A French Research Institute has developed a patented Advanced Railway Monitoring System and is looking for partners under commercial agreement with technical assistance.

Summary

Profile type	Company's country	POD reference
Technology offer	**France**	**TOFR20250404021**
Profile status	**Type of partnership**	**Targeted countries**
PUBLISHED	**Commercial agreement with technical assistance**	**• World**
Contact Person	**Term of validity**	**Last update**
Enrico FRANZIN	**4 Apr 2025** **4 Apr 2026**	**4 Apr 2025**

General Information

Short summary

The French welding and research institute with expertise in research and development, tests and control focusing on welding techniques is looking for business partners for its advanced railway monitoring system under commercial agreement with technical assistance.

Full description

Created in 1905, the French Research Institute is recognised as the technical reference in France in the fields of welding, related techniques, assembly, associated controls, and monitoring.
The research institute developed an advanced railway monitoring system. This solution is designed to optimize railway surveillance performance and recommend appropriate maintenance actions.
Other railway monitoring technologies have shown limited effectiveness in crack detection and defect tracking. These include:

- Electrical continuity measurement
- Optical fiber along the tracks
- Sensors integrated into railcars
- Manual inspections or automated control using rolling stock

These approaches have not demonstrated sufficient reliability.

The French research institute developed a system which relies on guided ultrasonic wave sensors, a technology already proven in other industries. This approach is coupled with an original algorithm, ensuring precise and reliable defect detection.
These sensors are integrated into connected IoT devices capable of generating the necessary diagnostic data. However, the data collected is complex and requires:
- Remote transmission via networks
- Signal processing to extract critical information
- Machine Learning (AI) to learn defect signatures and track their evolution

The data processing aspect is crucial, both in handling large volumes and in advanced analysis, where conventional tools quickly reach their limits.
Key Application
The system is particularly effective in open tracks, tunnels, and level crossings, enabling:
- Corrosion and crack detection
- Fracture detection under level crossing deck structures
- Crack detection in humid tunnels
- Loosening detection of rail joints in critical zones

This innovative monitoring solution enhances railway safety and predictive maintenance, ensuring early detection and optimized interventions.
The French research institute is looking for long term business partners interested in the technology and looking for new solutions to add to their product/service portfolio. They offer commercial agreement with technical assistance.

Advantages and innovations

Ultrasonic guided wave technology which evaluates on request the internal and external health of the rail.
Ensures maximum security for using tracks while reducing manual monitoring operations.
It implements connected sensors associated with smart algorithms, which can detect the emergence or the evolution of disparities of a few millimetres.

Technical specification or expertise sought

Stage of development

Available for demonstration

Sustainable Development goals

• Goal 9: Industry, Innovation and Infrastructure

IPR Status

IPR granted

IPR Notes

Partner Sought

Expected role of the partner

We are looking for a partner to support the marketing, communication, installation, and potential industrialization of our railway monitoring system.

The ideal partner should have expertise in:
- Market deployment of innovative railway technologies
- Communication and promotion to key stakeholders (railway operators, infrastructure managers, etc.)
- Installation and integration of IoT-based monitoring solutions
- Industrialization and large-scale production of sensor-based systems

Their goal is to collaborate with a partner capable of accelerating commercialization and deployment while ensuring seamless integration into railway infrastructure.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **Big company**
- **SME 11-49**
- **SME 50 - 249**

Dissemination

Technology keywords

- **02008004 - Railway Transport**
- **02009007 - Artificial intelligence applications for cars and transport**
- **02006005 - Construction maintenance and monitoring methods & equipment**
- **01004011 - Maintenance Management System**

Market keywords

- **08001012 - Speciality metals (including processes for working with metals)**
- **07001002 - Amusement and recreational facilities**
- **01004007 - Network test, monitoring and support equipment**
- **09003001 - Engineering services**
- **09001007 - Other transportation**

Targeted countries

- **World**

Sector groups involved