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In cooperation with:

PANTOhealth

Case Study
Precise Positioning

“Without the ability to accurately pinpoint the location of a defective infrastructure component, the maintenance provider will be unable to identify where a repair must be carried out. So, without a proper precise positioning system, predictive maintenance of train and railway infrastructure is not possible.”

Morteza Nokhodian, CTO, PANTOhealth

Predictive Maintenance of Railway Infrastructure

PANTOhealth is a German company that operates in the railway industry. Their system monitors railway infrastructure and predicts failures. Using the data provided by their system they provide the best schedule for rail infrastructure maintenance and optimization. PANTOhealth’s solution consists of a live monitoring system, mathematically modelled digital twins, predictive analysis and an AI engine that discovers and recognizes problem patterns.

The Challenge

Repairs, maintenance, and quality issues contribute significantly to the overall cost of running a transport system. PANTOhealth offers a predictive maintenance solution system, that prescribes the optimal time and type of maintenance operations. This saves transport companies time and money.

For monitoring and defect localization PANTOhealth requires extremely accurate position data for rail maintenance crews to work on the right part of the trains transport network. With standard GNSS positioning accuracy, it is not possible to correctly determine the location of errors, if two problematic points are less than 10 centimeters apart.

Products used

- Starling®
- Skylark™
- PGM

The Solution

PANTOhealth mounted a Precise Positioning Evaluation Kit onto its existing hardware system to compare accuracy values with existing GNSS based positioning. They tested the system on their customer’s (INFRABEL) maintenance train in Belgium and analyzed the data points in their monitoring solution.

Figure 1: PGM Receiver, 50.95 x 30 mm Mini PCIe

Figure 2: PGM Evaluation Hardware 115 x 82 x 34 mm

The Result and Next Steps

The results showed that with the GNSS, PANTOhealth was able to record locations reliably and distinguish problematic data points with an accuracy of 10 cm. The increased accuracy helps to create an identifier based on the position for each point, which enhances reports for the maintenance provider to pinpoint the exact location of problems. In addition, Precise Positioning enables the prediction engine to accomplish better data classification. PANTOhealth now views Precise Positioning as an integral part of their rail health maintenance and prediction system.

Low Precision Positioning

Precise Positioning

Version 01 | 211022

swift NAVIGATION

Watch PantoHealth’s view on Precise Positioning here

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