CLAIMS

1. A system (100) for handling of luggage or parcel items (132), comprising:

- at least one cart (102) comprising a plurality of cart shelves (202), each of which is sized to accommodate a plurality of said items (132);
- at least one item conveyor (106;108) selected among:
  - a sorting or transfer conveyor (106) for conveying the items (132) from a sorting conveyor (106) loading position to at least one unloading position (120); and a delivery conveyor (108) for conveying the items from a delivery conveyor loading position (123) to a luggage reclaim area, or to the sorting conveyor (106), or to a parcel distribution facility, or to a further conveyor;
- at least one item accumulation unit (118;122) arranged in proximity to at least one of:
  - said at least one unloading position (120) of the sorting conveyor (106) and
  - the delivery conveyor loading position (123),

said item accumulation unit (118;122) being configured to store a plurality of the items (132) on a plurality of accumulation shelves (119;129), wherein the accumulation shelves (119;129) form a first structure of columns and/or rows, and the cart shelves (202) form a second structure of columns and/or rows, whereby each respective accumulation shelf (119;129) and cart shelf (202) of one of the first and second structures lies flush with the other one of the first and second structures when the at least one cart is in a predetermined parking position relative to the accumulation unit;

- an item transfer structure (134;202,212) configured to transfer said plurality of the items (132) from the sorting conveyor (106) or from the shelves (202) of the at least one cart (132) into the item accumulation unit (118;122);

<u>characterised by:</u>

- an electronic control system for controlling operation of at least one of the item accumulation unit (118;122) and the item transfer structure (134;202,212);
- the item accumulation unit (118;122) comprising an item movement structure for automatically moving each one of the items (132) accommodated by each of the accumulation shelves (119;129) from a loading end thereof towards and unloading end thereof to transfer the items in an accumulation unit-internal transfer direction;
- each cart shelf (202) of the cart (102) being configured to cause items (132) supported thereby to be displaced from a loading end of the cart (102) towards an unloading end thereof to transfer the items (132) when supported by the shelf (202) in a cart-internal transfer direction which is orientable in parallel to the accumulation unit-

internal transfer direction when the cart (102) is in the predetermined parking position relative to the item accumulation unit (118;122).

2. A system according to claim 1, wherein the sorting conveyor (106) is configured for conveying the items (132) from a sorting conveyor (106) loading position to respective unloading positions (120) along the sorting conveyor (106), and wherein at least one item accumulation unit (118;122) is arranged in proximity to said unloading positions (120) of the sorting conveyor (106).

3. A system according to any of claims 1 or 2, wherein the at least one accumulation unit comprises at least one of:
- a departure accumulation unit for departing items; and
- an arrival accumulation unit for arriving items.

4. A system according to claim 3, wherein:
- the item conveyor comprises at least said sorting conveyor;
- the departure accumulation unit comprises at least one column of said plurality of accumulation shelves, which are arranged one above the other;
- the item transfer structure is configured to selectively discharge each one of the plurality of items from the sorting conveyor into a selected one of said accumulation shelves in said column.

5. A system according to claim 4, wherein the control system is configured to select one of said accumulation shelves for each item and to control the item transfer structure to the selected accumulation shelf.

6. A system according to claim 5, wherein the control system is configured to assign, to each of the items, a particular accumulation shelf of the departure accumulation unit, before the items is being loaded into the departure accumulation unit from the sorting conveyor.

7. A system according to any of the preceding claims, wherein the delivery conveyor connects to the sorting conveyor for transfer of the items from the delivery conveyor loading position onto the sorting conveyor.

8. A system according to any of the preceding claims, wherein the delivery conveyor connects to a luggage reclaim belt for transfer of the items from the delivery conveyor loading position onto the luggage reclaim belt.

9. A system according to claims 7 and 8, wherein the control system is configured to assign, to each of the items, a particular branch of the delivery conveyor, before the items are being offloaded from the at least one cart.

10. A system according to any of the preceding claims, wherein the accumulation shelves of the item accumulation unit are configured to form a structure of first columns and/or rows.

11. A system according to any of the preceding claims, wherein each of the shelves of the item accumulation unit comprises an accumulation conveyor belt, and wherein the control system is configured to control operation of the accumulation conveyor belt.

12. A system according to claim 11, wherein the accumulation shelves of the item accumulation unit are arranged in rows one above the other, and wherein the accumulation unit is configured to feed the items from a lower one of the rows directly onto the delivery conveyor, and wherein the accumulation unit further comprises a discharge chute at an unloading end of upper ones of the shelves for dropping the items onto the delivery conveyor under the action of gravity.

13. A system according to any of the preceding claims, wherein the delivery conveyor comprises a vertically displaceable or a variably inclinable conveyor section.

14. A system according to any of the preceding claims, wherein the cart (102) comprises a wheeled chassis (211) and a storage section (201) comprising the plurality of cart shelves (202), and wherein the storage section (201) is rotatable relative to the chassis (211) around an upright axis.

15. A system according to any of the preceding claims, wherein the at least one cart (102) comprises a train of a plurality of carts (102) coupled to form a train of carts (102) driven by a tractor (103).