Mercedes-Benz Future Bus CityPilot

World premiere: Mercedes-Benz Future Bus with CityPilot – milestone on the road to the automated driving city bus, revolutionary mobility system of tomorrow

Automated bus stop approaches

The bus approaches a stop in fully automated mode. It reaches a distance under 10 centimetres to the kerb for convenient passenger boarding. The doors open and close automatically at bus stops. Green and red lights give signals to the passengers for boarding or departure.

Precise positioning

For pinpointing its position accurately, the Mercedes-Benz Future Bus uses a satellite-based differential GPS system, the lane camera and four cameras for global visual localization. The cameras are mounted behind the windshield and in the sides of the roof above the front axle to scan the surroundings and determine the vehicle’s position with pinpoint accuracy.

Pedestrian and vehicle detection

No less than four close-range radar sensors – two in the front end and two at the front corner of the vehicle – cover the area within a distance of 10 metres in front of the bus for pedestrian detection and scan the surroundings before the bus starts to move. In addition, a stereo camera with a range of 60 metres allows detecting pedestrians in the long-distance range. A long-range radar system with a range of up to 200 metres detects vehicles ahead.

Fluid driving style through connectivity

By communicating with traffic lights, the bus receives information about the status of traffic lights and the length of the traffic light phases from up to 200 metres away. By adjusting the speed accordingly, the bus can take advantage of phased traffic lights, which is convenient for the passengers on one hand, while lowering fuel consumption on the other. If there is no wireless connection to the traffic light, the bus uses the stereo camera for visual recognition. It reliably recognizes the traffic light status, with a range of about 30 metres.

Future Bus Overview

Just under a dozen cameras scan the road and surroundings, while long and short-range radar systems constantly monitor the route ahead. The technology also employs a differential GPS system. All data is collated and after fusion the result provides an extremely precise picture of the surroundings and allows determining the position of the bus with pinpoint accuracy. At the world premiere, it will demonstrate this on a route of almost 20 km with some tight bends, tunnels, traffic lights, pedestrian crossings, numerous bus stops and speeds of up to 70 km/h, such as are customary on BRT routes.