



Trends Communication

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Audi networks with traffic lights in Düsseldorf

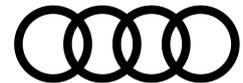
- **“Green wave”**: Audi drivers know in advance when traffic lights will switch to green
- **Andre Hainzmaier, head of Connected Services Development**: **“Audi Traffic Light Information increases convenience, safety and efficiency on the roads”**
- **Studies show that networked traffic lights help to save fuel**

Ingolstadt/Düsseldorf, 28 January 2020 – Audi is moving ahead with networked traffic lights in Düsseldorf. After Ingolstadt, the city on the Rhine is the second in Europe in which Audi is introducing its Traffic Light Information service. At the end of January, Audi drivers will see information from around 150 traffic lights in their cockpit, thus increasing their chance of catching a “green wave”. By early summer most of the intersections in Düsseldorf, approximately 450 out of a total of some 600 installations, will be networked. Vehicle-to-infrastructure (V2I) services like Audi Traffic Light Information increase efficiency, convenience and safety on the roads.

Audi Traffic Light Information consists of two functions: Green Light Optimized Speed Advisory (GLOSA) and Time-to-Green. GLOSA calculates the ideal speed for getting a “green wave”. For example, if the function indicates the applicable speed limit, the next traffic light will be reached at green. Drivers do not have to accelerate unnecessarily, they are not stressed, and they drive more safely. GLOSA can also suggest reducing speed gradually about 250 meters ahead of the traffic lights so that the driver and the cars behind reach the intersection when the lights turn to green. This reduces uneconomical stop-and-go traffic.

If stopping at a red light is unavoidable, a countdown displays the seconds remaining until the next green phase begins (Time-to-Green). Drivers can relax, take their foot off the gas pedal and save fuel. A number of studies conclude that drivers move through cities more efficiently thanks to networked traffic lights. In a pilot project, Audi was able to reduce fuel consumption by 15 percent.

“With Audi Traffic Light Information we wish to improve convenience for drivers, increase traffic safety and encourage an economical style of driving that looks ahead,” says Andre Hainzmaier, head of development for Apps, Connected Services and Smart City at Audi. “To do this, we have to predict precisely how traffic lights will behave in the next two minutes. At the same time, exact forecasts are the biggest challenge. Most signals react variably to traffic volume and continuously adapt the intervals at which they switch between red and green.”



Audi and its project partner Traffic Technology Services (TTS) have developed a complex analytical algorithm that calculates exact predictions from three sources: from the control program of the traffic signals; from the real-time data of the traffic computer, a combination of road-occupation cameras, detector strips in the road surface, data on approaching buses and trams, and buttons that pedestrians press; as well as from historical data. The forecast algorithm improves itself continuously and learns how, for example, the traffic volume changes in morning commuter traffic or at midday when children leave nurseries and schools.

The Audi fleet plays a decisive part in optimizing the traffic light forecasts. “The cars send anonymized data when traffic lights are crossed to an Audi backend, which checks whether the actual crossings of traffic lights correspond to the forecast data. Only after this are the traffic lights cleared for the display in the car,” Hainzlmaier explains.

In future the cities, too, will receive useful information about their traffic light infrastructure. The data show, for example, whether cars stop unusually often at a particular intersection or whether the average waiting time is comparatively long. “We aggregate the recorded data into reports that we will make available to the city authorities. Traffic lights can then be given more efficient phasing and traffic will flow better.”

Audi Traffic Light Information premiered in 2016 in Las Vegas. Today this V2I service is available at more than 10,000 intersections in North America, including some 2,000 in Manhattan/New York City and more than 1,600 around the US capital Washington D.C. Audi is also the world’s first automotive manufacturer to network its series-production models with city traffic lights.

Audi Traffic Light Information operates in all Audi e-tron, A4, A5, A6, A7, A8, Q3, Q7 and Q8 models that have been produced since mid-July 2019 (the “2020 model year”). The pre-requisites are the Audi connect Navigation & Infotainment package and the optional camera-based traffic-sign recognition.

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The **Audi Group**, with its brands Audi, Ducati and Lamborghini, is one of the most successful manufacturers of automobiles and motorcycles in the premium segment. It is present in more than 100 markets worldwide and produces at 18 locations in 13 countries. 100 percent subsidiaries of AUDI AG include Audi Sport GmbH (Neckarsulm), Automobili Lamborghini S.p.A. (Sant’Agata Bolognese, Italy) and Ducati Motor Holding S.p.A. (Bologna, Italy).

In 2019, the Audi Group delivered to customers about 1.845 million automobiles of the Audi brand. In the 2018 fiscal year, AUDI AG achieved total revenue of €59.2 billion and an operating profit before special items of €4.7 billion. At present, approximately 90,000 people work for the company all over the world, more than 60,000 of them in Germany. Audi focuses on sustainable products and technologies for the future of mobility.
