CLAIMS

1. A method for automated or semi-automated inspection of a large, mobile structure using a camera-equipped unmanned aerial vehicle, UAV, the method comprising:

using a camera of the UAV to identify the mobile structure to be inspected;

selecting an inspection routine for a portion of the mobile structure from a plurality of available inspection routines;

retrieving, from a database, a flight plan for the UAV corresponding to the selected inspection routine, the flight plan corresponding to a portion of the identified mobile structure and comprising instructions to visit a plurality of positions in three-dimensional space corresponding to points of the mobile structure identified for inspection in the inspection routine;

operating the UAV according to the retrieved flight plan, wherein the flight plan maintains the UAV at a predetermined distance from the surface of the mobile structure, determined by the selected inspection routine;

at one or more of the plurality of positions visited, capturing a particular data indicative of the condition of corresponding point of the mobile structure;

identifying points of the mobile structure where the condition of the mobile structure appears sub-optimal;

saving a plurality of coordinates of the points of the mobile structure so identified; and

on completion of the inspection routine, revisiting one of more points identified as sub-optimal and performing a further inspection under control of an operator.

2. The method of claim 1, wherein the particular data comprise image data.

3. The method of claim 1 or 2, wherein the particular data comprise video data.

4. The method of any of claims 1 to 3, further comprising transmitting the particular data to an operator for analysis.

5. The method of claim 4, wherein the transmitting is performed substantially in real-time as the particular data are captured.

6. The method of claim 4, wherein the transmitting is performed after the completion of the flight plan.

7. The method of any of claims 1 to 6, wherein, the step of using the camera to identify the mobile structure to be inspected comprises capturing a unique identifier on the mobile structure.

8. The method of claim 7, wherein the mobile structure is an aircraft and the unique identifier is the aircraft tail number.

9. A method according to any preceding claim, wherein the step of identifying points of the mobile structure where the condition of the mobile structure appears sub-optimal is performed automatically by comparison of data retrieved by the camera with pre-stored data for the respective point of the mobile structure.

10. A system for automated or semi-automated inspection of a large, mobile structure, comprising:

a camera-equipped unmanned aerial vehicle (UAV);

a database having stored therein a plurality of inspection routines, and a three-dimensional rendering of a plurality of mobile structures; and

a controller, the controller being programmed perform the steps of:

controlling a camera of the UAV to identify the mobile structure to be inspected;

selecting an inspection routine for a portion of the mobile structure from a plurality of available inspection routines;

retrieving, from the database, a flight plan for the UAV corresponding to the selected inspection routine, the flight plan corresponding to a portion of the identified mobile structure and comprising instructions to visit a plurality of positions in three-dimensional space corresponding to the points of the mobile structure identified for inspection in the inspection routine;

operating the UAV according to the retrieved flight plan, wherein the flight plan maintains the UAV at a predetermined distance from the surface of the mobile structure, determined by the selected inspection routine;

at one or more of the plurality of positions visited, capturing data indicative of the condition of corresponding point of the mobile structure;

identifying points of the mobile structure where the condition of the mobile structure appears sub-optimal;

saving a plurality of coordinates of the points of the mobile structure so identified; and

on completion of the inspection routine, revisiting one of more points identified as sub-optimal and performing a further inspection under control of an operator.

11. The system of claim 10, wherein the controller is programmed to control the camera to identify the mobile structure to be inspected by capturing a unique identifier on the mobile structure.

12. The system of claim 11, wherein the mobile structure is an aircraft and the unique identifier is the aircraft tail number.

13. A system according to any of claims 10 to 12, wherein the controller is programmed to perform the step of identifying points of the mobile structure where the condition of the mobile structure appears sub-optimal is performed automatically by comparison of data retrieved by the camera with pre-stored data for the respective point of the mobile structure.