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(54) **PHYSIOLOGICAL ADJUSTMENT SYSTEM, INTELLIGENT UNDERPANTS AND PHYSIOLOGICAL ADJUSTMENT METHOD**

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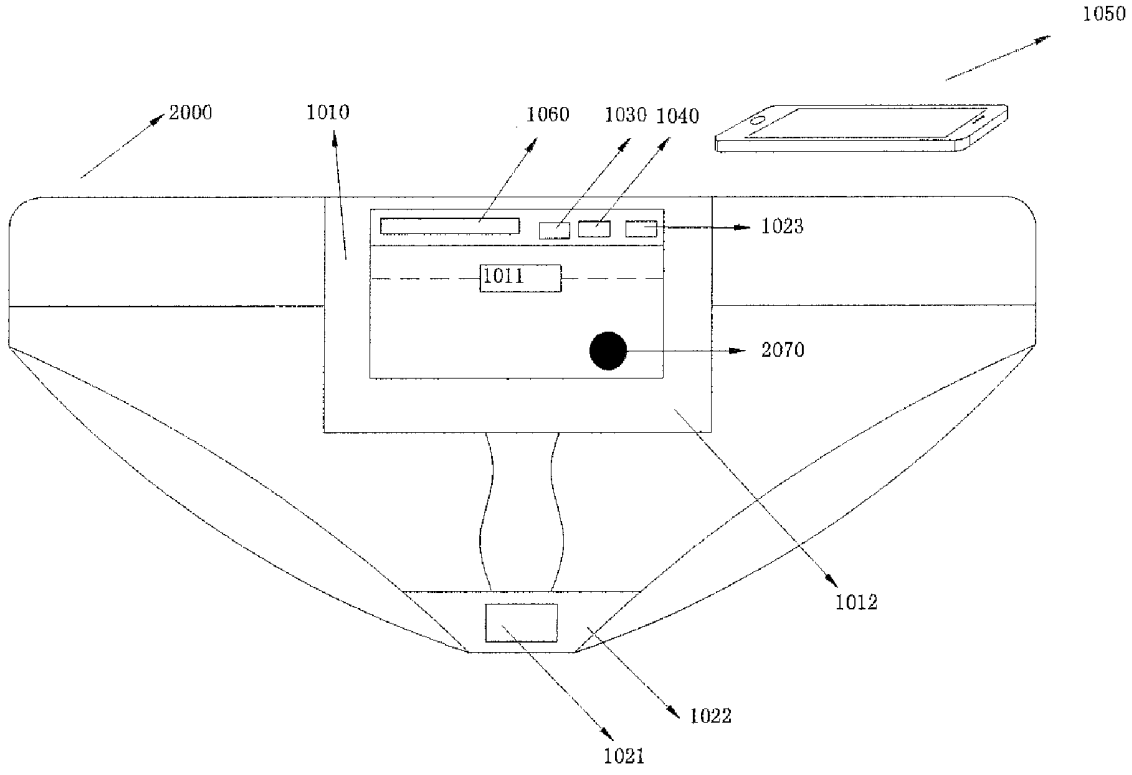
(57) **ABSTRACT**

A physiological adjustment system, intelligent underpants including the physiological adjustment system and a physiological adjustment method for implementing a physiological adjustment using the physiological adjustment system are disclosed. The physiological adjustment system includes: a heating module for heating a human body based on a received heating command; a detection module for detecting a physiological state to obtain physiological state information; and a control module for sending the heating command to the heating module. The heating command includes a first heating command generated based on the physiological state information.



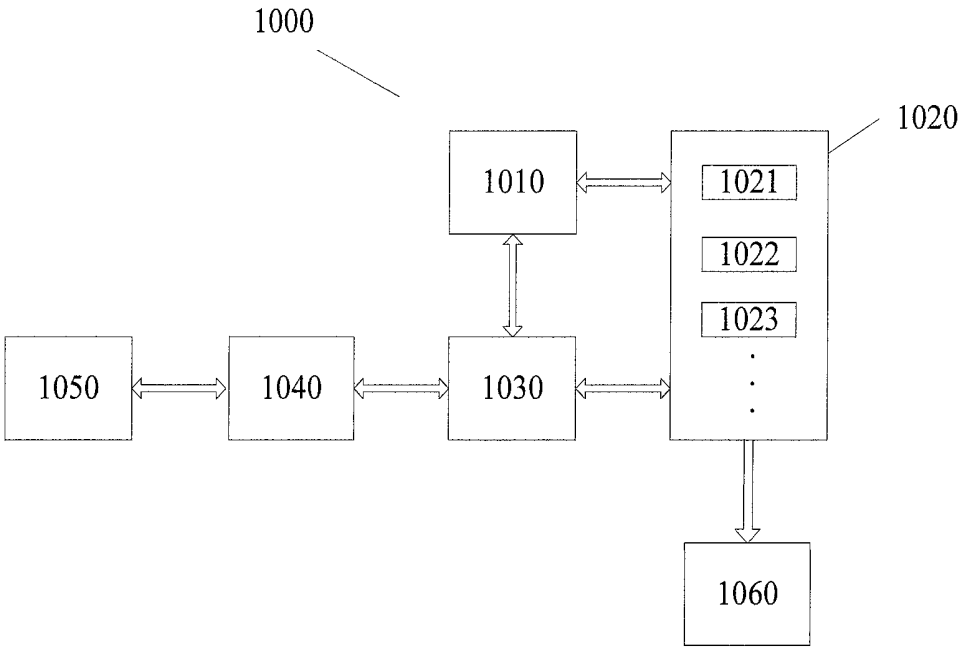


Fig. 1

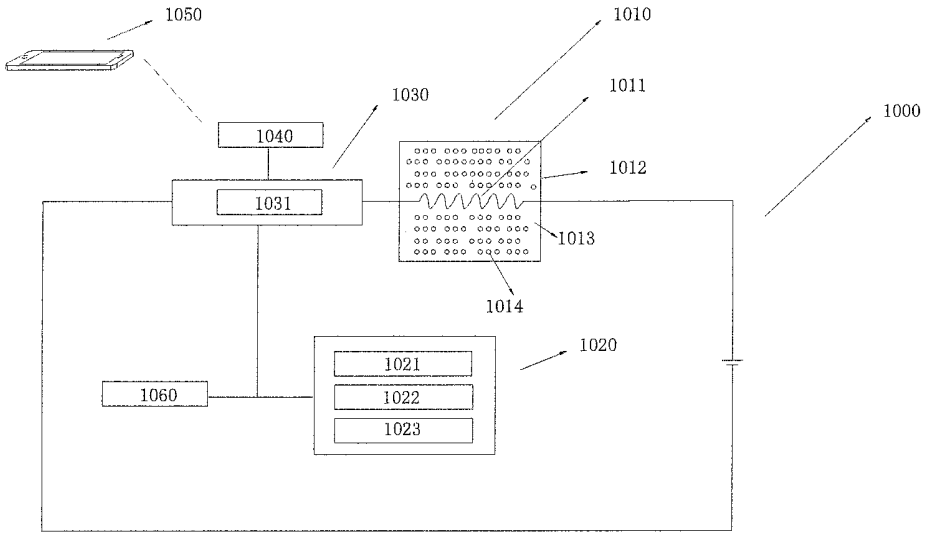

1050
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Fig. 2

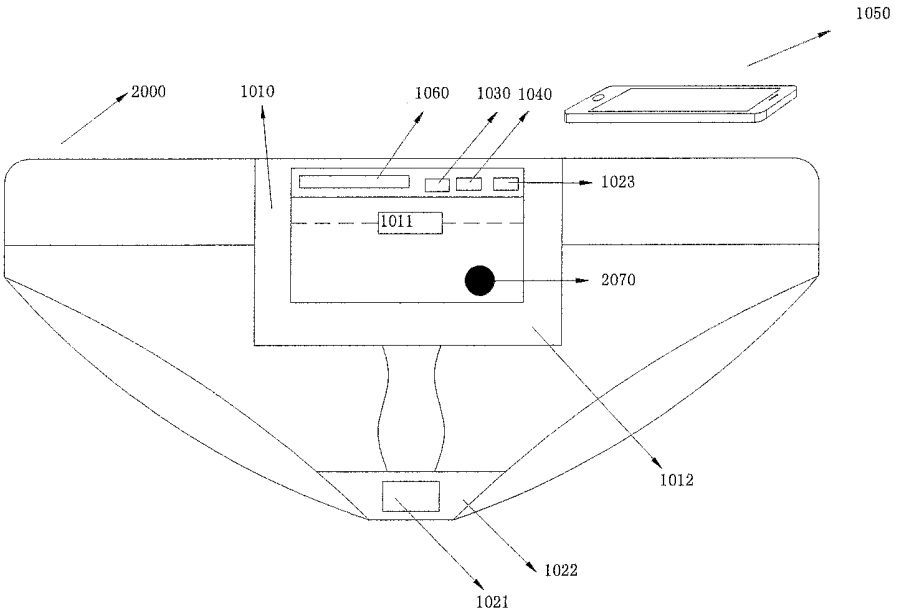

Fig. 3

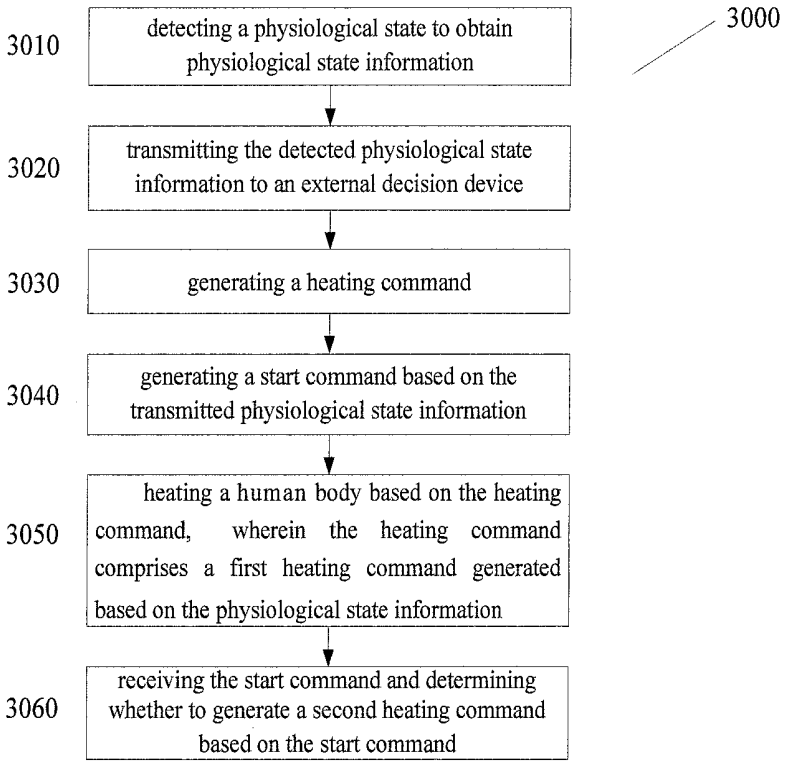
3000
3010
detecting a physiological state to obtain physiological state information
3020
transmitting the detected physiological state information to an external decision device
3030
generating a heating command
3040
generating a start command based on the transmitted physiological state information
3050
heating a human body based on the heating command, wherein the heating command comprises a first heating command generated based on the physiological state information
3060
receiving the start command and determining whether to generate a second heating command based on the start command

Fig. 4

PHYSIOLOGICAL ADJUSTMENT SYSTEM, INTELLIGENT UNDERPANTS AND PHYSIOLOGICAL ADJUSTMENT METHOD

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application is a Section 371 National Stage Application of International Application No. PCT/CN2016/081670, filed on May 11, 2016, entitled "PHYSIOLOGICAL ADJUSTMENT SYSTEM, INTELLIGENT UNDERPANTS AND PHYSIOLOGICAL ADJUSTMENT METHOD", which claims priority to Chinese Patent Application No. 201610161082.7, filed on Mar. 21, 2016 with SIPO, incorporated herein by reference in their entirety.

BACKGROUND

Technical Field

[0002] Embodiments of the present disclosure relate to a field of physiological adjustment, and more particularly, to a physiological adjustment system, intelligent underpants and a physiological adjustment method.

Description of the Related Art

[0003] Most of existing underclothes only have an ordinary function, i.e., functioning as clothes, but cannot adjust physiology of a human body according to physiological state information of the human body. Especially for women, in the early menstrual period and during the whole menstrual period, some symptoms such as cold uterus, dysmenorrhea and the like occur due to a low uterus temperature, which makes a majority of women miserable and even seriously affects daily work and daily life of the women.

[0004] Therefore, it is very urgent to provide a device and a method capable of monitoring the physiological state information of the human body and adjusting the physiology of the human body.

SUMMARY

[0005] According to an embodiment of the present disclosure, there is provided a physiological adjustment system, comprising: a heating module for heating a human body based on a received heating command; a detection module for detecting a physiological state to obtain physiological state information; and a control module for sending the heating command to the heating module, wherein the heating command comprises a first heating command generated based on the physiological state information.

[0006] In a non-limiting embodiment, the physiological state information comprises first physiological state information, and the control module is further configured for determining whether to generate the first heating command based on the first physiological state information.

[0007] In a non-limiting embodiment, the first physiological state information comprises state information regarding whether a woman is in a menstrual period, and the control module is further configured for determining whether to generate the first heating command based on the state information regarding whether the woman is in the menstrual period.

[0008] In a non-limiting embodiment, the physiological state information comprises second physiological state information different from the first physiological state information, the first heating command is generated based on the second physiological state information, and the control module is further configured for generating a physiological result based on the second physiological state information and determining whether to generate the first heating command based on the physiological result.

[0009] In a non-limiting embodiment, the second physiological state information comprises state information regarding whether a woman is in an ovulation period, the physiological result comprises woman menstrual period information, and the control module is further configured for generating the woman menstrual period information based on the state information regarding whether the woman is in the ovulation period and determining whether to generate the first heating command based on the woman menstrual period information.

[0010] In a non-limiting embodiment, the physiological adjustment system further comprises a communication module for receiving a command from an external decision device and transmitting the physiological state information detected by the detection module to the external decision device, wherein the external decision device is configured for generating a start command based on the transmitted physiological state information, and the control module is configured for receiving the start command and determining whether to generate a second heating command based on the start command.

[0011] In a non-limiting embodiment, the control module is configured for generating only one of the first heating command and the second heating command in a preset period of time.

[0012] In a non-limiting embodiment, the external decision device comprises an intelligent terminal comprising an application program for generating the start command based on the transmitted physiological state information.

[0013] In a non-limiting embodiment, the communication module comprises a wireless communication module.

[0014] In a non-limiting embodiment, the physiological state information transmitted by the communication module comprises state information regarding whether a woman is in a menstrual period and/or state information regarding whether a woman is in an ovulation period, and

[0015] the control module is configured for determining whether to generate the start command based on the state information regarding whether the woman is in the menstrual period; and/or

[0016] the control module is configured for generating woman menstrual period information based on the state information regarding whether the woman is in the ovulation period and for determining whether to generate the start command based on the woman menstrual period information.

[0017] In a non-limiting embodiment, the physiological adjustment system further comprises a flexible display capable of displaying at least one kind of information from an information group consisting of information regarding whether a woman is in a menstrual period, a body temperature, and a mood sign indicating physiological state information of the woman and information regarding whether the woman is in an ovulation period.

[0018] In a non-limiting embodiment, the at least one kind of information from the information group is transmitted to an external intelligent terminal by the communication module.

[0019] In a non-limiting embodiment, the control module comprises a manual heating switch, and the heating command further comprises a third heating command generated by the manual heating switch.

[0020] According to another embodiment of the present disclosure, there are provided intelligent underpants, comprising the physiological adjustment system according to the above embodiments, wherein the heating module is arranged at a position corresponding to a lower abdomen of a wearer on a front side of the underpants.

[0021] In a non-limiting embodiment, the intelligent underpants further comprise an insulating bag filled with essential oil, and a heat generation source of the heating module is provided in the essential oil.

[0022] In a non-limiting embodiment, the detection module comprises a blood sensor for detecting blood to obtain state information regarding whether a woman is in a menstrual period.

[0023] In a non-limiting embodiment, the detection module comprises an electronic ovulation test strip sensor provided in a crotch portion of the intelligent underpants, and the electronic ovulation test strip sensor is configured for detecting a peak level of luteinizing hormone in residual urine to obtain state information regarding whether a woman is in an ovulation period.

[0024] In a non-limiting embodiment, the physiological adjustment system further comprises a temperature sensor for measuring an abdomen temperature of the wearer.

[0025] According to a further another embodiment of the present disclosure, there is provided a physiological adjustment method, comprising steps of:

[0026] detecting a physiological state to obtain physiological state information;

[0027] generating a heating command; and

[0028] heating a human body based on the heating command,

[0029] wherein the heating command comprises a first heating command generated based on the physiological state information.

[0030] In a non-limiting embodiment, the physiological state information comprises first physiological state information, and the method further comprises determining whether to generate the first heating command based on the first physiological state information.

[0031] In a non-limiting embodiment, the first physiological state information comprises state information regarding whether a woman is in a menstrual period, and it is determined whether to generate the first heating command based on the state information regarding whether the woman is in the menstrual period.

[0032] In a non-limiting embodiment, the physiological state information comprises second physiological state information different from the first physiological state information, the first heating command is generated based on the second physiological state information, and the method further comprises generating a physiological result based on the second physiological state information and determining whether to generate the first heating command based on the physiological result.

[0033] In a non-limiting embodiment, the second physiological state information comprises state information regarding whether a woman is in an ovulation period, the physiological result comprises woman menstrual period information, and the woman menstrual period information is generated based on the state information regarding whether the woman is in the ovulation period and it is determined whether to generate the first heating command based on the woman menstrual period information.

[0034] In a non-limiting embodiment, the method further comprises steps of:

[0035] transmitting the detected physiological state information to an external decision device;

[0036] generating a start command based on the transmitted physiological state information; and

[0037] receiving the start command and determining whether to generate a second heating command based on the start command.

[0038] In a non-limiting embodiment, the step of determining whether to generate the second heating command based on the start command comprises:

[0039] generating only one of the first heating command and the second heating command in a preset period of time.

[0040] In a non-limiting embodiment, the transmitted physiological state information comprises state information regarding whether a woman is in a menstrual period and/or state information regarding whether a woman is in an ovulation period, and

[0041] the step of generating the start command based on the transmitted physiological state information comprises:

[0042] determining whether to generate the start command based on the state information regarding whether the woman is in the menstrual period; and/or

[0043] generating woman menstrual period information based on the state information regarding whether the woman is in the ovulation period and determining whether to generate the start command based on the woman menstrual period information.

[0044] In a non-limiting embodiment, the heating command further comprises a third heating command generated manually.

BRIEF DESCRIPTION OF THE DRAWINGS

[0045] FIG. **1** is a schematic functional block diagram of a physiological adjustment system according to an embodiment of the present disclosure;

[0046] FIG. **2** is a schematic circuit diagram of a physiological adjustment system according to an embodiment of the present disclosure;

[0047] FIG. **3** shows intelligent underpants according to an embodiment of the present disclosure; and

[0048] FIG. **4** shows a physiological adjustment method according to an embodiment of the present disclosure.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0049] The embodiments of the present disclosure will now be described in detail with reference to the accompanying drawings, in which similar reference numerals refer to similar parts.

[0050] FIG. **1** is a schematic functional block diagram of a physiological adjustment system **1000** according to the present disclosure. The physiological adjustment system **1000** comprises: a heating module **1010** for heating a human body based on a received heating command; a detection module **1020** for detecting a physiological state to obtain physiological state information; and a control module **1030** for sending the heating command to the heating module

1010, wherein the heating command comprises a first heating command generated based on the physiological state information. The physiological adjustment system according to the present disclosure can heat the body based on the physiological state information of a user, so as to alleviate pain caused by dysmenorrhea, cold uterus and the like of the user.

[0051] In an embodiment of the present disclosure, the physiological state information comprises first physiological state information, and the control module is further configured for determining whether to generate the first heating command based on the first physiological state information. The physiological state information comprises state information regarding whether a woman is in a menstrual period, and the control module is further configured for determining whether to generate the first heating command based on the state information regarding whether the woman is in the menstrual period.

[0052] In an embodiment of the present disclosure, the detection module **1020** may be arranged on clothes (for example, underpants) and comprise at least one sensor for measuring a physiological index of a human body. For example, the detection module **1020** may comprise a blood sensor **1021** capable of detecting blood, and the detection module **1020** may obtain state information regarding whether a woman is in a menstrual period through the detection from the blood sensor **1021**. The physiological state information comprises state information regarding whether a woman is in a menstrual period, and the control module **1030** is further configured for determining whether to generate the first heating command based on the state information regarding whether the woman is in the menstrual period. It should be noted that the first physiological state information may also comprise other physiological state information as long as it can reflect physiological characteristics of the human body and human discomfort may be alleviated by heating means based on the physiological characteristics.

[0053] In an embodiment of the present disclosure, the physiological state information comprises second physiological state information different from the first physiological state information, the first heating command is generated based on the second physiological state information, and the control module is further configured for generating a physiological result based on the second physiological state information and determining whether to generate the first heating command based on the physiological result.

[0054] In an embodiment of the present disclosure, the second physiological state information comprises state information regarding whether a woman is in an ovulation period, the physiological result comprises woman menstrual period information, and the control module is further configured for generating the woman menstrual period information based on the state information regarding whether the woman is in an ovulation period and for determining whether to generate the first heating command based on the woman menstrual period information.

[0055] In an embodiment of the present disclosure, the detection module **1020** may further comprise an electronic ovulation test strip sensor **1022** capable of detecting a peak level of luteinizing hormone (LH) in residual urine on an underwear. For example, the luteinizing hormone (LH) in the urine appears at a high peak in the first 24 to 48 hours of the ovulation period of the woman, then the detection module **1020** may obtain the state information regarding whether the woman is in an ovulation period based on a detection result from the electronic ovulation test strip sensor **1022**.

[0056] In an embodiment of the present disclosure, the detection module **1020** further comprises a temperature sensor **1023** capable of measuring a body temperature of the user, so that the user may timely know the body temperature of himself. It will be appreciated by those skilled in the art that the above-described sensors are merely exemplary sensors, but are not intended to limit the present disclosure. The detection module **1020** is not limited to the inclusion of the above-described sensors, but it may include other sensors for measuring specific parameters if required.

[0057] In an embodiment of the present disclosure, the control module **1030** may determine whether to generate the first heating command based on the first state information regarding whether the woman is in the menstrual period. In addition, the control module **1030** may generate a physiological result based on the second physiological state information regarding whether the woman is in an ovulation period, the physiological result comprises woman menstrual period information, and the control module **1030** is further configured for determining whether to generate the first heating command based on the woman menstrual period information. Specifically, the menstrual period information includes cycle information of the menstrual period. For example, after obtaining the state information that the woman is in the ovulation period, a starting date of the menstrual period may be determined by adding the ovulation period by about one week, then the cycle of the menstrual period of the woman is a period of 5 to 7 days after the starting date of the menstrual period. In an embodiment of the present disclosure, the control module **1030** determines whether to generate a start command during the menstrual cycle, for example, the start command may be sent out during the menstrual cycle only one time, or the start command may be sent out during the menstrual cycle at intervals. The control module **1030** may not generate any heating command at the end of the cycle of the menstrual period so as to satisfy different individual requirements.

[0058] In addition, the physiological adjustment system **100** further comprises a communication module **1040** for receiving a command from an external decision device **1050** and transmitting the physiological state information detected by the detection module **1020** to the external decision device **1050**. The transmitted physiological state information comprises state information regarding whether a woman is in a menstrual period and/or state information regarding whether a woman is in an ovulation period, a body temperature of the user, a mood sign indicating physiological state information of the woman and the like. The mood sign may include an unhappy face (for example, a rainy expression) that indicates a woman is in a menstrual period, a face (for example, a smiling face) that indicates the woman is in a safe period, and a face (for example, a small hand) that indicates the woman is in an ovulation period.

[0059] The external decision device **1050** may generate a start command based on the transmitted physiological state information. Specifically, the external decision device **1050** determines whether to generate the start command based on the state information regarding whether the woman is in the menstrual period. Optionally, when the woman is in the menstrual period, the start command is generated. Alterna-

tively, the external decision device **1050** generates the woman menstrual period information based on the state information regarding whether the woman is in the ovulation period and determines whether to generate the start command based on the woman menstrual period information. For example, after obtaining the state information that the woman is in the ovulation period, a starting date of the menstrual period may be determined by adding the ovulation period by about one week, then the cycle of the menstrual period of the woman is a period of 5 to 7 days after the starting date of the menstrual period, the external decision device **1050** determines whether to generate the start command during the menstrual cycle, for example, the start command may be sent out during the menstrual cycle only one time, or the start command may be sent out during the menstrual cycle at intervals. The control module **1030** receives the start command and determines whether to generate a second heating command based on the start command. Determining whether to generate the second heating command based on the start command includes generating only one of the first heating command and the second heating command in a preset period of time. In this way, it is possible to prevent the first heating command and the second heating command from repeating, thereby optimizing the system. The external decision device **1050** comprises an intelligent terminal comprising an application program for generating the start command based on the transmitted physiological state information. In this embodiment, the external decision device **1050** may be a smartphone in which an application program for controlling the heating module is installed. The communication module **1040** comprises a wireless communication module, such that it is wirelessly connected to the external decision device **1050**, for example via a Bluetooth technology, a WLAN network, an infrared communication technology or the like. The external decision device **1050** may also record and calculate the menstrual cycle of the woman using the physiological state information transmitted by the communication module **1040**, and transmit the heating command to the heating module **1010** during the menstrual cycle.

[0060] The physiological adjustment system **1000** further comprises a flexible display **1060** connected to the control module **1030** and capable of visually displaying the physiological state information for the user, for example, the body temperature of the user, information regarding whether a woman is in a menstrual period, a mood sign indicating physiological state of the woman, information regarding whether a woman is in an ovulation period and the like. The mood sign may include an unhappy face (for example, a rainy expression) that indicates a woman is in a menstrual period, a face (for example, a smiling face) that indicates the woman is in a safe period, and a face (for example, a small hand) that indicates the woman is in an ovulation period. Of course, the mood sign is not limited to the listed examples, but may include any possible face signs that reflect the physiological state.

[0061] According to an embodiment of the present disclosure, the control module **1030** may further comprise a manual heating switch **1031** (referring to FIG. **2**), and the heating command further comprises a third heating command generated by the manual heating switch **1031**.

[0062] FIG. **2** is a schematic circuit diagram of a physiological adjustment system **1000** according to an embodiment of the present disclosure, in which the principle of a heating circuit is shown predominantly.

[0063] In an embodiment of the present disclosure, the heating module **1010** includes an iron-chromium-aluminum alloy heat pipe **1011** functioning as a heating element and a flexible bag container **1012**. The iron-chromium-aluminum alloy heat pipe **1011** is arranged in the flexible bag container **1012** filled with liquid essential oil **1013**. In an embodiment of the present disclosure, a massage stone **1014** is also provided in the flexible bag container **1012**. By means of the essential oil **1013** and the massage stone **1014**, it can achieve a uniform heating and massage effect. It should be understood that the essential oil **1013** and the massage stone **1014** themselves may be made from insulation materials, and the flexible bag container **1012** may also be made of an insulation material. When the physiological adjustment system **1000** is applied to a woman's underpants, it is easily to be worn and can alleviate the dysmenorrhea symptom of the woman.

[0064] The blood sensor **1021**, the electronic ovulation test strip sensor **1022** and the temperature sensor **1023** can respectively detect the blood, the peak level of the luteinizing hormone (LH) in the residual urine on the underwear and the human body temperature, so that it can obtain the physiological state information regarding whether the woman is in the menstrual period and whether the woman is in the ovulation period and the body temperature of the woman. The flexible display **1060** is configured for visually displaying the physiological state information for the user, such as, the body temperature of the user, information regarding whether a woman is in a menstrual period, a mood sign indicating physiological state of the woman, information regarding whether a woman is in an ovulation period and the like. The mood sign may include an unhappy face (for example, a rainy expression) that indicates a woman is in a menstrual period, a face (for example, a smiling face) that indicates the woman is in a safe period, and a face (for example, a small hand) that indicates the woman is in an ovulation period.

[0065] FIG. **3** shows intelligent underpants **2000** according to an embodiment of the present disclosure. The intelligent underpants **2000** comprises the above physiological adjustment system. The heating module **1010** is arranged at a position corresponding to a lower abdomen of a wearer on a front side of the underpants **2000**. The heating module **1010** adopts an iron-chromium-aluminum alloy heat pipe **1011** to act as a heating element. The iron-chromium-aluminum alloy heat pipe **1011** is arranged in a flexible bag container **1012** filled with liquid essential oil and a massage stone.

[0066] The detection module **1020** includes a blood sensor **1021**, an electronic ovulation test strip sensor **1022**, and a temperature sensor **1023**. The blood sensor **1021** is arranged at a crotch portion of the underpants **2000** close to the lower abdomen portion. The electronic ovulation test strip sensor **1022** is arranged at the crotch portion of the underpants and detects a peak level of luteinizing hormone in residual urine to further obtain the state information regarding whether the woman is in the ovulation period, and displays it by the flexible display **1060**, thereby assisting the woman in preparing for pregnancy and increasing chance of pregnancy. The temperature sensor **1023** is capable of measuring the abdomen temperature of the wearer.

[0067] The communication module **1040** may be arranged at an upper side of the underpants **2000** close to a waist to facilitate communicating with the external smartphone **1050**. It should be understood that the communication can be implemented as long as the communication module **1040** is arranged on the underpants **2000**, therefore, the detailed arrangement position will not be limited in the embodiments of the present disclosure.

[0068] The flexible display **1060** is also arranged on the upper side of the underpants **2000** close to the waist on the front side, and configured for visually displaying the physiological state information for the user, such as, the body temperature of the user, information regarding whether a woman is in a menstrual period, a mood sign indicating physiological state of the woman, information regarding whether a woman is in an ovulation period and the like. The mood sign may include an unhappy face (for example, a rainy expression) that indicates a woman is in a menstrual period, a face (for example, a smiling face) that indicates the woman is in a safe period, and a face (for example, a small hand) that indicates the woman is in an ovulation period.

[0069] The control module **1030** and its manual heating switch **1031** are provided on the front side of the underpants **2000** for ease of operation.

[0070] The intelligent underpants **2000** can also be provided with an indicator light **2070**. The indicator light **2070** may be a color-changeable LED lamp so as to indicate the relevant working status information of the underpants. For example, a flashing red light indicates lack of electricity, a flashing green light indicates that the underpants are in an heating status. It will be understood by those skilled in the art that the indicator light may work according to a presetting such that different lighting statuses indicate different working status information, and the above-described working status information is merely exemplary, and it is possible to set the working status information of the indicator light by those skilled in the art as required.

[0071] The intelligent underpants **2000** according to the present disclosure may be dry-cleaned or brushed by using detergent.

[0072] It will be appreciated by those skilled in the art that the positions of the various components of the intelligent underpants **2000** are exemplary, but not restrictive. The above-described components may be adjusted according to requirements or design preferences, without adversely affecting the implementation of their functionality.

[0073] FIG. **4** shows a physiological adjustment method **3000** according to an embodiment of the present disclosure. The physiological adjustment method comprises following steps:

[0074] step **3010**: detecting a physiological state to obtain physiological state information;

[0075] step **3030**: generating a heating command; and

[0076] step **3050**: heating a human body based on the heating command, wherein the heating command comprises a first heating command generated based on the physiological state information.

[0077] According to an embodiment of the present disclosure, the physiological state information comprises first physiological state information, and the method further comprises a step of determining whether to generate the first heating command based on the first physiological state information. The first physiological state information comprises state information regarding whether a woman is in a menstrual period, and it is determined whether to generate the first heating command based on the state information regarding whether the woman is in the menstrual period.

[0078] The physiological state information further comprises second physiological state information different from the first physiological state information, the first heating command is generated based on the second physiological state information, and the method further comprises a step of generating a physiological result based on the second physiological state information and determining whether to generate the first heating command based on the physiological result. The second physiological state information comprises state information regarding whether a woman is in an ovulation period, the physiological result comprises woman menstrual period information, and the woman menstrual period information is generated based on the state information regarding whether the woman is in the ovulation period and it is determined whether to generate the first heating command based on the woman menstrual period information.

[0079] The method further comprises following steps:

[0080] step **3020**: transmitting the detected physiological state information to an external decision device;

[0081] step **3040**: generating a start command based on the transmitted physiological state information; and

[0082] step **3060**: receiving the start command and determining whether to generate a second heating command based on the start command.

[0083] The step **3060** of determining whether to generate the second heating command based on the start command comprises: generating only one of the first heating command and the second heating command in a preset period of time. That is to say, the step **3010**, the step **3030**, the step **3050** and the steps **3020**, **3040**, **3060** may be performed in parallel, and have no interference with each other, and the step number does not mean the relevant steps must be performed in this order. The sequence of the steps in this embodiment is merely exemplary, but not restrictive, and the steps may be adjusted in the aspect of sequence according to the actual situation. However, only one of the first heating command and the second heating command is generated in a preset period of time, that is, only one heating command is generated in the preset period of time.

[0084] The transmitted physiological state information comprises state information regarding whether a woman is in a menstrual period and/or state information regarding whether a woman is in an ovulation period, and

[0085] the step of generating the start command based on the transmitted physiological state information comprises:

[0086] determining whether to generate the start command based on the state information regarding whether the woman is in the menstrual period; and/or

[0087] generating woman menstrual period information based on the state information regarding whether the woman is in the ovulation period and determining whether to generate the start command based on the woman menstrual period information. The menstrual period information includes cycle information of the menstrual period.

[0088] The heating command further comprises a third heating command generated manually.

[0089] The physiological adjustment system and the physiological adjustment method according to embodiments of the present disclosure can detect physiological state of a user, and heat the body based on the physiological state

information of the user, so as to alleviate pain caused by dysmenorrhea, cold uterus and the like of the user. Additionally, the intelligent underpants according to embodiments of the present disclosure act as an intelligent wearable device, improve technological element of the clothes, adjust physiological parameters of the human body by scientific and technological means, and increase additional values of product.

[0090] The present disclosure has been described in detail with reference to the embodiments above. It will be understood by those skilled in the art that the above-described embodiments are merely exemplary, but not to limit the present disclosure. Variations and modifications as well as equivalent alternatives may be made by those skilled in the art without departing from the scope of the present disclosure defined in the claims. Those technical features mentioned in the present disclosure can be freely combined to form various technical solutions without conflict.

1. A physiological adjustment system, comprising:

a heating module for heating a human body based on a received heating command;

a detection module for detecting a physiological state to obtain physiological state information; and

a control module for sending the heating command to the heating module, wherein the heating command comprises a first heating command generated based on the physiological state information.

2. The physiological adjustment system according to claim **1**, wherein the physiological state information comprises first physiological state information, and the control module is further configured for determining whether to generate the first heating command based on the first physiological state information.

3. The physiological adjustment system according to claim **2**, wherein the first physiological state information comprises state information regarding whether a woman is in a menstrual period, and the control module is further configured for determining whether to generate the first heating command based on the state information regarding whether the woman is in the menstrual period.

4. The physiological adjustment system according to claim **3**, wherein the physiological state information comprises second physiological state information different from the first physiological state information, the first heating command is generated based on the second physiological state information, and the control module is further configured for generating a physiological result based on the second physiological state information and determining whether to generate the first heating command based on the physiological result.

5. The physiological adjustment system according to claim **4**, wherein the second physiological state information comprises state information regarding whether a woman is in an ovulation period, the physiological result comprises woman menstrual period information, and the control module is further configured for generating the woman menstrual period information based on the state information regarding whether the woman is in the ovulation period and determining whether to generate the first heating command based on the woman menstrual period information.

6. The physiological adjustment system according to claim **1**, further comprising a communication module for receiving a command from an external decision device and transmitting the physiological state information detected by the detection module to the external decision device, wherein the external decision device is configured for generating a start command based on the transmitted physiological state information, and the control module is configured for receiving the start command and determining whether to generate a second heating command based on the start command.

7. (canceled)

8. (canceled)

9. (canceled)

10. (canceled)

11. The physiological adjustment system according to claim **6**, further comprising a flexible display capable of displaying at least one kind of information from an information group consisting of information regarding whether a woman is in a menstrual period, a body temperature, and a mood sign indicating physiological state information of the woman and information regarding whether the woman is in an ovulation period.

12. (canceled)

13. (canceled)

14. Intelligent underpants, comprising the physiological adjustment system according to claim **1**, wherein the heating module is arranged at a position corresponding to a lower abdomen of a wearer on a front side of the underpants.

15. The intelligent underpants according to claim **14**, further comprising an insulating bag filled with essential oil, and a heat generation source of the heating module is provided in the essential oil.

16. The intelligent underpants according to claim **14**, wherein the detection module comprises a blood sensor for detecting blood to obtain state information regarding whether a woman is in a menstrual period.

17. The intelligent underpants according to claim **14**, wherein the detection module comprises an electronic ovulation test strip sensor provided in a crotch portion of the intelligent underpants, and the electronic ovulation test strip sensor is configured for detecting a peak level of luteinizing hormone in residual urine to obtain state information regarding whether a woman is in an ovulation period.

18. The intelligent underpants according to claim **14**, wherein the physiological adjustment system further comprises a temperature sensor for measuring an abdomen temperature of the wearer.

19. A physiological adjustment method, comprising steps of:

detecting a physiological state to obtain physiological state information;

generating a heating command; and

heating a human body based on the heating command,

wherein the heating command comprises a first heating command generated based on the physiological state information.

20. The physiological adjustment method according to claim **19**, wherein the physiological state information comprises first physiological state information, and the method further comprises determining whether to generate the first heating command based on the first physiological state information.

21. The physiological adjustment method according to claim **20**, wherein the first physiological state information comprises state information regarding whether a woman is in a menstrual period, and it is determined whether to

generate the first heating command based on the state information regarding whether the woman is in the menstrual period.

22. The physiological adjustment method according to claim **21**, wherein the physiological state information comprises second physiological state information different from the first physiological state information, the first heating command is generated based on the second physiological state information, and the method further comprises generating a physiological result based on the second physiological state information and determining whether to generate the first heating command based on the physiological result.

23. The physiological adjustment method according to claim **22**, wherein the second physiological state information comprises state information regarding whether a woman is in an ovulation period, the physiological result comprises woman menstrual period information, and the woman menstrual period information is generated based on the state information regarding whether the woman is in the ovulation period and it is determined whether to generate the first heating command based on the woman menstrual period information.

24. The physiological adjustment method according to claim **19**, wherein the method further comprises steps of:

transmitting the detected physiological state information to an external decision device;

generating a start command based on the transmitted physiological state information; and

receiving the start command and determining whether to generate a second heating command based on the start command.

25. The physiological adjustment method according to claim **24**, wherein the step of determining whether to generate the second heating command based on the start command comprises:

generating only one of the first heating command and the second heating command in a preset period of time.

26. The physiological adjustment method according to claim **24**, wherein the transmitted physiological state information comprises state information regarding whether a woman is in a menstrual period and/or state information regarding whether a woman is in an ovulation period, and

the step of generating the start command based on the transmitted physiological state information comprises:

determining whether to generate the start command based on the state information regarding whether the woman is in the menstrual period; and/or

generating woman menstrual period information based on the state information regarding whether the woman is in the ovulation period and determining whether to generate the start command based on the woman menstrual period information.

27. (canceled)

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摘要(译)

公开了一种生理调节系统，包括生理调节系统和用于使用生理调节系统实施生理调节的生理调节方法的智能内裤。生理调节系统包括：加热模块，用于基于接收到的加热命令加热人体;检测模块，用于检测生理状态以获得生理状态信息;以及用于将加热命令发送到加热模块的控制模块。加热命令包括基于生理状态信息生成的第一加热命令。