**X-by-Construction: Vector is an Active Participant in the EU Research Project XANDAR**

Stuttgart/GERMANY, 2021-08-10 – Based on its expertise as an embedded software specialist, Vector is supporting the XANDAR project that was initiated by the EU in January. XANDAR stands for "X-by-Construction Design Framework for Engineering Autonomous & Distributed Real-time Embedded Software Systems.” The goal of the project is to build up a framework for prototyping embedded software for autonomous systems within the next three years.

Self-learning and connected systems that are used to automate processes in vehicles, airplanes, or industrial production need to operate with very high levels of safety and reliability. In developing these enormously complex systems, any later corrections or changes to the design involve a lot of cost, effort, and added risk. Such changes can only be avoided if each and every development step meets high system requirements. And this applies to each individual function (Correctness-by-Construction or CbC method).

The stated goal of the recently initiated EU project XANDAR is to build up a framework for prototyping embedded software for autonomous systems. This framework enables XbC design related to timing, safety, and security. It starts with the system requirements and extends to high-level design and code integration based on the CbC method. Together with its partners on the EU project, Vector is contributing toward achieving the project's ambitious goals based on its expertise as an embedded software specialist and with its high-performance development environments PREEvision and the TA Tool Suite.

Here, PREEvision makes it possible to specify connected embedded systems collaboratively and model-based with well-defined semantics that integrate all system levels. The TA Tool Suite can be used to specify, simulate, and validate the time behavior of complex real-time systems. The two environments provide a good foundation for setting up the X-by-Construction design framework.

XANDAR is being conducted and validated by a consortium of renowned businesses, research institutes and universities with wide-ranging competencies in embedded systems and software engineering under the coordination of the Karlsruher Institut für Technologie (KIT). The European Union is supporting the project as part of its "Horizon 2020" program for research and innovation. The acronym XANDAR stands for "X-by-Construction Design Framework for Engineering Autonomous & Distributed Real-time Embedded Software Systems," the envisioned deliverable of the project.

For more information go to: xandar-project.eu
Figure 1: Project logo: "X-by-Construction Design Framework for Engineering Autonomous & Distributed Real-time Embedded Software Systems" (XANDAR).
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Figure 2: Vector is assisting in building the XANDAR framework for XbC design of autonomous systems with its embedded software competence and the technologies of PREEvision and the TA Tool Suite.
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