Claims

1. A detection method for detecting presence of a device on a vehicle, the detection method comprising:

detecting physical profile of a detection region on ~~a~~ the vehicle, the ~~at least one~~ detection region being where the device is detectable;

capturing a plurality of images of the detection region on the vehicle; and

triggering an alert upon detecting an anomaly in the physical profile, the anomaly detectable in the profile being associated with one of absence, displacement and misshaping of the device,

wherein triggering the alert comprising identifying at least one of the plurality of images associated with the anomaly in the physical profile and processing the identified at least one of the plurality of images to verify the anomaly detected in the profile by comparing the at least one of the plurality of images with at least one reference image using one of template matching and image parameter statistical distribution.

2. The detection method as in claim 1, triggering the alert comprising:

sending the identified at least one of the plurality of images to a monitoring system for subsequent visual verification of the anomaly by a user of the monitoring system.

3. The detection method as in claim 2, the monitoring system being one of a computing system and a mobile communication device.

~~4. The detection method as in claim 1, triggering the alert comprising:~~

~~processing the identified at least one of the plurality of images to verify the anomaly detected in the profile.~~

~~5. The detection method as in claim 4, processing the identified at least one of the plurality of images comprising:~~

~~comparing the at least one of the plurality of images with at least one reference image using one of template matching and image parameter statistical distribution~~.

~~6~~4. The detection method as in claim 1, the vehicle being a train and the device being a current collector device (CCD) of the train.

~~7~~5. The detection method as in claim 1, further comprising:

detecting presence of the vehicle prior to detecting physical profile of ~~a~~ the detection region on ~~a~~ the vehicle.

~~8~~6. The detection method as in claim ~~7~~5, further comprising:

illuminating ~~at least~~ the detection ~~portion~~ region of the vehicle in response to the presence of the vehicle being detected.

~~9~~7. The detection method as in claim 1, detecting physical profile of a detection region on a vehicle comprising:

detecting physical profile of a detection region on a vehicle with a laser scanner.

~~10~~8. The detection method as in claim 1, capturing a plurality of images of the detection region on the vehicle comprising:

capturing a plurality of images of the detection region on the vehicle with at least one camera.

~~11~~9. A detection system for detecting presence of a device on a vehicle, the detection system comprising:

a scanner for detecting physical profile of a detection region on ~~a~~ the vehicle, the ~~at least one~~detection region being where the device is detectable;

at least one camera for capturing a plurality of images of the detection region on the vehicle; and

a controller wherewith the scanner and the at least one camera are coupled, the controller triggering an alert upon detecting an anomaly in the physical profile, the anomaly detectable in the profile being associated with one of absence, displacement and misshaping of the device,

wherein the controller further identifies at least one of the plurality of images associated with the anomaly in the physical profile upon the alert being triggered.

~~12~~10. The detection system as in claim ~~11~~9, the controller sending the identified at least one of the plurality of images to a monitoring system for subsequent visual verification of the anomaly by a user of the monitoring system.

~~13~~11. The detection system as in claim ~~12~~10, the monitoring system being one of a computing system and a mobile communication device.

~~14~~12. The detection system as in claim ~~11~~9, the controller further processing the identified at least one of the plurality of images to verify the anomaly detected in the profile in response to the alert being triggered.

~~15~~13. The detection system as in claim ~~14~~12, processing the identified at least one of the plurality of images comprising:

comparing the at least one of the plurality of images with at least one reference image using one of template matching and image parameter statistical distribution.

~~16~~14. The detection system as in claim ~~11~~9, the vehicle being a train and the device being a current collector device (CCD) of the train.

~~17~~15. The detection system as in claim ~~11~~9, further comprising a sensor for detecting presence of the vehicle prior to detecting physical profile of ~~a~~ the detection region on ~~a~~ the vehicle.

~~18~~16. The detection system as in claim ~~17~~15, further comprising an illuminator for illuminating ~~at least~~ the detection ~~portion~~ region of the vehicle in response to the presence of the vehicle being detected.

~~19~~17. The detection system as in claim ~~11~~15, the scanner being a laser scanner.