Robert Bosch GmbH
Postfach 10 60 50
70049 Stuttgart

Media und Public Relations
Leitung: Melita Delic
Presse-Forum:
www.bosch-presse.de

Press release

March 15, 2017
PI 9614 RB Tho/BT

Bosch ConnectedWorld 2017
Artificial intelligence: Bosch teaches cars how to learn and take appropriate action

- Bosch CEO Denner: “Automated driving makes roads safer. Artificial intelligence is the key to that. We’re making the car smart.”
- New AI onboard computer can interpret road traffic
- Blockchain: Bosch and TÜV Rheinland present a solution for odometer fraud
- Connected repair shops can repair vehicles in passing

Berlin – Bosch is creating the brain for the self-driving cars of the future. At the international Bosch ConnectedWorld 2017 conference in Berlin, the supplier of technology and services presented an onboard computer for automated vehicles. Thanks to artificial intelligence (AI), the computer can apply machine learning methods. The AI onboard computer is expected to guide self-driving cars through even complex traffic situations, or ones that are new to the car. “We are teaching the car how to maneuver through road traffic by itself,” said Dr. Volkmar Denner, chairman of the Bosch board of management, at the international industry conference on the internet of things. Cars already use Bosch sensors to monitor their surroundings. Using artificial intelligence, it will also be able to interpret those readings to make predictions about the behavior of other road users. “Automated driving makes roads safer, and artificial intelligence is the key to making that happen. We are making the car smart,” continued the Bosch CEO. For building the core onboard computer, Bosch plans to collaborate with U.S. technology company Nvidia. Nvidia will supply Bosch with a chip that stores algorithms, generated with machine learning methods. The AI onboard computer is expected to go into production by the beginning of the next decade at the latest.

Driverless cars to be part of everyday life in the next decade

Bosch’s AI onboard computer can recognize pedestrians or cyclists. Besides this ability, known as object recognition, artificial intelligence also makes it easier for automated vehicles to assess a situation. For instance, cars that have their turn

Robert Bosch GmbH
Postfach 10 60 50
D-70049 Stuttgart

E-mail Manuel.Thomae@de.bosch.com
Phone +49 711 811-6268

Corporate Communications,
Brand Management, and Sustainability
Senior Vice President: Dr. Christoph Zemelka
www.bosch-press.com

signals on are more likely to change lanes than those that do not. As a result, a self-driving car with AI can recognize and assess complex traffic situations, such as when an oncoming vehicle executes a turn, and factor these into its own driving. The computer stores whatever it learns while driving in artificial neural networks. Experts review this knowledge in the lab for accuracy. Following further testing on the road, the artificially generated knowledge structures can be transmitted to any number of other AI onboard computers in an update. “We want automated driving to be possible in every situation. As early as the next decade, driverless cars will be also a part of everyday life. Bosch is advancing automated driving on all technological fronts. We aim to assume a leading role in the field of artificial intelligence, too,” said Denner. He went on to say that artificial intelligence would play a key role in all areas of business at Bosch, not just mobility: “Just ten years from now, it will be virtually impossible to conceive of a Bosch product that does not involve artificial intelligence in some way. The products will either have it or be created with its help.” At the beginning of this year, the company announced it was establishing a Center for Artificial Intelligence. Bosch is investing some 300 million euros in expanding its expertise in this area.

Secure data sharing and ownership over the internet

In his opening address at Bosch ConnectedWorld 2017 before an audience of some 2,700 attendees, Denner named further innovative technologies that will open up new areas of business for Bosch. Besides artificial intelligence and the cloud, one of these is “blockchain” technology. This allows consumers to securely share data online without involving a third party. They can conclude agreements and contracts online and securely transact payments, and the technology ensures the data is anonymized. A blockchain is based on a kind of decentralized database, which distributes information entered into it across thousands of computers. This makes it impossible to falsify the data, and consumers are less dependent on one single computing center.

Bosch and TÜV collaborate to fight odometer fraud

Denner highlighted one practical use for a blockchain with a live demonstration in cooperation with German certification authority TÜV Rheinland. It promises to put an end to the widespread practice of odometer fraud. In Germany alone, manipulated odometers in vehicles cause some six billion euros in damage. The idea is to combat this fraudulent practice with a digital logbook distributed across many computers. Cars regularly send their odometer readings to these computers via a simple connector. With a smartphone app, car owners can check the actual mileage at any time and compare it to the in-vehicle display. Should they wish to sell their car, they can have a certificate issued that attests to

the accuracy of the car's mileage. It is also possible to share this certificate over the internet; for example, on an online platform for selling cars.

Bosch is connecting the car with the repair shop

Artificial intelligence, the cloud, and blockchains – how are solutions with intelligently connected Bosch technology changing our day-to-day lives? Denner answers this question with an example: say a stone flies through the air and cracks the car's side window. The repair shop receives an automatic notification via the cloud and can prepare to make the necessary repairs. Connected logistics and connected forklifts mean that the replacement part is ready and waiting when the customer arrives. Donning a pair of augmented reality glasses that display instructions, the mechanic can carry out the work much more easily and quickly than otherwise. The benefit for drivers is that they can get back in their car and drive off after just a brief wait, with no need to come back to pick it up the next day and no need for a costly alternative in the meantime.

Some 2,700 attendees and 130 speakers

Now in its fourth year, Bosch ConnectedWorld 2017 is taking place in Berlin from March 15 to 16. The industry event, held at STATION-Berlin, is one of the world's largest conferences on the internet of things. Different areas of industry will present examples of the benefits connectivity will deliver. Some 2,700 developers, representatives of the business community, and journalists are attending the conference this year. Besides Bosch CEO Dr. Volkmar Denner, the list of around 130 speakers includes Timotheus Höttges (CEO of Deutsche Telekom), Edzard Overbeek (CEO of HERE), and Dr. Jen-Hsun Huang (CEO of Nvidia). At the event's hackathon, around 500 programmers, start-up employees, and designers come together to share their experience and ideas about connected mobility, connected industry, and connected buildings. At the accompanying exhibition, visitors can experience innovative connectivity solutions presented by more than 80 exhibitors.

Related links:

Bosch Connected World 2017 website
Bosch IoT platform for internet opinion leaders: "Connected World"
Artificial intelligence: Bosch investments in early 2017
The IoT's getting personal: for Bosch, intelligent assistants are the answer
Sensors, software, services: connectivity strategy at Bosch
Automated driving at Bosch
Connected and automated parking at Bosch

The Bosch connected repair shop

Study: what people expect from smart homes

Press photos: #959147, #693516, #452394, #693515, #368716

Infocharts: #959172

Videos:

Opening Video Bosch press conference at CES 2017

Bosch at CES 2017 - Connected Mobility

Turning things into partners

Contact person for press inquiries:

Dr. Manuel Thomä,

Phone: +49 +711 811-6268

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.

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

Press release

March 15, 2017
PI 9615 BBM joe/KB

Cars: assistants on wheels
Bosch software platform enables a host of custom services

- Bosch board of management member Hoheisel: “Services are increasingly becoming a differentiating factor within the automotive industry.”
- Study predicts that by 2020, there will be 250 million connected cars on the road.
- The Automotive Cloud Suite makes it possible to develop, operate, and sell services for connected cars.
- Bosch services warn of wrong-way drivers and find available parking spaces.

Berlin – It is the dawning of the age of the connected car. Starting in March 2018, the eCall automatic emergency call system will be mandatory in the EU. This means that every new car will be a connected car by default. The market research company Gartner forecasts that by 2020, there will be 250 million connected cars on the world’s roads. As cars increasingly become mobile devices on wheels, interested buyers are focusing more and more on digital services, such as ones that monitor the car’s condition or warn of wrong-way drivers. According to a survey by the German Consumer and Media Analysis group (VuMA 2017), more than a quarter of the German population already views integrated internet access as a key consideration when buying a car. Speaking at the international Bosch ConnectedWorld 2017 conference in Berlin, Bosch board of management member Dr. Dirk Hoheisel said, “Services for connected cars are increasingly becoming a differentiating factor within the automotive industry.” Hoheisel also announced the launch of the Bosch Automotive Cloud Suite, a new platform for mobility services. The Automotive Cloud Suite offers automakers and all mobility service providers a software platform plus a comprehensive toolkit for developing all kinds of services for drivers and for quickly bringing them to a wide

Robert Bosch GmbH
Postfach 10 60 50
D-70049 Stuttgart

E-mail joern.ebberg@de.bosch.com
Phone +49 711 811-26223
Fax +49 711 811-5187718

Corporate Communications,
Brand Management, and Sustainability
Senior Vice President: Dr. Christoph Zemelka
www.bosch-press.com

market. Hoheisel continued: “Drivers also benefit from the Automotive Cloud Suite’s wider, yet more personalized range of services.”

Bosch’s strength: expertise in cars, clouds, and big data

The Bosch Automotive Cloud Suite is based on the Bosch IoT Suite, and provides the technological basis for all services involving connected cars. It offers all the functions needed to connect devices, users, companies, and domains on a single platform. In its Automotive Cloud Suite, Bosch provides individual software modules, such as a digital logbook or solutions for implementing software updates. Providers of mobility services can use them to develop a broad range of connected car services for drivers. “Bosch is in a position to bring together comprehensive automotive know-how and IT expertise,” said Hoheisel. “From the idea to the rollout to the actual operation of services, we provide our customers with everything from a single source.” Bosch brings together many areas of expertise in its Automotive Cloud Suite: besides its skills as a systems supplier to the automotive industry and as a leading provider of encryption technologies, the company has extensive experience both as a cloud operator and in handling big data.

“Not only can our customers implement services with the Automotive Cloud Suite, but we also use it for our own in-house services,” Hoheisel said. Bosch is demonstrating a range of new services in a show car based on a Jaguar F-Pace at Bosch ConnectedWorld 2017. Below are five services that are due to become standard in every vehicle.

1. Wrong-way driver alert:

In Germany alone, some 2,000 warnings about wrong-way drivers are broadcast each year. In most cases, however, the warning comes too late, since one-third of such incidents generally end after the wrong-way driver has traveled an average of 500 meters – in the worst case with fatal consequences. Bosch’s cloud-based wrong-way driver alert is designed to provide a warning within ten seconds or so. The alert goes not only to the wrong-way driver, but to all road users in the vicinity. The service thus functions as a guardian angel in the data cloud.

2. Predictive diagnostics

Nothing is more annoying than when a car breaks down on vacation. Predictive diagnostics prevents situations where the car is unexpectedly out of commission. During regular drives, the system can analyze data and make predictions about the condition of key components. The driver is notified before a part wears out and receives a recommendation for the next repair shop visit.

3. Community-based parking

This service turns parking into a communal activity. As the car drives around, it uses its on-board sensors to identify and measure the gaps between cars parked at the curb. That information flows into a digital parking map. Using smart data processing, Bosch then corroborates the information to supply a prediction of the parking situation. The digital parking map is available in the cloud for cars in the vicinity, allowing drivers to navigate straight to a vacant spot.

4. Personal assistant

The dream of having one's own personal assistant is coming true. With this Bosch service, drivers can use voice commands to conveniently manage their appointments, ask for a wide range of information, make adjustments in their smart home, and much more, all during the drive. Over time, the assistant learns the user's habits and preferences so as to provide even better support.

5. Software updates over the air

Software updates from the cloud are already a given for smartphones; now, Bosch is doing the same for cars. New features, such as a more efficient driving mode for electric vehicles, can be added to the car – overnight, encrypted, and protected from hackers.

Press photos: #959171

Related links:

Bosch study on automated driving: Connected Car Effect 2025

Contact person for press inquiries:

Jörn Ebberg,

phone: +49 711 811-26223

Mobility Solutions is the largest Bosch Group business sector. According to preliminary figures, its 2016 sales came to 44.0 billion euros, or 60 percent of total group sales. This makes the Bosch Group one of the leading automotive suppliers. The Mobility Solutions business sector combines the group's expertise in three mobility domains – automation, electrification, and connectivity – and offers its customers integrated mobility solutions. Its main areas of activity are injection technology and powertrain peripherals for internal-combustion engines, diverse solutions for powertrain electrification, vehicle safety systems, driver-assistance and automated functions, technology for user-friendly infotainment as well as vehicle-to-vehicle and vehicle-to-infrastructure communication, repair-shop concepts, and technology and services for the automotive aftermarket. Bosch is synonymous with important automotive innovations, such as electronic engine management, the ESP® anti-skid system, and common-rail diesel technology.

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.

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

Press feature

Seven facts about artificial intelligence:

January 2017
PI 9538 RB DH/KB

1.) The cradle of artificial intelligence

The term “artificial intelligence” was coined at a workshop held as part of a research project on artificial intelligence at Dartmouth College in New Hampshire in 1956. Today, the Dartmouth Conference is considered the inaugural meeting for research into artificial intelligence.

2.) The great unknown

Big data is a concept that most Germans know nothing about. According to TNS Infratest, 74 percent have never heard of it, while only 9 percent feel able to offer an explanation of what the phrase means. Big data refers to huge amount of data, which is captured, analyzed, and processed. It is the basis for artificial intelligence.

3.) Learning from millions of images

Deep learning is an aspect of machine learning that relies on a multi-layered neural network inside a computer, with a structure reminiscent of the human brain. While a small child needs only experience a few cats to then recognize all cats as such, the computer needs to see millions of cat pictures before it can recognize a cat.

4.) Smart assistants

The market research organization Gartner predicts that by 2024, some 10 percent of activities with the potential to endanger human lives will be performed by smart systems. One example is assistance systems in vehicles. These will enable future vehicles to communicate more effectively, detect their surroundings more accurately, process data more rapidly – and eventually drive completely autonomously.

5.) As clever as a human being

Experts are expecting to create an artificial intelligence that is on a par with human intelligence before the end of this century.

Robert Bosch GmbH
Postfach 10 60 50
D-70049 Stuttgart,
Germany

E-mail Drik.Haushalter@de.bosch.com
Phone +49 711 811-38195

Corporate Communications,
Brand Management, and Sustainability
Senior Vice President: Dr. Christoph Zemelka
www.bosch-press.com

6.) Bosch Center for Artificial Intelligence

In the period to 2021, Bosch will invest some 300 million euros in the Bosch Center for Artificial Intelligence, with around 100 experts researching artificial intelligence at three locations (Bengaluru, Palo Alto, and Renningen).

7.) Future Bosch products will be intelligent

Ten years from now, scarcely any Bosch product will be conceivable without artificial intelligence. Within just five years, products featuring artificial intelligence are expected to account for 10 percent of Bosch sales.

Contact person for press inquiries:

Dirk Haushalter,

phone: +49 711 811-38195

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 create solutions for a connected life, and to improve 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.

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

Press feature

Artificial intelligence – five questions, five answers

January 2017
PI 9488 RB DH/KB

1. What is artificial intelligence?
Artificial intelligence describes a process by which machines learn to learn. Or to put it differently: computer systems imitate human intelligence. Artificial intelligence is a simulation of intelligent behavior on the basis of pretermined or learned examples.

2. How does artificial intelligence work?
An AI system recognizes its surroundings with the help of cameras and sensors. It discovers correlations in this contextual data and then derives actions from them. For example, An AI system in a car can recognize pedestrians on the sidewalk, calculate the probability of someone crossing the road, and if necessary initiate evasive maneuvers.

3. What is deep learning?
Deep learning is a category of machine learning and a major foundation for artificial intelligence. Machines use deep learning to gather knowledge of their own from their experience of events. To do this, artificial neural networks are arranged in successive levels that use progressively more complex characteristics. Typical everyday applications include speech recognition in smartphones or traffic-sign recognition in vehicles.

4. What is the difference between artificial intelligence and algorithms?
An algorithm is a rule, expressed in an IT language, that consists of a series of instructions with which to solve specific tasks. Artificial intelligence is often made up of algorithms. However, an algorithm is not automatically an example of artificial intelligence.

5. What are the benefits of artificial intelligence for people?
Examples of artificial intelligence at work include automated driving and driver assistance systems. The latter can help avert accidents. Artificial intelligence is also making inroads into industry. For instance, collaborative robots can use sample data and machine learning to quickly pick up new tasks that they need to

Robert Bosch GmbH
Postfach 10 60 50
D-70049 Stuttgart,
Germany

E-mail Dirk.Haushalter@de.bosch.com
Phone +49 711 811-38195

Corporate Communications,
Brand Management, and Sustainability
Senior Vice President: Dr. Christoph Zemelka
www.bosch-press.com

perform in conjunction with humans. There is no longer any need for complex manual programming, which saves both time and money. An additional benefit for factory workers is that their robot colleague can perform any monotonous or dangerous tasks.

Contact person for press inquiries:
Dirk Haushalter
phone: +49 711 811-38195

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 create solutions for a connected life, and to improve 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.

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

Fact sheet

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

March 15, 2017
PI 9616 RB Tho/BT

- 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.

Robert Bosch GmbH
Postfach 10 60 50
D-70049 Stuttgart

E-mail manuel.thomae@de.bosch.com
Phone +49 711 811-6268

Corporate Communications,
Brand Management, and Sustainability
Senior Vice President: Dr. Christoph Zemelka
www.bosch-press.com

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.

Contact person for press inquiries:
Dr. Manuel Thomä,
Phone: +49 +711 811-6268

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.

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

Press release
Bosch Compact

Did you know that...
Facts about connected mobility

March 15, 2017
PI 9618 CC IEh/BT

- ... by 2025, roughly half of all cars will have infotainment systems that allow smartphone integration?

- ... Bosch manufactures some 4 million MEMS sensors each day which make connected applications possible in vehicles?

Connected functions mean more safety on the road

- ... Bosch's cloud-based wrong-way driver alert is issued within ten seconds, thus making it considerably faster than radio-based warnings?

- ... by 2025, 11,000 lives could be saved by connected functions in cars such as a wrong-way driver alert?

- ... up to 4.3 billion euros can be saved in collision damage thanks to connected assistance systems including smartphone integration?

- ... Bosch operates service centers in 30 countries and 16 languages? Their areas of responsibility include handling eCalls and collecting data for the breakdown service. In 2015, Bosch handled more than 120 million customer calls for over 1,000 companies.

- ... according to the EU Commission, the eCall automatic emergency notification system could save 2,500 lives in Europe each year?

Vehicle connectivity goes beyond cars at Bosch

- ... by 2025, 70 percent of all newly-registered motorcycles worldwide will be connected?

- ... the communications box for motorcycle connectivity exchanges information with the cloud or other vehicles up to ten times per second?

- ... the software functionality of trucks will increase over six times by 2025, and it will have 20 times the computing capacity it does today?

Robert Bosch GmbH
Postfach 10 60 50
70049 Stuttgart, Germany

Email joern.ebberg@de.bosch.com
Phone +49 711 811-26223
Fax +49 711 811-5187718

Corporate Communications,
Brand Management, and Sustainability
Senior Vice President: Dr. Christoph Zemelka
www.bosch-press.com

Contact person for press inquiries:

Jörn Ebberg,

phone: +49 711 811-26223

Mobility Solutions is the largest Bosch Group business sector. According to preliminary figures, its 2016 sales came to 44.0 billion euros, or 60 percent of total group sales. This makes the Bosch Group one of the leading automotive suppliers. The Mobility Solutions business sector combines the group's expertise in three mobility domains – automation, electrification, and connectivity – and offers its customers integrated mobility solutions. Its main areas of activity are injection technology and powertrain peripherals for internal-combustion engines, diverse solutions for powertrain electrification, vehicle safety systems, driver-assistance and automated functions, technology for user-friendly infotainment as well as vehicle-to-vehicle and vehicle-to-infrastructure communication, repair-shop concepts, and technology and services for the automotive aftermarket. Bosch is synonymous with important automotive innovations, such as electronic engine management, the ESP® anti-skid system, and common-rail diesel technology.

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.

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