Digitization of mobile machines by means of smart sensor technology

The digitalization of mobile machines is advancing steadily in the market. Currently, however, many machines are not yet "intelligent" or "networked", which makes permanent monitoring and simple visualization of the machine data difficult. This situation can be changed with the help of a smart Bluetooth node from Sontheim. Machine data and/or operating modes are recorded and sent via Bluetooth to a mobile terminal or telemetry module. This technology can be used to digitize new generations of construction machinery or for efficient retrofitting.

Efficient digitization of mobile machines with the ultra-compact Beacon BT from Sontheim.
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Mmobile machines are being digitized more and more with sensors and gateways. In that way, automobile and machine manufacturers (OEMs) want to learn more about their vehicles and the exact operations.

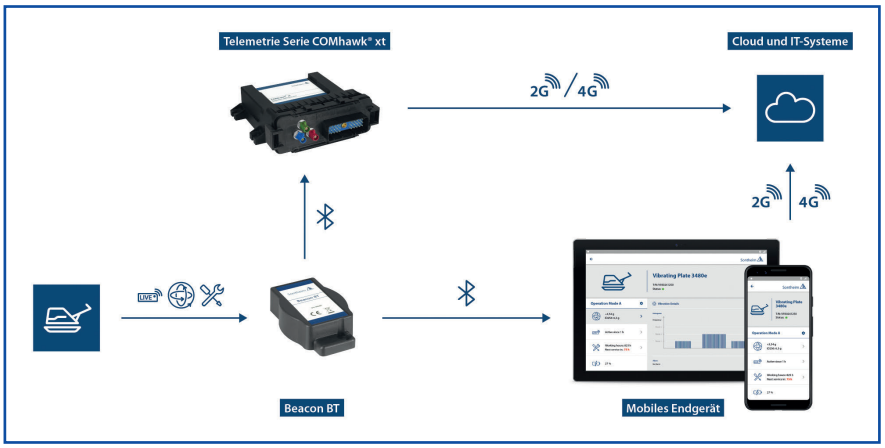
This trend is particularly visible in the premium sector. At the same time, the demands on vehicles and machines are increasing, as are the users' requirements for convenience and visualization functions. This is exactly where the smart Beacon BT with Bluetooth interface from Sontheim comes in. The module enables OEMs to digitize machines in a cost-effective and user-optimized way. Data from the machine is displayed to the user via an app, providing a simple visualization interface. The existing infrastructure of the vehicle remains untouched.

This enables the OEM to easily retrofit and cost-effectively integrate it into new vehicle systems. With a size smaller than a credit card, the low-energy Bluetooth module can be easily attached to almost any machine. With its encapsulated electronics and IP67 protection class, the module offers the necessary protection for harsh environmental conditions and installation outside the cabin. An operating temperature of -40 to +65 °C and CE certification round off the overall package.

Thanks to an integrated memory of 2 MB, data of the machine to be networked can be stored (10-digit identification number, 4×128 byte data) and retrieved via Bluetooth at any time.

Efficient data acquisition

From now on, operating hours can be counted and service intervals efficiently planned and specifically monitored. The presence of a machine can also be queried via Bluetooth or the compatibility of two machines can be compared, for example in the agricultural sector between a tractor and an implement (compatibility check).



System image: Integration of the Bluetooth module into a telemetry infrastructure/transmission to a mobile terminal.

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An optional variant with integrated motion sensor also records vibrations and shocks. This makes it possible, among other things, to record and categorize different operating modes or to record extraordinary deviations in daily use, such as extreme G-forces caused by a fall or impact. This data can be used for warranty or insurance claims. All data is transmitted to an app via Bluetooth and can be visualized individually. An integrated battery enables a runtime of seven to ten years, depending on the defined application and the transmission frequency.

In addition, the module can be seamlessly integrated into the infrastructure of the COMhawk xt telemetry series from Sontheim. The Beacon BT collects information from the machine and sends it to the telemetry module via Bluetooth. From there, the data is transmitted via telecommunication and MQTT standard to a cloud or IT infrastructure for further processing. This means that the information from the machine is available worldwide and can be centrally managed and analyzed. For example, for optimized fleet management, precisely timed service intervals or new billing and leasing options for rental operators.

Matching Cloud-Software

For the entire digitization process, Sontheim offers not only the right hardware to access and transmit data based on standards, but also the appropriate cloud software. The IoT Analytics Manager is available for visualizing the data using various graphs, histograms, diagrams and more. Another cloud tool is the IoT Device Manager, which can be used to simply and intuitively manage devices in the field. It can also be used, for example, to plan and perform software updates over the air. All tools are customizable and can be branded specifically for the customer. User management is also integrated to optimally map the rights of different users.

Sontheim provides integrated system solutions for digitalization, automation and connectivity applications for mobile machines. Thanks to the simple installation of the new Bluetooth module, retrofitting and integration into new vehicles is possible at any time. The low price makes the module interesting even for very small and price-sensitive machines and offers a quick entry into the digital world. Thanks to seamless integration into the company's telemetry series, worldwide availability of the collected data is ensured. ■

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COMPANY PROFILE

Sontheim Industrie Elektronik GmbH

Sontheim has been providing solutions for vehicle manufacturers, suppliers and service providers for 25 years.

The focus is on the manufacture of control units (also in accordance with ISO 26262) with I/O and communication functions and on diagnostic technology, in which Sontheim is the market leader in the field of interface technology for agricultural commercial vehicles. This position is to be secured in the long term and expanded with forward-looking products, modern manufacturing processes and intelligent solutions.

In order to meet the increased demands on diagnostics and test applications, Sontheim offers innovative and forward-looking system solutions. The systems can be used to configure, maintain and service vehicles (software updates). All current standards are supported, and Sontheim is actively involved in various association committees.

In addition to ECUs, telemetry solutions and VCIs, Sontheim offers the appropriate software such as the Modular Diagnostic Tool MDT, cloud software for IoT applications, as well as programs for the creation and development of ECU communication and numerous protocol stacks. The entire product lifecycle is covered, from the development phase through production to integration and support. The range of services includes individual protocol types, series deliveries and customized solutions, as well as complete technology and on-site consulting.

Sontheim

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