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(54) WASHING MACHINE CONTROL METHOD AND WASHING MACHINE

(57) The present disclosure discloses a washing machine control method and a washing machine. The washing machine includes a local control mode and a remote control mode implemented through an intelligent terminal. The washing machine authorizes/forbids the intelligent terminal to remotely control the washing machine according to state information of the washing machine after receiving a remote control request transmitted by a local machine or the intelligent terminal. According to the present disclosure, the washing machine authorizes/forbids the intelligent terminal to remotely control the washing machine according to the state information of the washing machine after receiving the remote control request transmitted by the local machine or the intelligent terminal. When the state information of the washing machine conforms to a condition for remote control, the washing machine authorizes the intelligent terminal to remotely control the washing machine. When the state information of the washing machine does not conform to the condition for remote control, the washing machine forbids the intelligent terminal to remotely control the washing machine. Therefore, the washing machine control method of the present disclosure is applicable to the field of Internet of Things washing machines, and may effectively guarantee the safety of the Internet of Things washing machine in the remote control and avoid occurrence of safety accidents.

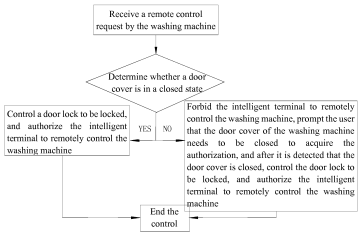

Fig. 1

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to a field of washing machines, and particularly relates to an Internet of Things (Internet of Things) washing machine control method and a washing machine.

BACKGROUND

[0002] The Internet of Things is another global informatization trend following computers, Internets and mobile communication networks. Since 1999, the concept of Internet of Things had gradually known by people. It is regarded as a next trillion-level information technology after the Internet. In recent years, countries in the world are stepping up to research the Internet of Things technology.

[0003] The development of the Internet of Things is divided into four stages. The first stage is the networking of mainframes and hosts. The second stage is the connection between desktops as well as laptops and the Internet. The third stage is the interconnection of some mobile devices such as mobile phones. The fourth state is the rise of embedded Internets. More application equipment closely related to the daily lives of people, including washing machines, refrigerators, TVs, microwave ovens, etc., will all join the rank of interconnections to eventually form a globally unified "Internet of Things."

[0004] A so-called Internet of Things washing machine is a washing machine that uses an automatic radio frequency identification technology to realize identification between the washing machine and objects. In use, remote control of the Internet of Things washing machine can be realized through a sensing device such as a computer and an intelligent terminal, and a working state of the washing machine can be inquired in real time, and related information of the washing machine is returned through a control system. From a technical point of view, it is a new technology that connects various types of sensors with the existing "Internet", and is an extension of the "Internet" technology. Now, the Internet of Things has been constantly changing the lifestyles and consumption habits of people.

[0005] However, different from other Internet of Things products, the washing machine in work has certain safety problems to which attentions shall be paid. When a door cover of the washing machine is not closed, and the washing machine receives a remote control request at this time, if the washing machine directly authorizes to confirm the remote control request, a remote user does not know that the door cover is in an opened state, so that some commands that may be executed only when a door lock is locked may be possibly executed, which causes a potential safety hazard in the remote control. Therefore, a local control mode and a remote control mode of the washing machine are in different priority levels. On another aspect, for different kinds of washing machines at present, such as a washing machine having upper and lower washing drums, control methods thereof bring the potential safety hazard in different ways due to different structures, so that the control methods shall be correspondingly designed. For example, the lower washing drum of the washing machine is easily collided because of its relatively low position where the safety problem shall be considered most, and the upper washing drum of the washing machine has a relatively small safety problem thanks to its high position, so that the state of the lower washing drum is mainly considered on authorization of remote control.

[0006] In view of this, the present disclosure is provided.

SUMMARY

[0007] The present disclosure provides a washing machine control method to overcome the shortcomings of the prior art. A washing machine authorizes/forbids an intelligent terminal to remotely control the washing machine according to state information of the washing machine after receiving a remote control request transmitted by a local machine or the intelligent terminal. When the state information of the washing machine conforms to a condition for remote control, the washing machine authorizes the intelligent terminal to remotely control the washing machine. When the state information of the washing machine does not conform to the condition for remote control, the washing machine forbids the intelligent terminal to remotely control the washing machine. Therefore, the washing machine control method of the present disclosure is applicable to the field of Internet of Things washing machines, and may effectively guarantee the safety of the Internet of Things washing machine in the remote control and avoid occurrence of safety accidents.

[0008] To solve the above-mentioned technical problems, the basic idea of the technical solution of the present disclosure is as follows.

[0009] A washing machine control method is provided, which includes a local control mode and a remote control mode implemented through an intelligent terminal. The washing machine authorizes/forbids the intelligent terminal to remotely control the washing machine according to state information of the washing machine after receiving a remote control request transmitted by a local machine or the intelligent terminal.

[0010] In the above solution, the intelligent terminal may transmit the remote control request to the washing machine. The remote control request needs to be authorized on the washing machine side. The local machine is the washing machine body, which is distinguished from the intelligent terminal.

[0011] Or, the washing machine directly inputs the remote control request through the local machine and authorizes or forbids the intelligent terminal to remotely con-

trol the washing machine according to its state information.

[0012] Preferably, the state information of the washing machine includes a door cover state of the washing machine. When the door cover state conforms to a safety condition, the washing machine authorizes the intelligent terminal to remotely control the washing machine.

[0013] Preferably, the washing machine determines whether a door cover of the washing machine is in a closed state after receiving the remote control request, and controls a door lock to be locked and authorizes the intelligent terminal to remotely control the washing machine if a determination result is YES, or forbids the intelligent terminal to remotely control the washing machine if the determination result is NO.

[0014] Preferably, if the washing machine determines that the door cover of the washing machine is in an opened state after receiving the remote control request, information that indicates an authorization failure is pushed to the washing machine and/or the intelligent terminal and to prompt a user to close the door cover of the washing machine.

[0015] Preferably, after the user closes the door cover, the washing machine controls the door lock to be locked, and authorizes the intelligent terminal to remotely control the washing machine.

[0016] Preferably, the washing machine includes an upper washing drum and a lower washing drum cooperating with each other for washing or implement washing independently. The washing machine determines whether a door cover of the lower washing drum of the washing machine is in a closed state after receiving the remote control request transmitted by the local machine or the intelligent terminal, and controls a door lock of the lower washing drum to be locked and authorizes the intelligent terminal to remotely control the washing machine if a determination result is YES; or forbids the intelligent terminal to remotely control the washing machine if the determination result is NO, then pushes the information that indicates the authorization failure to the washing machine and/or the intelligent terminal, and prompts the user to close the door cover of the lower washing drum.

[0017] Preferably, a plurality of intelligent terminals are provided. The washing machine may only authorize one intelligent terminal to remotely control the washing machine at one time, and the non-authorized intelligent terminals transmit remote control requests and then push the remote control requests to the authorized intelligent terminal to ask the authorized intelligent terminal to confirm the authorization.

[0018] Preferably, the washing machine transmits the state information of the washing machine to the intelligent terminal, and the intelligent terminal displays the state information of the washing machine in real time. The intelligent terminal needs to be authorized by the local machine, so as to transmit a remote control instruction to control a working state of the washing machine.

[0019] Preferably, a plurality of intelligent terminals are provided, and are in communication connection with the washing machine, respectively, and may display the state information of the washing machine in real time. The washing machine authorizes any one of the intelligent terminals to remotely control the washing machine, and forbids other intelligent terminals to remotely control the washing machine.

[0020] Preferably, each of the intelligent terminals and the washing machine establish a first channel for receiving the state information of the washing machine and a second channel for enabling the washing machine to receive a control instruction transmitted by the intelligent terminal. When the washing machine and the intelligent terminals are respectively connected to an Internet, the various first channels are all in connected states, and the various second channels are in disconnected states by default. The second channels are connected only when they are authorized by the washing machine.

[0021] Preferably, when the second channel between any one of the intelligent terminals and the washing machine is connected, the second channels between other intelligent terminals and the washing machine are all in the disconnected states.

[0022] In the above solution, the intelligent terminals may also check a washing state of the washing machine in real time even if they are not authorized by the washing machine side, but may not remotely control the washing machine.

[0023] Preferably, the local control mode is a control mode that a control instruction is input through an operation interface of the local machine to control an operation state of the washing machine. The remote control mode is a control mode that a control instruction is input through the intelligent terminal to wirelessly control an operation state of the washing machine. The local control mode and the remote control mode have different priority levels.

[0024] Preferably, the priority level of the local control mode is higher than that of the remote control mode. When the remote control mode is in an enabled state, the control instruction may be directly input through the local control mode. The washing machine forbids the intelligent terminal to remotely control the washing machine after receiving the control instruction, and executes the control instruction.

[0025] Preferably, if the washing machine authorizes a certain intelligent terminal to remotely control the washing machine, and is executing or has executed the control instruction of the intelligent terminal, the priority level of the remote control mode of the intelligent terminal is higher than that of the local control mode. The local machine needs to be authorized by the intelligent terminal to input the control instruction to control the working state of the washing machine.

[0026] The present disclosure further discloses a washing machine using the above washing machine control method at the same time. The washing machine includes:

a washing machine body, including an upper washing drum, a lower washing drum and a controller; and an intelligent terminal.

[0027] The upper washing drum and the lower washing drum are independently provided with a door cover, respectively. The controller is wirelessly connected with the intelligent terminal. The intelligent terminal and the controller establish a first channel for receiving state information of the washing machine and a second channel for enabling the washing machine to receive a control instruction transmitted by the intelligent terminal. The controller is connected to an Internet through a local router, and is connected with the intelligent terminal through a cloud server. When the controller and the intelligent terminal are respectively connected to an Internet, the first channels are all in connected states, and the second channels are in disconnected states by default. The second channels are connected only when they are authorized by the washing machine. An activation device is arranged on the washing machine. The washing machine authorizes/forbids the intelligent terminal to remotely control the washing machine through the activation device. The activation device needs to be triggered by the user on the washing machine body. After the activation device is triggered, whether the state information of the washing machine conforms to a condition for remote control and whether the state information of the washing machine conforms to a safety condition for enabling the remote control mode are detected. If a determination result is YES, the intelligent terminal is authorized to control the washing machine, or the user is prompted that an operation for relieving the potential safety hazard needs to be executed in order to acquire the authorization.

[0028] Through the adoption of the above technical solutions, the present disclosure has the following beneficial effects.

[0029] According to the present disclosure, the washing machine authorizes/forbids the intelligent terminal to remotely control the washing machine according to state information of the washing machine after receiving the remote control request transmitted by the local machine or the intelligent terminal. When the state information of the washing machine conforms to the condition for remote control, the washing machine authorizes the intelligent terminal to remotely control the washing machine. When the state information of the washing machine does not conform to the condition for remote control, the washing machine forbids the intelligent terminal to remotely control the washing machine. Therefore, the washing machine control method of the present disclosure is applicable to the field of Internet of Things washing machines, and may effectively guarantee the safety of the Internet of Things washing machine in the remote control and avoid occurrence of safety accidents.

[0030] The specific implementations of the present disclosure are further described below in detail in combination with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0031] The drawings constitute one part of this application, and are used to provide a further understanding of the present disclosure. Illustrative embodiments and descriptions thereof of the present disclosure are used to explain the present disclosure, and do not constitute an improper limitation to the present disclosure. Obviously, the drawings described below are only some embodiments, and those skilled in the art can obtain other drawings according to these drawings without any creative work. In the drawings:

Fig. 1 is a logic diagram of a washing machine control method of the present disclosure.

[0032] It should be noted that these drawings and text descriptions are not intended to limit the conceptual scope of the present disclosure in any form, but are to describe the concept of the present disclosure to those skilled in the art with reference to specific embodiments.

DETAILED DESCRIPTION

[0033] In order to make the objectives, technical solutions and advantages of the embodiments of the present disclosure clearer, the technical solutions in the embodiments will be described clearly and completely below in combination with the drawings in the embodiments of the present disclosure. The following embodiments are used to describe the present disclosure, but not intended to limit the scope of the present disclosure.

[0034] In the description of the present disclosure, it should be noted that orientations or positional relationships indicated by the terms "upper", "lower", "inside", "outside" and the like are orientations or positional relationships as shown in the drawings, and are only for the purpose of facilitating and simplifying the description of the present disclosure instead of indicating or implying that devices or elements indicated must have particular orientations, and be constructed and operated in the particular orientations, so that these terms are not construed as limiting the present disclosure.

[0035] In the description of the present disclosure, it should be noted that unless otherwise explicitly defined and defined, the terms "installed" and "connected" are to be understood broadly, and may be, for example, fixedly connected, or detachably connected, or integrally connected, or mechanically connected, or electrically connected, or directly connected, or indirectly connected through an intermediate medium. Those of ordinary skill in the art can understand the specific meanings of the above terms in the present disclosure according to specific situations.

Embodiment I

[0036] The present embodiment provides a washing machine control method which includes a local control mode and a remote control mode implemented through

an intelligent terminal. The washing machine authorizes/forbids the intelligent terminal to remotely control the washing machine according to state information of the washing machine after receiving a remote control request transmitted by a local machine or the intelligent terminal.

[0037] In the above solution, the intelligent terminal may transmit the remote control request to the washing machine, and the remote control request needs to be authorized by the washing machine side, namely the local machine side.

[0038] Or, the washing machine directly inputs the remote control request through the washing machine side, and authorizes or forbids the intelligent terminal to remotely control the washing machine according to its state information.

[0039] Preferably, the state information of the washing machine includes a door cover state of the washing machine. When the door cover state conforms to a safety condition, the washing machine authorizes the intelligent terminal to remotely control the washing machine.

[0040] Preferably, the state information of the washing machine further includes a detergent state. The washing machine determines whether the door cover state of the washing machine conforms to a condition for enabling the remote control mode and whether a detergent of the washing machine is effectively added. If two determination results are both YES, the intelligent terminal is authorized to remotely control the washing machine, or the intelligent terminal is forbidden to remotely control the washing machine.

[0041] Preferably, the washing machine determines whether a door cover of the washing machine is in a closed state after receiving the remote control request, and controls a door lock to be locked and authorizes the intelligent terminal to remotely control the washing machine if a determination result is YES, or forbids the intelligent terminal to remotely control the washing machine if the determination result is NO.

[0042] Preferably, in the above solution, if the washing machine determines that the door cover of the washing machine is in an opened state after receiving the remote control request, information that indicates an authorization failure is pushed to the washing machine and/or the intelligent terminal to prompt a user to close the door cover of the washing machine.

[0043] Preferably, after the user closes the door cover, the washing machine controls the door lock to be locked, and authorizes the intelligent terminal to remotely control the washing machine.

[0044] Preferably, the washing machine includes an upper washing drum and a lower washing drum cooperating with each other for washing or implement washing independently. The washing machine determines whether a door cover of the lower washing drum of the washing machine is in a closed state after receiving the remote control request transmitted by the local machine or the intelligent terminal, and controls a door lock of the lower washing drum to be locked and authorizes the intelligent terminal to remotely control the washing machine if a determination result is YES, or forbids the intelligent terminal to remotely control the washing machine if the determination result is NO, then pushes the information that indicates the authorization failure to the washing machine and/or the intelligent terminal, and prompts the user to close the door cover of the lower washing drum.

[0045] Preferably, a plurality of intelligent terminals are provided. The washing machine may only authorize one intelligent terminal to remotely control the washing machine at one time, and the non-authorized intelligent terminals transmit remote control requests and then push the remote control requests to the authorized intelligent terminal to ask the authorized intelligent terminal to confirm the authorization.

[0046] Preferably, the intelligent terminal is in communication connection with the washing machine, and the washing machine transmits the state information of the washing machine to the intelligent terminal, and the intelligent terminal displays the state information of the washing machine in real time. The intelligent terminal needs to be authorized by the local machine in order to transmit a remote control instruction to control a working state of the washing machine.

[0047] Preferably, a plurality of intelligent terminals are provided, and are in communication connection with the washing machine, respectively, and may display the state information of the washing machine in real time. The washing machine authorizes any one of the intelligent terminals to remotely control the washing machine, and forbids other intelligent terminals to remotely control the washing machine.

[0048] Preferably, each of the intelligent terminals and the washing machine establish a first channel for receiving the state information of the washing machine and a second channel for enabling the washing machine to receive a control instruction transmitted by the intelligent terminal. When the washing machine and the intelligent terminals are respectively connected to an Internet, the various first channels are all in connected states, and the various second channels are in disconnected states by default. The second channels are connected only when they are authorized by the washing machine.

[0049] Preferably, when the second channel between any one of the intelligent terminals and the washing machine is connected, the second channels between other intelligent terminals and the washing machine are all in the disconnected states.

[0050] In the above solution, the intelligent terminals may also check a washing state of the washing machine in real time even if they are not authorized by the washing machine side, but may not remotely control the washing machine.

[0051] Preferably, the local control mode is a control mode that a control instruction is input through an operation interface of the washing machine body to control an operation state of the washing machine. The remote control mode is a control mode that a control instruction

is input through the intelligent terminal to wirelessly control an operation state of the washing machine. The local control mode and the remote control mode have different priority levels.

[0052] Preferably, the priority level of the local control mode is higher than that of the remote control mode. When the remote control mode is in an enabled state, the control instruction may be directly input through the local control mode. The washing machine forbids the intelligent terminal to remotely control the washing machine after receiving the control instruction, and executes the control instruction.

[0053] Preferably, if the washing machine authorizes a certain intelligent terminal to remotely control the washing machine, and is executing or has executed the control instruction of the intelligent terminal, the priority level of the remote control mode of the intelligent terminal is higher than that of the local control mode. The local machine needs to be authorized by the intelligent terminal to input the control instruction to control the working state of the washing machine.

Embodiment II

[0054] On the basis of Embodiment I, Embodiment II further defines that the washing machine control method also includes a prompt process. The washing machine determines whether a door cover of the washing machine is in a closed state after receiving the remote control request, and controls a door lock to be locked and authorizes the intelligent terminal to remotely control the washing machine if a determination result is YES, or forbids the intelligent terminal to remotely control the washing machine if the determination result is NO, and then prompts a user of an operation needing to be executed to acquire the authorization.

[0055] Preferably, if the washing machine determines that the door cover of the washing machine is in an opened state after receiving the remote control request, information that indicates an authorization failure is pushed to the washing machine and/or the intelligent terminal to prompt the user to close the door cover of the washing machine.

[0056] Preferably, after the user closes the door cover, the washing machine controls the door lock to be locked, and authorizes the intelligent terminal to remotely control the washing machine.

[0057] Specifically, referring to Fig. 1, the method includes the following steps that:

S1, after receiving the remote control request, the washing machine determining whether the door cover is in the closed state; if a determination result is YES, Step S2 is continued, and if the determination result is NO, Step S3 is continued;

S2, the door lock being controlled to be locked, and the intelligent terminal being authorized to remotely control the washing machine, and Step S4 is continued;

S3, the intelligent terminal is forbidden to remotely control the washing machine; the user being prompted that the door cover of the washing machine needs to be closed to acquire the authorization; after it is detected that the door cover is closed, the door lock being controlled to be locked; the intelligent terminal being authorized to remotely control the washing machine, and Step S4 is continued;

S4, the control is ended.

[0058] In Step S2, since the washing machine determines that the door cover is in the closed state, the door lock is controlled to be locked, thereby avoiding the potential safety hazard, and then the intelligent terminal is authorized to remotely control the washing machine. This process may be completed by the washing machine alone without an assistant operation of the user, so that the washing machine may not prompt information to the user.

[0059] Step S3 also includes the following steps that:

S101, the intelligent terminal is forbidden to remotely control the washing machine, and the user being prompted to close the door cover of the washing machine;

S102, whether the door cover is closed being detected; if the determination result is YES, Step S103 is continued, or if the determination result is NO Step S101 is continued;

S103, the door lock is controlled to be locked, and the intelligent terminal is authorized to remotely control the washing machine.

[0060] Of course, in order to help the user to operate the Internet of Things washing machine, after Step S2 and/or S103, the washing machine further prompts the user of an event needing to be executed to open the door cover.

[0061] Preferably, after Step S2 and/or S103, the washing machine prompts that the intelligent terminal needs to be forbidden to remotely control the washing machine such that the user may open the door cover. The washing machine executes the prompt on the local machine side or the intelligent terminal. Through the prompt, users who are unfamiliar with the Internet of Things washing machine may master the use specification of the Internet of Things washing machine fast and know safe operations of the Internet of Things washing machine fast.

[0062] Preferably, the washing machine prompts the user on the locating machine or on both the locating machine and the intelligent terminal through voice and/or textual information.

[0063] Preferably, the washing machine includes a touch display screen. The washing machine displays the textual information on the display screen to prompt the user.

[0064] Preferably, the washing machine also pops up, through the touch display screen, a dialog box for the user to select whether to confirm the textual information.

[0065] Preferably, the dialog box displays a word such as "Confirm" or "Got it". If the washing machine detects that the user clicks the word, the prompt is shut down.

Embodiment III

[0066] The present embodiment discloses a washing machine using the washing machine control method of Embodiment I or Embodiment II.

[0067] The washing machine includes: an upper washing drum, a lower washing drum, a controller and an intelligent terminal.

[0068] The upper washing drum is arranged at the top of the lower washing drum. The upper washing drum and the lower washing drum may cooperate with each other for use, or may be used independently.

[0069] The controller is connected with a wireless module for wireless connection with the intelligent terminal.

[0070] The intelligent terminal is configured to remotely control the washing machine.

[0071] The upper washing drum and the lower washing drum are independently provided with a door cover, respectively. The controller is wirelessly connected with the intelligent terminal. The intelligent terminal and the controller establish a first channel for receiving state information of the washing machine and a second channel for enabling the washing machine to receive a control instruction transmitted by the intelligent terminal. The controller is connected to an Internet through a local router, and is connected with the intelligent terminal through a cloud server. When the controller and the intelligent terminal are respectively connected to the Internet, the first channels are all in connected states, and the second channels are in disconnected states by default. The second channels are connected only when they are authorized by the washing machine. The controller connects the second channel or maintains the second channel in the disconnected state according to the state information of the washing machine after receiving the remote control request transmitted by the intelligent terminal. After the second channel is connected, the controller may receive the remote control instruction transmitted by the intelligent terminal and execute a corresponding action.

[0072] Further, an activation device is arranged on the washing machine. The washing machine authorizes/forbids the intelligent terminal to remotely control the washing machine through the activation device. The activation device needs to be triggered by the user on the washing machine side. After the activation device is triggered, whether the state information of the washing machine conforms to a safety condition for remote control is detected. If a determination result is YES, the intelligent terminal is authorized to control the washing machine, or the user is prompted that an operation for relieving the potential safety hazard needs to be executed in order to acquire the authorization.

[0073] It should be noted that: the technical solutions defined by the above embodiments of the present disclosure may be implemented independently, or may be combined with one another and then implemented. The technical solutions defined by the above embodiments of the present disclosure may be applicable to a roller washing machine, or may be applicable to a pulsator washing machine.

[0074] The above descriptions are only preferred embodiments of the present disclosure, but not intended to limit the present disclosure in any forms. Although the present disclosure is disclosed above by the preferred embodiments, the preferred embodiments are not intended to limit the present disclosure. Any person skilled in the art can make some changes by using the above-mentioned technical contents or modify the technical contents as equivalent embodiments of equivalent changes without departing from the scope of the technical solution of the present disclosure. Any simple alterations, equivalent changes and modifications that are made to the above embodiments according to the technical essence of the present disclosure without departing from the contents of the technical solution of the present disclosure shall all fall within the scope of the solution of the present disclosure.

Claims

1. A method for controlling a washing machine, comprising a local control mode and a remote control mode being implemented through an intelligent terminal; wherein:
   a washing machine authorizes or forbids the intelligent terminal to remotely control the washing machine according to state information of the washing machine after receiving a remote control request transmitted by a local machine or the intelligent terminal.

2. The control method for controlling the washing machine according to claim 1, wherein: the state information of the washing machine comprises a state of a door cover of the washing machine; and when the state of the door cover conforms to a safety condition, the washing machine authorizes the intelligent terminal to remotely control the washing machine.

3. The method for controlling the washing machine according to claim 1 or 2, wherein: the washing machine determines whether the door cover of the washing machine is in a closed state after receiving the remote control request, and
   the washing machine controls a door lock to be locked and authorizes the intelligent terminal to remotely control the washing machine if a determination result is YES, or forbids the intelligent terminal

to remotely control the washing machine if the determination result is NO.

4. The method for controlling the washing machine according to claim 3, wherein: if the washing machine determines that the door cover of the washing machine is in an opened state after receiving the remote control request, information that indicates an authorization failure is pushed to the washing machine and/or the intelligent terminal, and to prompt a user to close the door cover of the washing machine;
preferably, when the user closes the door cover, the washing machine controls the door lock to be locked, and authorizes the intelligent terminal to remotely control the washing machine.

5. The method for controlling the washing machine according to any one of claims 1 to 4, wherein: the washing machine comprises an upper washing drum and a lower washing drum which cooperate with each other for use or implement washing independently;
the washing machine determines whether a door cover of the lower washing drum of the washing machine is in the closed state after receiving the remote control request transmitted by the local machine or the intelligent terminal,
if a determination result is YES, the washing machine controls the door lock of the lower washing drum to be locked and authorizes the intelligent terminal to remotely control the washing machine, or
if the determination result is NO, the washing machine forbids the intelligent terminal to remotely control the washing machine, and pushes the information that indicates the authorization failure to the washing machine and/or the intelligent terminal, and prompts the user to close the door cover of the lower washing drum.

6. The method for controlling the washing machine according to any one of claims 1 to 5, wherein: a plurality of intelligent terminals are provided; the washing machine authorizes one intelligent terminal to remotely control the washing machine at one time, and a remote control request transmitted by a non-authorized intelligent terminal is pushed to the intelligent terminal authorized to ask the intelligent terminal authorized to confirm an authorization.

7. The method for controlling the washing machine according to any one of claims 1 to 6, wherein: the intelligent terminal is in communication connection with the washing machine; the washing machine transmits the state information of the washing machine to the intelligent terminal, and the intelligent terminal displays the state information of the washing machine in real time; and the intelligent terminal transmits a remote control instruction to control a working state of the washing machine after being authorized by the washing machine;
preferably, a plurality of intelligent terminals are provided, and are in communication connection with the washing machine, respectively, and display the state information of the washing machine in real time; and the washing machine authorizes any one of the intelligent terminals to remotely control the washing machine, and forbids other intelligent terminals to remotely control the washing machine.

8. The method for controlling the washing machine according to any one of claims 1 to 7, wherein: the local control mode is a control mode in which a control instruction is input through an operation interface of the local machine to control an operation state of the washing machine, and the remote control mode is a control mode in which the control instruction is input through the intelligent terminal to wirelessly control the operation state of the washing machine; and the local control mode and the remote control mode have different priority levels;
preferably, the priority level of the local control mode is higher than the priority level of the remote control mode; when the remote control mode is in an enabled state, the control instruction is input through the local control mode, and the washing machine forbids the intelligent terminal to remotely control the washing machine after receiving the control instruction, and executes the control instruction.

9. The method for controlling the washing machine according to any one of claims 1 to 8, wherein if the washing machine authorizes one intelligent terminal to remotely control the washing machine, and is executing or has executed the control instruction from the one intelligent terminal, the priority level of the remote control mode of the one intelligent terminal is higher than the priority level of the local control mode; and the local machine is input the control instruction to control the working state of the washing machine after being authorized by the .intelligent terminal.

10. A washing machine using the washing machine control method according to any one of claims 1 to 9.

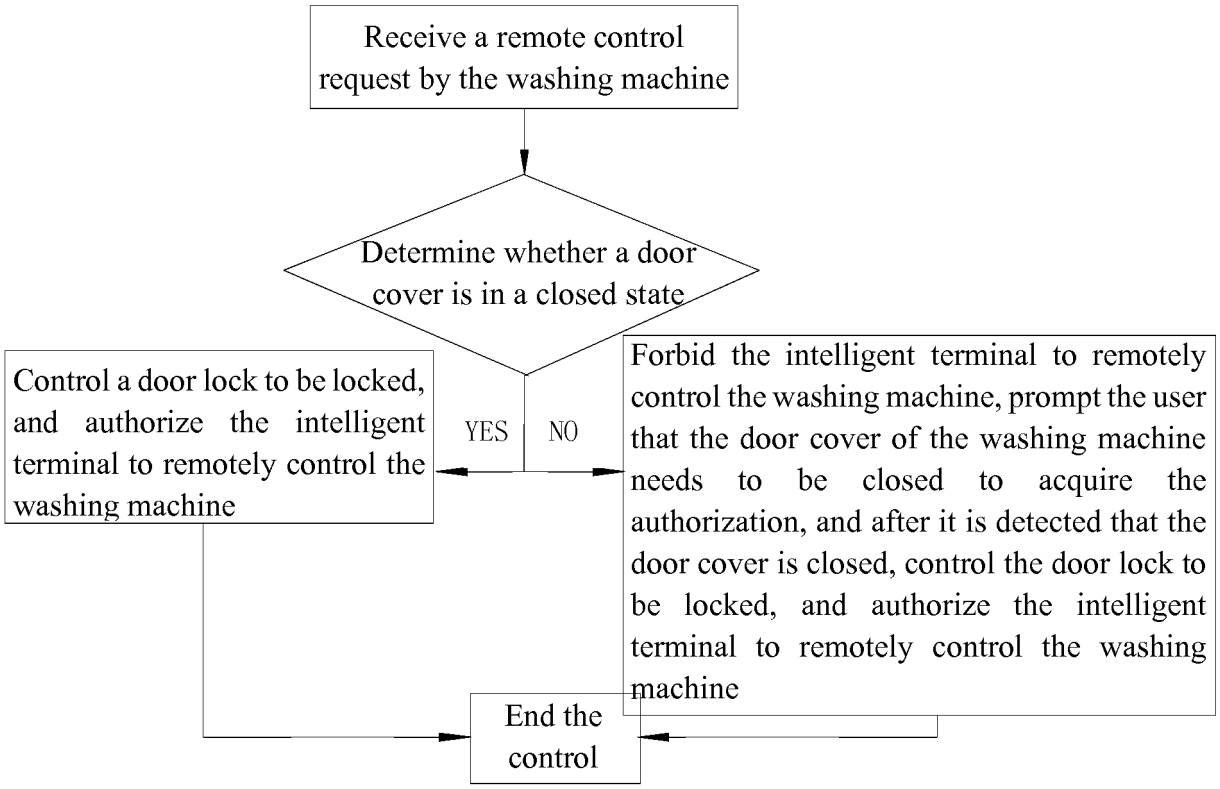
Receive a remote control request by the washing machine
Determine whether a door cover is in a closed state
YES
NO
Control a door lock to be locked, and authorize the intelligent terminal to remotely control the washing machine
Forbid the intelligent terminal to remotely control the washing machine, prompt the user that the door cover of the washing machine needs to be closed to acquire the authorization, and after it is detected that the door cover is closed, control the door lock to be locked, and authorize the intelligent terminal to remotely control the washing machine
End the control

Fig. 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2018/082601

A. CLASSIFICATION OF SUBJECT MATTER

D06F 33/02 (2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

D06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNABS, DWPI, SIPOABS, CNKI: 远程, 控制, 无线, 网络, 状态, 门, 盖, 开, 闭, 禁止, 授权, 允许, remote, control, wireless, network, status, door, cover, lid, open+, shut+, clos+, forbid+, prohibit+, allow+, permit+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 103685450 A (LG ELECTRONICS INC.) 26 March 2014 (26.03.2014), description, paragraphs [0330]-[0370]	1-10
X	CN 103685451 A (LG ELECTRONICS INC.) 26 March 2014 (26.03.2014), description, paragraphs [0323]-[0357]	1-10
X	CN 103718505 A (LG ELECTRONICS INC.) 09 April 2014 (09.04.2014), description, paragraphs [0322]-[0341]	1-10
A	JP 2015144627 A (SHARP K.K.) 13 August 2015 (13.08.2015), entire document	1-10

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
	17 July 2018
Name and mailing address of the ISA State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088, China Facsimile No. (86-10) 62019451	Authorized officer GUO, Xu Telephone No. (86-10) 62084600

Form PCT/ISA /210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2018/082601

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Form PCT/ISA /210 (patent family annex) (July 2009)