Growing Partnerships

ETAS at universities all over the world

Sustainable research vehicle controlled by FlexECU

As part of their education, students from various courses of study at Germany's University of Esslingen build a research range extender vehicle to underline the theory they learned in their courses with practical experience. They build the powertrain by combining a combustion engine with an electric motor. To control the interaction of the two, they use the ETAS Flex-ECU as the main engine control unit. The software is realized with ETAS ASCET and ETAS EHOOKS, giving students hands-on training on these products. The following step is to calibrate the FlexECU with ETAS INCA. The project involves the students over the long term and gives them an opportunity to combine their ideas with innovative technologies.

Klaus Fronius, ETAS GmbH, Germany

Application software development for flex-fuel engines

The technical research and development group of the University of São Paulo, Brazil, in cooperation with ETAS, has developed application software for managing a multi-port fuel injection (MPFI) engine using ETAS ASCET, EHOOKS, INCA, FlexECU, and ES592. Although the software is now fully capable of the basic management of the engine, the group is taking it one step further, aiming to develop new functions and control algorithms for flex-fuel engines, with ETAS providing software, training, and consulting. In addition to developing innovations, the collaboration prepares students for the automotive field by giving them the opportunity to engage in hands-on projects using ETAS tools.

Pedro Rossetti, ETAS Brazil

ETAS shared its know-how during the Formula Student conference at Moscow Automobile and Road Construction State Technical University (MADI).

Activities within the Russian student community

Since 2015, ETAS and Bosch Russia have been working together to make the ETAS brand, tools, and solutions well-known to young talents within the Russian student community. During the Formula Student conference at Moscow Automobile and Road Construction State Technical University (MADI), ETAS presented its soft- and hardware to the students and provided them with software licences as well as measurement equipment. The short-term objective for 2016 is to include ETAS tools in the official training process at pilot universities, starting with ETAS INCA and followed by ETAS ASCET and ETAS ASCMO. In the long term, ETAS aims to be present at a great number of Russian technical universities.

Evgeny Evdonin, ETAS GmbH, Germany

Learning how to make cleaner cars

In the U.S., ETAS sponsors the prestigious EcoCAR 3 competition (www.ecocar3.org), a four-year engineering program with 16 competing college teams. General Motors donated a Chevrolet Camaro to each of the teams, who were then tasked with designing a powertrain configuration that reduces energy consumption and greenhouse gas and tailpipe emissions. In addition to funding, ETAS provided several of the teams with ETAS ES900 prototyping and interface modules, and is involved in training the students. EcoCAR 3 recently completed its Year Two Finals, and ETAS is looking forward to continuing its involvement in Years Three and Four.

Claudia Hartwell, ETAS Inc., USA

ETAS supports college teams in designing powertrain configurations for their EcoCAR 3 competition.

Automotive seminar at Tianjin University

In July 2016, ETAS held an automotive seminar at Tianjin University in China to deepen students' understanding of automotive software engineering, AUTOSAR, and the verification of operating systems. The seminar lasts two days and takes place every quarter. Additionally, ETAS and Tianjin University have also collaborated to create a lab where ETAS ASCET is used to develop ECUs for a common-rail diesel engine and to enhance students' software development skills.

Amanda Wang, ETAS Automotive Technology (Shanghai) Co., Ltd., China

Joint lecture series on safety and security

In April 2016, an expert from the Information Security Group at Germany's Ruhr University Bochum (RUB) and ESCRYPT hosted a one-week lecture series entitled *Security* in York, Great Britain. The lectures covered topics such as the fundamentals of IT security and cryptography, security standards, network security, and embedded security. The following month, two expert lecturers from the Department of Computer Science in York gave a one-week lecture series entitled *Safety* at RUB in Bochum. Students attending the lectures learn at an early stage about the important role that reliable and secure software components play in an age of increasingly connected and autonomous vehicles. The lecture series will be continued in the coming years.

Mareike Samsz, ESCRYPT GmbH, Gemany

Supporting French students in obtaining technician degree

The national technician degree in internal combustion engines (BTS MCI), which is well-known in the automotive field, is offered at eight schools across France, including Sadi Carnot and La Jolliverie. This two-year degree involves in-depth learning about the combustion engine. ETAS solutions are the most relevant ones for the practical portion of the degree, which covers measurement and calibration. For this reason, ETAS hardware and software, such as ETAS INCA and various measurement modules, are provided to these universities. During the two-year program, the 200 students who pursue the BTS MCI use ETAS products primarily on test benches for measurement and calibration purposes, thus learning how to work with ETAS tools, which are widely used in the automotive field. Students also gain the knowledge and skills they need to succeed in the job market or in the workplace.

Guillaume Hauchecorne and José de Almeida, ETAS S.A.S., France