



HEAT - Hamburg Electric Autonomous Transportation

The future is self-driving – the HOCHBAHN research project HEAT

HEAT

Our project partners from industry, research institutes and the city of Hamburg



Supported by:



based on a decision of the German Bundestag

19.10.2021

HEAT

The focus is on integrated research



Technically realistic and safe

Can driverless vehicles (minibuses) be operated safely on regular public transport services?

Is the technology needed for that already available:

- with a permitted top speed of 25 km/h?
- on a defined route on the public roads?

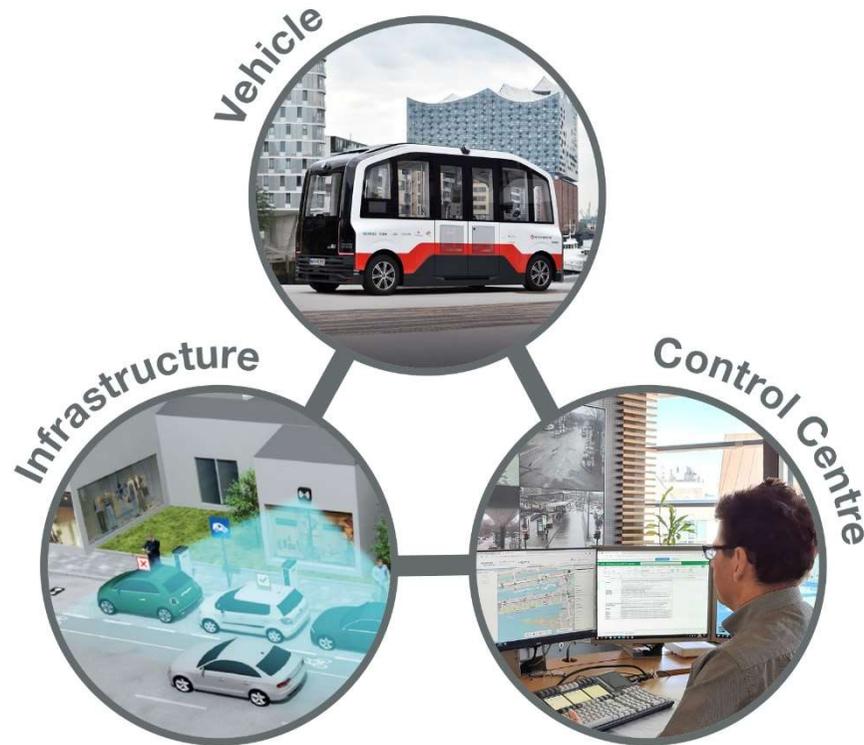
Acceptance

How do users of public transport and other road users react to this new service offer?
And what are the main adjustments needed?

New business and operator models

How can new operator models and new service options for the sustainable deployment of automated self-drive vehicles for passengers be created as part of a public transport network?

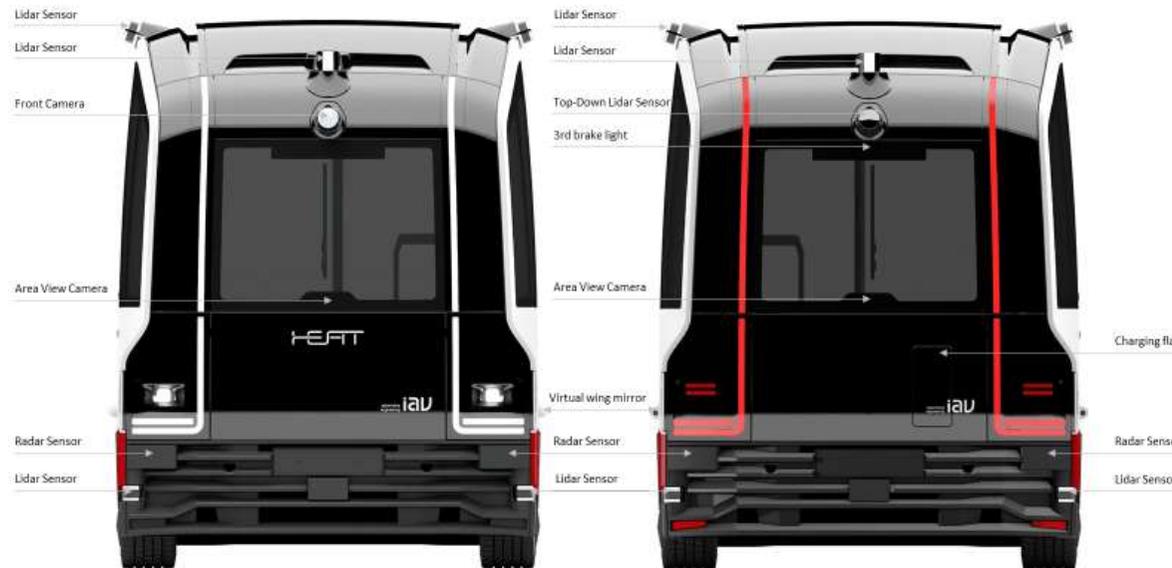
A systemic approach for greater safety and better performance



We drive in a complex inner-city traffic environment



System redundancy enables intrinsically safe driving



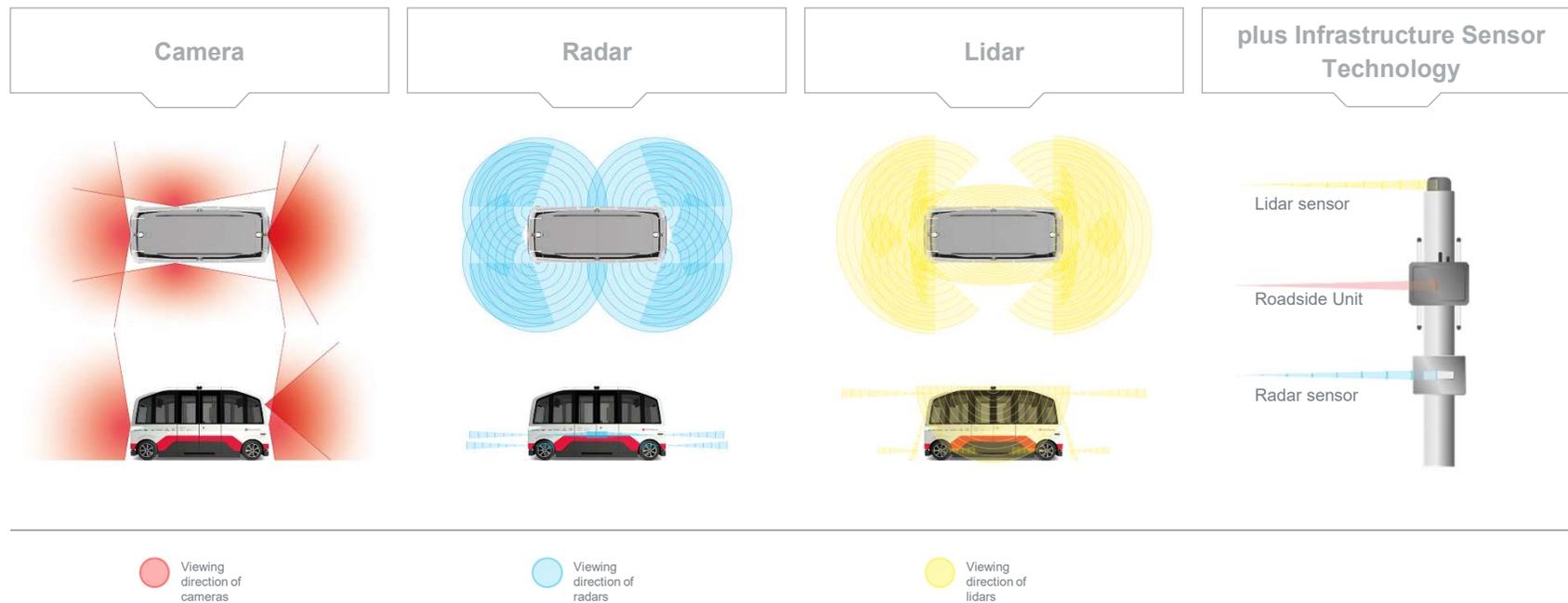
§
Systems developed for longitudinal and lateral dynamics according to ISO26262

!
Joystick: option to intervene and take control/override over full permitted speed range

Source: iAV



System redundancy enables intrinsically safe driving



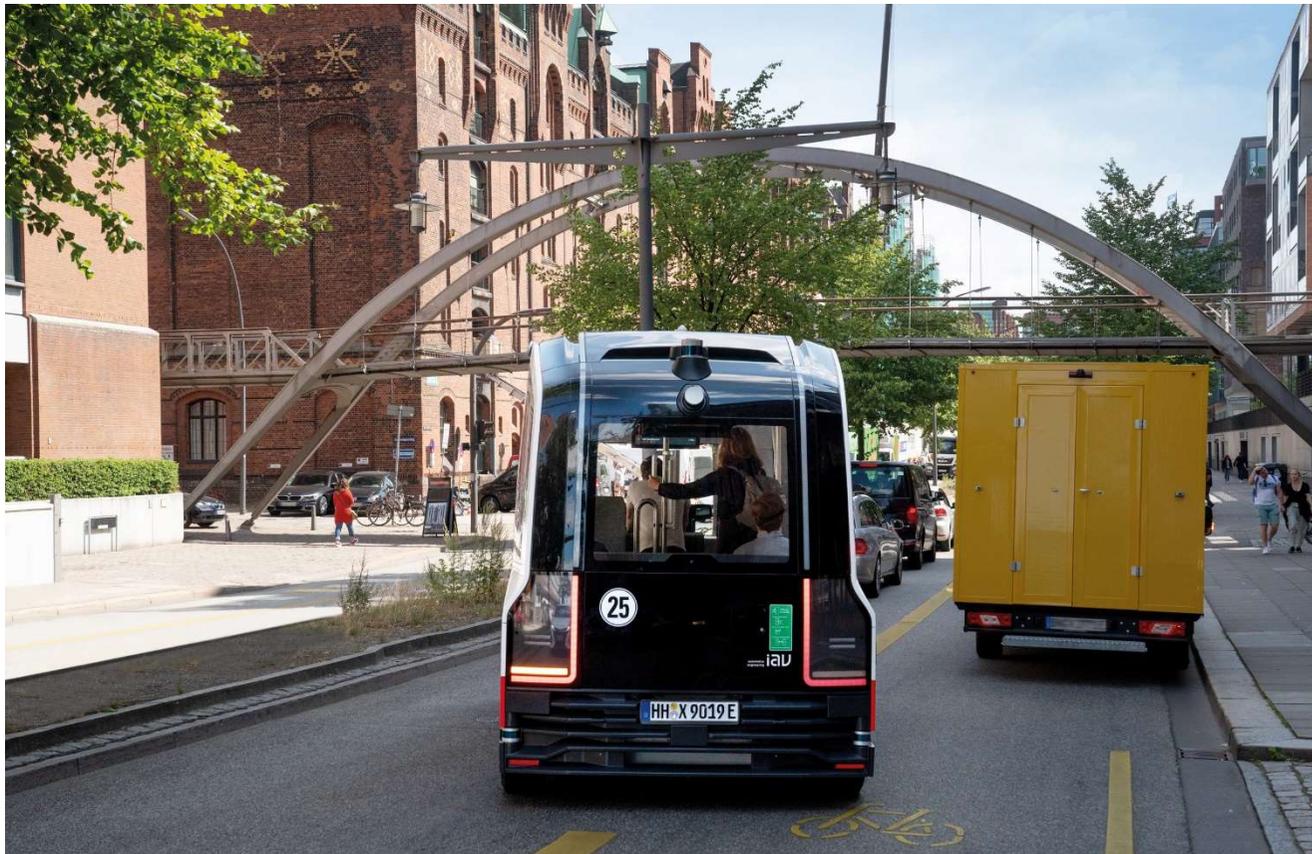
The control centre keeps its eye on the entire system



19.10.2021

HEAT

Independent overtaking of stationary vehicles



19.10.2021

HEAT

Positive passenger feedback



Results

- Positive user experience (e.g. safety, usefulness, fun)
- Requests for improvement (e.g. driving performance, comfort, accessibility)
- Passengers show understanding for problems in the development process, but also expect solutions to make autonomous driving a viable option in public transport
- Large number of voluntary feedback confirms the value of our project idea

Our lessons learned so far

<p>Our project goals were very ambitious. </p>	<p>It is not enough to prove that a solution works. It must be continuously successful. </p>	<p>Passenger acceptance of this new technology is high. </p>
<p>The links between the subsystems are complex. </p>		<p>The automation of special traffic situations, such as passing a wrong-way parker, is a demanding task. </p>
<p>The development of a HEAT app for passengers was necessary and is very useful for the customers. </p>		<p>Automated driving requires a systemic approach considering all components. </p>

Contact

Katrin Schwager

Project Manager for Innovation and Change
Bereich Wandel und Innovation



Hamburger Hochbahn AG
Steinstraße 20
20095 Hamburg

Mobil 0176-3186 3250
katrin.schwager@hochbahn.de
www.hochbahn.de



Supported by:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety



Erneuerbar
mobil

based on a decision of the German Bundestag