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(54) **METHOD FOR FEEDING WASHING PRODUCT, ELECTRONIC EQUIPMENT AND STORAGE MEDIUM**

(57) A method for feeding washing product, including: determining (S101) whether a washing equipment satisfies a preset condition for turning off a washing product feeding function; wherein, the preset condition includes continuously detecting that a number of times that a liquid level of the washing product in the washing equip-

ment is lower than a preset liquid level is greater than or equal to a first preset number of times; and, controlling (S102) the washing equipment to turn off the washing product feeding function in response to determining that the washing equipment satisfies the preset condition.

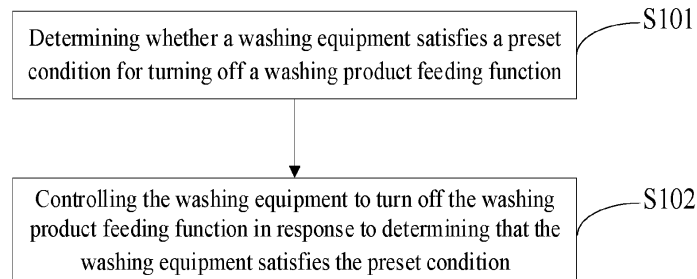


FIG. 1

Description

TECHNICAL FIELD

[0001] The present disclosure relates to the technical field of cleaning equipment, and in particular, to a method for feeding washing product, a device, an electronic equipment and a storage medium.

BACKGROUND

[0002] In related art, washing equipment, such as washing machines, dishwashers, sweepers and other equipment with washing functions, is usually provided with a control panel on the equipment or an APP (Application, application program) end. When the washing equipment is short of liquid, a user can manually operate the operation button on the control panel to turn off the washing product feeding function.

SUMMARY

[0003] The present disclosure provides a method for feeding washing product, an electronic equipment and a storage medium, so as to at least solve the problems of relatively cumbersome feeding process and low feeding efficiency in the related art. The disclosed technical solution is as follows.

[0004] According to a first aspect of the present disclosure, there is provided a method for feeding washing product, including:

determining whether a washing equipment satisfies a preset condition for turning off a washing product feeding function, wherein, the preset condition includes a number of times continuously detecting that a liquid level of the washing product in the washing equipment is lower than a preset liquid level greater than or equal to a first preset number of times; controlling the washing equipment to turn off the washing product feeding function in response to determining that the washing equipment satisfies the preset condition.

[0005] Optionally, the preset condition further includes that the washing equipment enters a washing procedure.

[0006] Optionally, the preset condition includes that the number of times continuously detecting that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is greater than or equal to a second preset number of times after starting up for a preset number of times, wherein detection is performed after starting up each time.

[0007] Optionally, the method further includes:

determining whether the liquid level of the washing product in the washing equipment satisfies a preset liquid level condition; wherein, the preset liquid level

condition includes at least one of: the liquid level of the washing product in the washing equipment rising; or, the liquid level of the washing product in the washing equipment being higher than or equal to the preset liquid level; and

controlling the washing equipment to turn on the washing product feeding function in response to determining that the liquid level of the washing product in the washing equipment satisfies the preset liquid level condition.

[0008] Optionally, controlling the washing equipment to turn on the washing product feeding function includes at least one of following:

turning on a control switch of a device for feeding washing product to control the washing product to be fed into a washing product feeding container; or turning on a feeding indicator light corresponding to the device for feeding washing product.

[0009] Optionally, determining whether the washing equipment satisfies a preset condition for turning off a washing product feeding function includes:

determining whether the washing equipment satisfies the preset condition for turning off the washing product feeding function in response to determining that the washing equipment turns on a washing product automatic feeding detection function.

[0010] According to a second aspect of the present disclosure, there is provided a device for feeding washing product, including:

a first determination module, configured to determine whether a washing equipment satisfies a preset condition for turning off a washing product feeding function; wherein, the preset condition includes a number of times continuously detecting that a liquid level of the washing product in the washing equipment is lower than a preset liquid level is greater than or equal to a first preset number of times; a first feeding module, configured to control the washing equipment to turn off the washing product feeding function in response to determining that the washing equipment satisfies the preset condition.

[0011] Optionally, the preset condition further includes that the washing equipment enters a washing procedure.

[0012] Optionally, the preset condition includes the number of times continuously detecting that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is greater than or equal to a second preset number of times after starting up for a preset number of times, wherein detection is performed after starting up each time.

[0013] Optionally, the device further includes:

a second determination module, configured to de-

termine whether the liquid level of the washing product in the washing equipment satisfies a preset liquid level condition; wherein, the preset liquid level condition includes at least one of: the liquid level of the washing product in the washing equipment rising; or, the liquid level of the washing product in the washing equipment being higher than or equal to the preset liquid level;

a second feeding module, configured to control the washing equipment to turn on the washing product feeding function in response to determining that the liquid level of the washing product in the washing equipment satisfies the preset liquid level condition.

[0014] Optionally, the second feeding module includes at least one of:

a first turn-on unit, configured to turn on a control switch of the device for feeding washing product to control the washing product to be fed into a washing product feeding container; or

a second turn-on unit, configured to turn on a feeding indicator light corresponding to the device for feeding washing product.

[0015] Optionally, the first determination module is configured to:

determine whether the washing equipment satisfies the preset condition for turning off the washing product feeding function in response to determining that the washing equipment turns on a washing product automatic feeding detection function.

[0016] According to a third aspect of the present disclosure, there is provided an electronic equipment, including:

a processor;

a memory, configured to store an instruction executable by the processor;

wherein, the processor is configured to execute the instruction, so as to implement the method according to any one of the first aspect.

[0017] According to a fourth aspect of the present disclosure, there is provided a storage medium, and when the instruction in the storage medium is executed by a processor of an electronic equipment, the electronic equipment is able to execute the method according to any one of the first aspect.

[0018] According to a fifth aspect of the present disclosure, there is provided a computer program product, including a computer program, and when the computer program is executed by a processor, the method according to any one of the first aspect is implemented.

[0019] The solution provided by the embodiments of the present disclosure bring at least the following beneficial effects:

[0020] According to the present disclosure, it is deter-

mined whether the washing equipment satisfies the preset condition of turning off a washing product feeding function; wherein, the preset condition includes a number of times continuously detecting that a liquid level of the washing product in the washing equipment is lower than a preset liquid level is greater than or equal to a first preset number of times; in response to determining that the washing equipment satisfies the preset condition, the washing equipment is controlled to turn off the washing product feeding function. In this way, according to the liquid level of the washing product in the washing equipment, it can automatically judge the liquid shortage of the washing product, realize the prediction of user behavior, and automatically turn off the washing product feeding function. So that, on one hand, it is possible to avoid the situation that the washing product feeding function cannot be turned off; on the other hand, there is no need to manually turn off the washing product feeding function, which can simplify the process of turn off the washing product feeding function and improve the user experience.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] The accompanying drawings are incorporated into the specification and constitute a part of the specification, show exemplary embodiments consistent with the present disclosure, and are used together with the description to explain the principle of the present disclosure, which do not constitute an improper limitation of the disclosure.

FIG. 1 is a flow chart of a method for feeding washing product according to some embodiments of the present disclosure.

FIG. 2 is a schematic diagram of a network environment according to some embodiments of the present disclosure.

FIG. 3 is a block diagram of a device for feeding washing product according to some embodiments of the present disclosure.

FIG. 4 is a block diagram of an electronic equipment according to some embodiments of the present disclosure.

DETAILED DESCRIPTION

[0022] In order to enable the ordinary personnel in the art to better understand the technical solution of the present disclosure, the technical solution in the embodiments of the present disclosure will be clearly and completely described below in conjunction with the accompanying drawings.

[0023] It should be noted that the terms "first", "second", and the like in the description and claims of the present disclosure and the above drawings, are used to distinguish similar objects, but not necessarily used to describe a specific sequence or order. It is to be under-

stood that the data so used are interchangeable under appropriate circumstances such that the embodiments of the present disclosure described here can be implemented in sequences other than those illustrated or described here. The implementations described in the following exemplary examples do not represent all implementations consistent with the present disclosure. By contrast, they are merely examples of devices and methods consistent with some aspects of the present disclosure as recited in the appended claims.

[0024] In the related art, for some washing equipment that is not provided with an operation button for turning off the washing product feeding function, it may not be possible to turn off the washing product feeding function. In this way, the process of turning off the washing product feeding function will be cumbersome, or even impossible. The present disclosure provides a method for feeding washing product, a device, an electronic equipment and a storage medium, so as to at least solve the problems of relatively cumbersome feeding process and low feeding efficiency in the related art.

[0025] The method for feeding washing product, the electronic equipment and the storage medium provided by the embodiments of the disclosure will be described in detail below with reference to the accompanying drawings.

[0026] FIG. 1 is a flow chart of a method for feeding washing product according to exemplary embodiments of the present disclosure, the method for feeding washing product can be applied to a washing equipment, for example, a washing machine, a dishwasher, a sweeper, and other equipment with a washing product automatic feeding function. As shown in FIG. 1, the method for feeding washing product may include the following steps.

[0027] In step S 101, it is determined whether a washing equipment satisfies a preset condition for turning off a washing product feeding function.

[0028] Among them, the preset condition may include a number of times continuously detecting that a liquid level of the washing product in the washing equipment is lower than a preset liquid level is greater than or equal to a first preset number of times.

[0029] In an exemplary embodiment of the present disclosure, the washing equipment can automatically turn off the washing product feeding function. For example, it can determine whether the liquid level of the washing product in the washing equipment satisfies the preset condition for turning off the washing product feeding function, and the preset condition may include a number of times continuously detecting that a liquid level of the washing product in the washing equipment is lower than a preset liquid level is greater than or equal to a first preset number of times, wherein, the preset liquid level and the first preset number of times can be set according to actual needs. The liquid level of the washing product in the washing equipment can be, for example, the liquid level of the washing product in a device for feeding washing product in the washing equipment. The device for

feeding washing product may include a washing product holding container and a control switch. The washing product in the washing product holding container can be controlled to be fed into a washing product feeding container through controlling the control switch. The capacity of the washing product holding container is greater than the capacity of the washing product feeding container. It can be understood that determining whether the washing equipment satisfies the preset condition for turning off washing product feeding function may be performed when the washing equipment is turned on, or may be performed when the washing equipment is powered on but not turned on.

[0030] In step S102, in response to determining that the washing equipment satisfies the preset condition, the washing equipment is controlled to turn off the washing product feeding function.

[0031] In an exemplary embodiment of the present disclosure, if the washing equipment satisfies the preset condition, that is, the number of times that it is continuously detected that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is greater than or equal to the first preset number of times, it can be considered that the washing equipment is short of washing product at this time, that is, the washing equipment is short of washing liquid. At this time, it can be considered that the user does not need to feed the washing product, and the washing equipment can be controlled to turn off the washing product feeding function. In this way, the shortage of washing product can be automatically judged according to the liquid shortage information, and the washing product feeding function can be automatically turned off.

[0032] In an exemplary embodiment of the present disclosure, it is determined whether the washing equipment satisfies the preset condition for turning off the washing product feeding function; wherein, the preset condition includes the number of times continuously detecting that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is greater than or equal to the first preset number of times; in response to determining that the washing equipment satisfies the preset condition, the washing equipment is controlled to turn off the washing product feeding function. In this way, according to the liquid level of the washing product in the washing equipment, it can automatically judge the liquid shortage of the washing product, realize the prediction of user behavior, and automatically turn off the washing product feeding function. So that, on one hand, it is possible to avoid the situation that the washing product feeding function cannot be turned off; on the other hand, there is no need to manually turn off the washing product feeding function, which can simplify the process of turn off the washing product feeding function and improve the user experience.

[0033] In a possible exemplary embodiment, the preset condition may further include that the washing equipment enters a washing procedure.

[0034] In an embodiment of the present disclosure, the preset condition may further include that the washing equipment enters a washing procedure in addition to that the number of times continuously detecting that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is greater than or equal to the first preset number of times. Correspondingly, for determining whether the washing equipment satisfies the preset condition for turning off the washing product feeding function, it is not only needed to determine whether the number of times that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is continuously detected to be greater than or equal to the first preset number of times, but also to detect whether the washing equipment enters the washing procedure. If the number of times that it is continuously detected that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is greater than or equal to the first preset number of times, and it is detected that the current washing equipment enters the washing procedure, the washing equipment can be controlled to turn off the washing product feeding function.

[0035] In a possible embodiment, the preset condition may also include the number of times continuously detecting that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is greater than or equal to a second preset number of times after starting up for a preset number of times, wherein detection is performed after starting up each time.

[0036] Correspondingly, in the above steps, in response to determining that the washing equipment satisfies the preset condition, the specific implementation of controlling the washing equipment to turn off the washing product feeding function may be as follows.

[0037] In response to that the number of times continuously detecting that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is greater than or equal to the second preset number of times after starting up for a preset number of times, wherein detection is performed after starting up each time, the washing equipment is controlled to turn off the washing product feeding function.

[0038] In an embodiment of the present disclosure, taking into account that the detection results of liquid level detection of washing product after starting up each time, usually can provide more accurate data basis for predicting user behavior, therefore, when determining whether the liquid level of the washing product of the washing equipment satisfies the preset condition for turning off the washing product feeding function, it may be determined whether the number of times is continuously detected that the liquid level of the washing product is lower than the preset liquid level to be greater than or equal to the second preset number of times after starting up for a preset number of times. The second preset number of times can be set according to actual needs, and can be

the same as or different from the first preset number of times. If the number of times it is continuously detected that the liquid level of the washing product is lower than the preset liquid level is greater than or equal to the second preset number of times after starting up for a preset number of times, the washing equipment can be controlled to turn off the washing product feeding function. It should be noted that controlling the washing equipment to turn off the washing product feeding function may include at least one of the following: turning off the control switch of the device for feeding washing product, so as to control that the feeding product cannot be fed into washing product feeding container; turning off the feeding indicator light corresponding to the device for feeding washing product. The specific implementation of controlling the washing equipment to turn off the washing product feeding function is similar to the implementation principle of controlling the washing equipment to turn on the washing product feeding function, which will be described in detail in subsequent embodiments and will not be repeated here.

[0039] In a possible exemplary embodiment, the method provided by the embodiment of the present disclosure may further include:

determining whether the liquid level of the washing product in the washing equipment satisfies the preset liquid level condition; wherein, the preset liquid level condition includes at least one of: the liquid level of the washing product in the washing equipment rising; or, the liquid level of the washing product in the washing equipment being higher than or equal to the preset liquid level;

controlling the washing equipment to turn on the washing product feeding function in response to determining that the liquid level of the washing product in the washing equipment satisfies the preset liquid level condition.

[0040] In an exemplary embodiment of the present disclosure, automatic feeding of washing product can also be realized. For example, it can be determined whether the liquid level of the washing product in the washing equipment satisfies a preset liquid level condition. For example, it can be determined whether the liquid level of the washing product in the washing equipment rises. For example, when or after the user adds the washing product to the washing equipment, it can be detected that the liquid level of the washing product rises, and the liquid level rising of the washing product means addition of the washing product; and/or, it can be determined whether the liquid level of the washing product in the washing equipment is higher than or equal to the preset liquid level, and the specific liquid level of the preset liquid level can be set according to actual needs. Among them, the washing product may be, for example, detergent, laundry liquid, and the like. In response to determining that the liquid level of the washing product in the washing equip-

ment satisfies the preset liquid level condition, that is, the liquid level of the washing product in the washing equipment rises, the liquid level of the washing product in the washing equipment is higher than or equal to the preset liquid level, or the liquid level of the washing product in the washing equipment rises and the liquid level of the washing product in the washing equipment is higher than or equal to the preset liquid level, it can be judged that it is needed to feed the washing product into the washing product feeding container. At this time, the washing product feeding function can be automatically turned on, so that the washing product can be fed to the washing product feeding container. It can be understood that the embodiment can also be performed when the washing equipment is turned on or powered on but not turned on. In this way, the prediction of user behavior can be realized according to the liquid level rising of the washing product, and the washing product feeding function can be realized automatically, thus further improving the user experience.

[0041] In a possible embodiment, the specific implementation of the above step of controlling the washing equipment to turn on the washing product feeding function may include at least one of the following:

turning on the control switch of the device for feeding washing product to control the washing product to be fed into a washing product feeding container;
turning on the feeding indicator light corresponding to the device for feeding washing product.

[0042] In an embodiment of the present disclosure, as shown in FIG. 2, FIG. 2 is a schematic diagram of a network environment for implementing the technical solution of the embodiment of the present disclosure according to some embodiments of the present disclosure. As shown in FIG. 2, the network environment can include a control unit 204 of the main body of the washing equipment 200, a washing product feeding container 201, a control switch 202, and a feeding indicator light 203. The washing equipment 200 can be connected to a router 205 through wireless network, to access the internet 206, and be connected to the APP 207 (Application) corresponding to the washing equipment 200. In conjunction with FIG. 2, in order to enable the washing product to be successfully fed into the washing product feeding container, controlling the washing equipment to turn on the washing product feeding function may include turning on the control switch 202 of the device for feeding washing product, so as to control the washing product to be fed into the washing product feeding container 201 (for example, a washing product feeding box), wherein the control switch 202 may be, for example, a feeding valve, and the feeding valve may be, for example, an electromagnetic valve. In order to facilitate the user to know the feeding situation of the washing product, controlling the washing equipment to turn on the washing product feeding function may further include turning on the feeding

indicator light 203 corresponding to the device for feeding washing product. In this way, when the washing product feeding function is automatically turned on, turning on the feeding indicator light and operating of turning on the control switch can be automatically and synchronously performed, which can not only further ensure the feeding of washing product but also enable the user to know the feeding situation of the washing product in time, further improving user experience.

[0043] In a possible embodiment, the specific implementation of the above step of determining whether the washing equipment satisfies the preset condition for turning off the washing product feeding function may include: determining whether the washing equipment satisfies the preset condition for turning off the washing product feeding function in response to determining that the washing equipment turns on a washing product automatic feeding detection function.

[0044] In an exemplary embodiment of the present disclosure, the user can choose whether to turn on the washing product automatic feeding detection function according to needs. For example, the washing product automatic feeding detection function can be turned on or off through the on-machine APP corresponding to the washing equipment. If the washing equipment turns on the washing product automatic feeding detection function, it can be determined whether the washing equipment satisfies the preset condition for turning off the washing product feeding function, and the subsequent processing of controlling the washing equipment to turn off the washing product feeding function can be performed according to the situation. It is to be understood that, it is also possible to determine whether the liquid level of the washing product in the washing equipment satisfies the preset liquid level condition, and perform the subsequent processing of controlling the washing equipment to turn on the washing product feeding function, in response to determining that the washing equipment turns on the washing product automatic feeding detection function. In this way, the user can choose whether to turn on the washing product automatic feeding detection function according to needs, thus further improving user experience.

[0045] In order to make the method for feeding washing product provided in the embodiments of the present disclosure clearer, the method for feeding washing product provided in the embodiments of the present disclosure will be described below in conjunction with specific examples. Taking that the washing equipment is a washing machine, the washing product is detergent, the washing product feeding container is a detergent feeding box, the user turns on the washing product automatic feeding detection function, and the preset liquid level condition is the liquid level rising of the washing product in the washing equipment as an example, the method for feeding washing product provided by in the embodiments of the present disclosure may include the following processing.

1. The washing machine is turned on.

2. The control unit of the washing machine judges whether the shortage of detergent is continuously detected after starting up for a plurality of times (wherein the number of times for continuously monitoring can be adjusted), that is, judges whether the number of times is continuously detected that the liquid level of the washing product is lower than the preset liquid level to be greater than or equal to the second preset number of times after starting up for a preset number of times, wherein detection is performed after starting up each time.

3. If the number of times it is continuously detected that the liquid level of the washing product is lower than the preset liquid level is greater than or equal to the second preset number of times after starting up for a preset number of times, the control unit of the washing machine judges whether the washing machine enters the washing procedure (wherein this step is optional).

4. If the condition of the above step 2 is satisfied, or the conditions of step 2 and step 3 are satisfied, the control unit of the washing machine judges that the user does not need to automatically feed the detergent, then it can automatically turn off the detergent automatic feeding function, turn off the feeding indicator light and the feeding valve of the detergent feeding box.

5. If the control unit of the washing machine detects that the liquid level of the detergent rises, it can judge that the detergent feeding box needs to be fed with detergent, and then automatically turn on the automatic feeding function, and at the same time turn on the feeding indicator light and the feeding valve of the detergent feeding box to control the detergent to be fed into the detergent dispenser box.

[0046] The specific implementation and technical effect of this embodiment are similar to those of the foregoing embodiments, and will not be repeated here.

[0047] Based on the same inventive concept, an embodiment of the present disclosure also provides a device for feeding washing product, as shown in FIG. 3. FIG. 3 is a block diagram of the device for feeding washing product according to some embodiments of the present disclosure. Referring to FIG. 3, the device 300 for washing product feeding may include a first determination module 310 and a first feeding module 320.

[0048] The first determination module 310 is configured to determine whether a washing equipment satisfies a preset condition for turning off a washing product feeding function; wherein, the preset condition includes a number of times continuously detecting that a liquid level of the washing product in the washing equipment is lower than a preset liquid level is greater than or equal to a first preset number of times.

[0049] The first feeding module 320 is configured to control the washing equipment to turn off the washing product feeding function in response to determining that

the washing equipment satisfies the preset condition.

[0050] In a possible embodiment, the preset condition further includes that the washing equipment enters a washing procedure.

5 **[0051]** In a possible exemplary embodiment, the preset condition includes the number of times continuously detecting that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is greater than or equal to a second preset number of times after starting up for a preset number of times, wherein detection is performed after starting up each time.

10 **[0052]** In a possible embodiment, the device 300 further includes a second determination module and a second feeding module.

15 **[0053]** The second determination module is configured to determine whether the liquid level of the washing product in the washing equipment satisfies a preset liquid level condition; wherein, the preset liquid level condition includes at least one of: the liquid level of the washing product in the washing equipment rising; or, the liquid level of the washing product in the washing equipment being higher than or equal to the preset liquid level;

20 **[0054]** The second feeding module is configured to control the washing equipment to turn on the washing product feeding function in response to determining that the liquid level of the washing product in the washing equipment satisfies the preset liquid level condition.

25 **[0055]** In a possible embodiment, the second feeding module includes at least one of a first turn-on unit, or a second turn-on unit.

30 **[0056]** The first turn-on unit is configured to turn on a control switch of the device for feeding washing product to control the washing product to be fed into a washing product feeding container;

35 **[0057]** The second turn-on unit is configured to turn on a feeding indicator light corresponding to the device for feeding washing product.

40 **[0058]** In a possible exemplary embodiment, the first determination module 310 is configured to: determine whether the washing equipment satisfies the preset condition for turning off the washing product feeding function in response to determining that the washing equipment turns on a washing product automatic feeding detection function.

45 **[0059]** With respect to the device in the foregoing embodiments, the specific manner in which each module executes operations has been described in detail in the embodiments related to the method, and will not be described in detail here.

50 **[0060]** According to the exemplary embodiments of the present disclosure, the present disclosure also provides an electronic equipment, a storage medium, and a computer program product.

55 **[0061]** FIG. 4 shows a schematic block diagram of an electronic equipment 400 as an example that may be used to implement the embodiments of the present disclosure. The electronic equipment 400 is intended to rep-

resent various forms of digital computers, such as laptop computers, desktop computers, workstations, personal digital assistants, servers, blade servers, mainframes, and other suitable computers. The electronic equipment may also represent various forms of mobile devices, such as personal digital processing, cellular telephones, smart phones, wearable devices, and other similar computing devices. The components, their connections and relationships, and their functions shown here are only as examples, and are not intended to limit implementations of the present disclosure described and/or claimed here.

[0062] As shown in FIG. 4, the electronic equipment 400 includes a computing unit 401 that can perform various appropriate actions and processes according to a computer program stored in a read-only memory (ROM) 402 or a computer program loaded from a storage unit 408 into a random access memory (RAM) 403. In the RAM 403, various programs and data needed for the operations of the equipment 400 can also be stored. The computing unit 401, ROM 402 and RAM 403 are connected to each other through a bus 404. An input/output (I/O) interface 405 is also connected to bus 404.

[0063] A plurality of components in the electronic equipment 400 are connected to the I/O interface 405, including: an input unit 406, such as a keyboard, a mouse, etc.; an output unit 407, such as various types of displays, speakers, etc.; a storage unit 408, such as a magnetic disk, an optical disk etc.; and a communication unit 409, such as a network card, a modem, a wireless communication transceiver, etc. The communication unit 409 allows the electronic equipment 400 to exchange information/data with other equipment through a computer network such as the Internet and/or various telecommunication networks.

[0064] The computing unit 401 may be various general-purpose and/or special-purpose processing components having processing and computing capabilities. Some examples of the computing unit 401 include, but are not limited to, central processing units (CPU), graphics processing units (GPU), various dedicated artificial intelligence (AI) computing chips, various computing units that run machine learning model algorithms, digital signal processing processor (DSP), and any suitable processor, controller, microcontroller, etc. The computing unit 401 executes the various methods and processes described above, such as the method for feeding washing product. For example, in some embodiments, the method for feeding washing product may be implemented as a computer software program tangibly embodied on a machine-readable medium, such as the storage unit 408. In some embodiments, part or all of the computer program may be loaded and/or installed on the electronic equipment 400 via the ROM 402 and/or the communication unit 409. When the computer program is loaded into the RAM 403 and executed by the computing unit 401, one or more steps of the method for feeding washing product described above can be performed. Alternatively, in other embodiments, the computing unit 401 may be

configured through any other suitable manner (for example, by means of firmware) to execute the method for feeding washing product.

[0065] Various embodiments of the systems and techniques described above here can be implemented in digital electronic circuit systems, integrated circuit systems, field programmable gate arrays (FPGA), application specific integrated circuits (ASIC), application specific standard products (ASSP), system on chip (SOC), complex programmable logic devices (CPLD), computer hardware, firmware, software, and/or combinations of them. These various implementations may include being implemented in one or more computer programs that are executable and/or interpreted on a programmable system including at least one programmable processor. The programmable processor can be a special-purpose or general-purpose programmable processor, can receive data and instruction from a storage system, at least one input device, and at least one output device, and can transmit the data and instruction to the storage system, the at least one input device, and the at least one output device.

[0066] The program codes of the computer program product for implementing the methods of the present disclosure may be written in any combination of one or more programming languages. These program codes may be provided to a processor or controller of a general-purpose computer, a special-purpose computer, or other programmable data processing devices, so that when the program codes are executed by the processor or controller, the functions/functions specified in the flow charts and/or block diagrams are able to be implemented. The program codes may be executed entirely on the machine, partly on the machine, as a stand-alone software package partly on the machine and partly on a remote machine or entirely on the remote machine or server.

[0067] In the context of the present disclosure, the storage medium may be a tangible medium that may include or store a program for use by or in conjunction with an instruction execution system, device, or equipment. The storage medium may be a machine-readable signal medium or a machine-readable storage medium. The storage medium may include, but is not limited to, electronic, magnetic, optical, electromagnetic, infrared, or semiconductor systems, devices, or equipment, or any suitable combination of the foregoing. More specific examples of the storage medium may include electrical connection based on one or more lines, portable computer disk, hard disk, random access memory (RAM), read only memory (ROM), erasable programmable read only memory (EPROM or flash memory), optical fiber, compact disc read-only memory (CD-ROM), optical storage equipment, magnetic storage equipment, or any suitable combination of the foregoing.

[0068] In order to provide interaction with the user, the systems and techniques described here can be implemented on a computer having a display device (e.g., a CRT (cathode ray tube) or LCD (liquid crystal display)

monitor) for displaying information to the user, and a keyboard and pointing device (e.g., a mouse or a trackball) through which the user can provide input to the computer. Other kinds of devices may also be used to provide interaction with the user. For example, the feedback provided to the user may be any form of sensory feedback (e.g., visual feedback, auditory feedback, or tactile feedback), and the input from the user can be received in any form (including acoustic input, speech input or, tactile input).

[0069] The systems and techniques described here can be implemented in a computing system that includes back-end components (e.g., as a data server), or a computing system that includes middleware components (e.g., an application server), or a computing system that includes front-end components (e.g., a user computer having a graphical user interface or web browser through which a user can interact with the embodiments of the systems and techniques described here), or a computing system including any combination of such back-end components, middleware components, or front-end components. The components of the system can be interconnected by any form or medium of digital data communication (e.g., a communication network). Examples of the communication network include: local area networks (LAN), wide area networks (WAN), Internet, and blockchain networks.

[0070] A computer system may include clients and servers. Clients and servers are generally remote from each other and typically interact with each other through a communication network. The relationship of client and server is generated by running computer programs having a client-server relationship to each other on a corresponding computer. The server can be a cloud server, also known as cloud computing server or cloud host, which is a host product in the cloud computing service system to solve the defects of difficult management and weak business scalability in the traditional physical host and VPS (Virtual Private Server) service. The server can also be a server of a distributed system, or a server combined with a blockchain.

[0071] It should be understood that steps may be re-ordered, added or deleted using the various forms of flow shown above. For example, each step described in the present disclosure may be executed in parallel, sequentially, or in a different order, as long as the desired result of the technical solution disclosed in the present disclosure can be achieved, which is not limited in the present disclosure.

Claims

1. A method for feeding washing product, comprising:

determining (S101) whether a washing equipment satisfies a preset condition for turning off a washing product feeding function, wherein, the

preset condition comprises that a number of times continuously detecting that a liquid level of the washing product in the washing equipment is lower than a preset liquid level is greater than or equal to a first preset number of times; and
controlling (S102) the washing equipment to turn off the washing product feeding function in response to determining that the washing equipment satisfies the preset condition.

2. The method for feeding washing product according to claim 1, wherein the preset condition further comprises that the washing equipment enters a washing procedure.
3. The method for feeding washing product according to claim 1 or 2, wherein the preset condition comprises that the number of times continuously detecting that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is greater than or equal to a second preset number of times after starting up for a preset number of times, wherein detection is performed after starting up each time.
4. The method for feeding washing product according to any one of claims 1 to 3, further comprising:

determining whether the liquid level of the washing product in the washing equipment satisfies a preset liquid level condition; wherein, the preset liquid level condition comprises at least one of: the liquid level of the washing product in the washing equipment rising; or, the liquid level of the washing product in the washing equipment being higher than or equal to the preset liquid level; and
controlling the washing equipment to turn on the washing product feeding function in response to determining that the liquid level of the washing product in the washing equipment satisfies the preset liquid level condition.

5. The method for feeding washing product according to claim 4, wherein controlling the washing equipment to turn on the washing product feeding function comprises at least one of following:

turning on a control switch of a device for feeding washing product to control the washing product to be fed into a washing product feeding container; or
turning on a feeding indicator light corresponding to the device for feeding washing product.

6. The method for feeding washing product according to any one of claims 1 to 5, wherein determining

(S101) whether the washing equipment satisfies a preset condition for turning off a washing product feeding function comprises:

determining whether the washing equipment satisfies the preset condition for turning off the washing product feeding function in response to determining that the washing equipment turns on a washing product automatic feeding detection function.

7. The method for feeding washing product according to any one of claims 1 to 6, wherein determining (S101) whether the washing equipment satisfies a preset condition for turning off a washing product feeding function is performed when the washing equipment is turned on, or powered on but not turned on.

8. An electronic equipment (400), comprising:

a processor (401);
a memory (402, 403), configured to store an instruction executable by the processor (401);
wherein, the processor (401) is configured to execute the instruction, so as to implement a method for feeding washing product, comprising:

determining (S101) whether a washing equipment satisfies a preset condition for turning off a washing product feeding function; wherein, the preset condition comprises that a number of times continuously detecting that a liquid level of the washing product in the washing equipment is lower than a preset liquid level is greater than or equal to a first preset number of times; and controlling (S102) the washing equipment to turn off the washing product feeding function in response to determining that the washing equipment satisfies the preset condition.

9. The electronic equipment (400) according to claim 8, wherein the preset condition further comprises that the washing equipment enters a washing procedure.

10. The electronic equipment (400) according to claim 8 or 9, wherein the preset condition comprises that the number of times continuously detecting that the liquid level of the washing product in the washing equipment is lower than the preset liquid level is greater than or equal to a second preset number of times after starting up for a preset number of times, wherein detection is performed after starting up each time.

11. The electronic equipment (400) according to any one of claims 8 to 10, wherein the method for feeding

washing product further comprises:

determining whether the liquid level of the washing product in the washing equipment satisfies a preset liquid level condition; wherein, the preset liquid level condition comprises at least one of: the liquid level of the washing product in the washing equipment rising; or, the liquid level of the washing product in the washing equipment being higher than or equal to the preset liquid level; and

controlling the washing equipment to turn on the washing product feeding function in response to determining that the liquid level of the washing product in the washing equipment satisfies the preset liquid level condition.

12. The electronic equipment (400) according to claim 11, wherein controlling the washing equipment to turn on the washing product feeding function comprises at least one of following:

turning on a control switch of a device for feeding washing product to control the washing product to be fed into a washing product feeding container; or
turning on a feeding indicator light corresponding to the device for feeding washing product.

13. The electronic equipment (400) according to any one of claims 8 to 12, wherein determining (S101) whether the washing equipment satisfies a preset condition for turning off a washing product feeding function comprises:

determining whether the washing equipment satisfies the preset condition for turning off the washing product feeding function in response to determining that the washing equipment turns on a washing product automatic feeding detection function.

14. The electronic equipment (400) according to any one of claims 8 to 13, wherein determining (S101) whether the washing equipment satisfies a preset condition for turning off a washing product feeding function is performed when the washing equipment is turned on, or powered on but not turned on.

15. A storage medium, when an instruction in the storage medium is executed by a processor of an electronic equipment, the electronic equipment is able to execute the method according to any one of claims 1 to 7.

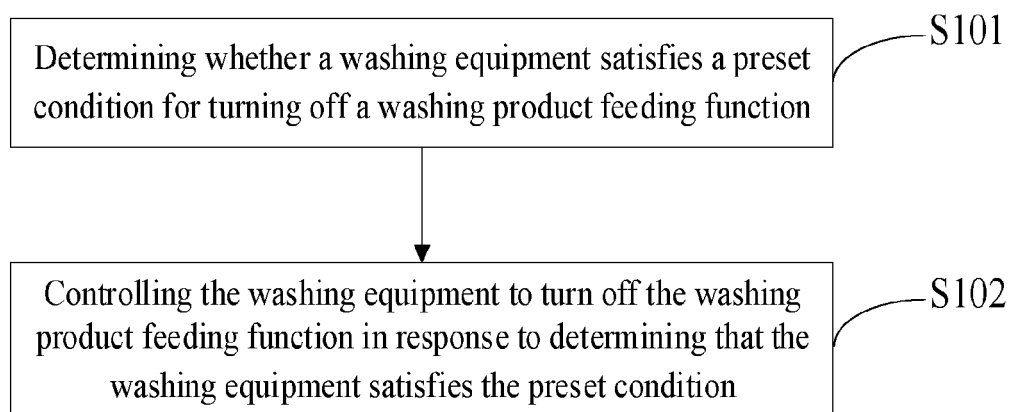


FIG. 1

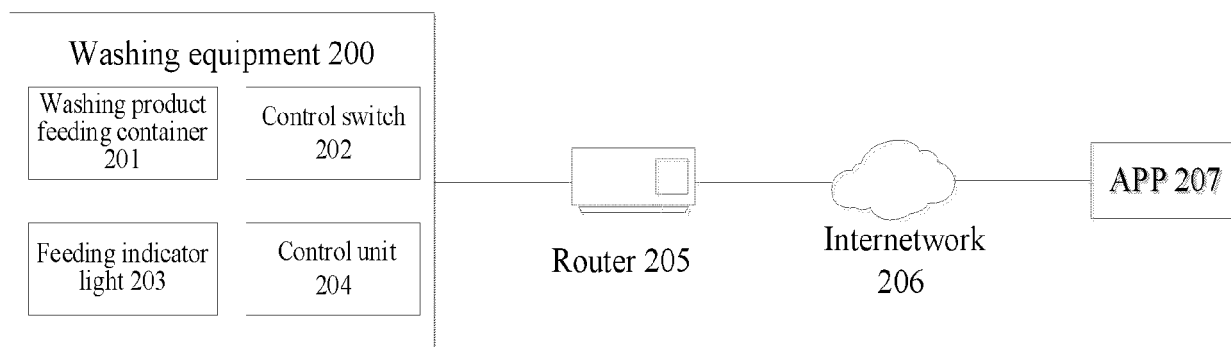


FIG. 2

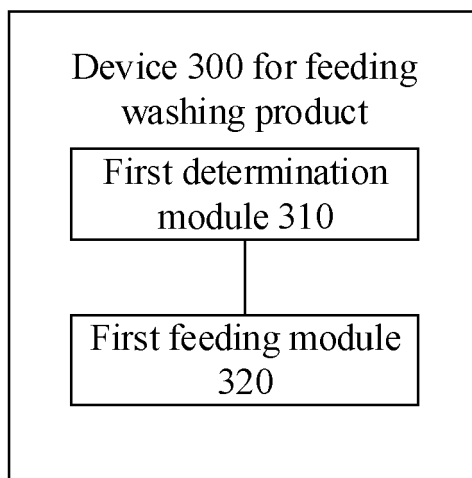


FIG. 3

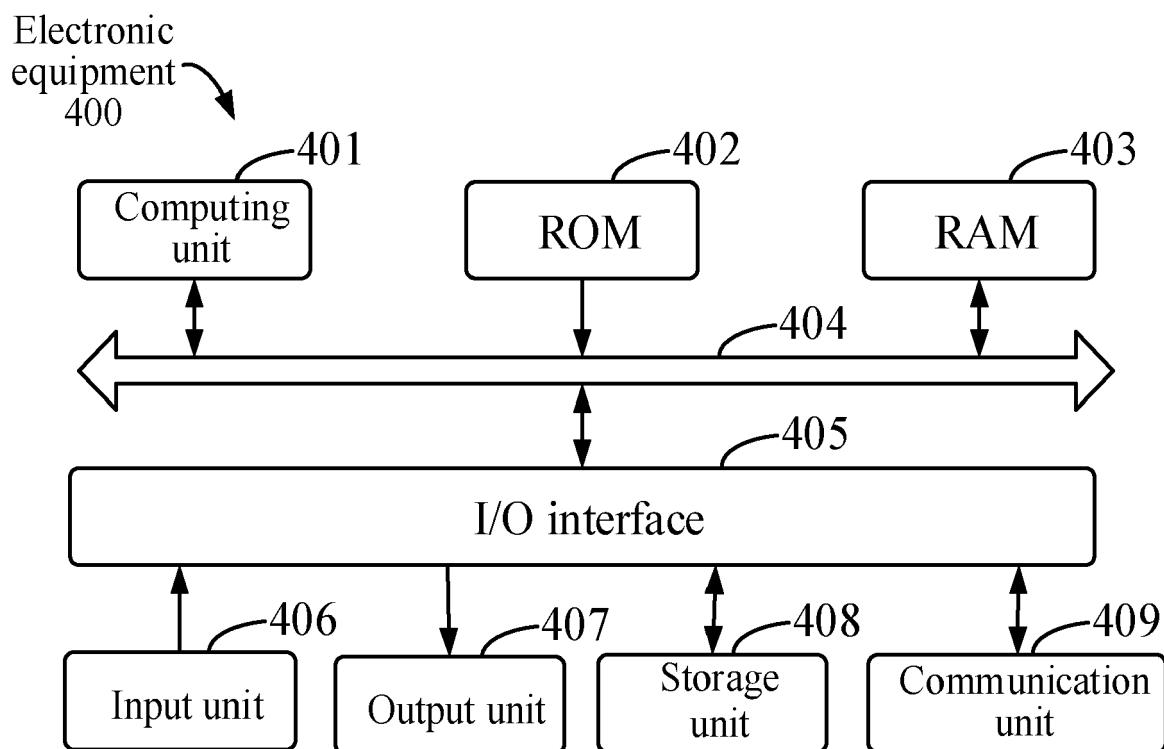


FIG. 4



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Application Number

EP 23 18 8647

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 5 July 2024	Examiner Stroppa, Giovanni
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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