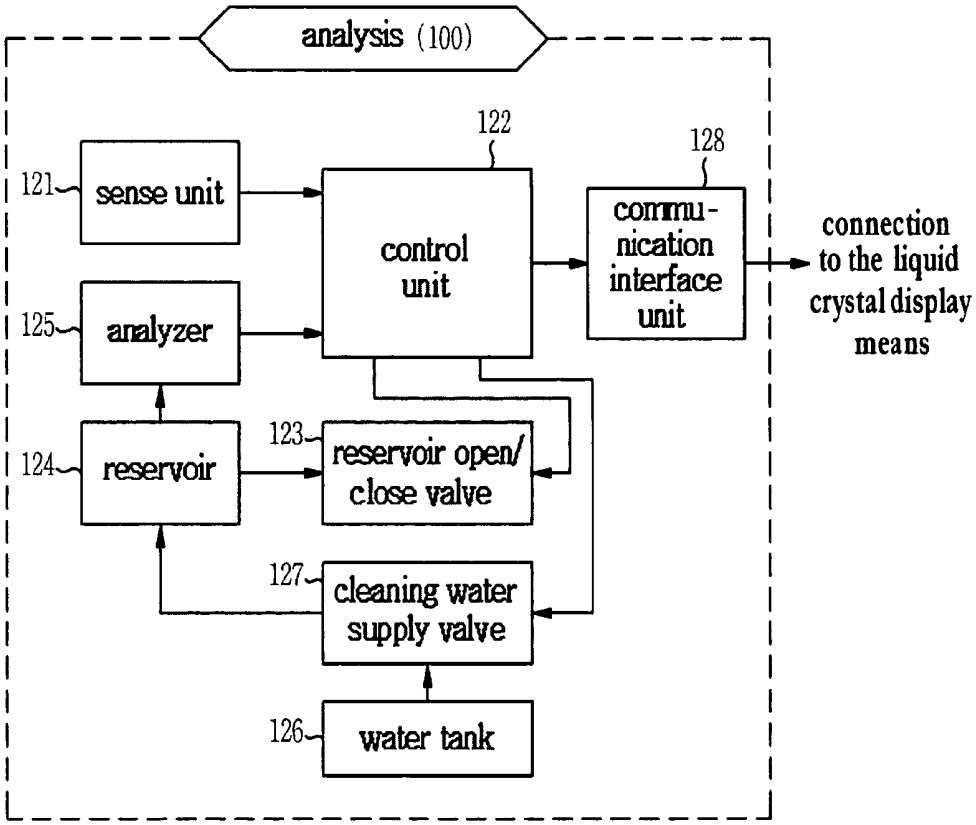

analysis (100)
122
128
121
sense unit
control unit
commu-nication interface unit
connection to the liquid crystal display means
125
analyzer
124
reservoir
123
reservoir open/ close valve
127
cleaning water supply valve
126
water tank

FIG.8

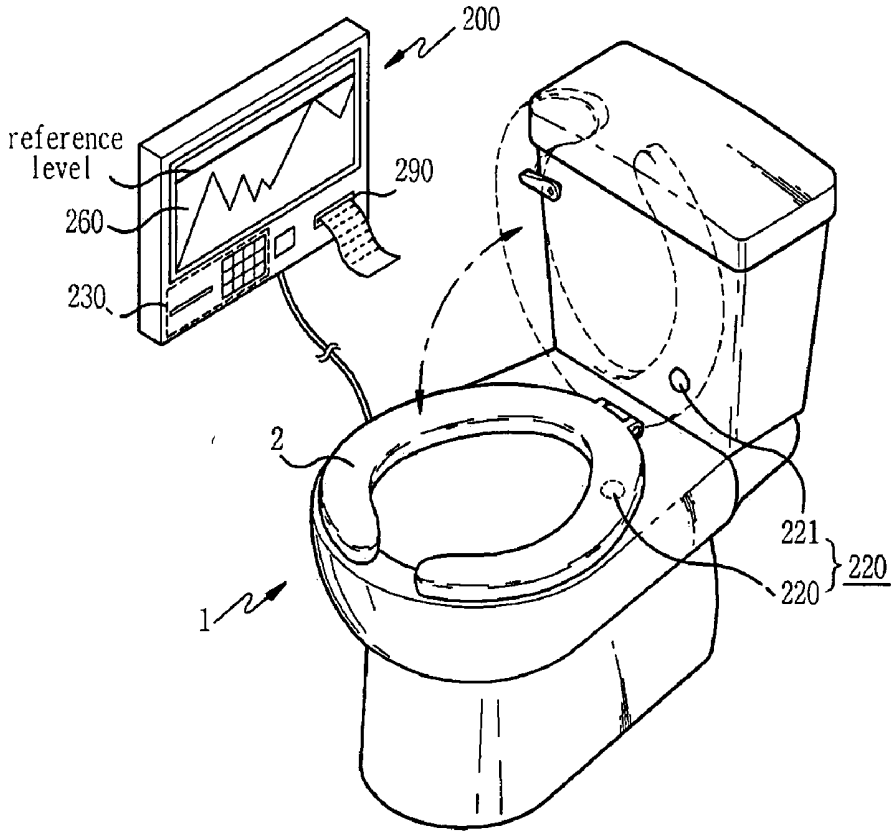
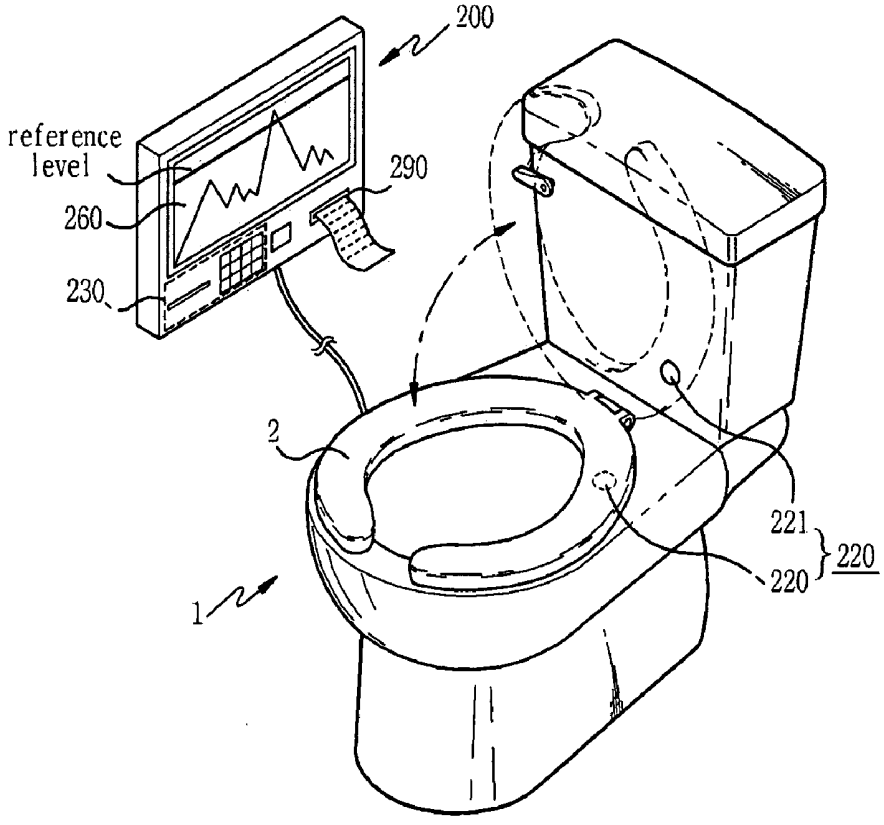

200
reference level
290
260
230
2
221
220
220
1

FIG.9


200
reference level
290
260
230
2
221
220
220
1

BIDIRECTIONAL MONITORING SYSTEM CAPABLE OF A MEDICAL DIAGNOSIS AND A COMMERCIAL BROADCAST

FIELD OF THE INVENTION

[0001] The present invention relates to a bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast. More specifically, the present invention relates to a bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast, in which a system capable of collecting and analyzing person's urine is connected to a liquid crystal display device so that a certain user can immediately recognize data of her/his urinary analysis as well as be allowed to undergo a medical doctor's diagnosis by transmitting the data of her/his urinary analysis to a medical institution at a long distance in case of abnormal conditions.

BACKGROUND OF THE INVENTION

[0002] Person's urine functions as an important measure which shows person's health conditions and can be used to easily detect abnormal conditions by observing its color, volume, or frequency at ordinary times.

[0003] In other words, person's urine functions as a path which absorbs necessary materials and discharges unnecessary materials from person's blood in a kidney and can be used to detect abnormal conditions in person's blood composition, circulatory system, liver, as well as excretory/urinary system. For example, since it is possible to predict a kidney disease, diabetes, diabetes insipidus, pyclitis, prostatic hypertrophy, pituitary tumor, etc., just by a urine test. Therefore, it has been indispensable in a basic medical test.

[0004] For this reason, the majority of medical institutions offer the urinary analysis in such a way that a cup is distributed to a user, the user's urine is taken in the cup, and then a part of the urine is input to the analyzer.

[0005] As a consequence, in places where require a frequent health check such as old people's residences, the aforementioned method of the urine test was cumbersome and consumed a lot of times to collect the urine.

SUMMARY OF THE INVENTION

[0006] Accordingly, the present invention is contrived to solve the cumbersome problems, and an object of the present invention is to provide a bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast, in which users can be provided with commercial information and give an order for that, as well as check their health conditions with easy control in places such as their own homes.

[0007] Another object of the present invention is to provide a bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast, in which health check data such as levels of blood glucose, blood pressure, and body temperature measured by using a blood glucose tester, a blood pressure tester, a clinical thermometer, and the like are transmitted to a monitoring system and converted into a graphical format relevant to a reference graph related with normal conditions to display them on the same screen in an overlapping manner so that a self-diagnosis can be easily achieved.

[0008] Still another object of the present invention is to provide a bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast, in which a system capable of collecting and analyzing person's urine is connected to a liquid crystal display device so that a certain user can immediately recognize data of her/his urinary analysis as well as be allowed to undergo a medical doctor's diagnosis by transmitting the data of urinary analysis to a medical institution at a long distance in case of abnormal conditions.

[0009] A further object of the present invention is to provide a bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast which allows users to easily recognize the results of her/his urine test by displaying them on a screen in a graphical illustration.

[0010] An additional object of the present invention is to provide a bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast, in which the results of the urine test is transmitted to a medical institution at a long distance in a voice message type or a literal message type.

[0011] In order to achieve the above objects, according to the present invention, a bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast comprises: a main server for providing commercial information, detailed commercial information in case a certain user selects the commercial information, a service page for receiving a user's request for the commercial information, and offering diagnosis result data in response to a medical diagnosis request which is received; a data communication network for allowing many and unspecified persons to access the main server in an on-line manner; and a monitoring device for receiving the commercial information from the main server to display them on a main screen after getting an on-line access to the main server via the data communication network, creating a subsidiary window on upper portion of one side of the main screen to output another commercial information or display medical diagnosis request data input according to the user's handling and then transmit them to the main server, and outputting a page for outputting diagnosis result data corresponding to the medical diagnosis request data.

[0012] In addition, according to the present invention, the bidirectional monitoring system further comprises a medical institution server, and the monitoring device includes a connection terminal which can be connected to a health check device, whereby the monitoring device determines if the health check data are input from the health check device when the health check device is connected to the connection terminal, transmits the health check data to the medical institution server in case the health check data are input, compares the health check data with health reference data registered previously so as to output user's health result data recognizable from the health check data on the main screen or the subsidiary window in a graphical illustration, compares the health check data with transmission limitation data registered previously so as to transmit the health check data to the main server or the medical institution server in case the health check data excess the transmission limitation data.

[0013] The health check device includes a blood glucose tester, a blood pressure tester, or a clinical thermometer.

[0014] In the main server, the commercial information contains link information which enables an on-line connec-

tion to a corresponding sponsor's terminal so that an ordering data corresponding to the commercial information can be input by way of an output screen of the commercial information and transmitted.

[0015] On the other hand, the bidirectional monitoring system further comprises a bidet including a pressure sensor.

[0016] In addition, the bidet is connected to the monitoring system having functions of a medical diagnosis and a communication, and the monitoring device is turned on by the pressure sensor in the bidet in case a user sits down on the bidet to accomplish the functions of a medical diagnosis and a communication.

[0017] Furthermore, the monitoring system further comprises an analysis means for collecting user's urine and analyzing the user's urinary composition, and the monitoring device analyzes the user's health conditions by using the user's urinary composition input from the analysis means, outputs analysis results in a graphical illustration, compares the analysis results with transmission limitation data registered previously, and transmit the analysis results by using data of the user's terminal registered previously in case the analysis results excess the transmission limitation data.

[0018] Moreover, the monitoring device comprises: a storage unit for storing user's personal data, mobile terminal numbers corresponding to the user's personal data, and at least one of transmission limitation data and reference data for the urinary composition; a control unit for outputting the urinary composition data input from the analysis means in a graphical illustration to compare them with the reference data, simultaneously outputting analysis results recognizable from the graphical illustration, and transmitting analysis result data to a corresponding mobile phone to notify it of a recipient in case any of the analysis result data excess the transmission limitation data; a display unit for displaying an analysis graph and the analysis results on a screen to show them to the user in response to controlling of the control unit; and a transmit unit for transmitting the analysis result data to a corresponding mobile phone in response to controlling of the control unit.

[0019] In addition, the monitoring device further comprises a tuner capable of receiving terrestrial broadcast signals. In this case, the control unit controls the tuner according to predetermined conditions so that broadcast signals of a predetermined channel can be received and displayed on the display unit.

[0020] In addition, the monitoring device further comprises a receive device capable of receiving cable broadcast signals. In this case, the control unit controls the receive device according to predetermined conditions so that broadcast signals of a predetermined channel can be received and displayed on the display unit.

[0021] Particularly, the control unit performs controlling in such a way that the screen on the display unit can be split into a plurality of windows and different image signals are output to the split windows. The broadcast signals output to the split window correspond to commercial broadcast signals.

[0022] In addition, the monitoring device accumulates/stores the analysis results input from the analysis means according to respective users and then transmits them on a regular or irregular basis by using data of user's terminals registered according to users. In this case, data of the user's terminals registered previously in the monitoring device are stored in relation with respective user's personal data and correspond to terminal numbers for connection to the doctor in charge.

[0023] In addition, the monitoring device further comprises a personal identification data input unit through which a certain user can input personal data, and the personal identification data input unit includes a key panel, a card reader, or a fingerprint detector.

[0024] In addition, the analysis means comprises: a urine detect sensor for sampling a small amount of user's urine to detect it; an analyzer for absorbing a small amount of the urine from the urine detect sensor and analyzing its urinary composition; and a communication interface unit for converting the urinary composition analyzed by the analyzer into urinary composition data to transmit them to a liquid crystal display means.

BRIEF DESCRIPTION OF THE DRAWINS

[0025] The above and other objects, advantages and features of the present invention will become apparent from the following description of preferred embodiments given in conjunction with the accompanying drawings, in which:

[0026] **FIG. 1** is a block diagram for explaining organization of the bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to the present invention;

[0027] **FIG. 2** is a block diagram for explaining organization of the monitoring device shown in **FIG. 1**;

[0028] FIGS. **3** to **5** are schematic diagrams for explaining preferred embodiments according to the present invention;

[0029] **FIG. 6** is a block diagram for explaining organization of the analysis means shown in **FIG. 1**;

[0030] **FIG. 7** is a block diagram illustrating another embodiment of **FIG. 6**; and

[0031] **FIGS. 8 and 9** are perspective views illustrating another preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0032] Now, the preferred embodiments according to the present invention will be described in details with reference to the accompanying drawings.

[0033] **FIG. 1** is a block diagram for explaining organization of the bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to the present invention, **FIG. 2** is a block diagram for explaining organization of the monitoring device shown in **FIG. 1**, FIGS. **3** to **5** are schematic diagrams for explaining preferred embodiments according to the present invention, and **FIG. 6** is a block diagram for explaining organization of the analysis means shown in **FIG. 1**.

[0034] As shown in **FIG. 1**, the bidirectional monitoring system according to the present invention comprises: a main server **400** for providing commercial information, detailed commercial information for a certain user's selection, a

service page for accepting user's request for the commercial information, and diagnosis result data in response to the received request for a medical diagnosis; a data communication network **300** for allowing many and unspecified persons to access the main server in an on-line manner; a monitoring device **200** for obtaining an on-line access to the main server **400** via the data communication network **300**, receiving the commercial information provided by the main server **400**, and outputting them to a main screen, creating a subsidiary window on an upper portion on one side of the main screen to output another commercial information or displaying data of the request for a medial diagnosis which are input according to the user's handling, transmitting the request for a medical diagnosis to the main server **400**, and outputting a page for outputting the diagnosis result data corresponding to data of the request for a medical diagnosis; and a medical institution server **500**.

[**0035**] The monitoring device **200** further comprises a connection terminal which can be connected to a health check device **600**. When the health check device is connected to the connection terminal, the monitoring device determines if the health check data are input from the health check device, transmits the health check data to the medical institution server in case the health check data are input, compares the health check data with health reference data registered previously so as to output user's health result data recognizable from the health check data on the main screen or the subsidiary window in a graphical illustration, compares the health check data with transmission limitation data registered previously so as to transmit the health check data to the main server **500** or the medical institution server in case the health check data excess the transmission limitation data.

[**0036**] The health check device **600** includes a blood glucose tester **610**, a blood pressure tester **620**, a clinical thermometer **630**, and the like.

[**0037**] In the main server **400**, the commercial information contains link information which enables an on-line connection to a corresponding sponsor's terminal so that an ordering data corresponding to the commercial information can be input through an output screen of the commercial information and transmitted.

[**0038**] The monitoring device **200** comprises: a storage unit **210** for storing user's personal data, mobile terminal numbers corresponding to the user's personal data, and at least one of transmission limitation data and reference data for the urinary composition; a control unit **250** for outputting urinary composition data input from the analysis means **100** in a graphical illustration to compare them with the reference data, simultaneously outputting analysis results recognizable from the graphical illustration, and transmitting analysis result data to a corresponding mobile phone to notify it of a recipient in case the analysis result data excess the transmission reference data; a display unit **260** for displaying an analysis graph and the analysis results on a screen to show them to the user in response to controlling of the control unit **250**; and a transmit unit **270** for transmitting the analysis result data to a corresponding mobile phone in response to controlling of the control unit.

[**0039**] In addition, the monitoring device **200** further comprises: a tuner **293** capable of receiving terrestrial broadcast signals; an input unit **291** having channel selection buttons for outputting channel selection signals in response to the user's request; and a broadcast signal processing unit **295** for accomplishing a signal processing in order to convert the broadcast signals received through the tuner **293** into image signals and audio signals which can be output through the display unit **260** and the speaker **280**. At this point, the control unit **250** controls the tuner **293** in response to user's input signals (e.g., channel selection signals) from the input unit **291** so that the broadcast signals of the channel selected by the users can be received or the broadcast signals of a predetermined channel can be received by controlling the tuner **293** according to predetermined conditions, whereby they can be displayed and outputted through the display unit **260** and the speaker **280**. In this case, the input unit includes a remote controller, a key pad, and the like.

[**0040**] In addition, the monitoring device **200** further comprises a receive unit **297** capable of receiving cable broadcast signals. At this point, the control unit **250** controls the receive unit **297** according to predetermined conditions so that the broadcast signals of a predetermined channel can be received and corresponding images can be displayed on the display unit **260**.

[**0041**] In addition, the screen of the display unit **260** is controlled to be split into a plurality of windows by the control unit **250** so that different image signals can be output to the respective split windows. Also, the broadcast signals output to the split windows may be commercial broadcast signals.

[**0042**] The monitoring device **200** further comprises a protective plate **281** for protecting the display unit **260**.

[**0043**] The monitoring device **200** further comprises an attack detect sensor **299** for sensing an external attack and outputting an attack detect signal. At this point, the control unit **250** performs controlling in such a way that an alarm sound can be output through the speaker in response to the attack detect signal from the attack detect sensor **299**.

[**0044**] The monitoring device **200** accumulates/stores the analysis results input from the analysis means **100** according to users and then transmits them on a regular or irregular basis by using data of user's terminals registered according to users. At this point, data of the user's terminals registered previously in the monitoring device are stored in relation with the respective user's personal data and may be the terminal numbers for connections to the doctors in charge of the respective users.

[**0045**] The transmit unit **270** transmits the analysis results to a recipient by means of a short message service.

[**0046**] The monitoring device **200** further comprises a personal identification data input unit **230** by which a certain user can input her/his personal data. The personal identification data input unit **230** includes a key panel, a card reader, a fingerprint detector, and the like.

[**0047**] Particularly, a communication interface unit **240** of the monitoring device **200** is constructed to communicate with the analyzer **100** and the health check device **600** in order to receive the health check data from the analyzer **100** and the health check device **600**.

[**0048**] Also, the personal identification data input unit **230** functions as a means for inputting personal identification data by the user who wants to offer her/his levels of blood

glucose, blood pressure, or body temperature or experience the urine test. The personal identification data input unit **230** can be implemented by a variety of means such as a key input device capable of inputting numbers or characters, a fingerprint detector capable of detect user's fingerprint, or a card reader capable of reading a card which contains user's identification data. At this point, the card may be a card containing user's personal data provided by the main server **400** or a patient identification card provided by a certain medical institution.

[**0049**] In this case, the transmit unit **270** transmits the analysis results to a recipient by means of a short message service.

[**0050**] As shown in **FIG. 6**, the analysis means **100** comprises a urine detect sensor **111** for sampling a small amount of user's urine to detect it; an analyzer **112** for absorbing a small amount of urine from the urine detect sensor **111** and performing an analysis by using a program for analyzing urinary composition; and a communication interface unit **113** for converting the urinary composition analyzed by the analyzer **112** into urinary composition data to transmit them to the monitoring device **200**.

[**0051**] The analysis means **100** further comprises a urine test paper or a urine sensor **111** in the lower end of the analyzer for absorbing a small amount of the user's urine. The urine test paper can be replaced with new one once it is used, whereas the urine sensor can be replaced with new one after a predetermined period of usage.

[**0052**] As shown in **FIG. 7**, according to another embodiment of the present invention, an analysis means **100** comprises a sense unit **121** for sensing when a user urinates and outputting a urination sense signal; a control unit **122** for controlling the whole system in such a way that the user's urine can be analyzed in response to the urination sense signal; a reservoir open/close valve **123** for closing a reservoir in response to controlling of the control unit **122** at the initial time of the urinary analysis to charge the reservoir with a certain amount of the user's urine and opening the reservoir in response to the controlling of the control unit **122** at the end of the urinary analysis to discharge the user's urine; a cleaning water supply valve **127** for injecting cleaning water in a water tank into the inside of the reservoir where the urine has been discharged in response to controlling of the control unit **122** to wash urinary remnants out; an analyzer **125** for absorbing a small amount of the user's urine collected in the reservoir **124**, analyzing them by using an analysis program, and transmitting analysis results to the control unit **122**; and a communication interface unit **128** for converting urinary composition analyzed by the analyzer **125** into urinary composition data and transmitting them to the monitoring device **200**.

[**0053**] As shown in **FIG. 8**, the sense unit **121** includes a first sensor for sensing variation of pressure and outputting a urination sense signal when a user sits down on a water closet **1** and a second sensor **222** for detecting when a user lift up a seat **2** of the water closet **1** and outputting a urination sense signal. In this case, the first sensor corresponds to a pressure sensor and the second sensor corresponds to a magnetic sensor.

[**0054**] In addition, data of the user's terminal **500** registered previously in the monitoring device **200** are stored in relation with corresponding user's personal data and may be a mobile terminal number for transmitting the results of the urinary analysis for a certain user to a doctor in charge or log-in information of a predetermined on-line messenger.

[**0055**] Also, the monitoring device **200** accumulates/stores the analysis results input from the analysis means **100** according to users and then transmits them on a regular or irregular basis by using data of user's terminals registered according to users.

[**0056**] The main server **400** can be implemented on the basis of a WAP as well as an internet so that every user can get an access to it and be provided with predetermined data by using a personal computer or a mobile terminal.

[**0057**] The user's terminal **500** may include the one for the user who requests a urine test or another one for the doctor in charge.

[**0058**] Now, operations of the aforementioned bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast will be described as follows.

Embodiment 1

[**0059**] The following descriptions are given to the case that the monitoring device **200** according to the present invention is installed in places such as the living room.

[**0060**] First, the monitoring device **200** can be installed in the bed room or the living room as shown in **FIG. 3**, or manufactured in a portable type as shown in **FIG. 4**.

[**0061**] As shown in **FIGS. 3 and 4**, the monitoring device **200** installed in places such as the living room and the bed room functions as an output device for a terrestrial broadcast, a cable broadcast, or a satellite broadcast as well as a device capable of a health check for the users.

[**0062**] In other words, the monitoring system according to the present invention is implemented in such a way that the user can select corresponding functions by using a key pad incorporated in a remote controller or a monitoring device **200**.

[**0063**] For example, when a user inputs a request signal for switching to a drive mode for the output device for a terrestrial broadcast through the input unit **291** and a channel selection signal, the control unit **250** controls the tuner unit **293** to receive the terrestrial broadcast signals of the channel that the user has selected and the broadcast signal processing unit **295** converts them into image signals or audio signals appropriate to be output through the display unit **260** and the speaker **280**.

[**0064**] Meanwhile, when a user inputs a request signal for switching to a health check mode through the input unit **291** for the purpose of her/his health check, the control unit **250** determines if there is any signal input through the personal identification data input unit **230**. In other words, the user should input her/his unique identification data in order to transmit the request signal for a health check to the main server **400** or the medical institution server **450** and receive corresponding diagnosis results. For example, data such as personal number, authentication data distributed by the main server, and patient number distributed by the medical institution registered previously should be transmitted to the

main server **400** or the medical institution server **450** together with the health check data.

[**0065**] As described above, when the personal identification data are input through the personal identification data input unit **230**, the control unit **250** determines if the health check data are input through the communication interface unit **240** from a predetermined device.

[**0066**] As a result, if the health check data are input, the control unit transmits them together with the personal identification data to the main server **400** or the medical institution server **450** and creates rough health diagnosis results according to predetermined health reference data to output them through the display unit **260** in a graphical illustration.

[**0067**] In this case, the screen on the display unit **260** is split into at least two windows where different image signals are output to them. For example, commercial information can be displayed on the main screen while a typical terrestrial or cable broadcast can be displayed on the subsidiary window.

[**0068**] The commercial information may relate to home shopping malls, or local shops such as restaurants, laundries, and supermarkets in the vicinity of the place where the monitoring device **200** is installed. Also, the commercial information may include an ordering menu. When the ordering menu is selected, an ordering window is presented. Subsequently, when an ordering request is input through the ordering window, ordering data which have been written through the ordering window are transmitted to the terminal of the sponsor who has offered the commercial information so that dealing transactions can be accomplished. Needless to say, a payment section can be included in the ordering window. The ordering menu can be applied to every embodiment of the present invention, and the descriptions for the similar parts will not be given for simplicity.

Embodiment 2

[**0069**] The following descriptions are given to the case that the monitoring device **200** according to the present invention is installed in places such as public restrooms and the like.

[**0070**] As shown in **FIGS. 1 and 3**, inside of the restroom door, there are installed the display unit **260** which may be an LCD monitor, the speaker **280** for outputting audios, and the control unit **250** for performing controlling in such a way that the image/voice signals received from a broadcast system at a long distance can be outputted to the display unit **260** and the speaker **280** depending on power on/off and selecting a broadcast channel according to user's channel handling.

[**0071**] In addition, the control unit **250** comprises an alarm interface capable of alarming when there is an attack on the display unit **260** or the speaker **280**.

[**0072**] Meanwhile, the door lock device of the restroom where the monitoring device **200** is installed can function as a switch for power on/off the monitoring device. In other words, if the door lock device is in the locked position, the whole system becomes power-on state, and then the control unit **250** performs controlling in such a way that the broadcast signals received from the terrestrial broadcast receiver or the cable broadcast receiver can be displayed on the display unit **260**. Otherwise, if the door lock device in the restroom is in the unlocked position, supplied powers are cut off and the image and audio broadcast signals output through the display unit **260** and the speaker **280** are interrupted.

[**0073**] Accordingly, when the user puts the door in the locked position to use the restroom, powers are automatically supplied to the display unit **260** and the speaker **280** to output images and sounds. On the contrary, when the user puts the door in the unlocked position to come out, powers to the display unit **260** and the speaker **280** are automatically cut off to interrupt outputs of the images and sounds.

[**0074**] In this case, the cables for delivering the broadcast signals are wired to pass through the hinge portions in the restroom door. In other words, the hinge portions has a structure that can be used for passages of the communication cables for receiving the terrestrial broadcast signals or the cable broadcast signals. If the image/sound data are transmitted in a wireless manner using over-the-air waves, the hinge portions are not necessary to have cable passage structures. Instead, a tuner for receiving wireless signals can be further included and controlled by the control unit **250**.

[**0075**] On the other hand, as shown in **FIG. 3**, a protective plate **281** is installed on the front surface of the display unit **260** for the purpose of protection and security. The protective plate is made up of a transparent material. In addition, an attack detect sensor **299** is installed in the vicinity of the protective plate **281** to detect an external attack and output an external attack detect signal to the control unit **250**. Correspondingly, the control unit **250** outputs an alarm sound through the speaker **280**.

[**0076**] In this case, the attack detect sensor **299** can be installed in any portions of the device that is exposed to the external and needs protection and security.

[**0077**] In addition, the screen on the display unit **260** which may be an LCD monitor can be split into at least two windows. The control unit **250** controls the whole system to output different images on the split windows. For example, live sports broadcasts can be displayed on the subsidiary window while advertising films are displayed on the main screen. In this case, it is possible to implement the system in such a way that images are displayed on the screen according to a predetermined broadcast control program or users can arbitrarily select images displayed on respective windows.

[**0078**] Furthermore, an LED panel can be prepared to show some characters such as "in-use" at eye level on the external front surface of the door and also be operated according to the locked/unlocked position of the door lock device. In other words, the LED panel can be turned on to show some characters such as "in-use" when the door lock device is in the locked position, whereas the LED panel can be changed to show no characters or other characters such as "out-of-use" when the door lock device is in the unlocked position.

Embodiment 3

[**0079**] Following descriptions are given to the case that the monitoring device **200** according to the present invention is applied to a PDA or a TV set.

[**0080**] As shown in **FIGS. 4 and 5**, a health check device is connected to a PDA or a TV set so that the current health

conditions of a certain user, e.g., blood pressure, blood glucose, or body temperature, can be measured and then the results of the measurement are converted into numerical data to be output to a communication interface unit (now shown) connected to the communication interface unit **240** installed in a PDA or a TV set.

[**0081**] Subsequently, the control unit **250** allows the numerical data, i.e. health check data, input from the communication interface unit **240** to be transmitted to the main server **400** or the medical institution server **450** and compared with the reference data stored in the storage unit **210** to output the results of comparison on the screen of a PDA or a TV set in a graphical illustration.

[**0082**] In this case, the control unit **250** splits the screen on a PDA or a TV set into at least two windows to show different images on each window. For example, one window can show commercial information, a terrestrial broadcast, a cable broadcast, or a satellite broadcast, while the other window can show the health check results. In other words, each window does not show redundant images of the same source to provide users with a variety of information.

[**0083**] In addition, users can be further provided with a direct ordering menu under the state that the advertising films are displayed. Subsequently, users can be provided with an ordering window which can be used to order the product on advertising when the ordering menu is selected. In other words, the main server **400** is constructed in such a way that the advertising films contain link information which enables an on-line connection to the corresponding sponsor's terminal, whereby the ordering request signal is directly transmitted to the sponsor's terminal by way of a transmit unit **270** according to controlling of the control unit **250** when the user selects the ordering menu.

[**0084**] At this point, the ordering menu can be organized in a manner that the products irrelevant to the advertising films which are being played on the screen can also be ordered. In this case, users should previously register available products which can be irrelevantly ordered and construct a database. Furthermore, the main server **400** should be constructed in such a way that a user can take an access and then give an order directly after a communication network becomes available.

Embodiment 4

[**0085**] Finally, the following descriptions are given to the case that the monitoring device **200** according to the present invention is connected to a bidet.

[**0086**] First, a user urinates after inputs her/his personal data with guidance from an instructor. Then, the urine sensor **111** samples a small amount of urine and delivers it to the analyzer **112**.

[**0087**] In this case, the user can input her/his personal data (i.e., resident registration number) through the key panel in the personal identification data input unit **230**. Otherwise, the personal data can be input by using a card containing personal data or a fingerprint method. The method of inputting personal data can be variously implemented considering user's conveniences. Needless to say, personal data such as resident registration numbers and fingerprints should be organized in a database depending on each implementation method.

[**0088**] When the user inputs her/his personal data by way of the personal identification data input unit **230**, the control unit **250** receives the user's personal identification data and determines if the user corresponds with the one previously registered on the storage unit **210**. As a result, if the user is previously registered, the control unit **250** controls the whole system to perform a urine test.

[**0089**] The control unit **250** receives the urinary composition data by way of the communication interface unit **240**. In other words, the analyzer **112** in the analysis means **100** analyzes the urine sampled from the urine detect sensor **111** by using an analysis program and then transmits the urinary composition data to the liquid crystal display means by way of the communication interface unit **113**.

[**0090**] Then, the control unit **250** performs controlling in such a way that the urinary composition data from the communication interface unit **240** are output together with the reference level on the screen of the display unit **260** in a graphical illustration as shown in **FIGS. 8 and 9** for the purpose of comparison with the reference data stored in the storage unit **210**. Simultaneously, the personal identification data from the personal identification data input unit **230** are output on the upper end of the screen of the display unit **260**.

[**0091**] Subsequently, the control unit **250** performs controlling in such a way that the analysis results which can be recognized from the graphs are simultaneously output on one end side of the display unit **260** and transmitted to the mobile phone or the registered messenger corresponding to the personal identification data stored in the storage unit **210** by way of the transmit unit **270** to notify it of the recipient in case the analysis result data excess the reference level as shown in **FIG. 9**.

[**0092**] Meanwhile, the control unit **250** performs controlling in such a way that instruction messages displayed on the display unit **260** can also be provided through the speaker **280** as voice signals to make it easy for users to recognize them. Furthermore, the urinary analysis results can be printed from the printer unit **290** to deposit them.

[**0093**] The urinary analysis result data transmitted through the transmit unit **270** can be delivered to the medical institution server **400** via a data communication network **300**. Also, they can be delivered to the user's terminal of the doctor in charge by means of a short message service.

[**0094**] On the other hand, the signals informing the fact that the user's urinary analysis data are received are transmitted from the medical institution server **400** to the terminal of the doctor in charge so that she/he can recognize it by using her/his own terminal.

[**0095**] In addition, the doctor in charge can use her/his terminal **500** to make a diagnosis of the user who has requested a urine test by using the urinary analysis data and then feedback the diagnosis results to the corresponding user. In this case, the diagnosis results may be provided in the type of a voice message or a literal message.

[**0096**] During the urine test or in case the user does not take the urine test, general information is provided on the display unit **260** until the user completes urinating.

[**0097**] According to another embodiment of the analysis means **100**, when a user sits down on a water closet or lifts up a seat, the first sensor **221** or the second sensor **222** in the

sense unit **121** detects this and outputs a urination sense signal to the control unit **122**.

[**0098**] Then, the control unit **122** outputs the urination sense signal to the control unit **250** in the monitoring device **200** by way of the communication interface unit **128**, and the control unit **250** outputs instruction messages for a urine test on the display unit **260**. For example, messages such as "do you need a urine test?" or "yes/no" can be displayed.

[**0099**] In this case, when a user requests a urine test, the control unit **250** outputs a urinary analysis request signal to the control unit **122** in the analysis means **100** by way of the communication interface unit **240**.

[**0100**] Then, the control unit **122** turns on the reservoir open/close valve **123** so that the user's urine can be collected in the reservoir **124**, and controls the analyzer **125** so that a urine stick (i.e., a urine test paper) or a urine detect sensor installed in the lower end of the analyzer **125** can absorb a small amount of the user's urine.

[**0101**] The absorbed urine is analyzed by the analysis program in the analyzer **125**, and the analyzed urinary composition data are transmitted to the control unit **250** in the monitoring device **200** by way of the communication interface unit **128**.

[**0102**] Then, the control unit **122** turns off the reservoir open/close valve **123** so that the urine collected in the reservoir **124** can be discharged, and then turns on the cleaning water supply valve **127** so that the water in the water tank **126** can flow to the injection nozzle (not shown) by way of the cleaning water supply valve **127** and be injected into the reservoir **124** through the injection nozzle to wash the remnants out from the reservoir **124**.

[**0103**] As described above, the analysis means **100** according to the present invention has two embodiments, and their before and behind operations are similar to the aforementioned embodiments. Therefore, the redundant descriptions are intentionally omitted.

[**0104**] As described above, according to the present invention, a system capable of collecting and analyzing person's urine is connected to a liquid crystal display device so that a certain user can immediately recognize her/his urine analysis results as well as be allowed to undergo a medical doctor's diagnosis by transmitting her/his urine analysis results to a medical institution at a long distance in case of abnormal conditions. Therefore, users can undergo a health diagnosis by way of a urine test as a basic health test without visiting medical institutions.

[**0105**] In addition, according to the present invention, the urine test results are output on the screen in a graphical illustration so that users can easily recognize the test results.

[**0106**] Furthermore, urine test results are transmitted to a medical institution at a long distance in a voice message type or a literal message type so that a doctor in charge can easily recognize patient's conditions to make a diagnosis

[**0107**] Although the present invention and its advantages have been described in details, it should be understood that the present invention is not limit to the aforementioned embodiments and the accompanying drawings and it should be understood that various changes, substitutions and alterations can be made herein by the skilled in the arts without departing from the sprit and the scope of the present invention as defined by the appended claims.

What is claimed is:

1. A bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast, comprising:

a main server for providing commercial information, detailed commercial information in case a certain user selects the commercial information, a service page for receiving a user's request for the commercial information, and offering diagnosis result data in response to a medical diagnosis request which is received;

a data communication network for allowing many and unspecified persons to access the main server in an on-line manner; and

a monitoring device for receiving the commercial information from the main server to display them on a main screen after getting an on-line access to the main server via the data communication network, creating a subsidiary window on upper portion of one side of the main screen to output another commercial information or display medical diagnosis request data input according to the user's handling and then transmit them to the main server, and outputting a page for outputting diagnosis result data corresponding to the medical diagnosis request data.

2. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 1, wherein

the bidirectional monitoring system further comprises a medical institution server, and

the monitoring device includes a connection terminal which can be connected to a health check device, whereby the monitoring device determines if the health check data are input from the health check device when the health check device is connected to the connection terminal, transmits the health check data to the medical institution server in case the health check data are input, compares the health check data with health reference data registered previously so as to output user's health result data recognizable from the health check data on the main screen or the subsidiary window in a graphical illustration, compares the health check data with transmission limitation data registered previously so as to transmit the health check data to the main server or the medical institution server in case the health check data excess the transmission limitation data.

3. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 2, wherein the health check device includes a blood glucose tester, a blood pressure tester, or a clinical thermometer.

4. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 2, wherein, in the main server, the commercial information contains link information which enables an on-line connection to a corresponding sponsor's terminal so that an ordering data corresponding to the commercial information can be input by way of an output screen of the commercial information and transmitted.

5. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 1, wherein

the bidirectional monitoring system further comprises a bidet including a pressure sensor,

the bidet is connected to the monitoring system having functions of a medical diagnosis and a communication, and

the monitoring device is turned on by the pressure sensor in the bidet in case a user sits down on the bidet to accomplish the functions of a medical diagnosis and a communication.

6. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 1, wherein

the bidirectional monitoring system further comprises an analysis means for collecting user's urine and analyzing the user's urinary composition, and

the monitoring device analyzes the user's health conditions by using the user's urinary composition input from the analysis means, outputs analysis results in a graphical illustration, compares the analysis results with transmission limitation data registered previously, and transmit the analysis results by using data of the user's terminal registered previously in case the analysis results excess the transmission limitation data.

7. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 6, wherein the monitoring device comprises:

a storage unit for storing user's personal data, mobile terminal numbers corresponding to the user's personal data, and at least one of transmission limitation data and reference data for the urinary composition;

a control unit for outputting the urinary composition data input from the analysis means in a graphical illustration to compare them with the reference data, simultaneously outputting analysis results recognizable from the graphical illustration, and transmitting analysis result data to a corresponding mobile phone to notify it of a recipient in case the analysis result data excess the transmission limitation data;

a display unit for displaying an analysis graph and the analysis results on a screen to show them to the user in response to controlling of the control unit; and

a transmit unit for transmitting the analysis result data to a corresponding mobile phone in response to controlling of the control unit.

8. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 7, wherein

the monitoring device further comprises a tuner capable of receiving terrestrial broadcast signals, and

the control unit controls the tuner according to predetermined conditions so that broadcast signals of a predetermined channel can be received and displayed on the display unit.

9. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 7, wherein

the monitoring device further comprises a receive device capable of receiving cable broadcast signals, and

the control unit controls the receive device according to predetermined conditions so that broadcast signals of a predetermined channel can be received and displayed on the display unit.

10. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 8, wherein

the monitoring device further comprises a channel selection button to allow the user to select a certain channel, and

the control unit controls the tuner or the receive device in response to the channel selection signals selected by the channel selection button.

11. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 7, wherein the control unit performs controlling in such a way that the screen on the display unit can be split into a plurality of windows and different image signals are output to the split windows.

12. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 11, wherein broadcast signals output to the split window correspond to commercial broadcast signals.

13. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 7, wherein the monitoring device further comprises a protective plate for protecting the display unit.

14. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 7, wherein

the monitoring device further comprises an attack detect sensor, and

the control unit performs controlling in such a way that the an alarm sound can be output to a speaker in response to an attack detect signal from the attack detect sensor.

15. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 6, wherein the monitoring device accumulates/stores the analysis results input from the analysis means according to respective users and then transmits them on a regular or irregular basis by using data of user's terminals registered according to users.

16. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 6, wherein the data of user's terminals registered previously in the monitoring device are stored in relation with respective user's personal data and correspond to terminal numbers for a connection to the doctor in charge.

17. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 7, wherein the transmit unit transmits the analysis results in a manner that a recipient receives them by means of a literal message.

18. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 7, wherein the monitoring device further comprises a personal identification data input unit through which a certain user can input personal data.

19. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 18, wherein the personal identification data input unit includes at least one of a key panel, a card reader, and a fingerprint detector.

20. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 6, wherein the analysis means comprises:

a urine detect sensor for sampling a small amount of user's urine to detect it;

an analyzer for absorbing a small amount of the urine from the urine detect sensor and analyzing its urinary composition; and

a communication interface unit for converting the urinary composition analyzed by the analyzer into urinary composition data and transmitting them to a liquid crystal display means.

21. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 20, wherein the analysis means further comprises a urine test paper or a urine detect sensor in lower end of the analyzer in order to absorb a small amount of the user's urine.

22. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 20, wherein the urine test paper can be replaced with new one once it is used, and the urine detect sensor can be replaced with new one after a predetermined period of usage.

23. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 6, wherein the analysis means comprises:

a sense unit for sensing when a user urinates and outputting a urination sense signal;

a control unit for controlling the whole system in such a way that the user's urine can be analyzed in response to the urination sense signal;

a reservoir open/close valve for closing a reservoir in response to controlling of the control unit at an initial time of the urinary analysis to collect a predetermined amount of user's urine and opening the reservoir in response to controlling of the control unit at an end of the urinary analysis to discharge the user's urine;

a cleaning water supply valve for injecting cleaning water in a water tank into the inside of the reservoir where urine has been discharged in response to controlling of the control unit to wash urinary remnants out;

an analyzer for absorbing a small amount of the user's urine collected in the reservoir and analyzing them by using an analysis program to transmit its analysis results to the control unit; and

a communication interface unit for converting urinary composition analyzed by the analyzer into urinary composition data and transmitting them to the liquid crystal display means.

24. The bidirectional monitoring system capable of a medical diagnosis and a commercial broadcast according to claim 9, wherein

the monitoring device further comprises a channel selection button to allow the user to select a certain channel, and

the control unit controls the tuner or the receive device in response to the channel selection signals selected by the channel selection button.

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摘要(译)

所公开的是一种能够进行医疗诊断和商业广播的双向监控系统，包括：主服务器，用于提供商业信息，在特定用户选择商业信息的情况下的详细商业信息，用于接收用户请求的服务页面。商业信息，并响应于接收到的医疗诊断请求提供诊断结果数据;数据通信网络，用于允许许多和未指定的人以在线方式访问主服务器;监控装置，用于从主服务器接收商业信息，在通过数据通信网络获得对主服务器的在线访问后，在主屏幕上显示商业信息，在主服务器一侧的上部创建辅助窗口屏幕输出另一商业信息或显示根据用户的处理输入的医疗诊断请求数据，然后将它们发送到主服务器，并输出用于输出与医疗诊断请求数据相对应的诊断结果数据的页面。