How do I get automated vehicles ready for mass production?

Elektrobit, the visionary supplier of software and tooling is your answer.
World-leading technology to bring automated driving to the road

Automation will change driving forever, and not merely by removing the need for human interaction. It will also make driving more enjoyable, more efficient – and vastly safer.

For autonomous vehicles to become a reality, we must first efficiently and thoroughly validate the advanced driver assistance systems (ADAS) and automated driving (AD) software to ensure it is ready to meet the demands of a worldwide market. This process requires accurately logging millions (if not billions) of test miles, incorporating petabytes of sensor data, and presenting this information in a practical format to the development teams of automakers and suppliers.

As an industry leader within the ADAS and autonomous driving space, Elektrobit (EB)’s products, innovation, and engineering are playing a pivotal role in bringing automated vehicles to our roads. With decades of experience in automotive hardware and software, EB creates state-of-the-art solutions to develop, test, and validate ADAS and AD functions throughout all phases of the development cycle.

In addition, we enrich autonomous driving software using high-definition maps, that are proven to increase vehicle safety and actively assist drivers in challenging situations. Utilizing HD maps, EB provides series production cars with an electronic horizon containing precise and up-to-date information about the surrounding environment and the road ahead.

With dedicated engineering support to design, test, validate, and integrate automotive software - EB accelerates your development process and creates smarter, more cost-effective solutions.

We’ve worked with global manufacturers to develop, test, and validate a suite of advanced software products, and integrated many of our own systems directly into vehicles through our engineering portfolio.

Thanks to EB’s industry-leading solutions, drivers benefit from improved navigation, efficiency, and safety through functions such as traffic light detection, automated parking, braking assist, highway pilot, and many more. The world’s most popular carmakers including Audi, BMW, Volkswagen, Ford, and GM continue to work closely with EB, creating new software products and systems that enhance their vehicles, strengthen their brands – and improve the safety of their customers.

These advanced functions also help drivers to achieve greater synergy with their cars – and begin the transition towards a driverless future in which road travel becomes a relaxing and carefree experience.

Your partner in creating, testing, and integrating cutting-edge functions

1 BILLION DEVICES IN MORE THAN 100 MILLION VEHICLES
Software and hardware to test and validate automated driving

Automotive systems are becoming more sophisticated, and automakers need smarter ways to develop complex functions while generating and managing reliable test drive data. With the EB Assist product line, we provide state-of-the-art hardware and software that enable you to successfully develop, test, visualize, validate, and build enhanced ADAS and AD functionality.

You can benefit from our comprehensive product offering that covers all major areas of ADAS/AD creation – such as building driving scenes, replaying, simulation and testing, visualization, validation, and function development. Our products encompass more than two decades of embedded software and driver assistance experience – yielding intelligent solutions that benefit all leading OEMs and Tier 1 suppliers.

EB Assist products meet the demanding requirements of building cutting-edge automated driving functions, while maintaining cost-effectiveness throughout the entire development cycle. In addition, we support all EB products with our comprehensive in-house hardware and firmware development teams.

Together with our network of global partners including Microsoft and IPG Automotive, you can benefit from customizable, high-performance software and hardware – which integrates seamlessly into any development and test process environment throughout the entire automated driving toolchain.

As an example, Continental profits from our high-performant products for data logging for its ADAS and automated driving product validation and in addition provides these systems to various OEMs around the globe. More than 800 measurement devices to record test drive data have already been delivered, a lot more will follow.
Your use-case challenges, our portfolio solutions

At every stage of your automated driving development, EB has a solution that can simplify and improve the process – all while saving your company valuable time and money.

- **TEST-DATA LOGGING**
  Capture real test-drive data from multiple vehicle sensors

- **EB Assist CAR BOX**
  Automotive-grade PCs for data logging and replay for ADAS/AD ECU testing and validation with adaptable I/O configuration

- **TEST-DATA REPLAY**
  Test the recorded data, simulate vehicle systems, and produce test results
  - **Hardware-in-the-loop**
    Testing and validation functions, system integration, and communication within a simulated environment under realistic conditions

- **TEST-DATA MANAGEMENT**
  Make petabytes of data accessible and usable by worldwide development teams

- **EB Assist Test Lab**
  Cloud-based validation toolchain that lets you focus on algorithm development, rather than spending time handling data

- **VISUALIZE DATA, DEVELOP FUNCTIONS**
  Annotate, interact, and visualize data after processing, plus develop and test new features

- **EB Assist ADTF**
  Capturing and synchronization of data from multiple sensor sources, real-time data playback, data handling, processing, and visualization – either in the laboratory or in the test car

- **SIMULATE BUS SYSTEMS**
  Simulate bus communication of E/E systems to test algorithms and ECU functions

- **EB Assist bus tools**
  Modular I/O slot cards for data logging and replaying – either in-car or via desktop - as well as software for the emulation of vehicle bus communication

At every stage of your automated driving development, EB has a solution that can simplify and improve the process – all while saving your company valuable time and money.
Improve vehicle perception with an electronic horizon of the road ahead

Drivers and vehicles alike benefit from information beyond the sensor horizon, which creates a safer and more intuitive on-road experience. EB robinos Predictor supplies highly accurate, up-to-date information about the road ahead for use in predictive, ADAS, and automated driving functions.

This electronic horizon provides ECUs with a continuous forecast of the upcoming road network, using optimized transmission protocols from the ADASIS map data standard, a system for which EB provided the reference implementation. EB robinos Provider enables access to the most recent SD and HD map suppliers including HERE or TomTom, while EB robinos Reconstructor effectively reassembles and stores relevant electronic horizon data.

Millions of cars around the world already contain ADAS functions that have been enriched by EB robinos Predictor, such as Predictive Adaptive Cruise Control, Active Lane Keep Assist, Traffic Sign Assist, and many more. These advanced systems all help to improve vehicle safety and energy efficiency - while making driving a more enjoyable experience.

PROVEN IN MILLIONS OF VW VEHICLES

Volkswagen, the world’s largest automotive group, needed a software solution that could supply its current and future ADAS functions with digital map information, and could be implemented across all its brands and vehicles. EB included the EB robinos Predictor’s Provider as part of the EB navigation package, creating a reliable and cost-effective solution that benefitted VW’s entire group. EB robinos Predictor went on to become a crucial building block that helped establish VW as a world-leading manufacturer of driver assistance systems. A variety of functions can now be found not only in VW’s premium vehicles, but its entry-level cars as well.

KICKSTART YOUR R&D ACTIVITIES

The EB robinos Predictor Eval Kit is a Raspberry Pi device which runs the EB robinos Provider for ADASIS and can be used to evaluate the capacity and performance of EB’s electronic horizon products. The Raspberry Pi platform comes equipped with all the necessary functionality required by a demonstration ECU, including a dedicated web interface.

Enable in-vehicle ECUs to make use of map data

EB robinos Provider
- Makes the most recent map information available

EB robinos Reconstructor
- Reassembles and provides the electronic horizon data to ADAS applications
Intelligent software backed by engineering excellence

With increasing consumer demand for the latest driver assistance and automated driving functions, a forward-thinking approach is needed to advance the software development path. EB has 30 years of automotive product experience as well as the proven track record and global partner network required for agile and profitable automotive function development. Working together, we can help you to keep pace with one of the world's fastest-moving industries, and set new benchmarks that establish your company as an automotive leader.

Our worldwide network - spread across almost a dozen countries - means we can manage large and complex software projects involving multiple sites, sub-suppliers, and partners. Our dedicated software teams have proven experience in developing and deploying large-scale measurement technology for testing and validation, as well as software integration for series production vehicles.

EB offers services that can manage all aspects of product development, testing, and integration. From the very first prototype, to the start of production, and beyond - EB is your software development partner.

SOFTWARE IMPLEMENTATION

Through our global team of experts, we have the experience and knowledge to incorporate automated driving software into any mass production vehicle. Our services also include taking responsibility for integration and optimization during the active phase of your operation.

SOFTWARE COMPONENTS

We provide customized, automotive-grade software components for ADAS and automated driving. This includes highly precise vehicle positioning through sensor fusion - or critical components to build a detailed model of the vehicle’s surrounding environment.

VERIFICATION AND VALIDATION SERVICES

Based on our proven EB Assist product line, we’ve mastered the methods and technology needed to analyze and validate automated driving functions. We incorporate simulations into broad-scale HIL server farms as well as field tests using customized software and hardware - creating test environments that meet all of the latest safety and security requirements.

TRAINING AND CONSULTING

From basic to expert training in automated driving software development - to consulting on how to accelerate the development processes and reduce your time to market – you can benefit from EB’s decades of automotive software experience.
About Elektrobit

Elektrobit (EB) is an award-winning and visionary global supplier of embedded and connected software products and services for the automotive industry. A leader in automotive software with over 30 years serving the industry, EB’s software powers over one billion devices in more than 100 million vehicles and offers flexible, innovative solutions for car infrastructure software, connectivity & security, automated driving and related tools, and user experience. EB is a wholly owned subsidiary of Continental.

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