LOGISTICS DISTRIBUTION METHOD AND DEVICE THEREOF

TECHNICAL FIELD

[1] This application relates to the field of logistics distribution technologies, and in particular, to a logistics distribution method, a control terminal, a server, a logistics distribution system, and a smart terminal.

BACKGROUND

[2] With the development of electronic commerce industries, logistics distribution has become a key element in supporting the industry development. In a conventional logistics distribution service, a dispatcher and a receiver need to deliver and receive goods in person at agreed time and place. However, due to various reasons, it is difficult for the two parties to reach an agreement, causing trouble in delivering and receiving goods.

[3] To reduce logistics delivery costs and accommodate time for consumers to sign for accepting express packages, electronic commerce companies successively push out a self-pickup locker. The self-pickup locker may be widely applied in public places such as office buildings, communities, supermarkets, and libraries, to provide self-pickup services to users. Generally, one self-pickup locker has one or more boxes, and each box is used to store one package.

[4] A basic operational process of the existing self-pickup locker is: a dispatcher delivers a package of a user to a self-pickup locker specified by the user, after the delivery is successful, the system sends a pick-up message and a one-time key to the user, and after receiving the pick-up message, the user picks up the package directly from the self-pickup locker by using the one-time key.

[5] However, when the self-pickup locker is used, the user needs to look for the self-pickup locker and carry the express goods for a long distance. Therefore, the existing solution does not actually resolve the problem of delivery to person.

SUMMARY

[6] The technical problem to be resolved by embodiments of this application is to provide a logistics distribution method, which not only can improve the hard resetting efficiency of a terminal, but also can increase the convenience of picking up goods in logistics.

[7] Correspondingly, the embodiments of this application further provide a control terminal, a server, a logistics distribution system, and a smart terminal, to ensure the implementation and application of the foregoing method.

[8] To resolve the foregoing problem, this application discloses a logistics distribution

method, including:

[9] sending a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, where preset area information carried in a logistics distribution request corresponding to the stored package matches with information about the preset area, and a distance value between the location area of the vehicle and a parking location of the vehicle is less than a preset threshold; and

[10] sending an open instruction to the mobile self-pickup device, to pick up the stored package from the mobile self-pickup device.

[11] Optionally, the parking location of the vehicle corresponding to the stored package is determined by using the following step:

[12] obtaining the parking location of the vehicle corresponding to the stored package from an Internet of vehicles system according to vehicle information carried in the logistics distribution request corresponding to the stored package.

[13] Optionally, the step of obtaining the parking location of the vehicle corresponding to the stored package from an Internet of vehicles system includes:

[14] searching, according to the vehicle information carried in the logistics distribution request corresponding to the stored package, a mapping relationship that is between real-time vehicle information and parking locations of vehicles in the preset area and that is recorded in the Internet of vehicles system, to obtain the parking location of the vehicle corresponding to the stored package.

[15] Optionally, the parking location of the vehicle corresponding to the stored package is determined by using the following step:

[16] sending information about the stored package to a server, to cause the server to obtain the parking location of the vehicle corresponding to the stored package by using an Internet of vehicles system and according to the information about the stored package; and

[17] receiving the parking location that is of the vehicle corresponding to the stored package and that is sent by the server.

[18] Optionally, before the step of sending a first open instruction to the mobile self-pickup device, the method further includes:

[19] receiving a pick-up request from a client or a user, where the pick-up request carries at least one of verification information, user information, and location information;

[20] verifying the pick-up request, where

[21] the step of sending a first open instruction to the mobile self-pickup device includes:

sending the first open instruction to the mobile self-pickup device after the pick-up request is verified successfully, to pick up the stored package from the mobile self-pickup device.

[22] Optionally, the method further includes:

[23] sending a location report to the server when the mobile self-pickup device moves to the parking location of the vehicle corresponding to the stored package, to cause the server to send a pick-up notification to a corresponding client according to the location report.

[24] Optionally, the method further includes:

[25] sending a second move instruction to the mobile self-pickup device after the stored package in the mobile self-pickup device is picked up, to cause the mobile self-pickup device to move to a preset location in the preset area.

[26] In another aspect, this application discloses a logistics distribution method, including:

[27] obtaining a logistics distribution request corresponding to a package, where the logistics distribution request carries preset area information; and

[28] establishing a first mapping relationship between package information of the package about and the preset area information, to deliver the package to a preset area matched with the preset area information corresponding to the package, where a mobile self-pickup device is disposed in the preset area.

[29] Optionally, the logistics distribution request further carries vehicle information, and the method further includes:

[30] receiving information that is about a stored package and that is sent by a control terminal;

[31] establishing, according to the vehicle information carried in the logistics distribution request corresponding to the package, a second mapping relationship between the information about the stored package and the vehicle information;

[32] receiving real-time vehicle information and a corresponding parking location from an Internet of vehicles system;

[33] matching the real-time vehicle information with the vehicle information in the second mapping relationship;

[34] when the matching is successful, using the parking location corresponding to the real-time vehicle information as a parking location of a vehicle corresponding to the information about the stored package; and

[35] sending the parking location of the vehicle corresponding to the information about the stored package to the control terminal.

[36] Optionally, the logistics distribution request further carries vehicle information, and the

method further includes:

[37] receiving information that is about a stored package and that is sent by a control terminal;

[38] searching, according to the vehicle information corresponding to the information about the stored package, a mapping relationship that is between real-time vehicle information and parking locations of vehicles in a preset area and that is recorded in an Internet of vehicles system, to obtain a parking location of a vehicle corresponding to the stored package; and

[39] sending the parking location of the vehicle corresponding to the information about the stored package to the control terminal.

[40] Optionally, the method further includes:

[41] receiving a location report sent by the control terminal; and

[42] sending a pick-up notification to a corresponding client according to the location report.

[43] In another aspect, this application discloses a control terminal, including:

[44] a first instruction sending module, configured to send a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, where preset area information carried in a logistics distribution request corresponding to the stored package matches with information about the preset area, and a distance value between the location area of the vehicle and a parking location of the vehicle is less than a preset threshold; and

[45] a second instruction sending module, configured to send an open instruction to the mobile self-pickup device, to pick up the stored package from the mobile self-pickup device.

[46] Optionally, the control terminal further includes: a determining module, configured to determine the parking location of the vehicle corresponding to the stored package, where

[47] the determining module includes:

[48] an obtaining submodule, configured to obtain the parking location of the vehicle corresponding to the stored package from an Internet of vehicles system according to vehicle information carried in the logistics distribution request corresponding to the stored package.

[49] Optionally, the obtaining submodule includes:

[50] a search unit, configured to search, according to the vehicle information carried in the logistics distribution request corresponding to the stored package, a mapping relationship that is between real-time vehicle information and parking locations of vehicles in the preset area and that is recorded in the Internet of vehicles system, to obtain the parking location of the vehicle corresponding to the stored package.

[51] Optionally, the control terminal further includes: a determining module, configured to

determine the parking location of the vehicle corresponding to the stored package, where

[52] the determining module includes:

[53] a first sending submodule, configured to send information about the stored package to a server, to cause the server to obtain the parking location of the vehicle corresponding to the stored package by using an Internet of vehicles system and according to the information about the stored package; and

[54] a first receiving submodule, configured to receive the parking location that is of the vehicle corresponding to the stored package and that is sent by the server.

[55] Optionally, the control terminal further includes:

[56] a request receiving module, configured to receive a pick-up request from a client or a user before the second instruction sending module sends the first open instruction to the mobile self-pickup device, where the pick-up request carries at least one of verification information, user information, and location information; and

[57] a verification module, configured to verify the pick-up request, where

[58] the second instruction sending module includes:

[59] an instruction sending submodule, configured to send a first open instruction to the mobile self-pickup device after the pick-up request is verified successfully, to pick up the stored package from the mobile self-pickup device.

[60] Optionally, the control terminal further includes:

[61] a report sending module, configured to send a location report to the server when the mobile self-pickup device moves to the parking location of the vehicle corresponding to the stored package, to cause the server to send a pick-up notification to a corresponding client according to the location report.

[62] Optionally, the control terminal further includes:

[63] a third instruction sending module, configured to send a second move instruction to the mobile self-pickup device after the stored package in the mobile self-pickup device is picked up, to cause the mobile self-pickup device to move to a preset location in the preset area.

[64] In another aspect, this application discloses a server, including:

[65] an obtaining module, configured to obtain a logistics distribution request corresponding to a package, where the logistics distribution request carries preset area information; and

[66] a first establishing module, configured to establish a first mapping relationship between package information of the package and the preset area information, to deliver the package to a preset area matched with the preset area information corresponding to the package, where at least one mobile self-pickup device is disposed in the preset area.

[67] Optionally, the logistics distribution request further carries vehicle information, and the server further includes:

[68] a first receiving module, configured to receive information that is about a stored package and that is sent by a control terminal;

[69] a second establishing module, configured to establish, according to the vehicle information carried in the logistics distribution request corresponding to the package, a second mapping relationship between the information about the stored package and the vehicle information;

[70] a second receiving module, configured to receive real-time vehicle information and a corresponding parking location from an Internet of vehicles system;

[71] a matching module, configured to match the real-time vehicle information with the vehicle information in the second mapping relationship;

[72] a determining module, configured to: when the matching is successful, use the parking location corresponding to the real-time vehicle information as a parking location of a vehicle corresponding to the information about the stored package; and

[73] a first sending module, configured to send the parking location of the vehicle corresponding to the information about the stored package to the control terminal.

[74] Optionally, the logistics distribution request further carries vehicle information, and the server further includes:

[75] a third receiving module, configured to receive information that is about a stored package and that is sent by a control terminal;

[76] a search module, configured to search, according to the vehicle information corresponding to the information about the stored package, a mapping relationship that is between real-time vehicle information and parking locations of vehicles in a preset area and that is recorded in an Internet of vehicles system, to obtain a parking location of a vehicle corresponding to the stored package; and

[77] send the parking location of the vehicle corresponding to the information about the stored package to the control terminal.

[78] Optionally, the server further includes:

[79] a fourth receiving module, configured to receive a location report sent by the control terminal; and

[80] a second sending module, configured to send a pick-up notification to a corresponding client according to the location report.

[81] In another aspect, this application discloses a logistics distribution system, including: at

least one control terminal and at least one server, where

[82] the control terminal includes:

[83] a first instruction sending module, configured to send a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, where at least one mobile self-pickup device is disposed in the preset area, preset area information carried in a logistics distribution request corresponding to the stored package matches with information about the preset area, and a distance value between the location area of the vehicle and a parking location of the vehicle is less than a preset threshold; and

[84] a second instruction sending module, configured to send an open instruction to the mobile self-pickup device, to pick up the stored package from the mobile self-pickup device; and

[85] the server includes:

[86] an obtaining module, configured to obtain a logistics distribution request corresponding to a package, where the logistics distribution request carries preset area information; and

[87] a first establishing module, configured to establish a first mapping relationship between package information of the package and the preset area information, to deliver the package to a preset area matched with the preset area information corresponding to the package, where at least one mobile self-pickup device is disposed in the preset area.

[88] In another aspect, this application discloses a smart terminal, including a memory and one or more programs, where the one or more programs are stored in the memory, and are configured to be executed by one or more processors, and the one or more programs include instructions for performing the following operations:

[89] sending a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, where preset area information carried in a logistics distribution request corresponding to the stored package matches with information about the preset area, and a distance value between the location area of the vehicle and a parking location of the vehicle is less than a preset threshold; and

[90] sending an open instruction to the mobile self-pickup device, to pick up the stored package from the mobile self-pickup device.

[91] Compared with the prior art, the embodiments of this application include the following advantages:

[92] In the embodiments of this application, a mobile self-pickup device in a preset area

delivers a package to a location area of a vehicle corresponding to the package, so that a user may directly pick up a package near a vehicle and directly puts the picked package to the vehicle. Therefore, compared with the existing solution in which a user needs to look for a self-pickup locker and carry a package for a long distance, the embodiments of this application can increase the convenience of picking up goods in logistics.

[93] In addition, compared with the place of the self-pickup locker in the existing solution, the preset area in the embodiments of this application may not be limited by the place area. That the preset area is a parking lot is used as an example. The parking lot has wider areas and lower costs. Therefore, in the embodiments of this application, a larger quantity of mobile self-pickup devices for storing packages can be provided.

[94] Moreover, because a vehicle is an indispensable transport tool of a user in daily life such as commuting, if the mobile self-pickup device in the preset area delivers the package to the location area of the vehicle corresponding to the package, the user can pick up goods while in a car parking or car pick-up process. Therefore, the convenience of picking up goods in logistics can be further increased, and therefore the utilization of the mobile self-pickup device can be improved.

BRIEF DESCRIPTION OF THE DRAWINGS

[95] FIG. 1 is a schematic structural diagram of a logistics distribution system according to this application;

[96] FIG. 2 is a step flowchart of Embodiment 1 of a logistics distribution method according to this application;

[97] FIG. 3 is a step flowchart of Embodiment 2 of a logistics distribution method according to this application;

[98] FIG. 4 is a step flowchart of Embodiment 3 of a logistics distribution method according to this application;

[99] FIG. 5 is a step flowchart of Embodiment 4 of a logistics distribution method according to this application;

[100] FIG. 6 is a step flowchart of Embodiment 5 of a logistics distribution method according to this application;

[101] FIG. 7 is a step flowchart of Embodiment 6 of a logistics distribution method according to this application;

[102] FIG. 8 is a structural block diagram of a control terminal embodiment according to this application;

[103] FIG. 9 is a structural block diagram of a server embodiment according to this

application;

[104] FIG. 10 is a structural block diagram of a logistics distribution system embodiment according to this application; and

[105] FIG. 11 is a structural block diagram of a smart terminal embodiment according to this application.

DETAILED DESCRIPTION

[106] To make the foregoing objectives, features, and advantages of this application clearer and more understandable, the following further describes this application in detail with reference to the accompanying drawings and specific implementations.

[107] The core idea of the embodiments of this application lies in: a mobile self-pickup device in a preset area delivers a package to a location area of a vehicle corresponding to the package, so that a user may directly pick up the package near the vehicle and directly put the picked package into the vehicle. Therefore, compared with the existing solution in which a user needs to look for a self-pickup locker and carry a package for a long distance, the embodiments of this application can increase the convenience of picking up goods in logistics.

[108] The embodiments of this application provide a logistics distribution system. The logistics distribution system may include: at least one server, at least one client, and at least one control terminal.

[109] The server may be configured to provide a package-based logistics service to the client. Specifically, the server may establish a first mapping relationship between information about a package and parking lot information, to deliver the package to a parking lot matched with the parking lot information corresponding to the package.

[110] The control terminal may be configured to control a mobile self-pickup device in the parking lot. Specifically, the control terminal may send a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package. The control terminal may further send an open instruction to the mobile self-pickup device, so that a user picks up the package from the mobile self-pickup device.

[111] It should be noted that, at least one mobile self-pickup device may be disposed in the preset area. In a default case, the mobile self-pickup device may be located at a preset location in the preset area. For example, the preset area is a parking lot. The preset location may be different from a location such as a parking space, an entrance, or an exit of the parking lot. Therefore, the interference and impact from the mobile self-pickup device

to normal parking can be avoided. In a state of being delivered, the control terminal may send the first move instruction to the mobile self-pickup device, to cause the mobile self-pickup device to move to the location area of the vehicle corresponding to the stored package. After the stored package in the mobile self-pickup device is picked up, the control terminal may further send a second move instruction to the mobile self-pickup device, to cause the mobile self-pickup device to move to the preset location in the parking lot. Certainly, in addition to the parking lot, the preset area of the embodiments of this application may also be other areas (such as squares in communities) with a parking condition. These other areas may have wide spaces, and costs are lower compared with office buildings. It may be understood that, the embodiments of this application do not limit the specific preset area.

[112] Referring to FIG. 1, FIG. 1 shows a schematic structural diagram of a logistics distribution system according to this application. The system may specifically include: at least one client (such as the client 101 shown in FIG. 1), at least one server (such as the server 102 shown in FIG. 1), and a control terminal (such as the control terminal 103 shown in FIG. 1).

[113] The client 101 may send a logistics distribution request corresponding to a package to the server 102, to cause the server 102 to deliver the package; and the client 101 may further send a pick-up request to the control terminal 103, to pick up goods from a mobile self-pickup device corresponding to the control terminal 103.

[114] The server 102 may obtain the logistics distribution request corresponding to the package by using the client 101, where the logistics distribution request may include: vehicle information and preset area information. The server 101 may further establish a first mapping relationship between package information of the package and the preset area information according to the logistics distribution request, to deliver the package to a preset area matched with the preset area information corresponding to the package. For example, in an actual application, a dispatcher may deliver, the package to the preset area matched with the preset area information corresponding to the package in a logistics manner such as by a truck according to the first mapping relationship.

[115] In an optional embodiment of this application, the preset area information may specifically include: a preset area address or a preset area name. In an application example of this application, in a process of submitting an order to the server 102, the client 101 may use the preset area address as a receiving address of the order, and submit the receiving address to the server 102. In the process of obtaining the preset area address, a preset area

list may be provided to the client 101, the preset area list may list a city selected by a user or all preset areas in an area. Each preset area may provide a mobile self-pickup device and a place required for parking a vehicle.

[116] It may be understood that, the embodiments of this application do not limit the quantity of mobile self-pickup devices and vehicles that can be contained in the preset area.

[117] In an optional embodiment of this application, a mobile self-pickup device may be disposed in the preset area to store a package to the mobile self-pickup device; and the place of the preset area may have a geographic range and may be enclosed to a certain extent, to facilitate the management of the mobile self-pickup device in the preset area. In addition, an Internet of vehicles system may be further disposed in the preset area, and the Internet of vehicles system may identify a vehicle and a parking space in the preset area, thereby positioning a parking location of the vehicle in the preset area. For example, license plate information of a vehicle may be collected by using a device such as a sensor or a camera, and parking space information corresponding to a vehicle may be obtained by using a parking management system. It may be understood that, the embodiments of this application do not limit the specific condition of the preset area and the specific process of positioning the parking location of the vehicle in the preset area.

[118] In another optional embodiment of this application, the vehicle information may specifically include: license plate information and/or parking space information. The license plate information may be corresponding to a vehicle for picking up goods, and this may facilitate positioning the vehicle by using a technology such as the Internet of vehicles. When the vehicle is corresponding to a fixed parking space, parking space information corresponding to vehicle information may also be carried in the logistics distribution request. In this case, a parking location of a vehicle may be obtained in advance. After an Internet of vehicles system detects that a vehicle parks in a parking space corresponding to the parking space information, an arrival notification may be sent to the server 102 or the control terminal 103, and the arrival notification is used to notify that the vehicle corresponding to the package has arrived.

[119] The control terminal 103 may be configured to control the mobile self-pickup device in the preset area. The control terminal 103 and the mobile self-pickup device may be in a one-to-one or one-to-many relationship. When the control terminal 103 is corresponding to one mobile self-pickup device, the control terminal 103 may be located on the mobile self-pickup device. Certainly, the embodiments of this application do not limit the location relationship between the control terminal 103 and the mobile self-pickup device.

[120] In specific implementations, the control terminal 103 and the mobile self-pickup device may communicate based on a wireless communications protocol such as Bluetooth, infrared, WIFI (Wireless Fidelity), or NFC (Near Field Communication), or may communicate based on a wired communications protocol. The embodiments of this application do not limit the specific communications protocol between the control terminal 103 and the mobile self-pickup device.

[121] In an actual application, at least one box may be disposed in the mobile self-pickup device, and each box may be used to store one package or at least one package corresponding to one type of vehicle information. It may be understood that, the embodiments of this application do not limit the material, size, and structure of the mobile self-pickup device, and the quantity of packages that may be stored.

[122] The control process may specifically include: controlling the mobile self-pickup device to move from the preset location to the location area of the vehicle corresponding to the stored package, or controlling the mobile self-pickup device to move from the location area to the preset location. The control process may further include: controlling to open the door of the mobile self-pickup device, so that a dispatcher stores a package to a box of the mobile self-pickup device, or so that a user picks up a package from a box of the mobile self-pickup device; or controlling to close the door of the mobile self-pickup device. The embodiments of this application do not limit the specific control process.

[123] Method embodiment 1

[124] Referring to FIG. 2, FIG. 2 shows a step flowchart of Embodiment 1 of a logistics distribution method according to this application. The method is applied to a control terminal side, and may specifically include the following steps:

[125] Step 201. Sending a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, where preset area information carried in a logistics distribution request corresponding to the stored package may be matched with information about the preset area, and a distance value between the location area of the vehicle and a parking location of the vehicle may be less than a preset threshold.

[126] Step 202. Sending a first open instruction to the mobile self-pickup device, to pick up the stored package from the mobile self-pickup device.

[127] This application may be applied to a system similar to the logistics distribution system in FIG. 1, to deliver a package to a location area of a vehicle corresponding to the package by using a mobile self-pickup device in a preset area, to increase the convenience of picking up

goods in logistics.

[128] In addition, because of the limitations in venue and cost aspects of self-pickup lockers in office buildings, communities, supermarkets, libraries, the quantity of boxes of self-pickup lockers in the existing solution is limited. If users have not picked up goods from the boxes in time, the utilization of the self-pickup lockers is reduced. Compared with the place of the self-pickup locker in the existing solution, the place of a preset area (such as a parking lot) in this embodiment of this application may be wider, and has lower costs. Therefore, this embodiment of this application may provide a larger quantity of mobile self-pickup devices for storing packages. Moreover, because a vehicle is an indispensable transport tool of a user in daily life such as commuting, if the mobile self-pickup device in the preset area delivers the package to the location area of the vehicle corresponding to the package, the user can pick up goods while in a car parking or car pick-up process. Therefore, the convenience of picking up goods in logistics can be further increased, and therefore the utilization of the mobile self-pickup device can be improved.

[129] In an actual application, a dispatcher may deliver the package to the preset area matched with the preset area information corresponding to the package in a logistics manner such as by truck. For example, all packages may be delivered to a preset location in the preset area, and the preset location may be an assembly location of the mobile self-pickup device. In a default case, the mobile self-pickup device may be located at the preset location. For example, a mobile self-pickup device to which no package has been stored may wait for a dispatcher to store packages to the mobile self-pickup device. For another example, a mobile self-pickup device to which packages have been stored may wait for vehicles of the users to arrive at the preset area.

[130] In an optional embodiment of this application, before step 201, the method may further include: sending a second open instruction to the mobile self-pickup device, to store packages to the mobile self-pickup device. In a specific implementation, the dispatcher may scan a barcode on a package barcode by using a scanning apparatus on the mobile self-pickup device, and submit package information such as a package waybill number and contact information of a package receiver to a control terminal by inputting the contact information of the package receiver by using an input apparatus on the mobile self-pickup device. After confirming that the package information submitted by the dispatcher is right, the control terminal may send a second open instruction to the mobile self-pickup device, so that the dispatcher stores the package to the mobile self-pickup device. It should be noted that, after the package is stored to the mobile self-pickup device, a second close instruction may be

further sent to the mobile self-pickup device, to ensure the security of the stored package in the mobile self-pickup device. It may be understood that, this embodiment of this application does not limit the specific trigger condition of the second open instruction and the second close instruction.

[131] In addition, it should be noted that, in this embodiment of this application, a package and a mobile self-pickup device may be in a random relationship, that is, a corresponding mobile self-pickup device may be allocated to a package randomly. A package and a mobile self-pickup device may also be in a preset relationship, that is, a user may specify a mobile self-pickup device corresponding to a package in a logistics distribution request. This embodiment of this application does not limit the specific relationship between the package and the mobile self-pickup device.

[132] In this embodiment of this application, a distance value between the location area of the vehicle and the parking location of the vehicle may be less than the preset threshold. The parking location of the vehicle may include: a location of a parking space corresponding to the vehicle, and the distance value may be used to represent a distance to a parking space boundary corresponding to the vehicle. For example, the distance between the location area and the parking space boundary corresponding to the vehicle may be less than 0.5 m. In addition, according a perspective of the vehicle, the location area may be located at any of the four parking space boundaries: the upper boundary, the lower boundary, the left boundary, and the right boundary. For example, the location area may be located at an upper boundary corresponding to a vehicle front, so that the user discovers the mobile self-pickup device earlier. It may be understood that, this embodiment of this application does not limit the specific range of the location area.

[133] The parking location of the vehicle may be used to represent a parking location of a vehicle. The parking location is generally located in a preset area corresponding to a stored package, or may be located near a preset area corresponding to a stored package. This embodiment of this application may provide the following technical solutions of determining the parking location of the vehicle corresponding to the stored package.

[134] Technical solution 1

[135] In technical solution 1, the control terminal may obtain the parking location of the vehicle corresponding to the stored package from an Internet of vehicles system according to vehicle information carried in the logistics distribution request corresponding to the stored package.

[136] In an optional embodiment of this application, the step of obtaining the parking

location of the vehicle corresponding to the stored package from an Internet of vehicles system may specifically include: searching, according to the vehicle information carried in the logistics distribution request corresponding to the stored package, a mapping relationship that is between real-time vehicle information and parking locations of vehicles in the preset area and that is recorded in the Internet of vehicles system, to obtain the parking location of the vehicle corresponding to the stored package.

[137] Assuming that the vehicle information is license plate information, the Internet of vehicles system may position a parking location of a vehicle in a parking lot by using a device such as a camera or a sensor, to obtain a mapping relationship between the license plate information and the parking location, for the control terminal to query.

[138] Technical solution 2

[139] Compared with technical solution 1 in which the control terminal obtains the parking location of the vehicle corresponding to the stored package from the Internet of vehicles system, in technical solution 2, the control terminal may obtain the parking location of the vehicle corresponding to the stored package from a server. This can take advantage of operational resources and system resources of the server side, and improve the speed of obtaining the parking location of the vehicle corresponding to the stored package. Correspondingly, the process of determining the parking location of the vehicle corresponding to the stored package may specifically include:

[140] Step A1. Sending information about the stored package (such as a package waybill number) to the server, to cause the server to obtain a parking location of the vehicle corresponding to the stored package by using an Internet of vehicles system and according to the information about the stored package.

[141] Step A2. Receiving the parking location that is of the vehicle corresponding to the stored package and that is sent by the server.

[142] The foregoing introduces technical solution 1 and technical solution 2 of determining the parking location of the vehicle corresponding to the stored package. It may be understood that, persons skilled in the art may use either of the foregoing technical solution 1 and technical solution 2 according to an actual application requirement, or may use another technical solution of determining the parking location of the vehicle corresponding to the stored package. For example, the logistics distribution request corresponding to the stored package carries parking space information, and the parking space information may be directly used as the parking location of the vehicle corresponding to the stored package.

[143] It should be noted that, in this embodiment of this application, step 201 may be

performed at various time points. For example, when the vehicle corresponding to the stored package enters the preset area, the parking location of the vehicle corresponding to the stored package may be determined, and after the parking location of the vehicle corresponding to the stored package is determined, the foregoing step 201 is performed. In this way, the need of the user for picking up goods on the way to work can be met. For another example, after a pick-up request from a client or a distribution notification from a server is received, the parking location of the vehicle corresponding to the stored package may be determined, and after the parking location of the vehicle corresponding to the stored package is determined, the foregoing step 201 is performed. In this way, the requirement of the user for picking up goods in any scenario such as on the way to work or on the way home can be met. It may be understood that, this embodiment of this application does not limit the timing for performing step 201.

[144] In addition, in this embodiment of this application, step 202 may be performed at various time points. For example, when the pick-up request from the client is received, the foregoing step 202 may be performed. For another example, step 202 may be performed after the pick-up request from the client is received, and the pick-up request is verified successfully. It may be understood that, this embodiment of this application does not limit the timing for performing step 202.

[145] In an optional embodiment of this application, the method of this embodiment may further include: sending a first close instruction to the mobile self-pickup device after the stored package in the mobile self-pickup device is picked up, to ensure an idle state of the mobile self-pickup device.

[146] In an optional embodiment of this application, the method of this embodiment may further include: sending a second move instruction to the mobile self-pickup device after the stored package in the mobile self-pickup device is picked up, to cause the mobile self-pickup device to move to a preset location in the preset area. Because after a stored package in a mobile self-pickup device is picked up, the mobile self-pickup device is in an idle state, and the mobile self-pickup device moves to a preset location, to assemble mobile self-pickup devices in the idle state, so that cyclic utilization of the mobile self-pickup device can be implemented.

[147] In another optional embodiment of this application, the method of this embodiment may further include: sending a state report to the server after the stored package in the mobile self-pickup device is picked up. The state report is used to notify the server that the package has been signed for acceptance. The state report may make the server update the state of the

package. The state of the package in this embodiment of this application may specifically include: for delivery, delivered, and signed for acceptance. After the logistics distribution request submitted by the user is obtained, the state of the package may be for delivery; and after a first mapping relationship between package information of the package and preset area information is established, and a distribution notification is sent to a distribution department, the state of the package may be updated to be delivered. The distribution notification may be used to deliver the package to a preset area matched with the preset area information corresponding to the package; and after the stored package in the mobile self-pickup device is picked up, the state of the package may be updated to be signed for acceptance. It may be understood that, this embodiment of this application does not limit the state of the package and the corresponding update process.

[148] In conclusion, this embodiment of this application has the following advantages.

[149] First, in this embodiment of this application, a mobile self-pickup device in a preset area delivers a package to a location area of a vehicle corresponding to the package, so that a user may directly pick up a package near a vehicle and directly puts the picked package to the vehicle. Therefore, the convenience of picking up goods in logistics can be increased.

[150] In addition, because the place of a preset area (such as a parking lot) in this embodiment of this application may be wider, and have lower costs, this embodiment of this application may provide a larger quantity of mobile self-pickup devices for storing packages. Moreover, because a vehicle is an indispensable transport tool of a user in daily life such as commuting, if the mobile self-pickup device in the preset area delivers the package to the location area of the vehicle corresponding to the package, the user can pick up goods while in a car parking or car pick-up process. Therefore, the convenience of picking up goods in logistics can be further increased, and therefore the utilization of the mobile self-pickup device can be improved.

[151] Moreover, in this embodiment of this application, the mobile self-pickup device in the preset area delivers the package to the location area of the vehicle corresponding to the package, so that the user picks up the package from the mobile self-pickup device. Because the foregoing logistics operations are operations completed outside the vehicle, the privacy security of the user and the property security in the vehicle can be effectively ensured.

[152] Method embodiment 2

[153] Referring to FIG. 3, FIG. 3 shows a step flowchart of Embodiment 2 of a logistics distribution method according to this application. The method is applied to a control terminal side, and may specifically include the following steps:

[154] Step 301. Sending a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, where preset area information carried in a logistics distribution request corresponding to the stored package may be matched with information about the preset area, and a distance value between the location area of the vehicle and a parking location of the vehicle may be less than a preset threshold.

[155] Step 302. Receiving a pick-up request from a client or a user, where the pick-up request may carry at least one of verification information, user information, and location information.

[156] Step 303. Verifying the pick-up request.

[157] Step 304. Sending a first open instruction to the mobile self-pickup device after the pick-up request is verified successfully, to pick up the stored package from the mobile self-pickup device.

[158] Compared with method embodiment 1, in this embodiment, before the first open instruction is sent to the mobile self-pickup device, the pick-up request may be verified, to prevent the stored package in the mobile self-pickup device from being picked up by an illegal user, thereby ensuring the security of the package in logistics.

[159] This embodiment of this application may support verification of at least one of verification information, user information, and location information.

[160] The verification information may be information in a string form or a QR code form. In an actual application, the server may generate the verification information and send the verification information to a client and a control terminal, to cause the control terminal to verify the verification information submitted by the client. Specifically, the verification information may be a verification code in a code string form, and the verification code may have a unique identification code, to prevent the stored package in the mobile self-pickup device from being picked up by an illegal user. For example, the verification code may be a GUID (Globally Unique Identifier). For another example, the verification code may also be a unique code obtained by calculating package information and user information by using a preset algorithm. It may be understood that, this embodiment of this application does not limit the specific generation manner of the verification code.

[161] The user information may include: contact information such as a name and a phone number of a package receiver. In an actual application, information about the stored package recorded in the logistics distribution request and user information corresponding to vehicle information may be matched with user information submitted by the client, and if the matching is successful, the current user may be confirmed to be a legal user, that is, the user

information is verified successfully.

[162] The location information may be used to represent a location of information device corresponding to a client, and may be expressed by in a form such as a GPS (Global Positioning System). In an actual application, location information of the control terminal may be compared with location information of the client, and if the difference between them is less than a preset difference threshold, it may be regarded that the distance between them is relatively close, that is, the client is a client waiting for package pick-up. Therefore, it may be regarded that the location information is verified successfully. It may be understood that, in addition to determining that difference between them, the directions of them may also be determined. Optionally, if the location information of the client is close to one side of the parking location of the vehicle corresponding to the stored package, it may be regarded that the location information is verified successfully.

[163] It may be understood that, the verification processes of the verification information, the user information, and the location information are merely exemplary. Actually, persons skilled in the art may verify a pick-up request of a client flexibly according to verification information, user information, and location information submitted by the client according to an actual application requirement, or may verify a pick-up request by using other information. This embodiment of this application does not limit the specific verification process of the pick-up request.

[164] It should be noted that, the process of verifying the pick-up request may be completed by the control terminal independently, or may be completed by the server and the control terminal jointly. For example, the control terminal may send the pick-up request to the server, and receive a verification result returned by the server. It may be understood that, this embodiment of this application does not limit the specific execution body for verifying the pick-up request.

[165] In an optional embodiment of this application, the method may further include: sending a location report to the server when the mobile self-pickup device moves to the parking location of the vehicle corresponding to the stored package, to cause the server to send a distribution notification to a corresponding client according to the location report. The distribution notification may be used to notify the client that the mobile self-pickup device has arrived at the location area of the vehicle. Therefore, the client may make a pick-up preparation, for example, the client may send the pick-up request to the control terminal.

[166] It should be noted that, the control terminal may directly receive a pick-up request input on the control terminal by the user; or the control terminal may establish a device

connection to a client by using a wireless communications protocol such as Bluetooth, infrared, WIFI, or NFC, and receive a pick-up request from the client according to the device connection; or the control terminal may run a distribution service end, the client may run a distribution client, and the control terminal may receive a pick-up request from the distribution client by using the distribution service end. It may be understood that, this embodiment of this application does not limit the specific process of the control terminal receiving the pick-up request.

[167] Method embodiment 3

[168] Referring to FIG. 4, FIG. 4 shows a step flowchart of Embodiment 3 of a logistics distribution method according to this application. The method is applied to a server side, and may specifically include the following steps:

[169] Step 401. Obtaining a logistics distribution request corresponding to a package, where the logistics distribution request may carry preset area information.

[170] Step 402. Establishing a first mapping relationship between package information of the package and the preset area information, to deliver the package to a preset area matched with the preset area information corresponding to the package, where a mobile self-pickup device is disposed in the preset area.

[171] In an actual application, the server may obtain the logistics distribution request corresponding to the package by using a client. For example, the client may be a client of an ordinary user, and in a process of submitting an order to the server, a logistics distribution request corresponding to the order may be submitted to the server, and the server packages goods corresponding to the order into at least one package. For another example, the client may be a client of an express company, and the client may directly submit the logistics distribution request corresponding to the package to the server. It may be understood that, this embodiment of this application does not limit the specific process of obtaining the logistics distribution request corresponding to the package.

[172] In this embodiment of this application, the package information may specifically include: information for identifying the package, such as a package waybill number and a package number. After the first mapping relationship between the package information and the preset area information is established, a distribution notification may be sent to a distribution department. The distribution notification may be used to deliver the package to the preset area matched with the preset area information corresponding to the package. For example, a dispatcher may deliver the package to the preset area matched with the preset area information corresponding to the package in a logistics manner such as by truck, and then

store the package to a corresponding mobile self-pickup device.

[173] In an optional embodiment of this application, the method may further include: receiving a location report sent by the control terminal; and sending a distribution notification to a corresponding client according to the location report. The distribution notification may be used to notify the client that the mobile self-pickup device has arrived at the location area of the vehicle. Therefore, the client may make a pick-up preparation, for example, the client may send the pick-up request to the control terminal.

[174] Method embodiment 4

[175] Referring to FIG. 5, FIG. 5 shows a step flowchart of Embodiment 4 of a logistics distribution method according to this application. The method is applied to a server side, and may specifically include the following steps:

[176] Step 501. Obtaining a logistics distribution request corresponding to a package, where the logistics distribution request may carry preset area information and vehicle information.

[177] Step 502. Establishing a first mapping relationship between package information of the package and the preset area information, to deliver the package to a preset area matched with the preset area information corresponding to the package, where a mobile self-pickup device is disposed in the preset area.

[178] Step 503. Receiving information that is about a stored package and that is sent by a control terminal.

[179] Step 504. Establishing, according to the vehicle information carried in the logistics distribution request corresponding to the package, a second mapping relationship between the information about the stored package and the vehicle information.

[180] Step 505. Receiving real-time vehicle information and a corresponding parking location from an Internet of vehicles system.

[181] Step 506. Matching the real-time vehicle information with the vehicle information in the second mapping relationship.

[182] Step 507. When the matching is successful, using the parking location corresponding to the real-time vehicle information as a parking location of a vehicle corresponding to the information about the stored package.

[183] Step 508. Sending the parking location of the vehicle corresponding to the information about the stored package to the control terminal.

[184] Compared with method embodiment 3, by using step 503 to step 508, the process of the server providing the parking location of the vehicle corresponding to the information about the stored package to the control terminal is added to this embodiment. The server may

receive real-time vehicle information pushed by the Internet of vehicles system in real time and the corresponding parking location, obtain, through matching, the parking location of the vehicle corresponding to the information about the stored package, and provide the parking location to the control terminal. Because the server may provide the real-time vehicle information pushed by the Internet of vehicles system in real time and the corresponding parking location to the control terminal, the control terminal may learn the parking location of the vehicle corresponding to the information about the stored package in time, to deliver the stored package to the user in time.

[185] In an application example of this application, when a user submits a logistics distribution request of a package 0001 to a server, the user selects a parking lot A with a self-pickup service, and inputs a license plate number X. In this way, after the package 0001 is stored to a mobile self-pickup device in the parking lot A, the server may obtain a parking location of the license plate number X in real time by using an Internet of vehicles system, and push the parking location to a control terminal. For example, after the license plate number X enters the parking lot A, the license plate number X is automatically identified, and a parking space corresponding to the license plate number X is automatically recorded. After obtaining the parking location of the license plate number X, the control terminal may control the mobile self-pickup device to deliver the package to a location area of the license plate number X to be picked up. The user may submit a pick-up request to the control terminal by using a client, to cause the control terminal to send a first open instruction to the mobile self-pickup device after the pick-up request is verified successfully. In this way, the user may pick up the stored package from the mobile self-pickup device, and put the picked package directly to the vehicle.

[186] Method embodiment 5

[187] Referring to FIG. 6, FIG. 6 shows a step flowchart of Embodiment 5 of a logistics distribution method according to this application. The method is applied to a server side, and may specifically include the following steps:

[188] Step 601. Obtaining a logistics distribution request corresponding to a package, where the logistics distribution request may carry preset area information and vehicle information.

[189] Step 602. Establishing a first mapping relationship between package information of the package and the preset area information, to deliver the package to a preset area matched with the preset area information corresponding to the package, where a mobile self-pickup device is disposed in the preset area.

[190] Step 603. Receiving information that is about a stored package and that is sent by a

control terminal.

[191] Step 604. Searching, according to the vehicle information corresponding to the information about the stored package, a mapping relationship that is between real-time vehicle information and parking locations of vehicles in a preset area and that is recorded in an Internet of vehicles system, to obtain a parking location of a vehicle corresponding to the stored package.

[192] Step 605. Sending the parking location of the vehicle corresponding to the information about the stored package to the control terminal.

[193] Compared with method embodiment 3, by using step 603 to step 605, the process of the server providing the parking location of the vehicle corresponding to the information about the stored package to the control terminal is added to this embodiment. The server may obtain, through query, the parking location of the vehicle corresponding to the information about the stored package. Therefore, this can take advantage of operational resources and system resources of the server side, and improve the speed of obtaining the parking location of the vehicle corresponding to the stored package.

[194] Method embodiment 6

[195] Referring to FIG. 7, FIG. 7 shows a step flowchart of Embodiment 6 of a logistics distribution method according to this application. The method may specifically include the following steps:

[196] Step 701. A server obtains a logistics distribution request corresponding to a package, where the logistics distribution request may specifically include: vehicle information and parking lot information.

[197] It should be noted that, the logistics distribution request may further include: user information, such as contact information of a package receiver. This embodiment of this application does not limit the specific information included in the logistics distribution request.

[198] Step 702. The server establishes a first mapping relationship between package information of the package and the parking lot information, to deliver the package to a parking lot matched with the parking lot information corresponding to the package, where a mobile self-pickup device is disposed in the parking lot.

[199] Step 703. The control terminal sends a second open instruction to the mobile self-pickup device, to store the package to the mobile self-pickup device.

[200] Step 704. The control terminal sends information about the stored package to the server.

[201] Step 705. After receiving the information about the stored package, the server establishes, according to the vehicle information carried in the logistics distribution request corresponding to the package, a second mapping relationship between the information about the stored package and the vehicle information.

[202] Step 706. An Internet of vehicles system in the parking lot positions a parking location of a vehicle, and pushes real-time vehicle information and the corresponding parking location to the server.

[203] Step 707. After receiving the real-time vehicle information and the corresponding parking location from the Internet of vehicles system, the server matches the real-time vehicle information with the vehicle information in the second mapping relationship, and if the matching is successful, uses the parking location corresponding to the real-time vehicle information as a parking location corresponding to the information about the stored package.

[204] Step 708. The server sends the parking location corresponding to the information about the stored package to the control terminal.

[205] Step 709. After receiving the parking location corresponding to the information about the stored package, the control terminal sends a first move instruction to the mobile self-pickup device in the parking lot, to cause the mobile self-pickup device to move to the parking location of the vehicle corresponding to the stored package.

[206] Step 710. The control terminal sends a location report to the server after the mobile self-pickup device moves to the parking location of the vehicle corresponding to the stored package.

[207] Step 711. The server generates verification information after receiving the location report sent by the control terminal, and sends the verification information to the client.

[208] Step 712. The client sends a pick-up request to the control terminal after receiving the verification information, where the pick-up request may carry at least one of the verification information, user information, and location information.

[209] Step 713. The control terminal verifies the pick-up request, and sends a first open instruction to the mobile self-pickup device after the pick-up request is verified successfully, to pick up the stored package from the mobile self-pickup device.

[210] Step 714. The control terminal sends a state report to the server after the stored package in the mobile self-pickup device is picked up, where the state report is used to notify the server that the package has been signed for acceptance.

[211] Step 715. After the stored package in the mobile self-pickup device is picked up, the control terminal sends a second move instruction to the mobile self-pickup device, to cause

the mobile self-pickup device to move to a preset location in the parking lot.

[212] To make persons skilled in the art better understand this application, an application scenario of a logistics distribution solution of this application is provided herein.

[213] In the application scenario, the user may submit a reservation request for implementing a mobile self-pickup vehicle function of this application to the client. The reservation request may carry a distribution time (which may be specifically one day, and a time period of one day) of a package, and location information (such as a parking lot name and GPS information) of the vehicle of the user. In this embodiment of this application, the package may be delivered, through controlling according to the distribution time, to a preset area corresponding to the location information of the vehicle of the user, the package may be loaded to a mobile self-pickup device disposed in the preset area, and the package may be delivered to the nearby of the location information (that is, the nearby of a parking location of the vehicle of the user) by using the mobile self-pickup device.

[214] Further, after the mobile self-pickup device arrives at the nearby of the parking location of the vehicle of the user, an arrival notification may be sent to the user. The arrival notification may carry stay duration information of the mobile self-pickup device, to prompt the user to pick up goods in duration corresponding to the stay duration information. After receiving the arrival notification, the user may send a pick-up request to a control terminal corresponding to the mobile self-pickup device by using the client, to cause the control terminal to verify the pick-up request. Further, after the pick-up request is verified successfully, the control terminal may control the mobile self-pickup device to open the door, so that the user picks up the package from the mobile self-pickup device. It should be noted that, the pick-up request may carry at least one of the verification information, the user information, and the location information. This embodiment of this application does not limit the specific verification process of the pick-up request.

[215] It should be noted that the method embodiments are expressed as a series of action combinations for the purpose of brief description, but persons of ordinary skills in the art should know that because some steps may be performed in other sequences or simultaneously according to the embodiments of this application, the embodiments of this application are not limited to a described action sequence. In addition, persons skilled in the art should also know that the embodiments described in this specification are all preferred embodiments; and therefore, an action involved is not necessarily mandatory in the embodiments of this application.

[216] Terminal embodiment

[217] Referring to FIG. 8, FIG. 8 shows a structural block diagram of a control terminal embodiment according to this application. The terminal may specifically include the following modules:

[218] a first instruction sending module 801, configured to send a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, where preset area information carried in a logistics distribution request corresponding to the stored package matches with information about the preset area, and a distance value between the location area of the vehicle and a parking location of the vehicle is less than a preset threshold; and

[219] a second instruction sending module 802, configured to send an open instruction to the mobile self-pickup device, to pick up the stored package from the mobile self-pickup device.

[220] In an optional embodiment of this application, the control terminal may further include: a determining module, configured to determine the parking location of the vehicle corresponding to the stored package.

[221] The determining module may specifically include:

[222] an obtaining submodule, configured to obtain the parking location of the vehicle corresponding to the stored package from an Internet of vehicles system according to vehicle information carried in the logistics distribution request corresponding to the stored package.

[223] In another optional embodiment of this application, the obtaining submodule may specifically include:

[224] a search unit, configured to search, according to the vehicle information carried in the logistics distribution request corresponding to the stored package, a mapping relationship that is between real-time vehicle information and parking locations of vehicles in the preset area and that is recorded in the Internet of vehicles system, to obtain the parking location of the vehicle corresponding to the stored package.

[225] In another optional embodiment of this application, the control terminal may further include: a determining module, configured to determine the parking location of the vehicle corresponding to the stored package.

[226] The determining module may specifically include:

[227] a first sending submodule, configured to send information about the stored package to a server, to cause the server to obtain the parking location of the vehicle corresponding to the stored package by using an Internet of vehicles system and according to the information about the stored package; and

[228] a first receiving submodule, configured to receive the parking location that is of the

vehicle corresponding to the stored package and that is sent by the server.

[229] In another optional embodiment of this application, the control terminal may further include:

[230] a request receiving module, configured to receive a pick-up request from a client or a user before the second instruction sending module sends the first open instruction to the mobile self-pickup device, where the pick-up request may carry at least one of verification information, user information, and location information; and

[231] a verification module, configured to verify the pick-up request.

[232] The second instruction sending module 802 may specifically include:

[233] an instruction sending submodule, configured to send a first open instruction to the mobile self-pickup device after the pick-up request is verified successfully, to pick up the stored package from the mobile self-pickup device.

[234] In an optional embodiment of this application, the control terminal may further include:

[235] a report sending module, configured to send a location report to the server when the mobile self-pickup device moves to the parking location of the vehicle corresponding to the stored package, to cause the server to send a distribution notification to a corresponding client according to the location report.

[236] In another optional embodiment of this application, the control terminal may further include:

[237] a third instruction sending module, configured to send a second move instruction to the mobile self-pickup device after the stored package in the mobile self-pickup device is picked up, to cause the mobile self-pickup device to move to a preset location in the preset area.

[238] Server embodiment

[239] Referring to FIG. 9, FIG. 9 shows a structural block diagram of a server embodiment according to this application. The server may specifically include the following modules:

[240] an obtaining module 901, configured to obtain a logistics distribution request corresponding to a package, where the logistics distribution request may carry preset area information; and

[241] a first establishing module 902, configured to establish a first mapping relationship between package information of the package and the preset area information, to deliver the package to a preset area matched with the preset area information corresponding to the package, where a mobile self-pickup device is disposed in the preset area.

[242] In an optional embodiment of this application, the logistics distribution request may further carry vehicle information, and the server may further include:

[243] a first receiving module, configured to receive information that is about a stored package and that is sent by a control terminal;

[244] a second establishing module, configured to establish, according to the vehicle information carried in the logistics distribution request corresponding to the package, a second mapping relationship between the information about the stored package and the vehicle information;

[245] a second receiving module, configured to receive real-time vehicle information and a corresponding parking location from an Internet of vehicles system;

[246] a matching module, configured to match the real-time vehicle information with the vehicle information in the second mapping relationship;

[247] a determining module, configured to: when the matching is successful, use the parking location corresponding to the real-time vehicle information as a parking location of a vehicle corresponding to the information about the stored package; and

[248] a first sending module, configured to send the parking location of the vehicle corresponding to the information about the stored package to the control terminal.

[249] In another optional embodiment of this application, the logistics distribution request may further carry vehicle information, and the server may further include:

[250] a third receiving module, configured to receive information that is about a stored package and that is sent by a control terminal;

[251] a search module, configured to search, according to the vehicle information corresponding to the information about the stored package, a mapping relationship that is between real-time vehicle information and parking locations of vehicles in a preset area and that is recorded in an Internet of vehicles system, to obtain a parking location of a vehicle corresponding to the stored package; and

[252] send the parking location of the vehicle corresponding to the information about the stored package to the control terminal.

[253] In another optional embodiment of this application, the server may further include:

[254] a fourth receiving module, configured to receive a location report sent by the control terminal; and

[255] a second sending module, configured to send a pick-up notification to a corresponding client according to the location report.

[256] System embodiment

[257] Referring to FIG. 10, FIG. 10 shows a structural block diagram of a logistics distribution system embodiment according to this application. The system may specifically

include: at least one control terminal 1001 and at least one server 1002.

[258] The control terminal 1001 may specifically include:

[259] a first instruction sending module 1011, configured to send a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, where preset area information carried in a logistics distribution request corresponding to the stored package matches with information about the preset area, and a distance value between the location area of the vehicle and a parking location of the vehicle is less than a preset threshold; and

[260] a second instruction sending module 1012, configured to send an open instruction to the mobile self-pickup device, to pick up the stored package from the mobile self-pickup device.

[261] The server 1002 may specifically include:

[262] an obtaining module 1021, configured to obtain a logistics distribution request corresponding to a package, where the logistics distribution request may carry preset area information; and

[263] a first establishing module 1022, configured to establish a first mapping relationship between package information of the package and the preset area information, to deliver the package to a preset area matched with the preset area information corresponding to the package, where a mobile self-pickup device is disposed in the preset area.

[264] The control terminal, server, and logistics distribution system embodiments are substantially similar to the method embodiments and therefore are only briefly described, and reference may be made to the method embodiments for the associated parts.

[265] Smart terminal embodiment

[266] Referring to FIG. 11, FIG. 11 shows a structural block diagram of a smart terminal embodiment according to this application. The smart terminal may specifically include: at least one memory 1101, a display 1102, at least one processor 1103, and at least one input unit 1104.

[267] The input unit 1104 may be configured to receive number or character information and a control signal input by a user. Specifically, in this embodiment of this application, the input unit 1104 may include a touch screen 1141, may collect a touch operation of a user on or near the touch screen 1141 (such as an operation of a user on or near the touch screen 1141 by using any suitable object or attachment, such as a finger or a touch pen), and drive a corresponding connection apparatus according to a preset program. Certainly, in addition to the touch screen 1141, the input unit 1104 may further include another input device, such as a

physical keyboard, a functional key (such as a volume control key or a switch key), or a mouse.

[268] The display 1102 may include a display panel. Optionally, the display panel may be configured in a form of a liquid crystal display (LCD), an organic light-emitting diode (OLED), or the like. The touch screen 1141 may cover the display panel, to form a touch display screen. After detecting a touch operation on or near the touch display screen, the touch operation is transferred to the processor 1103 for performing corresponding processing.

[269] In this embodiment of this application, by invoking a program and/or a module and/or data stored in the memory 1101, the processor 1103 sends a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, where preset area information carried in a logistics distribution request corresponding to the stored package matches with information about the preset area, and a distance value between the location area of the vehicle and a parking location of the vehicle is less than a preset threshold; and sends an open instruction to the mobile self-pickup device, to pick up the stored package from the mobile self-pickup device.

[270] It should be noted that the embodiments in this specification are all described in a progressive manner. Description of each of the embodiments focuses on differences from other embodiments, and reference may be made to each other for the same or similar parts among respective embodiments.

[271] A person skilled in the art should understand that the embodiments of this application may be provided as a method, an apparatus, or a computer program product. Therefore, the embodiments of this application may take the form of entire hardware embodiments, entire software embodiments, or embodiments combining software and hardware. Moreover, the embodiments of the present invention may use a form of a computer program product that is implemented on one or more computer-usable storage media (including but not limited to a disk memory, a CD-ROM, an optical memory, and the like) that include computer-usable program code.

[272] In a typical configuration, the computer device includes one or more processors (CPUs), an input/output interface, a network interface, and a memory. The memory may include forms such as a non-persistent memory in a computer readable medium, a random access memory (RAM), and/or a non-volatile memory, such as a read-only memory (ROM) or a flash memory (flash RAM). The memory is an example of the computer readable medium. The computer readable medium includes persistent and non-persistent, removable and

non-removable media, which may store information by using any method or technology. The information may be a computer readable instruction, a data structure, a program module, or other data. The example of the computer storage medium includes, but not limited to a phase change memory (PRAM), a static random access memory (SRAM), a dynamic random access memory (DRAM), other types of random access memory (RAM), a read-only memory ROM, an electrically erasable programmable read-only memory (EEPROM), a flash memory or other memory technologies, a compact disc read-only memory (CD-ROM), a digital versatile disc (DVD) or other optical storages, a cassette, a tape or disk storage or other magnetic storage devices, or any other non-transport media, which may be configured to store information that may be accessed by a computing device. According to the definitions in this specification, the computer readable medium does not include transitory computer readable media (transitory media), such as a modulated data signal and carrier.

[273] The embodiments of this application is described with reference to flowcharts and/or block diagrams of the method, the terminal device (the system), and the computer program product in the embodiments of this application. It should be understood that computer program instructions may be used to implement each process and/or each block in the flowcharts and/or the block diagrams and a combination of a process and/or a block in the flowcharts and/or the block diagrams. These computer program instructions may be provided for a general-purpose computer, a dedicated computer, an embedded processor, or a processor of any other programmable data processing terminal device to generate a machine, so that the instructions executed by a computer or a processor of any other programmable data processing terminal device generate an apparatus for implementing a specific function in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams.

[274] These computer program instructions may further be stored in a computer readable memory that can instruct the computer or any other programmable data processing terminal device to work in a specific manner, so that the instructions stored in the computer readable memory generate an artifact that includes an instruction apparatus. The instruction apparatus implements a specified function in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams.

[275] These computer program instructions may further be loaded onto a computer or another programmable data processing terminal device, so that a series of operations and steps are performed on the computer or the another programmable terminal device, thereby generating computer-implemented processing. Therefore, the instructions executed on the computer or the another programmable terminal device provide steps for implementing a specific function

in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams.

[276] Although preferable embodiments of the embodiments of this application have been described, once persons skilled in the technology know a basic creative concept, they can make other changes and modifications to these embodiments. Therefore, the following claims are intended to cover the preferred embodiments and all changes and modifications falling within the scope of the embodiments of this application.

[277] Finally, it should be noted that the relational terms herein such as first and second are used only to differentiate an entity or operation from another entity or operation, and do not require or imply any actual relationship or sequence between these entities or operations. Moreover, the terms "include", "comprise", and any variants thereof herein are intended to cover a non-exclusive inclusion. Therefore, in the context of a process, method, object, or terminal device that includes a series of elements, the process, method, object, or terminal device not only includes such elements, but also includes other elements not specified expressly, or may include inherent elements of the process, method, object, or terminal device. Unless otherwise specified, an element limited by "include a/an..." does not exclude other same elements existing in the process, the method, the article, or the terminal device that includes the element.

[278] A logistics distribution method, a control terminal, a server, a logistics distribution system, and a smart terminal provided by this application are described in detail above. The principle and implementations of this application are described herein through specific examples. The description about the embodiments of this application is merely provided for ease of understanding of the method and core ideas of the present invention. Meanwhile, persons of ordinary skill in the art can make variations to the present invention in terms of the specific implementations and application scopes according to the ideas of this application. Therefore, the content of the specification shall not be construed as a limitation to this application.

CLAIMS

1. A logistics distribution method, comprising:

sending a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, wherein preset area information carried in a logistics distribution request corresponding to the stored package matches with information about the preset area;

based on a determination that the mobile self-pickup device arrives at the location area of the vehicle corresponding to the stored package, causing a server to send a distribution notice to a client;

determining a parking location of the vehicle corresponding to the stored package;

receiving a pick-up request from the client, wherein the pick-up request carries at least one of verification information, user information, and location information;

verifying the pick-up request; and

after the pick-up request is verified successfully, sending an open instruction to the mobile self-pickup device, for the stored package to be picked up from the mobile self-pickup device.

2. The method according to claim 1, wherein a distance value between the location area of the vehicle and the parking location of the vehicle is less than a preset threshold and wherein the determining the parking location of the vehicle corresponding to the stored package uses the following step:

obtaining the parking location of the vehicle corresponding to the stored package from an Internet of vehicles system according to vehicle information carried in the logistics distribution request corresponding to the stored package.

3. The method according to claim 2, wherein the step of obtaining the parking location of the vehicle corresponding to the stored package from an Internet of vehicles system comprises:

searching, according to the vehicle information carried in the logistics distribution request corresponding to the stored package, a mapping relationship that is between

real-time vehicle information and parking locations of vehicles in the preset area and that is recorded in the Internet of vehicles system, to obtain the parking location of the vehicle corresponding to the stored package.

4. The method according to claim 1, wherein a distance value between the location area of the vehicle and the parking location of the vehicle is less than a preset threshold, and wherein the determining the parking location of the vehicle corresponding to the stored package uses the following steps:

sending information about the stored package to a server, to cause the server to obtain the parking location of the vehicle corresponding to the stored package by using an Internet of vehicles system and according to the information about the stored package; and

receiving the parking location that is of the vehicle corresponding to the stored package and that is sent by the server.

5. The method according to claim 1, wherein the method further comprises: sending a location report to a server when the mobile self-pickup device moves to the parking location of the vehicle corresponding to the stored package, to cause the server to send a pick-up notification to the client according to the location report.

6. The method according to any one of claims 1 to 4, wherein the method further comprises:

sending a second move instruction to the mobile self-pickup device after the stored package in the mobile self-pickup device is picked up, to cause the mobile self-pickup device to move to a preset location in the preset area.

7. A logistics distribution method, comprising:

obtaining a logistics distribution request corresponding to a package,

wherein the logistics distribution request carries preset area information and vehicle information of a vehicle, wherein the vehicle corresponds to the package; and establishing a first mapping relationship between package information of the package and the preset area information, to deliver the package to a preset area matched with the preset area information corresponding to the package, wherein a mobile self-pickup device is disposed in the preset area;

based on a determination that the mobile self-pickup device arrives at a location area of the vehicle corresponding to the package stored in the mobile self-pickup device, sending a distribution notice to a client;

wherein the client sends a pick-up request after a parking location of the vehicle corresponding to information about the stored package is determined, and wherein the pick-up request carries at least one of verification information, user information, and location information, the pick-up request is verified, and after the pick-up request is verified successfully, an open instruction is sent to the mobile self-pickup device for the stored package to be picked up from the mobile self-pickup device.

8. The method according to claim 7, wherein the method further comprises: receiving the information that is about the stored package and that is sent by a control terminal;

establishing, according to the vehicle information carried in the logistics distribution request corresponding to the package, a second mapping relationship between the information about the stored package and the vehicle information;

receiving real-time vehicle information and a corresponding parking location from an Internet of vehicles system;

matching the real-time vehicle information with the vehicle information in the second mapping relationship;

when the matching is successful, using the parking location corresponding to the real-time vehicle information as the parking location of a vehicle corresponding to the information about the stored package; and

sending the parking location of the vehicle corresponding to the information

about the stored package to the control terminal.

9. The method according to claim 7, wherein the logistics distribution request further carries vehicle information, and the method further comprises:

receiving the information that is about the stored package and that is sent by the control terminal;

searching, according to the vehicle information corresponding to the information about the stored package, a mapping relationship that is between real-time vehicle information and parking locations of vehicles in a preset area and that is recorded in an Internet of vehicles system, to obtain the parking location of the vehicle corresponding to the stored package; and

sending the parking location of the vehicle corresponding to the information about the stored package to the control terminal.

10. The method according to any one of claims 7 to 9, wherein the method further comprises:

receiving a location report sent by the control terminal; and

sending a pick-up notification to a corresponding client according to the location report.

11. A control terminal, comprising:

a first instruction sending module, configured to send a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, wherein preset area information carried in a logistics distribution request corresponding to the stored package matches with information about the preset area;

a second instruction sending module, configured to cause a server to send a distribution notice to a client based on a determination that the mobile self-pickup device arrives at the location area of the vehicle corresponding to the stored package;

a determining module, configured to determine a parking location of the vehicle corresponding to the stored package;

a request receiving module, configured to receive a pick-up request from the client, wherein the pick-up request carries at least one of verification information, user information, and location information;

a verification module, configured to verify the pick-up request; and

after the pick-up request is verified successfully, an instruction sending submodule, configured to send an open instruction to the mobile self-pickup device, for the stored package to be picked up from the mobile self-pickup device, wherein the second instruction sending module comprises the instruction sending submodule.

12. The control terminal according to claim 11, wherein a distance value between the location area of the vehicle and the parking location of the vehicle is less than a preset threshold, and wherein the determining module comprises:

an obtaining submodule, configured to obtain the parking location of the vehicle corresponding to the stored package from an Internet of vehicles system according to vehicle information carried in the logistics distribution request corresponding to the stored package.

13. The control terminal according to claim 12, wherein the obtaining submodule comprises:

a search unit, configured to search, according to the vehicle information carried in the

logistics distribution request corresponding to the stored package, a mapping relationship that is between real-time vehicle information and parking locations of vehicles in the preset area and that is recorded in the Internet of vehicles system, to obtain the parking location of the vehicle corresponding to the stored package.

14. The control terminal according to claim 11, wherein a distance value between the location area of the vehicle and the parking location of the

vehicle is less than a preset threshold, and wherein

the determining module comprises:

a first sending submodule, configured to send information about the stored package to a server, to cause the server to obtain the parking location of the vehicle corresponding to the stored package by using an Internet of vehicles system and according to the information about the stored package; and

a first receiving submodule, configured to receive the parking location that is of the vehicle corresponding to the stored package and that is sent by the server.

15. The control terminal according to claim 12, wherein the control terminal comprises:

a report sending module, configured to send a location report to a server when the

mobile self-pickup device moves to the parking location of the vehicle corresponding to

the stored package, to cause the server to send a pick-up notification to the client according to the location report.

16. The control terminal according to any one of claims 11 to 14, wherein the

control terminal further comprises:

a third instruction sending module, configured to send a second move instruction to the mobile self-pickup device after the stored package in the mobile self-pickup device is picked up, to cause the mobile self-pickup device to move to a preset location in the preset area.

17. A server, comprising:

an obtaining module, configured to obtain a logistics distribution request corresponding to a package, wherein the logistics distribution request carries preset area information and vehicle information of a vehicle, wherein the vehicle corresponds to the package; and

a first establishing module, configured to establish a first mapping relationship between package information of the package and the preset area

information, to deliver the package to a preset area matched with the preset area information corresponding to the package, wherein at least one mobile self-pickup device is disposed in the preset area, and based on a determination that the mobile self-pickup device arrives at a location area of the vehicle corresponding to the package stored in the mobile self-pickup device, to send a distribution notice to a client;

wherein the client sends a pick-up request after a parking location of the vehicle corresponding to information about the stored package is determined, wherein the pick-up request carries at least one of verification information, user information, and location information, the pick-up request is verified, and after the pick-up request is verified successfully, an open instruction is sent to the mobile self-pickup device for the stored package to be picked up from the mobile self-pickup device.

18. The server according to claim 17, wherein the server further comprises:

a first receiving module, configured to receive the information that is about the stored package and that is sent by a control terminal;

a second establishing module, configured to establish, according to the vehicle information carried in the logistics distribution request corresponding to the package, a second mapping relationship between the information about the stored package and the vehicle information;

a second receiving module, configured to receive real-time vehicle information and a corresponding parking location from an Internet of vehicles system;

a matching module, configured to match the real-time vehicle information with the vehicle information in the second mapping relationship;

a determining module, configured to: when the matching is successful, use the parking location corresponding to the real-time vehicle information as the parking location of a vehicle corresponding to the information about the stored package; and

a first sending module, configured to send the parking location of the vehicle corresponding to the information about the stored package to the control terminal.

19. The server according to claim 17, wherein the logistics distribution request further carries vehicle information, and the server further comprises:

a third receiving module, configured to receive the information that is about the stored package and that is sent by a control terminal;

a search module, configured to search, according to the vehicle information corresponding to the information about the stored package, a mapping relationship that is between real-time vehicle information and parking locations of vehicles in a preset area and that is recorded in an Internet of vehicles system, to obtain the parking location of the vehicle corresponding to the stored package; and

send the parking location of the vehicle corresponding to the information about the stored package to the control terminal.

20. The server according to any one of claims 17 to 19, wherein the server further comprises:

a fourth receiving module, configured to receive a location report sent by the control terminal; and

a second sending module, configured to send a pick-up notification to a corresponding client according to the location report.

21. A logistics distribution system, comprising: at least one control terminal and at least one server, wherein the control terminal comprises:

a first instruction sending module, configured to send a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, wherein at least one mobile self-pickup device is disposed in the preset area, preset area information carried in a logistics distribution request corresponding to the stored package matches with information about the preset area;

a second instruction sending module, configured to cause the server to send a distribution notice to a client based on a determination that the mobile self-pickup device arrives at the location area of the vehicle corresponding to the stored package;

a determining module, configured to determine a parking location of the vehicle corresponding to the stored package;

a request receiving module, configured to receive a pick-up request from the client, wherein the pick-up request carries at least one of verification information, user information, and location information;

a verification module, configured to verify the pick-up request; and

after the pick-up request is verified successfully, an instruction sending submodule, configured to send an open instruction to the mobile self-pickup device, for the stored package to be picked up from the mobile self-pickup device, wherein the second instruction sending module comprises the instruction sending submodule; and

the server comprises:

an obtaining module, configured to obtain a logistics distribution request corresponding to a package, wherein the logistics distribution request carries preset area information and vehicle information of the vehicle corresponding to the package; and

a first establishing module, configured to establish a first mapping relationship between package information of the package and the preset area information, to deliver the package to a preset area matched with the preset area information corresponding to the package, wherein at least one mobile self-pickup device is disposed in the preset area.

22. A smart terminal, comprising a memory and one or more programs, wherein the one or more programs are stored in the memory, and are configured to be executed by one or more processors, and the one or more programs comprise instructions for performing the following operations:

sending a first move instruction to a mobile self-pickup device in a preset area, to cause the mobile self-pickup device to move to a location area of a vehicle corresponding to a stored package, wherein preset area information carried in a logistics distribution request corresponding to the stored package matches with information about the preset area;

based on a determination that the mobile self-pickup device arrives at the location area of the vehicle corresponding to the stored package, causing a server to send a distribution notice to a client;

determining a parking location of the vehicle corresponding to the stored package;

receiving a pick-up request from the client, wherein the pick-up request carries at least one of verification information, user information, and location information;

verifying the pick-up request; and

after the pick-up request is verified successfully, sending an open instruction to the mobile self-pickup device, for the stored package to be picked up from the mobile self-pickup device.