

CLAIMS

1. A picking and dispatching system, comprising: a control center, a plurality of terminals each carried by a user, and a plurality of handling devices, wherein

the control center is configured to determine an item storage space of each to-be-picked item
5 comprised in a respective to-be-picked order, and plan, for the item storage space, paths for each user and each handling device to reach the item storage space according to a start location of each terminal and a start location of each handling device, respectively;

the control center is configured to determine, according to a stored assignment result of the to-be-picked orders, a to-be-picked order that has been assigned to a handling device;

10 the control center is configured to match, according to each planned path and the to-be-picked order that has been assigned, a user and a handling device for picking from the item storage space, to determine a plurality of to-be-selected tasks, and determine a moment at which a user and a handling device involved in each to-be-selected task cooperate to pick from the item storage space;

the control center is configured to determine a target task from the plurality of to-be-selected tasks
15 according to a determined picking moment sequence of the plurality of to-be-selected tasks, and send the target task to a terminal carried by a user that performs the target task and a handling device that performs the target task;

the control center is configured to assign, according to the target task sent to the handling device, a to-be-picked order including a to-be-picked item of the target task to the handling device, and update
20 the stored assignment result of the to-be-picked orders;

each terminal is configured to monitor its own location, send the location to the control center, receive the target task sent by the control center, and prompt the user to perform the target task; and

each handling device is configured to monitor its own location, send the location to the control center, and travel to an item storage space for picking according to the received target task;

25 wherein after sending the target task to a terminal carried by a user that performs the target task and a handling device that performs the target task, the control center is configured to store start locations of the terminal and the handling device according to a location of the item storage space of the target task;

wherein the control center is configured to:

30 obtain, for each terminal, a current location of the terminal as a start location of the terminal when

the terminal has no to-be-performed target task, and obtain the stored start location of the terminal when the terminal has a to-be-performed target task; and

obtain, for each handling device, a current location of the handling device as a start location of the handling device when the handling device has no to-be-performed target task, and obtain the stored
5 start location of the handling device when the handling device has a to-be-performed target task.

2. The system according to claim 1, wherein the control center is configured to:

determine, for an item storage space, a to-be-picked order including a to-be-picked item to be
picked from the item storage space;

match, when the to-be-picked order is assigned to a handling device, a user and the handling
10 device for picking from the item storage space according to a path for the handling device to reach the item storage space and a path for each user to reach the item storage space to determine the plurality of to-be-selected tasks; and

match, when the to-be-picked order is not assigned to any handling device, a user and a handling
device for picking from the item storage space according to planned paths for each handling device and
15 each terminal to determine the plurality of to-be-selected tasks.

3. The system according to any one of claims 1 to 2, wherein the control center is configured to:

determine, for each to-be-selected task, according to paths corresponding to a user and a handling
device involved in the to-be-selected task, a user travel time and a handling device travel time;

determine a user arrival moment according to the user travel time and a moment at which the user
20 departs from the start location of the terminal;

determine a handling device arrival moment according to the handling device travel time and a
moment at which the handling device departs from the start location; and

determine, according to the user arrival moment and the handling device arrival moment, a
moment at which the user and the handling device cooperate to pick from the item storage space.

25 4. The system according to claim 3, wherein the control center is configured to:

determine, for each terminal, a current moment as a moment at which a user departs from a start
location of the terminal when the terminal has no to-be-performed target task, and determine, when
the terminal has a to-be-performed target task, a moment at which the to-be-performed target task of
the terminal is completed as the moment at which the user departs from the start location of the terminal;

30 and

determine, for each handling device, a current moment as a moment at which the handling device

departs from a start location when the handling device has no to-be-performed target task, and determine, when the handling device has a to-be-performed target task, a moment at which the to-be-performed target task of the handling device is completed as the moment at which the handling device departs from the start location.

5 5. The system according to any one of claims 1 to 4, wherein the control center is configured to determine, for each handling device, remaining storage space of the handling device according to a to-be-picked order assigned to the handling device; and skip assigning, when the remaining storage space of the handling device is less than storage space required by an unassigned to-be-picked order, a target task corresponding to the unassigned to-be-picked order to the handling device.

10 6. The system according to any one of claims 1 to 5, wherein when reaching the item storage space, the terminal or the handling device determines that the picking is completed according to a monitored user operation, and sends information that the target task is completed to the control center; and

 the control center is configured to update the to-be-picked items according to the received
15 information that the target task is completed.

 7. The system according to any one of claims 1 to 6, further comprising: a positioning base station, wherein

 the positioning base station is configured to communicate with each terminal, determine a location of each terminal, and send the determined location of each terminal to the control center.

20 8. The system according to any one of claims 1 to 7, wherein each handling device is configured to determine its own location according to acquired environment information, and send the location to the control center.

 9. A picking and dispatching method, comprising:

 determining an item storage space of each to-be-picked item comprised in a respective to-be-
25 picked orders;

 planning, for the item storage space, paths for each user and each handling device to reach the item storage space according to a start location of each terminal and a start location of each handling device, respectively;

 determining, according to a stored assignment result of the to-be-picked orders, a to-be-picked
30 order that has been assigned to a handling device;

 matching, according to each planned path and the to-be-picked order that has been assigned, a

user and a handling device for picking from the item storage space, to determine a plurality of to-be-selected tasks, and determining a moment at which a user and a handling device involved in each to-be-selected task cooperate to pick from the item storage space; and

determining a target task from the plurality of to-be-selected tasks according to a determined picking moment sequence of the plurality of to-be-selected tasks, and sending the target task to a terminal carried by a user that performs the target task and a handling device that performs the target task, to allow the user and the handling device to perform the target task, assigning a to-be-picked order including a to-be-picked item of the target task to the handling device, and updating the stored assignment result of the to-be-picked orders;

The method further comprising:

storing, after sending the target task to a terminal carried by a user that performs the target task and a handling device that performs the target task, start locations of the terminal and the handling device according to a location of the item storage space of the target task;

wherein before planning paths for each user and each handling device to reach the item storage space according to the start location of each terminal and the start location of each handling device, respectively, the method further comprises:

determining the start location of each terminal and the start location of each handling device;

wherein the determining the start location of each terminal and the start location of each handling device comprises:

obtaining, for each terminal, a current location of the terminal as a start location of the terminal when the terminal has no to-be-performed target task, and obtaining the stored start location of the terminal when the terminal has a to-be-performed target task; and

obtaining, for each handling device, a current location of the handling device as a start location of the handling device when the handling device has no to-be-performed target task, and obtaining the stored start location of the handling device when the handling device has a to-be-performed target task.

10. The method according to claim 9, wherein the matching, according to each planned path and the to-be-picked order that has been assigned, the user and the handling device for picking from the item storage space, to determine the plurality of to-be-selected tasks comprises:

determining, for an item storage space, a to-be-picked order including a to-be-picked item to be picked from the item storage space;

matching, when the to-be-picked order is assigned to a handling device, a user and the handling

device for picking from the item storage space according to a path for the handling device to reach the item storage space and a path for each user to reach the item storage space to determine the plurality of to-be-selected tasks; and

5 matching, when the to-be-picked order is not assigned to any handling device, a user and a handling device for picking from the item storage space according to planned paths for each handling device and each terminal to determine the plurality of to-be-selected tasks.

11. The method according to any one of claims 9 to 10, wherein the determining a moment at which a user and a handling device involved in each to-be-selected task cooperate to pick from the item storage space comprises:

10 determining, for each to-be-selected task, according to paths corresponding to a user and a handling device involved in the to-be-selected task, a user travel time and a handling device travel time;

determining a user arrival moment according to the user travel time and a moment at which the user departs from the start location of the terminal;

15 determining a handling device arrival moment according to the handling device travel time and a moment at which the handling device departs from the start location; and

determining, according to the user arrival moment and the handling device arrival moment, a moment at which the user and the handling device cooperate to pick from the item storage space.

12. The method according to claim 11, wherein determining a moment at which the user departs from the start location of the terminal comprises:

20 determining, for each terminal, a current moment as a moment at which a user departs from a start location of the terminal when the terminal has no to-be-performed target task, and determining, when the terminal has a to-be-performed target task, a moment at which the to-be-performed target task of the terminal is completed as the moment at which the user departs from the start location of the terminal.

13. The method according to claim 11 or 12, wherein determining a moment at which the handling device departs from the start location comprises:

determining, for each handling device, a current moment as a moment at which the handling device departs from a start location when the handling device has no to-be-performed target task, and
30 determining, when the handling device has a to-be-performed target task, a moment at which the to-be-performed target task of the handling device is completed as the moment at which the handling

device departs from the start location.

14. The method according to any one of claims 9 to 13, further comprising:

determining, for each handling device, remaining storage space of the handling device according to a to-be-picked order assigned to the handling device; and

5 skipping assigning, when the remaining storage space of the handling device is less than storage space required by an unassigned to-be-picked order, a target task corresponding to the unassigned to-be-picked order to the handling device.

15. A non-transitory computer-readable storage medium having stored therein executable instructions that, when loaded and executed by a processor, causes the processor to implement a picking and dispatching method, comprising:

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determining an item storage space of each to-be-picked item comprised in a respective to-be-picked order;

planning, for the item storage space, paths for each user and each handling device to reach the item storage space according to a start location of each terminal and a start location of each handling device, respectively;

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determining, according to a stored assignment result of the to-be-picked orders, a to-be-picked order that has been assigned to a handling device;

matching, according to each planned path and the to-be-picked order that has been assigned, a user and a handling device for picking from the item storage space, to determine a plurality of to-be-selected tasks, and determining a moment at which a user and a handling device involved in each to-be-selected task cooperate to pick from the item storage space; and

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determining a target task from the plurality of to-be-selected tasks according to a determined picking moment sequence of the plurality of to-be-selected tasks, and sending the target task to a terminal carried by a user that performs the target task and a handling device that performs the target task, to allow the user and the handling device to perform the target task, assigning a to-be-picked order including a to-be-picked item of the target task to the handling device, and updating the stored assignment result of the to-be-picked orders;

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wherein after sending the target task to a terminal carried by a user that performs the target task and a handling device that performs the target task, the task assignment module is configured to store start locations of the terminal and the handling device according to a location of the item storage space of the target task;

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wherein the path planning module is configured to obtain, for each terminal, a current location of the terminal as a start location of the terminal when the terminal has no to-be-performed target task, and obtain the stored start location of the terminal when the terminal has a to-be-performed target task; and

- 5 obtain, for each handling device, a current location of the handling device as a start location of the handling device when the handling device has no to-be-performed target task, and obtain the stored start location of the handling device when the handling device has a to-be-performed target task.