



Level Crossing Vision

Camera-based level crossing monitoring



Problem description

Accidents at level crossings are rare but extremely dangerous - they account for only 1.2% of road fatalities, but 29% of all rail fatalities. Despite automatic protection systems, risks remain. Our solution combines state-of-the-art technologies to create a comprehensive safety and monitoring system that both protects road traffic and optimises rail operations.

Solution description

LXV to enhance safety and operational efficiency at level crossings

LLX Vision is a surveillance-based solution designed to enhance safety and efficiency at level crossings. Key benefits include:

1. **Monitoring Traffic** – Tracks vehicle and pedestrian movement to identify hazards and congestion.
2. **Accident Documentation** – Provides clear footage for investigations in case of incidents.
3. **Real-Time Alerts** – Detects unusual behavior and triggers immediate warnings.
4. **Enhanced Safety** – Deters risky actions by increasing awareness of surveillance.
5. **Traffic Management** – Helps optimize traffic flow and signal timing.
6. **Remote Monitoring** – Allows operators to oversee crossings from a control center.
7. **Proactive Safety** – Uses technology to prevent accidents before they happen.

LX Vision is a forward-thinking solution that improves both railway security and operational efficiency.

How it works

Main Features

- **Failure Detection** – Identifies malfunctions in lights, barriers, and sound signals for maintenance planning.
- **Object & Traffic Monitoring** – Detects, identifies, and timestamps pedestrians, vehicles, and objects at the crossing.
- **Local Warning System** – Analyzes situations, detects risks, and triggers local alerts to prevent accidents.
- **Incident Recording** – Stores time-stamped event data (train passage & safety system activation) for 30 days for investigations.
- **Sensor Network Management** – Monitors visibility and connectivity of all deployed sensors.

This system enhances safety, ensures fast incident response, and optimizes railway operations.

Hardware

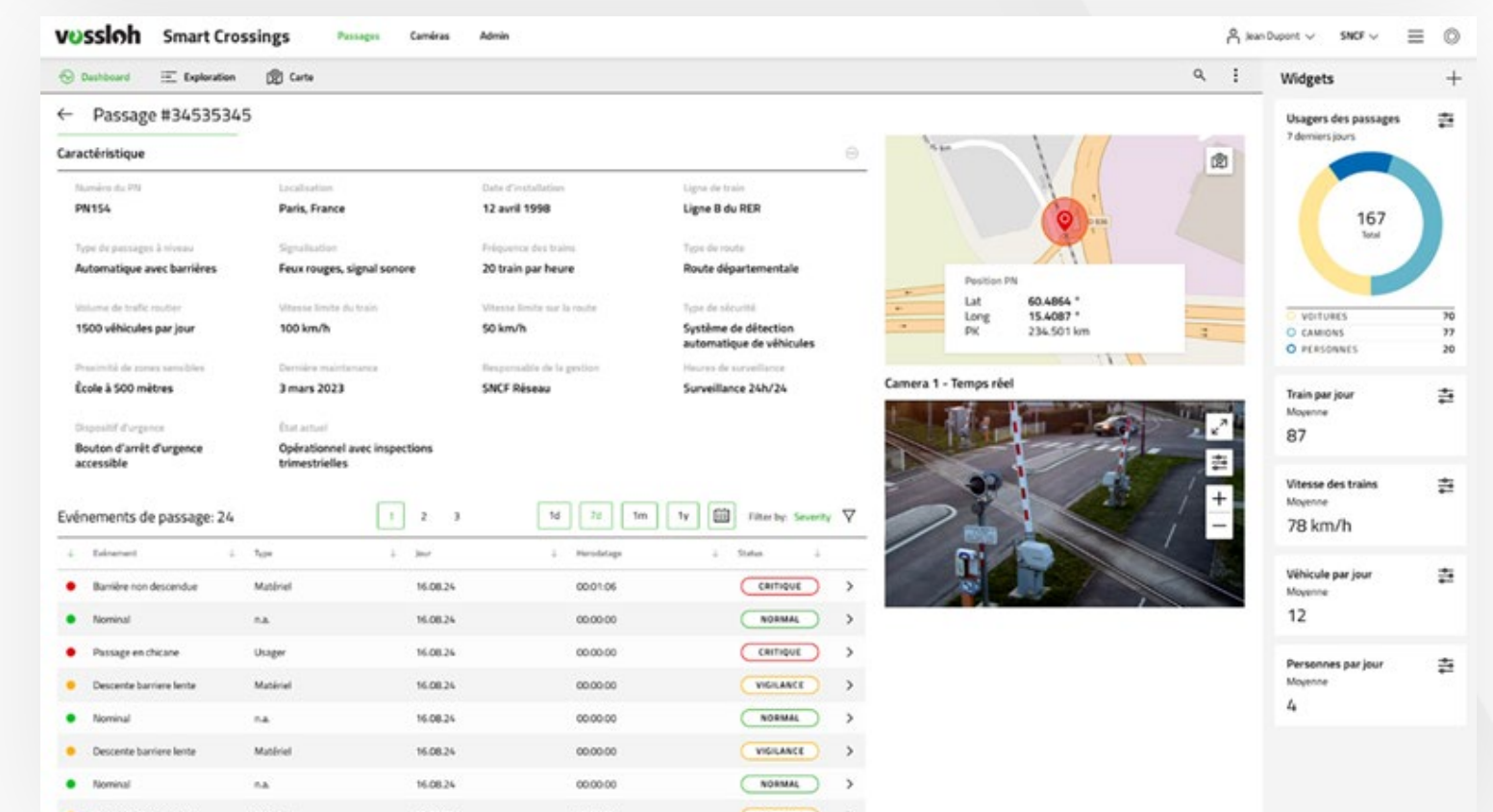
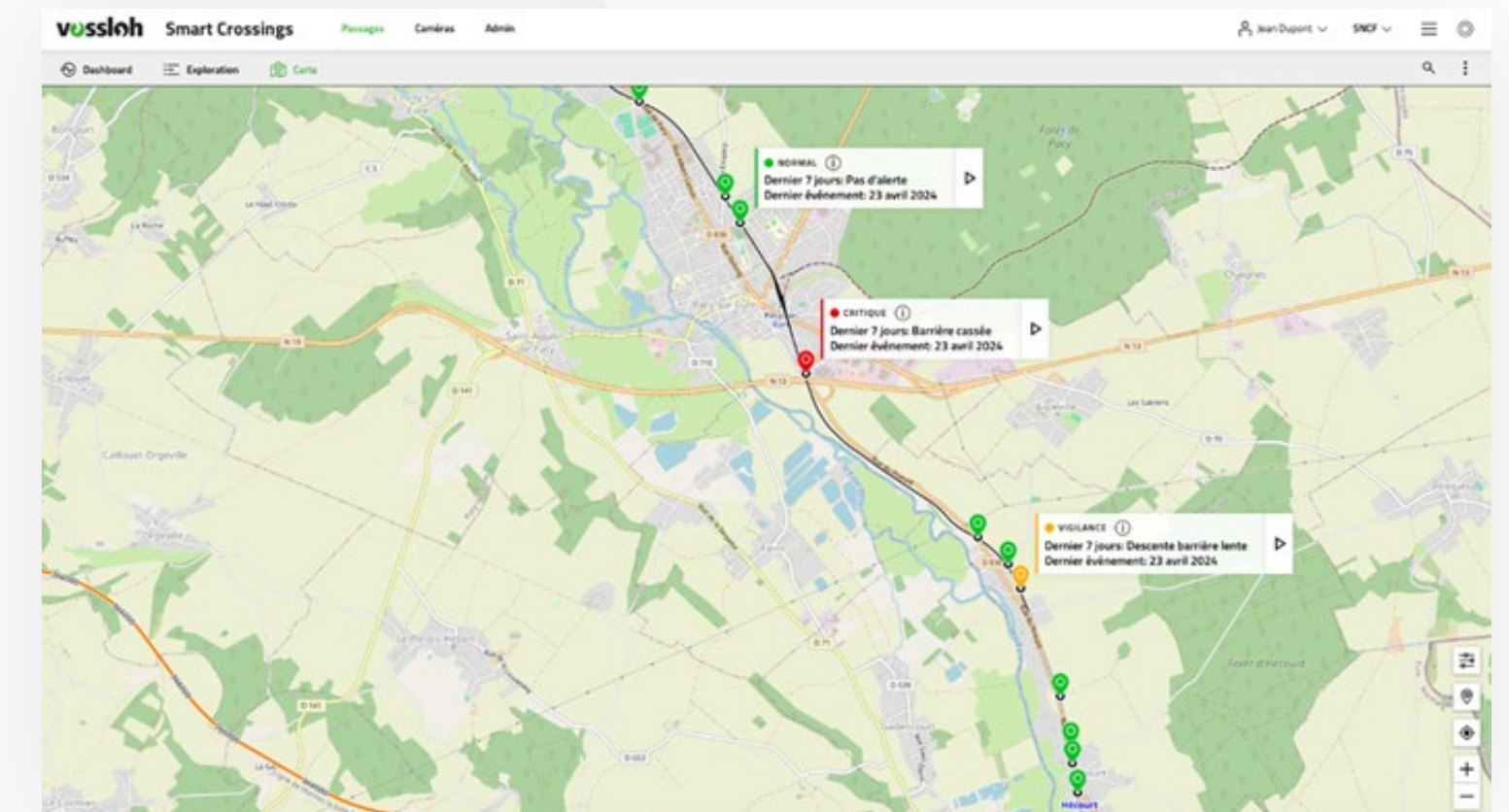
Our solution is composed of 1 up to 2 IP cameras (CCTV cameras) and microphones per level crossing, recording video and audio streams.

A GPU-based data acquisition system is used for local processing and scenario detection.

Streaming data and recorded scenarios / events of interest are uploaded via 5G/LTE, processed and stored in the cloud.

A web portal allows to access, control and monitor the level crossing.

Cameras can be mounted at existing customers infrastructure under specific conditions or - optional - mounting structures (CCTC / camera towers) can be provided and installed for each camera.



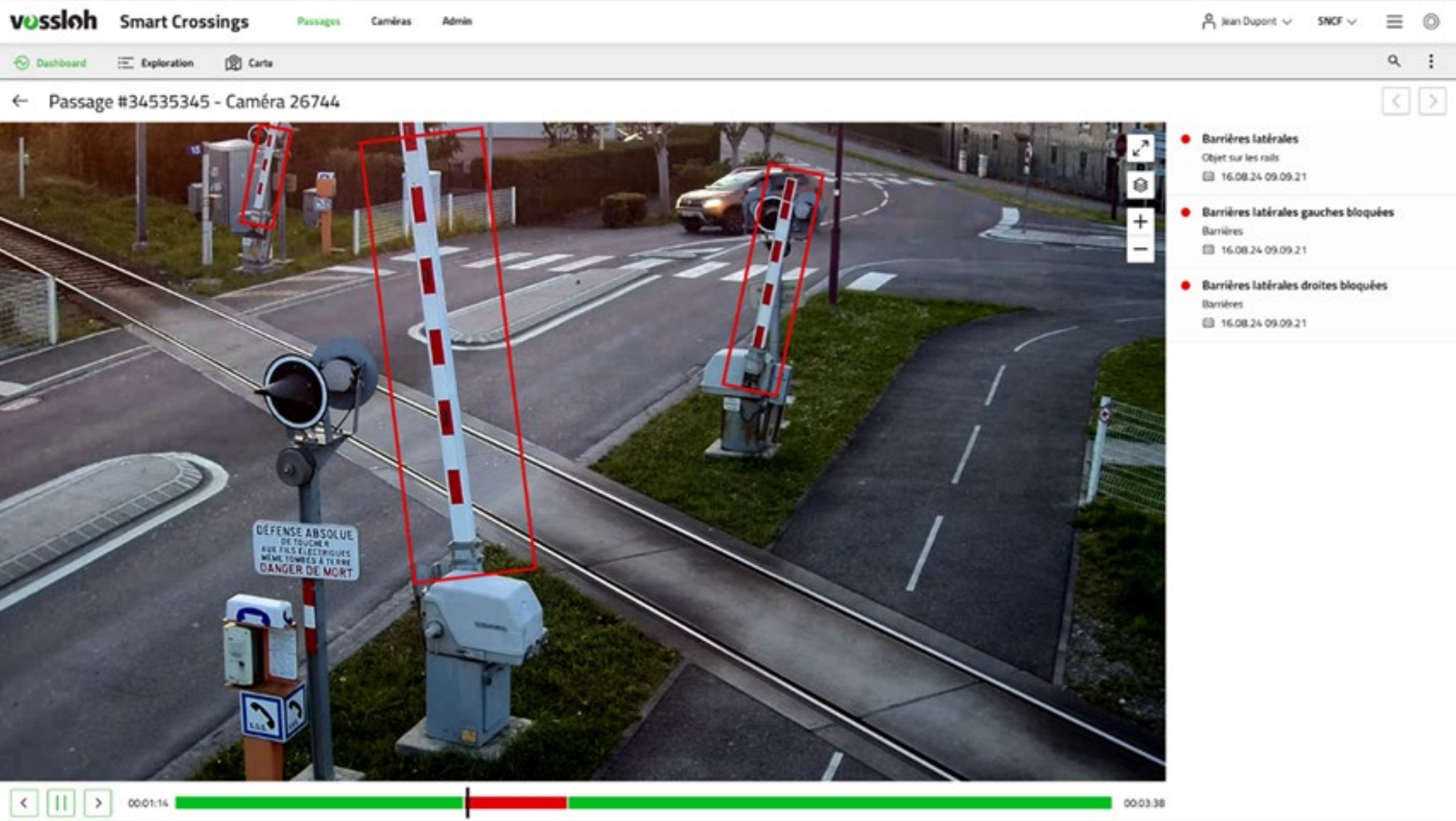


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Additional Features

- › 24/7 Monitoring : vision analysis
- › Non-intrusive acquisition system
- › Wireless communication
- › Easy to install
- › Event recorder
- › Object detection and identification
- › Object tracking and counting for statistics
- › Monitor barrier / lights functionality and state
- › Timing analysis (barrier open / close time, time from closing to train, object last within barriers)
- › Detection of passage with lights on / barriers moving or closed



Power	110-230V / 50/60HZ AC
Cameras per level crossing	up to 2
Cameras	RTSP streaming, PoE
Dimensions per tower	2x14.4v/17Ah battery pack (serviceable)
Weight per tower	2.5 years (depend of data transmission volume)
IP Rating	IP 67
Connectivity	LTE or 5G