Solution Brief: Smart Bus Solution

Problem

A major European transportation company is exploring ways to smarten its on-board bus equipment. The goal is to ensure real-time and accurate display of traffic information and intelligence on bus operations, while integrating in-bus equipment to establish smart transportation, improve operational efficiency, boost customer satisfaction, safety and enhance the overall customer experience.

Challenges

Limited Space & Heat Dissipation Concerns

Bus interiors are cramped, making controller installation difficult. This necessitates compact designs with efficient heat dissipation.

Harsh Operating Conditions

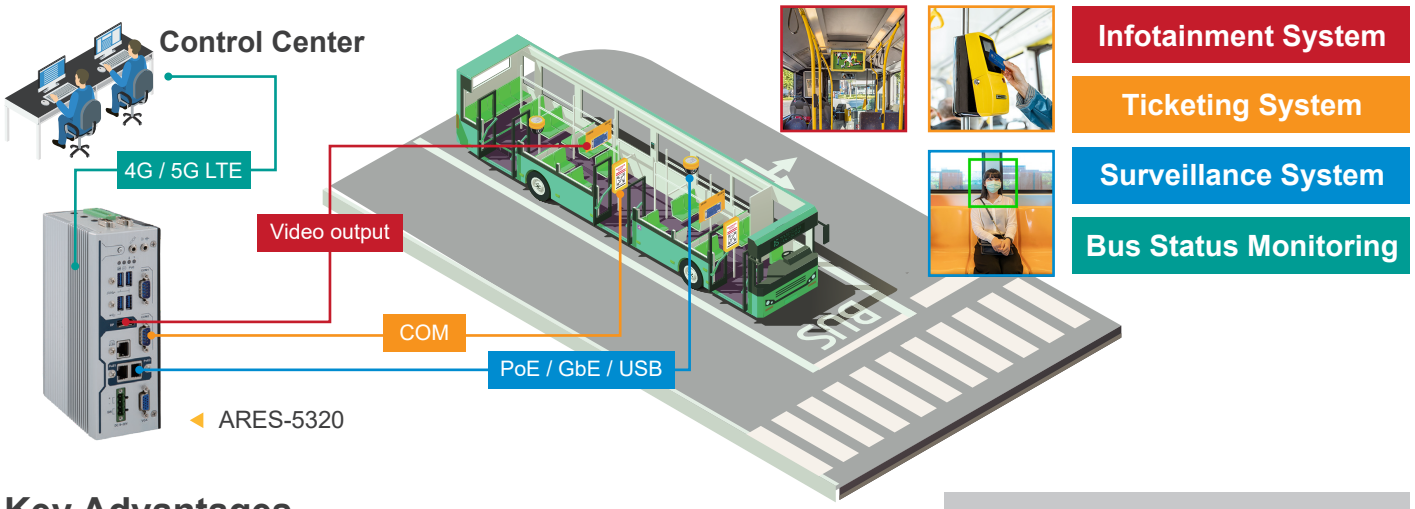
The operating environment faces constant vibration and extreme temperatures, demanding highly reliable products.

Integration & Edge Computing Needs

The main controller must integrate various devices like PIDS, multimedia displays, ticket machines, and connect to Intelligent Bus Operation Management Systems (for real-time monitoring and driver management) and Predictive Maintenance Systems (for analyzing vehicle data to forecast part lifespan and schedule maintenance).

Solution

The ARBOR ARES-5320 series controller is a fanless, DIN-rail embedded system specifically designed for smart bus applications. It provides a highly integrated, rugged solution that ensures stable operation in harsh vehicle environments and effectively connects all on-board smart devices.



Key Advantages

Compact & Robust: The ARES-5320 features a compact, fanless design for easy, non-intrusive DIN-rail mount/wall-mount installation. It's built for industrial-grade durability, with wide temperature/voltage support, power on/off delay control, Configurable Ignition Power Control, Isolated DI/DO with 2KV Protection, DI supports Connection of Dry/Wet Contact Devices and vibration/shock resistance, ensuring stable operation in harsh environments.

Powerful and Connected: Equipped with Soldered onboard Intel® Atom™ x6425RE Processor and rich I/O interfaces, 4G/5G connection, it integrated connects:

- Real-time PIDS & Multimedia Display: Via DP Port for information transfer.
- Live Monitoring: Via LAN to IP cameras.
- Versatile Network Connectivity: Via RJ-45, mPCIe/SIM
- Comprehensive Device Integration: Serial ports connect PIDS, infotainment, ticketing, Intelligent Bus Operation Management, and Predictive Maintenance systems. Digital IO ports manage in-bus actuators for convenience.
- Edge Computing: On-site data processing significantly reduces system impact via Bus operation management system.

Benefits

- **Compact & Rugged Design:** Fanless design & industrial-grade durability
- **Powerful Integration & Edge Computing:** Equipped with rich I/O interfaces, 4G/5G connectivity, and edge computing capabilities
- **Enhanced Operations & Passenger Experience:** It enables real-time monitoring and data collection, leading to improved operational efficiency, greater safety.

To learn more about how the ARES-5320 can transform your smart bus solution, contact our team of experts today.