



A smart, pocket-sized operations assistant

Bosch Software Innovations at Agritechnica 2019

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- ▶ The Deepfield Connect solutions let farmers keep a watchful eye on the condition of their crops with a convenient app
- ▶ Aided by the Bosch IoT Suite, these solutions use weather data and scientific findings to calculate plant growth models
- ▶ Smart algorithms help farmers use resources efficiently, ensure quality, and boost yields

Stuttgart/Hanover – Frost or excessive heat, too wet or too dry? “The weather is one of the biggest risk factors in agriculture,” says Dr. Bojan Ferhadbegovic, head of the Deepfield Connect product family at Bosch Software Innovations. “We can’t influence it, but our sensor systems and the Deepfield Connect app help farmers work hand in hand with the weather to provide optimum support for the growth of their crops.” Farmers who use the Deepfield Connect systems already get current weather data straight from their field on their smartphones, thanks to the Bosch IoT Suite – and they can set customized alerts to notify them when certain temperature or moisture levels are reached. The app is available for iOS (version 11 or later) and for Android (version 5 or later).

There are also plans to expand the Deepfield Connect app in the near future to include plant growth models of all plants common in traditional agriculture and specialty crop production. The Bosch IoT Suite uses algorithms to combine weather data and scientific findings to model plant growth. The aim is to let users know which growth phase their crops are in at any given time and to provide appropriate recommendations for each development stage. “For example, we can use our models to calculate which nutrients the plant has absorbed from the soil by the time it completes a given development stage. We can also use the weather forecast to recommend the best time to spread fertilizer, so as to avoid fertilizing when the soil is too dry or when rain would wash it right back out again,” says Ferhadbegovic, citing one of the advantages of the algorithms.

Precise forecast: the right data from the right location

“The Internet of Things (IoT) offers great potential for agriculture, and Bosch can draw on its extensive expertise in software, sensor technology, and services,” says Ferhadbegovic, adding: “The more data there is available, the better the results of the algorithms and artificial intelligence will be.” Even without the Deepfield Connect sensors, anyone using the app can immediately access the weather data calculated for a given field, free of charge. It is based on data from independent weather services and other sources. To get even better data – and soon even more finely tuned recommendations – the sensors can also be ordered right in the app. “Then the calculations will incorporate precise values from the user’s own field. Particularly frost and soil moisture vary in intensity from one location to the next and can never be calculated accurately from general weather data. And if farmers use a tunnel, external sources won’t yield reliable calculations anyway,” explains Ferhadbegovic.

Flexible and easy: installs in just minutes

The Deepfield Connect system is available in several versions, allowing farmers to configure the scope of temperature, air humidity, and soil moisture sensors to fit their needs. In this way, users always know how their crops are doing in the field, the warehouse, or the seed-priming room – and what they need in order to optimize storage, foil management, or irrigation. In addition, a customizable alert enables farmers to respond promptly when critical values are recorded. The app allows farmers to document when they fertilize and when ground frost occurs. Only users themselves can access the data from their own fields; this data is not disclosed to third parties. “The Deepfield Connect product family is also very easy to install and use. Anyone can install the systems themselves in five minutes and start using them right away,” says Ferhadbegovic. And it’s just as easy to install the other Deepfield Connect systems for Asparagus Monitoring and Milk Monitoring as it is to install the Deepfield Connect system for Field Monitoring. These systems can be ordered online at www.deepfield-connect.de.

The right amount at the right time: using resources efficiently

A long-term study by the University of Bari in Italy on an olive plantation in southern Italy showed that the Deepfield Connect products reduced water usage by as much as 40 percent, for savings of up to 700 euros per hectare on this plantation. “Going forward, we also want to display the disease pressure on crops based on moisture levels at each plant. This will enable farmers to apply plant protection agents more sparingly and with even greater precision and to adjust irrigation for optimum crop health,” says Ferhadbegovic.

Farm #LikeABosch: everything you need to know about plants in an App

Ferhadbegovic and his team are already thinking ahead. For instance, they want to add interfaces for industry partners in order to give farmers access to as many important topics as possible in one convenient location. “We are thinking of interfaces for control systems, such as for irrigation, but also for suppliers. The required fertilizer, for example, could then be ordered directly in the app.” They also want to offer additional special sensors, such as the sensor that is already available for asparagus ridges, as modular add-ons. Bosch Software Innovations solutions for digital agriculture follow in the tradition of Robert Bosch: the company’s founder himself engaged in agriculture in the 1920s. His farm in Mooseurach, near Munich, still exists today. “We are continuing this legacy: we make life a little easier for hardworking farmers with smart solutions that help them work more efficiently, using fewer resources, while simultaneously improving quality – in other words, we help them to “Farm #LikeABosch,” says Ferhadbegovic.

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Press day on Monday, November 11, 2019, 12 pm - 6 pm, Hall 15, Booth G17:

Join our press day at Agritechnica and talk to our business experts about a variety of topics relating to agriculture 4.0, sensor technology, plant growth models, and disease prediction. We would be happy to schedule an individual on-site meeting with you.

Bosch Software Innovations has been active in the Internet of Things for more than ten years. The team of IoT consultants, software developers, solution architects, project managers, UX designers, business model innovators, and trainers brings IoT ideas from strategy to implementation. With its domain-specific, software, and organizational know-how, Bosch Software Innovations supports companies digitally transforming themselves. The company has designed, developed, and operated more than 250 international IoT projects in agriculture, smart homes and buildings, retail, energy, mobility and manufacturing. Its cloud-based Bosch IoT Suite currently connects more than 10 million sensors, devices, and machines with their users and enterprise systems. With over 700 IoT experts worldwide, Bosch Software Innovations has locations in Germany, Bulgaria, Singapore, China and Japan.

More information can be found at www.bosch-si.com, www.bosch-iot-suite.com, www.twitter.com/BoschSI, www.blog.bosch-si.com.

The Bosch Group is a leading global supplier of technology and services. It employs roughly 410,000 associates worldwide (as of December 31, 2018). The company generated sales of 78.5 billion euros in 2018. 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 manufacturing. 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 460 subsidiary and regional companies in over 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 nearly 130 locations across the globe, Bosch employs some 68,700 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 upfront 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.

Additional information is available online at www.bosch.com, www.iot.bosch.com, www.bosch-press.com, www.twitter.com/BoschPress.