PRAIRIE VIEW A&M UNIVERSITY:
Compatibility with LabVIEW overcomes limits in applications.

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NATIONAL INSTRUMENTS LabVIEW

With the goal of preparing students for real-world engineering, the Department of Engineering Technology at Prairie View A&M University (PVAMU), Texas is committed to provide state-of-the-art laboratories. Here students can learn from exposure to the most recent technology what they will need in their future jobs. The major obstacle in realizing this goal, only too-well known to many other universities, is obtaining necessary funds.

Dr. Yongpeng Zhang, Assistant Professor at the Department of Engineering Technology had an eye on Quanser equipment for quite some time, learning about the company from a colleague back in 2003. He searched the Quanser website and was amazed by the range of products offered by the company. At that time, his lab had only one multi-drive DSP platform available, moreover it could be used only for research purposes and could not be expanded for teaching applications. “We wished to have some control platform that could be universally utilized for many subjects, for both teaching and research and would allow us to combine various experiments,” says Dr. Zhang.

ONE CONTROL LAB SERVING TEACHING AND RESEARCH NEEDS

An opportunity came up in 2006 when Dr. Zhang prepared a proposal for Infrastructure Support Program for Historically Black Colleges and University Minority Institutions (HBCU/MI) run by U.S. Department of Defense (DoD). The goal of the program was to increase the number of graduates, including minorities, in the fields of science, mathematics and engineering. The program inspired Dr. Zhang and his colleagues from other disciplines to merge their research and teaching needs. The outcome was a solution that allowed them to set up a multi-disciplinary lab catering to introductory, intermediate and advanced teaching. The same lab was used to conduct research for improving GPS technology, broadband networks, helicopters and hybrid vehicles. The solutions also allowed PVAMU to turn out graduates well prepared for demands of graduate studies and industry by building engineering skills of students through specialized curriculum and hands-on experiments. “Quanser provides a wide range of products, “Dr. Zhang explains reasons for selecting Quanser solution. “The components of the platforms are open architecture and flexible and can be used for multiple experiments.”

PVAMU PROPOSAL WINS ONE OF THE HIGHEST GRANTS

Prairie View A&M University proposal was accepted and the University received one of the most generous grants awarded in 2006. “This DoD grant arrived at the right place,” Dr. Zhang expressed his sincere appreciation for the Head of his Department, Dr. Cajetan M. Akujuobi, who created a comfortable environment for the faculty to get access to necessary resources – from laboratory space, graduate student recruitment to curriculum development.

Dr. Yongpeng Zhang (centre) was awarded a generous DoD grant to outfit a control lab to serve both teaching and research.

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As a result, Center of Excellence for Communication Systems Technology Research (CECSTR) at PVAMU and the students are benefiting from 5 different Quanser's rotary motion experiments, 2 DOF and 3 DOF Helicopters, Coupled Tank and Quanser Engineering Trainers (QET). "Students like Quanser experiments very much," Dr. Zhang comments on the experience with Quanser products. "They start with solving the problems from Quanser curriculum, which is provided with every experiment and gradually move from simple to more complicated and even more exciting problems."

EXTENDING AN INVESTMENT IN THE NATIONAL INSTRUMENTS PLATFORM

Dr. Zhang also sees a great benefit in Quanser's partnership with National Instruments. Since LabVIEW™ software is widely used in academia, LabVIEW-compatibility of Quanser experiments overcomes yet another limit in application. "We obtain great technical support from both Quanser and National Instruments," acclaims Dr. Zhang. Not forgetting his research work, he adds "Quanser simplified our research work. Our programming can be conveniently built on the samples provided. We can now concentrate on the control theory and algorithm development."

Dr. Yongpeng Zhang joined the Prairie View A&M University in 2003, after obtaining his PhD. at the University of Houston. He is an Assistant Professor at the Department of Engineering Technology and one of the key researchers of Center of Excellence for Communication Systems Technology Research (CECSTR). His research interests include control systems, motor drive, smart structures and DSP solutions for industrial applications.

Quanser is the world leader in the design and manufacturing of advanced systems for real-time control design and implementation used in industry, education and research. Our open architecture control solutions are ideal for implementing and evaluating strategies from the simple to the extremely complex. Quanser control solutions and challenges are used in more than 2,000 universities and colleges, research laboratories and commercial organizations around the world.