IOT GATEWAY FOR ELECTRIC VEHICLE LITHIUM BATTERIES

HIGHLIGHTS

- Flash Battery is an Italian provider of lithium batteries for electric vehicles and industrial machines. Its batteries are high in energy efficiency and low in maintenance and infrastructure costs.
- For its battery monitoring and control device, Smart Connect, our partner needed a reliable IoT gateway to enable undisrupted data flow from EV batteries to its Flash Data Centre— a remote monitoring software created for predictive analysis of lithium batteries.
- The perfect choice for this networking solution is Teltonika's IoT gateway, the TRB140. This highly customisable device provides secure 4G LTE connectivity and enables remote control via OpenVPN support and predictive maintenance.

THE CHALLENGE – COLLECTION + CUSTOMISATION + MAINTENANCE

Although the name for lithium comes from "lithos", the Greek word for stone, it's the lightest metal and the least dense solid element. Perhaps if Sisyphus had pushed a lithium boulder up the hill he might have succeeded? Who knows!

What we do know is that lithium's exceptional energy density and lightweight nature make it a prime choice for EV batteries, allowing devices to pack more power without adding bulk. This, coupled with its ability to endure numerous charge cycles with minimal degradation, ensures reliable and efficient performance in myriad applications, including electric vehicles.

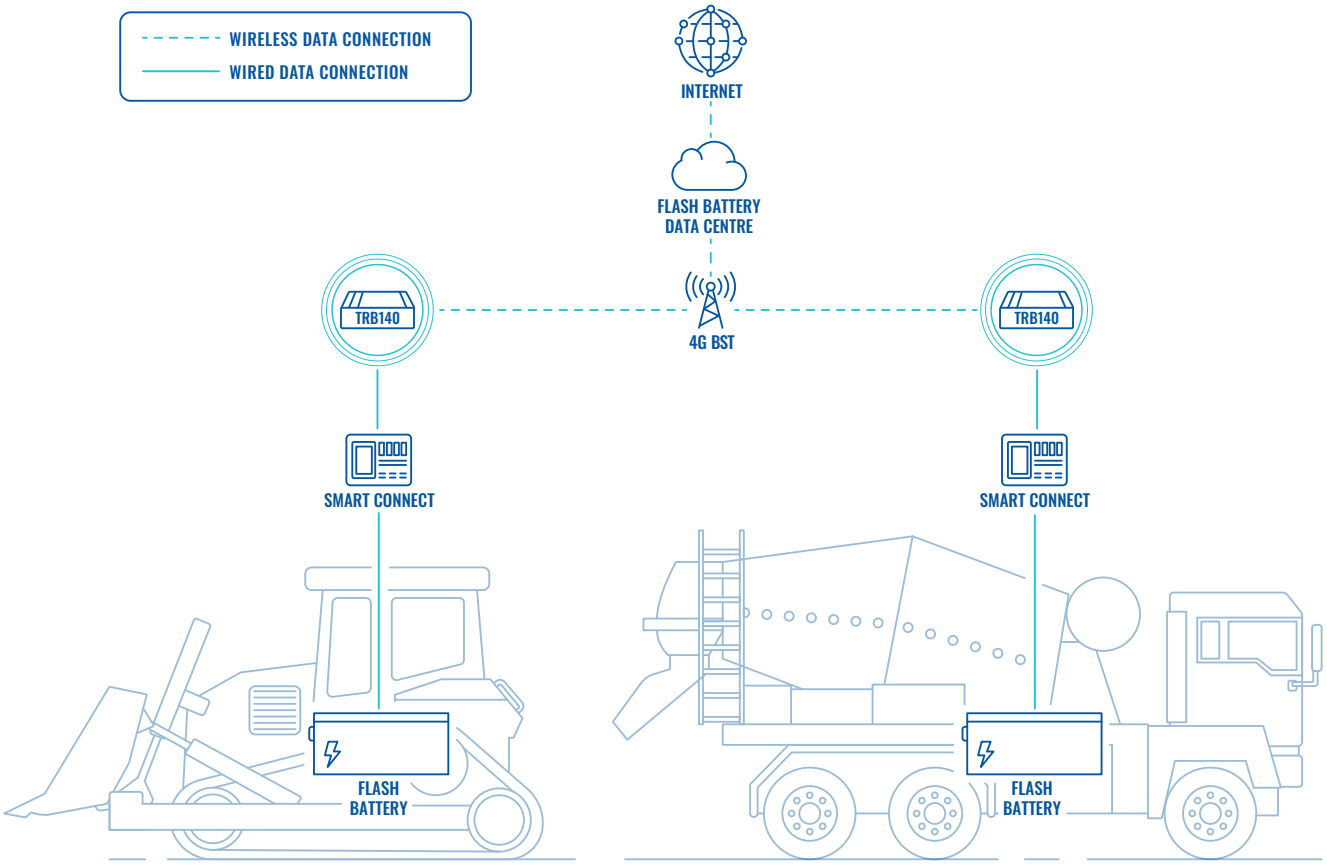
Our Italian partner, Flash Battery, specialises in lithium batteries for industrial machines and electric vehicles. It manufactures batteries with 20 times faster balancing speed than other lithium batteries, can complete a 50% recharge in only 25 minutes, and require almost no on-the-spot maintenance thanks to remote control capabilities.

Responsible for integrating smart functionalities like data collection, customisation, and predictive maintenance Is Smart Connect: our partner's monitoring and control device installed in each battery box. For Smart Connect to work, a connectivity device connecting Smart Connect to Flash Battery's data centre was needed.

This device had to be small and easy to install and needed to be industrial grade, so vibrations created by moving vehicles wouldn't disrupt its connectivity. Most importantly, it had to be able to provide real-time data and reports on battery health, bringing value to the end client using Smart Connect.

So, ladies and gentlemen, let's have a warm welcome for the TRB140 IoT gateway!

TOPOLOGY



THE SOLUTION – IOT GATEWAY TO THE RESCUE!

Flash Battery chose our TRB140 IoT gateway to connect its Smart Connect device to the batteries via an Ethernet cable.

This IoT gateway features two Gigabit Ethernet ports, delivering high-speed network connectivity with data transfer rates of up to 1 Gbps. Additionally, this 4G router supports 4G LTE Cat 4 connectivity, offering speeds of up to 150 Mbps.

Another important feature for our partner was its small size and compactness. Our RUT241 stands at only 74.5 x 25 x 64.4 mm. This, combined with its aluminium casing and easy installation, makes it the most optimal choice for this solution.

Additionally, getting Smart Connect up and running allowed for predictive maintenance reports, evaluating equipment condition through continuous monitoring, aiming to schedule maintenance cost-effectively before performance declines. This way, Flash Battery's engineers can catch potential errors before they even happen.

The engineers are able to directly troubleshoot the batteries via OpenVPN, which allows them to quickly resolve issues and ensure optimal performance and reliability.

Moreover, customisation options offered by the TRB140's operating system, RutOS, including I/O configuration, help satisfy end client needs and requirements by providing high levels of flexibility.

Last but not least, this IoT gateway is backward compatible with 2G and 3G technologies and supports industrial protocols such as DNP3 and Modbus. This ultra-small, lightweight, and energy-efficient networking device is equipped

with firewall, access control, and other security features.

According to Flash Battery founder and CEO, Marco Righi, there are three main reasons for them choosing the TRB140 IoT gateway. The first: flexibility and the ability to perfectly tailor it to specific requests. The second: enabling predictive maintenance and advanced analytics. And lastly: remote control capabilities via OpenVPN support, ensuring seamless operations from anywhere.

So, what are you waiting for? Choose the TRB140 IoT gateway and let your solution thrive!