

METHOD AND APPARATUS FOR CENTRALIZED MANAGEMENT OF PERSONNEL AND EQUIPMENT BASED ON INSTANT MESSAGING APPLICATION

The present application claims priority to Chinese Patent Application No. 201610630260.6, entitled "Method and Apparatus for Centralized Management of Personnel and Equipment Based on Instant Messaging Applications", filed on August 3, 2016, the entire contents of which are incorporated by reference.

Technical Field

The present application relates to the field of communication technology, and in particular, to a method and apparatus for centralized management of personnel and equipment based on instant messaging applications.

Background

In the related techniques, the community communication application facilitates communication between members in the community by creating a group corresponding to the community. At the same time, the community communication application also applies the organizational architecture within the community to the corresponding group, so that the above group may be efficiently managed through the organizational architecture.

Summary

In view of this, the present application provides a method and apparatus for centralized management of personnel and equipment based on an instant messaging application, which can add and present information of the smart device in an organizational

architecture of a community, so as to facilitate the unified management of members and smart devices under the community.

To achieve the above objective, the present application provides the following technical solutions.

According to a first aspect of the present application, a method for centralized management of personnel and equipment based on an instant messaging application is proposed. The method comprises:

- determining a smart device that is bound to a preset community;

- adding information of the smart device to an organizational architecture of the preset community, so that when a community member of the preset community views an organizational architecture page in the instant messaging application, the information of the smart device is presented in the organizational architecture page.

According to a second aspect of the present application, a method for centralized management of personnel and equipment based on an instant messaging application is proposed. The method comprises:

- obtaining an organizational architecture of a preset community, wherein the organizational architecture corresponds to a community member of the preset community and a smart device associated with the preset community;

- showing an organizational architecture page in the instant messaging application to present information of the community member or the smart device under the preset community.

According to the third aspect of the present application, an apparatus for centralized management of personnel and equipment based on an instant messaging application is proposed. The apparatus comprises:

- a determining unit configured to determine a smart device that is bound to a preset

community;

an adding unit configured to add information of the smart device to an organizational architecture of the preset community so that when a community member of the preset community views an organizational architecture page in the instant messaging application, the information of the smart device is presented in the organizational architecture page.

According to a fourth aspect of the present application, an apparatus for centralized management of personnel and equipment based on an instant messaging application is proposed. The apparatus comprises:

an obtaining unit configured to obtain an organizational architecture of a preset community, wherein the organizational architecture corresponds to a community member of the preset community and a smart device associated with the preset community;

a presentation unit configured to show an organizational architecture page in the instant messaging application to present information of the community member or the smart device under the preset community.

According to a fifth aspect of the present application, a method for centralized management of personnel and equipment based on an instant messaging application is proposed. The method comprises:

showing an instant messaging session window to a preset user, wherein a target communication party of the instant messaging session window includes a preset smart device, and the preset smart device is associated with a preset community to which the preset user belongs and is added to an organizational architecture of the preset community;

obtaining a specific instant messaging message input by the preset user in the instant messaging session window;

sending the specific instant messaging message to make the preset smart device achieve a corresponding preset function.

According to a sixth aspect of the present application, an apparatus for centralized management of personnel and equipment based on an instant messaging application is proposed. The apparatus comprises:

a presentation unit configured to show an instant messaging session window to the preset user, wherein a target communication party of the instant messaging session window includes a preset smart device, and the preset smart device is associated with the preset community to which the preset user belongs and is added to an organizational architecture of the preset community;

an obtaining unit configured to obtain a specific instant messaging message input by the preset user in the instant messaging session window;

a sending unit configured to send the specific instant messaging message to make the preset smart device achieve a corresponding preset function.

As shown in the above technical solution, the present application obtains the binding relationship between the smart device and the community to add the bound smart device to the organizational architecture of the corresponding community, so that the community member can view the information of the related smart device through the organizational architecture, so as to quickly view and operate smart devices that are bound to the community, enabling efficient management of smart devices within the community.

Brief Description of the Drawings

FIG. 1 is a schematic diagram of an interface of an organizational architecture in the related techniques.

FIG. 2 is another schematic diagram of an interface of an organizational architecture in the related techniques.

FIG. 3 is a flowchart of a method for centralized management of personnel and

equipment based on an instant messaging application based on a server side according to an exemplary embodiment of the present application.

FIG. 4 is a flowchart of a method for centralized management of personnel and equipment based on an instant messaging application based on a terminal side according to an exemplary embodiment of the present application.

FIG. 5 is a flowchart of a method for centralized management of personnel and equipment based on an instant messaging application according to an exemplary embodiment of the present application.

FIG. 6 is a schematic diagram of a smart attendance machine according to an exemplary embodiment of the present application.

FIG. 7 is a schematic diagram of an interface of centralized management of personnel and equipment based on an instant messaging application according to an exemplary embodiment of the present application.

FIG. 8 is a schematic diagram of another interface of centralized management of personnel and equipment based on an instant messaging application according to an exemplary embodiment of the present application.

FIG. 9 is a schematic diagram of another interface of centralized management of personnel and equipment based on an instant messaging application according to an exemplary embodiment of the present application.

FIG. 10 is a schematic diagram of another interface of a centralized management of personnel and equipment based on an instant messaging application according to an exemplary embodiment of the present application.

FIG. 11 is a schematic diagram of another interface of a centralized management of personnel and equipment based on an instant messaging application according to an exemplary embodiment of the present application.

FIG. 12 is a schematic diagram of the structure of an electronic device based on a server side according to an exemplary embodiment of the present application.

FIG. 13 is a block diagram of an apparatus for centralized management of personnel and equipment based on an instant messaging application based on a server side according to an exemplary embodiment of the present application.

FIG. 14 is a schematic diagram of the structure of an electronic device based on a terminal side according to an exemplary embodiment of the present application.

FIG. 15 is a block diagram of an apparatus for centralized management of personnel and equipment based on an instant messaging application based on a terminal side according to an exemplary embodiment of the present application.

FIG. 16 is a flowchart of another method for centralized management of personnel and equipment based on an instant messaging application based on a terminal side according to an exemplary embodiment of the present application.

FIG. 17 is a schematic diagram of an interface of centralized management of personnel and equipment based on an instant messaging application according to an exemplary embodiment of the present application.

FIG. 18 is a schematic diagram of a scenario of centralized management of personnel and equipment based on an instant messaging application according to an exemplary embodiment of the present application.

FIG. 19 is a schematic diagram of another scenario of centralized management of personnel and equipment based on an instant messaging application according to an exemplary embodiment of the present application.

FIG. 20 is a schematic diagram of the structure of another electronic device based on a terminal side according to an exemplary embodiment of the present application.

FIG. 21 is a block diagram of another apparatus for centralized management of

personnel and equipment based on an instant messaging application based on a terminal side according to an exemplary embodiment of the present application.

Detailed Description

In the related techniques, the community communication application may create a corresponding group for the community, add community members as members of the group, and the organizational architecture of the group is applied to the group, so as to facilitate the management of the community members and the communication between the community members. Take Enterprise Instant Messaging (EIM) “DING Talk” as an example, as shown in FIG. 1, when a user is an employee of Company A, the user and other employees of Company A are added as members of the corresponding group of Company A in “DING Talk”, and the user can view the "organizational architecture" portal corresponding to Company A in the contact page shown in FIG. 1.

By triggering the "organizational architecture" portal, the organizational architecture page shown in FIG. 2 may be shown. When Company A includes member management levels (corresponding to departments, business groups, and so on), such as "research and development department", "design department", "security department", "sales department", and so on, the organizational architecture page includes portals respectively corresponding to the above-mentioned member management levels, i.e., functional options shown in FIG. 2 as “research and development department”, “design department”, “security department” and “sales department”, for managing employees in the corresponding departments. Then, assuming that the portal (i.e., option) corresponding to the "sales department" of the member management level is triggered, the user can view the employees, such as "MA", "MB" and so on shown in FIG. 2, which belong to the "sales department" of the member management level in order to initiate a communication event.

However, in the community communication application in the related art, the organizational architecture of the community only includes community members, that is, the management is only performed on "person". Actually, the community may have various smart devices such as smart attendance machines and smart routers, and these smart devices often need to be set up in different locations to be able to play their roles and effects, so that when managing these smart devices, the community members need to travel long distances to each smart device, which is very time-consuming, laborious and inconvenient for the coordinated management of these smart devices.

Therefore, the present application may solve the above problems in the related techniques by proposing a new equipment management solution. In order to further illustrate this application, the following examples are provided.

FIG. 3 is a flowchart of a method for centralized management of personnel and equipment based on an instant messaging application based on a server side according to an exemplary embodiment of the present application. As shown in FIG. 3, the method is applied to a server and may include the following steps.

In step 302, a smart device that is bound to a preset community is determined.

In this embodiment, the server may bind or unbind any smart device with the preset community when receiving a binding management request of a management user of the preset community for any smart device.

In this embodiment, the management user may be an administrative staff whose management level is higher than a preset level, or an administrator, a sub-administrator, a group owner of the group corresponding to the preset community, or the like.

In this embodiment, the smart device may be a public device, such as a smart attendance machine, a smart router, a smart printer, etc., that belongs to the preset community. These smart devices may establish a remote connection with a server of the community

communication application, thereby enabling the community member (such as the above-mentioned administrative staff or an ordinary employee) to manage these smart devices through the community communication application, such as using these smart devices or configuring them, without having to walk to the assembly location of these smart devices. This helps improve the management efficiency of smart devices.

In step 304, information of the smart device is added to the organizational architecture of the preset community, so that when the community member of the preset community views the organizational architecture page, the information of the smart device is displayed in the organization.

In this embodiment, the server may add an equipment management level in the organizational architecture and associate the information of the smart device with the equipment management level; wherein the organizational architecture further includes several member management levels corresponding to the community members, and the information of the community members of the preset community is associated with the corresponding member management level.

Further, the equipment management level may further include several sub-levels, and each sub-level corresponds to the same type of smart devices, thereby managing the same type of smart devices uniformly and managing different types of smart devices in groups. For example, when a community is associated with two smart attendance machines and one smart printer, sub-levels corresponding to the “smart attendance machines” and the “smart printer” may be created separately, wherein the “smart attendance machine” sub-level is used to manage two smart attendance machines and the “smart printer” sub-level is used to manage one smart printer.

Correspondingly, FIG. 4 is a flowchart of a method for centralized management of personnel and equipment based on an instant messaging application based on a terminal side

according to an exemplary embodiment of the present application. As shown in FIG. 4, the method is applied to an electronic device which serves as a terminal and may include the following steps.

In step 402, an organizational architecture of a preset community is obtained, wherein the organizational architecture corresponds to a community member of the preset community and a smart device associated with the preset community.

In step 404, an organizational architecture page is shown to present information of a community member or a smart device under the preset community.

In this embodiment, the community member may be classified into a corresponding member management level in the organizational architecture, and the smart device is classified into a corresponding equipment management level in the organizational architecture. Then, the terminal may show the organizational architecture page, and the organizational architecture page includes a member management level portal corresponding to the member management level and an equipment management level portal corresponding to the equipment management level.

The terminal may present information of the community member under the corresponding member management level when a trigger operation for any member management level portal is detected. The terminal may present information of the smart device under the corresponding equipment management level when a trigger operation for any equipment management level portal is detected. As may be seen, by binding the smart device to the community and adding the equipment management level to the organizational architecture, the community member can directly view the smart device bound to the community on the terminal so as to manage these smart devices.

Further, the terminal may further obtain an operating state of the smart device, for example, the operating state may be reported to the server by the smart device and in turn

notified to the terminal by the server. Then, the terminal may indicate the operating state of the smart device in the organizational architecture page such that the community member can quickly know the operating state of the smart device through the terminal without having to walk to the smart device to check, which helps improve the management efficiency of the smart device.

Further, when it is detected that the information of any one of the smart devices is triggered, the terminal may switch to a detail page of said one smart device, wherein the detail page includes function buttons for said one smart device. When any function button is triggered, the terminal may perform corresponding control functions for said one smart device, so that the community member may remotely control the smart device through the terminal, for example, the community member may remotely enable, disable, or otherwise control the smart device.

For ease of understanding, the scheme of the centralized management of personnel and equipment based on an instant messaging application according to the present application is described in detail below with reference to an interactive process among the terminal, the server, and the smart device in combination with reference to FIG. 5, wherein FIG. 5 is a flowchart of an equipment management method provided by an exemplary embodiment of the present application. As shown in FIG. 5, the method may include the following steps.

In step 502, the smart device sends an activation code obtaining request to the server.

In step 504, the server assigns an activation code to the smart device.

In this embodiment, after the smart device is powered on, whether there is an activation code in the storage space may be checked. If yes, the method may directly go to step 506B, otherwise, an activation code obtaining request may be sent to the server, so that the server assigns a uniquely corresponding activation code to the smart device. Since the activation code uniquely corresponds to the smart device, the activation code may be used as

identification information of the smart device.

In this embodiment, after the smart device receives the activation code assigned by the server, the activation code may be saved to the storage space, and the activation code is always applied thereafter. Alternatively, the smart device may actively age the obtained activation code according to a preset period and request a new activation code from the server such that the server may use the new activation code to replace the old activation code (i.e., the aged activation code), for example, to update the following corresponding relationship between the activation code and the smart device.

In step 506A, the server stores a corresponding relationship between the smart device and the activation code.

In this embodiment, in the activation code obtaining request sent by the smart device, the MAC address of the smart device or the like may be included as the ID information of the smart device, so that the server may establish a corresponding relationship between the ID information and the assigned activation code.

Of course, in the case that the activation code does not need to be updated, the activation code may be written into the smart device in advance, and the corresponding relationship between the activation code and the smart device may be stored in the server, so that the smart device may directly read and use the activation code without requesting the server to obtain an activation code through the above steps.

In step 506B, the attendance device presents the activation code.

In this embodiment, taking the smart attendance machine shown in FIG. 6 as an example, the activation code may be a two-dimensional code as shown in FIG. 6 or other forms of graphic codes, and the smart attendance machine may directly display the graphic code. Alternatively, the activation code may be a character string or other forms of non-graphical information, and the smart device may directly display the string, or convert the

string, and display the converted graphics code as shown in FIG. 6, etc. Of course, the activation code may also take other forms, and the smart device may also display the activation code in more ways, which is not limited in this application.

In step 508, the terminal reads the activation code from the smart device.

In this embodiment, a client terminal that is compatible with an application of the server may be installed on the electronic device. For example, the application may be "DING Talk" or the like. Then, the electronic device may obtain the identification information presented by the smart device, i.e., read the activation code on the smart device through the client terminal, and the corresponding relationship between the identification information and the smart device is already stored on the server.

In an embodiment, when the activation code on the smart device is in the form of a graphic code, a camera component on the terminal may be started to collect the graphic code through the "code scanning" function on the client terminal. Then, the content of the activation code is read through content recognition. For example, by reading the two-dimensional code shown in FIG. 6, the activation code corresponding to the two-dimensional code may be recognized as "gfd1s5g451f24sg54sg241fd1".

In another embodiment, when the activation code on the smart device is in the form of a character string, the camera component on the terminal may be started to collect the character string through a related function on the client terminal, and then the character string is recognized through, for example, OCR (Optical Character Recognition) and other ways. Of course, the client terminal may also show an input box, so that the user may manually input the character string shown on the smart device into the terminal to help the terminal complete the reading operation on the character string.

In addition, in order to guide the user to read the activation code, on the smart attendance machine shown in FIG. 6, text information such as "please scan the two-

dimensional code on the right side with DING Talk to complete the device binding" may be displayed to remind the user to perform the corresponding action.

In step 510, the server receives a binding management request sent by the terminal, wherein the binding management request includes an activation code.

In step 512, the server establishes a binding relationship between the community and the smart device.

In this embodiment, the terminal may send a binding management request including an activation code to the server. After extracting the activation code, the server determines the smart device to which the activation code corresponds according to the corresponding relationship stored in step 506A.

The "terminal" refers to an electronic device that is registered with a certain user account, and the user account belongs to a corresponding user, who is affiliated with one or more communities. When the user is affiliated with only one community, the server may directly establish a binding relationship between the community and the smart device. When the user is affiliated with multiple communities, the terminal may display the community selection page shown in FIG. 7. This community selection page contains all the communities with which the user is affiliated, such as "Alibaba", "Lakeside Home", "Super Invincible Experience Design Brigade", etc., such that the user may select and determine one or more communities that the smart device needs to bind. Then, the server establishes a binding relationship between the smart device and the selected community.

In step 514, the server adds the smart device to the organizational architecture.

In step 516, the terminal receives the organizational architecture data pushed by the server.

In step 518, the terminal shows the organizational architecture.

In this embodiment, the server adds the equipment management level to the

organizational architecture based on the organizational architecture shown in FIG. 2, so that the organizational architecture includes both the member management levels shown in FIG. 2, such as “research and development department”, “design department”, and the like, and the equipment management level that is just added. Accordingly, when the smart device presents the organizational architecture, as shown in FIG. 8, the member management level portals corresponding to the member management levels of "security department", "sales department", and the like and the equipment management level portal corresponding to the equipment management level of the "smart device" may be respectively shown.

When the terminal detects a triggering operation for the equipment management level portal, for example, when the "smart device" shown in FIG. 8 is triggered, a smart device belonging to the corresponding equipment management level, such as the "DING box", "printer", "smart router", "smart attendance machine", and so on, shown in FIG. 8, may be shown. Certainly, the organizational architecture may include multiple equipment management levels. For example, according to the type of the smart device, a corresponding equipment management level may be created for each type of smart device, and the corresponding equipment management level portal may be shown respectively in the organizational architecture page.

For each equipment management level, the server may also create several sub-levels. For example, when an equipment management level includes multiple types of smart devices, each sub-level may be created for each type of smart device according to the type of each smart device. For example, as shown in FIG. 9, on the basis of the equipment management level "smart device", multiple sub-levels such as "DING box", "printer", "smart router", "smart attendance machine", and so on may be separately created. In this case, when there are two attendance machines, both of these two attendance machines may be classified into the sub-level “smart attendance machine”, and when the sub-level portal corresponding to “smart

attendance machine” is triggered, the information of corresponding smart devices, for example, the attendance machine 1, the attendance machine 2, and the like shown in FIG.9, may be shown.

In step 520, the server obtains the operating state of the smart device and pushes it to the terminal.

In step 522, the terminal shows the operating state of the smart device.

In this embodiment, the smart device may notify the server of its operating state when the operating state of the smart device changes, so that the server further pushes the operating state to the terminal, and then the terminal indicates the operating state of the corresponding smart device. Of course, the server may periodically query the smart device for its operating state, or the information of the operating state may be collected by the other method, which is not limited in this application.

For example, as shown in FIG. 8 and FIG. 9, for a smart device in a standby state, such as "printer", "smart router", or the like, "○" may be used to indicate its operating state; and for a smart device in use, such as "DING box", etc., "●" and "in use" or other words may be used to indicate the corresponding operating state.

In step 524, the terminal sends a control request for the smart device to the server.

In step 526, the server sends a corresponding control instruction to the smart device according to the received control request.

In this embodiment, when it is detected that the information of any smart device is triggered, the terminal may switch from the organizational architecture page to the detail page of the smart device, wherein the detail page includes function buttons for the smart device. For example, when the "DING box" shown in FIG. 8 or FIG. 9 is triggered, it may be switched to the detail page shown in FIG. 10, which includes information of the smart device "DING box", such as "assembly location" which is "conference room 202", "usage state"

which is "in use", etc. At the same time, the detail page also includes function buttons for the "DING box", such as "unbind" in the upper right corner and "disable" at the bottom, and so on.

Then, when any function button is triggered, the terminal may perform a corresponding control function for the smart device. For example, when the "disable" button is triggered, the terminal may initiate a control request for the "DING box" to the server, and the server further sends a control instruction to the "DING box" to perform the "disable" control on "DING box".

For another example, when the "attendance machine 1" shown in FIG. 9 is triggered, the attendance machine 1 may be switched to the detail page shown in FIG. 11, wherein the detail page includes information of the smart device "attendance machine 1", such as "assembly location" which is "Floor 3, Building 1", "usage state" which is "standby", etc. At the same time, the detail page also includes function buttons for "attendance machine 1", such as "unbind" in the upper right corner and "view attendance statistical data" at the bottom, and so on.

Of course, in steps 524 to 526, the terminal may also send a control instruction directly to the server, and then the server forwards the control instruction directly to the corresponding smart device without separately generating a control instruction.

In summary, in the present application, based on the obtaining of the binding relationship between the smart device and the community, the bound smart device is added to the organizational architecture of the corresponding community, so that the community member can view the information of the related smart device through the organizational architecture, so as to quickly view and operate the smart device that is bound to the community, thereby achieving the efficient management of the smart device within the community.

FIG. 12 shows a schematic diagram of the structure of an electronic device according to an exemplary embodiment of the present application. Referring to FIG. 12, at the hardware level, the electronic device includes a processor 1202, an internal bus 1204, a network interface 1206, a memory 1208, and a non-volatile memory 1210. Of course, the electronic device may also include hardware required for other services. The processor 1202 reads the corresponding computer program from the non-volatile memory 1210 into the memory 1208 and then executes it to form an equipment management apparatus at a logical level. Of course, in addition to the software implementation, the present application does not exclude other implementations, such as the implementation via a logic device or a combination of software and hardware, etc., that is, the executive body of the following processing flow is not limited to each logical unit and may be a hardware or logic device.

Referring to FIG. 13, in the manner of a software implementation, an equipment management apparatus may include a determining unit 1302 and an adding unit 1304.

The determining unit 1302 determines a smart device that is bound to a preset community.

The adding unit 1304 is configured to add information of the smart device to an organizational architecture of the preset community so that when a community member of the preset community views an organizational architecture page, the information of the smart device is presented in the organizational architecture page.

Optionally, the adding unit 1304 is specifically configured to add an equipment management level in the organizational architecture and associate the information of the smart device to the equipment management level.

The organizational architecture further includes a plurality of member management levels corresponding to the community member, and the information of the community member of the preset community is associated with the corresponding member management

level.

Optionally, the equipment management level includes several sub-levels, and each sub-level corresponds to the same type of smart device.

Optionally, the equipment management apparatus also includes a management unit 1306, wherein when receiving the binding management request of a management user of the preset community for any smart device, the management unit 1306 binds or unbinds the smart device to the preset community.

FIG. 14 shows a schematic diagram of the structure of an electronic device according to an exemplary embodiment of the present application. Referring to FIG. 14, at the hardware level, the electronic device includes a processor 1402, an internal bus 1404, a network interface 1406, a memory 1408, and a non-volatile memory 1410. Of course, it may also include hardware required for other services. The processor 1402 reads the corresponding computer program from the non-volatile memory 1410 into the memory 1408 and then executes it to form an equipment management apparatus at a logical level. Of course, in addition to the software implementation, the present application does not exclude other implementations, such as the implementation via a logic device or a combination of software and hardware, etc., that is, the executive body of the following processing flow is not limited to each logical unit and may be a hardware or logic device.

Referring to FIG. 15, in the software implementation, the equipment management apparatus may include an obtaining unit 1502 and a presentation unit 1504.

The obtaining unit 1502 is configured to obtain an organizational architecture of a preset community, wherein the organizational architecture corresponds to a community member of the preset community and a smart device associated with the preset community;

The presentation unit 1504 shows an organizational architecture page to present information of a community member or a smart device under the preset community.

Optionally, the community member is classified into a corresponding member management level in the organizational architecture, and the smart device is classified into a corresponding equipment management level in the organizational architecture. The presentation unit 1504 is specifically configured to show an organizational architecture page, wherein the organizational architecture page includes a member management level portal corresponding to the member management level, and an equipment management level portal corresponding to the equipment management level.

When a triggering operation for any member management level portal is detected, the information of the community member under the corresponding member management level is presented. When a triggering operation for any equipment management level portal is detected, the information of the smart device under the corresponding equipment management level is presented.

Optionally, the equipment management apparatus also includes a state obtaining unit 1506 configured to obtain an operating state of the smart device and a marking unit 1508 that indicates an operating state of the smart device in the organizational architecture page.

Optionally, the equipment management apparatus also includes a switching unit 1510, wherein when detecting that the information of any smart device is triggered, the switching unit 1510 realizes the switch to the detail page of the smart devices, wherein the detail page includes function buttons for the smart devices.

The equipment management apparatus may also include an execution unit 1512 that performs a corresponding control function for the smart device when any of the function buttons are triggered.

FIG. 16 illustrates a flowchart of a method for centralized management of personnel and equipment based on an instant messaging application according to an exemplary embodiment of the present application. As shown in FIG. 16, the method is applied to an

electronic device and may include the following steps.

In step 1602, an instant messaging session window is shown to a preset user, wherein a target communication party of the instant messaging session window includes a preset smart device.

In this embodiment, the preset smart device is associated with the preset community to which the preset user belongs and is added to the organizational architecture of the preset community, that is, the preset smart device may be understood as "smart device" in the above embodiment illustrated in FIG. 3 to FIG. 5, such as DING box, printer, smart router, smart attendance machine, etc., shown in FIG. 8.

By associating the smart device with the preset community and adding it to the organizational architecture of the preset community, in combination with the function of the instant messaging application for presenting the organizational architecture, the community members of the preset community (such as the above preset user) may implement fast and convenient management of the smart device on the instant messaging application. The instant messaging application may be an enterprise instant messaging application, for example, the followings will be illustrated by taking a corporate instant messaging application "DING Talk" as an example.

In step 1604, a specific instant messaging message input by a preset user in an instant messaging session window is obtained.

In step 1606, the specific instant messaging message is sent, so that the preset smart device performs a corresponding preset function.

In this embodiment, since each smart device may perform many functions, if all functions are presented in a detail page such as shown in FIG. 10 and FIG. 11 by means such as a virtual button, there may be insufficient display space on the electronic device, and the user needs to view and select among a plurality of virtual buttons, which is not conducive to a

user operation, resulting in low user operation efficiency and poor user experience. Therefore, in the present application, based on the addition of a smart device to the organizational architecture of a community, the smart device is further “personalized”, so that the community member may directly “communicate” with the smart device, deeply integrate the instant messaging function and the equipment management function, eliminate the need for users to manually view and select the desired functions, help simplify user operations, and enhance user operation efficiency and user experience.

Taking the smart device "attendance machine 1" as an example, in the detail page shown in FIG. 17, for example, "start chat" portal may be shown, so that after a preset user triggers the portal, the portal switches to the instant messaging session window on the electronic device shown in FIG. 18, enabling the preset user to "communicate" with the attendance machine 1 through the instant messaging session window to achieve management of the attendance machine 1.

In one case where it is assumed that the instant messaging session window is a single chat window, the preset user may input any message, and the electronic device will consider it as a specific instant messaging message to achieve control of the corresponding smart device. For example, when the preset user switches from the detail page shown in FIG. 17 to the instant messaging session window shown in FIG. 18, which is a single chat window between the preset user and the attendance machine 1, assuming that the preset user wants to view the attendance statistical data of the day, he/she may directly input the "attendance statistical data today", and then the electronic device may directly consider it as a specific instant messaging message to control the attendance machine 1 to return the attendance statistical data of the day.

The electronic device may first send a specific instant messaging message to the server, and then the server obtains a corresponding control instruction after identifying the

specific instant messaging message and sends the control instruction to the attendance machine 1, and then the attendance machine 1 may obtain the attendance statistical data of the day by executing the control instruction. The attendance statistical data (as processing data of the preset function of the attendance machine 1) may be forwarded to the electronic device by the server and expressed as the “conversation” manner shown in FIG. 18 (or any other manner, the present application is not limited to these manners).

In another case where it is assumed that the instant messaging session window is a group chat window, the user needs to add a specific identification for the preset smart device in the input content, so that the electronic device may identify it as the specific instant messaging message for achieving the control of the corresponding preset smart device. For example, as shown in FIG. 19, when the instant messaging session window is a group chat window of the group "workgroup" and it is assumed that the preset user wants to know the remaining ink amount of the printer, if the preset user directly inputs the "remaining ink amount", the input content will be sent as a normal instant messaging message since there are other users, smart devices, etc. in addition to the printer, and if the preset user input for example "@printer remaining ink amount", the electronic device may determine that it is a particular instant messaging message for the printer to control the printer to return the remaining ink amount since there is "@ the printer" which is a specific identification for the printer.

In the case of group chat, the processing mode shown in FIG. 18 may still be adopted, that is, the electronic device sends a specific instant messaging message to the server for identification, and the server sends the obtained control instruction to the smart device for execution by the smart device and achieves the corresponding functions.

Alternatively, in the case of a group chat, the processing mode shown in FIG. 19 may be used, that is, after the electronic device sends a specific instant messaging message to the

server, the server directly forwards the message to the smart device, such as a printer and so on, so that the smart device, such as the printer and so on, may actively identify the instant messaging message to generate and execute a corresponding control instruction to achieve a corresponding function, for example, notifying the electronic device through the server after reading the remaining ink amount per se, so that the electronic device may use, for example, the "conversation" manner shown in FIG. 19 to present the processed data (i.e., "remaining ink amount: 35%"). Of course, the above processing manner shown in FIG. 19 may also be applied to the scenario of a single chat. The present application is not limited to these situations.

FIG. 20 shows a schematic diagram of the structure of an electronic device according to an exemplary embodiment of the present application. Referring to FIG. 20, at the hardware level, the electronic device includes a processor 2002, an internal bus 2004, a network interface 2006, a memory 2008, and a non-volatile memory 2010. Of course, the electronic device may also include hardware required for other services. The processor 2002 reads the corresponding computer program from the non-volatile memory 2010 into the memory 2008 and then executes it to form an equipment management apparatus on a logical level. Of course, in addition to the software implementation, the present application does not exclude other implementations, such as the implementation via a logic device or a combination of software and hardware, etc., that is, the executive body of the following processing flow is not limited to each logical unit and may be a hardware or logic device.

Referring to FIG. 21, in the software implementation, the equipment management apparatus may include a presentation unit 2101, an obtaining unit 2102, and a sending unit 2103.

The presentation unit 2101 shows an instant messaging session window to the preset user, wherein the target communication party of the instant messaging session window

includes a preset smart device, and the preset smart device is associated with the preset community to which the preset user belongs and is added to the organizational architecture of the preset community.

The obtaining unit 2102 obtains a specific instant messaging message input by the preset user in the instant messaging session window.

The sending unit 2103 sends the specific instant messaging message to make the preset smart device achieve a corresponding preset function.

Optionally, when the instant messaging session window is a single chat window, the specific instant messaging message is any message input by the preset user; when the instant messaging session window is a group chat window, the specific instant messaging message includes the specific identification input by the preset user for the preset smart device.

Optionally, the sending unit 2103 is specifically configured to transmit the specific instant messaging message to the server, so that the server obtains a corresponding control instruction by identifying the specific instant messaging message, so as to make the preset smart device achieve the corresponding preset function by receiving and executing the control instruction.

Alternatively, the sending unit 2103 is configured to send the specific instant messaging message to the preset smart device, so that the preset smart device obtains a corresponding control instruction by identifying the specific instant messaging message and achieves the corresponding preset function by executing the control instruction.

In a typical configuration, a computing device includes one or more processors (CPUs), one or more input/output interfaces, one or more network interfaces, and one or more memories.

The memory may include, among the computer readable media, non-persistent memory, random access memory (RAM), and/or non-volatile memory, such as read-only

memory (ROM) or flash memory. Memory is an example of a computer-readable medium.

The computer-readable media, including both permanent and non-persistent, removable and non-removable media, may be stored by any method or technology. The information may be computer readable instructions, data structures, modules of programs, or other data. Examples of computer storage media include, but are not limited to, phase change memory (PRAM), static random access memory (SRAM), dynamic random access memory (DRAM), other types of random access memory (RAM), read-only memory. (ROM), electrically erasable programmable read-only memory (EEPROM), flash memory or other memory technology, compact disk read-only memory (CD-ROM), digital versatile disk (DVD) or other optical storage, magnetic cassette, magnetic tape storage or other magnetic storage devices or any other non-transportable media that may be used to store information that may be accessed by a computing device. As defined herein, computer readable media does not include temporary storage of computer readable transitory media, such as modulated data signals and carrier waves.

It is also to be understood that the terms "comprise", "comprising" or any other variations are intended to cover a non-exclusive inclusion, such that a process, method, item, or device that includes a series of elements includes not only these elements but also other elements not explicitly listed, or elements that are inherent to such process, method, item, or device. Without more restrictions, an element that is defined by the phrase "comprising a ..." does not exclude the presence of additional identical elements in the process, method, item, or device that comprises the element.

Exemplary embodiments will be described in detail herein, and their examples are illustrated in the accompanying drawings. When the following description involves the accompanying drawings, the same reference number in different figures refers to the same or similar element, unless otherwise indicated. The embodiments described in the following

exemplary embodiments do not represent all embodiments consistent with the present application. Instead, they are merely examples of devices and methods consistent with some aspects of the present application as detailed in the appended claims.

The terminology used in the present application is for the purpose of describing particular embodiments only and is not intended to be limiting. The singular forms "a", "said" and "the" used in the present application and the claims are also intended to include their plural forms, unless otherwise indicated. It should also be understood that the term "and/or" as used herein refers to and encompasses any and all possible combinations of one or more of the associated listed items.

It should be understood that, although the terms first, second, third, etc. may be used in this application to describe various information, such information should not be limited to these terms. These terms are only used to distinguish the same type of information from one another. For example, the first information may also be referred to as the second information without departing from the scope of the present application. Similarly, the second information may also be referred to as the first information. Depending on the context, the word "if" as used herein may be interpreted as "when" or "where" or "in response to a determination".

The above description is only for the preferred embodiment of the present application and is not intended to limit the present application. Any modifications, equivalent substitutions, improvements, etc., which are made within the spirit and principles of the present application, should fall within the scope of protection of the present application.

Claims

We claim:

1. A method for centralized management of personnel and equipment based on an instant messaging application, comprising:

determining a smart device that is bound to a preset community;

adding information of the smart device to an organizational architecture of the preset community, so that when a community member of the preset community views an organizational architecture page in the instant messaging application, the information of the smart device is presented in the organizational architecture page.

2. The method according to claim 1, wherein the adding the information of the smart device to the organizational architecture of the preset community comprises:

adding an equipment management level in the organizational architecture, and associating the information of the smart device to the equipment management level;

wherein the organizational architecture further includes a plurality of member management levels corresponding to the community member, and information of the community member of the preset community is associated with a corresponding member management level.

3. The method according to claim 2, wherein the equipment management level comprises a plurality of sub-levels, and each sub-level corresponds to the same type of smart device.

4. The method according to claim 1, further comprising:

when a binding management request of a management user of the preset community for any smart device is received, binding or unbinding the any smart device with the preset community.

5. A method for centralized management of personnel and equipment based on an instant messaging application, comprising:

obtaining an organizational architecture of a preset community, wherein the organizational architecture corresponds to a community member of the preset community and a smart device associated with the preset community;

showing an organizational architecture page in the instant messaging application to present information of the community member or the smart device under the preset community.

6. The method according to claim 5, wherein the community member is classified into a corresponding member management level in the organizational architecture, and the smart device is classified into a corresponding equipment management level in the organizational architecture;

wherein showing the organizational architecture page in the instant messaging application to present the information of the community member or the smart device under the preset community comprises:

showing the organizational architecture page, wherein the organizational architecture page includes a member management level portal corresponding to the member management level, and an equipment management level portal corresponding to the equipment management level;

presenting the information of the community member under the corresponding member management level when a triggering operation for any member management level portal is detected; presenting the information of the smart device under the corresponding equipment management level when a triggering operation for any equipment management level portal is detected.

7. The method according to claim 5, further comprising:

obtaining an operating state of the smart device;

indicating the operating state of the smart device in the organizational architecture page.

8. The method according to claim 5, further comprising:

when it is detected that the information of any smart device is triggered, switching to a detail page of the smart device, wherein the detail page includes a function button for the smart device;

when any function key is triggered, performing a corresponding control function for the smart device.

9. An apparatus for centralized management of personnel and equipment based on an instant messaging application, comprising:

a determining unit configured to determine a smart device that is bound to a preset community;

an adding unit configured to add information of the smart device to an organizational architecture of the preset community so that when a community member of the preset community views an organizational architecture page in the instant messaging application,

the information of the smart device is presented in the organizational architecture page.

10. The apparatus according to claim 9, wherein the adding unit is specifically configured to:

add an equipment management level in the organizational architecture, and associate information of the smart device to the equipment management level;

wherein the organizational architecture further includes a plurality of member management levels corresponding to the community members, and the information of the community members of the preset community is associated with a corresponding member management level.

11. The apparatus according to claim 10, wherein the equipment management level comprises a plurality of sub-levels, and each sub-level corresponds to the same type of smart device.

12. The apparatus according to claim 9, further comprising:

a management unit configured to bind or unbind the smart device with the preset community when receiving a binding management request of a management user of the preset community for any smart device.

13. An apparatus for centralized management of personnel and equipment based on an instant messaging application, comprising:

an obtaining unit configured to obtain an organizational architecture of a preset community, wherein the organizational architecture corresponds to a community member of the preset community and a smart device associated with the preset community;

a presentation unit configured to show an organizational architecture page in the instant messaging application to present information of the community member or the smart device under the preset community.

14. The apparatus according to claim 13, wherein the community member is classified into a corresponding member management level in the organizational architecture, and the smart device is classified into a corresponding equipment management level in the organizational architecture; wherein the presentation unit is specifically configured to:

show the organizational architecture page, wherein the organizational architecture page includes a member management level portal corresponding to the member management level, and an equipment management level portal corresponding to the equipment management level;

present the information of the community member under the corresponding member management level when a triggering operation for any member management level portal is detected; present the information of the smart device under the corresponding equipment management level when a triggering operation for any equipment management level portal is detected.

15. The apparatus according to claim 13, further comprising:

a state obtaining unit configured to obtain an operating state of the smart device;

an indicating unit configured to indicate the operating state of the smart device in the organizational architecture page.

16. The apparatus according to claim 13, further comprising:

a switching unit configured to switch to a detail page of the smart device when it is

detected that the information of any smart device is triggered, wherein the detail page includes a function button for the smart device;

a performing unit configured to perform a corresponding control function for the smart devices when any function button is triggered.

17. A method for centralized management of personnel and equipment based on an instant messaging application, comprising:

showing an instant messaging session window to a preset user, wherein a target communication party of the instant messaging session window includes a preset smart device, and the preset smart device is associated with a preset community to which the preset user belongs and is added to an organizational architecture of the preset community;

obtaining a specific instant messaging message input by the preset user in the instant messaging session window;

sending the specific instant messaging message to make the preset smart device achieve a corresponding preset function.

18. The method according to claim 17, wherein:

when the instant messaging session window is a single chat window, the specific instant messaging message is any message input by the preset user;

when the instant messaging session window is a group chat window, the specific instant messaging message includes a specific identification input by the preset user for the preset smart device.

19. The method according to claim 17, wherein sending the specific instant messaging message comprises:

sending the specific instant messaging message to a server, so that the server obtains a corresponding control instruction by identifying the specific instant messaging message, so as to make the preset smart device achieve a corresponding preset function by receiving and executing the control instruction; or

sending the specific instant messaging message to the preset smart device, so that the preset smart device obtains a corresponding control instruction by identifying the specific instant messaging message and achieves a corresponding preset function by executing the control instruction.

20. An apparatus for centralized management of personnel and equipment based on an instant messaging application, comprising:

a presentation unit configured to show an instant messaging session window to the preset user, wherein a target communication party of the instant messaging session window includes a preset smart device, and the preset smart device is associated with the preset community to which the preset user belongs and is added to an organizational architecture of the preset community;

an obtaining unit configured to obtain a specific instant messaging message input by the preset user in the instant messaging session window;

a sending unit configured to send the specific instant messaging message to make the preset smart device achieve a corresponding preset function.

21. The apparatus according to claim 20, wherein:

when the instant messaging session window is a single chat window, the specific instant messaging message is any message input by the preset user;

when the instant messaging session window is a group chat window, the specific

instant messaging message includes the specific identification input by the preset user for the preset smart device.

22. The apparatus according to claim 20, wherein the sending unit is specifically configured to:

send the specific instant messaging message to a server, so that the server obtains a corresponding control instruction by identifying the specific instant messaging message, so as to make the preset smart device achieve a corresponding preset function by receiving and executing the control instruction; or

send the specific instant messaging message to the preset smart device, so that the preset smart device obtains a corresponding control instruction by identifying the specific instant messaging message and achieves a corresponding preset function by executing the control instruction.