

Smarter and more convenient:

Bosch uses artificial intelligence for lawnmowing

The vision: Every robotic lawnmower learns individually

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- ▶ Use of machine learning for improved obstacle detection
- ▶ Integration of Amazon Alexa for increased ease of use
- ▶ Battery technology on the rise – not only for lawnmowing

Stuttgart/Leinfelden – Bosch Power Tools uses artificial intelligence (AI) for lawnmowing. With machine learning, Bosch improves the robotic lawnmower Indego's obstacle detection on the lawn. To do this, sensor-based data such as motor currents, acceleration, speed and orientation are processed. "We use AI to make lawnmowing even easier," said Henning von Boxberg, President of the Robert Bosch Power Tools GmbH. "We understand the needs of our users: They want a beautiful garden with as little effort as possible". Thanks to autonomous lawncare, the Indego relieves the user of lawnmowing. With AI, Bosch increases the ease of use even further. Von Boxberg: "It is our vision that every Indego will learn individually and adapt itself perfectly to the garden."

Already today, Bosch is using the data from the connected Indego robotic lawnmower for improved obstacle detection. Until now, for example, the lawnmower might confuse long grass with garden furniture or playground equipment. This kind of feedback is analyzed and simulated in Bosch's own test gardens. Algorithms are then developed on the basis of classified data sets. During mowing, these algorithms automatically check a large number of possible solutions to enable the Indego to master certain situations more efficiently. Following its successful practical test, the software update is available for users. For Connect models, updates are installed "over the air". In future, every Indego is supposed to learn individually – and make its own decisions. "In addition to software updates for all users, we will improve the individual performance of the Indego for the garden in which it is used," explained Henning von Boxberg. "Every user will be able to say: I have the best Indego for my garden."

More convenience: Voice control and innovation through software

Robotic lawnmowers are a key growth segment for Bosch Power Tools. Innovation and consistent further product development are key drivers: The Indego from Bosch is the only robotic lawnmower on the market that systematically mows the lawn in lanes. The Indego is now treading new ground thanks to voice control. “We consistently gear our products towards the needs of users to make gardening easier. Our Indego S+ is one of the first robotic lawnmowers on the market that can be controlled by Amazon Alexa,” said Henk Becker, Managing Director of the Robert Bosch Power Tools GmbH and, among other aspects, responsible for development. Users can easily start, stop, or park Indego S+ using voice command. By using voice control, users can also find out when the Indego S+ last mowed the lawn or when the next cut is planned. “Our Indego is also the only robotic lawnmower that calculates the best time to mow your lawn by using a weather forecast from the internet. We call it ‘SmartMowing’.” Autonomous lawn care is made even more efficient and flexible with the “MultiArea” and “SpotMow” functions. With “MultiArea”, you can now mow multiple garden areas, for example at the front and back of the house, while “SpotMow” allows taking care of small, specific areas. “The new software also ensures better battery management: The runtime per battery charge has increased by 50 percent to 45 minutes,” said Henk Becker. This makes the Indego even faster.

Success through innovation:

The quietest cordless high-performance lawnmowers on the market

Bosch relies heavily on battery technology and has more than 50 years’ experience in the gardening sector. “We took a major step on the way to easy gardening already in 1969: The first cordless hedgecutter laid the foundation for the development of battery-operated power tools at Bosch,” said Henk Becker. Since then, the batteries have become smaller, lighter and more powerful. They power not only autonomous lawnmowers such as the Indego S+, but as of next season also the quietest cordless high-performance lawnmowers on the market. “We have thoroughly analyzed the current models, identified sources of noise, and then eliminated them one by one. The result: Our new Rotak models are the quietest cordless high-performance lawnmowers on the market,” Becker announced. From the lawnmower housing to its motor and blades, all components have been optimized to make cordless lawn care as efficient and quiet as possible. This not only makes the new Rotak lawnmowers quieter, but also optimized the mowing sound, which is now more pleasant.

Systematic success: Battery technology on the rise

Bosch Power Tools is consistently expanding its cordless segment – the focus is and will remain on the “Power for All” battery system: Users can operate DIY and garden tools such as rotary hammers, jigsaws, hedgecutters and grass trimmers

with one and the same battery. They can therefore save unnecessary batteries and chargers, enabling them to save money as well. New in the 18 volt system is the Fontus, the first cordless low-pressure cleaner from Bosch. It has the longest runtime, the highest pressure and the largest water tank in its class. The mobile cleaner is therefore the only tool that can completely clean the dust off two touring bikes on the spot – without power and water supply. The Fontus is one of many innovations, such as the NanoBlade saw blade technology for vibration-free, effortless and precise sawing or the EasyPrune, the first power-assisted cordless secateurs from Bosch. According to Henk Becker: “We offer products for every need, in order to make gardening easier for hobby gardeners, garden lovers, nature enthusiasts, city gardeners and self-supporters. Hedgecutters, trimmers, high-pressure washers – users give our products top grades in customer reviews. That is the greatest praise we can receive and is our motivation for further innovation.”

Press photos: #1453338

Contact person for press inquiries:

Martin Steinlehner

Phone: +49 711 758-3132

E-mail: Martin.Steinlehner@de.bosch.com

The Robert Bosch Power Tools GmbH, a division of the Bosch Group, is one of the world's leading providers for power tools, power tool accessories and measuring tools. In 2017, its roughly 20,000 associates generated sales of 4.7 billion euros, about 85 percent of which outside of Germany. With brands such as Bosch and Dremel, the division stands for customer focus and great engineering progress. The core success factors are innovative strength and pace of innovation. In 2018, Bosch Power Tools will again launch more than 100 new products onto the German market in its four business segments power tools, accessories, measuring tools and garden tools.

The Bosch Group is a leading global supplier of technology and services. It employs roughly 402,000 associates worldwide (as of December 31, 2017). The company generated sales of 78.1 billion euros in 2017. 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 440 subsidiary and regional companies in 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 125 locations across the globe, Bosch employs some 64,500 associates in research and development.

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