Press release

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Stuttgart airport set to welcome fully automated and driverless parking

Apcoa, Bosch, and Mercedes-Benz are working to provide the world's first commercial automated valet parking service

- In the future, a command from a smartphone will tell cars where to park in Stuttgart Airport's P6 parking garage.
- The new Mercedes-Benz S-Class is equipped with the technology to enable driverless, fully automated parking (SAE Level 4[1]).
- For automated valet parking, Bosch is using camera-based infrastructure for the first time to detect lanes and obstacles.
- The parking garage operator Apcoa is testing barrier and payment functions as the basis for automated valet parking, enabled by its APCOA FLOW digital mobility platform.

Stuttgart, Germany – Automated parking to drive down the airport stress: Bosch, Mercedes-Benz, and the parking garage operator Apcoa want to introduce driverless and fully automated parking at Stuttgart airport in the future. To this end, the automated valet parking system co-developed by Bosch and Mercedes-Benz is to be made ready for commercial operation. The new Mercedes-Benz S-Class is already geared up to accommodate it as the world's first production vehicle to feature the technology required for future infrastructure-based automated valet parking. As an option, customers can buy the appropriate pre-installation for what the company calls the INTELLIGENT PARK PILOT, which makes the S-Class capable of receiving a smartphone command to drive itself to a reserved parking space. "With the new S-Class, it's not just driving that's a luxury, but parking as well," says Dr. Michael Hafner, head of automated driving at Mercedes-Benz AG. The P6 parking garage at Stuttgart airport will serve as the pilot for the planned commercial automated parking service. Here, the

[1] SAE-Level 4: The car can autonomously handle all traffic situations under certain conditions (e.g. on selected roads, not in all types of weather). No driver is required.

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companies will test how the vehicle technology onboard the S-Class interacts with the intelligent Bosch infrastructure and APCOA FLOW, the digital platform provided by the parking garage operator Apcoa. This platform makes the whole parking process ticketless and cashless. “Apcoa, Bosch, Mercedes-Benz, and Stuttgart airport want to work together to make parking fully automatic,” says Christoph Hartung, member of the executive management of Connected Mobility Solutions at Bosch. In the airport parking garage, preparations are currently underway to begin piloting the planned automated valet parking service. The aim of this trial with new S-Class vehicles at Stuttgart airport is to ensure that interactions between the vehicle, infrastructure technology, and parking garage operator run smoothly and are optimized for the customer.

World’s first Level 4 park function in a production vehicle

In July 2019, Bosch and Mercedes-Benz received the world’s first special permit to operate automated valet parking for selected E-Class vehicles without a safety driver in real-life, mixed parking garage traffic at the Mercedes-Benz Museum in Stuttgart. Equipped with the appropriate pre-installation for the INTELLIGENT PARK PILOT, the new Mercedes-Benz S-Class is now the first production vehicle to feature this technology, which enables it to park without a driver. However, this is conditional on the future availability of parking garages with the appropriate infrastructure, as well as on national legislators giving automated valet parking the green light. This makes the Mercedes-Benz S-Class the world’s first vehicle to feature a pre-installation for an SAE Level 4 automated driving function, the second-highest level of automation. “With automated valet parking, Mercedes-Benz is demonstrating that driverless parking will soon be possible,” Hafner says.

To facilitate this new one-touch parking function, a spacious drop-off and pick-up area will be set up directly behind the entrance to the P6 parking garage, giving automated valet parking users a convenient place to leave their vehicles. As they comfortably make their way to the terminal and check in, their S-Class will park itself in the basement, guided by information from the infrastructure technology. In other words, users no longer need to worry about maneuvering or having to squeeze out of their cars when the space they have finally found proves to be too narrow. “Automated valet parking really enhances our passengers’ comfort and convenience and saves them time, especially when they’re in a hurry and just want to drop their car off quickly at the airport”, says Walter Schoefer, management spokesman for Flughafen Stuttgart GmbH. For the test phase that is about to start, P6 will initially have two spaces available for self-parking vehicles. More spaces will be added when driverless parking becomes standard as planned in the future and as demand increases.

Intelligent infrastructure and digital platforms

The pilot parking garage at Stuttgart airport will be a premiere for new Bosch video cameras that can identify vacant parking spaces, monitor the driving aisle and its surroundings, and detect obstacles or people in the aisle. Until now, lidar sensors have been used for this purpose. A dedicated control center in the parking garage then calculates the route the vehicles need to take to reach an available space. “Our intelligent parking garage infrastructure forms the basis for the future of driverless parking,” Hartung says. Thanks to the information that the cameras provide, it is also possible for cars to drive themselves around the parking garage – even on narrow ramps, enabling them to move between different stories. The in-vehicle technology autonomously converts the information from the infrastructure into driving maneuvers. If the cameras detect an unexpected obstacle, for example, the vehicle safely performs an emergency stop.

APCOA FLOW, the parking garage operator Apcoa’s digital platform, will also play a key role in driverless parking at Stuttgart airport. Drivers are already using the platform to help lighten the burden of parking. This ranges from making firm reservations for a parking space, to contactless entry into the parking garage, and to fully automated payment, invoicing, and contactless exit. The system recognizes the customer’s vehicle and the barriers open automatically, making a ticket and trip to the ticket machine redundant. “We want to be the first parking garage operator to fully support and enable automated parking services based on automated valet parking technology in one of our parking garages,” says Frank van der Sant, chief commercial officer at Apcoa Parking Holdings GmbH.

More vehicles, more parking garages

A vehicle drop-off and collection service saves time and avoids long walks to the car: once parking garages are equipped with the appropriate infrastructure and national laws permit automated valet parking, customers will be able to enjoy driverless parking services. Bosch and Mercedes-Benz are paving the way for this with the world’s first infrastructure-based solution for SAE Level 4 automated valet parking in real-life, mixed parking garage traffic. Uniform standards and interfaces ensure smooth communication between the vehicles and infrastructure technology. In the future, Bosch’s aim is to equip more and more parking garages with infrastructure technology required for automated valet parking. As Europe’s largest parking garage operator, Apcoa also has a strategic interest in offering innovative premium services like automated valet parking in more of its parking garages. “Looking ahead, we want to open up the driverless parking service to more customers at selected Apcoa locations,” van der Sant says. The company manages approximately 1.5 million individual parking spaces at over 9,500 locations in 13 European countries. By increasing the availability of

driverless and fully automated parking services, the same amount of space could accommodate up to 20 percent more vehicles. In addition, driverless parking is especially suitable for narrow, remote, and therefore unattractive parking areas that people would otherwise avoid.

Press photographs: #3271226, #3271227, #3271228, #3271229, #3271230, #3271231, #3271233, #3271234, #3271235, #3271236, #3271237, #3271238, #3271239, #3271240, #3271241, #3271242, #3271233

Additional information:
Video about automated valet parking at Stuttgart airport: #3271251
Press release World first: Bosch and Daimler obtain approval for driverless parking without human oversight
Press release Bosch and Daimler demonstrate driverless parking in real-life conditions

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Mobility Solutions is the largest Bosch Group business sector. It generated sales of 46.8 billion euros in 2019, and thus contributed 60 percent of total sales from operations. This makes the Bosch Group one of the leading automotive suppliers. The Mobility Solutions business sector pursues a vision of mobility that is safe, sustainable, and exciting, and combines the group's expertise in the domains of personalization, automation, electrification, and connectivity. For its customers, the outcome is integrated mobility solutions. The business sector's 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 400,000 associates worldwide (as of December 31, 2019). The company generated sales of 77.7 billion euros in 2019. 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

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