case study.

Train Rider Detection System (trids™)

A large national rail company in the western United States operates freight trains along the border between the U.S. and Mexico. These trains are often comprised of flat cars hauling metal shipping containers that are extremely vulnerable to the harboring of stowaways (illegal riders) as well as to cargo theft.

Railroad Company,
Western United States

CHALLENGE

Overcoming vast distances, overextended authorities, and preserving rail profitability is dependent upon maintaining train velocity as strict schedules ensure timely intermodal transfer. The standard enforcement practice of random “Stop and Search” is sporadic, time consuming and results in costly transit delays.

SOLUTION

The Train Rider Detection System (trids™) automatically captures, inspects, and processes real time images from freight trains moving at speeds of up to 70 mph, digitally searching for unauthorized riders and minimizing the need to stop trains for inspections - with the objective to maintain train velocity throughout the route. Patent pending technologies that represent a breakthrough in automated identification and video analytics combine to form **trids™**, providing highest level of accuracy, minimizing the number of false alarms, and offering the optimum solution for intrusion detection:

- **Automated Illegal Rider Identification** (at speeds of up to 70 mph) - high speed image capture employs specialized high definition day/night cameras with infrared illumination to capture digital still images of each container car as it passes through a nondescript checkpoint. Images are processed to analyze container wells for anomalies. For instance, a person hiding in the container well does not fit expected geometry and is therefore flagged as a suspicious anomaly.

- **Remote Viewing -** The intuitive **trids™** Graphical User Interface (GUI) provides a general alert of any train approaching the station and a special alert for suspicious trains. Digital images of suspicious events are transmitted for investigation from any authorized workstation connected to the network. At this point, railroad security personnel review the images and make a determination whether alarm events warrant further action, i.e. U.S. Border Patrol stoppage of the train for physical inspection. Slow motion image playback allows operators to quickly review suspect container cars. Archived images can be downloaded.

- **Linear Panorama Generator** - Railroad and Border Patrol personnel can also review the entire train presented in a proprietary panoramic image setting. This feature not only presents stitched images of the entire train, but also pinpoints the specific location where the suspicious event was detected by providing suspect image positional markers relative to the locomotive.

BENEFIT

The system minimizes the need for interaction in that it cues Border Patrol officers and/or other law enforcement personnel which rail cars warrant investigation, and renders inspections more efficient and effective.

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