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(19) **United States**(12) **Patent Application Publication**
CHEN(10) **Pub. No.: US 2014/0300491 A1**(43) **Pub. Date: Oct. 9, 2014**(54) **SYSTEM WITH DISTRIBUTED PROCESS UNIT**(71) Applicant: **Gemtek Technology Co., Ltd.**, Hsinchu (TW)(72) Inventor: **HUNG WEN CHEN**, Zhubei City (TW)(73) Assignee: **Gemtek Technology Co., Ltd.**, Hsinchu (TW)(21) Appl. No.: **14/229,522**(22) Filed: **Mar. 28, 2014**(30) **Foreign Application Priority Data**

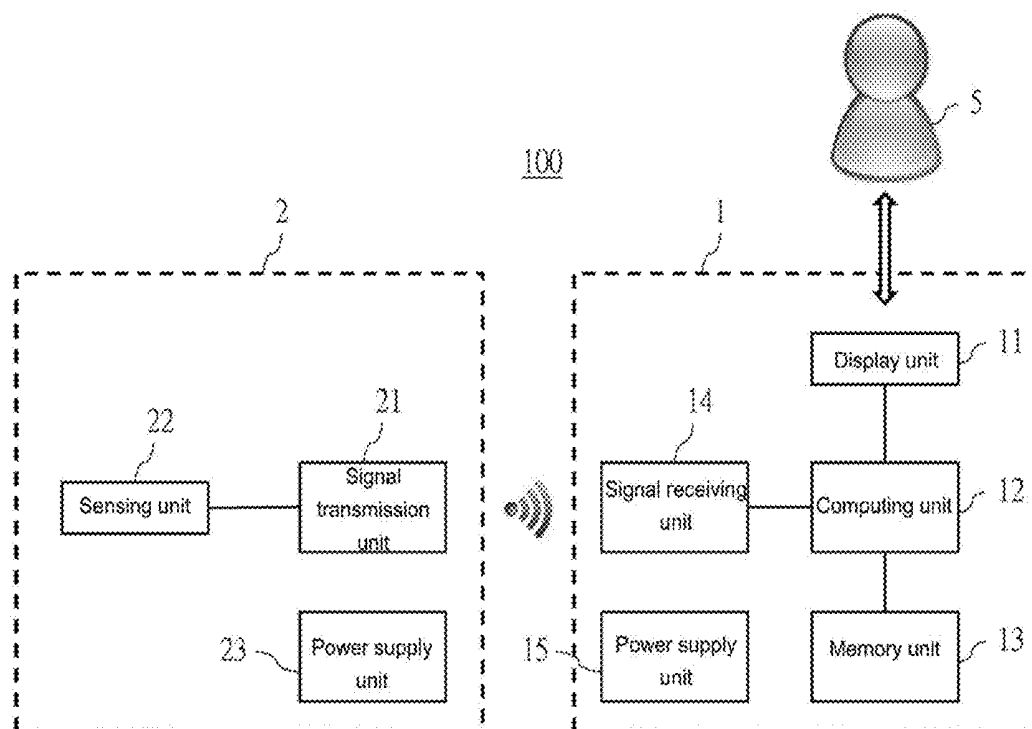
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A61B 5/00 (2006.01)(52) **U.S. Cl.**CPC **G08B 21/02** (2013.01); **A61B 5/0024** (2013.01)USPC **340/870.07**(57) **ABSTRACT**

The present invention provides a system with a separate computing unit, comprising: a sensing device comprising a power supply unit, a sensing unit configured to sense a user's physiological information, and a first wireless communication unit via which the physiological information that has not yet undergone the computing and processing operations is transmitted externally, the power supply unit electrically connecting and supplying power to the sensing unit and the first wireless communication unit; and a primary computing device comprising a computing unit, a display unit, and a second wireless communication unit, the second wireless communication unit receiving and transmitting the physiological information to the computing unit to undergo the computing operation and informing the user of a result of the computing operation via the display unit; wherein the sensing device transmits, via the first wireless communication unit, a wireless signal to the primary computing device according to a preset criterion.



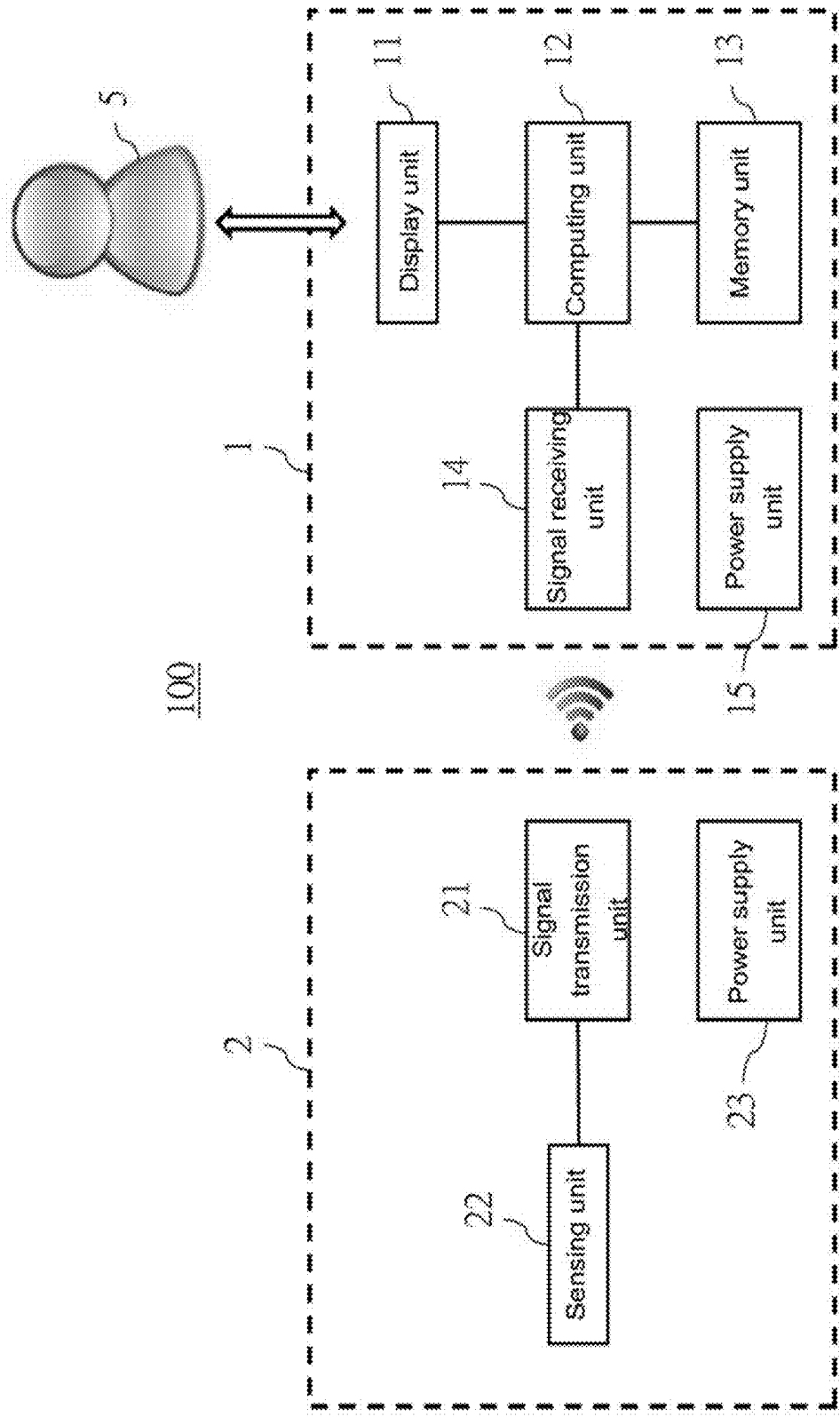


FIG.1

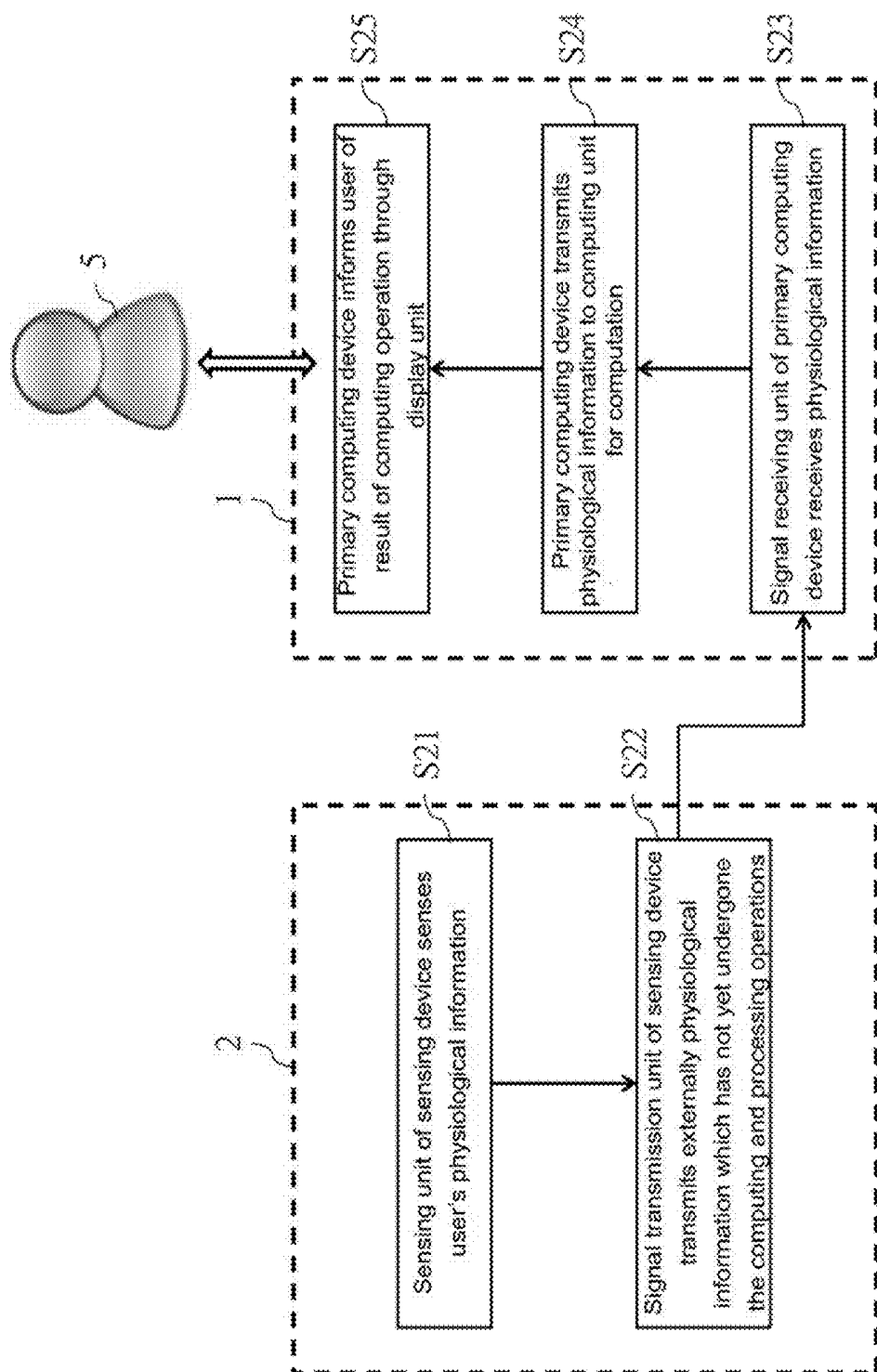


FIG. 2

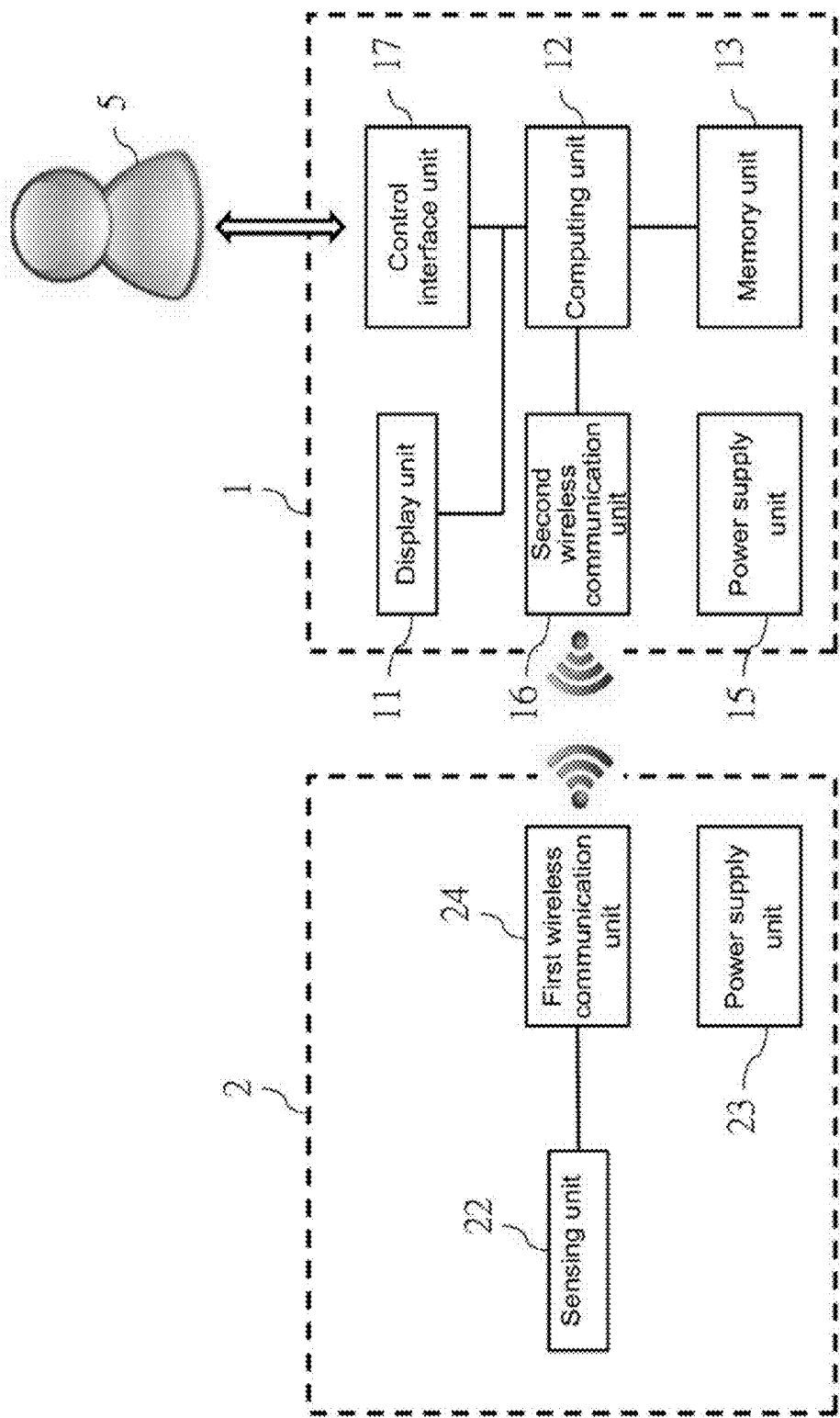


FIG.3

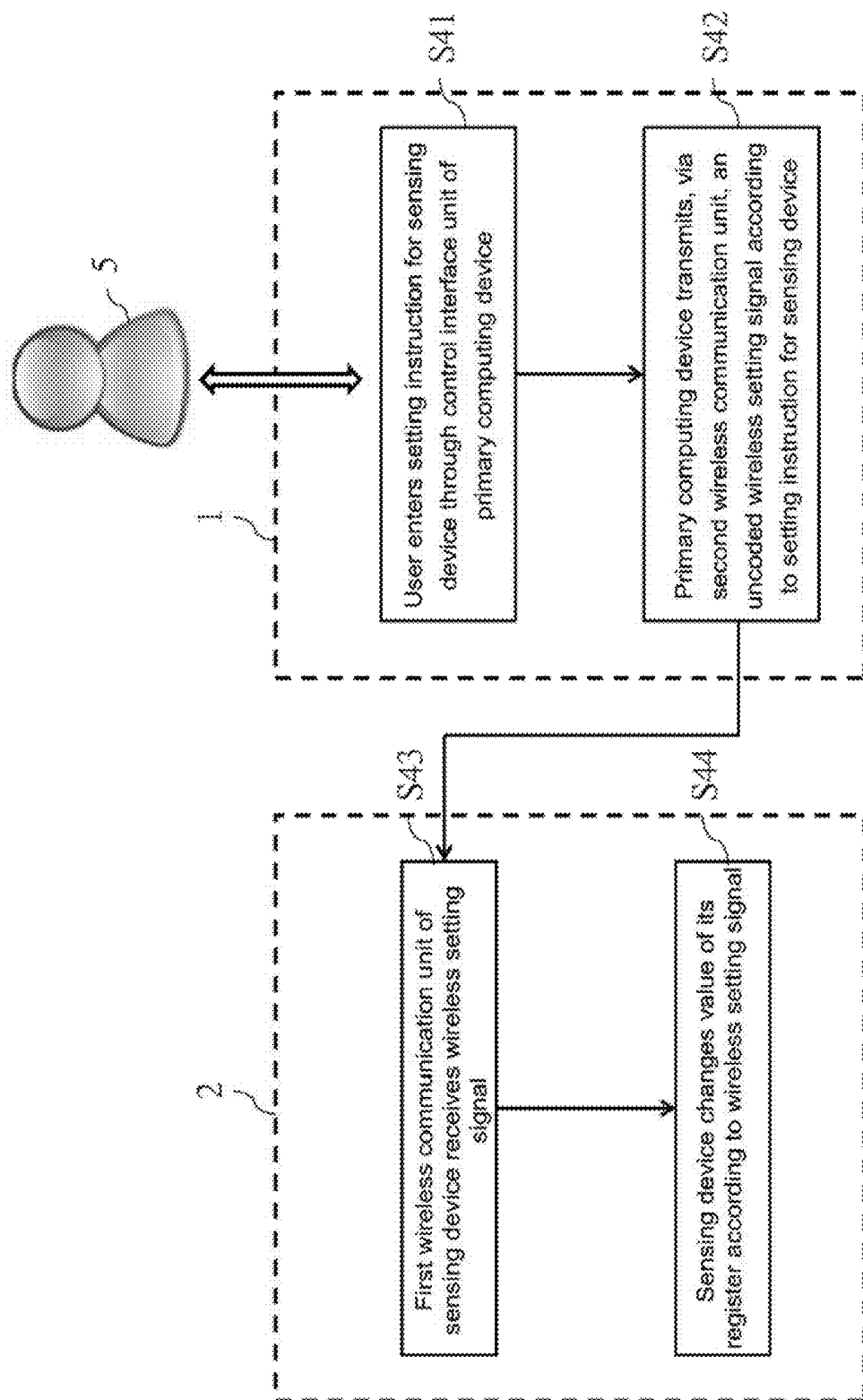


FIG. 4

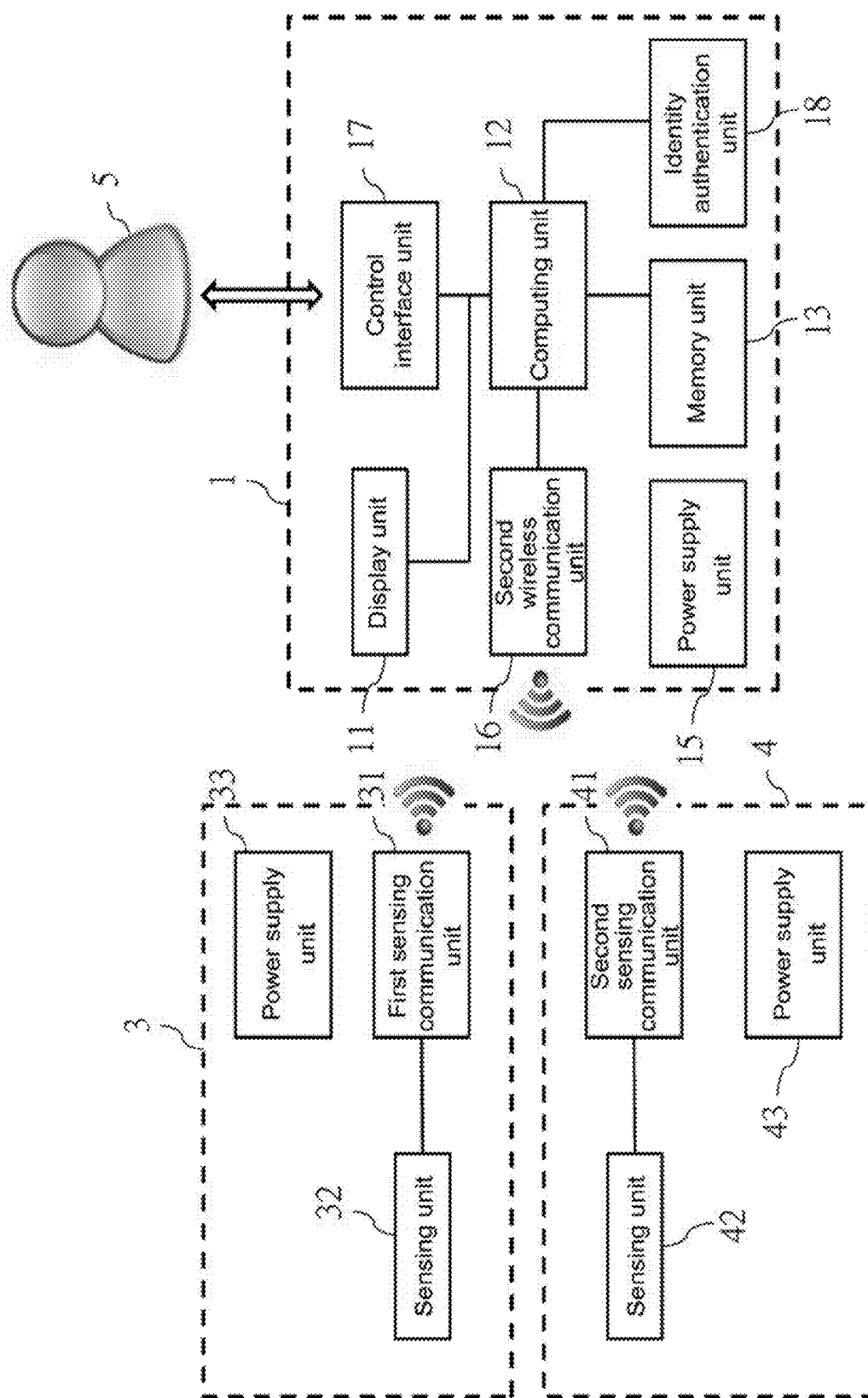


FIG.5

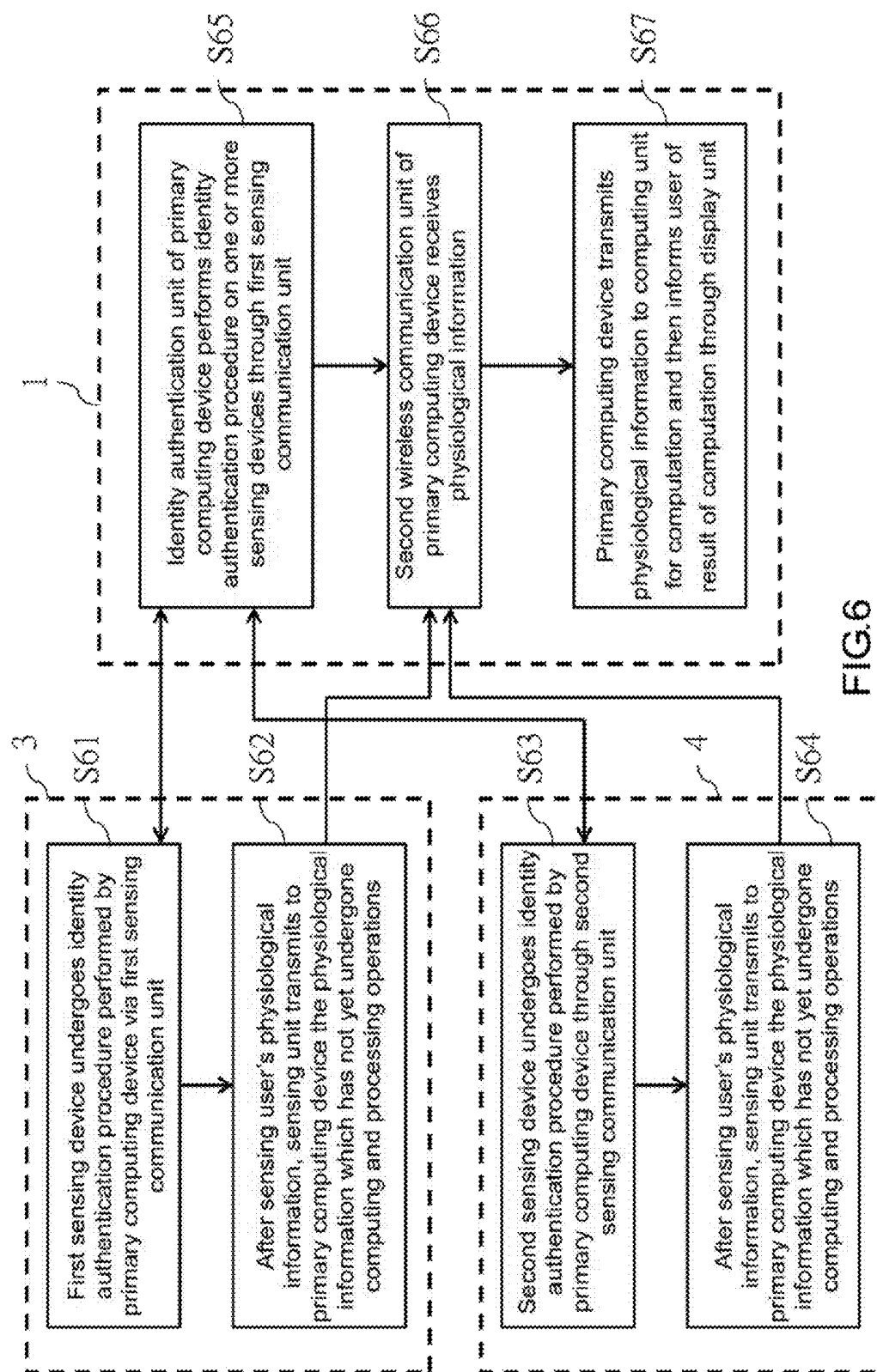


FIG. 6

SYSTEM WITH DISTRIBUTED PROCESS UNIT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This non-provisional application claims priority under 35 U.S.C. §119(a) on Patent Application No(s). CN201320155258.X filed in China on Mar. 29, 2013, CN201310214981.5 filed in China on May 31, 2013, and CN201310279676.4 filed in China on Jul. 4, 2013, the entire contents of which are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a separate computing system, and more particularly, to a wireless communication system with a separate computing unit.

[0004] 2. Description of the Prior Art

[0005] Due to technological advancement, wearable electronic apparatuses are becoming more popular with consumers and come in a wide variety of categories and functionalities. In this regard, users expect wearable electronic apparatuses, such as a contact lens capable of measuring capillary blood pressure or a wristband capable of taking the pulse, to have excellent electronic detection/computation functionality while maintaining minimized weight and low power consumption.

[0006] Minimized weight and low power consumption, however, are usually secured at the expense of electronic detection/computation functionality because a high-performance processor, which is prerequisite to excellent detection/computation functionality, inevitably consumes much power and causes heat dissipation problem.

[0007] Accordingly, how to reduce the weight and power consumption of a wearable electronic apparatus is an imperative issue to be addressed.

SUMMARY OF THE INVENTION

[0008] In view of the aforesaid drawbacks of the prior art, the present invention involves transmitting, via wireless transmission, the data to be computed from a wearable electronic apparatus to a high-performance processor equipped in a mobile communication device, such as a smartphone, a tablet computer, or a hand-held game console, or to a micro-computer equipped with a separate computing processor, to undergo the processing and computing operations, and displaying the result of the processing and computing operations on a screen of the mobile communication device. Alternatively, the user can directly enter an instruction to the mobile communication device via an interface of the mobile communication device to manipulate the settings of the wearable electronic apparatus. A processor or microprocessor of an existing mobile device, such as a smartphone, not only features a high computation clock rate but also has multiple cores for executing program instructions separately and independently, thereby increasing the speed of program execution with the multiplexing of parallel computing.

[0009] According to an object of the present invention, there is provided a system with a separate computing unit, comprising: a sensing device comprising a power supply unit, a sensing unit configured to sense a user's physiological information and a first wireless communication unit via which the physiological information that has not yet under-

gone the computing and processing operations is transmitted externally, the power supply unit electrically connecting and supplying power to the sensing unit and the first wireless communication unit; and a primary computing device comprising a computing unit, a display unit and a second wireless communication unit, the second wireless communication unit receiving and transmitting the physiological information to the computing unit to undergo the computing operation and informing the user of a result of the computing operation through the display unit; wherein the sensing device transmits, via the first wireless communication unit, a wireless signal to the primary computing device according to a preset criterion.

[0010] According to the above conception, the first wireless communication unit or/and the second wireless communication unit is/are selected from one of a Zigbee communication unit, a WiFi communication unit, an NFC communication unit, a RFID communication unit, a Bluetooth communication unit, and an infrared communication unit.

[0011] According to the above conception, it is preferable that the physiological information is selected from the information relating to the user's blood pressure, pulse, voice and vibration, and that the display unit is selected from a screen, an audio device and at least one LED lamp.

[0012] According to the above conception, it is preferable that the primary computing device further comprises a control interface unit providing a physiological information reading interface for making available the corresponding information according to the user's click selection. Moreover, the control interface unit further provides a sensing device setting interface configured to transmit, via the second wireless communication unit, an uncoded wireless setting signal to the sensing device according to the click selection made by the user. The sensing device changes the value of a register thereof according to the wireless setting signal.

[0013] According to the above conception, it is preferable that the criterion is set to be that the user's physiological information is regularly sensed with the sensing unit and the wireless signal is regularly transmitted to the primary computing device via the first wireless communication unit. Alternatively, the criterion is set to be that the wireless signal is transmitted to the primary computing device via the first wireless communication unit when the sensing unit senses that the user's physiological information exceeds a critical value.

[0014] According to the above conception, it is preferable that the sensing device is a heart stent with sensing capability, and the physiological information relates to a width of a cardiac blood vessel. Alternatively, the sensing device is a contact lens with sensing capability, and the physiological information relates to the blood pressure measured at ocular capillaries. Alternatively, the sensing device is a wristband with sensing capability, and the physiological information relates to the blood pressure or pulse.

[0015] According to the above conception, it is preferable that the primary computing device further comprises an identity authentication unit configured to perform an identity authentication procedure on the sensing device, and one or more other sensing devices from which the primary computing device synchronously receives wireless signals.

[0016] According to the object of the present invention, there is provided a system with a separate computing unit comprising: a sensing device comprising a power supply unit, a sensing unit configured to sense a user's physiological

information and a first wireless communication unit via which a warning message is transmitted externally when the physiological information sensed exceeds a standard value, the power supply unit electrically connecting and supplying power to the sensing unit and the first wireless communication unit; and a warning device comprising a warning unit and a second wireless communication unit, the warning unit performing a

[0017] warning operation after the second wireless communication unit has received the warning message.

[0018] According to the above conception, the warning device further comprises a computing unit configured to perform the computing operation on the physiological information contained in the warning message, and performs various respective warning operations according to a result of the computing operation. It is preferable that the warning device is a pocket-sized computer or a microcomputer, and that the warning unit is selected from one of an audio device, a display device and a vibration device.

[0019] With the aforementioned arrangement, a wearable electronic apparatus requires either no processor at all or only a simple microprocessor because all the complicated computing operations can be performed on a mobile communication device, such as a smartphone, or a microcomputer with a separate processor by means of wireless transmission, thereby fulfilling the goals of minimized weight, low power consumption, reduced cost, and enhanced computing capability.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] FIG. 1 is a block diagram illustrating the function of a separate computing system according to the first embodiment of the present invention.

[0021] FIG. 2 is a flow chart illustrating the operation of the separate computing system according to the first embodiment of the present invention.

[0022] FIG. 3 is a block diagram illustrating the function of a separate computing system according to the second embodiment of the present invention.

[0023] FIG. 4 is a flow chart illustrating the operation of the separate computing system according to the second embodiment of the present invention.

[0024] FIG. 5 is a block diagram illustrating the function of a separate computing system according to the third embodiment of the present invention.

[0025] FIG. 6 is a flow chart illustrating the operation of the separate computing system according to the third embodiment of the present invention.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0026] The present invention will be described more fully hereinafter with specific embodiments by reference to the accompanying drawings. Reference numerals used herein refer to those shown in the drawings. When used herein, the words “comprise”, “comprises”, and “comprising” are open-ended terms and shall be construed as “include, without limitation”, “includes, without limitation”, and “including, without limitation”, respectively. Moreover, a person having ordinary knowledge in the art understands that the same component/product may have a number of different names. For instance, the terms “processor” and “computing unit” refer to the same thing. Hence, components/products having func-

tions similar to those described herein and belonging to the same technical field as the present invention fall within the scope of the present invention.

[0027] Referring to FIG. 1, there is shown a block diagram illustrating the function of a separate computing system according to the first embodiment of the present invention. As shown in FIG. 1, there is a separate computing system **100** of the present invention, comprising: a primary computing device **1** comprising a display unit **11**, a computing unit **12**, a memory unit **13**, a signal receiving unit **14**, and a power supply unit **15**; and a sensing device **2** comprising a signal transmission unit **21**, a sensing unit **22**, and a power supply unit **23**.

[0028] The sensing unit **22** of the sensing device **2** is capable of detecting a user's physiological information such as, for example, information relating to one or more of the user's blood pressure, pulse, voice, vibration, and temperature. The signal transmission unit **21** of the sensing device **2** receives a message from the sensing unit **22** and transmits externally the message via wireless communication. Preferably, the signal transmission unit **21** is selected from one of a WiFi communication unit, an NFC communication unit, a RFID communication unit, a Bluetooth communication unit, a Zigbee communication unit, and an infrared communication unit. The power supply unit **23** of the sensing device **2**, which can be, for example, one of a lead-acid battery, a nickel-cadmium battery, a nickel-hydrate battery and a lithium ion battery, is configured to supply power to all electronic components in the sensing device **2**.

[0029] The signal receiving unit **14** of the primary computing device **1** receives information transmitted by the signal transmission unit **21** of the sensing device **2**. Preferably, the signal receiving unit **14** is selected from one of a WiFi communication unit, an NFC communication unit, a RFID communication unit, a Bluetooth communication unit, a Zigbee communication unit, and an infrared communication unit. The computing unit **12** of the primary computing device **1** performs the processing or computing operation on the information received by the signal receiving unit **14**, stores a result of the processing or computing operation in the memory unit **13** and/or displays the result of the processing or computing operation on the display unit **11**. The computing unit **12** refers generally to a logical computing device capable of executing complex computer programs, such as an integrated circuit central processing unit or a microprocessor. The computing unit **12** can have one or more cores and is preferably capable of parallel computing or synchronous multithreaded computing. The memory unit **13** includes a volatile memory and/or a nonvolatile memory and is configured to store the data of the primary computing device **1**. The power supply unit **15**, which can be, for example, one of a lead-acid battery, a nickel-cadmium battery, a nickel-hydrate battery and a lithium ion battery, is configured to supply power to all electronic components in the primary computing device **1**. Moreover, the display unit **11** of the primary computing device **1** is selected from one of a screen, a projection device, an audio device, and at least one LED lamp.

[0030] Referring to FIG. 2, there is shown a flow chart illustrating the operation of the separate computing system according to the first embodiment of the present invention. As shown in FIG. 2, steps **S21**~**S22** are implemented on the sensing device **2**, and steps **S23**~**S25** are implemented on the primary computing device **1**. For the sake of better understanding of the present invention, the primary computing

device **1** is exemplified by a smartphone, and the sensing device **2** is exemplified by a wristband capable of sensing physiological information. The physiological information is preferably the blood pressure-related information or pulse-related information. However, a person having ordinary knowledge in the art understands that the primary computing device **1** can be one of other mobile communication devices, such as a tablet computer, a notebook computer, a hand-held game console, and a multimedia player, and that the sensing device **2** can be a contact lens with sensing capability or a heart stent with sensing capability, without departing from the spirit and scope of the present invention. The first embodiment described herein is to be deemed as illustrative, rather than restrictive, of the scope of the present invention.

[0031] In step **S21**, the sensing unit **22** of the sensing device **2** senses the user's physiological information such as, for example, one of the blood pressure-related information, the pulse-related information, the estimated step count-related information, and the body temperature-related information, but not limited thereto. In step **S22**, the signal transmission unit **21** of the sensing device **2** transmits externally the physiological information having not yet undergone the computing and processing operations. The phrase "having not yet undergone the computing and processing operations" refers to the condition that the value detected by the sensing unit **22** is directly transmitted externally via wireless transmission without special encoding or encrypted computation. Thus, the sensing device **2** does not require any high-performance computing unit. Moreover, in practice, it is feasible to set a transmission condition for the sensing device **2**, for example, under which wireless signals are regularly transmitted to the primary computing device **1** via the signal transmission unit **21**, or wireless signals are transmitted externally via the signal transmission unit **21** when the sensing unit **22** senses that the subject's physiological information exceeds a critical value.

[0032] Referring to step **S23**, the signal receiving unit **14** of the primary computing device **1** receives the physiological information. As shown in step **S24**, the physiological information is then transmitted to the computing unit **12** to undergo the computing operation whose result can, for example, be used to determine whether the blood pressure-related information is within a normal range, determine whether the pulse-related information is within a normal range, calculate the calories burned or the distance walked according to the estimated step count-related information, and determine whether the body temperature-related information is within a normal range, but is not limited thereto. In step **S25**, the primary computing device **1** informs a user **5**, via the display unit **11**, of a result of the processing or computing operation which indicates whether, for example, various data relating to the user's blood pressure, pulse, calories, and body temperature are within their respective normal ranges, hence the user **5** can obtain the physiological information in a real-time manner and knows whether or not the physiological information is within a normal range. It is to be noted that the user **5** watching the display unit **11** and the subject being measured by the sensing device **2** can be the same person or different persons, and thus the separate computing system of the present invention is widely applicable to the measurement made by the physician/patient or oneself.

[0033] As can be seen from the above embodiment, certain physiological information, after being obtained by the sensing device **2**, is transmitted, via wireless transmission, to the

primary computing device **1** to undergo the computing and processing operations performed by the computing unit **11** of the primary computing device **1**, and then the result of the computing and processing operations is displayed on a screen (i.e., the display unit **11**) of the primary computing device **1**. With such arrangement, the sensing device **2** is exempted from complicated processing or computing operations, and thus the number of essential components thereof can be minimized (for example, no high-performance processor or memory is required), thereby fulfilling the goals of minimized weight and low power consumption. In other words, the present invention is advantageous in that the sensing device **2**, instead of being equipped with components of high power consumption and great weight, such as a processor, a memory and a display unit, exploits a central processing unit of a smartphone (i.e., the primary computing device **1**) to perform the computing operation, and that the result of the computing operation is presented to the user **5** on the screen (i.e., the display unit **11**) of the smartphone, thereby reducing the weight and power consumption.

[0034] Moreover, as the sensing device **2** of the present invention is characterized by minimized weight and low power consumption, it is applicable not only to the aforesaid wristband but also to a heart stent with sensing capability that detects a width of a cardiac blood vessel of a user with a sensing unit **22** thereof. Alternatively, the sensing device **2** is applicable to a contact lens with sensing capability that detects the blood pressure at the user's ocular capillaries with a sensing unit **22** thereof.

[0035] Referring to FIG. 3, there is shown a block diagram illustrating the function of a separate computing system according to the second embodiment of the present invention. FIG. 3 is different from FIG. 1 in that the sensing device **2** has a first wireless communication unit **24** for receiving and transmitting wireless signals, and that the primary computing device **1** has a second wireless communication unit **16** for receiving and transmitting wireless signals. In the second embodiment, the primary computing device **1** and the sensing device **2** communicate with each other by one of WiFi communication, NFC communication, RFID communication, Bluetooth communication, Zigbee communication, and infrared communication. In other words, unlike the signal transmission unit **21** and the signal receiving unit **14** of the first embodiment, the first wireless communication unit **24** and the second wireless communication unit **16** of the second embodiment are capable of two-way (receiving-and-transmitting) wireless communication. Moreover, in the second embodiment, the primary computing device **1** further has a control interface unit **17**. The control interface unit **17** provides a physiological information reading interface for making available the corresponding information according to the user's click selection. For instance, the user can make enquiries, via the physiological information reading interface, as to the fluctuations in body temperature over the past week or the average pulse over the past hour.

[0036] Referring to FIG. 4, there is shown a flow chart illustrating the operation of the separate computing system according to the second embodiment of the present invention. As shown in FIG. 4, steps **S41**–**S42** are implemented on the primary computing device **1**, and steps **S43**–**S44** are implemented on the sensing device **2**. For the sake of better understanding of the present invention, the primary computing device **1** and the sensing device **2**, like those disclosed in the first embodiment, are exemplified by a smartphone and a

wristband capable of sensing physiological information, respectively. Similarly, the second embodiment is illustrative, rather than restrictive, of the scope of the present invention. The flow chart in FIG. 4 omits similar operation processes depicted in FIG. 2, such as the regular transmission of physiological information relating to the sensed blood pressure, pulse, calories, body temperature, etc., to the primary computing device 1 by the sensing device 2.

[0037] Referring to step S41, the user enters a sensing device setting instruction via a touchscreen or a physical key (i.e., the control interface unit) of the smartphone (i.e., the primary computing device 1). For instance, the user clicks on the touchscreen to set the current physiological information to be detected as the pulse-related information and set the detection interval to be 10 minutes. In step S42, the smartphone transmits, via the second wireless communication unit 16, an uncoded wireless setting signal based on the sensing device setting instruction, and the wireless setting signal contains the sensing device setting instruction which has just been entered by the user.

[0038] In step S43, the first wireless communication unit 24 of the sensing device 2 (i.e., the wristband) receives the wireless setting signal. In step S44, the sensing device changes the value of a register thereof according to the wireless setting signal such that it detects a subject's pulse once every 10 minutes. Hence, the primary computing device 1 can not only display the data sensed by the sensing device 2 but also allow the user to directly and conveniently manipulate the measurement settings of the sensing device 2.

[0039] Referring to FIG. 5, there is shown a block diagram illustrating the function of a separate computing system according to the third embodiment of the present invention. The embodiment illustrated in FIG. 5 is different from the embodiments illustrated in FIGS. 1 and 3 in that the primary computing device 1 is capable of synchronously controlling multiple sensing devices (exemplified by a first sensing device 3 and a second sensing device 4) via the second wireless communication unit 16, and that the primary computing device 1 further comprises an identity authentication unit 18 configured to perform an identity authentication procedure on the first sensing device 3 and the second sensing device 4. In practice, the identity authentication unit 18 performs the identity authentication procedure according to the hardware IDs or media access control addresses (also known as MAC addresses) of the first sensing device 3 and the second sensing device 4.

[0040] Referring to FIG. 6, there is shown a flow chart illustrating the operation of the separate computing system according to the third embodiment of the present invention. As shown in FIG. 6, steps S61 and S62 are implemented on the first sensing device 3, steps S63 and S64 are implemented on the second sensing device 4, and steps S65–S67 are implemented on the primary computing device 1. For the sake of better understand of the present invention, the primary computing device 1 is exemplified by a smartphone, the first sensing device 3 is exemplified by a heart stent with sensing capability, and the second sensing device 4 is exemplified by a contact lens with sensing capability. Similarly, the third embodiment is illustrative, rather than restrictive, of the scope of the present invention.

[0041] Referring to step S61, a heart stent (i.e., the first sensing device 3) undergoes the identity authentication procedure

performed by the smartphone (i.e., the primary computing device 1) via, a first sensing communication unit 31. In step

[0042] S63, the contact lens (i.e., the second sensing device 4) undergoes the identity authentication procedure performed by the smartphone via a second sensing communication unit 41. In step S65, the wireless authentication signals from the heart stent and the contact lens, after being received by the smartphone, are delivered to the identity authentication unit 18 that performs the identity authentication procedure on the sensing devices. In steps S62 and S64, the heart stent starts to sense the user's physiological information (e.g. a width of a cardiac blood vessel), and the contact lens also starts to sense the user's physiological information (e.g. the blood pressure at ocular capillaries) after successful identity authentication, and then the sensed physiological information is transmitted to the smartphone. Moreover, it is preferable that the heart stent and/or the contact lens are/is configured to transmit, via, the first sensing communication unit 31 or the second sensing communication unit 41, wireless signals to the smartphone only when the sensed physiological information exceeds a critical value (for example, when the blood pressure exceeds 140 mmHg) so as to reduce the power consumption.

[0043] Referring to steps S66–S67, the second wireless communication unit 16 of the smartphone receives and transmits the physiological information to the computing unit 12 to undergo the computing operation, and informs the user of a result of the computing operation via a screen (i.e., the display unit 11). Hence, the user knows the width of a cardiac blood vessel and blood pressure in a real-time manner. In other words, the user can instantly obtain information measured by multiple sensing devices.

[0044] Moreover, according to the conception of the present invention, another application involves the combination of a sensing device and a warning device. The sensing device comprises a power supply unit, a sensing unit, and a first wireless communication unit. The power supply unit is configured to electrically connect and supply power to the sensing unit and the first wireless communication unit. The sensing unit is configured to sense the user's physiological information and to transmit externally a warning message via the first wireless communication unit when the sensed physiological information exceeds a standard value. A warning device comprises a warning unit and a second wireless communication unit. After the second wireless communication unit has received the warning message, the warning unit performs a warning operation.

[0045] For instance, the sensing device is an electronic sphygmomanometer equipped with a short-range wireless communication unit and embedded in a garment. The sensing device transmits, via the short-range wireless communication unit, a

[0046] warning message to a microcomputer (i.e., the warning device) regularly or when the sensed physiological information exceeds a standard value (for example, when the sensed blood pressure exceeds 140 mmHg). The microcomputer has a buzzer (i.e., the warning unit) and a second wireless communication unit. After the second wireless communication unit has received the warning message, the buzzer starts to sound to warn the user.

[0047] Preferably, the warning device further comprises a computing unit (e.g. a microprocessor) configured to perform the computing operation on the physiological information contained in the warning message, and performs various

respective warning operations according to the result of the computing operation. For example, slow sounds are generated when the blood pressure falls within the range of 140-160 mmHg, and short interval sounds are generated when the blood pressure exceeds 160 mmHg. It is preferable that the warning device is a pocket-sized computer or a microcomputer, and that the warning unit is selected from one of an audio device, a display device, and a vibration device.

[0048] In conclusion, a separate computing system of the present invention enables complex calculation operations and display to be performed on a smartphone via wireless transmission, and thus a sensing device, such as a wristband, a contact lens, or a heart stent, requires either no processor at all or only a simple microprocessor for facilitating the display of content. Therefore, the sensing device not only has electronic sensing capability but also fulfills the goals of minimized weight and low power consumption.

[0049] The preferred embodiments described above are exemplary and are not intended to limit the scope of the present invention. Hence, any equivalent modification or variation made to the aforesaid embodiments without departing from the spirit and scope of the present invention shall fall within the scope of the appended claims.

What is claimed is:

1. A system with a separate computing unit, comprising:
 - a sensing device comprising a power supply unit, a sensing unit configured to sense a user's physiological information, and a first wireless communication unit via which the physiological information that has not yet undergone the computing and processing operations is transmitted externally, the power supply unit electrically connecting and supplying power to the sensing unit and the first wireless communication unit; and
 - a primary computing device comprising a computing unit, a display unit, and a second wireless communication unit, the second wireless communication unit receiving and transmitting the physiological information to the computing unit to undergo the computing operation and informing the user of a result of the computing operation via the display unit;
 wherein the sensing device transmits, via the first wireless communication unit, a wireless signal to the primary computing device according to a preset criterion.
2. The system with a separate computing unit of claim 1, wherein the first wireless communication unit is selected from one of a Zigbee communication unit, a WiFi communication unit, an NFC communication unit, a RFID communication unit, a Bluetooth communication unit, and an infrared communication unit.
3. The system with a separate computing unit of claim 1, wherein the second wireless communication unit is selected from one of a Zigbee communication unit, a WiFi communication unit, an NFC communication unit, a RFID communication unit, a Bluetooth communication unit, and an infrared communication unit.
4. The system with a separate computing unit of claim 1, wherein the physiological information is selected from the information relating to the user's blood pressure, pulse, voice, and vibration.
5. The system with a separate computing unit of claim 1, wherein the display unit is selected from one of a screen, an audio device, and at least one LED lamp.
6. The system with a separate computing unit of claim 1, wherein the primary computing device further comprises a

control interface unit providing a physiological information reading interface for making available the corresponding information according to the user's click selection.

7. The system with a separate computing unit of claim 6, wherein the control interface unit further provides a sensing device setting interface configured to transmit, via the second wireless communication unit, an uncoded wireless setting signal to the sensing device according to the click selection made by the user.

8. The system with a separate computing unit of claim 7, wherein the sensing device changes a value of a register thereof according to the wireless setting signal.

9. The system with a separate computing unit of claim 1, wherein the criterion is set to be that the user's physiological information is regularly sensed with the sensing unit and the wireless signal is regularly transmitted to the primary computing device via the first wireless communication unit.

10. The system with a separate computing unit of claim 1, wherein the criterion is set to be that the wireless signal is transmitted to the primary computing device via the first wireless communication unit when the sensing unit senses that the user's physiological information exceeds a critical value.

11. The system with a separate computing unit of claim 1, wherein the sensing device is a heart stent with sensing capability, and the physiological information relates to a width of a cardiac blood vessel.

12. The system with a separate computing unit of claim 1, wherein the sensing device is a contact lens with sensing capability, and the physiological information relates to a blood pressure measured at ocular capillaries.

13. The system with a separate computing unit of claim 1, wherein the sensing device is a wristband with sensing capability, and the physiological information is blood pressure-related information or pulse-related information.

14. The system with a separate computing unit of claim 1, wherein the primary computing device further comprises an identity authentication unit configured to perform an identity authentication procedure on the sensing device.

15. The system with a separate computing unit of claim 1, further comprising one or more other sensing devices from which the primary computing device synchronously receives wireless signals.

16. A system with a separate computing unit, comprising:

- a sensing device comprising a power supply unit, a sensing unit configured to sense a user's physiological information, and a first wireless communication unit via which a warning message is transmitted externally when the sensing unit senses that the physiological information exceeds a standard value, the power supply unit electrically connecting and supplying power to the sensing unit and the first wireless communication unit; and

- a warning device comprising a warning unit and a second wireless communication unit, the warning unit performing a warning operation after the second wireless communication unit has received the warning message.

17. The system with a separate computing unit of claim 16, wherein the warning device further comprises a computing unit configured to perform the computing operation on the physiological information contained in the warning message, and performs various respective warning operations according to a result of the computing operation.

18. The system with a separate computing unit of claim **16**, wherein the warning device is a pocket-sized computer or a microcomputer.

19. The system with a separate computing unit of claim **16**, wherein the warning unit is selected from one of an audio device, a display device, and a vibration device.

* * * * *

专利名称(译)	系统采用分布式处理单元		
公开(公告)号	US20140300491A1	公开(公告)日	2014-10-09
申请号	US14/229522	申请日	2014-03-28
[标]申请(专利权)人(译)	正文科技股份有限公司		
申请(专利权)人(译)	正文科技TECHNOLOGY CO., LTD.		
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摘要(译)

本发明提供一种具有独立计算单元的系统，包括：感测装置，包括电源单元，用于感测用户生理信息的感测单元，以及尚未经历的生理信息的第一无线通信单元计算和处理操作在外部传输，电源单元电连接并向感测单元和第一无线通信单元供电；主计算设备包括计算单元，显示单元和第二无线通信单元，第二无线通信单元接收生理信息并将其发送到计算单元以进行计算操作并通知用户结果通过显示单元进行计算操作；其中，感测设备根据预设标准经由第一无线通信单元向主计算设备发送无线信号。

