

Theme: Future Mobility

- Sub Theme: Autonomous Vehicle Next E/E Architecture

"Electrical/Electronic Architecture" shows how electronic hardware, network communications, software applications and wiring harness evolve and integrate in terms of vehicle control, body, security, infotainment, safety and convenience.

Future E/E architecture should include automated driving, 5G connectivity, extended infotainment, and most importantly, vehicle electrification.

The traditional approach like adding a new electronic control unit (ECU) with newly required functions to the existing vehicle isn't valid and effective any more. Because it cannot accommodate all the new requirements for computing power, power distribution and data processing

At the same time, OEMs are trying to automate the assembly of wiring harnesses, which are one of the most complex and cumbersome components in vehicles and serve as the backbone of the E/E architecture.

The increasing demand for all-electric vehicles is at turning point that offers OEMs the opportunity to create new electric/electronic architectures by starting from scratch.

SAIT's Autonomous Vehicle Next E/E Architecture (NEEA)

From this perspective, SAIT is seeking a striking approach to propose new E/E architecture to OEMs that simplify design, centralize computing power, and optimize electrical/electronic content, components and functions. These can be achieved by decoupling input/output from compute by decoupling software from hardware to provide faster update cycles, managing connections to sensors and other devices via

zone controllers, and dynamically allocating compute resources between applications as needed

SAIT is keenly interested in (but not limited to) the following list of topics NEEA (Next E/E Architecture):

- **Reduce complexity:** NEEA simplifies the in-vehicle hardware and software topology and reduce interdependencies between multiple ECUs.
- **Integration of various applications:** NEEA provides new capabilities by integrating software from different domains across the vehicle.
- **Empowering OEMs:** NEEA gives OEMs full control over the software that defines the vehicle's user experience and allow them to enhance that functionality over time.

※ The topics are not limited to the above examples and the participants are encouraged to propose the original idea.

※ Funding: Up to USD 150,000 per year