Open Connectivity Foundation Automotive Project

SOLVING CONNECTIVITY CHALLENGES THROUGH TECHNOLOGY, STANDARDS, AND INDUSTRY COLLABORATION

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The Opportunity and Challenges

By 2020, there will be an estimated quarter billion connected vehicles on the road, which translates to roughly one in five vehicles with wireless connectivity. Today, automotive connectivity oriented solutions and services are predominantly developed through closed partnerships between software vendors and OEMs. However, these solutions have largely been affected by lack of scale, adoption or consumer interest.

Certain devices work with certain cars and not others. This doesn’t offer a great user experience. Instead, standardization would make it simpler for the devices we depend on and the vehicles that give us mobility, to have complex interactions (or, interoperability). For the automotive industry, a plethora of models, makes and trim levels, translates to significant investments in closed systems, with very little time for validation. Such large investment results in higher costs and thus, higher end-user prices and less validation can, in some cases, result in costly recalls.

Interoperability standards in data formats and application programming interfaces (APIs) are critical if non-automotive devices are to interact with the connected vehicle. Additionally, expecting consumers to buy into the closed ecosystem offered by a single car maker or consumer electronics device maker or cloud service provider is simply not scalable.

With self-driving, semi-autonomous cars and safety automation features expected to be the norm, during the next decade, the automotive industry is headed for a significant disruption to their traditional business models. At the same time, they also need to look for new business opportunities.

Solutions for the above challenges need to not only address interoperability, but also the major concerns of security and simplicity. So, how does the automotive industry and the rest of the IoT ecosystem deal with these challenges?

Solution

In 2006, the automotive industry started using open source methodologies and practices to help manage the millions of lines of code needed to create a modern connected vehicle. An open source approach not only lowers the barriers to participation, but also encourages the use of a common code, with each software provider, bringing their unique value proposition. Genivi and Automotive Grade Linux (AGL) are excellent examples of technology organizations promoting open collaboration.

Consequently, the common challenges become sharing responsibility while ensuring healthy competition and maintaining thriving industry innovation.

The OCF was founded on the principles of open collaboration and enabling a shared vision for the entire IoT ecosystem. As one of the strongest cross-industry initiatives in IoT, the OCF continues to grow both in terms of membership and technologies. In terms of scale and adoption, the OCF represents the biggest opportunity for the automotive domain and for new business opportunities.

In this context, OCF launched the Automotive Project in July 2016, to provide a platform for industry collaboration and technology partnerships between the
automotive and current other OCF verticals like healthcare, smarthome and industrial.

The OCF Automotive Project aims to connect the vehicles of tomorrow to the connected devices, smarthome and smart city. The goal of the Project is to deliver the technology and certification requirements for the secure interoperability needed to enable new cross vertical business opportunities in the automotive domain.

The Project will drive certification requirements for vehicle interoperability with IoT devices, by defining data models in oneIoTa – an open online tool created to encourage the collaborative design of interoperable devices. The project will also release a reference implementation for an automotive IoT bridging solution and make it available for everyone via the IoTivity open source project, under the Apache 2.0 license (www.iotivity.org). This implementation, developed as part of the open source IoTivity project, will help developers to quickly prototype and realize new use cases related to the connected vehicle. The reference implementation is driven by open source developers from multiple organizations and standards developing organizations (SDOs).

The OCF Automotive Project will handle collaboration with key automotive industry players and standardization bodies. The OCF Automotive Project compliant implementations can be flexibly deployed either in a consumer device, a standalone gateway, or in the cloud.

The Project will also focus on addressing urban mobility, car sharing, and ride hailing requirements in the future. As the IoT continues to grow and smart cities continue to develop, urban mobility will come to the forefront of the automotive industry from simple tasks like finding parking to unlocking a car to alerting hospitals of accidents. The simple solutions will not only breed technological advancements; they will change the very fabric of transportation.