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(54) **REMOTE CONTROLLER AND HEALTH DETECTION SYSTEM**

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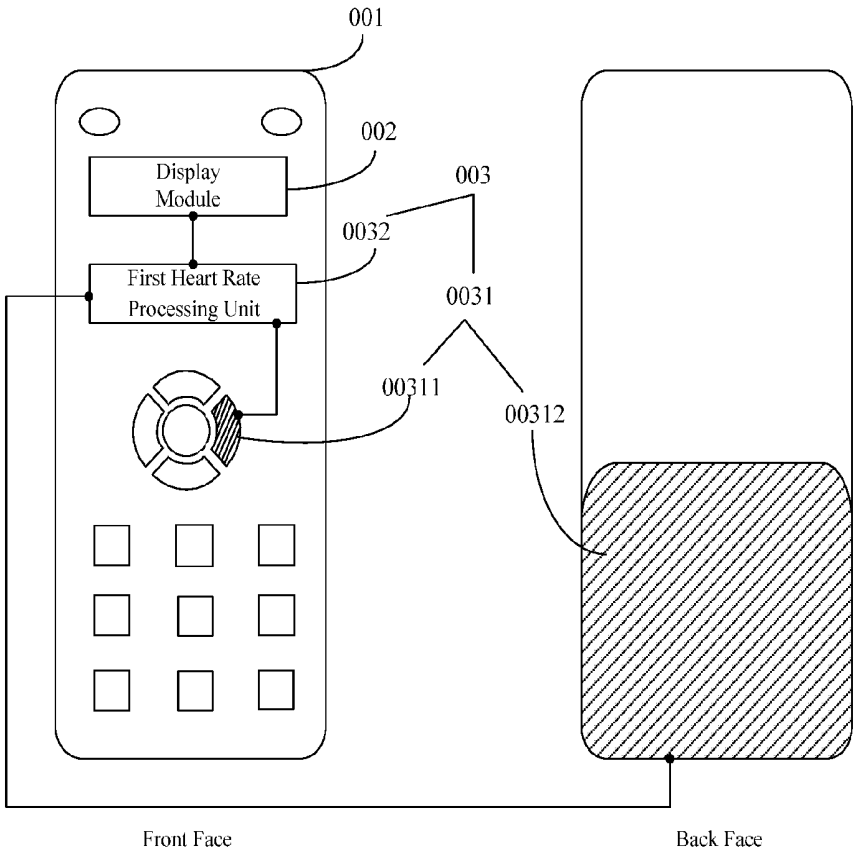
(57) **ABSTRACT**

The present disclosure provides a remote controller and a health detection system. The remote controller includes a main body, a display module, and a health detection module arranged on the main body. The health detection module is configured to detect a health value of a user, and the health value at least includes a heart rate. The display module is connected to the health detection module and configured to display the health value.

00



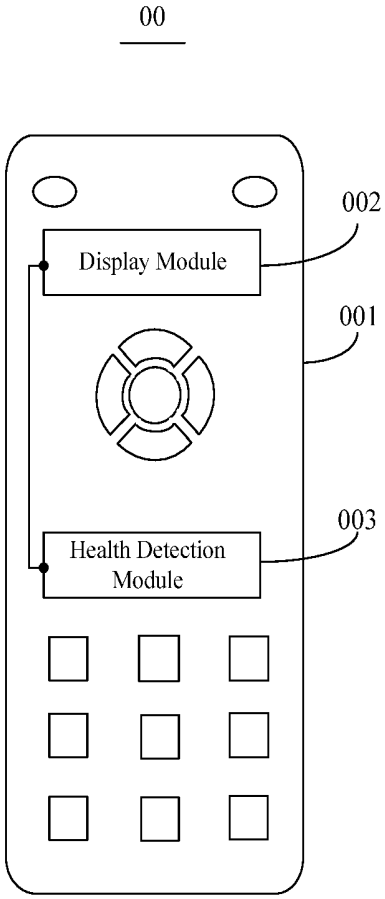


Fig.1

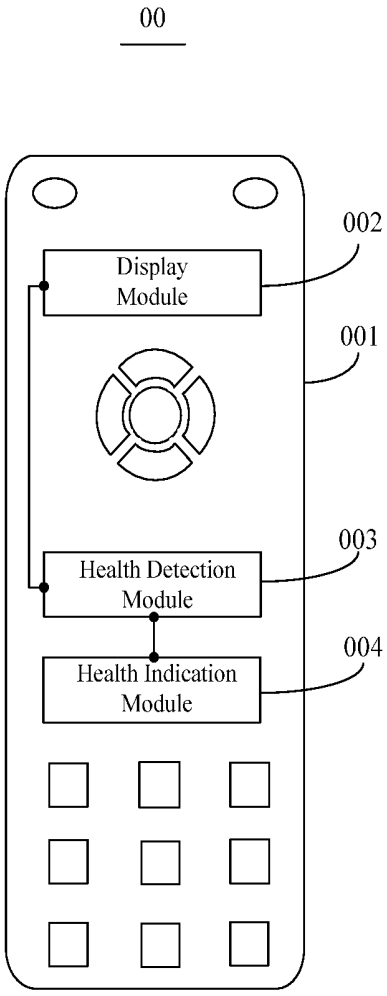

00
002
Display Module
001
003
Health Detection Module
004
Health Indication Module

Fig.2

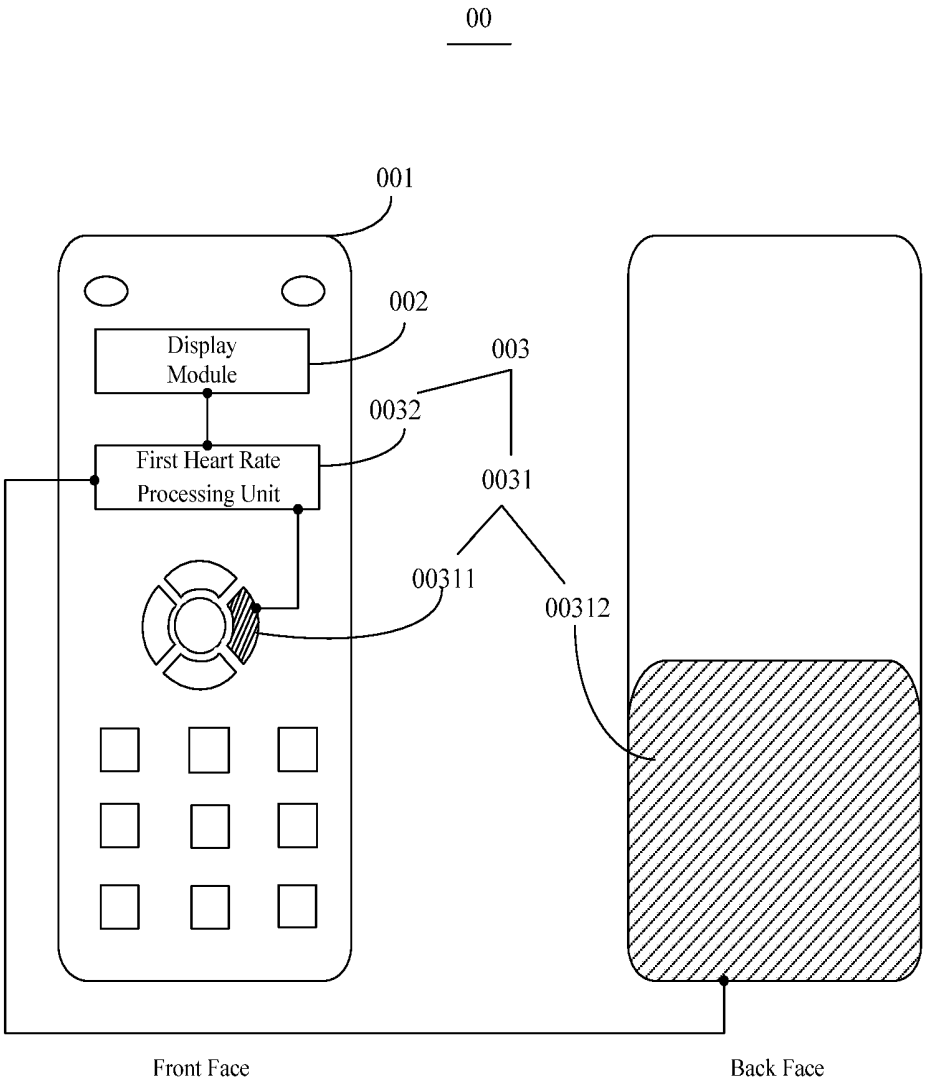

00
001
002
Display Module
003
0032
First Heart Rate Processing Unit
0031
00311
00312
Front Face
Back Face

Fig.3

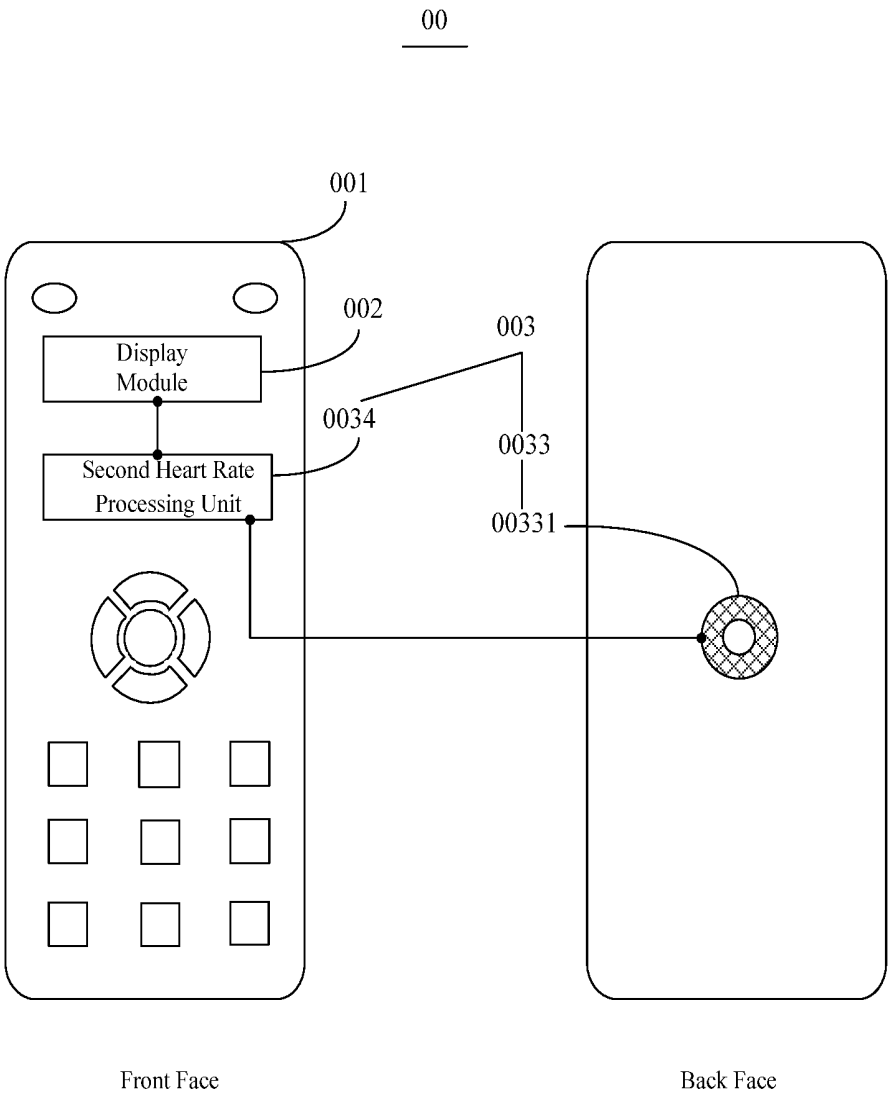

00
001
002
003
Display Module
0034
0033
Second Heart Rate Processing Unit
00331
Front Face
Back Face

Fig.4

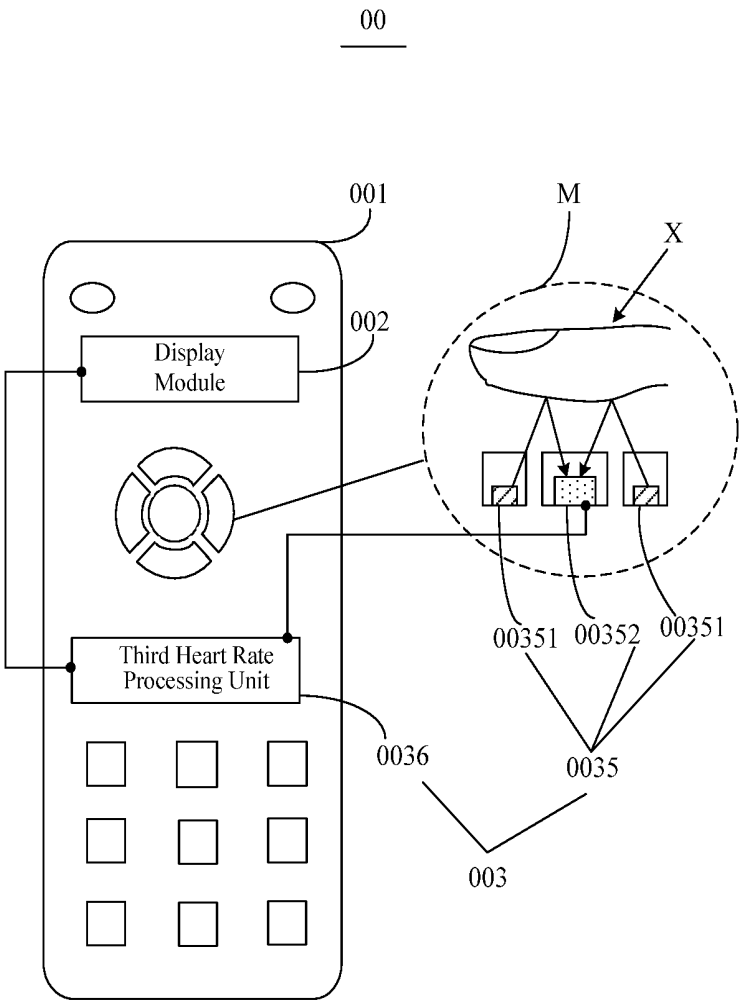

00
001
M
X
002
Display Module
Third Heart Rate Processing Unit
00351
00352
00351
0036
0035
003

Fig.5

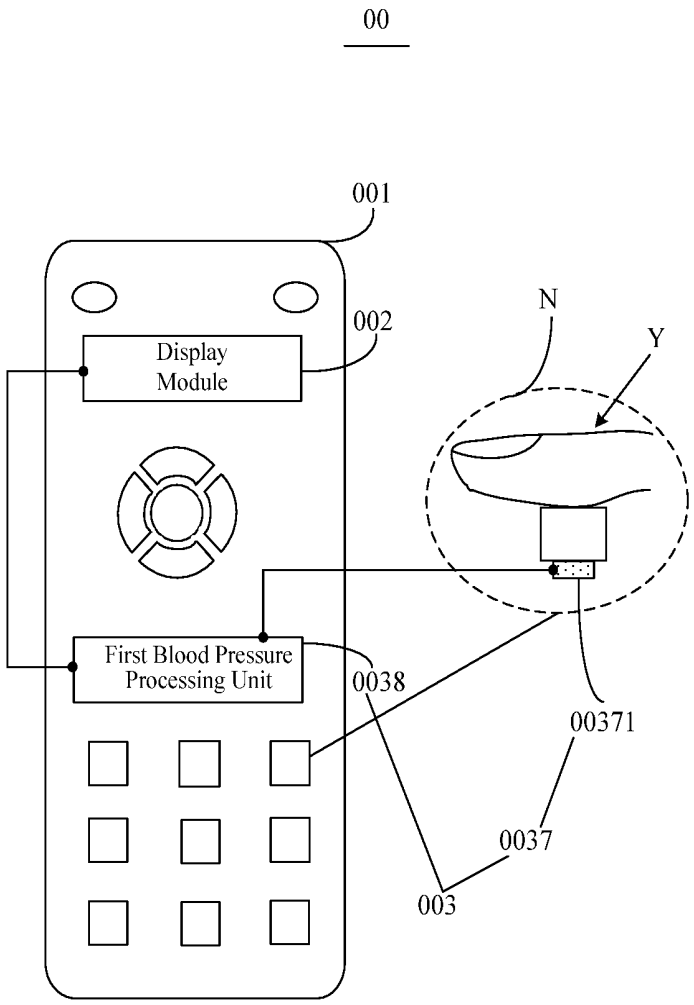

00
001
002
Display Module
N
Y
First Blood Pressure Processing Unit
0038
00371
0037
003

Fig.6

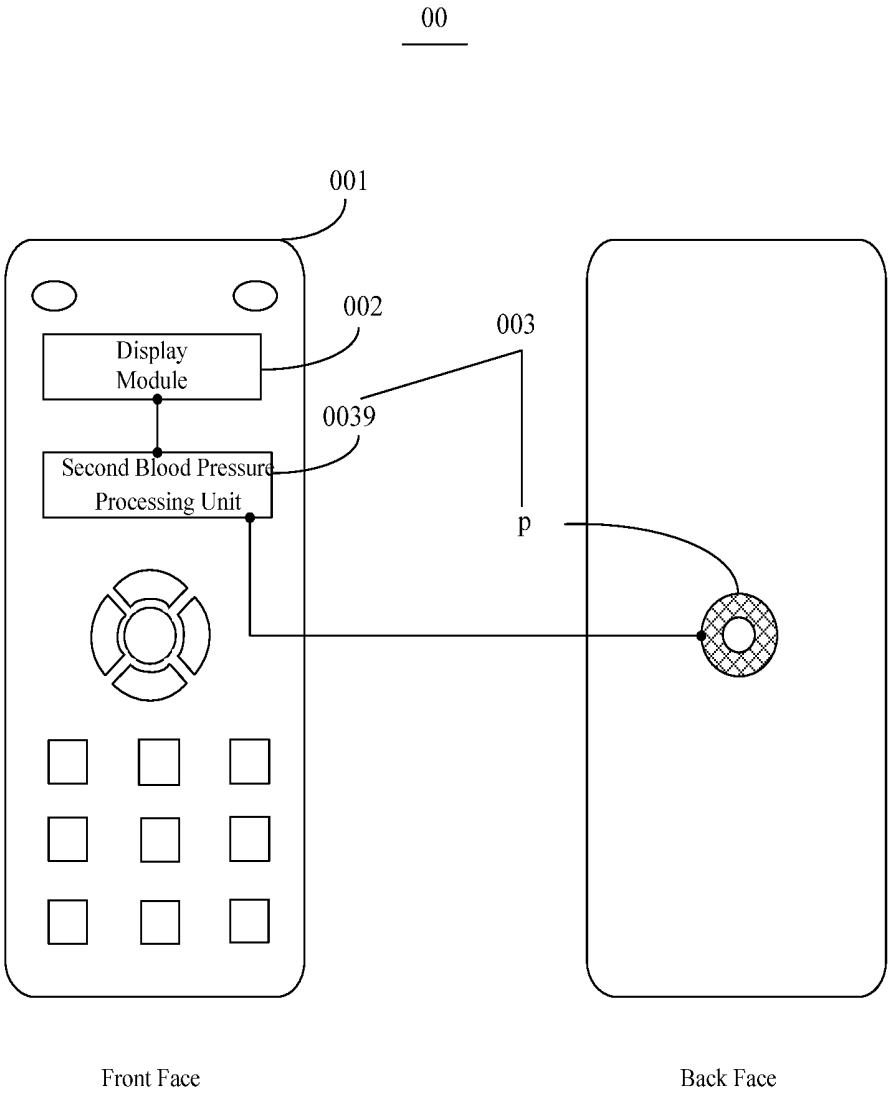

00
001
002
003
Display Module
0039
Second Blood Pressure Processing Unit
p
Front Face
Back Face

Fig.7

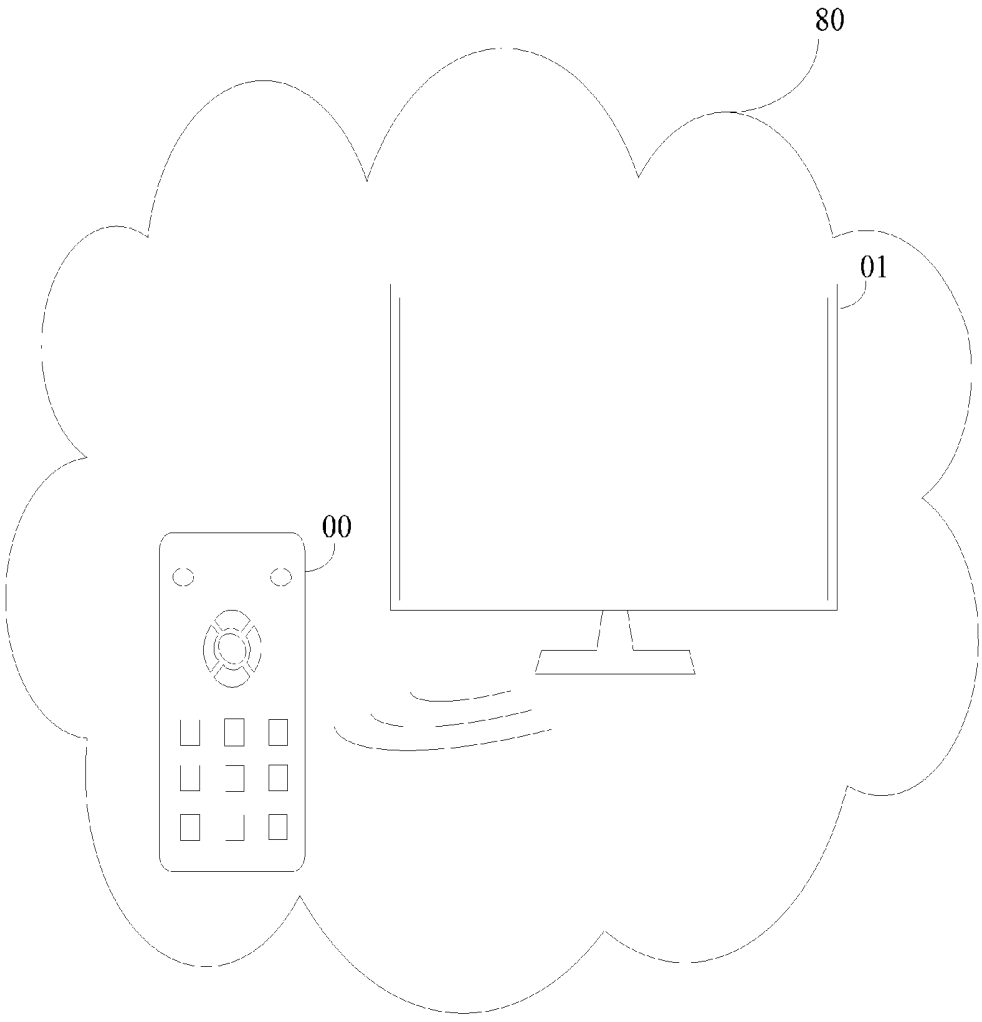


Fig.8

REMOTE CONTROLLER AND HEALTH DETECTION SYSTEM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] The present application claims a priority of the Chinese patent application No. 201510091518.5 filed on Feb. 28, 2015, which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] The present disclosure relates to the field of electronic information technology, in particular to a remote controller and a health detection system.

BACKGROUND

[0003] Along with the improvement of the living standards, people pay more and more attention to health. When people want to know their health conditions, a health detection device may be used.

[0004] In the related art, when a user wants to know his health condition, he needs to move the health detection device to be in the vicinity of a television, connect the health detection device to a remote controller for the television, and set in the remote controller a correspondence between the health detection device and the remote controller. Then, the user's health condition may be acquired by the health detection device. After the acquisition of the health condition, a health value is generated in accordance with the health condition, and transmitted to the television via the remote controller corresponding to the health detection device, so as to display the health value by the television.

[0005] In the related art, the health condition may be detected by the user only when he moves the health detection device to be in the vicinity of the television and connects the remote controller to the health detection device, so this procedure is complex.

SUMMARY

[0006] An object of the present disclosure is to provide a remote controller and a health detection system, so as to simplify a procedure for the health detection.

[0007] In one aspect, the present disclosure provides in some embodiments a remote controller, including a main body, a display module, and a health detection module arranged on the main body. The health detection module is configured to detect a health value of a user, and the health value at least includes a heart rate. The display module is connected to the health detection module and configured to display the health value.

[0008] Alternatively, the health detection module includes a first heart rate detection unit and a first heart rate processing unit connected to the first heart rate detection unit. The first heart rate detection unit includes a metal button and a metal plate. The first heart rate processing unit is configured to, when a first body part of the user is in contact with the metal button and a second body part of the user is in contact with the metal plate, acquire a potential at the first body part through the metal button, acquire a potential at the second body part through the metal plate, calculate a potential difference between the first body part and the second body part in accordance with the potential at the first body part and the potential at the second body part, and calculate the heart value in accordance with a correspondence between the potential difference and the heart rate as well as the potential difference. The second body part is different from the first body part.

[0009] Alternatively, the health detection module includes a second heart rate detection unit and a second heart rate processing unit connected to the second heart rate detection unit. The second heart rate detection unit includes a camera configured to acquire a skin image of the user and transmit the acquired skin image to the second heart rate processing unit. The second heart rate processing unit is configured to calculate the heart rate in accordance with the skin image using an image information processing technique and an image-heart rate algorithm.

[0010] Alternatively, the health detection module includes a third heart rate detection unit and a third heart rate processing unit connected to the third heart rate detection unit. The third heart rate detection unit includes a light-emitting diode (LED), and a phototransistor configured to, when a light beam from the LED is reflected by a hand of the user to the phototransistor, generate detection information in accordance with the reflected light beam, and transmit the detection information to the third heart rate processing unit so that the third heart rate processing unit generates the heart rate in accordance with the detection information.

[0011] Alternatively, the health value further includes a blood pressure. The health detection module includes a first blood pressure detection unit and a first blood pressure processing unit connected to the first blood pressure detection unit. The first blood pressure detection unit includes a piezoelectric sensor secured underneath a button of the main body of the remote controller. The piezoelectric sensor is configured to, when the button is pressed by the user continuously, collect a pulse signal generated every time the button is pressed, and transmit the collected pulse signal to the first blood pressure processing unit. The first blood pressure processing unit is configured to generate a time difference between the adjacent pulse signals, and calculate the blood pressure in accordance with a correspondence between the time difference and the blood pressure as well as the time difference.

[0012] Alternatively, the health value further includes a blood pressure, and the health detection module further includes a second blood pressure processing unit connected to the camera. The camera is further configured to transmit the skin image to the second blood pressure processing unit, so that the second blood pressure processing unit calculates the blood pressure in accordance with the skin image using the image information processing technique and an image-blood pressure algorithm.

[0013] Alternatively, the remote controller further includes a health indication module connected to the health detection module and configured to, when the health value exceeds a predetermined range, send a prompt.

[0014] Alternatively, the health indication module includes a lamp connected to the health detection module and flickering when the health value exceeds the predetermined range.

[0015] Alternatively, the display module is configured to display the health value on the remote controller, or transmit the health value to a television so as to display the health value thereon.

[0016] In another aspect, the present disclosure provides in some embodiments a health detection system, including a television and the above-mentioned remote controller.

[0017] Alternatively, the remote controller is configured to transmit a detected health value to the television, and the television is configured to display the health value.

[0018] Alternatively, the television is further configured to store therein the health value.

[0019] According to the remote controller and the health detection system in the embodiments of the present disclosure, the remote controller includes the main body, the display module and the health detection module arranged on the main body. The health detection module is configured to detect the health value of the user, and the display module is connected to the health detection module and configured to display the health value. When the user wants to detect his health condition, the remote controller may be directly used by the user to detect and display the health value, and the user may know his health condition in accordance with the health value. In this way, it is unnecessary for the user to move the health detection device to be in the vicinity of the television and connect the health detection device to the remote controller. As a result, it is able to simplify the procedure for the health detection.

[0020] It should be appreciated that, the above and the following descriptions are merely for illustrative purposes, but shall not be used to limit the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] In order to illustrate the technical solutions of the present disclosure or the related art in a clearer manner, the drawings desired for the present disclosure or the related art will be described hereinafter briefly. Obviously, the following drawings merely relate to some embodiments of the present disclosure, and based on these drawings, a person skilled in the art may obtain the other drawings without any creative effort.

[0022] FIG. **1** is a schematic view showing a remote controller according to one embodiment of the present disclosure;

[0023] FIG. **2** is a schematic view showing a further remote controller according to one embodiment of the present disclosure;

[0024] FIG. **3** is a schematic view showing the structure of the further remote controller in FIG. **2** according to one embodiment of the present disclosure;

[0025] FIG. **4** is another schematic view showing the structure of the further remote controller according to one embodiment of the present disclosure;

[0026] FIG. **5** is yet another schematic view showing the structure of the further remote controller according to one embodiment of the present disclosure;

[0027] FIG. **6** is still yet another schematic view showing the structure of the further remote controller according to one embodiment of the present disclosure;

[0028] FIG. **7** is still yet another schematic view showing the structure of the further remote controller according to one embodiment of the present disclosure; and

[0029] FIG. **8** is a schematic view showing a health detection system according to one embodiment of the present disclosure.

[0030] The above drawings relate to some specific embodiments of the present disclosure, and these embodiments will be described hereinafter in more details. It should be appreciated that, these drawings and the descriptions thereof are not used to limit in any ways the scope of the present disclosure, but are used to describe the present disclosure with reference to the specific embodiments.

DETAILED DESCRIPTION

[0031] In order to make the objects, the technical solutions and the advantages of the present disclosure more apparent, the present disclosure will be described hereinafter in conjunction with the drawings and embodiments.

[0032] Referring to FIG. **1**, the present disclosure provides in some embodiments a remote controller **00**, which may include a main body **001**, a display module **002** and a health detection module **003** arranged on the main body **001**. For example, a plurality of buttons (not shown) may be arranged on the main body **001**, and these buttons may be functional ones. FIG. **1** illustratively shows positions where the buttons may be arranged on the main body **001**, and these positions may be adjusted in accordance with the practical need.

[0033] The display module **002** may be connected to the health detection module **003**, the health detection module **003** may be configured to detect a health value of a user, and the health value may at least include a heart rate. The health detection module **003** may, after the health value of the user is detected, transmit the health value to the display module **002**. The display module **002** is configured to display the health value of the user upon receiving the health value.

[0034] According to the embodiments of the present disclosure, the remote controller includes the main body, the display module and the health detection module arranged on the main body. The health detection module is configured to detect the health value of the user, and the display module is connected to the health detection module and configured to display the health value. When the user wants to detect his health condition, the remote controller may be directly used by the user to detect and display the health value, and the user may know his health condition in accordance with the health value. In this way, it is unnecessary for the user to move the health detection device to be in the vicinity of a television and connect the health detection device to the remote controller. As a result, it is able to simplify the procedure for the health detection.

[0035] Further, the display module **002** may be configured to, after receiving the health value of the user, display the health value on the remote controller **00**. Alternatively, the display module **002** may also transmit the health value to a television (not shown) after receiving the health value, so as to display the health value on the television. The television matches the remote controller **00**, i.e., wireless information transmission may be performed between the remote controller **00** and the television.

[0036] FIG. **2** shows a further remote controller **00** which may detect a health value of the user. The health value may include a heart rate and a blood pressure. The remote controller **00** may include a main body **001**, a display module **002**, and a health detection module **003** and a health indication module **004** arranged on the remote controller **001**.

[0037] The display module **002** and the health indication module **004** may be connected to the health detection module **003** which may be configured to detect the health value of the user. The health value may at least include the heart rate. After the health value of the user is detected, the

health detection module **003** may transmit the health value to the display module **002**, so that the display module **002** displays the health value.

[0038] The health indication module **004** is configured to, when the health value detected by the health detection module **003** exceeds a predetermined range, send a prompt. For example, the health indication module **004** may include a lamp (not shown) which may be connected to the health detection module **003**. When the health value detected by the health detection module **003** exceeds the predetermined range, the health detection module **003** may generate indication information for indicating the lamp to flicker, and transmit the indication information to the lamp. After receiving the indication information, the lamp may flicker so as to prompt the user to pay attention to this health condition.

[0039] The user may use the remote controller **00** to detect his heart rate. For example, there may exist the following ways to detect the heart rate using the remote controller **00**.

[0040] In a first way, the user may acquire potentials at two different body parts of the user through a portable electrocardiograph device, and calculate a potential difference between the two body parts in accordance with the potentials. There is a correspondence between the potential difference and the heart rate, so it is able to calculate the heart rate of the user in accordance with this correspondence and the potential different between the two different body parts of the user.

[0041] As shown in FIG. **3**, which is a schematic view showing the structure of the further remote controller **00** according to one embodiment of the present disclosure, the health detection module **003** may include a first heart rate detection unit **0031** and a first heart rate processing unit **0032** that stores therein the correspondence between the potential difference and the heart rate. The first heart rate detection unit **0031** may include a metal button **00311** and a metal plate **00312**. The first heart rate detection unit **0031** is connected to the first heart rate processing unit **0032**, and specifically the metal button **00311** and the metal plate **00312** are connected to the first heart rate processing unit **0032**. A left portion in FIG. **3** shows a front face of the remote controller **00**, and a right portion in FIG. **4** shows a back face of the remote controller **00**. The metal button **00311** may be one of a plurality of buttons on the remote controller **00**. It should be appreciated that, there may also be a plurality of metal buttons **00311**, and the number of the metal buttons is not particularly defined herein. The metal plate **00312** may be arranged at the back face of the remote controller **00**, or at any other position on the remote controller **00**, i.e., an installation position of the metal plate **00312** is not particularly defined herein.

[0042] To be specific, the first heart rate processing unit **0032** is configured to, when a first body part of the user is in contact with the metal button **00311** and a second body part is in contact with the metal plate **00312**, acquire a potential at the first body part through the metal button **00311**, and acquire a potential at the second body part through the metal plate **00312**. Then, the first heart rate processing unit **0032** may calculate a potential difference between the first body part and the second body part in accordance with the potentials at the first body part and the second body part, and calculate the heart rate of the user in accordance with the correspondence between the potential difference and the heart rate as well as the potential difference. The first body part is different from the second body part.

[0043] For example, the user may hold the remote controller **00** with his right hand, and touch the metal button **00311** on the remote controller **00** with his left hand, so that the metal plate **00312** is in contact with the user's right hand and the metal button **00311** is in contact with the user's left hand. At this time, the right hand is just the first body part, and the left hand is just the second body part. Then, the first heart rate processing unit **0032** may acquire a potential at the left hand through the metal button **00311**, acquire a potential at the right hand through the metal plate **00312**, calculate a potential difference between the left hand and the right hand, i.e., between the first body part and the second body part, in accordance with these potentials, and calculate the heart rate of the user in accordance with the correspondence between the potential difference and the heart rate as well as the potential difference.

[0044] In a second way, when the heart rate of the user is measured, a skin image of the user may be taken using a camera, so as to acquire a tiny change in colors of vessels and skins when blood flows in the vessels. The colors of the vessels and the skins may be acquired from the skin image, and when the blood flows in the vessels, these colors may change. Hence, the skin image of the user may be acquired by the camera in real time, so as to acquire the tiny change in the colors of the vessels and skin when the blood flows in the vessels, and transmit the tiny change to a computer. The computer may then calculate the heart rate of the user using an image information processing technique and an image-heart rate algorithm.

[0045] As shown in FIG. **4**, which is another schematic view showing the structure of the further remote controller **00** according to one embodiment of the present disclosure, the health detection module **003** may include a second heart rate detection unit **0033** and a second heart rate processing unit **0034**, and the second heart rate detection unit **0033** may include a camera **00331**. The second heart rate detection unit **0033** is connected to the second heart rate processing unit **0034**. Specifically, the camera **00331** may be connected to the second heart rate processing unit **0034** which may store therein programs related to the image information processing technique and the image-heart rate algorithm. A left portion in FIG. **4** shows a front face of the remote controller **00**, and a right portion in FIG. **4** shows a back face of the remote controller **00**. The camera **00331** may be arranged at the back face of the remote controller **00**, or at any other position on the remote controller **00**, i.e., an installation position of the camera **00331** is not particularly defined herein. The camera **00331** is configured to acquire the skin image of the user. To be specific, the camera **00331** may acquire the skin image in real time, and transmit the skin image to the second heart rate processing unit **0034**. After receiving the skin image, the second heart rate processing unit **0034** may calculate the heart rate of the user in accordance with the skin image using the image information processing technique and the image-heart rate algorithm.

[0046] For example, the user may hold the remote controller **00** with his right hand, so that the camera **00331** at the back face of the remote controller **00** may acquire a skin image of the user's right palm. To be specific, the camera **00331** may acquire the skin image in real time. A flash lamp (not shown) may be arranged in the vicinity of the camera,

and when the skin image is to be acquired in a dark state, the flash lamp may be turned on, so that the camera **00331** may acquire a clear skin image. After acquiring the skin image of the right palm, the camera **00331** may transmit the skin image to the second heart rate processing unit **0034**, and the second heart rate processing unit **0034** may then calculate the heart rate of the user in accordance with the skin image using the image information processing technique and the image-heart rate algorithm.

[0047] In a third way, the user may measure the user's heart rate using a photoelectric cardiotachometer. When the photoelectric cardiotachometer is used, a light beam is emitted by an LED on the photoelectric cardiotachometer, and then reflected by the user's skin toward a phototransistor on the photoelectric cardiotachometer. When the user's heart beats, there is a tiny fluctuation of the vessel, so the light beam from the LED may be reflected by the skin toward a different position of the phototransistor. When this position changes, it means that the user's heart has beaten once, and this heartbeat is recorded by the photoelectric cardiotachometer. The photoelectric cardiotachometer may also record a time period for detecting the heart rate, and then calculate the heart rate of the user in accordance with the time period and the number of heartbeats within the time period.

[0048] As shown in FIG. **5**, which is yet another schematic view showing the further remote controller **00** according to one embodiment of the present disclosure, the health detection module **003** may include a third heart rate detection unit **0035** and a third heart rate processing **0036**. The third heart rate detection unit **0035** may include LEDs **00351** and a phototransistor **00352**. The LEDs **00351** may be arranged in the vicinity of the phototransistor **00352**, and as shown in FIG. **5**, there are two LEDs **00351**. Of course, one or more than two LEDs **00351** may be provided, i.e., the number of the LEDs is not particularly defined herein. The third heart rate detection unit **0035** is connected to the third heart rate processing unit **0036**, and specifically, the phototransistor **00352** is connected to the third heart rate processing unit **0036**. Referring to FIG. **5**, the LEDs **00351** and the phototransistor **00352** may be arranged within the buttons on the remote controller **00**. In FIG. **5**, a portion M surrounded by a dotted line shows a working principle of the button in which the LEDs **00351** and the phototransistor **00352** are arranged. For example, the phototransistor **00352** is configured to, when the light beams from the LEDs **00351** are reflected by the user's hand toward the phototransistor **00352**, generate detection information in accordance with the reflected light beams, and transmit the detection information to the third heart rate processing unit **0036**. Then, the third heart rate processing unit **0036** calculates the heart rate of the user in accordance with the detection information.

[0049] To be specific, as shown in FIG. **5**, the user may place his finger X onto the phototransistor **00352** and the LEDs **00351**. When the light beams from the LEDs **00351** are reflected by the finger X into the phototransistor **00352**, the phototransistor **00352** may generate the detection information in accordance with the reflected light beams, and transmit the detection information to the third heart rate processing unit **0036**. Then, the third heart rate processing unit **0036** may calculate the heart rate in accordance with the detection information.

[0050] The user may also detect a user's blood pressure using the remote controller **00**. For example, there may exist the following ways for detecting the blood pressure using the remote controller **00**.

[0051] In a first way, the user may measure his blood pressure using a non-inflatable hemopiezometer. When the non-inflatable hemopiezometer is used, the user may press a piezoelectric sensor on the non-inflatable hemopiezometer continuously, and a pulse signal generated every time the piezoelectric sensor is pressed is collected by the piezoelectric sensor. Then, the collected pulse signals are transmitted to the non-inflatable hemopiezometer, so that the non-inflatable hemopiezometer may calculate a time difference between the adjacent pulse signals. There is a correspondence between this time difference and the user's blood pressure, so the non-inflatable hemopiezometer may calculate the user's blood pressure in accordance with the correspondence as well as the time difference.

[0052] As shown in FIG. **6**, which is still yet another schematic view showing the structure of the further remote controller **00** according to one embodiment of the present disclosure, the health detection module **003** may include a first blood pressure detection unit **0037** and a first blood pressure processing unit **0038**. The first blood pressure detection unit **0037** may include a piezoelectric sensor **00371**, and the first blood pressure processing unit **0038** may store therein the correspondence between the time difference and the blood pressure. The first blood pressure detection unit **0037** is connected to the first blood pressure processing unit **0038**, and specifically, the piezoelectric sensor **00371** is connected to the first blood pressure processing unit **0038** and it may be secured beneath a button of the main body **001**. In FIG. **6**, a portion N surrounded by a dotted line shows a working principle of the button under which the piezoelectric sensor **0371** is arranged. The piezoelectric sensor **00371** may be embedded into a lower portion of the button of the main body **001**. When the user presses the button continuously, the piezoelectric sensor **00371** may collect the pulse signal generated every time the button is pressed, and transmit the collected pulse signals to the first blood pressure processing unit **0038**. Then, the first blood pressure processing unit **0038** may generate the time difference between the adjacent pulse signals, and calculate the blood pressure in accordance with the correspondence between the time difference and the blood pressure as well as the time difference.

[0053] For example, as shown in FIG. **6**, the user may place his finger Y onto the button under which the piezoelectric sensor **00371** is arranged, and press the button continuously. When the user presses the button with his finger Y for the first time, the piezoelectric sensor **00371** may collect a user's pulse signal, and transmit the pulse signal to the first blood pressure processing unit **0038**. When the user presses the button with his finger Y again, the piezoelectric sensor **00371** may collect the pulse signal again, and transmit the pulse signal to the first blood pressure processing unit **0038**. It should be appreciated that, when the user presses the button continuously, a time difference between every two pressing operations is greater than a predetermined value, and this predetermined value may be 0.1 s. After receiving the adjacent pulse signals, the first blood pressure processing unit **0038** may generate the time difference between the adjacent pulse signals, and calculate the user's blood pressure in accordance with the

correspondence between the time difference and the blood pressure as well as the time difference.

[0054] In a second way, when the blood pressure is to be measured, a skin image of the user may be taken using a camera. Colors of the vessels and the skins of the user may be acquired from the skin image, and when the blood flows in the vessels, these colors may change. Hence, the skin image of the user may be acquired by the camera in real time, so as to acquire the tiny change in the colors of the vessels and skins when the blood flows in the vessels, and transmit the tiny change to a computer. The computer may then calculate the blood pressure of the user using an image information processing technique and an image-blood pressure algorithm.

[0055] As shown in FIG. **7**, which is still yet another schematic view showing the structure of the further remote controller **00** according to one embodiment of the present disclosure, the health detection module **003** may include a second blood pressure processing unit **0039** and a camera P. The camera P may be the camera **00331** in FIG. **4**, and the second blood pressure processing unit **0039** may be connected to the camera P and store therein programs related to the image information processing technique and the image-blood pressure algorithm. A left portion in FIG. **7** shows a front face of the remote controller **00**, and a right portion in FIG. **7** shows a back face of the remote controller **00**. The camera P may be arranged at the back face of the remote controller **00**. It should be appreciated that, the camera P may also be arranged at any other position on the remote controller **00**, i.e., an installation position of the camera P is not particularly defined herein. The camera P is configured to acquire the skin image of the user. To be specific, the camera P may acquire the skin image in real time, and transmit the skin image to the second blood pressure processing unit **0039**, so that the second blood pressure processing unit **0039** calculates the blood pressure of the user in accordance with the skin image using the image information processing technique and the image-blood pressure algorithm.

[0056] For example, the user may hold the remote controller **00** with his right hand, so that the camera P at the back face of the remote controller **00** may acquire a skin image of the user's right palm. To be specific, the camera P may acquire the skin image in real time. A flash lamp (not shown) may be arranged in the vicinity of the camera, and when the skin image is to be acquired in a dark state, the flash lamp may be turned on, so that the camera P may acquire a clear skin image. After acquiring the skin image of the right palm, the camera P may transmit the skin image to the second blood pressure processing unit **0039**, and the second blood pressure processing unit **0039** may then calculate the blood pressure of the user in accordance with the skin image using the image information processing technique and the image-blood pressure algorithm.

[0057] Referring to FIG. **2**, after the health value of the user has been detected, the health detection module **003** may transmit the health value to the display module **002**, so that the display module **002** displays the health value. It should be appreciated that, the remote controller **00** may communicate with the television (not shown). After receiving the health value, the display module **002** may transmit the health value to the television, so that the television displays the health value. In this way, when watching the television, the user may measure his heart rate and blood pressure using the remote controller **00**.

[0058] According to the embodiments of the present disclosure, the remote controller includes the main body, the display module and the health detection module arranged on the main body. The health detection module is configured to detect the health value of the user, and the display module is connected to the health detection module and configured to display the health value. When the user wants to detect his health condition, the remote controller may be directly used by the user to detect and display the health value, and the user may know his health condition in accordance with the health value. In this way, it is unnecessary for the user to move the health detection device to be in the vicinity of the television and connect the health detection device to the remote controller. As a result, it is able to simplify the procedure for the health detection.

[0059] As shown in FIG. **8**, the present disclosure provides in some embodiments a health detection system **80**, which may include a television **01** and the remote controller **00** in FIGS. **1** to **7**.

[0060] To be specific, the television **01** may be in wireless communication with the remote controller **00**. The remote controller **00** is configured to transmit the detected health value to the television **01**, and the television **01** may then display the health value. In addition, the television **01** may also store therein the health value, so that the user may observe his health values within a long period of time and a change in the health values, and adjust his health conditions in accordance with the health values and the change in the health values. For example, the television **01** may store therein the health values, or upload the health values to Cloud.

[0061] According to the embodiments of the present disclosure, the health detection system includes the remote controller and the television. The remote controller is configured to detect and display the health value of the user. Also, the remote controller may transmit the health value to the television so that the television displays the health value. When the user wants to detect his health condition, the remote controller may be directly used by the user to detect and display the health value, or the television may be used to display the health value, so that the user may know his health condition in accordance with the health value. In this way, it is unnecessary for the user to move the health detection device to be in the vicinity of the television and connect the health detection device to the remote controller. As a result, it is able to simplify the procedure for the health detection.

[0062] The above embodiments may be combined in various forms, and they will not be particularly defined herein.

[0063] The above are merely the preferred embodiments of the present disclosure. It should be appreciated that, a person skilled in the art may make further modifications and improvements without departing from the principle of the present disclosure, and these modifications and improvements shall also fall within the scope of the present disclosure.

What is claimed is:

1. A remote controller, comprising a main body, a display module and a health detection module arranged on the main body, wherein

the health detection module is configured to detect a health value of a user, the health value at least comprises a heart rate, and the display module is connected to the health detection module and configured to display the health value.

2. The remote controller according to claim **1**, wherein the health detection module comprises a first heart rate detection unit and a first heart rate processing unit connected to the first heart rate detection unit;

the first heart rate detection unit comprises a metal button and a metal plate;

the first heart rate processing unit is configured to, when a first body part of the user is in contact with the metal button and a second body part of the user is in contact with the metal plate, acquire a potential at the first body part through the metal button, acquire a potential at the second body part through the metal plate, calculate a potential difference between the first body part and the second body part in accordance with the potential at the first body part and the potential at the second body part, and calculate the heart value in accordance with a correspondence between the potential difference and the heart rate as well as the potential difference; and

the second body part is different from the first body part.

3. The remote controller according to claim **1**, wherein the health detection module comprises a second heart rate detection unit and a second heart rate processing unit connected to the second heart rate detection unit;

the second heart rate detection unit comprises a camera configured to acquire a skin image of the user and transmit the acquired skin image to the second heart rate processing unit; and

the second heart rate processing unit is configured to calculate the heart rate in accordance with the skin image using an image information processing technique and an image-heart rate algorithm.

4. The remote controller according to claim **1**, wherein the health detection module comprises a third heart rate detection unit and a third heart rate processing unit connected to the third heart rate detection unit; and

the third heart rate detection unit comprises a light-emitting diode (LED), and a phototransistor configured to, when a light beam from the LED is reflected by a hand of the user to the phototransistor, generate detection information in accordance with the reflected light beam, and transmit the detection information to the third heart rate processing unit so that the third heart rate processing unit generates the heart rate in accordance with the detection information.

5. The remote controller according to claim **4**, wherein there is more than one LED.

6. The remote controller according to claim **1**, wherein the health value further comprises a blood pressure;

the health detection module comprises a first blood pressure detection unit and a first blood pressure processing unit connected to the first blood pressure detection unit;

the first blood pressure detection unit comprises a piezoelectric sensor secured underneath a button of the main body of the remote controller;

the piezoelectric sensor is configured to, when the button is pressed by the user continuously, collect a pulse signal generated every time the button is pressed, and transmit the collected pulse signal to the first blood pressure processing unit;

the first blood pressure processing unit is configured to generate a time difference between the adjacent pulse signals, and calculate the blood pressure in accordance with a correspondence between the time difference and the blood pressure as well as the time difference.

7. The remote controller according to claim **3**, wherein the health value further comprises a blood pressure, and the health detection module further comprises a second blood pressure processing unit connected to the camera; and

the camera is further configured to transmit the skin image to the second blood pressure processing unit, so that the second blood pressure processing unit calculates the blood pressure in accordance with the skin image using the image information processing technique and an image-blood pressure algorithm.

8. The remote controller according to claim **1**, further comprising a health indication module connected to the health detection module and configured to, when the health value exceeds a predetermined range, send a prompt.

9. The remote controller according to claim **8**, wherein the health indication module comprises a lamp connected to the health detection module and flickering when the health value exceeds the predetermined range.

10. The remote controller according to claim **9**, wherein the display module is configured to display the health value on the remote controller, or transmit the health value to a television so as to display the health value on the television.

11. A health detection system, comprising a television and the remote controller according to claim **1**.

12. The health detection system according to claim **11**, wherein the remote controller is configured to transmit a detected health value to the television, and the television is configured to display the health value.

13. The health detection system according to claim **12**, wherein the television is further configured to store therein the health value.

14. The remote controller according to claim **2**, further comprising a health indication module connected to the health detection module and configured to, when the health value exceeds a predetermined range, send a prompt.

15. The remote controller according to claim **3**, further comprising a health indication module connected to the health detection module and configured to, when the health value exceeds a predetermined range, send a prompt.

16. The remote controller according to claim **4**, further comprising a health indication module connected to the health detection module and configured to, when the health value exceeds a predetermined range, send a prompt.

17. The remote controller according to claim **5**, further comprising a health indication module connected to the health detection module and configured to, when the health value exceeds a predetermined range, send a prompt.

18. The remote controller according to claim **6**, further comprising a health indication module connected to the health detection module and configured to, when the health value exceeds a predetermined range, send a prompt.

19. The remote controller according to claim **7**, further comprising a health indication module connected to the health detection module and configured to, when the health value exceeds a predetermined range, send a prompt.

20. The health detection system according to claim **11**, wherein the health detection module comprises a first heart rate detection unit and a first heart rate processing unit connected to the first heart rate detection unit;

the first heart rate detection unit comprises a metal button and a metal plate;

the first heart rate processing unit is configured to, when a first body part of the user is in contact with the metal button and a second body part of the user is in contact with the metal plate, acquire a potential at the first body part through the metal button, acquire a potential at the second body part through the metal plate, calculate a potential difference between the first body part and the second body part in accordance with the potential at the first body part and the potential at the second body part, and calculate the heart value in accordance with a correspondence between the potential difference and the heart rate as well as the potential difference; and

the second body part is different from the first body part.

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专利名称(译)	遥控器和健康检测系统		
公开(公告)号	US20160367193A1	公开(公告)日	2016-12-22
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[标]申请(专利权)人(译)	京东方科技集团股份有限公司		
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摘要(译)

本公开提供了一种遥控器和健康检测系统。遥控器包括主体，显示模块和布置在主体上的健康检测模块。健康检测模块被配置为检测用户的健康值，并且健康值至少包括心率。显示模块连接到健康检测模块，并配置为显示健康值。