

rip

Rail Inspection Portal (rip)TM



duostech

Rail Inspection Portal



The Rail Inspection Portal provides a way to capture, view, and record a 360-degree video view of moving trains, providing automatic anomaly detection (with real-time alerts) and a forensic record of each railcar in the train.

The Rail Inspection Portal utilizes duostech's video analytics engine and includes the following technologies, deployed at a single inspection point:

- Automatic Train Rider Detection System (trids™)
- 360 degree Video Capture
- Automated Open Door and Missing Hatch Detection
- Linear Panorama Generator
- Under Vehicle Inspection System (UVIS)
- Search and Reporting

Train Rider Detection

The Train Rider Detection System (trids™) uses high-speed camera images and intelligent video analytics to search passing freight railcars for unauthorized riders, minimizing the need to stop trains for inspection. The trids™ module transmits real-time alerts (as directed by the customer's concept of operations) when it detects an anomaly, providing video images and location information for any suspect railcars.

Railcar Image Capture: 360 Degree View

Specialized cameras capture images of the top and sides of each railcar as it passes through the inspection point. The system captures overhead and side views and searches the images for anomalies (illegal riders, contraband). The video images can also be used in forensic analysis or as a record of a railcar's appearance at a given date and time.

Automated Open Door / Missing Hatch Detection

The Missing Hatch Detection module scans passing rail hopper cars to identify any cars that are missing top hatches. Completely integrated into the Rail Inspection Portal, the system uses both visual cues (from video images) and laser distance sensors to recognize a covered hopper car and detect an open or missing hatch. Upon detection, this module transmits real-time alerts and supporting data as directed by the customer's concept of operations.

Linear Panorama Generator

The Linear Panorama (LP) Generator captures a sequence of images from a passing object and stitches them together into a panoramic image format. This application is used in conjunction with both the Train Detection and Missing Hatch modules to provide context and allow authorized personnel to review an entire train in a panoramic format.

Under-Vehicle Inspection System

The Rail Inspection Portal includes an Under Vehicle Inspection System (UVIS) that captures high-definition images of the undercarriage of each passing railcar and notes any detected anomalies as compared to previously taken images known to reflect normal conditions.

The UVIS is based on high definition line scanning technology that captures and records images of a vehicle's undercarriage as it passes over the scanning unit. High-resolution images are processed and compared to reference images; the video analytics engine automatically detects and marks anomalies and changes from reference images. Images are saved into an image database for reference. Detections are identified and displayed for further review by authorized inspection personnel.

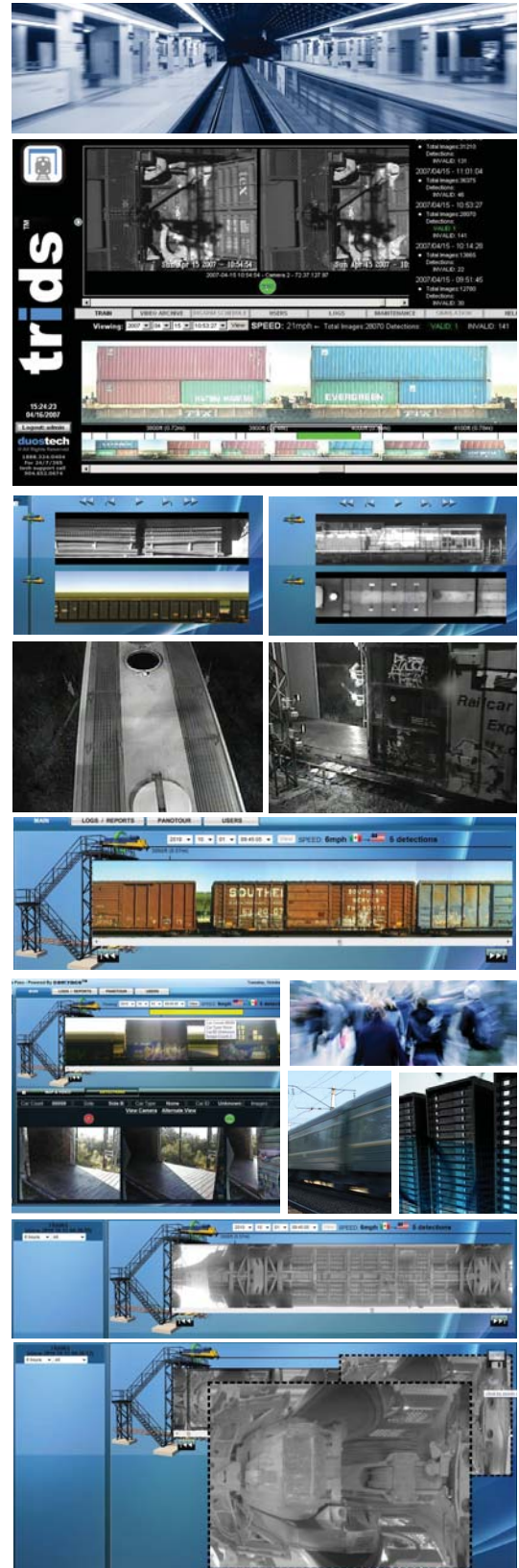
Graphical User Interface (search and reporting)

The Rail Inspection Portal GUI includes a Search functionality that allows the user to search for any alarm condition as well as specific rail cars based on the AEI tag information. This information can be further used for higher level intelligence / correlation.

The alarm information, manual escalations and reports are all automatically populated into a report that can be sent (both manually/automatically) to all interested parties. This provides a complete loop between the command and control center and users in the field.

With centraco™ Command and Control

Like all of Duos' intelligent solutions, Rail Inspection Portal is command and control ready. Duos' state-of-the-art intelligent command and control platform, centraco™ provides a scalable information delivery and response solution that is designed to address operational and management challenges. Designed with years of "real life" situational input, the centraco™ platform is designed to perform in the most challenging and dynamic environments.



duostech
Duos Technologies, Inc.

6622 Southpoint Dr. S. | Suite 310 | Jacksonville, FL 32216 | P/ 904.296.2807 | F/ 904.296.4103 | info@duostech.com | www.duostech.com

D002/2176/0311

