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(54) **Health management device**

Gerät zur Gesundheitsverwaltung

Dispositif de gestion de l'état de santé

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DescriptionBACKGROUND OF THE INVENTION5 Field of the Invention

[0001] The present invention generally relates to a health management device, and, more particularly, to a body fat meter which is mounted on an intelligent terminal unit such as a portable telephone, a portable personal computer with a modem or an electronic organizer with communication system and shares a numeral input means and a display means therewith, which are inherently provided for said intelligent terminal unit. The present invention also relates to a health management system in which a body fat meter, a blood pressure manometer, a pulse monitor, etc. is mounted on a intelligent terminal unit such as a portable telephone or the like and shares the numeral input means and the display means therewith, which are inherently provided for said intelligent terminal unit, and transmits/receives various data concerning the body fat, the blood pressure, the pulse rate, etc. to/from an aggregation center.

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Description of the Prior Art

[0002] Recently, the body fat meter has been spread over many families based on a concept that one shall control one's health by oneself. There has been proposed several types of body fat meters including an integral type body fat meter incorporated into a weight measuring scale, a grip type body fat meter gripped by both hands in use for measuring, and furthermore a card type body fat meter capable of being carried with. However, since these body fat meters are, with an exception of the integral type one incorporated into a weight measuring scale, exclusive machines for measuring a body fat rate and are not used for any other uses, there is a problem that a certain place has to be prepared for keeping it. In addition, some of these body fat meters are too large to be carried with while going outdoor therewith, or, in case of the card type one, it is too small so that sometimes it is forgot to be carried with. Further, the integral type one incorporated into the weight measuring scale is generally used in a bathroom or the like in a home and is not suitable for being taken out of the house and being used in the outdoors.

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[0003] Said body fat meter is constructed as an independent unit from a mechanical and electrical viewpoint, so that, when a measured data is analyzed by a special facility in various ways, the measured data shall be delivered by, for example, a mail or the body fat meter itself including a measured data stored therein shall be brought into the special facilities.

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[0004] Portable blood pressure manometers and pulse monitors have also been developed and used. However, in these prior devices, the measured data have been delivered to a special facility by a mail, or the device itself including a measured data stored therein has been brought into the special facility, to analyze the data, as in a body fat meter mentioned above.

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[0005] WO 97/49077 discloses an auxiliary unit to be coupled to a mobile station which comprises a basic element containing components necessary for data transmission, analysis and storage, as well as a sensor element containing a sensor suitable for the non-invasive measuring of a person's bodily functions and the special electronics required by the sensor. With the device measurements, such as ECG, EEG, EMG, blood pressure and respiratory flow can be taken.

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[0006] US 4,949,727 discloses a portable physical checker for determining body fat, which is provided with a display part, a group of the function changing-over keys and ten-keys for data input on the surface of the unit case. Electrodes for measuring bodily impedance are provided at the reverse side of the case.

[0007] EP 0 926 488 discloses a body fat determining device comprising a first electrode pair and a second electrode pair provided on the determining device. The determining device can be incorporated into a pager.

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[0008] It is an object of the present invention to provide a health management device having improved functions.

[0009] This object is solved according to the present invention by a health management device having the features disclosed in claim 1. Preferred embodiments are disclosed in the dependent claims.

SUMMARY OF THE INVENTION

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[0010] According to the present invention, there is provided a health management device comprising:

at least four electrodes provided on a main body of an intelligent terminal unit;

a constant current generating unit which applies a constant current to at least two electrodes among said at least four electrodes;

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a voltage detecting unit which detects a voltage of at least two electrodes among said at least four electrodes;

a numeral input unit provided on said intelligent terminal unit;

a display unit provided on said intelligent terminal unit;

a switching unit which switches a function as an intelligent terminal unit into a function as a health management device and vice versa; and
 a control unit which calculates a health management indicator based on data input from said numeral input unit and a detected data from said voltage detecting unit and displays a calculated result on said display unit when said function being switched into the function as the health management device by said switching unit.

The health management device further comprises a transmitting and receiving unit configured to transmit data to and receive data from an aggregation center, and a memory unit, wherein said transmitting and receiving unit is configured to transmit data of said health management indicator to an aggregation center and cause data from said aggregation center to be displayed on said display unit by the use of said control unit, and the data transmitted from said aggregation center is a result of an analysis based on a data from the intelligent terminal unit.

[0011] In order to measure a body fat rate between both hands, said four electrodes are provided so that two fingers per hand may be brought into contact with the electrodes.

[0012] Besides, in order to measure the body fat rate between both feet or between hand and foot adding to between both hands, preferably, four more electrodes are added further so that both feet may be brought into contact with the electrodes.

[0013] It is advantageous that said intelligent terminal unit stores the data of the body fat rate calculated by said control unit in the memory unit for storing telephone numbers or the like in order to make it possible to check a past data of the body fat rate and a variation history thereof.

[0014] Further, it is preferable that the body fat rate is measured, it is measured and calculated at a time set in an alarm function by the use of the alarm function of said intelligent terminal unit.

[0015] Said data transmitted from the intelligent terminal unit may be a data of the body fat rate calculated by said control unit.

[0016] Said data transmitted from the intelligent terminal unit may be a data of the body fat rate stored in said memory unit.

[0017] It is preferable that said display unit displays various data transmitted from said aggregation center by the use of a receiver function of said intelligent terminal unit.

[0018] It is preferable that said memory means stores various data transmitted from said aggregation center by the use of a receiver function of said intelligent terminal unit.

[0019] The data used in said data communication may be a data indicating a desirable range of the body fat rate.

[0020] The data transmitted from said aggregation center may be a data of an amount of fat to be reduced.

[0021] The data transmitted from said aggregation center may be a data of quantity of exercise to be taken.

[0022] The data transmitted from said aggregation center may, be a data of an amount of meal to be reduced.

[0023] Furthermore, said health management parameter may be a blood pressure.

[0024] Furthermore, said health management parameter may be a pulse rate.

[0025] There will now be described an embodiment of the invention with reference to the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026]

Fig. 1 is a schematic perspective view of the portable telephone set with body fat meter according to an embodiment of the present invention;

Fig. 2 is a block diagram illustrating an electric configuration of the portable telephone set with body fat meter of Fig. 1;

Fig. 3 is a diagram illustrating a health management system using the portable telephone set with body fat meter of Fig. 1;

Fig. 4 is a schematic flow chart of the portable telephone set with body fat meter of Fig. 1; and

Fig. 5 is a chart illustrating a balance between BMI and the body fat rate.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

A: Constitution of the embodiment

[0027] The embodiment of Fig. 1 shows a case where a portable telephone set "T" is used as an intelligent terminal unit, in which said portable telephone set "T" is configured, as shown in Fig. 3, so as to transmit a data via a telephone office "K" to an aggregation center "S" having a special information about health management data analysis and lots of advisory information and also so as to receive a data from the aggregation center "S". This portable telephone set "T" is configured so as to be capable of transmitting/receiving a data to/ from a portable telephone set "U" of another person

in the same way as a normal telephone set is.

[0028] The portable telephone set "T" is provided, on a front surface of a main body 1 made of insulating plastic or the like, with a numeral input unit 2 composed of a ten-key pad for inputting a number of a telephone to be called, a display unit 3 composed of LCD or the like for indicating a number input from said numeral input unit 2 and a communication condition as a portable telephone, a power source switch 4, a speaker 5, a microphone 6, a clear-key 7 for erasing a data input from said numeral input unit 2, and a memory key 8 for storing a number input from said numeral input unit 2. In addition, though not described in details herein, this portable telephone set is provided with another function in which a plurality of stored telephone numbers is displayed and a desired one is selected to be called, and also is provided with an indicator means including a buzzer for incoming calls, which are functions of a normal telephone set.

[0029] The portable telephone set "T" is provided with electrically conductive electrodes "A", "B", "C" and "D" at four corners of the front surface of the main body 1 respectively so that two fingers of the right hand and two fingers of the left hand may be brought into contact with respective electrodes. On the front surface of the main body 1, there are provided a change-over switch 9 for selecting a function among those including a function for using as a normal telephone, a function for inputting a personal data such as sex, height, weight or age used when the body fat rate is measured, and a function for storing the data of the body fat rate, a display change-over switch 10 for changing a display of a data concerning body fat to that of BMI and the body fat rate, and a transfer switch 11 for transmitting a data of the body fat rate, which is measured or stored, to the aggregation center and for displaying a data received from the aggregation center or storing it in the memory.

[0030] Further, connectors "E" and "F" for connecting four electrodes which are brought into contact with the soles of both feet are mounted on a side surface of said main body 1. Each of said connectors "E" and "F" is configured so that an exterior type electrode body having two electrodes to be brought into contact with each of the right or the left foot (which is used in a separate electrode type body fat meter, though not shown) may be connected. The body fat measurement using four or eight electrodes will be omitted since it has been well known.

[0031] Fig. 2 is a block diagram illustrating an electric configuration of the portable telephone set of Fig. 1 and a detailed description of the well known configuration of the portable telephone set will be omitted. An operation section 20 includes the function change-over switch 9, the display change-over switch 10, the transfer switch 11 adding to the numeral input unit 2, the clear key 7, the memory key 8 or the like which are provided on the normal portable telephone set. A constant current generating circuit 22 for selectively applying a constant current to each of the right and the left hands and feet, and a voltage detecting circuit 23 for detecting a voltage applied to hands or feet by said constant current generating circuit 22 are connected to a control section 21 including a microcomputer which controls the overall system. A memory 24 stores telephone numbers to be called as a normal portable telephone set as well as the data concerning the body fat measurement and the received data from the aggregation center "S". A radio section 25 and a voice processing section 26 are the same as those of the normal portable telephone set.

[0032] The control section 21 includes also a well known speech synthesis circuit which enables the received data from the aggregation center "S" or the data stored in the memory 24 to be output in voice by the speaker 5 through the voice processing section 26. Further, a well known clock/alarm circuit 27 which is provided with a clock function for displaying a current time on the display unit 3 and an alarm function for generating an alarm sound through the buzzer or the speaker 5 at a predetermined time is connected to the control section 21.

B: Operation of the embodiment

[0033] At first, the case where the body fat is measured by the portable telephone set "T" will be described with reference to the schematic flow chart of Fig. 4. This flow chart shows an outline of a concept of various processings and may differ from the actual flow chart in some points. At first, the power source switch 4 is turned on and then the process moves from step 1 to step 2 to initialize an operation of the portable telephone "T". At that time, since the normal telephone function is set, the process determines to be "no" at step 3 and moves to step 4. Since the process in step 4 is conventional one and is well known, the description thereof will be omitted. Then, the state of the power source is determined at step 5 and the processes between steps 3 and 5 are repeated until the power source is turned off by the power source switch 4. When the power source switch 4 is turned off, the power source of the whole system of the portable telephone "T" is turned off at step 6.

[0034] When the function change-over switch 9 is pushed while the power source of the portable telephone set "T" is in "on" state, the process determines to be "yes" at step 3 to moves to the body fat measurement mode in step 7. At step 7, since the process is in the state for measuring the body fat because the function change-over switch 9 is pushed once, the process determines to be "yes" and moves to step 8 where the control section 21 sends to the display unit 3 a signal for demanding the height data to be input and thereby the display unit 3 displays a character message for demanding the height data to be input. When this message is displayed and an operator inputs his own height data by the numeral input unit 2 and turns on the memory key 8 (step9), the process moves to step 10 where the display unit 3 displays a character message for demanding the weight data to be input. At step 11, when the operator inputs his own

weight data by the same operation as of the height data at step 9, the process moves to the step 12 where the display unit 3 displays a character message for measuring the body fat rate. This message requests the operator to bring his forefinger and thumb of his right hand into contact with the electrodes "A" and "B" and to bring his forefinger and thumb of his left hand into contact with the electrodes "C" and "D", and notifies him that the body fat rate will be measured.

When this notification message is displayed, the constant current circuit 22 applies the current between the forefingers of the right and the left hands through the electrodes "A" and "C". Then the voltage detecting circuit 23 detects the voltage between the thumbs of the right and the left hands through the electrodes "B" and "D".

[0035] This detected data is sent to the control section 21 where an electric resistance between the thumbs of the right and the left hands of the operator is calculated based on the formula below:

$$\text{detected voltage value} / \text{constant current value} = \text{resistance value}$$

At step 13, a body mass index (BMI) is calculated based on the height and the weight data, and the body fat rate is calculated based on a well known equation using data such as the height or the like having been input and the electric resistance value measured, and, at step 14, above calculated values as well as data including a measurement date, the height, the weight, the sex, the age, and the electric resistance value are stored in the memory 24. At step 15, the condition whether the display change-over switch 10 on the front surface of the portable telephone set is turned-on or not is determined, and, if it is not turned-on, the process moves to step 16 and displays the calculated body fat rate on the display unit 3. When the display change-over switch 10 has been turned on, the process moves to step 17 and displays the calculated BMI on the display unit 3. Thus, the body fat rate and the BMI which are data for health management can be easily displayed alternatively by the use of the display change-over switch 10.

[0036] Though only the calculated body fat rate and BMI are displayed at steps 16 and 17 in the above description, all or a part of the other data stored at step 14 can be selectively displayed at the same time. At step 18, the condition whether the transfer switch 11 on the front surface of the portable telephone set is turned on or not is determined, and, if it is in "off" condition, the process returns to step 3, and, if it is in "on" condition, the process moves to step 19, where the process makes a telephone call to the aggregation center "S" and transmits various data stored at step 14 along with the telephone number of the transmitter and, after the transmission, cuts off the call and returns to step 3. The reason why the telephone number of the transmitter is transmitted is that a well known function of transmitter number notification is used, which allows the aggregation center "S" receiving the transmitted data to easily call the data such as name of the transmitter by the computer based on the telephone number, to store these data in the predetermined area of database, and to easily analyze the data. This analysis or the like will be described later.

[0037] Then, in the body fat measurement mode at step 7, when the function change-over switch 9 is turned on again, the process moves from step 7 to steps 20, 21 to enter a memory data display mode. At step 21, various past data stored in the memory 24 are called to the control section 21 and the stored data of the measurement date is displayed as a list on the display unit 3 (step 22). The transmitter selects a specified measurement day on the list by the input unit 2 (step 23). After the selection, the body fat rate and BMI are displayed as in the processing at steps 15 to 17 (steps 24 to 26), and the process returns to step 3. Thereby, the transmitter can look at the past measured data of the body fat rate and a history of the data. In addition, when the function change-over switch 9 is turned on in the memory data display mode at step 20, the process moves from step 20 to step 27, where the process makes a telephone call to the aggregation center "S" by the use of the normal telephone function and receives the data analyzed in the aggregation center "S". At that time, the aggregation center "S" determines the telephone number based on the telephone call and transmits the necessary data from the database of the objective person.

[0038] At step 28, the portable telephone "T" processes the received data and displays it as a character information on the display unit 3 at step 29. This displayed character information can be stored in the memory 24 by turning on the memory key 8 at step 30. Though this stored data is not described in the flow chart, it can be displayed on the display unit 3 by turning on the memory key 8 and selecting it. Thereby, an ordinary transmitter can receive various advice based on the specialized analysis by the aggregation center to utilize it in judging the own health condition and in managing the own health based on the quantity of exercise to be taken, the restriction on the amount of meal or the like.

[0039] When the aggregation center "S" makes a telephone call to the portable telephone "T" to send the data, the portable telephone "T" can implement the processes between steps 26 to 29 by turning on the transfer key 11 after the data is received.

[0040] Further, the clock/alarm circuit 27 of Fig. 2 can sound the buzzer at the predetermined time in a day to notify that the daily time for measuring the body fat has come, and, if the alarm time is linked to the body fat measuring function, a character display for indicating the body fat measuring time may be shown on the display unit 3 at the same time when the buzzer is sounded at the predetermined time. This enables an accurate and continuous measurement of the body

fat, which has to be implemented everyday at the predetermined time, by preventing the measurement from being forgotten or from being implemented at a time other than the predetermined one.

[0041] In addition, contents of the character display on the display unit 3 may be output in voice by the speech synthesis circuit in the control section 21 through the voice processing section 26 and the speaker 5.

[0042] The portable telephone set "T" can transmit or receive the various data described above to or from another portable telephone set "U" of the other person by the same manner employed when said portable telephone set "T" communicates with the aggregation center "S" in transmitting or receiving various data.

[0043] Then the data analysis processing in the aggregation center "S" will be described.

[0044] The aggregation center stores various data such as measurement date, height, weight, sex, age, electric resistance value, BMI, body fat rate for each transmitter from the portable telephone set in a form of database, and also stores the contents of various advice for each transmitter based on the analysis of these data and the time when the contents of advice is delivered to the transmitter. Upon receiving a telephone call from the portable telephone of the transmitter, the aggregation center at first confirms the telephone number of the transmitter and determines who is sending the data. After the determination, the aggregation center "S" stores the data sent from the portable telephone in said database and also stores the contents of various advice based on the analysis of the data. Said stored contents of various advice may be sent back immediately after the data sent from the portable telephone was received or may be transmitted when the transmitter requires as shown at step 27 of Fig. 3. In addition, the aggregation center "S" may transmit periodically or at any time, voluntarily or urgently.

[0045] Said contents of various advice includes a data indicating if the body fat rate is within a desirable range, a data indicating how much Kg of fat shall be reduced to go into the desirable range, or the like. If the display means 3 of the portable telephone set "T" is capable of making a bit map display, a balance between the BMI and the body fat rate may be displayed as a matrix as shown in Fig. 5 to notify the transmitter if the current body fat rate is within the desirable range or which position it belongs to. The amount of fat (Kg) to be reduced may be calculated by the equation below:

[0046]

$$\text{Amount of fat to be reduced} = \text{Current weight} \times (\text{Current body fat rate} - \text{Desired body fat rate}) / (100 - \text{Desired body fat rate})$$

[0047] When the amount of fat to be reduced is made clear, an additional advice concerning the quantity of exercise and a reduction amount of snack between meals to achieve the desired body fat rate may be provided as shown below.

[0048] In a case where a woman who is twenty years old with 60 kg of weight enters that she wants to reduce 2 kg of fat within two months into the aggregation center "S", the following information will be obtained.

$$\begin{aligned} \text{Amount of fat to be reduced a day (Kg)} &= 2 \text{ (Kg)} / 2 \text{ (months)} \\ &= 33.3 \text{ (g / day)} \end{aligned}$$

Since the calorie of 1 Kg of fat is equal to 7200 Kcal, the energy to be consumed a day is:

$$33.3 \text{ (g)} \times 7200 \text{ Kcal} / 1000 = 240 \text{ Kcal}$$

[0049] This energy to be consumed can be translated into, for example, a normal speed walking of one and a quarter hours per day, or a light load jogging of thirty-four minutes per day, by the calculation based on the table of the consumed energy in the exercise and the age factor used in the Ministry of Health and Welfare.

[0050] This energy to be consumed may be translated also into an amount of daily foods to be cut off based on the food constituent table. For example, it may be one piece of donut or one and half glasses of beer with a middle size jug.

[0051] Accordingly, the data below is transmitted from the aggregation center "S" to the portable telephone set "T" and is displayed on the display unit 3, and also may be stored in the memory 24.

"One of four menus below shall be employed:

normal speed walking of one and a quarter hours a day

light load jogging of thirty-four minutes a day
 a piece of donut reduction a day
 one and a half glasses of beer (a middle size jug) reduction a day"

5 The contents of the above advice is shown only as an example, and various type of advice may be employed including a combination of the above menus, an advice of food reduction without disturbing the food balance, an illustration showing a food and a reduced condition in its food (for example, half of an apple is shown in light color).

[0052] The body fat meter and the portable telephone set are combined in the above embodiment.

10 [0053] Though the portable telephone set is employed in the above embodiments as the intelligent terminal unit, other intelligent terminal units such as a portable personal computer with modem or an electronic organizer with communication system may be employed as well.

15 [0054] According to the present invention, as described above, since the body fat meter is mounted on the intelligent terminal unit always carried with, there is little problem of the place for keeping it comparing with the separate type body fat meter, and the body fat rate can be measured for health management anytime and anywhere. Since the electrodes are provided for each hand and foot, the electric resistance and the body fat rate can be measured between both hands, between both feet or between hand and foot if necessary, so that the place in the body having the fat may be found. In addition, since the data including the body fat rate may be stored in the memory for storing the telephone number, the past or various data may be stored and re-displayed at little expense of cost and size. Further, the alarm function enables an accurate and continuous measurement of the body fat, which has to be implemented everyday at the predetermined time, by preventing the measurement from being forgotten or from being implemented at a time other than the pre-determined one.

20 [0055] Furthermore, since the body fat meter is mounted on the intelligent terminal unit always carried with and the data may be sent to the aggregation center "S" which has the special information about the health management data analysis and lots of advisory information and also may be received therefrom, an ordinary transmitter can receive various advice based on the specialized analysis by the aggregation center to utilize it in judging the own health condition and in managing the own health based on the quantity of exercise to be taken, the restriction on the amount of meal or the like.

30 Claims

1. A health management device mounted on an intelligent terminal unit (T), said intelligent terminal unit (T) having a numeral input unit (2) provided on said intelligent terminal unit (T), a display unit (3) provided on said intelligent terminal unit (T), a transmitting and receiving unit (25) configured to transmit data to and receive data from an aggregation center, and a memory unit (24), said device comprising:

35 at least four electrodes(A, B, C, D) provided on said main body (1) of said intelligent terminal unit (T);
 a constant current generating unit (22) which applies a constant current to at least two electrodes among said at least four electrodes (A, B, C, D);
 a voltage detecting unit (23) which detects a voltage between at least two electrodes among said at least four electrodes (A, B, C, D);
 40 a switching unit (20) which switches a function as an intelligent terminal unit (T) into a function as a health management device and vice versa; and
 a control unit (21),

45 wherein personal data can be input from said numeral input unit (2), and said control unit (21) is configured to calculate a health management indicator based on said personal data input from said numeral input unit (2) and a detected voltage from said voltage detecting unit (23) to be displayed on said display unit (3) when said function is switched into the function as the health management device by said switching unit (20), and wherein
 50 said transmitting and receiving unit (25) is configured to transmit data of said health management indicator to an aggregation center (S) and cause data from said aggregation center (S) to be displayed on said display unit (3) by the use of said control unit (21), and the data transmitted from said aggregation center (S) is a result of an analysis based on a data from the intelligent terminal unit (T).

2. A health management device as claimed in claim 1, in which said health management indicator is a body fat rate and two fingers of the right hand and two fingers of the left hand can be brought into contact with said at least four electrodes (A, B, C, D) respectively.

3. A health management device as claimed in claim 2, in which four electrodes are further provided additionally in

order to be brought into contact with both feet respectively.

4. A health management device as claimed in any of claims 1 to 3, in which said health management indicator is a body fat rate and said intelligent terminal unit (T) is provided with said memory unit (24) for storing data such as telephone number, and a data of the body fat rate calculated by said control unit (21) can be stored therein.
5. A health management device as claimed in any of claims 1 to 3, in which said health management indicator is a body fat rate, and by the use of an alarm function of said intelligent terminal unit (T), the body fat rate is made to be measured and calculated at a predetermined time set in said alarm function.
6. A health management device as claimed in claim 1, in which said health management indicator is a body fat rate, and a data transmitted from said intelligent terminal unit (T) is a data of the body fat rate calculated by said control unit (21) and/or stored in said memory unit (24).
7. A health management device as claimed in claim 1 or 6, in which, by the use of the receiving function of said intelligent terminal unit (T), various data transmitted from said aggregation center (S) can be displayed on said display unit (3) and/or can be stored in said memory unit (24).
8. A health management device as claimed in any of the claims 1, 6 or 7, in which said health management indicator is a body fat rate, and a data transmitted from said aggregation center (S) is a data indicating a desired range of the body fat rate and/or indicating an amount of fat to be reduced.
9. A health management device as claimed in any of claims 1 or 6 to 8, in which a data transmitted from said aggregation center (S) is a data indicating a quantity of exercise to be taken and/or indicating an amount of meal to be reduced.

Patentansprüche

1. Gerät zur Gesundheitsverwaltung, das auf einer intelligenten Terminaleinheit (T) festgelegt ist, wobei die intelligente Terminaleinheit (T) bzw. Einheit eines intelligenten Terminals eine numerische Eingabeeinheit (2), die an der intelligenten Terminaleinheit (T) zur Verfügung gestellt ist, eine Anzeigeeinheit (3), die an der intelligenten Terminaleinheit (T) zur Verfügung gestellt ist, eine Übertragungs- und Empfangseinheit (25), die konfiguriert ist, um Daten zu einem Aggregationszentrum zu übertragen und Daten von diesem zu empfangen, und eine Speichereinheit (24) aufweist, wobei die Vorrichtung umfaßt:
 - wenigstens vier Elektroden (A, B, C, D), die an dem Hauptkörper (1) der intelligenten Terminaleinheit (T) zur Verfügung gestellt sind;
 - eine Konstantstrom-Generierungseinheit (22), welche einen Konstantstrom an wenigstens zwei Elektroden unter den vier Elektroden (A, B, C, D) anlegt;
 - eine Spannungsdetektionseinheit (23), welche eine Spannung zwischen wenigstens zwei Elektroden unter den wenigstens vier Elektroden (A, B, C, D) detektiert;
 - eine Schalteinheit (20), welche eine Funktion als eine intelligente Terminaleinheit (T) in eine Funktion als eine Gesundheitsmanagementvorrichtung bzw. ein Gerät zur Gesundheitsverwaltung und umgekehrt schaltet; und
 - eine Steuer- bzw. Regeleinheit (21),

wobei persönliche Daten von der numerischen Eingabeeinheit (2) eingegeben werden können, und die Steuer- bzw. Regeleinheit (21) konfiguriert ist, um einen Gesundheitsmanagementindikator basierend auf den persönlichen Daten, die von der numerischen Eingabeeinheit (2) eingegeben sind, und einer detektierten Spannung von der Spannungsdetektionseinheit (23) zu berechnen, die an der Anzeigeeinheit (3) anzuzeigen ist, wenn die Funktion in die Funktion als die Gesundheitsmanagement- bzw. -verwaltungsvorrichtung durch die Schalteinheit (20) geschaltet ist, und wobei

die Übertragungs- und Empfangseinheit (25) konfiguriert ist, um Daten des Gesundheitsmanagementindikators zu einem Sammel- bzw. Aggregationszentrum (S) zu übertragen und zu veranlassen, daß Daten von dem Aggregationszentrum (S) auf der Anzeigeeinheit (3) durch die Verwendung der Steuer- bzw. Regeleinheit (21) anzuzeigen sind, und die Daten, die von dem Aggregationszentrum (S) übertragen sind, ein Ergebnis einer Analyse basierend auf Daten von der intelligenten Terminaleinheit (T) sind.
2. Gerät zur Gesundheitsverwaltung nach Anspruch 1, in welchem der Gesundheitsverwaltungsindikator eine Körper-

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fettrate ist und zwei Finger der rechten Hand und zwei Finger der linken Hand in Kontakt mit wenigstens vier Elektroden (A, B, C, D) gebracht werden können.

- 5 3. Gerät zur Gesundheitsverwaltung nach Anspruch 2, in welchem vier Elektroden weiters zusätzlich zur Verfügung gestellt sind, um jeweils in Kontakt mit beiden Füßen gebracht zu werden.
- 10 4. Gerät zur Gesundheitsverwaltung nach einem der Ansprüche 1 bis 3, in welchem der Gesundheitsmanagementindikator eine Körperfettrate ist und die intelligente Terminaleinheit (T) mit der Speichereinheit (24) versehen ist, um Daten, wie eine Telefonnummer zu speichern, und Daten der Körperfettrate, die durch die Steuer- bzw. Regeleinheit (21) berechnet sind, darin gespeichert werden können.
- 15 5. Gerät zur Gesundheitsverwaltung nach einem der Ansprüche 1 bis 3, in welchem der Gesundheitsmanagementindikator eine Körperfettrate ist und durch die Verwendung einer Alarmfunktion der intelligenten Terminaleinheit (T) wird die Körperfettrate veranlaßt wird, zu einer vorbestimmten Zeit, die in der Alarmfunktion festgelegt ist, gemessen und berechnet zu werden.
- 20 6. Gerät zur Gesundheitsverwaltung nach Anspruch 1, in welchem der Gesundheitsmanagementindikator eine Körperfettrate ist und Daten, die von der intelligenten Terminaleinheit (T) übertragen sind bzw. werden, Daten der Körperfettrate sind, die durch die Steuer- bzw. Regeleinheit (21) berechnet sind und/oder in dem Speicher (24) gespeichert sind.
- 25 7. Gerät zur Gesundheitsverwaltung nach Anspruch 1 oder 6, in welchem durch die Verwendung der Empfangsfunktion der intelligenten Terminaleinheit (T) verschiedene Daten, die von dem Aggregationszentrum (S) übertragen sind bzw. werden, auf der Anzeigeeinheit (3) angezeigt werden können und/oder in der Speichereinheit (24) gespeichert werden können.
- 30 8. Gerät zur Gesundheitsverwaltung nach einem der Ansprüche 1, 6 oder 7, in welchem der Gesundheitsmanagementindikator eine Körperfettrate ist und Daten, die von dem Aggregationszentrum (S) übertragen sind bzw. werden, Daten sind, die einen gewünschten Bereich der Körperfettrate anzeigen und/oder eine Menge an zu reduzierendem Fett anzeigen.
- 35 9. Gerät zur Gesundheitsverwaltung nach einem der Ansprüche 1 oder 6 bis 8, in welchem Daten, die von dem Aggregationszentrum (S) übertragen werden bzw. sind, Daten sind, die eine Menge einer Übung anzeigen, die auszuführen ist, und/oder eine Menge einer Mahlzeit, die zu reduzieren ist.

Revendications

- 40 1. Dispositif de gestion de l'état de santé, installé dans une unité formant terminal intelligent (T), ladite unité formant terminal intelligent (T) possède une unité d'entrée numérique (2) prévue dans ladite unité formant terminal intelligent (T), une unité d'affichage (3) prévue dans ladite unité formant terminal intelligent (T), une unité d'émission et de réception (25) configurée de manière à émettre des données et recevoir des données en direction et en provenance d'un centre d'agrégation, et une unité de mémoire (24), ledit dispositif comprenant :
 - 45 au moins quatre électrodes (A,B,C,D) prévues sur ledit corps principal (1) de ladite unité formant terminal intelligent (T);
 - une unité (22) de génération de courant constant, qui applique un courant constant à au moins deux électrodes parmi lesdites au moins quatre électrodes (A,B,C,D);
 - 50 une unité de détection de tension (23), qui détecte une tension entre au moins deux électrodes parmi lesdites au moins quatre électrodes (A,B,C,D);
 - une unité de commutation (20) qui commute une fonction en tant qu'unité formant terminal intelligent (T) en une fonction en tant que dispositif de gestion de l'état de santé et vice versa;
 - une unité de commande (21),
- 55 dans lequel des données personnelles peuvent être introduites à partir de ladite unité d'entrée numérique (2), et ladite unité de commande (21) est configurée de manière à calculer un indicateur de gestion de l'état de santé sur la base desdites données personnelles introduites à partir de ladite unité d'entrée numérique (2) et une tension détectée fournie par ladite unité de détection de tension (23), devant être affichée sur ladite unité d'affichage (3)

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lorsque ladite fonction est commutée sur la fonction en tant que dispositif de gestion de l'état de santé, par ladite unité de commutation (20), et

dans lequel ladite unité d'émission et de réception (25) est configurée de manière à émettre des données dudit indicateur de gestion de l'état de santé à un centre d'agrégation (S) et provoquer l'affichage de données fournies par ledit centre d'agrégation (S), sur ladite unité d'affichage (3) moyennant l'utilisation de ladite unité de commande (21), et les données transmises par ledit centre d'agrégation (S) sont un résultat d'une analyse basée sur des données provenant de l'unité formant terminal intelligent (T).

2. Dispositif de gestion de santé selon la revendication 1, dans lequel ledit indicateur de gestion de l'état de santé est un pourcentage de graisse corporelle, et deux doigts de la main droite et deux doigts de la main gauche peuvent être placés en contact respectivement avec lesdites au moins quatre électrodes (A,B,C,D).

3. Dispositif de gestion de santé selon la revendication 2, dans lequel quatre électrodes sont en outre prévues en supplément pour être placées respectivement en contact avec les deux pieds.

4. Dispositif de gestion de santé selon l'une quelconque des revendications 1 à 3, dans lequel ledit indicateur de gestion de l'état de santé est un pourcentage de graisse corporelle et ladite unité formant terminal intelligent (T) est équipée de ladite unité de mémoire (24) pour la mémorisation de données telles qu'un numéro de téléphone, et des données du pourcentage de graisse corporelle calculé par ladite unité de commande (21) peuvent être mémorisées dans cette unité de mémoire.

5. Dispositif de gestion de santé selon l'une quelconque des revendications 1 à 3, dans lequel ledit indicateur de gestion de l'état de santé est un pourcentage de graisse corporelle, et grâce à l'utilisation d'une fonction d'avertissement de ladite unité formant terminal intelligent (T), le pourcentage de graisse corporelle est mesuré et calculé à un instant prédéterminé réglé dans ladite fonction d'avertissement.

6. Dispositif de gestion de santé selon la revendication 1, dans lequel ledit indicateur de gestion de l'état de santé est un pourcentage de graisse corporelle, et des données émises par ladite unité formant terminal intelligent (T) sont des données du pourcentage de graisse corporelle calculées par ladite unité de commande (21) et/ou mémorisées dans ladite unité de mémoire (24).

7. Dispositif de gestion de santé selon la revendication 1 ou 6, dans lequel, grâce à l'utilisation de la fonction de réception de ladite unité formant terminal intelligent (T), différentes données transmises à partir dudit centre d'agrégation (S) peuvent être affichées sur ladite unité d'affichage (3) et/ou peuvent être mémorisées dans ladite unité de mémoire (24).

8. Dispositif de gestion de santé selon l'une quelconque des revendications 1, 6 ou 7, dans lequel ledit indicateur de gestion de l'état de santé est un pourcentage de graisse corporelle, et des données émises par ledit centre d'agrégation (S) sont des données indiquant une gamme désirée du pourcentage de graisse corporelle et/ou indiquant une quantité de graisse devant être réduite.

9. Dispositif de gestion de santé selon l'une quelconque des revendications 1 ou 6 à 8, dans lequel les données émises par ledit centre d'agrégation (S) sont des données indiquant une quantité d'exercice devant être effectué et/ou indiquant une quantité de nourriture devant être réduite.

FIG. 1

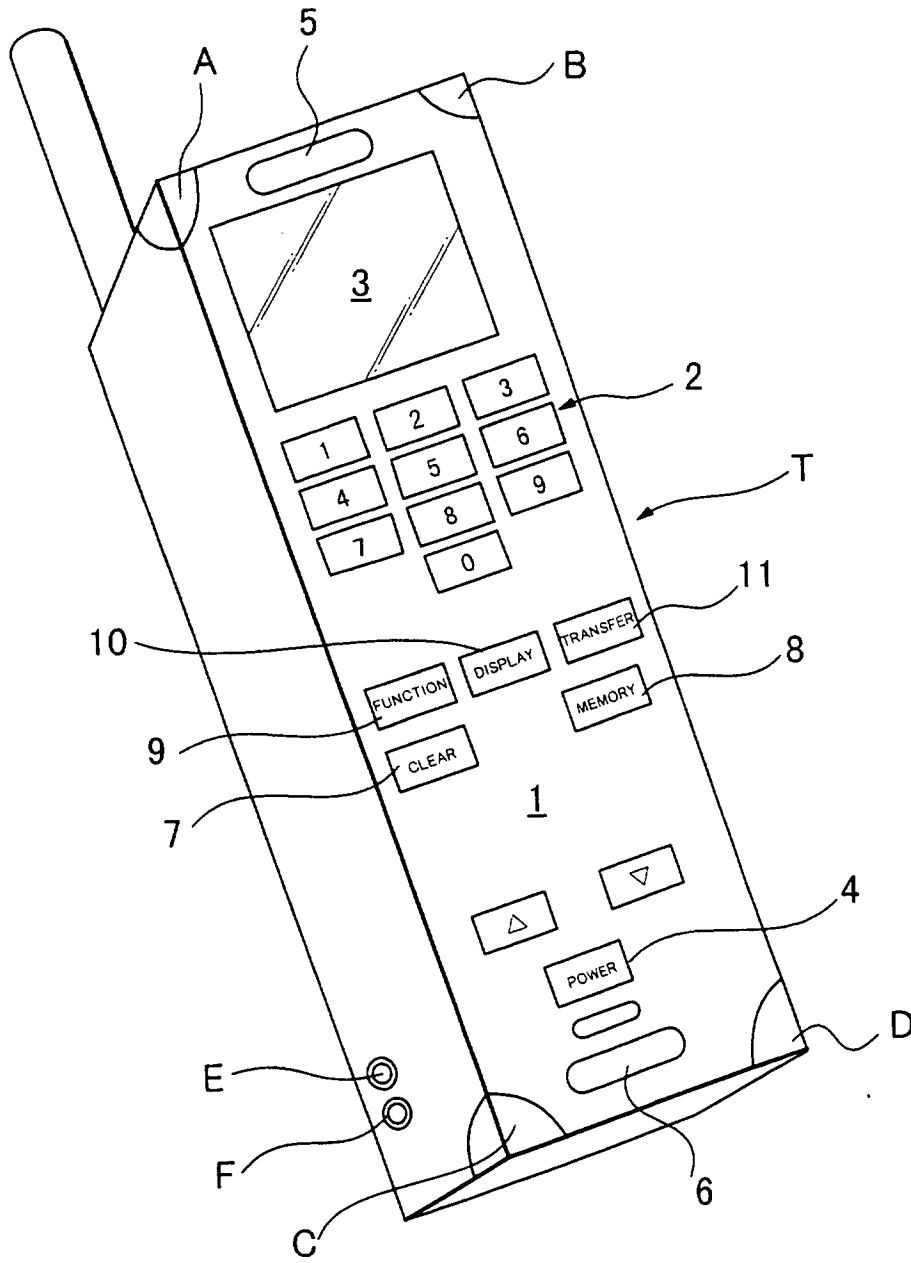


FIG. 2

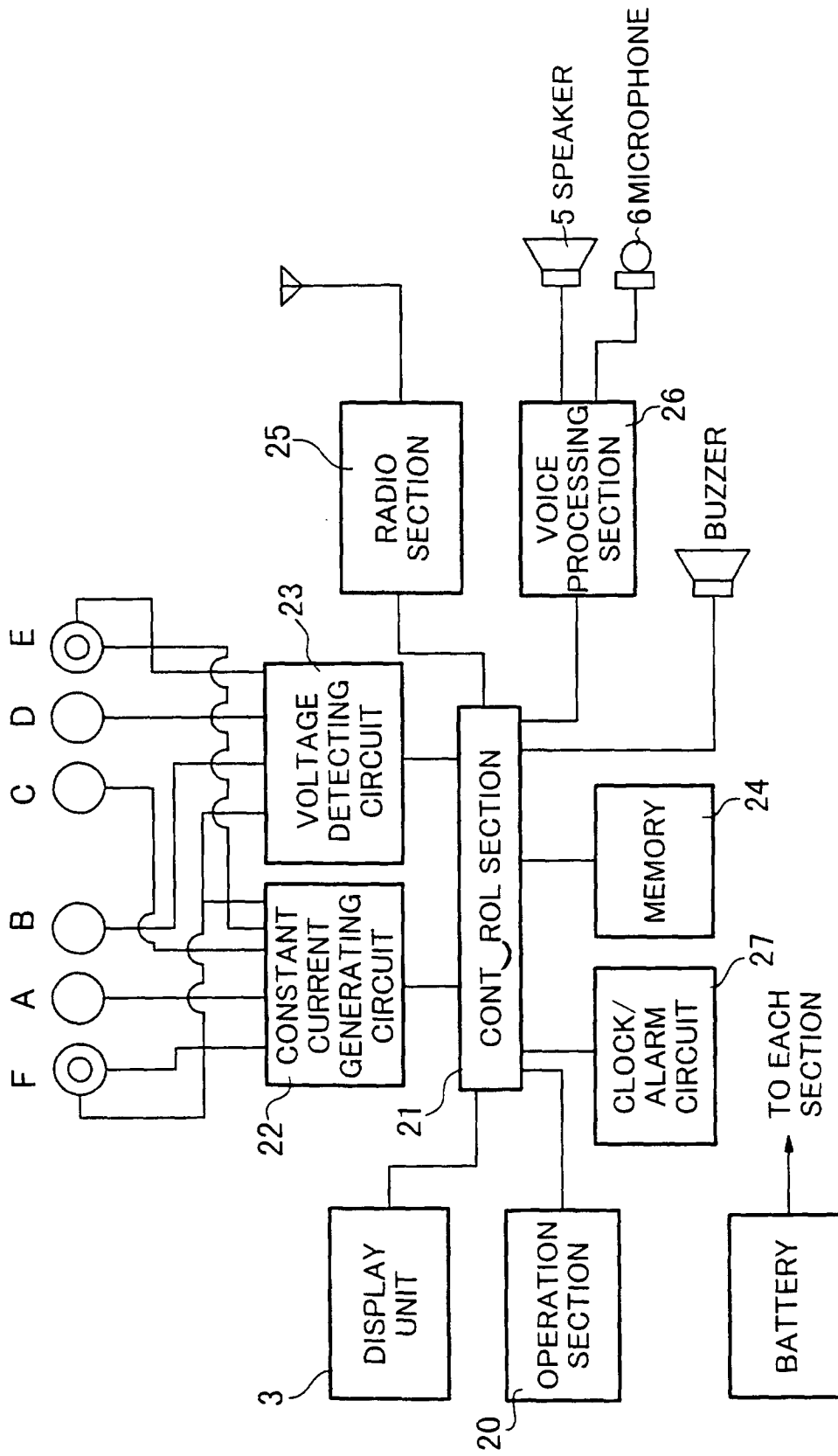


FIG. 3

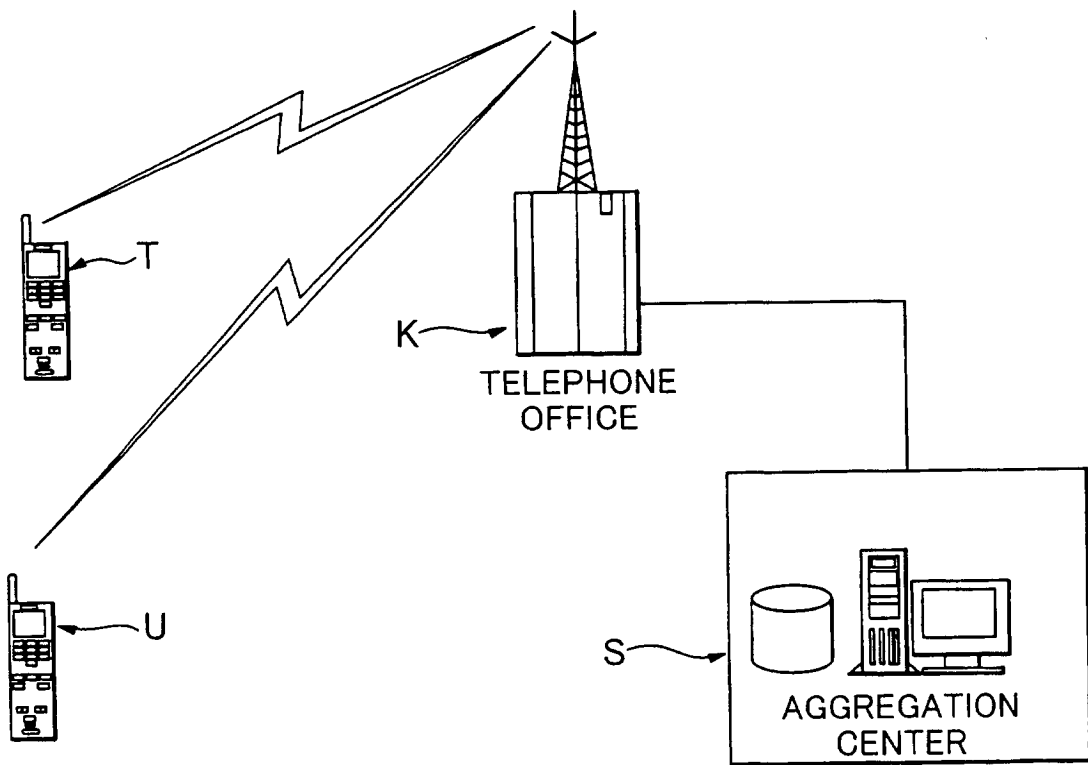


FIG. 4

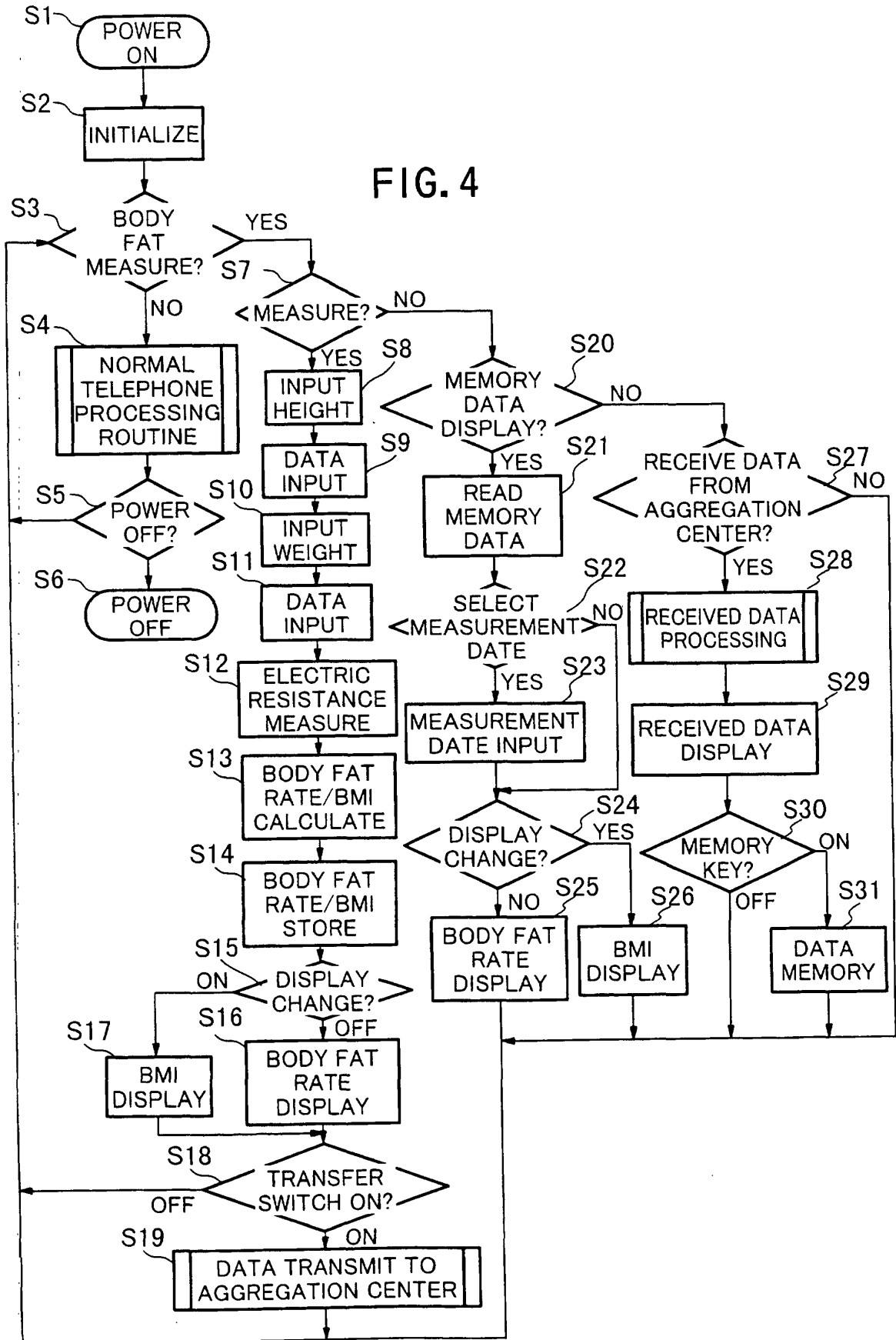
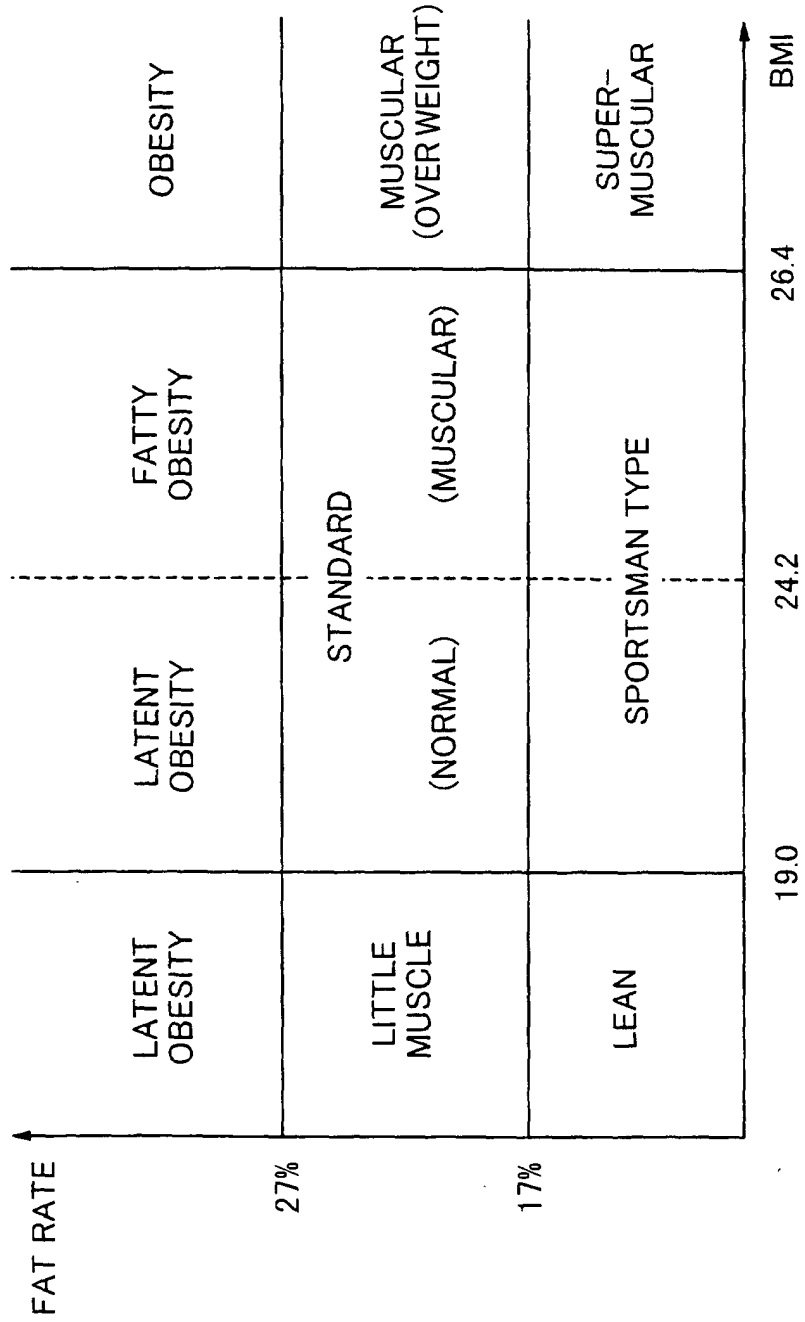


FIG.5

BALANCE BETWEEN BMI AND BODY FAT RATE



| | | | |
|----------------|---|---------|------------|
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| 外部链接 | Espacenet | | |

摘要(译)

健康管理装置包括设置在智能终端单元(T)的主体(1)上的至少四个电极(A, B, C, D);恒流产生单元(22),其向至少两个电极(A, C)施加恒定电流;电压检测单元(23),其检测至少两个电极(B, D)的电压;数字输入单元(2),设置在所述智能终端单元上;显示单元(3),设置在所述智能终端单元上;切换单元(9),将设备的功能从智能终端单元的功能切换到健康管理设备的功能,反之亦然;控制单元(21),基于从所述数字输入单元输入的数据和由所述电压检测单元检测的数据计算健康管理指标,并且当使所述设备用作健康管理时,在所述显示单元上显示计算结果所述切换单元的设备。

$$\text{detected voltage value} / \text{constant current value} = \text{resistance value}$$