Claims

1. A method for controlling access for at least one tracked object, including:

acquiring or receiving a series of two-dimensional images assumed to be taken of the at least one tracked object, and also position data in respect of the at least one tracked object;

assigning a unique tracking identifier to the at least one tracked object;

determining a trajectory of the at least one tracked object from the position data; and

determining if there is a discontinuity in the trajectory or data computed from the trajectory,

wherein, if the discontinuity is detected, acquiring or receiving one or more new images of a further tracked object, assigning a new unique tracking identifier to the further tracked object, determining whether the further tracked object is the same as the at least one tracked object based on the one or more new images and the new unique tracking identifier, and determining whether access is allowed based on the determination of whether the further tracked object is the same as the at least one tracked object; and

wherein, if the discontinuity is not detected, determining whether access should be allowed on the basis of the at least one image from the series of two-dimensional images and the unique tracking identifier.

2. The method of claim 1, wherein the step of determining if there is discontinuity includes determining if a distance discontinuity condition or a velocity discontinuity condition is met by a time series of distance data or velocity data obtained from the trajectory.

3. The method of claim 2, wherein the discontinuity condition is whether a difference between two data samples in the time series: 1) exceeds a threshold value, or 2) exceeds or equals a threshold value.

4. The method of claim 3, wherein the threshold at least in part depends on an elapsed time between times at which the two data samples were acquired.

5. The method of any preceding claim, further including providing a time series of a statistic or metric computed from the trajectory or the two-dimensional images, and determining whether a statistic or metric discontinuity condition is met by the time series of statistics or metrics.

6. The method of claim 5, including further checking whether the statistic or metric discontinuity condition is met before determining if there is a discontinuity in the trajectory or data computed from the trajectory.

7. A biometric access control method, including the method of any preceding claim, further comprising obtaining biometric data of the at least one tracked object and determining whether the biometric information matches reference biometric data to determine whether access is allowed, wherein determining if there is discontinuity is performed prior to determining whether the obtained biometric data matches the reference biometric data.

8. The method of claim 7, being a facial biometric control method, wherein said at least one tracked object is a facial area of a person.

9. The method of claim 8, wherein said statistic or metric is a facial area size or a biometric score computed from the two-dimensional images.

10. The method of any preceding claim, including applying an object detection algorithm to a three-dimensional image to detect one or more objects, each object being said one of said at least one tracked object.

11. The method of any preceding claim, wherein the position data comprises at least depth data.

12. A method for counting a number of times a passage past a checkpoint by one or more tracked objects has occurred, including:

processing a passage by each tracked object and admitting passage by the tracked object, said processing including:

acquiring or receiving a series of two-dimensional images assumed to be taken of the tracked object, and also position data in respect of the tracked object;

assigning a unique tracking identifier to the tracked object;

determining a trajectory of said tracked object from the position data; and

determining if there is a discontinuity in the trajectory or data computed from the trajectory, and if the discontinuity is detected, acquiring one or more new images of a further tracked object, assigning a new unique tracking identifier to the further tracked object; and

wherein determining the number of times passage past the check point has occurred includes counting the number of different unique tracking identifiers which have been assigned.

13. The method of claim 12, wherein:

said admitting passage includes determining whether passage should be allowed, wherein,

if the discontinuity is detected, determining whether the further tracked object is the same as the at least one tracked object based on the one or more new images and the new unique tracking identifier, and determining whether passage should be allowed based on the determination of whether the further tracked object is the same as the at least one tracked object; and wherein

if the discontinuity is not detected, determining whether passage should be allowed based on at least one image from the series of two-dimensional images and the unique tracking identifier.

14. A method for tracking a count for a number of times a passage past a checkpoint by one or more tracked objects has occurred, including:

acquiring or receiving a series of two-dimensional images assumed to be taken of at least tracked object, and also position data in respect of the at least one portion of the at least one tracked object;

assigning a unique tracking identifier to the at least tracked object;

determining a trajectory of said at least one tracked object from the position data;

determining if there is a discontinuity in the trajectory or data computed from the trajectory,

wherein, if the discontinuity is detected, acquiring or receiving one or more new images of a further tracked object, assigning a new unique tracking identifier to the further tracked object, determining whether the further tracked object is the same as the at least one tracked object based on the one or more new images and the new unique tracking identifier, and determining whether passage is allowed based on the determination of whether the further tracked object is the same as the at least one tracked object; and

wherein, if the discontinuity is not detected, determining whether passage is allowed based on the at least one image from the series of two-dimensional images and the unique tracking identifer; and

increasing the count if passage is determined to be allowed.

15. A method of controlling or monitoring access to a premise or mode of transport having one or more entry points, or one or more exit points, or both, including implementing the method of any one of claims 1 to 14 at at least one of the entry points, at least one of the exit points, or both.

16. The method of any preceding claim, being a facial biometric access control method.

17. Computer readable medium having stored thereon machine readable instructions, which when executed are adapted to perform the method of any one of claims 1 to 15.

18. An access control system, including a processor configured to execute machine readable instructions, which when executed are adapted to perform the method of any one of claims 1 to 15.

19. The system of claim 18, including an image capture arrangement, the arrangement including a two-dimensional image-capturing camera and a three-dimensional image-capturing camera.

20. The system of claim 19, wherein, in use, the image capture arrangement is positioned directly in front of a queue of subjects to be processed by the access control system.

21. The access control system of any one of claims 18 to 20, being a biometric boarding system.

22. A method of controlling or monitoring access by one or more subjects who are standing in a queue, by using a biometric access control system to process each subject in turn, wherein the biometric access control system is in accordance with any one of claims 18 to 21.