Claims

1. A robot-based warehouse order picking method, wherein a robot has an interaction terminal and drives a circulation box to move, and the method comprises:

acquiring box body identity information of the circulation box and binding the circulation box and the robot based on the acquired box body identity information, wherein the circulation box comprises multiple circulation positions, a tag and a goods placement mark are correspondingly arranged at each of the multiple circulation positions, the goods placement mark comprises a serial number and a distinct mark corresponding to the serial number, the distinct mark is pattern, shape or combination of pattern, color and shape, and the box body identity information comprises information of the tag and information of the goods placement mark;

acquiring warehouse order information and associating the warehouse order information with the box body identity information to obtain order binding information; and

controlling, according to the order binding information, the interaction terminal of the robot to display an interaction interface comprising the information of the goods placement mark to instruct a picker to pick goods at a corresponding goods position and place the goods at the circulation position according to the goods placement mark, wherein controlling, according to the order binding information, the interaction terminal of the robot to display the interaction interface comprising the information of the goods placement mark to instruct the picker to pick goods at the corresponding goods position and place the goods at the circulation position according to the goods placement mark comprises: controlling, according to the order binding information, the interaction terminal of the robot to display a picking instruction interaction interface comprising goods position information and goods information to instruct the picker to pick the corresponding goods at the corresponding goods position; acquiring identification information of the corresponding goods and compare the identification information of the corresponding goods with identification information of ordered goods; and in a case where the identification information of the corresponding goods is consistent with the identification information of the ordered goods, switching the picking instruction interaction interface to a placement instruction interaction interface comprising the information of the goods placement mark to instruct the picker to place the corresponding goods at the circulation position at which the displayed goods placement mark is arranged;

wherein after acquiring the identification information of the corresponding goods and comparing the identification information of the corresponding goods with the identification information of the ordered goods, the method further comprises:

in a case where the identification information of the corresponding goods is inconsistent with the identification information of the ordered goods, switching the picking instruction interaction interface to an abnormal order

prompting interaction interface comprising abnormal order prompting information, wherein switching the picking instruction interaction interface to the abnormal order prompting interaction interface comprising the abnormal order prompting information comprises: generating an abnormal order reporting button used for receiving a touch signal for reporting an abnormal order; and controlling the abnormal order prompting information to be displayed on the reporting button.

2. The method according to claim 1, wherein the identification information of the corresponding goods comprises: barcode information of a barcode of the corresponding goods; and/or, the identification information of the ordered goods comprises: barcode information of a barcode of the ordered goods.

3. The method according to claim 1, wherein there is a mapping relationship between the robot system and the robot and identity information of the robot is able to be accessed and acquired by the robot system, and acquiring box body identity information of the circulation box and binding the circulation box and the robot based on the acquired box body identity information comprises:

acquiring the box body identity information of the circulation box comprising the multiple circulation positions;

binding the box body identity information and the identity information of the robot.

4. The method according to claim 1, wherein there is a corresponding relationship between the tag and the goods placement mark, and acquiring box body identity information of the circulation box and binding the circulation box and the robot based on the acquired box body identity information comprises:

binding information of the circulation box and information of the robot based on the information of the tag and the information of the goods placement mark.

5. The method according to claim 1, wherein the goods placement mark is used to indicate a placement position of the goods; and/or, the tag comprises a two-dimensional code, and each tag is used to uniquely identify one circulation position of the circulation box.

6. The method according to claim 1, wherein the multiple circulation positions are distributed on the box body of the circulation box in a form of a matrix, and a corresponding number of two-dimensional codes are arranged at the multiple circulation positions distributed on the box body of the circulation box in a form of a matrix.

7. The method according to claim 1, wherein acquiring the warehouse order information comprises:

acquiring the warehouse order information reflecting information about goods from a warehouse management system, wherein the information about the goods comprises goods information and goods

position information; and

after acquiring warehouse order information and associating the warehouse order information with the box body identity information to obtain order binding information, the method further comprises:

accessing and acquiring, by the robot system, the order binding information to find by mapping goods positions corresponding to the goods in a logistics warehouse and a corresponding circulation position on the circulation box.

8. The method according to claim 1, wherein switching the picking instruction interaction interface to the placement instruction interaction interface comprising the information of the goods placement mark comprises:

automatically controlling the switching from the picking instruction interaction interface to the placement instruction interaction interface; or

triggering the switching from the picking instruction interaction interface to the placement instruction interaction interface by a pressing on a toggle button controlled to be generated.

9. The method according to claim 1, wherein the abnormal order prompting interaction interface comprises a toggle button for a user to select to switch the interaction interface.

10. A storage medium, storing a computer program, wherein the computer program is executed in a processor to implement the method according to any one of claims 1-9.

11. A robot-based warehouse order picking apparatus, wherein a robot has an interaction terminal and drives a circulation box to move, and the apparatus comprises:

a binding module, configured to acquire box body identity information of the circulation box and bind the circulation box and the robot based on the acquired box body identity information, wherein the circulation box comprises multiple circulation positions, a tag and a goods placement mark are correspondingly arranged at each of the multiple circulation positions, the goods placement mark comprises a serial number and a distinct mark corresponding to the serial number, the distinct mark is pattern, shape or combination of pattern, color and shape, and the box body identity information comprises information of the tag and information of the goods placement mark;

an association module, configured to acquire warehouse order information and associate the warehouse order information with the box body identity information to obtain order binding information; and

an interface interaction module, configured to control, according to the order binding information, the interaction terminal of the robot to display an interaction interface comprising the information of the goods

placement mark to instruct a picker to pick goods at a corresponding goods position and place the goods at the circulation position according to the goods placement mark, wherein the interface interaction module comprises: a picking interface display unit, configured to control, according to the order binding information, the interaction terminal of the robot to display a picking instruction interaction interface comprising goods position information and goods information to instruct the picker to pick the corresponding goods at the corresponding goods position; a comparison unit, configured to acquire identification information of the corresponding goods and compare the identification information of the corresponding goods with identification information of ordered goods; and a display switching unit, configured to, in a case where the identification information of the corresponding goods is consistent with the identification information of the ordered goods, switch the picking instruction interaction interface to a placement instruction interaction interface comprising the information of the goods placement mark to instruct the picker to place the corresponding goods at the circulation position at which the displayed goods placement mark is arranged;

wherein the interface interaction module further comprises:

an abnormal order prompting unit, configured to, in a case where the identification information of the corresponding goods is inconsistent with the identification information of the ordered goods, switch the picking instruction interaction interface to an abnormal order prompting interaction interface comprising abnormal order prompting information, wherein the abnormal order prompting unit comprises: an abnormal order reporting unit, configured to generate an abnormal order reporting button used for receiving a touch signal for reporting an abnormal order; and a display control unit, configured to control the abnormal order prompting information to be displayed on the reporting button.

12. The apparatus according to claim 11, wherein the identification information of the corresponding goods comprises: barcode information of a barcode of the corresponding goods; and/or, the identification information of the ordered goods comprises: barcode information of a barcode of the ordered goods.

13. The apparatus according to claim 11, wherein there is a mapping relationship between a robot system in which the apparatus is deployed and the robot and identity information of the robot is able to be accessed and acquired by the robot system, and the processor, when configured to acquire the box body identity information of the circulation box and bind the circulation box and the robot based on the acquired box body identity information, is configured to execute the computer program to:

acquire the box body identity information of the circulation box comprising the multiple circulation positions;

bind the box body identity information and the identity information of the robot.

14. The apparatus according to claim 11, wherein there is a corresponding relationship between the tag and the goods placement mark, and the processor, when being configured to acquire the box body identity information of the circulation box and bind the circulation box and the robot based on the acquired box body identity information, is configured to execute the computer program to:

bind information of the circulation box and information of the robot based on the information of the tag and the information of the goods placement mark.