

CLAIMS

1. A method for identifying and tracking an article, the method comprising the steps of:
 - a. receiving an image of a first article following a path between an origin and a destination;
 - b. determining a first characteristic vector based on the received image wherein the first characteristic vector is defined by a plurality of characteristic features associated with the first article;
 - c. comparing the first characteristic vector with a set of predetermined characteristic vectors wherein each of the set of predetermined characteristic vectors is associated with an identifier; and
 - d. based on the comparison, associating the first article with the identifier associated with a corresponding one of the predetermined characteristic vectors or associating the first article with a new identifier.
2. The method of claim 1, further comprising transmitting the identifier associated with the first article to a remote system for tracking the first article during a journey.
3. The method of any preceding claim, wherein the set of predetermined characteristic vectors is determined based on a degree of similarity between the first characteristic vector and each of a plurality of predetermined characteristic vectors, wherein each predetermined characteristic vector is associated with a set of training images each corresponding to a previously identified article.
4. The method of any preceding claim, wherein each characteristic vector comprises any one or more of features defining shape, colour, alpha-numeric text, texture, bag type, a sticker characteristic of the bag, a buckle, lock, retractable handle straps, wheel, zip, or material type associated with an article.
5. The method of any preceding claim, wherein the plurality of characteristic features includes the size of the first article, and wherein the size of the first article is determined using a plurality of cameras that are each calibrated with a calibrating object having known dimensions.
6. The method of any preceding claim, further comprising detecting an article preferably by using a background subtraction algorithm to generate a foreground

mask image, and preferably further comprising generating the foreground mask image by creating a background model, and preferably further comprising generating a different background model for each of a plurality of locations, or further comprising identifying a plurality of different bag outlines and selecting one of the plurality of different bag outlines as the foreground mask.

7. The method of claim 6, further comprising grouping pixels associated with the foreground mask image into continuous regions of pixels having the same colour value, and preferably further comprising determining the width or height of each of the continuous regions and discarding pixels associated with these regions if the regions extend the entire width or height of the frame.
8. The method of any one of claims 2 to 7, wherein the set of predetermined characteristic vectors is further determined based on a timestamp defining the time each training image was captured, and preferably wherein the set of predetermined characteristic vectors is further determined based on a calculated journey path associated with the first article, and wherein the journey path is calculated based on location data associated with the origin and destination.
9. The method of any preceding claim, further comprising down sampling each training image to maintain an aspect ratio of each image, and preferably further comprising applying any one of a random rotation, a random scale change, or a random photometric distortion to one or more training images, and preferably further comprising determining whether the image brightness is greater than a first threshold or less than a second threshold and only processing the image if the image brightness is within the first and second thresholds.
10. The method of claim 3, wherein the origin is a bag drop location in a departure airport and the destination is a bag collection location in an arrival airport, preferably further comprising receiving a plurality of images of the first article, wherein the plurality of images comprises a first set of images captured, by a first recording means, at a first location between the origin and destination, and preferably wherein the plurality of images comprises a second set of images captured, by a second recording means, at a second location between the origin and destination wherein the first location is different from the second location, and wherein each of the first and second locations

is associated with a list of expected articles that are predicted to pass each respective location.

11. The method of claim 10, further comprising identifying a threshold time for an article to arrive at the first or second location, and further comprising sending an alert if the article is not recorded at the first or second location by the recording means before the current time exceeds the threshold time, or sending an alert if the article is not detected by consecutive recording means on the calculated journey path.
12. The method of any preceding claim, further comprising receiving a plurality of images associated with each article at each location, or further comprising removing one or more of the plurality of images by identifying images of the article where the number of pixels having a pixel value lying between an upper and a lower pixel value threshold exceeds a minimum value.
13. The method of any preceding claim, further comprising synchronizing a plurality of recording means by identifying an article having a unique characteristic by determining an average colour value for articles recorded by each recording means and matching the article between the data recorded by each recording means to identify a time difference between each recording means.
14. The method of claim 1, wherein each of the set of predetermined characteristic vectors is determined by randomly deleting a first portion of each corresponding training image and determining each predetermined characteristic vector based on the remaining portion of the respective image.
15. A system for tracking an article comprising processing means for executing the method of any preceding claim.
16. A computer program product which when executed undertakes the method of any preceding claim.