Claims

1. A computerized system for reusable storage tracking and distribution, comprising:

at least one processor; and

at least one non-transitory storage medium comprising instructions that, when executed by the at least one processor, cause the at least one processor to perform steps comprising:

receiving, from a remote system, an order associated with a customer and comprising at least one item;

searching at least one data store to determine one or more tags and one or more properties associated with each item;

determining that the customer is assigned to one or more reusable packages for delivery of the items in the order;

based on the determined tags and the number of items in the order, sorting the items into at least one group;

for at least one group:

determining, based on the number of items in the group and the dimensions of the items in the group, a count of reusable packages;

generate instructions comprising: an indication of an identifier for each item in the group and an associated reusable package for packaging the respective item;

sending the generated instructions to a first mobile device for display;

receiving a first scan event from the first mobile device comprising a reusable package identifier, wherein the first scan event causes automatic updating of at least

one entry associated with the reusable package identifier in a database comprising a plurality of entries associated with a plurality of reusable package identifiers;

sending a communication to a second mobile device associated with a delivery worker, comprising:

the reusable package identifier;

a delivery location; and

a number of unused reusable packages for pickup; and

receiving a second scan event from the second mobile device, comprising an identifier of a second reusable package.

2. The system of claim 1, wherein the steps further comprise:

determining that a first item in the order is associated with a tag for a first temperature and that a second item in the order is associated with a tag for a second temperature;

assigning the first item to a first group; and

assigning the second item to a second group, further wherein

the reusable packages comprise insulated containers for holding the one or more items.

3. The system of claim 1, wherein the steps further comprise:

assigning a plurality of package identifiers with the customer identifier by creating entries in the database, wherein the database further associates the customer identifier with the plurality of package identifiers.

4. The system of claim 2, wherein creating entries in the database further comprises:

receiving, from the second mobile device at the delivery location, a third scan event comprising a package identifier; and

adding at least one entry to the database associating the customer identifier with the received package identifier.

5. The system of claim 2, wherein the steps further comprise:

receiving a third scan event from a device at a second location separate from the delivery location, the third scan event comprising one or more package identifiers;

searching the database using the received package identifier;

modifying at least one entry in the database to de-associate the package identifier from the customer identifier.

6. The system of claim 1, wherein the communication sent to the second mobile device comprises identifiers associated with the reusable packages for pickup.

7. The system of claim 1, wherein the steps further comprise:

receiving a notification from a second customer to pick up a third reusable package, including an identifier associated with the third reusable package.

8. The system of claim 1, wherein determining the count of reusable packages for a group comprises performing an optimization process, by:

selecting a data structure representing a first package, the data structure comprising properties of the first package;

iteratively simulating packaging of a largest item of the group into the first package until all items are packaged in the first package, wherein if the simulating determines that the items in the group do not fit into the first package:

choosing a second package, and

iteratively computationally packing the largest item until all items are packed in the second package.

9. The system of claim 8, wherein iteratively simulating packaging further comprises:

determining dimensions of at least one item in the group;

determining the largest item of the group based on determining an item with a longest dimension;

simulating packing the largest item into the first package;

calculating remaining spaces in the first package by subtracting the dimensions of the largest item from the dimensions of the first package; and

iteratively simulating packing at least one remaining item in the group into the calculated remaining spaces.

10. A method for reusable storage tracking and distribution, comprising:

receiving, from a remote system, an order associated with a customer and comprising at least one item;

searching at least one data store to determine one or more tags and one or more properties associated with each item;

determining that the customer is assigned to one or more reusable packages for delivery of the items in the order;

based on the determined tags and the number of items in the order, sorting the items into at least one group;

for at least one group:

determining, based on the number of items in the group and the dimensions of the items in the group, a count of reusable packages;

generate instructions comprising: an indication of an identifier for each item in the group and an associated reusable package for packaging the respective item;

sending the generated instructions to a first mobile device for display;

receiving a first scan event from the first mobile device comprising a reusable package identifier, wherein the first scan event causes automatic updating of at least one entry associated with the reusable package identifier in a database comprising a plurality of entries associated with a plurality of reusable package identifiers;

sending a communication to a second mobile device associated with a delivery worker, comprising:

the reusable package identifier;

a delivery location; and

a number of unused reusable packages for pickup;

receiving a second scan event from the second mobile device, comprising an identifier of a second reusable package.

11. The method of claim 10, further comprising:

determining that a first item in the order is associated with a tag for a first temperature and that a second item in the order is associated with a tag for a second temperature;

assigning the first item to a first group; and

assigning the second item to a second group, further wherein

the reusable packages comprise insulated containers for holding the one or more items.

12. The method of claim 10, further comprising:

assigning a plurality of package identifiers with the customer identifier by creating entries in the database, wherein the database further associates the customer identifier with the plurality of package identifiers.

13. The method of claim 11, wherein creating entries in the database further comprises:

receiving, from the second mobile device at the delivery location, a third scan event comprising a package identifier; and

adding at least one entry to the database associating the customer identifier with the received package identifier.

14. The method of claim 11, further comprising:

receiving a third scan event from a device at a second location separate from the delivery location, the third scan event comprising one or more package identifiers;

searching the database using the received package identifier;

modifying at least one entry in the database to de-associate the package identifier from the customer identifier.

15. The method of claim 10, wherein the communication sent to the second mobile device comprises identifiers associated with the reusable packages for pickup.

16. The method of claim 10, further comprising:

receiving a notification from a second customer to pick up a third reusable package, including an identifier associated with the third reusable package.

17. The method of claim 10, further comprising, wherein determining the count of reusable packages for a group comprises performing an optimization process, by:

selecting a data structure representing a first package, the data structure comprising properties of the first package;

iteratively simulating packaging of a largest item of the group into the first package until all items are packaged in the first package, wherein if the simulating determines that the items in the group do not fit into the first package:

choosing a second package, and

iteratively computationally packing the largest item until all items are packed in the second package.

18. The method of claim 17, wherein iteratively simulating packaging further comprises:

determining dimensions of at least one item in the group;

determining the largest item of the group based on determining an item with a longest dimension;

simulating packing the largest item into the first package;

calculating remaining spaces in the first package by subtracting the dimensions of the largest item from the dimensions of the first package; and

iteratively simulating packing at least one remaining item in the group into the calculated remaining spaces.

19. The method of claim 10, further comprising:

generating instructions to the first mobile device to display an indication to pack at least one item not using a reusable package when the count of reusable packages exceeds a predetermined number.

20. A computerized system for reusable storage tracking and distribution, comprising:

at least one processor; and

at least one non-transitory storage medium comprising instructions that, when executed by the at least one processor, cause the at least one processor to perform steps comprising:

receiving, from a remote system, an order associated with a customer and comprising at least one item;

searching at least one data store to determine one or more tags and one or more properties associated with each item;

determining that the customer is assigned to one or more reusable packages for delivery of the items in the order, wherein a number of reusable packages assigned to the customer is less than a reusable package limit;

based on the determined tags and the number of items in the order, sorting the items into at least one group;

for at least one group:

determining, based on the number of items in the group and the dimensions of the items in the group, a count of reusable packages, wherein the count of reusable packages is less than or equal to the number of reusable packages assigned to the customer;

generate instructions comprising: an indication of an identifier for each item in the group and an associated reusable package for packaging the respective item;

sending the generated instructions to a first mobile device for display;

receiving a first scan event from the first mobile device comprising a reusable package identifier, wherein the first scan event causes automatic updating of at least one entry associated with the reusable package identifier in a database comprising a plurality of entries associated with a plurality of reusable package identifiers;

sending a communication to a second mobile device associated with a delivery worker, comprising:

the reusable package identifier;

a delivery location; and

a number of reusable packages for pickup; and

receiving a second scan event from the second mobile device, comprising an identifier of a second reusable package.