CLAIMS

WHAT IS CLAIMED IS:

1. An apparatus for detecting an object, comprising:

a first sensor provided in a first region of an unmanned retail store, wherein the unmanned retail store has different regions comprising said first region and a second region, wherein the first region is a paying region, and the second region is a to-pay region;

a second sensor provided in the second region and configured for collecting tags of target objects in the first region and the second region;

a first processing unit configured to classify the tags of target objects collected by said second sensor, to obtain a first region tag cluster and a second region tag cluster, wherein said first region tag cluster comprises tags of target objects in said first region, and said second region tag cluster comprises tags of target objects in said second region,

wherein said first sensor is configured to detect the tags of the target objects in said first region tag cluster based on a classification result of said first processing unit to identify accurately objects held by a consumer who is conducting a payment in the first region.

2. The apparatus according to claim 1, further comprising a reference tag provided in said first region, wherein the first processing unit is further configured to perform a clustering on the collected tags of the target objects based on said reference tag, and classify tags of target objects successfully clustered with said reference tag into said first region tag cluster, and preferably, said first processing unit is further configured to extract signal characteristics of the collected tags of the target objects for clustering.

3. The apparatus according to claim 1 or 2, wherein said second sensor is an array antenna.

4. The apparatus according to any one of claims 1 to 3, further comprising:

a third sensor provided in a third region and configured to collect tags of target objects in said third region;

a second processing unit configured to determine whether the target objects in said third region have moved based on the tags collected by said third sensor, preferably, wherein the second processing unit is further configured to perform a clustering on tags of target objects that have moved, and take a result of the clustering as auxiliary information, and wherein the first processing unit is further configured to filter the tags of the target objects in said first region based on the auxiliary information of the second processing unit, to obtain said first region tag cluster.

5. The apparatus according to any one of claims 1 to 4, further comprising:

a fourth sensor provided in the first region and configured to detect entry of person into said

first region,

wherein said fourth sensor is further configured to activate said second sensor and/or said first sensor to collect the tags upon detection of entry of person into said first region.

6. A method for detecting an object, comprising:

collecting, by a second sensor provided in a second region of an unmanned retail store, tags of target objects in a first region and the second region, wherein the unmanned retail store has different regions comprising said first region and said second region, wherein the first region is a paying region, and the second region is a to-pay region;

classifying the tags of the target objects collected by said second sensor, to obtain a first region tag cluster and a second region tag cluster, wherein said first region tag cluster comprises tags of target objects in the first region, and said second region tag cluster comprises tags of target objects in said second region; and

detecting, by a first sensor provided in said first region, the tags of the target objects in said first region tag cluster based on a classification result to identify accurately objects held by the consumer who is conducting a payment in the first region.

7. The method according to claim 6, further comprising:

performing a clustering on the collected tags of the target objects based on a reference tag provided in said first region, and classifying tags of target objects successfully clustered with said reference tag into said first region tag cluster, and preferably, said clustering comprises extracting signal characteristics of said collected tags of the target objects for clustering.

8. The method according to claim 6 or 7, wherein said second sensor is an array antenna.

9. The method according to any one of claims 6 to 8, further comprising:

collecting, by a third sensor provided in a third region, tags of target objects in said third region;

determining whether the target objects in said third region have moved based on the tags collected by said third sensor, preferably, wherein the method further comprises:

performing a clustering on tags of target objects that have moved, and taking a result of the clustering as auxiliary information, and wherein classifying the tags of the target objects collected by said second sensor to obtain the first region tag cluster further comprises:

filtering the tags of the target objects in said first region based on said auxiliary information to obtain said first region tag cluster.

10. The method according to any one of claims 6 to 9, further comprising:

detecting, by a fourth sensor provided in said first region, entry of person into said first region; and

activating the second sensor and/or the first sensor to collect tags in response to detection of entry of person into said first region.

11. A method for processing data, comprising:

classifying tags of target objects in a predetermined region of an unmanned retail store comprising a first region and a second region based on signal characteristics of collected tags of the target objects in said predetermined region, to obtain a first region tag cluster and a second region tag cluster, wherein the first region is a paying region, and the second region is a to-pay region, wherein based on a classification result, a sensor provided in the first region detects tags of target objects in said first region tag cluster to identify accurately objects held by a consumer who is conducting a payment in the first region, wherein said first region tag cluster comprises tags of target objects in the first region, said second region tag cluster includes tags of target objects in the second region.

12. The method according to claim 11, further comprising:

determining whether target objects in a third region have moved based on signal characteristics of collected tags of the target objects in said third region, preferably, wherein the method further comprises:

performing a clustering on tags of target objects that have moved, and taking a result of the clustering as auxiliary information; and

re-filtering the tags of the target objects in said first region based on said auxiliary information to obtain said first region tag cluster.

13. An apparatus for processing data, comprising:

a processing module configured to classify tags of target objects in a predetermined region of an unmanned retail store comprising a first region and a second region based on signal characteristics of collected tags of the target objects in said predetermined region, to obtain a first region tag cluster and a second region tag cluster, wherein the first region is a paying region, and the second region is a to-pay region, wherein based on a classification result, a sensor provided in the first region detects tags of target objects in said first region tag cluster to identify accurately objects held by a consumer who is conducting a payment in the first region, wherein said first region tag cluster comprises tags of target objects in the first region, said second region tag cluster includes tags of target objects in the second region.

14. The apparatus according to claim 13, wherein said processing module is further configured to determine whether target objects in a third region have moved based on signal characteristics of collected tags of the target objects in said third region, preferably, wherein said processing module is further configured to perform a clustering on tags of target objects that have moved, and take a result of the clustering as auxiliary information; and

re-filtering the tags of the target objects in said first region based on said auxiliary information to obtain said first region tag cluster.

15. A computer readable storage medium on which a computer program is stored, wherein said computer program is configured to implement, when being executed, the steps of the method according to claim 11 or 12.