

Simplify Automotive SoC Development Environment





Automotive Industry: Impact on global economy

The automotive industry is a pillar of the global economy as it plays an important role in GDP growth, employment generation, fostering R&D and innovation. One of the main drivers of macroeconomic growth and stability and technological advancement, the automotive sector supports a wide range of business segments and has an important role to play in a country's socio-economic development in both developed and developing countries.

Semiconductor: A catalyst in the Automotive Industry

Some of the most astonishing innovations in automotive technology such as vision-based, enhanced graphics processing units (GPUs), application processors, and sensors are enabled by Semiconductors and has largely influenced the advancements in automotive technology. With the increasing complexity, innovation and technological advancements in cars, the automotive semiconductors have become a necessity and reflect promising future by making modern automobiles more efficient and intelligently automated. From enabling vehicle electrification and increased connectivity to autonomous driving and helping meet safety regulations and standards, the inclusion of semiconductor technology in vehicle designs is of utmost importance and ever-increasing.

What's ahead the Automotive Industry?

In the past few years, consumer behavior in terms of lifestyle, travel, and luxury has undergone a tremendous change. With the change in overall consumer behavior landscape and the transformative trend of connected technology, there is a paradigm shift in the way automotive supply chain is functional and operational.

With more complex features and embedded and connected technologies along with intricate operating instructions, modern cars are nothing but computers on wheels. However, it's equally challenging for automakers to engage and retain the interest of the millennials in the long and confusing manual. Millennials prefer to learn about car's functions through a conversational interface that provides customized, context-specific assistance. This has led to the need and demand for connected technologies and cross-channel integration.

Another challenge for the automotive industry is the ever-increasing demand from consumers for environmentally sound vehicles and technologies owing to the tightening regulation around emissions and increasing awareness of the wider environmental implications of driving, which has given rise to the need for environmental friendly cars.

Owing to the increase in the number of road accidents and subsequent demand for advanced driver assistance systems, the future of automotive industry lies in the self-driving cars, also known as autonomous cars, which, given the current technological advancement, is still a distant reality. The increased advancements in semiconductor technology and innovations can empower the automotive industry with the technology needed to manufacture self-driven cars, while enhancing safety, comfort, and connectivity features within vehicles.



ACL Approach to Automotive solution






The critical competencies for driver assistance systems (ADAS) include sensor interfacing, algorithm development, DSP and image processing and embedded software development. With a portfolio of skills that cover these adequately, the team has been participating in development and testing of specific modules of Driver Assistance Systems.

With most OEMs and Tier 1 suppliers moving towards AUTOSAR, there is an increased focus on the development of AUTOSAR compliant software. Our team has platform expertise and a thorough understanding of different layers of AUTOSAR and can provide services in the areas of complex device drivers, diagnostics, and application migration.

The ADAS based connected-car concept is an R&D project developed by us to demonstrate expertise in building connected cars.



The model uses

-  Image processing and decision-making algorithms: This enables automatic lane detection of the car, responding to various real-life scenarios such as traffic signals, zebra crossings, school zones, silent zones amongst others
-  A connected car which can take decisions and react appropriately
-  The car monitors a host of real-time parameters, including cabin temperature, air quality, quality of ride, detection of other cars which are too close, harsh acceleration or braking and a host of other parameters
-  Data is collected by a cloud-based application which analyzes the data and makes inferences
-  The concept can be effectively used for real-life solutions such as Smart Fleet Management, Passenger Safety and Comfort, Predictive Maintenance and host of other possible scenarios

ACL Digital is a global semiconductor services and solutions provider and helps its clients' meet market-driven challenges. We work closely with several integrated device manufacturers (IDMs), fabless Semiconductor Companies, Original equipment manufacturers, Pure Play foundries, Engineering Design automation (EDA) and IP vendors to accelerate their products to the market. We have expertise and experience in end-to-end automotive embedded systems development, including infotainment systems, advanced driver assistance systems (ADAS) and connected car technology with adaptive AUTOSAR.

Some of our success stories in the automotive semiconductor spaces are as below:

Modern vehicles are smart systems, integrated with multiple sensors and ECUs measuring performance, fuel efficiency, security and stability while making decisions on the same. The electronic components in turn, connect to the central dashboard monitoring system to which they provide performance and diagnostic data. Our understanding of the automotive domain drives the concept to prototype development of the end-to-end system in a very short time.

[Read more..](#)



Smart cars not only have multitude of electronic components, these components are further distributed across the automotive vehicle. The communications amongst these are an area of challenge in its own. Our automotive grade SerDes development supports high speed interface aspect of the connectivity solutions part of these. [Read more..](#)



Our team has platform expertise and a thorough understanding of different layers of AUTOSAR and can provide services in the areas of complex device drivers, diagnostics, and application migration. Find out our recent work on AUTOSAR below. [Read more..](#)



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