Transportation

Emdoor EM-I20A Rugged Tablet Empowers a Railway Technology Company for Precise and Efficient Rail Surveying

Overview

The client, a leader in rail infrastructure solutions, faced inefficiencies, human errors, and high labor costs in its track inspection and installation processes. Emdoor Information's EM-I20A rugged tablet, with its powerful performance, multiple ports, robust durability, and excellent outdoor visibility, became the core data and communication terminal in the client's surveying system, automatically generating data and deviation alerts to boost efficiency and accuracy.

EM-I20A

Client Story

The client aims to improve the efficiency of railway construction, installation, and inspection while delivering electrification solutions for urban transport. Previously, the client relied on infrared devices and manual data recording – a slow, error-prone process prone to inaccuracies.

To solve this, the client adopted the EM-I20A rugged tablet, which combines a high-definition and brightness display, multiple interfaces, durable design, and powerful performance. Deeply integrated with their surveying software and AI system, the EM-I20A enables real-time data collection, synchronization, and intelligent deviation alerts, greatly enhancing precision and productivity.

Challenges

Before digital transformation, the client relied on manual rail inspection and installation, posing challenges in efficiency, accuracy, and reliability:

Manual data collection was slow and error-prone. Field personnel used infrared devices for measurement and manually recorded key parameters. This was time-consuming and prone to human errors such as omissions or transcription mistakes, especially under challenging field conditions, affecting the accuracy of later analysis.

Data flow and management were fragmented, lacking real-time tracking. Since all data were recorded offline, there was a significant delay between field measurements and backend analysis. Personnel could not verify installation positions in real-time or issue deviation alerts promptly. Paper records were also prone to contamination or loss, and the lack of data storage made it difficult to retrieve or analyze historical data, hindering traceability and decision-making.

Labor- and time-intensive workflow. From data collection to manual entry and aggregation, the entire process relied heavily on human labor, resulting in inefficiency and high costs, becoming a bottleneck in project timelines and cost control.

To overcome these issues, the client needed a rugged device with high outdoor visibility, real-time data synchronization, and seamless integration with surveying and AI software.

Why EM-I20A?

Facing multiple challenges in outdoor surveying environments, the client started to find a professional terminal suited for complex on-site conditions that could boost team efficiency. After multiple evaluations, they selected Emdoor Information's EM-I20A rugged tablet. With its high-brightness display, rich interfaces, military-grade drop resistance, and stable Windows platform, the EM-I20A perfectly matched the client's rail surveying software and demonstrated outstanding adaptability and data communication reliability in deployment.

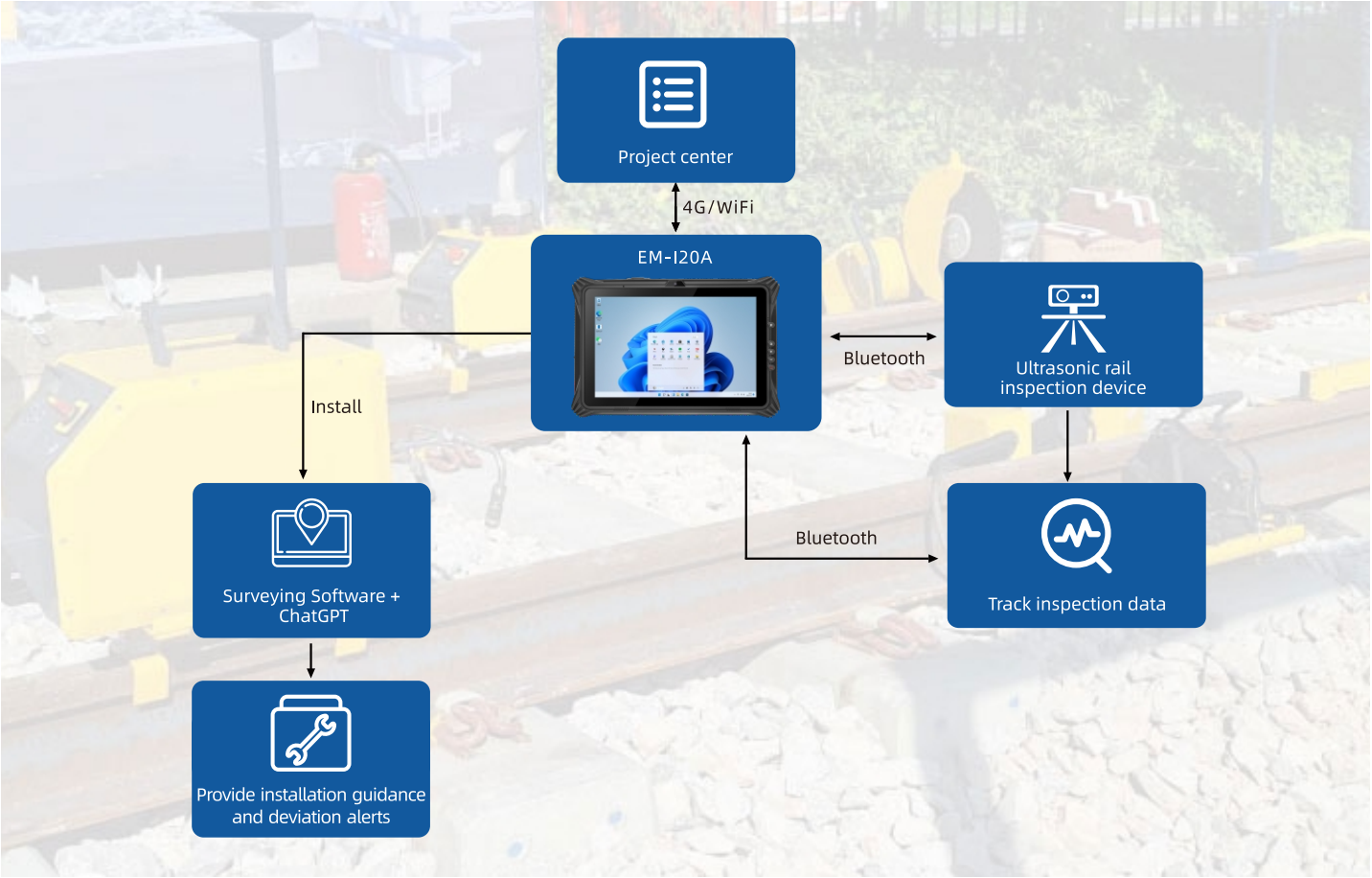
Rail data collection efficiency increased by **50%**

Manual recording costs reduced by **60%**

Data reporting and synchronization improved by **70%**

Overall surveying project duration shortened by **30%**

Workflow



Key Features

650nits high-brightness

Windows OS

IP65 protection

Wireless transmission

Solution

In the client's rail surveying solution, the EM-I20A acts as an intelligent data hub connecting ultrasonic rail inspection device, remote inspection data from the project center, and field technicians.

At the start of the operation, technicians pair the ultrasonic rail inspection device with the EM-I20A via Bluetooth for rail data collection. The tablet's 650nits high-bright screen ensures clear visibility even under direct sunlight, enabling accurate data reading under any lighting conditions.

Collected data are transmitted to the EM-I20A, where Windows-based professional surveying software performs rapid parameter calculations and initial verification of track positioning.

Next, with ChatGPT's integrated programming capabilities, the system conducts intelligent data analysis. If any rail misalignment or deviation is detected, the system immediately sends an alert via 4G/Wi-Fi to both the field tablet and the project center, achieving dual quality control.

Throughout the process, EM-I20A's rugged casing and IP65 protection ensure stable operation under vibration, temperature fluctuations, and dusty environments, maintaining a reliable data chain from collection to intelligent alerting.

Client Review

"The EM-I20A rugged tablet not only meets all our performance, brightness, and durability needs for outdoor surveying, but also enables us to integrate surveying software with AI for intelligent rail data management and warning. It has brought a huge leap in both accuracy and efficiency for our surveying operations."

– Project Manager

Benefits

1. Bright display & rugged design for continuous outdoor operation

The 650nits high-bright screen remains readable in direct sunlight, while military-grade durability and wide temperature tolerance enable stable performance in harsh field environments.

2. Multiple interfaces & high performance for efficient system integration

With multiple I/O ports, a powerful processor, and Windows OS, EM-I20A efficiently runs surveying software and AI tools, greatly improving data collection and processing efficiency.

3. Real-time sync & smart alerts for improved precision

Through 4G/Wi-Fi connectivity and ChatGPT-based deviation detection, the EM-I20A minimizes human errors, ensuring precise and compliant rail installation while improving responsiveness.

4. Portable design and long endurance for optimized labor efficiency

The EM-I20A supports shoulder strap use for easy field mobility and hot-swappable batteries for all-day operation. Automated data workflows reduce manual entry and verification, cutting labor costs and shortening project delivery time.

For more information on rugged terminals and industry solutions, feel free to contact us.
We specialize in providing high-quality rugged mobile computing devices and customized solutions for industry clients worldwide.

Emdoor INFO
@emdoorrugged
Tel: +86-(0)755-2372 2880 Web: www.emdoorrugged.com Email: marketing.info@emdoor.com