

CLAIMS

1. A system comprising:
a belt;
a plurality of imagers, each configured to:
 obtain an image of its respective field of view,
 analyze the image to determine a quantity and/or orientation of one or more items within its respective field of view, and
 generate a pass inspection signal or a fail inspection signal, based on the quantity and/or orientation of the one or more items within its respective field of view;
 wherein at least one of the plurality of imagers is further configured to
 count a number of a plurality of trays disposed on the belt, wherein a number of empty tray locations are interspersed between the plurality of trays; and
a processor, coupled to each of the plurality of imagers, configured to,
receive the pass inspection signal or the fail inspection signal, and
advance the belt based on receiving a pass inspection signal from each of the plurality of imagers.
2. The system of claim 1, wherein the one or more items comprise one or more first patterns.
3. The system of claim 2, wherein the one or more first patterns comprise text patterns, numeric patterns, symbol patterns, or combinations thereof.

4. The system of claim 2, wherein, to determine a quantity and/or orientation of the one or more items, at least one of the plurality of imagers is further configured to:

determine presence of two of the one or more first patterns within its respective field of view; and

determine that the two of the one or more first patterns are not aligned on a same axis within its respective field of view.

5. A system comprising:

a belt;

a plurality of imagers, each configured to:

obtain an image of its respective field of view,

analyze the image to determine a quantity and/or orientation of one or more items within its respective field of view, and

generate a pass inspection signal or a fail inspection signal, based on the quantity and/or orientation of the one or more items within its respective field of view;

wherein at least one of the plurality of imagers is further configured to:

determine a location of a cleat within its respective field of view;

compare the determined location of the cleat within its respective field of view to a reference location;

determine that the determined location is different from the reference location;

determine an offset based on the difference between the determined location and the reference location; and

transmit a signal to the processor to adjust a distance to move the belt by the offset; and

a processor, coupled to each of the plurality of imagers, configured to,

receive the pass inspection signal or the fail inspection signal, and

advance the belt based on receiving a pass inspection signal from each of the plurality of imagers.

6. The system of claim 1, wherein at least one of the plurality of imagers is further configured to count a number of the empty tray locations.

7. The system of claim 2, wherein at least one of the plurality of imagers is further configured to determine that the one or more first patterns in the image comprises a no tray pattern.

8. The system of claim 1, wherein the controller is configured to advance the belt only after receiving a pass inspection signal from each of the plurality of imagers.

9. The system of claim 1, wherein each of the plurality of imagers is configured to generate a pass inspection signal or a fail inspection signal, based on the quantity and/or orientation of the one or more items determined while the belt is stationary.

10. The system of claim 1, wherein the field of view of each of the plurality of imagers, at any given time, encompasses different portions of the belt than is present in each other field of view.
11. The system of claim 5, wherein:
the belt includes a plurality of cleats spaced apart from one another;
a length of each cleat is substantially perpendicular to a length of the belt; and
one or more of the fields of view are located between adjacent cleats of the plurality of cleats.
12. The system of claim 3, wherein at least one of the imagers is configured to:
determine whether multiple instances of the text patterns, numeric patterns, symbol patterns, or combinations thereof, are aligned along a same axis, and
generate the pass inspection signal or fail inspection signal based on the determination.
13. The system of claim 1, wherein the one or more items includes one or more of a syringe, a syringe needle, or an auto-injector.
14. The system of claim 1, wherein the processor is configured to withhold sending a signal that advances the belt based on receiving a fail inspection signal from at least one of the plurality of imagers.