

Claims

1. An order picking method, comprising:

acquiring, by a robot, at least one piece of order information from a warehouse management system, wherein each piece of order information comprises information of at least one commodity;

acquiring, by a code scanner provided on the robot, information of at least one storage bin in a circulation box in a code scanning mode, wherein a plurality of storage bins are arranged in the circulation box;

associating, by the robot, the at least one piece of order information with the information of the at least one storage bin, wherein the at least one piece of order information is in one-to-one correspondence with the information of the at least one storage bin; in a case where the number of pieces of order information is greater than the number of the storage bins of the circulation box, multiple pieces of order information of which the number is consistent with the number of the storage bins are selected from the plurality of pieces of order information in a preset sequence and are associated with the information of the storage bins, wherein the preset sequence comprises a time sequence or a user priority sequence; or circulation boxes with different numbers of storage bins are set, and a proper circulation box is selected according to the number of orders;

acquiring, by the robot, position information of all commodities, corresponding to the at least one piece of order information, in a commodity warehouse, wherein the position information comprises a warehouse coordinate;

determining, by the robot, an order picking path according to commodity information and the position information;~~and~~

moving, by the robot, the circulation box in the commodity warehouse according to the order picking path for commodity picking, wherein the robot carries the circulation box to reach, according to the order picking path, the warehouse coordinate corresponding to each commodity to be picked up, and when moving to the warehouse coordinate, the robot sends prompt information for prompting an order picker, waiting beside a commodity shelf, to pick the commodity from a designated position, the designated position of the commodity to be picked up is a position of a shelf where the commodity is located or a position of the commodity, and the prompt information is in at least one of a buzzer whistling form, a voice broadcast form or a light flashing form;

receiving, by the robot, a triggering on an out-of-stock button on a display interface performed by the order picker in a case where a target commodity in the commodity warehouse is out of stock,

and determining, by the robot, at least one piece of order information corresponding to the target commodity out of stock; and

cancelling, by the robot, picking of the at least one order information and sending, by the robot, the at least one order information corresponding to the target commodity out of stock to the warehouse management system.

2. The method according to claim 1, wherein the commodity information comprises a commodity identifier, ~~the position information comprises a warehouse coordinate,~~ and determining, by the robot, the order picking path according to the commodity information and the position information comprises:

searching, by the robot through the warehouse management system, for warehouse coordinates corresponding to all commodity identifiers corresponding to the at least one piece of order information; and

connecting, by the robot, the warehouse coordinates corresponding to all the commodity identifiers in series according to a preset path to obtain the order picking path.

3. The method according to claim 2, wherein the commodity information further comprises the quantity of commodities, and the position information further comprises a shelf coordinate;

moving, by the robot, the circulation box in the commodity warehouse according to the order picking path for commodity picking comprises:

controlling, by the robot, the circulation box to move among different warehouse coordinates in the order picking path;

displaying, by the robot when the circulation box moves to any warehouse coordinate, a commodity identifier, the quantity of commodities and a shelf coordinate corresponding to the warehouse coordinate;

acquiring, by the robot, a commodity identifier of one or more received commodities; and

displaying, by the robot, a corresponding relation between the commodity identifier and the information of one or more corresponding storage bins in the circulation box, such that an order picker places the one or more commodities in the corresponding one or more storage bins according to the

information of the one or more corresponding storage bins.

~~4. The method according to claim 3, further comprising:~~

~~sending prompt information when the circulation box moves to any warehouse coordinate.~~

54. The method according to claim 2 or 4, wherein moving, by the robot, the circulation box in the commodity warehouse according to the order picking path for commodity picking further comprises:

accepting placing one or more received commodities to be placed, by the order picker, in one or more corresponding storage bins, corresponding to the commodity identifier, in the circulation box.

~~6. The method according to claim 1, further comprising:~~

~~determining, in a case where a target commodity is out of stock, at least one piece of order information corresponding to the target commodity out of stock; and~~

~~sending the at least one order information corresponding to the target commodity out of stock to a warehouse management system.~~

~~7. The method according to claim 1, further comprising:~~

~~selecting, in a case where the number of pieces of order information is greater than the number of the storage bins of the circulation box, multiple pieces of order information of which the number is consistent with the number of the storage bins from the plurality of pieces of order information in a preset sequence, and associating the multiple pieces of order information with the information of the storage bins.~~

85. The method according to claim 1, wherein the information of each storage bin comprises at least one of:

a two-dimensional code identifier, a serial number identifier, a color identifier, and a graphic identifier.

96. The method according to claim 1, wherein a plurality of pieces of information of storage bins and a circulation box identifier of the circulation box are configured on the circulation box.

~~107. The method according to claim 1, further comprising:~~

binding, by the robot, the circulation box to the order picking device.

~~118. The method according to claim 107, wherein binding, by the robot, the circulation box to~~

the order picking device comprises:

scanning, by the robot, any one of a plurality of pieces of information of storage bins in the circulation box by means of a code scanner; and

obtaining, by the robot, information of the circulation box, wherein the information of the circulation box comprises: the number of the storage bins in the circulation box, and the information of storage bin corresponding to each storage bin.

~~12. The method according to claim 7, wherein the preset sequence is a time sequence or a user priority sequence.~~

~~13. The method according to claim 1, wherein circulation boxes with different numbers of storage bins are provided, and the circulation box is selected according to the number of the at least one piece of order information from the circulation boxes.~~

~~149.~~ The method according to claim 1, wherein acquiring, by the robot, the position information of all commodities, corresponding to the at least one piece of order information, in the commodity warehouse comprises:

acquiring, by the robot, the position information of all commodities, corresponding to the at least one piece of order information, in the commodity warehouse through a warehouse management system.

~~1510.~~ The method according to claim 1, wherein before acquiring, by the robot, the position information of all commodities, corresponding to the at least one piece of order information, in the commodity warehouse, the method further comprises:

determining, by the robot, types of all the commodities in the at least one piece of order information.

~~1611.~~ The method according to claim 3, further comprising:

receiving, by the robot, an operation of the order picker confirming completion of picking of the commodities; and

moving, by the robot, to a next warehouse coordinate to execute picking of a next commodity.

~~1712.~~ The method according to claim 2, wherein moving, by the robot, the circulation box in the commodity warehouse according to the order picking path for commodity picking comprises:

placing target commodities in one or more corresponding storage bins according to the commodity information, the position information and the information of the one or more corresponding storage bins.

~~1813.~~ ~~An order picking device robot~~, comprising: a processor and a memory, wherein the processor is configured to execute an order picking program stored in the memory to implement the order picking method according to any of claims 1-~~17~~12.

~~19.~~ ~~The device according to claim 18, wherein the order picking device is a robot.~~

~~20~~14. A computer storage medium, storing one or more programs, wherein the one or more programs are executable by one or more processors to implement the order picking method according to any of claims 1-~~17~~12.