

The invention claimed is:

1. A method for automatic surveillance of a monitored area via an aerial vehicle, the method comprising:

receiving region of interest (ROI) data indicative of spatial location of regions of interest in a scene;

receiving object of interest (OOI) data indicative of characteristics of one or more objects potentially situated within the scene;

calculating a repeated sequence of lines of sight (LOS) of a video imaging device, wherein the calculating of the sequence is carried out by weighting: the OOI data; properties of the video imaging device; and properties of the aerial vehicle,

automatically pointing the video imaging device at the scene based on the calculated repeated sequence of LOS;

applying automatic feature detection algorithms to the video images of the regions of interest, based on OOI data;

issuing an alert upon detection of the one or more objects in the scene that are associated with the OOI data,

wherein the characteristics comprise at least one of: visual features, tempo spatial behavior, and location within the scene.

2. A method as claimed in claim 1, wherein the automatically determined order of viewing is optimized.

3. A method as claimed in claim 1, wherein the step of automatically scanning the selected region of interest to detect said one or more characteristics of the object of interest comprises video motion detection.

4. A method as claimed in claim 1, wherein the step of automatically scanning the selected region of interest to detect said one or more characteristics of the object of interest comprises constructing a stitched image of the region of interest.

5. A method as claimed in claim 1, wherein said one or more characteristics of the object of interest is selected from a group of object characteristics which consists of: shape, dimensions, texture, color, luminance, orientation, location, relative location to other known

objects, detection of motion, direction of motion and speed.

6. A method as claimed in claim 1, wherein the alert is selected from a group of alerts that consists of: displaying a still image of the detected object, pointing the line of site of the imaging device at the object of interest, marking the detected object on a displayed image, providing an indication to an operator, providing information.

7. A method as claimed in claim 1, wherein the imaging device is mounted on an elevated platform.

8. A method as claimed in claim 7, wherein the platform comprises a platform selected from a group of platforms consisting of an unmanned aerial vehicle, a manned aircraft, a tower, a post, a tethered balloon.

9. A method as claimed in claim 7, wherein the step of automatically scanning the selected region of interest is performed on the platform.

10. An apparatus for automatic surveillance of a monitored area, the apparatus comprising:
an aerial vehicle-mounted video imaging device connected to a pointing mechanism;
a processor; and
a user interface,

wherein the user interface is configured to: (i)

receive region of interest (ROI) data indicative of spatial location of regions of interest in a scene; and (ii) receive object of interest (OOI) data indicative of characteristics of one or more objects potentially situated within the scene;

wherein the processor is configured to calculate a repeated sequence of lines of sight (LOS) of a video imaging device, wherein the calculating of the sequence is carried out by weighting: the OOI data properties of the video imaging device; and properties of the mobile platform;

wherein said pointing mechanism is configured to automatically point the video imaging device at the scene based on the calculated sequence of LOS;

wherein the a processor is further configured to: (i) apply automatic feature detection algorithms to the video images of the one or more regions of interest, based on OOI data; and

(ii) issue an alert upon detection of the one or more objects in the scene that are associated with the OOI data;

wherein the characteristics comprise at least one of: visual features, tempo spatial behavior, and location within the scene.

11. An apparatus as claimed in claim 10, wherein the automatically determined order of viewing is optimized.

12. An apparatus as claimed in claim 10, wherein the imaging device comprises a video camera.

13. An apparatus as claimed in claim 10, wherein the processor is adapted to automatically scan the selected region of interest to detect said one or more characteristics of the object of interest using video motion detection.

14. An apparatus as claimed in claim 10, wherein the processor is adapted to construct a stitched image of the region of interest.

15. An apparatus as claimed in claim 10, wherein said one or more characteristics of the object of interest is selected from a group of object characteristics which consists of: shape, dimensions, texture, color, luminance, orientation, location, relative location to other known objects, detection of motion, direction of motion and speed.

16. An apparatus as claimed in claim 10, wherein the alert is selected from a group of alerts that consists of: displaying a still image of the detected object, pointing the line of site of the imaging device at the object of interest, marking the detected object on a displayed image, providing an indication to an operator, providing information.

17. An apparatus as claimed in claim 10, wherein the imaging device is mounted on an elevated platform.

18. An apparatus as claimed in claim 17, wherein the platform comprises a platform selected from a group of platforms consisting of an unmanned aerial vehicle, a manned aircraft, a tower, a post and a tethered balloon.

19. An apparatus as claimed in claim 17, wherein a component of the processor that is adapted to automatically scan the selected region of interest to detect said one or more characteristics of the object of interest and upon detection issue an alert is mounted on the platform.

20. The system according to claim 10, wherein the calculating of the sequence by the processor further includes allocating a corresponding period of time for viewing a respective ROI and a frequency at which the respective ROI is to be revisited.

21. The system according to claim 20, wherein the video imaging device has an adjustable field of view (FOV), wherein the FOV is adjusted in real time based on the OOI and the ROI data.