CLAIMS

1. A system for object tracking, comprising:

at least one processor configured to act as a tracker configured to:

receive real time images from time t_0, at least for tracking an object in said real time images,

determine a first reference image of the tracked object,

track the object in at least real time images received after time t_0 based at least partly on the first reference image,

provide the first reference image to an output interface, so that the operator can view, during the tracking, each of said real time images received after time t0 at the same time as the first reference image,

perform at least steps ($S1_i$), ($S2_i$) and ($S3_i$) for i=1:

($S1_i$) at time t_i, perform an update to a new reference image which is calculated based on at least two of the real time images received from time t_{i-1} to time t_i, wherein the tracked object as appearing in the new reference image is not identical to the tracked object as appearing in any of the real time images received from time t_{i-1} to time t_i,

($S2_i$) track the object in at least a plurality of real time images received after time t_i, based at least partly on the new reference image,

($S3_i$) provide the new reference image to an output interface, so that the operator can view each real time image of said plurality of real time images received after time t_i at the same time as the new reference image, and

repeat at least once steps ($S1_i$), ($S2_i$) and ($S3_i$), wherein the value of i is incremented by one at each repetition.

2. The system of claim 1, wherein said tracker is further configured to receive an input provided by the operator, and to consider at least said input when performing at least one of: determining at least one of said first reference image and said new reference image, or tracking the object in the real time images.

3. The system of claim 1, wherein said tracker is further configured to perform at least one of the following: start object tracking or end object tracking.

4. The system of claim 1, further comprising:
the output interface configured to output at least said first reference image and said new reference image to said operator.

5. The system of claim 1, further comprising:
an input interface configured to receive an input from said operator, and to provide said input to said tracker.

6. The system of claim 1, wherein said tracker is further configured to issue a subsequent instruction based on a result of said tracking for acquiring a subsequent real time image.

7. The system of claim 1, further comprising:
an image source configured to receive a subsequent instruction which was issued by said tracker based on a result of said tracker tracking said object in the real time images, and configured to acquire a subsequent real time image at least partly based on said received instruction.

8. The system of claim 7, wherein said image source changes or does not change direction of pointing when acquiring said subsequent image, at least partly based on said received instruction.

9. The system of claim 5, wherein said input includes at least one selected from the group consisting of start tracking indication, end tracking indication, one or more dimensions of the object being tracked, location information relating to object being tracked, color information relating to object being tracked, specification that center of at least one of the first reference image and the new reference image should be changed to a different point, specification of center of object, specification that tracking following zoom in/zoom out appears successful/unsuccessful, specification that object being tracked should be changed, specification that smaller/larger object should be tracked, specification that the tracked object does not appear to be centered in the real time images, specification that at least one of the first reference image and the new reference image should be updated, specification of desired polarity, and specification that the new reference image should be updated more frequently or less frequently.

10. The system of claim 4, wherein at least one of the first reference image and the new reference image is outputted as a picture within a larger picture of one or more of the real time images.

11. A method, comprising:

receiving real time images from time t_0, at least for tracking an object in said real time images utilizing at least one processor;

determining a first reference image of the tracked object,

tracking the object in at least real time images received after time t_0 based at least partly on the first reference image,

providing the first reference image to an output interface, so that the operator can view, during the tracking, each of said real time images received after time t_0 at the same time as the first reference image,

perform at least steps ($S1_i$), ($S2_i$) and ($S3_i$) for i=1:

($S1_i$) at time t_i, perform an update to a new reference image which is calculated based at least on at least two of the real time images received from time t_{i-1} to time t_i, wherein the tracked object as appearing in the new reference image is not identical to the tracked object as appearing in any of the real time images received from time t_{i-1} to time t_i,

($S2_i$) tracking the object in at least a plurality of real time images received after time t_i, based at least partly on the new reference image,

($S3_i$) providing the new reference image to an output interface, so that the operator can view each real time image of said plurality of real time images received after time ti at the same time as the new reference image, and

repeat at least once steps ($S1_i$), ($S2_i$) and ($S3_i$), wherein the value of i is incremented by one at each repetition.

12. The method of claim 11, further comprising:

receiving input provided by the operator; and

considering at least said input when performing at least one of determining at least one of said first reference image and said new reference image, or tracking said object in the real time images.

13. The method of claim 11, further comprising:

outputting at least said first reference image and said new reference image to said operator.

14. The method of claim 11, further comprising:

receiving input from said operator; and

providing said input for use in tracking said object.

15. The method of claim 11, further comprising:

issuing a subsequent instruction based on a result of said tracking for acquiring a subsequent real time image.

16. The method of claim 11, further comprising:

receiving a subsequent instruction which was issued based on a result of said tracking said object in the real time images; and

acquiring a subsequent real time image at least partly based on said received instruction.

17. The method of claim 16, wherein said acquiring includes:

changing or not changing direction of pointing, at least partly based on said received instruction.

18. The method of claim 14, wherein said input includes at least one selected from the group consisting of start tracking indication, end tracking indication, one or more dimensions of the object being tracked, location information relating to object being tracked, color information relating to object being tracked, specification that center of at least one of the first reference image and the new reference image should be changed to a different point, specification of center of object, specification that tracking following zoom in/zoom out appears successful/unsuccessful, specification that object being tracked should be changed, specification that smaller/larger object should be tracked, specification that the tracked object does not appear to be centered in the real time image, specification that at least one of the first reference image and the new reference image should be updated, specification of desired

polarity, and specification that the new reference image should be updated more frequently or less frequently.

19. The method of claim 13, wherein at least one of the first reference image and the new reference image is outputted as a picture within a larger picture of one or more of the real time images.

20. A computer program product comprising a non-transitory computer useable medium having computer readable program code embodied therein, the computer program product comprising computer readable program code for causing a computer to:

receive real time images from time t_0, at least for tracking an object in said real time images,

determine a first reference image of the tracked object,

track the object in at least real time images received after time t_0 based at least partly on the first reference image,

provide the first reference image to an output interface, so that the operator can view, during the tracking, each of said real time images received after time t_0 at the same time as the first reference image,

perform at least steps ($S1_i$), ($S2_i$) and ($S3_i$) for i=1:

($S1_i$) at time t_i, perform an update to a new reference image which is calculated based on at least two of the real time images received from time t_{i-1} to time t_i, wherein the tracked object as appearing in the new reference image is not identical to the tracked object as appearing in any of the real time images received from time t_{i-1} to time t_i,

($S2_i$) track the object in at least a plurality of real time images received after time t_i, based at least partly on the new reference image,

($S3_i$) provide the new reference image to an output interface, so that the operator can view each real time image of said plurality of real time images received after time ti at the same time as the new reference image, and

repeat at least once steps ($S1_i$), ($S2_i$) and ($S3_i$), wherein the value of i is incremented by one at each repetition.

21. The computer program product of claim 20, further comprising:

computer readable program code for causing the output interface to output said first reference

image and said new reference image to an operator.

22. The computer program product of claim 20, further comprising:

computer readable program code for causing the computer to receive an input from an operator; and

computer readable program code for causing the computer to provide said input for use in tracking said object.

23. The computer program product of claim 20, further comprising:

computer readable program code for causing the computer to receive a subsequent instruction which was issued based on a result of said tracking of said object in a real time image; and

computer readable program code for causing the computer to acquire a subsequent real time image at least partly based on said received instruction.

24. The system of claim 1, wherein said tracker is further configured to receive an input provided by the operator after the first reference image or the new reference image has been outputted to the operator.

25. The system of claim 1, wherein said tracker being configured to track the object includes the tracker being configured to correlate at least one of the first reference image and the new reference image with one or more of the real time images.

26. The system of claim 1, wherein at least part of the system is configured to be located on or in a moving vehicle or craft.

27. The system of claim 1, wherein the real time images are provided for output to the operator by the tracker.

28. The system of claim 27, wherein each of said real time image received from time to t_0 time t_f is provided integrated with the first reference image and each real time image of said plurality of real time images received after time ti is provided integrated with the new reference image.

29. The system of claim 28, wherein at least one of the first reference image and the new reference image is provided as a picture within a larger picture of one or more of the real time images.

30. The system of claim 27, wherein separated real time and reference images are provided.

31. The system of claim 1, wherein the tracker is further configured to process at least one of the first reference image, the new reference image and the real time images.

32. The system of claim 1, wherein the real time images are provided for output to the operator by an image source.

33. The system of claim 1, wherein said tracker is configured to receive a plurality of real time images and to determine a plurality of reference images of the tracked object, and wherein another reference image is determined each time another real time image is received.

34. The system of claim 4, wherein the output interface is further configured to output the real time images on a separate output interface module than used for outputting the reference images.

35. The system of claim 4, wherein the output interface is further configured to output the real time images on the same output interface module as used for outputting the reference images.

36. The system of claim 35, wherein the real time images and reference images are outputted in an arrangement which facilitates at least one of: analysis, overseeing, training, development, or input.

37. The system of claim 36, wherein at least one of first reference image and the new reference image is outputted as a picture within a larger picture of one or more of the real time images.

38. The system of claim 4, wherein the output interface is further configured to process at least one of the first reference image and the new reference image or the real time images.

39. The system of claim 1, wherein viewing of at least one of the first reference image and the new reference image by the operator enables at least one of the following: analysis, overseeing, training, system development, or input.

40. The system of claim 1, wherein other information is provided for output to the operator by at least one of the tracker or an image source.