



Four new solutions for the internet of things – how they work and what benefits they bring

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- ▶ One car, many services: the “connected services car”
- ▶ Field 4.0: strawberry sensor for more fruit
- ▶ Connected manufacturing: one-off items from a single production line
- ▶ Augmented reality: X-ray vision for fast car repairs

At Bosch ConnectedWorld, Bosch is presenting numerous innovations for the internet of things. Here are four solutions worth knowing about:

1. Connected services car: connected solutions for stress-free mobility

One car, many services – Bosch is showing what the future of mobility could look like with a show car based on a Jaguar F-Pace. The car is equipped with smart connectivity solutions. Wrong-way driver alert, predictive diagnostics, and many more services turn the car into a personal assistant. Driving will be safer and stress-free. The technology at the heart of the car is the Bosch Automotive Cloud Suite. This coordinates the smooth interaction of all the applications in the cloud.

2. Sensors for optimum strawberry harvests

Starting this year, the Bosch start-up Deepfield Robotics will offer farmers support for strawberry crops. The company’s new sensor system measures the humidity and temperature of the air and soil. These readings pass through the cloud to an app, so farmers can easily access the data on their smartphone and always know how the plants are doing. If there is a risk of frost or overheating, farmers can react quickly, for example by covering or watering the fruit. This reduces the risk that the plants will suffer. This system means there is no more need for manual measurements. Regardless of where farmers might be, they will be able to keep their eye on their fields anywhere and anytime. The Bosch system saves time and money.

3. Support in manufacturing: Industry 4.0 for error-free work

Bosch ConnectedWorld will be home to a small digital factory for machine control systems in the form of a completely connected production line. Where in the past a production line has only ever been able to produce one particular part, thanks to connectivity this line can manufacture one-off items – without any additional effort. At the start of the production process, the blanks use a radio chip to tell the line which kind of machine control system they should ultimately turn into. Known as adaptable production, this approach has the advantage of enabling manufacturing companies to react to daily changes in market requirements. The production line makes work easier and helps prevent mistakes. For instance, workers can have instructions projected onto their assembly bench. Smart highlighting shows them which part to install next. And should they make an error, the system can provide an immediate warning. This allows quality defects to be identified before they have even arisen.

4. Augmented reality: X-ray vision for fast car repairs

Bosch's augmented reality applications (AR) add useful, time-saving information to the real world. The solution presented supports car repair shop staff as they go about their day-to-day work, for instance during complex repairs. Using a tablet computer or smart glasses, mechanics can have the necessary additional information displayed directly in their field of vision. All they need to do is point a camera at the vehicle. Bosch has developed an AR application for the repair shop's customer service team that provides a quick overview of the key technical data on the customer's vehicle. Any error codes and other irregularities appear clearly and directly on the mechanic's smart glasses. In case a repair is needed, repair instructions guide the mechanic through all the steps. This makes the mechanic's work easier, and saves customers time while also ensuring better repair results.

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The Bosch Group is a leading global supplier of technology and services. It employs roughly 390,000 associates worldwide (as of December 31, 2016). According to preliminary figures, the company generated sales of 73.1 billion euros in 2016. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected industry. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 450 subsidiaries and regional companies in some 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At 120 locations across the globe, Bosch employs 59,000 associates in research and development.

The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant up-front investments in the safeguarding of its future. Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.

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