CLAIMS

1. A system (100) for inspecting an article (101), comprising

a conveyor having a conveyor belt (110) for moving the article (101) thereon in a first direction;

a sensing module comprising one or more movement sensors (120) for detecting movement direction of the conveyor belt (110);

an image acquisition module comprising at least one image acquisition device (130) for capturing image of various perspectives of the article (101) moving in the first direction upon detecting a presence of the article (101); and

a control module (140) for regulating operation of the system (100);

wherein the control module (140) is configured to halt the operation of the image acquisition module when the movement sensors (120) detect a movement of the conveyor belt (110) in a second direction that opposes the first direction, preventing the image acquisition device (130) from capturing duplicate images of the article (101) during movement of the conveyor belt (110) in the second direction.

2. The system (100) according to claim 1, wherein the sensing module further comprises any one or combination of a personnel sensor (121) for detecting presence of a personnel (102) handling inspection of the article (101) at a predetermined location, and one or more article sensors (122) for detecting presence of the article (101) on the conveyor belt (110).

3. The system (100) according to claim 2, wherein the article sensors (122) include any one or combination of a proximity sensor and a contact sensor.

4. The system (100) according to any one of the preceding claims, wherein the movement sensors (120) are a pair of photoelectric sensors located opposite to each other across the conveyor belt (110).

5. The system (100) according to any one of the preceding claims, wherein the image acquisition module comprises four image acquisition devices (130), each for respectively capturing the images of the corresponding perspective of the articles (101) on the conveyor belt (110) in a sequential manner when the article (101) is moved by the conveyor in the first direction.

6. The system (100) according to any one of the preceding claims, wherein the system is implemented with a Message Queuing Telemetry Transport protocol for communication between the conveyor, the sensing module, the image acquisition module, and the control module (140).

7. The system (100) according to any one of the preceding claims, further comprising an image processing module (150) for processing the captured images of the article (101).

8. The system (100) according to any one of the preceding claims, further comprising an alert module (160) for providing either or both an audio or visual alert when an abnormality in the article (101) is detected.

9. The system (100) according to any one of the preceding claims, further comprising a display for showing either or both a status of the conveyor and condition of the article (101).

10. A method (200) for inspecting an article (101) comprising the steps of

moving (201) the article (101) on a conveyor belt (110) of a conveyor in a first direction; and

capturing (202) images of the article (101) from various perspectives while the article

(101) is moving in the first direction upon detecting a presence of the article (101), by one or more image acquisition devices (130) of an image acquisition module;

wherein the image acquisition module has its operation halted by a control module (140) when a movement of the conveyor belt (110) in a second direction that opposes the first direction is detected by one or more movement sensors (120), preventing the image acquisition device (130) from capturing duplicate images of the article (101) during movement of the conveyor belt (110) in the second direction.

11. The method (200) according to claim 10, further comprising the step of detecting presence of a personnel (102) handling inspection of the article (101) at a predetermined location by a personnel sensor (121).

12. The method (200) according to claim 11, further comprising the step of halting operation of the conveyor by a conveyor controller upon detection of the personnel (102) for allowing either or both loading and removal of the article (101) from the conveyor belt (110).

13. The method (200) according to claim 12, further comprising the step of detecting presence of the article (101) on the conveyor belt (110) by an article sensor (122) being a proximity sensor after the article (101) is loaded onto the conveyor belt (110).

14. The method (200) according to claim 13, further comprising the step of capturing (202a) an image of one side surface of the article (101) by the image acquisition module upon detection of the article (101) after being loaded onto the conveyor belt (110).

15. The method (200) according to claim 14, further comprising the step of driving

movement of the conveyor belt (110) in the first direction to move the article (101) thereon along a conveyor path by the conveyor controller upon detection of the article (101), by one or more article sensors (122) being contact sensors, at downstream positions of the conveyor path with respect to the first direction.

16. The method (200) according to claim 15, further comprising the step of capturing (202b) images of remaining side surfaces of the article (101) by the image acquisition module as the article (101) moves in the first direction.