

CLAIMS

1. An image recognition system, comprising:
 - an information entry module, configured to enter information of an inspected object, and identify whether or not the information of the inspected object is abnormal information;
 - a detection module, configured to detect whether or not contraband is carried by the inspected object and/or his/her luggage;
 - an augmented reality (AR) module, configured to, in at least one of a case where the information of the inspected object is abnormal and a case where contraband is carried by the inspected object and/or his/her luggage, obtain from the information entry module and/or the detection module the information of the inspected object and/or information of the contraband, issue an alert and mark the inspected object and/or contraband in the AR module; and
 - a storage module, configured to store information generated during operations of the information entry module, the detection module, and the AR module,
- wherein the detection module comprises a first detection lane, a second detection lane, a first detection device, and a second detection device, wherein:
 - the first detection device is located at front of the first detection lane, the second detection device is located at rear of the first detection lane, and both the first detection device and the second detection device comprise a first image acquisition device and a second image acquisition device, the first image acquisition device being configured to acquire a perspective image of the inspected object, and the second image acquisition device being configured to acquire depth information about the inspected object and a color image about the inspected object;
 - the second detection lane comprises a photographing device located at a front end of the second detection lane, wherein the photographing device photographs the inspected object and the luggage belonging to the inspected object and stores an image of the inspected object in the storage module in association with an image of the luggage of the inspected object,
 - the detection module is configured to detect, based on the perspective image and the color image, whether or not contraband is carried by the inspected object and

the detection module is configured to detect, based on the image of the luggage of the inspected object, whether or not contraband is carried by the luggage of the inspected object.

5 2. The image recognition system of claim 1, wherein the detection module is further configured to establish, by the second image acquisition devices included in the first detection device and the second detection device, a global coordinate system for the second image acquisition devices to obtain a spatial position of each inspected object in the global coordinate system and/or a spatial position of the carried
10 contraband in the global coordinate system.

 3. The image recognition system of claim 1, wherein the detection module further comprises an auxiliary image acquisition device, which is located at a middle portion of the first detection lane and is configured to acquire depth information about
15 the inspection object and a color image about the inspection object.

 4. The image recognition system of claim 3, wherein the detection module is further configured to establish, by the auxiliary image acquisition device and the second image acquisition devices included in the first detection device and the second
20 detection device, a global coordinate system for the auxiliary image acquisition device and the second image acquisition devices to obtain a spatial position of each inspected object in the global coordinate system and/or a spatial position of the carried contraband in the global coordinate system.

25 5. The image recognition system of claim 2 or 4, wherein the AR module is further configured to: obtain, based on the spatial position of each inspected object in the global coordinate system and/or the spatial position of the carried contraband in the global coordinate system, according to a conversion relationship between the AR module and the global coordinate system, spatial position information of each
30 inspected object and/or the carried contraband in a perspective of the AR module to mark the inspected object and/or contraband on the AR module.

6. An image recognition method, comprising:

entering information of an inspected object and identifying whether or not the information of the inspected object is abnormal information, by an information entry module;

5 detecting, by a detection module, whether or not contraband is carried by the inspected object and/or his/her luggage;

in at least one of a case where the information of the inspected object is abnormal and a case where contraband is carried by the inspected object and/or his/her luggage, obtaining from the information entry module and/or the detection

10 module the information of the inspected object and/or information of the contraband, issuing an alert and marking the inspected object and/or contraband in an augmented reality (AR) module, by the AR module; and

storing, by a storage module, information generated during execution of the image recognition method,

15 wherein the detecting, by the detection module, whether or not contraband is carried by the inspected object and/or his/her luggage comprises:

acquiring perspective images of the inspected object by first image acquisition devices included in a first detection device and a second detection device of the detection module, wherein the first detection device is located in front of a first

20 detection lane in the detection module, and the second detection device is located at rear of the first detection lane;

acquiring depth information and color images about the inspected object by second image acquisition devices included in the first detection device and the second detection device of the detection module;

25 photographing the inspected object and the luggage belonging to the inspected object and storing an image of the inspected object in the storage module in association with an image of the luggage of the inspected object, by a photographing device, wherein the photographing device is located at a front end of a second detection lane; and

30 detecting, based on the perspective images and the color images, whether or not contraband is carried by the inspected object and detecting based on the image of

the luggage of the inspected object, whether or not contraband is carried by the luggage of the inspected object.

7. The image recognition method of claim 6, wherein the marking the
5 inspected object and/or contraband in the AR module comprises:

establishing, by the second image acquisition devices included in the first
detection device and the second detection device, a global coordinate system for the
second image acquisition devices to obtain a spatial position of each inspected object
in the global coordinate system and/or a spatial position of the carried contraband in
10 the global coordinate system; and

marking the inspected object and/or contraband in the AR module based on the
spatial positions.

8. The image recognition method of claim 6, wherein the marking the
15 inspected object and/or contraband in the AR module comprises:

establishing, by an auxiliary image acquisition device provided in a middle
portion of the first detection lane and the second image acquisition devices included in
the first detection device and the second detection device, a global coordinate system
for the auxiliary image acquisition device and the second image acquisition devices to
20 obtain a spatial position of each inspected object in the global coordinate system
and/or a spatial position of the carried contraband in the global coordinate system,
wherein the auxiliary image acquisition device is configured to acquire depth
information about the inspection object and a color image about the inspection object;
and

25 marking the inspected object and/or contraband in the AR module based on the
spatial positions.

9. The image recognition method of claim 7 or 8, wherein the marking the
inspected object and/or contraband in the AR module further comprises:

30 obtaining, based on the spatial position of each inspected object in the global
coordinate system and/or the spatial position of the carried contraband in the global
coordinate system, according to a conversion relationship between the AR module and

the global coordinate system, spatial position information of each inspected object and/or the carried contraband in a perspective of the AR module to mark the inspected object and/or contraband on the AR module.

- 5 10. An electronic device, comprising:
 one or more processors; and
 a memory configured to store one or more programs, wherein,
 when the one or more programs are executed by the one or more processors,
the one or more processors implement the method of any one of claims 6 to 9.

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11. A non-transitory computer-readable medium comprising a computer
program product recorded thereon and capable of being executed by a processor, said
computer program product comprising program code instructions for implementing the
method of any one of claims 6 to 9.