SOLUTION

Integrated Solution for Vehicles and Containers Monitoring

Thousands of containers arrive at seaports and Intermodal hubs from countries all around the world. They are carried aboard liner ships, trucks and trains, which offer regularly scheduled services on fixed routes. Ports and intermodal hubs are the beating heart of global logistics. Every day, hundreds of trucks and containers move in and out, carrying goods that must be tracked, verified, and processed with precision.

Typically, these operations are manually managed by gate operators that record license plates by hand, check container codes, and verify each vehicle's access authorisation. This process is time consuming and error prone, provoking congestions and long queues at gates, especially during peak hours. These processes imply delays in loading and unloading operations that are impacting the entire supply chain, limited visibility on what is actually happening inside the terminal, in real time, and difficulties in ensuring safety and compliance when information is scattered across different systems.

Port and intermodal operations need smarter, faster, and more connected solutions, capable of transforming raw data into actionable insights and improving efficiency from the gate to the yard. To support these operations, SNAP4 has developed a turnkey system that combines AXIS cameras with intelligent video technology with the Snap4City data and analytics platform.

The solution allows operators in ports and intermodal hubs to easily access to an application that:

- Automatically recognises trucks and trailers license plates;
- Detects ISO and BIC codes on containers at entry and exit gates of the area;
- Collects and processes data in real time, visualised through an interactive dashboard;
- Monitors gate operations and traffic flows continuously;
- Generates reports, statistics, and performance charts, accessible in a click;
- Is scalable and easily configurable to be adapted to different applicative scenarios.

All data are integrated into Snap4City, an open and scalable platform designed for IoT and video analytics data management, enabling:

- seamless interoperability with external and legacy systems (Terminal Operating System (TOS), ERP, customs, and security);
- eventual integration with other Snap4City solution to take into account: traffic flow data, routing serices, smart light management, smart parking management, environmental data management, etc.
- web-based access from operator workstations or mobile devices;
- secure data handling fully compliant with GDPR regulations.
- Modular and scalable software architecture, based on Snap4Tech open source solution integration for advanced analytics;
- Dynamic dashboards for real-time monitoring, automatic alerts, and historical statistics;
- User management and secure authentication.

The solution brings a wide range of benefits to port and intermodal operations. By automating the recognition of vehicles and containers, it significantly improves operational efficiency, reducing gate times and traffic congestion even during peak hours. Enhanced security and control ensure that every truck, trailer, and container is accurately identified and traceable throughout its journey, helping operators to maintain safety and compliance at all times. The solution promotes digitalisation, integrating seamlessly with existing logistics, customs, and management platforms to create a unified flow of information. This digital continuity simplifies daily operations and supports smarter decision-making.

Finally, through its analytics and planning capabilities, the platform provides interactive dashboards, key performance indicators, and detailed reports that give operators the insight they need to optimise resources and plan strategically, and can be easily integrated with administrative management solutions and services which are accessible in the post, hub.

At the core of this system lies Snap4City technology — an open-source platform designed for Smart City and Smart Industry environments for high interoperability. Snap4City collects, correlates, and analyses IoT data, database data, satellite data, maps, traffic data, parking data, video, city data, and sensor data, etc., in real time and from any kind of data sources, enabling advanced automation, and exploiting data analytics, and artificial intelligence. It securely manages large volumes of data while offering fully customisable dashboards and visual tools that make monitoring and reporting simple, powerful, and intuitive.

Extended version accessible from: https://www.snap4city.org/1127
Contact: https://www.snap4city.org

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