



LANCom R&D Department

Business Solutions

- Epicor iScala ERP
- IBM ECM
- Sharepoint and Office 365
- Custom developed business solutions

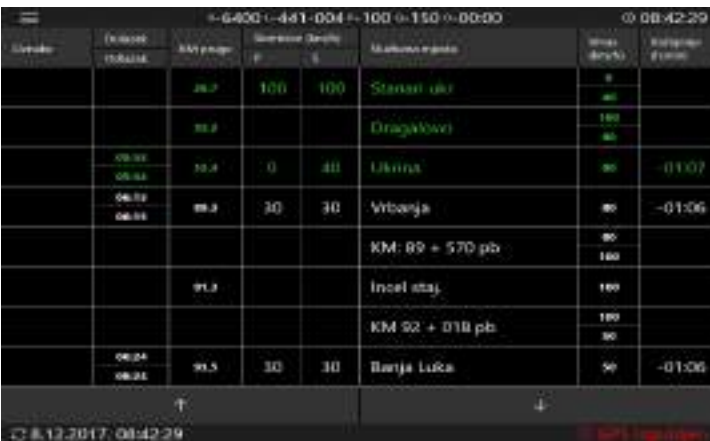


EPICOR.
iScala



Transportation Solutions

- LANCom PIS Infrastructure
- LANCom PIS On-Board
- RSMS with Open API

Stacija	Prilaz	Km pogo	Stacija	Platforma	Platforma	Platforma
	08:07	20,7	100	100	Stara vas	0
	08:08	20,8			Dragalovo	100
	08:09	20,9	0	40	Lukna	00
	08:12	20,2	30	30	Vrbanja	00
	08:13	20,3			KM: 89 + 570 pb	100
	08:14	20,4			Incel staj	100
	08:15	20,5			KM 92 + 018 pb	100
	08:16	20,6	30	30	Barja Luča	00

ЖЕЛЕЗНИЧКА СТАНИЦА
ЖАБЕНИ
RAILWAY STATION
ZABENI

02

Bitola / Битола 02
1007



Rolling Stock Management System (with Open API)

RSMS with OpenAPI

- **Infrastructure based monitoring system for freight locomotives and wagons.**
- **Near real-time tracking of each item location with appropriate maintenance information.**
- **Cost-efficient solution for the operators and service providers to efficiently track and plan each part of the freight train composition.**

RSMS with OpenAPI

- Intelligent RFID based solution provide tracking on the infrastructure level and automatically depict wagon mileage information.
- Wayside Checkpoint elements inspects passing train and generate appropriate notifications.
- Checkpoint equipment can be from different vendors.
- Unlike in road transport, load tracking and tracing is still not widely used.

Wayside RFID readers & tags

- **RFID Readers** are installed along railway infrastructure and detect each part of passing freight train composition (GS1 standard).
- **RFID Tags** are installed on wagons and locomotives and present unique identifier of passing train for RFID readers.
- **Cost-effective and reliable location tracking .**



Checkpoint elements

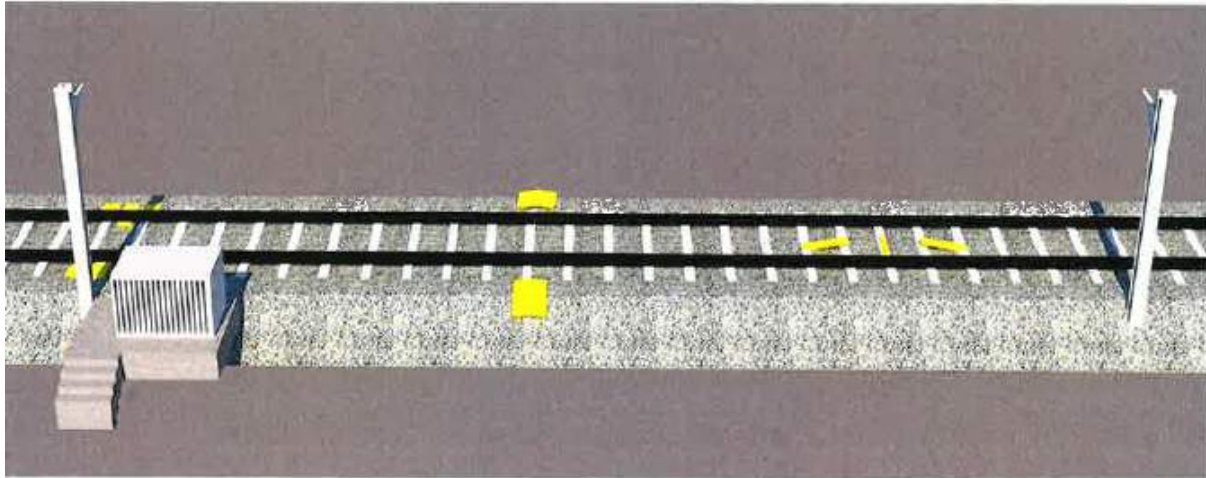


Fig. 6: Fully equipped Checkpoint location

6.3.2 Wheel Impact Load Detector (WILD)

With the measurement of the dynamic wheel forces, irregularities are detected, which follow, for example wheel shape errors and flat wheels (WILD). This monitoring is carried out on running trains.

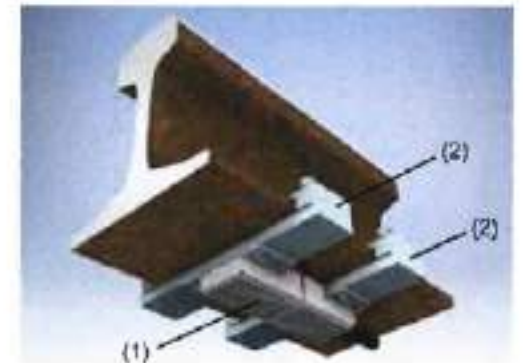


Figure 4: WILD Detector

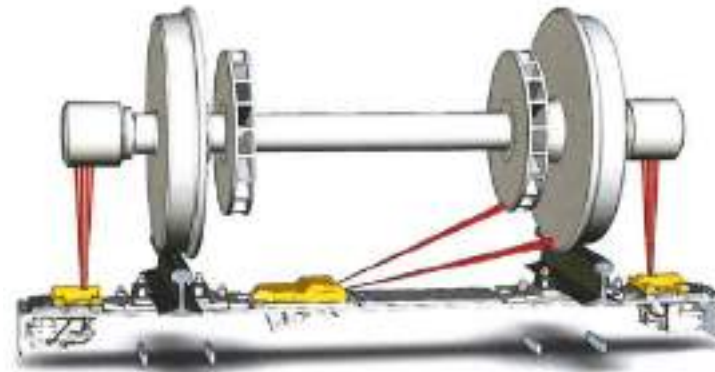
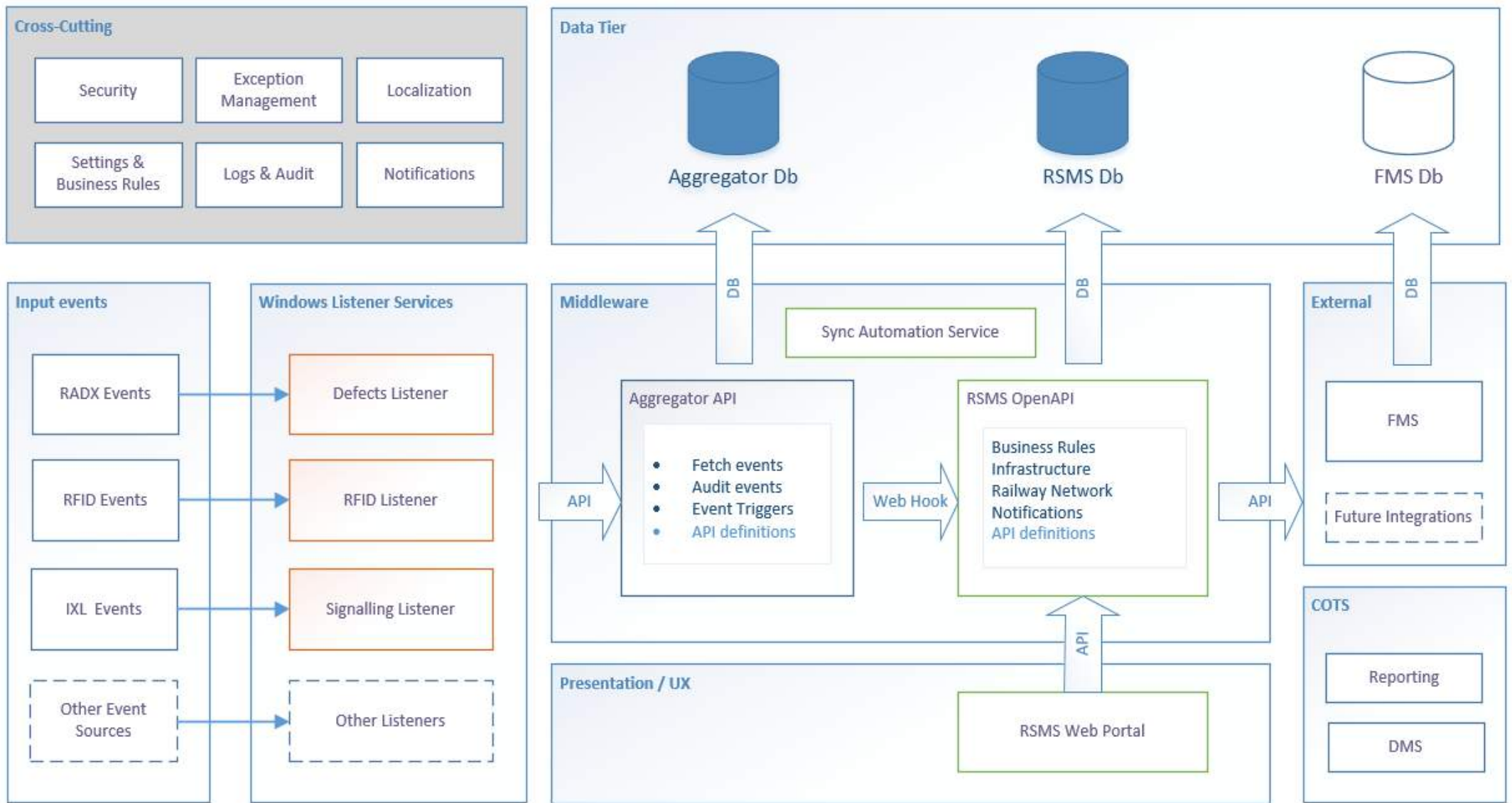


Fig. 3: HBQ34WD Detectors

Wayside Checkpoints

A set of sensor system solution that automatically inspects each passing freight composition for common fault conditions.

- **HBD/HWD** detects damage to axle bearings and brakes.
- **WILD** detects wheel shape errors and flat wheels to warn operators and prevent damage to infrastructure.
- **DED** detects dragging equipment and material under a moving train.



RSMS Features & Capabilities

- Railway network and Infrastructure management (main lines, stations lines, train yard lines, checkpoints, etc.)
- Rolling Stock catalogue management (locos, wagons, etc.).
- Location tracking configuration (per RFID or T&SC inputs).
- Automated mileage calculations.
- Occupancy tracking (loco/wagon availability information).

RSMS Features & Capabilities

- Unified Alarms/warnings integration from Wayside elements (HBD, HWD, DED, WILD, etc) with maintenance order auto generation options.
- Overload detection alarms.
- Scheduled and unplanned maintenance (maintenance orders, stock warnings, field workers, etc.).
- Freight management (FMS) Open API integration.
- Train composition chain check (virtually created within RSMS Middleware).



- SETTINGS
- Organization
- Infrastructure**
- Checkpoints
- Main lines
- Location sources**
- List of workshops
- Workshop types
- List of stations
- Station types
- Station tracks
- Alarms
- Rolling stock
- Spare parts
- Maintenance
- Personalization

Status:

All

[Refresh data](#)[+ Create location source](#)[Export](#)

	Name	Description	Deleted
1.	S&TC - NOT used on LOT 1 project.	Signaling and traffic control system.	
2.	RFID	RFID checkpoint.	
3.	S&TC system	Signaling and traffic control system.	
























Alarms configuration snapshot

Status

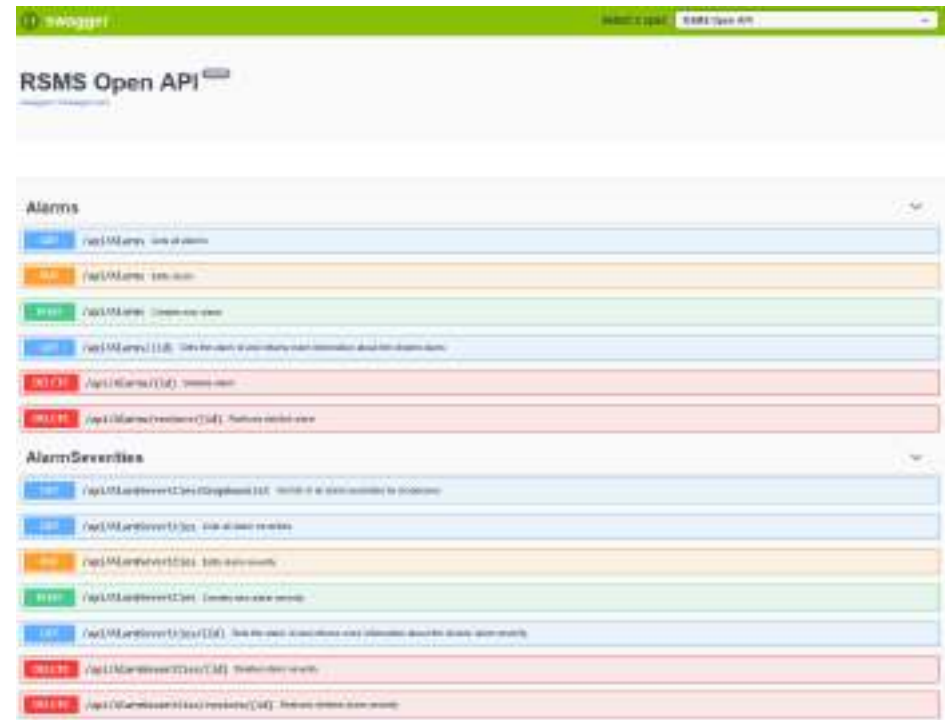
All Refresh data

Create alarm severity Export

	Name	Description	Color	Priority	Deleted	
1.	Hot			1	✓	 
2.	Differential			2		 
3.	Warm			3		 
4.	Differential warm			4		 
5.	Relative alarm MAX			5		 
6.	Relative alarm MIN			6		 
7.	t			7	✓	 

RSMS Open API for external integrations

- Current location information
- Mileage to maintenance
- Current loco/wagon availability
- Defect alerts and other notifications
- Rolling Stock database synchronization
- Virtual vs Real composition checks



Advantages and opportunities

- It is a modern, unified solution for railway operators, yard managers and external stakeholders.
- Unlike in road transport, load tracking and tracing is still not widely used.
- Sensor equipment can be from different vendors.



Thank you!