



Solution Brief: Innovation with SMART Bus/Train Shelter Solutions

Problem

A major Czech transportation company is exploring ways to smarten its bus and train shelters. The goal is to integrate audiovisual systems within the shelters to provide real-time information to passengers, thereby establishing smart mobility, improving operational efficiency, boosting customer satisfaction, and enhancing the overall customer experience.

Challenges

Integration of Real-time Messaging and Power Monitoring Capabilities

Integrating real-time messaging and power monitoring ensures immediate, accurate reflection of power data without latency. The key challenge lies in establishing a seamless communication channel that maintains high efficiency throughout the entire process, from sensor to message transmission.

Harsh Operating Conditions

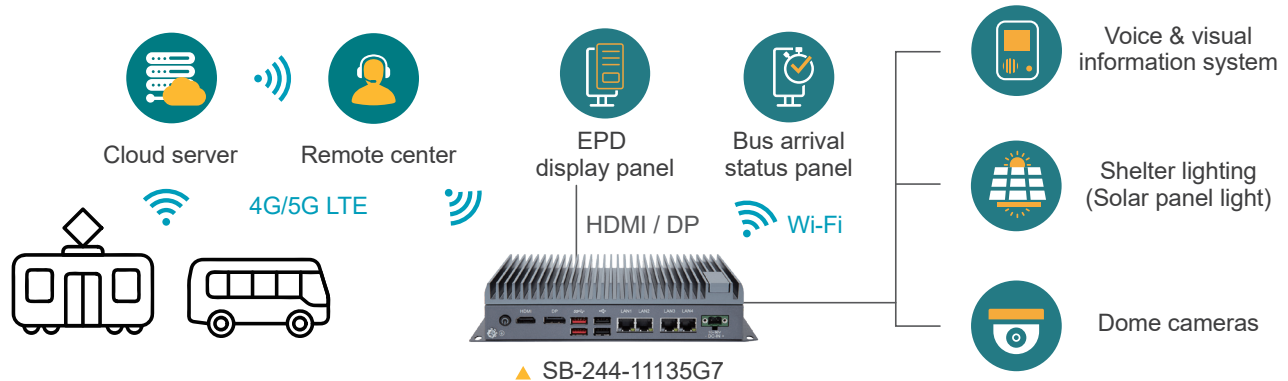
To meet the challenge of building highly reliable and durable products for harsh environments with constant vibration and extreme temperatures, our design adheres to industrial-grade standards, including the IEC 60068-2 series. This ensures that our products, from material selection and structural design to internal electronic components, are built to withstand high-impact physical shock and intense thermal stress.

Remote Software Update Capability

Implementing remote software updates without manual intervention is a complex challenge. This requires a secure framework to handle the distribution, verification, and installation of update files. This capability improves maintenance efficiency and significantly reduces on-site costs.

Solution

The control unit manages the audiovisual system, providing passenger information and communicating with the LTE modem and solar regulator. It also tracks system functionality, EPD information, temperature, recorded shocks, lighting, camera status and footage, and power/solar supply. ARBOR's SB-244-11135G7 Controller (control unit) addressing control technologies, environmental, and integration challenges.



Key Advantages

Compact & Robust: This compact (224 x 140 x 49.2 mm) fanless design allows easy, non-intrusive wall-mount installation. It's built for industrial-grade durability, with wide temperature/voltage support, 4G/5G connection, overcurrent protection, and vibration/shock resistance, ensuring stable operation in harsh environments.

Powerful and Connected: Equipped with an Intel 11th Gen Core i3/i5/i7 Processor and rich I/O interfaces, 4G/5G connection, Remote Function, it integrated connects:

- Voice and visual information system

- EPD display panel: Via HDMI/DP ports, the EPD display panel keeps passengers informed with real-time train departures, route positions, regular schedules, and service disruption updates.
- Acoustic information system: Activated by remote control, assists passengers with limited mobility. For blind passengers, it is equipped with an acoustic ERP flashing beacon. Blind passengers may recall the reproduced announcement of the bus/train's arrival using the remote control for the blind.

- Camera system

- Two dome cameras: connect via LAN port, to provide an overview of activities within the bus/train shelter.

- Shelter lighting

- Suspended LED lighting: The control unit adjusts its intensity according to the astronomical calendar, specific shelter location, and train schedule. The lighting powered by solar panels, charging batteries that provide two days of operation. Grid power serves as backup when batteries are low; full solar charging takes roughly 5 hours.

Contact our team of experts today to learn how the SB-244-11135G7 can revolutionize your smart shelter project.

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