Renovo Balances Speed & Agility With Safety & Security in ADAS Development

OVERVIEW

Renovo builds an edge-centric data management platform. It's the first automotive-grade platform used in the development of complex software stacks on board fully autonomous vehicles. The primary purpose at Renovo is to develop and deploy ADAS (advanced driver-assistance systems) at scale for customers and help them manage all their data. The company provides a turnkey solution that helps:

» Accelerate development cycles.

» Improve product performance.

» Push through validation cycles and go all the way into production.

» Reduce the operational cost.

Putting the latest software practices and processes to use, the Renovo platform is a key part of helping automakers build their own practices around modern processes.

AUTOSAR C++ 14 COMPLIANCE	CERT COMPLIANCE	TIME TO MARKET
100%	**100%**	**REDUCED**

THE CHALLENGES

The entire paradigm of the auto industry is shifting. This transformative evolution is forcing automakers to change from manufacturing metal to becoming technology companies. They're moving toward being valued as technology companies because software will account for 90% of future innovations in cars. With that, automakers must build processes that balance the ability to quickly develop software, deploy it, and get feedback with safety—all while delivering the features and the environment that customers value.

Having more and more software means more code that needs to be tested and meet process standards like ISO 26262. In fact, due to Renovo's platform requiring AUTOSAR C++ compliance, to easily obtain software safety certification for their AWare operating system software, Renovo evaluated all commercial static analysis compliance offerings. They sought a solution that could reduce time-to-market by quickly achieving compliance through detecting the following early in the software development life cycle (SDLC):

» Bad coding practices

» Vulnerabilities

» Potential intrusions

» Memory problems

Today, automakers are facing new technologies that pose software challenges. One example is autonomous driving and car networks communicating with other smart devices in smart cities where there's a need to relay official parking rules, speed limits, and other dynamic traffic variances including road closures, traffic jams, and diversions.

Another challenge is the need for fast and easy networked software updates that are imperative to maintain safety and security.

THE APPROACH

Data is critical as the automotive industry transforms from the transportation industry to a technology industry.

Data and data management are key components of the following:

FEATURE DEVELOPMENT

Vehicle and sensor data is vital to the development, maintenance, and improvement of vehicle features that consumers demand.

VALIDATION

Testing and validation of modern vehicle systems and features rely entirely on data systems to ensure adherence and compliance.

LIABILITY

Increasingly, data tracing and recording is crucial in building failure models and understanding aberrant events.

REVENUE

New revenue models are just beginning to open that leverage vehicle and consumer data.

As data becomes one of the most valuable tools and assets in the industry, it's vital that the data management systems demonstrate and prove:

» Quality

» Reliability

» Security

Renovo selected Parasoft C/C++test and its Automotive Compliance Pack due to its comprehensive rule coverage for AUTOSAR C++14, extensive reporting dashboards, and modern processes. With the ability to customize the dashboards, the Renovo team can see different views of collected data in one centralized place and gain insight into quality.

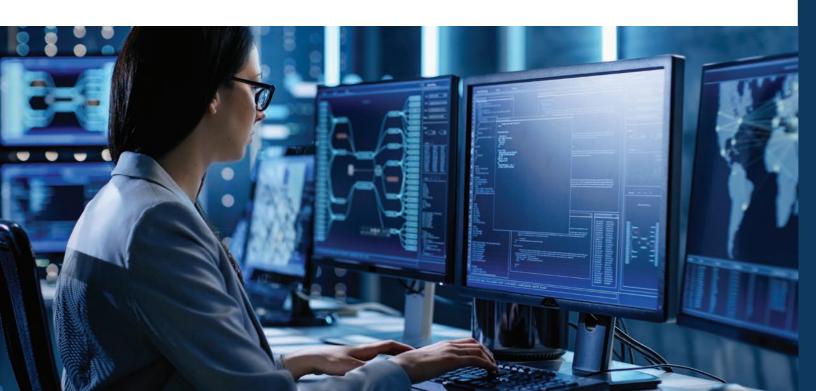*"The power of that modern software practice is critical."*

—Jason Stinson, CTO, Renovo Auto

The static analysis results view shows the current level of compliance to a selected coding standard. The high-level graphs reveal more details on violations. The dashboard is a true multi-dimensional risk metric that presents the risk or vulnerability of different classes, functions, or files are within your codebase. All of the data is determined by runtime analysis, code coverage, and static analysis results.

THE RESULTS

Renovo was able to reduce time to market by quickly achieving 100% AUTOSAR C++14 and CERT compliance through detecting bad coding practices, vulnerabilities, potential intrusions, and memory problems early in the SDLC using Parasoft's testing solution. Renovo Auto gained efficient quality and regulatory compliance for their customers to safely develop, deploy, and operate AV and ADAS fleets at scale.

Renovo's platform is the only commercially available edge-centric data management platform in the hyper-competitive ADAS market. It's a market worth $40B with a 21.4% compound annual growth rate (CAGR) and a $189B market by 2026.

TAKE THE NEXT STEP

Learn how your automotive software development team can achieve 100% AUTOSAR C++14 and CERT compliance. Download the ebook.

ABOUT PARASOFT

Parasoft helps organizations continuously deliver quality software with its market-proven, integrated suite of automated software testing tools. Supporting the embedded, enterprise, and IoT markets, Parasoft's technologies reduce the time, effort, and cost of delivering secure, reliable, and compliant software by integrating everything from deep code analysis and unit testing to web UI and API testing, plus service virtualization and complete code coverage, into the delivery pipeline. Bringing all this together, Parasoft's award winning reporting and analytics dashboard delivers a centralized view of quality enabling organizations to deliver with confidence and succeed in today's most strategic ecosystems and development initiatives — security, safety-critical, Agile, DevOps, and continuous testing.