EB

Elektrobit

EB Assist Car Data Recorder
– Innovative test drive support

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Elektrobit Automotive has developed a new solution that supports vehicle manufacturers and suppliers in the testing of complex driver assistance systems. An iPad with a special app is used to display, operate and control vehicle and sensor data from Elektrobit's ADTF development platform.

Vehicle test drives have been going on since the very early days of automobile manufacturing. They are traditionally integrated in the development process and are highly important – despite the introduction of new systematic and virtual methods.

However, increasingly complex driver assistance systems are now posing additional challenges in test drives. In the past, the tests mainly focused on the analysis of individual systems and their components during the test drive. Today, modern driver assistance systems make it necessary to record data of the entire car environment.

In order to draw the correct conclusions at the evaluation stage, the data from all the various sensors and signals in the entire vehicle has to be monitored and recorded. This means that both, the measurement and the engineer or test driver, have to satisfy more advanced requirements.

Test drives with test vehicles and prototypes are also a cost factor. Errors caused by the measurement or incorrect operation are both frustrating and expensive.

## De-facto system development standard: EB Assist ADTF

EB Assist ADTF (**A**utomotive **D**ata and **T**ime-Triggered **F**ramework) has become established in recent years as the de-facto standard in the development of modern driver assistance applications. Besides its desktop use for function development, ADTF is now being increasingly used in the vehicle for measurement purposes. This is because ADTF offers many options for connection to vehicle buses such as CAN and FlexRay, MOST, LIN, Ethernet and/or cameras. ADTF also has an optimized data format, which simplifies collaboration between all parties involved in the vehicle development process.

However, the use of Windows-based tools in the vehicle often causes problems. These have mouse or touchpad-operated user interfaces, which are almost impossible to use in a moving vehicle. Generally their displays are too small, which is associated with the risk that the driver will overlook important data or error messages during the test drive. Crowded displays and menus also often cause operation errors. And the use of laptops or screen/keypad combinations creates cable clutter and take up considerable space in the cockpit.

The EB Assist Car Data Recorder

The situation described above prompted Elektrobit to develop the EB Assist Car Data Recorder (CDR). It enables test drive data display, evaluation and documentation in a new and cost-effective way. The EB Assist CDR unites the positive aspects of a touch tablet with the original rich feature set of the ADTF. Tablets like the iPad are consistently designed for simple operation, widely available and, in comparison to special hardware, they are very inexpensive. The EB Assist CDR combines an ADTF toolbox with an iPad app, the "EB Assist Visor". While ADTF runs "headless" in the trunk implementing the connection to the vehicle, the iPad with EB Assist Visor serves as the display and the user interface. Both components communicate via a secure Wi-Fi connection in the vehicle.

This solution offers many advantages. Testers can always move around freely due to the Wi-Fi connection, both inside and around the car. The use of the EB Assist CDR creates more space in the test vehicle because special monitors or expensive and bulky special laptop holders are not necessary. The time required to equip the vehicle for a test drive is also minimized because EB Assist CDR is an out-of-the-box system that operates with existing ADTF configurations.

EB Assist Car Data Recorder Toolbox in EB Assist ADTF on Car-PC

EB Assist Visor on Tablet-PC
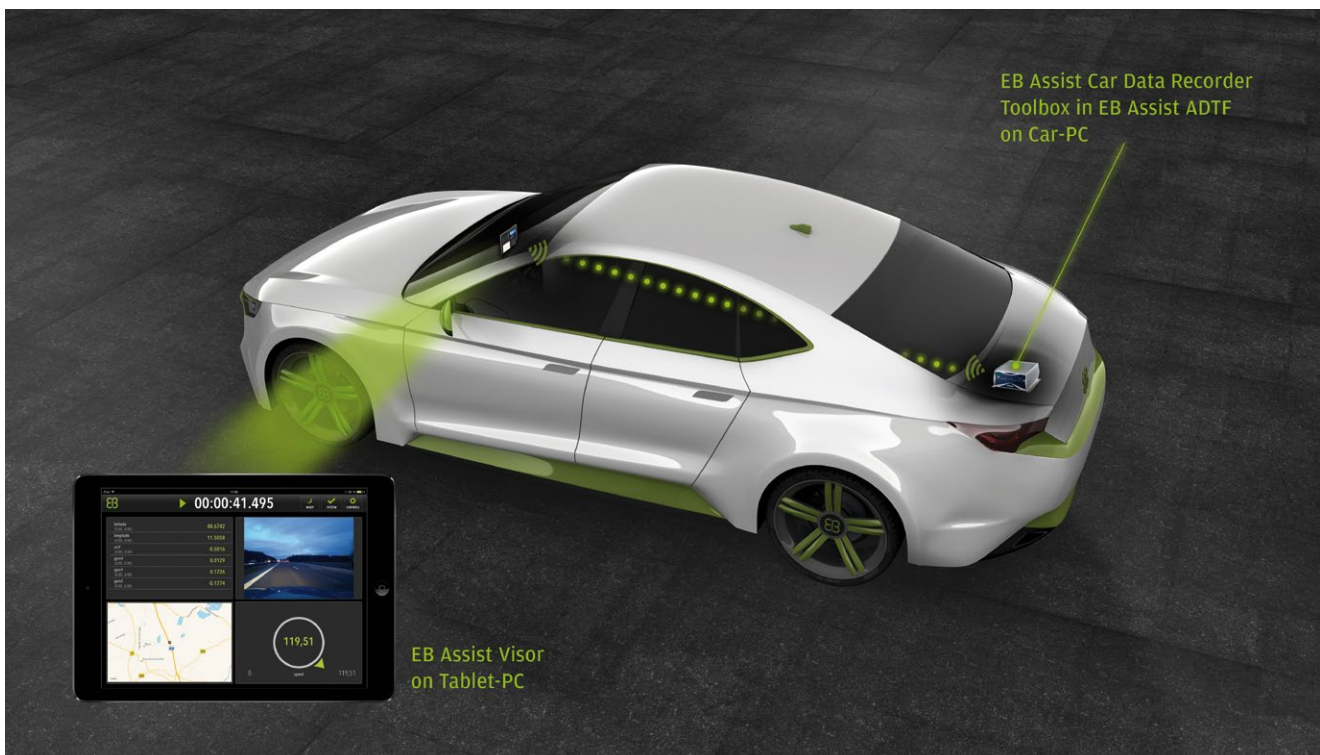
The EB Assist Car Data Recorder links ADTF, which runs in the trunk on a car PC, with the "EB Assist Visor" iPad app.

Advantages for test drivers, engineers and development teams

Testers use the familiar gestures and operating steps on the iPad interface. This improves their efficiency and causes fewer distractions during the test drive. The measurement values and input signals which are displayed can be precisely tailored to a specific test scenario --from very simple scenarios such as a start/ stop button to complex visualisations. With the help of the open SVG standard, own graphics can be integrated in the GUI.

The supported input signals extend to all information on the vehicle buses. This includes values such as speed or acceleration data, but also sensor data from video, laser or radar sensors being tested, and other camera signals. An image from a documentation camera that is mounted inside or outside the vehicle can be recorded synchronously with the other measurement values, e.g. to document the lane identification function of an assistance system or the traffic situation.

Test drivers and engineers also benefit from immediate visual feedback, because an error indicator immediately draws their attention to problems. Often, the driver can then respond to the problem during the test drive, which eliminates the need for another test drive. EB Assist CDR can also select the data to be recorded "on the fly" or according to a specific pre-defined trigger to improve the efficiency of the data recording process and the subsequent data evaluation. The diverse range of visual display options provided by the CDR enable the logical compilation of test results for practically any target group, from function development experts to live presentations for customers and management.

Another very useful function in the everyday test environment is live annotation. The test driver or development engineer can annotate key recordings with user-defined markers and use speech annotations. This also improves analysis efficiency, particularly an analysis of the deviant behaviour of the system being tested.

Elektrobit's EB Assist Car Data Recorder makes test drivers' and engineers' work more efficient, convenient and safe. Elektrobit is already planning an upgrade. For example, in future several people will be able to record and track different measurement data by using multiple iPads during a single test drive.
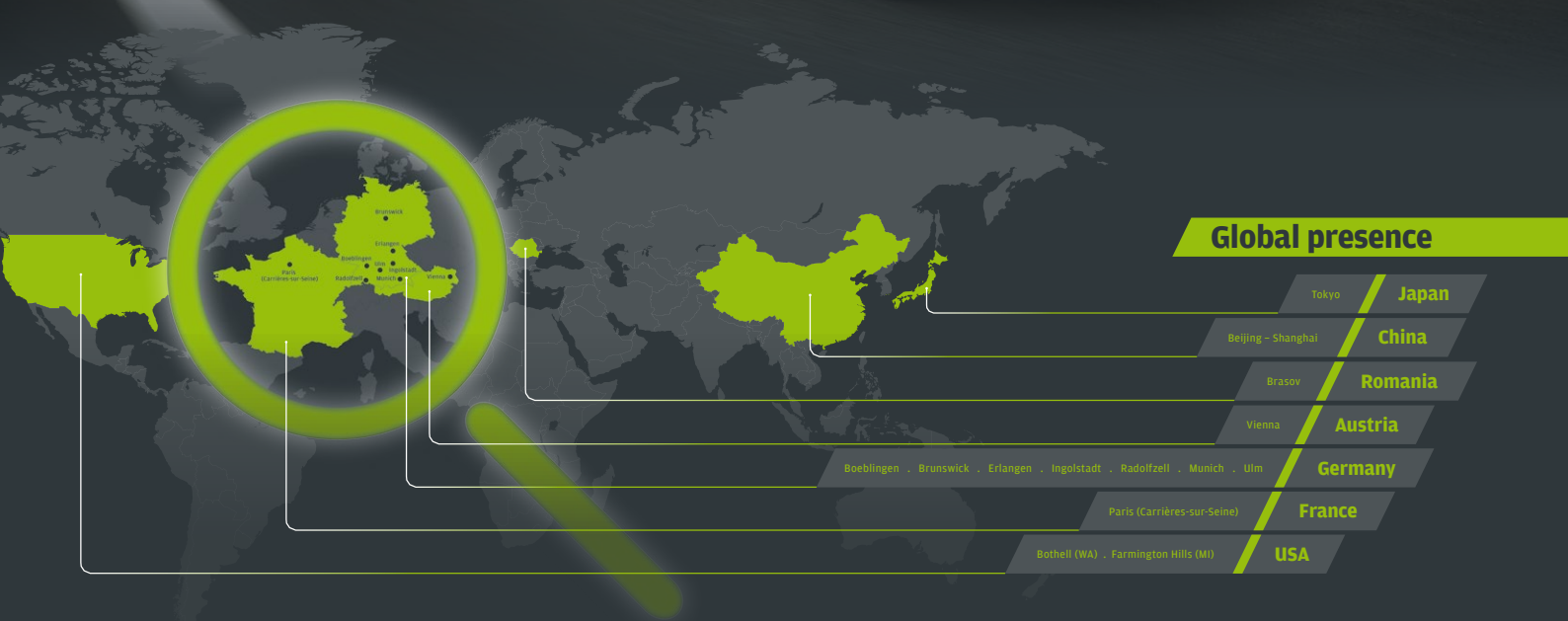
Watch the **introductory video** and find detailed information about EB Assist Car Data Recorder **on our website.**

The EB Assist Car Data Recorder's individual configuration offers the user specific application and display options.

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Global presence

Location	Country
Tokyo	**Japan**
Beijing – Shanghai	**China**
Brasov	**Romania**
Vienna	**Austria**
Boeblingen . Brunswick . Erlangen . Ingolstadt . Radolfzell . Munich . Ulm	**Germany**
Paris (Carrières-sur-Seine)	**France**
Bothell (WA) . Farmington Hills (MI)	**USA**

About EB Automotive

EB Automotive is recognized internationally as one of the most important suppliers of embedded software solutions in the automotive industry. In addition to the development of products, EB Automotive also specializes in services and consulting for the automotive industry, supplying implementations of software solutions for a broad range of AUTOSAR ECUs, functional safety, infotainment, navigation, HMI and driver assistance systems. EB continues to invest in feature integration and development tools ensuring in-vehicle devices ship in volume earlier and arrive quickly to market.

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