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(54) **USING TV AS HEALTH MONITOR**

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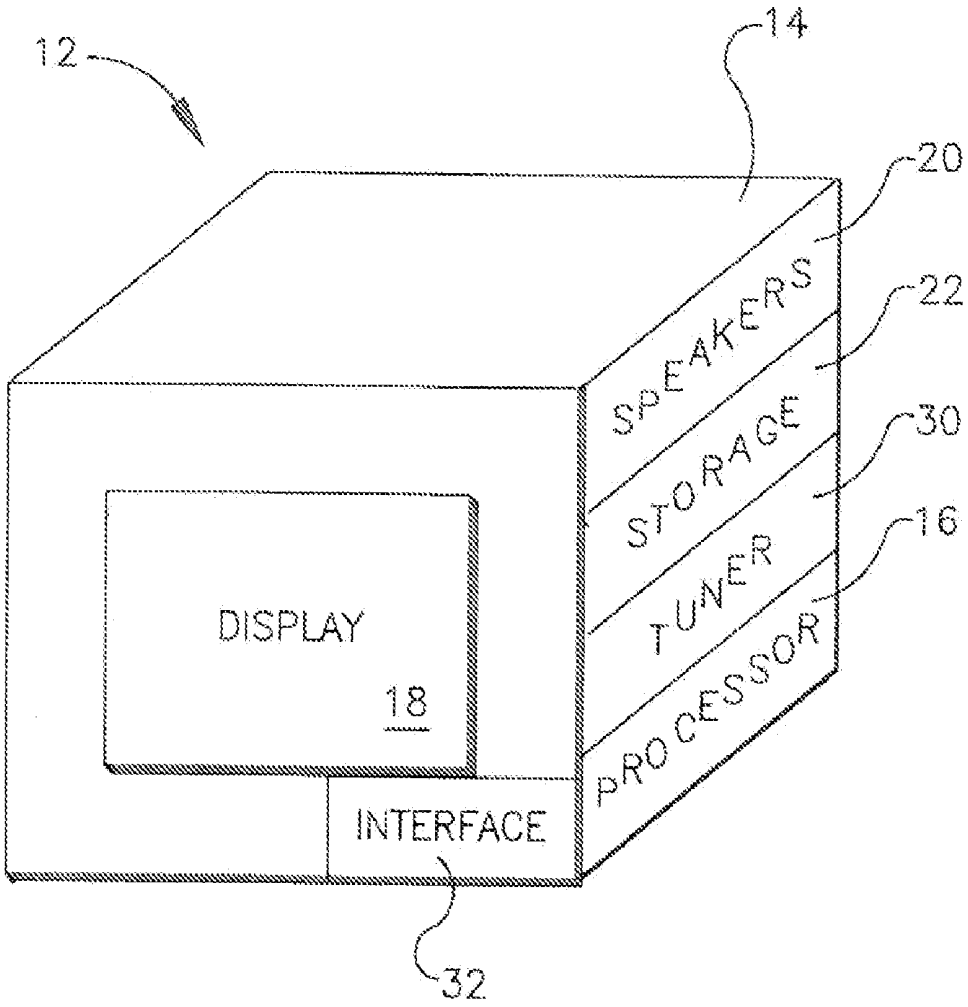
(57) **ABSTRACT**

A TV can receive user health information from a health monitoring sensor and enable a user to view a user interface on the TV responsive to current and/or historical user health information received by the health monitoring sensor. The TV may also communicate through the Internet with a user's health care provider to send user health information to the health care provider.



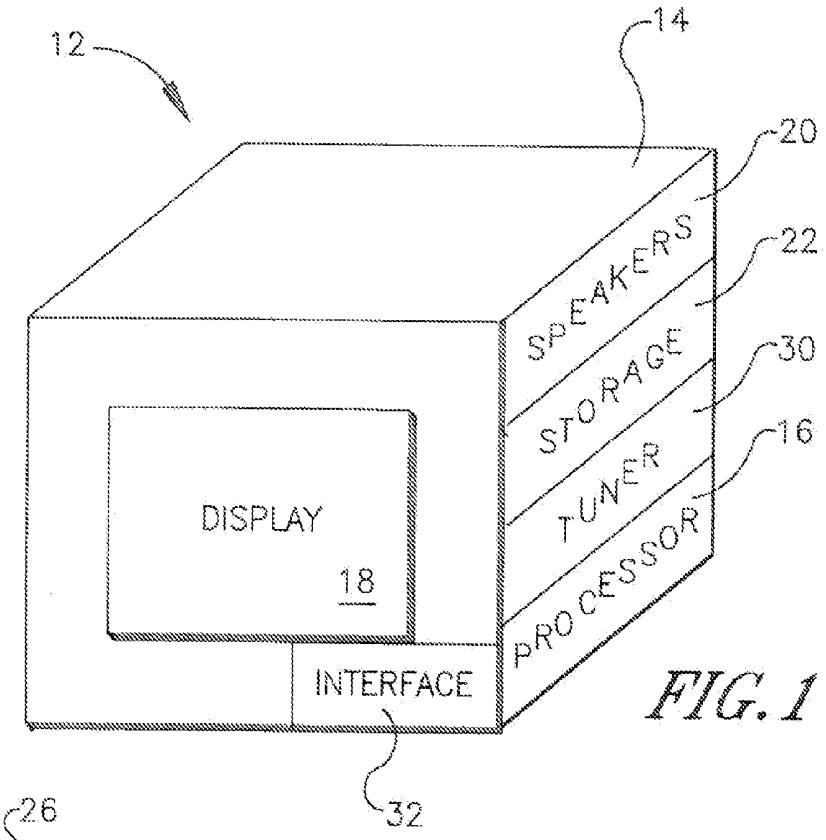
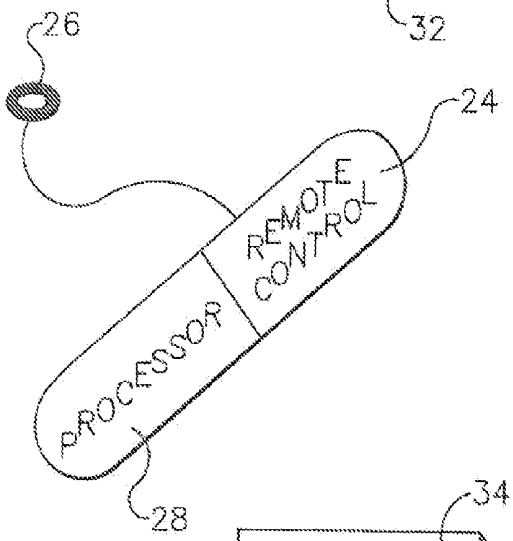

12
14
20
22
30
16
SPEAKERS
STORAGE
TUNER
PROCESSOR
DISPLAY
18
INTERFACE
32

FIG. 1


26
24
REMOTE CONTROL
PROCESSOR
28

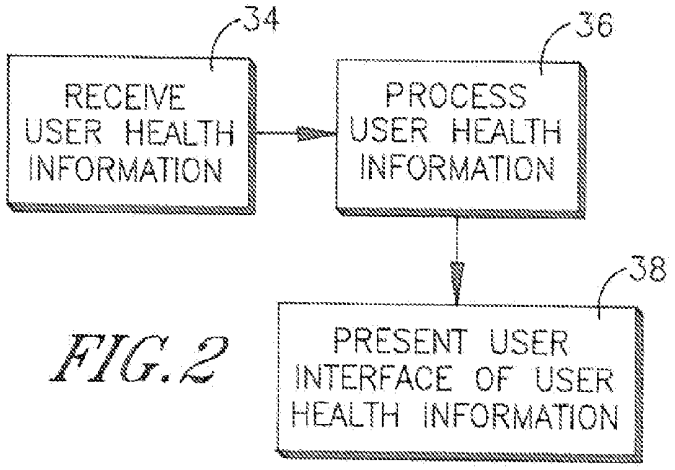
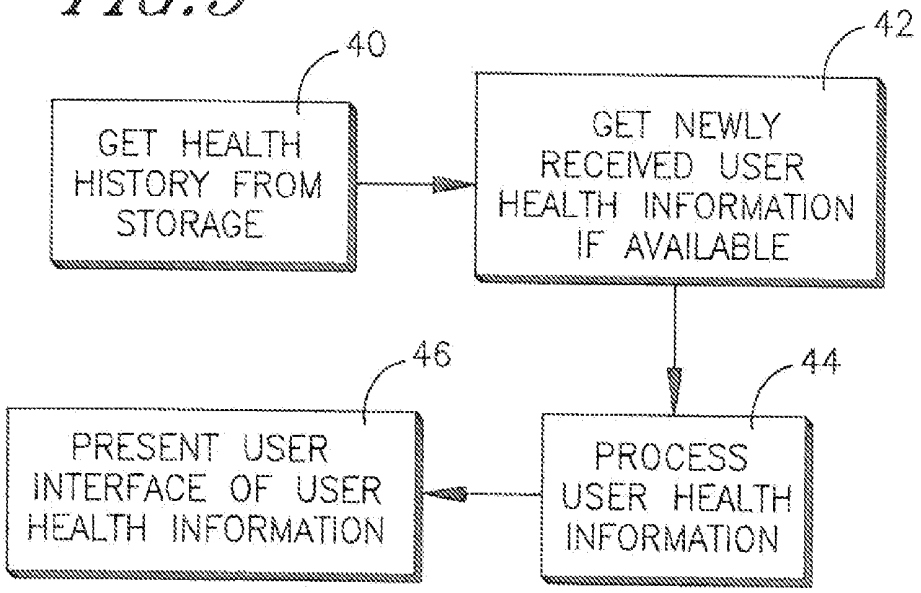

34
36
RECEIVE USER HEALTH INFORMATION
PROCESS USER HEALTH INFORMATION
38
PRESENT USER INTERFACE OF USER HEALTH INFORMATION

FIG. 2

FIG. 3


40
GET HEALTH HISTORY FROM STORAGE
42
GET NEWLY RECEIVED USER HEALTH INFORMATION IF AVAILABLE
44
PROCESS USER HEALTH INFORMATION
46
PRESENT USER INTERFACE OF USER HEALTH INFORMATION

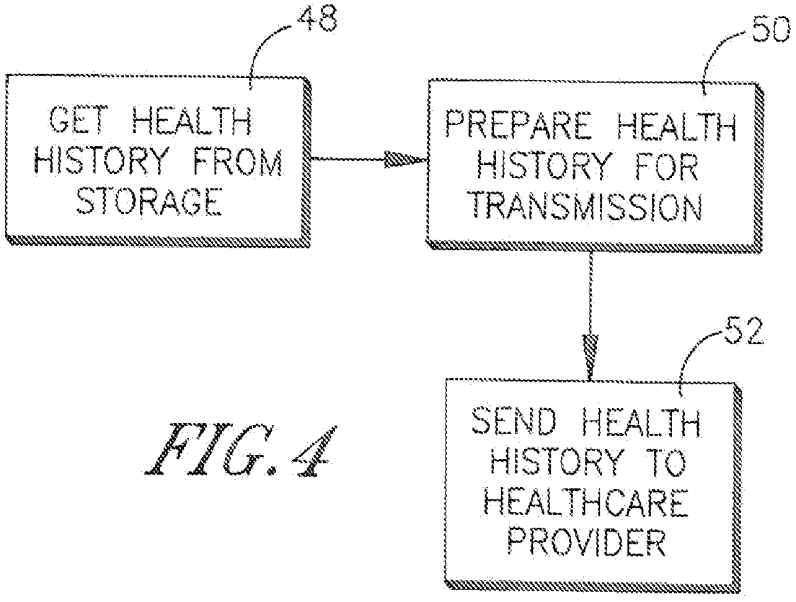

48
GET HEALTH HISTORY FROM STORAGE
50
PREPARE HEALTH HISTORY FOR TRANSMISSION
52
SEND HEALTH HISTORY TO HEALTHCARE PROVIDER

FIG. 4

FIG. 5

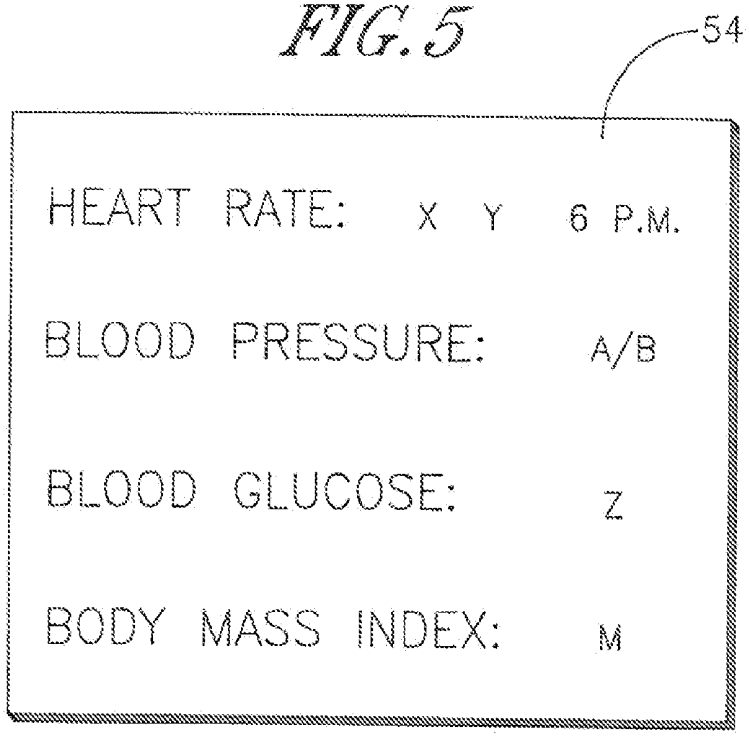
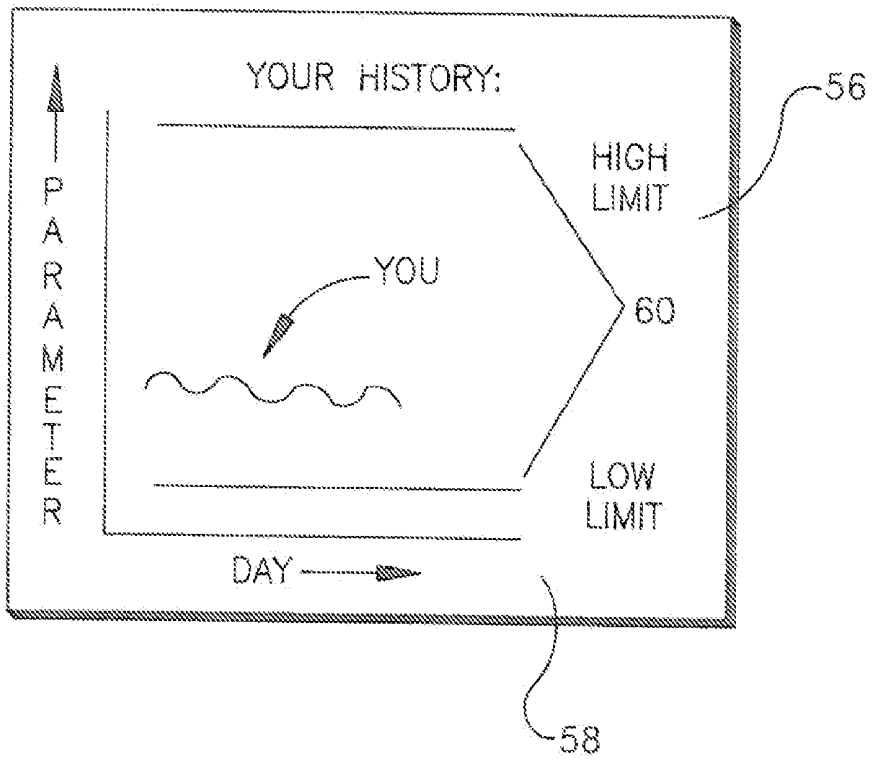

54
HEART RATE: X Y 6 P.M.
BLOOD PRESSURE: A/B
BLOOD GLUCOSE: Z
BODY MASS INDEX: M

FIG. 6


YOUR HISTORY:
PARAMETER
HIGH LIMIT
YOU
60
LOW LIMIT
DAY
56
58

USING TV AS HEALTH MONITOR

I. FIELD OF THE INVENTION

[0001] The present application relates generally to using televisions (TVs) as health monitors.

II. BACKGROUND OF THE INVENTION

[0002] Internet access through TVs is typically provided by essentially programming the TV as though it were a computer executing a browser. As understood herein, such devices can be leveraged for many novel uses owing to their connectivity to the Internet.

[0003] As also understood herein, with an aging populace it is important to provide people, particularly the elderly, with an easy, intuitive means to track their health. In this way, they can better adjust their habits, meals, etc. to achieve a healthy lifestyle. Present principles seek to leverage TV technology, which is readily understood and frequently used by people, to assist in enabling people to monitor their health and provide health information to health care providers in an efficient and easy manner.

SUMMARY OF THE INVENTION

[0004] Accordingly, a TV includes a housing, a display on the housing, a TV tuner, and a processor in the housing controlling the display and TV tuner. An input device can communicate with the processor and may have a health monitoring sensor attached thereto. The processor may execute logic including presenting a first user interface (UI) on the display which is responsive to user health information gathered by the health monitoring sensor and received from the input device.

[0005] The health monitoring sensor may be a band or bracelet configured to be worn on a person's wrist in non-limiting embodiments. The input device, which may be a remote control in non-limiting embodiments, can have an interface which converts user health information gathered by the health monitoring sensor to infrared (IR) signals accepted by the TV. Further, the user health information may include various measurements relating to a user's health, including, but not limited to, heart rate data, blood pressure data, blood glucose data and body mass index (BMI) data.

[0006] The processor can cause a first UI to present a visual representation of user health information such as heart rate data, blood pressure data, blood glucose data and/or BMI data. Also, user health information may be stored in a storage area of the TV.

[0007] Further, the processor in the TV can cause a second UI to be presented on the display, wherein the second UI may present a visual representation of user health information history associated with stored user health information such as, but not limited to, heart rate data, blood pressure data, blood glucose data and BMI data.

[0008] Additionally, in certain non-limiting embodiments, the TV may be an internet protocol TV which can have a network interface so that the processor may communicate with the Internet through the network interface. The internet protocol TV can either store user health information for future use by a health care provider or send current and/or stored user health information to a user's health care provider through the Internet.

[0009] In another aspect, a method includes receiving user health information from a health monitoring sensor at a TV. The method also includes storing the user health information. A visualization of the user's health information history is presented on the TV.

[0010] In another aspect, an apparatus includes a video display, a TV tuner and a processor controlling the display and TV tuner and communicating with the Internet through the network interface. An input device communicates with the processor and has a health monitoring sensor attached it. The processor executes logic, including

[0011] receiving user health information from the health monitoring sensor and processing the user health information. The logic also includes presenting a visualization of the user health information on the video display.

[0012] The details of the present invention, both as to its structure and operation, can best be understood in reference to the accompanying drawings, in which like reference numerals refer to like parts, and in which:

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. **1** is a block diagram of a non-limiting example system in accordance with present principles;

[0014] FIG. **2** is a flow chart of non-limiting logic for presenting user health information on a first UI.

[0015] FIG. **3** is a flow chart of non-limiting logic for presenting user health information history on a second UI.

[0016] FIG. **4** is a flow chart of non-limiting logic for sending user health information to a health care provider.

[0017] FIGS. **5** and **6** are non-limiting example screen shots of UIs that can be presented on the TV in accordance with present principles for enabling a person to monitor his or her health.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] Referring initially to the non-limiting embodiment show in FIG. **1**, a TV **12** includes a housing **14** bearing a digital processor **16**. The processor **16** can control a visual display **18** and an audible display **20** such as one or more speakers. To undertake present principles, the processor **16** may access one or more computer readable data storages **22** such as but not limited to RAM-based storage (e.g., a chip implementing dynamic random access memory (DRAM)) or flash memory or disk-based-storage. Software code implementing present logic executable by the TV **12** may also be stored on one of the memories shown to undertake present principles.

[0019] The processor **16** can receive user health information from various input devices including a remote control device **24**, a point and click device such as a mouse, a keypad, etc. The remote control device **24** may include a health monitoring sensor **26** and a processor **28**. The sensor **26** may be, without limitation, a wrist band, strap or bracelet configured to be worn on a user's wrist. In non-limiting embodiments, the sensor **26** can communicate with the remote control device **24** over a wire (such as, e.g., a USB cable) or wirelessly (using, e.g., Bluetooth technology).

[0020] Further, the sensor **26** is to be understood to be capable of receiving and/or gathering user health information, which may include, but is not limited to, heart rate data, blood pressure data, blood glucose data, and body mass index (BMI) data. The sensor **26** is also understood to be capable of

generating signals representing the gathered user health information which may then be sent to the remote control device **24**.

[0021] In non-limiting embodiments such as the one shown in FIG. **1**, both the TV **12** the remote control device **24** have IR codes representing health signals. Thus, the processor **28** of the remote control device **24** is capable of converting signals related to user health information generated by the sensor **26** into IR coded signals. The TV **12** can thus recognize IR coded signals of user health information received from the remote control **24**.

[0022] Still in reference to FIG. **1**, a TV tuner **30** may be provided to receive TV signals from a source such as a set-top box, satellite receiver, cable head end, terrestrial TV signal antenna, etc. Signals from the tuner **30** are sent to the processor **16** for presentation on the display **18** and speakers **20**.

[0023] The TV **12** shown in FIG. **1** may be, in non-limiting embodiments, an internet protocol TV (IPTV) capable of accessing the Internet. Thus, as shown in FIG. **1**, there may be a network interface **32** such as a wired or wireless modem or wireless telephony transceiver that may communicate with the processor **16** to provide connectivity to a wide area network such as the Internet.

[0024] Moving to FIG. **2**, a flow chart of non-limiting exemplary logic for presenting user health information on a first UI is shown. Beginning at block **34**, user health information sent from the remote control device **24** is received by the TV **12**. At block **36** the logic may then process (e.g. store and arrange) user health information for presentation on a UI, the UI to be presented on the display **18**. Concluding the non-limiting exemplary logic shown in FIG. **2**, a visual representation of the user health information is presented on a UI at block **38**. Further, it is to be understood that the non-limiting logic of FIG. **2** may be used for plural users on the TV **12**.

[0025] Now in reference to FIG. **3**, a flow chart of the non-limiting exemplary logic for presenting user health information history on a UI is shown. Beginning at block **40**, the logic may access user health information stored in the storage **22**. The logic may then get newly received user health information at block **42** if such data is available. For example, newly received user health information may be received by the TV **12** while concurrently executing the logic process of FIG. **3**. Thus, the newly received user health information may not have been stored with previously received user health information but may still be included in the user health information history to be presented on a UI, as will be described below.

[0026] Still in reference to FIG. **3**, the logic then moves to block **44** where the logic may process (e.g. store and arrange) the user health information for presentation on a UI, the UI to be presented on the display **18**. Concluding the non-limiting exemplary logic shown in FIG. **3**, a visual representation of the user's health history associated with user health information is presented on a UI at block **46**. Further, it is to be understood that the non-limiting logic of FIG. **3** may be used to maintain user health information history for plural users on the TV **12**.

[0027] Moving on to FIG. **4**, a flow chart of the non-limiting exemplary logic for sending user health information to a user's health care provider is shown. It is to be understood that the non-limiting exemplary logic shown in FIG. **4** may be instigated at the request of a user or may be performed automatically.

[0028] Beginning at block **48**, the logic gets the user health information stored in the storage **22**. Moving on to block **50**, the logic may then prepare the user health information. In the non-limiting exemplary logic shown in FIG. **4**, preparing user health information may include, but is not limited to, formatting user health information for transmission over the Internet, formatting user health information into a format acceptable for receipt by the health care provider, and arranging the user health information in chronological order. After the user health information has been prepared, the logic concludes at block **52** where the user health information is sent to a user's health care provider over the Internet. Alternatively, the information may be sent to a telephone number or to an email address (by, e.g., text entry) in other non-limiting embodiments. Further, it is to be understood that the non-limiting logic of FIG. **4** may be used to send user health information for plural users from the TV **12** to one or more health care providers.

[0029] FIGS. **5** and **6** are non-limiting illustrative examples of screen shots of UIs that can be presented on the TV in accordance with present principles. FIG. **5** shows a UI **54** that may be presented on the display **18**. The UI **54** may provide user health information relating to, e.g., heart rate, blood pressure, blood glucose, and BMI. It is to be understood that user health information on the UI **54** is exemplary and that more, less or different user health information may be displayed based upon user preference, available user health information, etc. Moreover, it is to be understood that the alphabetical variables shown in FIG. **5** are for illustrative purposes only and that numerical measurements are to be presented on the UI.

[0030] Moving to the UI of FIG. **6**, a user may elect to invoke the UI **56** to view a history of various types of measurements such as heart rate history, blood pressure history, blood glucose history, and BMI history. As shown, in one embodiment the UI **56** presents a graph **58** of time (on the x-axis) versus health parameter value (on the y-axis) so that the user may see how particular health data varies over time. Also, upper and/or lower limit lines **60** may be provided which are established per standard of care guidance as to what the upper and/or lower "safe" limits of the parameter being displayed are. In this way, the user can compare his or her measured parameter against medically established guidelines.

[0031] While the particular USING TV AS HEALTH MONITOR is herein shown and described in detail, it is to be understood that the subject matter which is encompassed by the present invention is limited only by the claims.

1. A television (TV) comprising:
a housing;
a display on the housing;
a TV tuner;
a processor in the housing controlling the display and TV tuner;
an input device communicating with the processor, the input device having a health monitoring sensor attached thereto;
the processor executing logic including:
presenting a user interface (UI) on the display responsive to user health information gathered by the health monitoring sensor and received from the input device, wherein the user health information gathered by the health monitoring sensor includes blood glucose data.

2. The TV of claim 1, wherein the health monitoring sensor is a band configured to be worn on a person's wrist.

3. The TV of claim 1, wherein the health monitoring sensor is a strap-like bracelet configured to be worn on a person's wrist.

4. The TV of claim 1, wherein the input device has an processor which converts user health information gathered by the health monitoring sensor to infrared signals accepted by the TV.

5. The TV of claim 1, wherein user health information further includes heart rate data, blood pressure data, body mass index (BMI) data.

6. The TV of claim 1, wherein the UI is a first UI and the processor causes the first UI to present a visual representation of user health information.

7. The TV of claim 1, wherein the user health information received by the TV is stored in a storage area of the TV.

8. The TV of claim 7, wherein the processor causes a second UI to be presented on the display, wherein the second UI presents a visual representation of user health information history associated with stored user health information including heart rate data, blood pressure data, blood glucose data and/or BMI.

9. The TV of claim 8, wherein the second UI includes a graph of time on an x-axis versus parameter value on a y-axis.

10. The TV of claim 9, wherein the second UI presents upper and/or lower limit lines established per standard of care guidance as to what upper and/or lower "safe" limits of the health information being displayed are.

11. The TV of claim 1, wherein the TV is an internet protocol TV (IPTV) having a network interface so that the processor may communicate with the Internet through the network interface.

12. The TV of claim 11, wherein the TV sends current and/or stored user health information to a user's health care provider through the Internet.

13. A method, comprising:

receiving, at a TV, user health information from a health monitoring sensor via a TV remote control, the health information including a blood sugar level of the user;

storing the user health information; and

presenting on the TV a visualization of the user's health information history.

14. The method of claim 13, wherein the visualization is presented on a first UI.

15. The method of claim 13, wherein the health monitoring sensor gathers and/or receives user health information.

16. The method of claim 15, wherein the user health information further includes heart rate data, blood pressure data, BMI data.

17. The method of claim 13, wherein the health monitoring sensor is configured to be worn on a person's wrist.

18. The method of claim 13, wherein a second UI is presented on the display, the second UI providing a visual representation of user health information history associated with stored user health information.

19. The method of claim 13, wherein the TV is an internet protocol TV (IPTV) having a network interface for communication through the Internet.

20. The method of claim 19, comprising sending current and/or stored user health information to a user's health care provider through the Internet.

21. An apparatus comprising:

video display;

a TV tuner;

a processor controlling the display and TV tuner and communicating with the Internet through the network interface;

an input device communicating with the processor, the input device having a health monitoring sensor attached thereto, the health monitoring sensor being a blood glucose sensor;

the processor executing logic including:

receiving user health information from the health monitoring sensor;

processing the user health information; and

presenting on the display a visualization of the user health information.

22. The apparatus of claim 21, wherein the logic executed by the processor includes presenting on the display a history of user health information associated with current and stored user health information.

23. The apparatus of claim 21, wherein the user health information is sent to a user's health care provider through the Internet.

* * * * *

专利名称(译)	使用电视作为健康监视器		
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[标]申请(专利权)人(译)	索尼公司		
申请(专利权)人(译)	索尼公司		
当前申请(专利权)人(译)	索尼公司		
[标]发明人	ADHIKARI SURANJIT		
发明人	ADHIKARI, SURANJIT		
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CPC分类号	A61B5/0017 A61B5/021 A61B5/024 A61B5/14532 H04N7/00 A61B5/6824 A61B5/6897 A61B5/6898 A61B5/4869		
外部链接	Espacenet USPTO		

摘要(译)

TV可以从健康监测传感器接收用户健康信息，并且使用户能够响应于健康监测传感器接收的当前和/或历史用户健康信息来查看TV上的用户界面。 TV还可以通过因特网与用户的健康护理提供者通信，以将用户健康信息发送给健康护理提供者。