Claims

1. A method for transporting goods by a robot, comprising

step 1, providing a transport robot and shelves, wherein the transport robot comprises a drive unit, a box storage unit and a box conveying unit, and the drive unit is configured to carry the box storage unit and the box conveying unit to move together, and the box storage unit and the shelves each comprise one or more box storage spaces;

step 2, automatically moving, by the transport robot, to a first target shelf according to a picking instruction, picking a first box by the box conveying unit from a first box storage space of the first target shelf specified by the picking instruction, and conveying, by the box conveying unit, the first box to a second box storage space of the box storage unit specified by the picking instruction;

step 3, repeating step 2, if the picking instruction comprises an instruction of picking a second box from the first target shelf;

step 4, automatically moving to a second shelf and repeating step 2, if the picking instruction comprises an instruction of picking a third box from the second shelf;

step 5, automatically moving, by the transport robot, to a second target shelf according to a storing instruction, picking a fourth box by the box conveying unit from a third box storage space of the box storage unit specified by the storing instruction, and conveying, by the box conveying unit, the fourth box to a fourth box storage space of the second target shelf specified by the storing instruction;

step 6, repeating step 5, if the storing instruction comprises an instruction of storing a fifth box into the second target shelf; and

step 7,automatically moving to a third shelf and repeating step 5, if the storing instruction comprises an instruction of storing a sixth box into the third shelf;

wherein the robot has a function of automatically moving and can move to any position under drive of the drive unit;

wherein the method further comprises: performing automatic arrangement by

the transport robot when the transport robot is moving or not moving; and

wherein performing automatic arrangement comprises placing a container on a layer of the ~~container holder~~ box storage unit onto another layer of the ~~container holder~~ box storage unit~~;~~.

~~wherein the transport robot comprises the container holder and the container conveying unit.~~

2. The method for transporting goods by a robot according to claim 1, comprising:

storing a plurality of boxes on layers at different heights of the box storage unit, and

storing a plurality of boxes on layers at different heights of each of the shelves.

3. The method for transporting goods by a robot according to claim 1, comprising:

storing, by the box conveying unit, the boxes on layers at different heights of the box storage unit onto layers at different heights of any of the shelves, and

storing, by the box conveying unit, the boxes on layers at different heights of any of the shelves onto layers at different heights of the box storage unit.

4. The method for transporting goods by a robot according to claim 1, comprising:

storing, by the transport robot, a box on a layer of any one of the shelves onto a specified layer of the box storage unit through the box conveying unit, and

storing, by the transport robot, a box on another layer of the same one of the shelves onto another specified layer of the box storage unit through the box conveying unit.

5. The method for transporting goods by a robot according to claim 1, comprising:

storing, by the transport robot, a box on a layer of any one of the shelves onto a specified layer of the box storage unit through the box conveying unit, and

storing, by the transport robot, a box on a layer of another one of the shelves

onto a specified layer of the box storage unit through the box conveying unit.

6. The method for transporting goods by a robot according to claim 1, comprising:

storing, by the transport robot, a box on a layer of the box storage unit onto a specified layer of one of the shelves through the box conveying unit, and

storing, by the transport robot, a box on another layer of the box storage unit onto another specified layer of the same one of the shelves through the box conveying unit.

7. The method for transporting goods by a robot according to claim 1, comprising:

storing, by the transport robot, a box on a layer of the box storage unit onto a specified layer of one of the shelves through the box conveying unit, and

storing, by the transport robot, a box on another layer of the box storage unit onto a specified layer of another one of the shelves through the box conveying unit.

8. The method for transporting goods by a robot according to claim 1, comprising:

issuing, by the transport robot, an alarm message when the transport robot executes the picking instruction but does not obtain any box, or when the transport robot executes the storing instruction but a target storage space is occupied.

9. A method for transporting goods by a robot, comprising:

automatically moving, by a transport robot, to a target shelf according to a picking instruction, picking a box by a box conveying unit from a box storage space of the target shelf specified by the picking instruction, and conveying the box to another box storage space of a box storage unit specified by the picking instruction; or

automatically moving, by a transport robot, to a target shelf according to a storing instruction, picking a box by a box conveying unit from a box storage space of a box storage unit specified by the storing instruction, and conveying the box to another box storage space of the target shelf specified by the storing instruction;

wherein the robot has a function of automatically moving and can move to any position under drive of the drive unit;

wherein the method further comprises: performing automatic arrangement by the transport robot when the transport robot is moving or not moving; and

wherein performing automatic arrangement comprises placing a container on a layer of the ~~container holder~~ box storage unit onto another layer of the ~~container holder~~ box storage unit~~;~~.

~~wherein the transport robot comprises the container holder and the container conveying unit.~~

10. The method for transporting goods by a robot according to claim 9, comprising:

storing a plurality of boxes on layers at different heights of the box storage unit, and

storing a plurality of boxes on layers at different heights of a shelf.

11. The method for transporting goods by a robot according to claim 9, comprising:

storing, by the box conveying unit, boxes on layers at different heights of the box storage unit onto layers at different heights of a shelf, and

storing, by the box conveying unit, boxes on layers at different heights of the shelf onto layers at different heights of the box storage unit.

12. The method for transporting goods by a robot according to claim 9, comprising:

storing, by the transport robot, a box on a layer of a shelf onto a specified layer of the box storage unit through the box conveying unit, and

storing, by the transport robot, a box on another layer of the same shelf onto another specified layer of the box storage unit through the box conveying unit.

13. The method for transporting goods by a robot according to claim 9, comprising:

storing, by the transport robot, a box on a layer of a shelf onto a specified layer

of the box storage unit through the box conveying unit, and

storing, by the transport robot, a box on a layer of another shelf onto a specified layer of the box storage unit through the box conveying unit.

14. The method for transporting goods by a robot according to claim 9, comprising:

storing, by the transport robot, a box on a layer of the box storage unit onto a specified layer of a shelf through the box conveying unit, and

storing, by the transport robot, a box on another layer of the box storage unit onto another specified layer of the same shelf through the box conveying unit.

15. The method for transporting goods by a robot according to claim 9, comprising:

storing, by the transport robot, a box on a layer of the box storage unit onto a specified layer of a shelf through the box conveying unit, and

storing, by the transport robot, a box on another layer of the box storage unit onto a specified layer of another shelf through the box conveying unit.

16. The method for transporting goods by a robot according to claim 9, comprising:

issuing, by the transport robot, an alarm message when the transport robot executes the picking instruction but does not obtain any box, or when the transport robot executes the storing instruction but a target storage space is occupied.

17. The method for transporting goods by a robot according to claim 9, further comprising:

repeating the picking if the instruction comprises an instruction of picking another box from the same shelf, or repeating the storing if the instruction comprises an instruction of storing another box to the same shelf; and

moving automatically to another shelf and repeating the picking if the instruction comprises an instruction of picking another box from the another shelf, or moving automatically to another shelf and repeating the storing if the instruction comprises an instruction of storing another box to the another shelf.