

Liebherr and Bertrandt start together into the mobile future

- Liebherr delivers the Mobile Communication Gateway (MCG) for Bertrandt's innovative platform HARRI
- Liebherr MCG connects data sources in vehicles, reads the information via CAN and Ethernet interfaces and optimizes data for the transmission into the cloud.

Nussbaumen (Switzerland), 4 May 2020 – The Mobile Communication Gateway (MCG), the robust communication solution by Liebherr Components, will support the innovation platform HARRI of the engineering partner Bertrandt. HARRI is a technology carrier for the megatrends like digitization, connectivity, autonomous driving and electro-mobility. It incorporates technologies for high user experience, user-friendly interfaces, Car2X communication and efficient data processing.

The basis for the digitization of HARRI is the local pre-processing of vehicle and environmental data – the so-called edge computing. The freely configurable, powerful and robust telematics hardware enables edge computing, as well as data transfer to the cloud.

The IoT gateway from Liebherr Components, that is developed and manufactured on site in Lindau (Germany), is deployed in HARRI. The MCG connects the data sources in the vehicle, reads the information via CAN and Ethernet interfaces and pre-processes them. In this way, it ensures the data optimization before the transfer into the cloud. The MCG is referred to as CDC (Connectivity Domain Controller) in HARRI's vehicle architecture. Bertrandt used Docker containers to display the application layers on the CDC. Such a structure helped to ensure the security aspects and to implement software updates over-the-air (FOTA).

“We opted for the MCG, since the gateway is highly robust and offers extensive scope for development. There are not many suppliers, who offer such a robust system”, says Wolfgang Darge, Project Manager at Bertrandt.

Based on the Linux operating system and the fully configured Yocto build system, the MCG is freely programmable, providing extensive scope for individual applications, such as over-the-air software updates.

“As the gateway also fulfils the requirements of protection class IP5K2, it is ideal for the very demanding operating conditions of mobile machines – temperatures up to 70°C, dust and vibration,” explains Martin Lorenzen, Project Manager at Liebherr-Elektronik GmbH in Lindau. The telematics units receive the final touch at the in-house [Liebherr Components Test Center](#), also in Lindau, where they are extensively tested.

Double the impact: MCG antenna diversity

The MCG sends and receives vehicle-relevant data via two antennas. Correctly installed, two antennas can significantly improve the connectivity of the machine. This is especially true of areas with poor internet connection. To assess the actual improvement, Liebherr performed its own tests. Thereby, the quality of the MCG network connection with one and two antennas was tested over a pre-defined route in a rural area with poor internet connection and interchanging cellular networks over a period of one week.

The results indicate that compared to a device with only one antenna, a gateway with two antennas benefits from significantly higher connectivity. Overall, the device with two antennas was online for longer than the gateway with only one antenna. Connectivity increased from 79% to 93%.

Antenna diversity is particularly useful, when a vehicle is moving through areas with poor mobile network connections. Larger vehicles in particular benefit from it, as two antennas help to overcome the problem of an interrupted connection through in-vehicle shadowing.

As a conclusion, antenna diversity ensures better connection quality and better availability. HARRI benefits from it, too.

Captions

liebherr-mcg-for-harry.jpg

The MCG is HARRI's central communication interface.

liebherr-mcg-antenna-diversity.jpg

Antenna diversity ensures better connection quality and better availability.

About Bertrandt

From the initial idea to the production-ready product, Bertrandt offers innovative engineering as well as advice on quality and project management. Bertrandt operates with sophisticated technologies of the present and the future. The company therefore plays a decisive role in shaping the world of tomorrow. With around 13,500 employees at over 50 locations, the engineering partner is represented internationally and offers expertise in all high-tech sectors. Bertrandt: Engineering for people. More information is available at www.bertrandt.com.

About the Liebherr Group

The Liebherr Group comprises over 130 companies on all continents and employs more than 46,000 people. In 2018, Liebherr generated a consolidated total turnover of over 10.5 billion euros. As a globally positioned, family-run technology company, the Liebherr Group is not only one of the world's largest manufacturers of construction machinery, but is also recognised in many other fields as a provider of technically sophisticated, benefit-oriented products and services. Liebherr was founded in 1949 in Kirchdorf an der Iller in southern Germany.

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