



### **Bosch at CES 2022: smart technology to make everyday life safe, convenient, and sustainable** Bosch booth in Central Hall

December 13, 2021

PI 11422 RB DW/af

- ▶ Innovative: smart connected biking solution named CES® 2022 Innovation Awards honoree.
- ▶ Software-based: Bosch show car reveals the software-defined and connected car for the mobility of today and tomorrow.
- ▶ Extraterrestrial: Bosch technology on the ISS detects anomalies on the basis of audio analytics.
- ▶ Suitable for everyday use: smart home appliances for more convenience, sustainability, and security.

Stuttgart, Germany, and Las Vegas, NV – Technology for all walks of life: at CES in Las Vegas, Bosch will be presenting connected, smart, and sustainable products and services for a better life – at home and on the road. From January 4 through 8, 2022, you will find Bosch at CES in the Central Hall, Booth #16103.

#### **CES Innovation Awards: Honoree for smart connected biking solution**

For its smart connected biking solution, Bosch eBike Systems has been named a CES® 2022 Innovation Award honoree in the “Vehicle Intelligence & Transportation” category. The CES® Innovation Awards are given by the Consumer Technology Association (CTA).

Smart connected biking solution – e-bike riding enjoyment 2.0: The new systems generation from Bosch eBike Systems merges the physical experience of riding an e-bike with the digital experience provided by connectivity and an app. This smart system comprises the new eBike Flow app, an LED user interface, color display, rechargeable battery, and drive unit. Over-the-air updates mean it can be continuously enhanced. The eBike Flow app opens up a range of new digital features for e-bikes, such as automatic activity tracking and personalized riding modes. Whether on the daily commute or a leisurely ride, the result is more enjoyment over longer distances.

## **A Bosch must-see**

Bosch show car: The future of mobility is automated, connected, electrified, and personalized. In the future, more and more vehicles will be electrically powered. They will increasingly be connected with other road users and their surroundings, and provide personalized, cloud-based services for their occupants such as wrong-way driver alerts or road condition updates. The show car will demonstrate Bosch systems expertise and extensive know-how in software and hardware. For example, Bosch is developing central computers for the electronics architecture of the future. These vehicle computers will be used for assisted and automated driving, controlling vehicle motion, as well as for cockpit functions and body electronics. Over-the-air updates will keep cars' functions constantly up to date.

Virtual visor – the transparent digital sun visor: Conventional sun visors shield car drivers from dazzling light. But folding them down often also blocks significant areas of a driver's field of vision. Bosch has solved this problem with a new, transparent LCD solution that replaces opaque visors. The virtual visor is connected to the interior monitoring camera, which detects the position of the driver's eyes. Using AI-based intelligent algorithms, the virtual visor analyzes this information and darkens only the portion of the windshield through which the sun or other light sources would dazzle the driver. The rest remains transparent, leaving the driver's view of the road unobstructed.

SoundSee – intelligent ears for the ISS: Although barely bigger than a lunch box, Bosch's SoundSee is brimming with start-of-the-art artificial intelligence (AI). SoundSee can be found on the ISS (international space station). Installed on board Astrobee, NASA's autonomous free-flying robot, SoundSee's integrated microphones pick up ambient noise in space. Using AI, the Bosch technology then analyzes the audio data in order to detect potential anomalies and to flag areas requiring maintenance work. SoundSee was developed together with Astrobotic as part of a NASA research partnership.

## **Software-based solutions for the mobility of today and tomorrow**

Solutions for the software-defined vehicle: Software is playing an increasingly central role in automotive engineering. After all, future connectivity, automation, and personalization functions will more than ever be brought about by software. Even now, Bosch annually puts more than 200 million control units running its proprietary software into vehicles worldwide. To achieve this, the company can draw on profound software, electronics, and systems expertise, and use this to develop application-specific vehicle software and the hardware to match for automotive applications of all kinds, from driver assistance and infotainment to the powertrain. Bosch plans to pool the development of application-independent

basic software and middleware, as well as cloud-based software modules for over-the-air software updates, at its wholly owned subsidiary ETAS.

Advanced driving module – pre-integrated components for electric cars: To make the development of electric cars less complex, and thus improve efficiency for automakers, Bosch offers pre-integrated modules such as its ADM advanced driving module. The ADM combines powertrain, brakes, and steering to form an integrated unit that automakers can incorporate faster and more cost-effectively into their vehicles. In addition, simplified interfaces and a standard software architecture ensure the best possible communication between the components, and provide the basis for new features.

TPA technician process assistant – a digital handyman: The TPA technician process assistant is part of a connected after-sales ecosystem in which humans and machines exchange data as needed to efficiently repair and maintain vehicles. The system, which is continuously learning and evolving, is a hands-free, platform-agnostic solution that works with tablet, PC, and wearables. With the help of AI, moreover, a knowledge base has been created on the basis of information taken from traditional servicing operations. If more expertise is needed, a connection can be set up between an expert and the “eyes and ears” of the technician working on the vehicle. This helps improve accuracy and efficiency when servicing and repairing today’s ever more complex vehicles.

Nevonex – connecting agriculture: Agriculture currently faces the challenge of securing food production in a changing climate. Here, Nevonex can help farmers by providing the necessary expert knowledge in the form of digitalized services. Nevonex allows these third-party services to be used in all makes of agricultural machinery – for example, to automate machine settings or optimize crop-planting processes. Bosch’s research here focuses on harnessing data from these processes to optimize subsequent process steps. The aim is to use edge computing to make robust, AI-based services available for farmers.

A breath of fresh air – Bosch solution for better urban air quality: To improve air quality in cities, at airports and train stations, and in business parks, Bosch offers innovative solutions that precisely record and simulate emissions. Bosch air-quality monitors provide precise readings for nitrogen oxides, particulates, humidity, and temperature – in other words, important information for gauging local air quality. The data is then uploaded to the cloud and evaluated. Knowing precisely what pollutants are in the air, where they are, and where they are spreading to allows countermeasures to be taken quickly, for better air at all times.

## **Smart solutions that improve convenience and security in the home**

Bosch heating and cooling solutions for a perfect climate in the home: Thanks to state-of-the-art inverter technology, the highly efficient Climate 5000 3.0 ductless mini-split air-source heat-pump system offers ample heating and cooling capacity. This heat pump is suitable for most residential buildings due to its ability to heat efficiently, even in frigid outdoor temperatures. The Climate 5000 3.0 features improved energy efficiency and humidity control, creating a comfortable indoor climate. In addition, its built-in air filtration system purifies the air and reduces volatile organic compounds (VOCs) and other harmful gases and odors. Bosch is also launching the Inverter Ducted Split (IDS) Premium Connected heat-pump system on the market. This solution offers high efficiency and particularly innovative connected features. Using a wireless internet connection and an IoT platform means that installers and homeowners can register it in the app. It also makes installation and troubleshooting easy. With the EasyAir app, installers and homeowners can access data remotely, allowing them to monitor energy consumption and appliance status.

Connected thermostats – smart and simple heating control: With its BCC50 and BCC100 connected thermostats, Bosch offers a simple and smart all-in-one control for heating, air-conditioning, and ventilation systems. Users can program their own heating and cooling schedules, for example. The controls are set directly on the thermostat, by using the Bosch Connected Control app, or by voice command.

Intelligent oven – cooking with a voice assistant: What temperature? Direct heat or steam? Finding the right setting can be tricky. But whether it's a quick supper or fine dining, an intelligent Bosch oven will do the trick. The voice assistant Alexa is standing by with advice, and will not only recommend the best oven setting, but also switch the oven on if required – all you have to do is ask.

Recipes inspired by a digital look inside the fridge: No idea what to eat? Fridge always full of leftovers? That's now a thing of the past. Now food can be entered into a digital fridge inventory – manually, by synchronizing with the Home Connect shopping list, or via a camera in the fridge. The Home Connect app will then know exactly what's in the fridge and provide recipe ideas based on the provisions available. A surefire recipe for new ways to treat your taste buds, as well as for less food waste.

Bosch Cookit – all-around culinary talent: Cookit offers a whole new dimension of flexibility in the kitchen. Whether guided cooking, automatic programs, or manual cooking, the multifunctional food processor with cooking function has the right level of support for everyone. And now it has become even more flexible: the

new “My Recipe” function allows Cookit to save personal recipes. The recipe, with all ingredients, quantities, temperatures, and special tips, is entered in the Home Connect app, which then relays it to the Cookit. The food processor with cooking function will then guide the user through the preparation steps as often as required.

Spexor – protecting what you love: This mobile security assistant is an intelligent all-in-one appliance that provides constant, ubiquitous protection. It detects break-ins and hazardous gases, measures room-air quality, and sounds the alarm if it gets too hot or too cold. If spexor’s integrated sensors detect anomalies in the monitored environment, it sends a notification straight to the user’s smartphone. The multisensor appliance is wireless and can be used wherever there is at least a cellular connection.

### **Bosch sensors – unshakeable, untiring, and incredibly flexible**

BME688 – monitors air quality and protects forests: Whether at home, in the office, or outdoors – to satisfy the need for clean air, Bosch Sensortec has developed the BME688. This innovative MEMS sensor is the world’s most compact four-in-one air-quality sensor featuring artificial intelligence, and is capable of measuring gas, humidity, temperature, and atmospheric pressure simultaneously. It is suitable for a range of applications, such as sending a warning when foodstuffs expire or the early detection of forest fires. In collaboration with Dryad Networks, BME688 sensors have been combined with an IoT network to detect forest fires early. Fewer forest fires mean significantly lower CO<sub>2</sub> emissions. In this way, Bosch is helping to mitigate global warming.

BHI260AP – revolutionizing fitness tracking: Squats, sit-ups, kettlebell training: the list of fitness exercises is nearly endless. However, many fitness trackers and smart watches can track only a limited number of activities, and the variety of apparatus types as well as users’ different movement styles, physiques, and fitness levels mean that they cannot always reliably recognize the exercises being done. To solve this problem, Bosch Sensortec has developed the BHI260AP – a novel, self-learning motion sensor that gives wearables and hearables artificial intelligence. The sensor recognizes and responds automatically to many different movements and can learn any new fitness activity based on regularly repeated routines.

BMP384 – resistant to water, chemicals, and dust: Wearables, home appliances, and industrial applications often have to cope with tough conditions. Up to now, however, many barometric pressure sensors have not been very robust or resistant to fluids, and therefore could not always be installed in watertight products. With Bosch Sensortec’s BMP384, it’s a different story. This barometric

pressure sensor is as compact as it is robust. At CES, Bosch Sensortec is also debuting a new ultra-precise pressure sensor that can also be used for indoor navigation and location.

### **Bosch IoT solutions for the connected city and for more data security**

From a single source – application store for video analytic apps: The world's first open application store for video analytics apps allows surveillance cameras to be flexibly equipped with new AI-assisted functions. In just a few minutes, applications for detecting things such as face masks, smoke, fire, and flooding or for evaluating flows of traffic and visitors can be installed on compatible cameras. Developed by the Bosch subsidiary Azena, more than 100 apps are already available for more than 40 use cases – with new ones joining them every month.

Smart video cameras for greater road safety: Thanks to a new deep-learning video analytic software, the new Inteox cameras with object classification can be used in areas such as traffic monitoring. Even in heavy traffic, they can recognize precise details of vehicles faster. AI helps to detect unforeseen, undesired, or future situations more quickly, more intuitively, and more reliably.

Using artificial intelligence to ward off hackers: The Bosch AI shield is a security product featuring artificial intelligence. It protects against external attacks by AI-assisted systems. One way it provides this protection is through a vulnerability analysis. The solution comprises an SaaS (software as a service) tool and user interface, and has been designed so that developers can use and scale it for a variety of applications. The AI model in the appliances or the cloud protects IP, brands, and investments, and in this way creates trust in digitalization.

### **Bosch at CES 2022:**

- **PRESS CONFERENCE: Tuesday, January 4, 2022**, from 8:00 to 8:45 a.m. local time (17:00–17:45 CET) with Dr. Tanja Rückert, Bosch CDO, and Mike Mansuetti, president of Bosch in North America, in Ballroom H, Mandalay Bay Hotel, Las Vegas **South Convention Center, Level 2**, as well as **livestreamed** on the [Bosch Media Service](#).
- **BOOTH: January 5–8, 2022**, in the Central Hall, booth #16103
- **ELECTRIC BIKE TEST TRACK: January 5–8, 2022**, at the eMobility Experience, LVCC, West Hall, West Plaza
- **FOLLOW** the Bosch CES 2022 highlights on Twitter: **#BoschCES**
- **PANELS WITH BOSCH EXPERTS:**  
**Friday, January 7, 2022, 10:00 a.m.**, Venetian Hotel (local time)

**Building a Resilient Smart Home** session with Dr. Carla Kriwet, CEO at  
BSH Hausgeräte GmbH

**Press photos:** #283b26fc, #51d6e1a0, #df4cb47a, #ddcf3269, #3219173,  
#2898611, #2898173, #12f7fbd, #1dfd4767, #813f95b8, #f9295be1, #f1b09ab7

**Contact persons for press inquiries:**

Bosch auf der CES: Irina Ananyeva, +49 711 811-47990, +49 152 59753284

Automated mobility: Caroline Schulke, +49 711 811-7088, +49 172 4293389

Connected mobility: Annett Fischer, +49 711 811-6286, +49 152 08651292

AI: Christiane Wild-Raidt, +49 711 811-6283, +49 711 8116283

Smart Living: Dörthe Warnk, +49 711 811-55508, +49 172 1538714

Twitter: @BoschPresse, @BoschPress

*The Bosch Group is a leading global supplier of technology and services. It employs roughly 395,000 associates worldwide (as of December 31, 2020). The company generated sales of 71.5 billion euros in 2020. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT provider, Bosch offers innovative solutions for smart homes, Industry 4.0, and connected mobility. Bosch is pursuing a vision of mobility that is sustainable, safe, and exciting. 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 facilitate connected living with products and solutions that either contain artificial intelligence (AI) or have been developed or manufactured with its help. 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 some 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral since the first quarter of 2020. The basis for the company's future growth is its innovative strength. At 129 locations across the globe, Bosch employs some 73,000 associates in research and development, of which nearly 34,000 are software engineers.*

*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-four percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The remaining shares are held by Robert Bosch GmbH and by a corporation owned by the Bosch family. 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.*

Additional information is available online at [www.bosch.com](http://www.bosch.com), [www.iot.bosch.com](http://www.iot.bosch.com), [www.bosch-press.com](http://www.bosch-press.com), [www.twitter.com/BoschPresse](https://www.twitter.com/BoschPresse).