European Electronic Toll Collection Project Requires a High Reliability and Endurance Solution

theobroma SYSTEMS

The solution is embedded.

CHALLENGE

- Outdoor installation with extreme weather conditions and temperatures
- Installation must operate for 10+ years
- Low and discrete profile

SOLUTION

- Western Digital Industrial e.MMC Embedded Flash Drive

KEY RESULTS

- High endurance: up to 3K P/E cycles
- Extended operating temperature range of −40°C to 85°C to withstand demanding environmental conditions

Company Profile

Theobroma Systems, located in Vienna, Austria, is a global provider of embedded systems solutions, creating smart devices for applications in IoE and Industry 4.0 that require embedded technology. Their goal is to implement new technologies supporting fully automated, self-learning, and secured applications.

The company designs and produces cutting-edge System-on-Modules, Communication Modules, Wi-Fi Modules, Devkits and Single Board Computers. Their portfolio of Products is backed by a full range of hardware and software engineering services, including in-house manufacturing and end-of-line testing, offering thus customers the option to have customized products based on their existing validated modules.

Theobroma Systems' focus is developing networked embedded systems, information security systems, and trusted IT systems. Keeping up with the fast-shifting trends of the technology industry, Theobroma Systems has expanded their areas of expertise throughout the years to meet the needs of the market, becoming one of the most celebrated and awarded Austrian innovators.

The Project

Western Digital and Theobroma Systems worked with one of the world's leading providers of Electronic Toll Collection (ETC) systems to create a custom solution for a toll collection project in Europe. ETC systems electronically charge a toll to the driver without requiring the driver to stop, done through a transponder in the vehicle linked to the driver's existing registered account. The end application acquires video images in real-time to detect license plates and extract the license plate information from the cars passing below.

"Working with Western Digital has allowed us to create groundbreaking solutions for our customers and reflects our commitment to integrate best-in-class technology into our products."

— **Philipp Tomsich**
CEO and CTO
Theobroma Systems

> " The quality and reliability of the embedded storage is paramount to successful device deployment. Theobroma Systems relies on Western Digital's industrial-grade e.MMC storage solutions to ensure the essential prerequisite for these devices."
>
> — **Makeljana Shkurti**
> *Customer Success*
> *& Product Evangelism*
> Theobroma Systems

The Challenge

The ETC operates in open environments including inner-city roads and highways with old, historic buildings and vast natural landscapes. The solution needs to be low profile and neatly integrate with the surrounding cityscape. On top of the inconspicuous design, the ETC needs to operate in various outdoor climates with extreme weather conditions and temperatures.

Captured images and metadata required for processing the information need to be stored locally on the ETC. With several installations included in the project, the end customer is looking for a low maintenance solution that is durable, reliable, and will last for at least ten years.

Industrial Grade e.MMC Embedded Flash Drives (EFD)

Theobroma partnered with Western Digital to ensure the ETC devices met the essential prerequisites of the end customer. Western Digital's industrial grade embedded flash devices provide high reliability, endurance, and capacity, in small form factor, for industrial applications across a wide range of operational requirements. Data-intensive applications can rely on industrial e.MMC EFD products to capture every critical moment, log each event, and to ensure quality-of-service to end customers. Western Digital Industrial e.MMC portfolio is available in extended temperature ranges from –40°C to 85°C to withstand demanding environmental conditions, with capacities from 8GB to 256GB.

The Result

The ETC system provider has worked with Theobroma Systems for years, fully trusting the conceptualization, hardware design, software integration, manufacturing, quality, and support. Western Digital and Theobroma Systems were able to deliver a winning design with the capacity, endurance, reliability, and performance required by the end customer that enables the drivers to go about their day without any interruption.

Contact Information

For all inquiries, please email:
OEMProducts@WDC.com

For more information, please visit:
www.WesternDigital.com

Western Digital Corporation | 5601 Great Oaks Parkway | San Jose | CA 95119 | USA

WD_THEOBROMA_SuccessStory_072419