The ABC of Software Development in the Automotive Industry

Insights on the subject of Automotive Software Engineering

On the occasion of the workshop headlined “Automotive Software Engineering” for ETAS Group employees, RealTimes spoke with workshop creator Prof. Dr. Dieter Nazareth of the Landshut University of Applied Sciences in Germany about the challenges facing software developers in the automotive arena.

What, if any, are the specific differences between software engineering in general and automotive software engineering as a related field of endeavor?

In classic software engineering, you will hardly find the essential topical areas so characteristic of automotive software engineering. What comes to mind are high piece counts and tremendous cost pressures, rapid prototyping, and testing and validation in real-time conditions. Then there is the typing, and testing and validation in systems, that is, because the software is implementation of integer arithmetic, a component of an electromechanical automotive field is the place where software engineering in general and automotive software engineering

Is the subject matter of this lecture your way of signaling that you perceive the chances for employment in this field to be positive?

Whereas, after the collapse of the great expectations of software employment opportunities for computer scientists seemed to die on the vine, there has been a growing demand for developers of automotive software. College graduates with a major in “embedded systems” continue to be much sought after, and that will not change in the years to come. Simply by virtue of its abstraction from the hardware, this area is becoming more and more interesting for computer science majors. Regrettably, they still exhibit a persistent sense of angst when it comes to embedded systems. With my own students, starting in the initial semester, I am making a conscious effort to dismantle these anxieties. The OEs are not the ones driving the continuing need for automotive software developers. Meanwhile, virtually all OE suppliers have recognized the fact that the subject of automotive software engineering is an indispensable component in the mastery of the electronics develop-
mement process. Therefore, the specific demand for specially trained automotive software engineers is so great that I am already being contacted by headhunting firms looking for exactly these kinds of students.

As do my colleagues at the so-called F2, the Karlsruhe Research Center for Information Technologies, I perceive in college-level curricula a great short-

age of courses that would better prepare students for their respective future professions. For this reason, I will give the example of Automotive Software Engineering at the Landshut University of Applied Sciences in the 2005 summer semester:

The Efficient Deployment of Methods and Tools

This two-day seminar provides a variety of suggestions for the development of new tools and their deployment in these areas. It introduces the key building blocks of software engineering, describes the survey of the deployment of methods and tools. Using a specific case in point, the individual steps of the automotive development cycle are modeled using a typical concept to implementation. This practical reference enables seminar participants to effectively and efficiently apply the conveyed information in their own work at a later time. The seminar is based on the book “Automotive Software Engineering”, authored by Jörg Schaufele and Dr. Thomas Zurawka.

The seminar addresses members of the following interest groups:

• Project managers in automotive software engineering
• Technical management
• Newcomers to automotive software engineering
• People migrating from another technology to CASE-supported software development in the automotive area

Dates available on request at training@etas.de