Amendments to the Claims:

This listing of the claims will replace all prior versions of the claims in the application:

1. (Currently amended) A surveillance system for detecting a foreign object, debris, or damage (FOD) on a runway, comprising:

one or more cameras for capturing electronic images of the runway; and

an image processing system for detecting the FOD on the runway based on adaptive image processing of the electronic images captured by the cameras and for applying image enhancement methods to enhance the captured electronic images,

wherein the image processing system is configured to subject the captured electronic images to background learning, and generate a composite background edge map during background learning, the composite background edge map comprising an adaptive background edge map, a previously learned and saved day or night background edge map, and a seasonal marking map generated for a particular season or weather condition,

wherein the surveillance system is adaptively operable for FOD detection under both day and night ambient light conditions without assisted illumination including infrared or laser illuminators,

wherein the image processing system is configured to generate a robust edge map comprising selected pixels from the captured electronic images,

wherein the image processing system is configured to compare the composite background edge map and the robust edge map, and remove background edges to extract a suspected edge map of FOD.

2. (Canceled)

3. (Currently amended) The surveillance system according to claim 1, wherein the captured electronic images are enhanced by using a high pass filter, a Sobel X from left_to_right filter and a Sobel X from right_to_left filter, or a Scharr X filter.

4. (Currently amended) The surveillance system according to claim 1, wherein the image processing system is configured to determines if an instant of processing is a day-time or night-time; and detect an abnormal light condition from the captured electronic images during night-time, wherein the abnormal light condition is due to aircraft landing or aircraft taking off or ground vehicle movement.

5. (Previously presented) The surveillance system according to claim 4, wherein detecting of the abnormal light condition comprises global histogram and statistical analysis to compare each captured image with one or more preceding images and identifies the abnormal light condition based on a change in intensity with reference to a threshold value.

6. (Currently amended) The surveillance system according to claim 4, wherein captured electronic images for which the abnormal light condition are detected are ignored from further processing.

7. (Canceled).

8. (Previously presented) The surveillance system according to claim 1, wherein the image processing system is configured to apply temporal filtering to a stack of pixel level edge maps to obtain the robust edge map which consists only of pixels that have accumulated to pass a threshold.

9. (Previously presented) The surveillance system according to claim 8, wherein the image processing system is configured to subject the robust edge map to adaptive background learning, the adaptive background learning comprising:

comparing background edge images obtained at previous instants with current image;

identifying slow-change features on the runway; and

updating the background edge image with the slow changing features.

10. (Canceled).

11. (Canceled).

12. (Previously presented) The surveillance system according to claim 1, wherein the edge filtering filters unwanted edges related to the environmental conditions from the suspected edge map, and computes edge parameters of FOD from the suspected edge map.

13. (Previously presented) The surveillance system according to claim 12, wherein the environmental conditions include day to night transition, or night to day transition, weather conditions, rain, smoke or cloud.

14. (Previously presented) The surveillance system according to claim 1, wherein the image processing system is configured to overlay an FOD graphic on a suspected region of the runway on a video display to alarm an operator at a control tower or control room of FOD detection.

15. (Original) The surveillance system according to claim 14, wherein one or more of the cameras, or one or more additional cameras are arranged for zooming on to the suspected region for visual verification.

16. (Previously presented) The surveillance system according to claim 1, wherein the image processing system is configured to classify the FOD.

17. (Previously presented) The surveillance system according to claim 1, wherein the one or more cameras are one or more static cameras, one or more non-static cameras or a combination of both static and non static cameras.

18. (Previously presented) The surveillance system according to claim 1, wherein the one or more cameras are placed on one side of the runway.

19. (Previously presented) The surveillance system according to claim 1, wherein the one or more cameras are placed on either sides of the runway in a staggered manner.

20. (Previously presented) The surveillance system according to claim 1, wherein on a condition that one or more cameras fail to function, respective adjacent ones of the cameras are operable to cover areas covered by the failed cameras.

21. (Previously presented) The surveillance system according to claim 1, wherein the one or more cameras are one or more monochrome cameras, one or more color cameras or both.

22. (Previously presented) The surveillance system according to claim 1, further comprising one or more night vision cameras.

23. (Previously presented) The surveillance system according to claim 1, wherein a runway surface is divided into a plurality of segments, and one or more non-static cameras sequentially scan the runway surface segment-by-segment for FOD detection.

24. (Previously presented) The surveillance system according to claim 1, wherein a static camera detects respective locations of aircraft take off and landing on the runway such that a non-static camera is directed to first scan runway segments in the respective locations of aircraft landing or take off to reduce FOD detection time.

25. (Previously presented) The surveillance system according to claim 1, wherein the image processing system is configured to apply temporal filtering to filter out rain clutter in runway scene images by recognising characteristics of rain motion clutter and based on the motion clutter due to rain occurring across the entire runway.

26. (Previously presented) The surveillance system according to claim 1, wherein the image processing system is configured to apply temporal filtering to filter out snow clutter in runway scene images by recognising characteristics of snow motion clutter and based on the motion clutter due to snow occurring across the entire runway.

27. (Previously presented) The surveillance system according to claim 1, wherein the image processing system is configured to make use of markers or

runway edge lights located along a longitudinal (horizontal) direction on the runway and on a same vertical distance from a side of the runway for runway scene calibration to map pixels on the images of the runway to precise co-ordinates on a real-world co-ordinate frame (including WGS84 or Airport Grid).

28. (Previously presented) The surveillance system according to claim 1, wherein the image processing system is configured to make use of two parallel horizontal runway lines on each side of a runway middle line and the runway middle line to derive two vertical pixel mapping ratios for runway scene calibration to map pixels on the images on the runway to precise co-ordinates on a real-world co-ordinate frame (including WGS84 or Airport Grid).

29. (Previously presented) The surveillance system according to claim 1, wherein the image processing system is configured to make use of monoscopic vision and a calibrated runway scene image captured by a monoscopic camera to determine position and range of the FOD on the runway.

30. (Currently amended) The surveillance system according to claim 1, wherein the image processing system is configured to make[[s]] use of a position and range of the FOD determined by a static camera and a calibrated runway scene image to automatically control a non-static camera (including a pan tilt zoom camera) to pan and/or tilt and/or zoom and/or focus onto a FOD to obtain telephoto images of the FOD with sufficient details to enable a verification of detected FOD or to filter a false alarm.

31. (Previously presented) The surveillance system according to claim 1, wherein the image processing system is configured to make use of stereo vision using a pair of surveillance cameras to cover a same segment of the runway so that

FOD range and position can be computed from a difference image obtained by comparing images as captured by the pair of surveillance cameras covering the same segment of surveillance (field of view) on the runway.

32. (Canceled).

33. (Previously presented) The surveillance system according to claim 1, wherein the image processing system is configured to adaptively estimate one or more threshold values for optimal FOD edge extraction for different environmental conditions; and generate a pixel level edge map using a statistical method based on progressively learned background image edge map to determine a grayscale lookup table (LUT) to be used to generate pixel level threshold map.

34. (Previously presented) The surveillance system according to claim 1, wherein the image processing system is configured to perform edge filtering on the suspected edge map to locate and filter out light reflection on the runway resulting from environmental conditions.

35. (Currently amended) The surveillance system according to claim 1, wherein the image processing system is configured to detect motion in the captured electronic images and to subject the captured electronic images devoid of motion to the background learning.