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DENSO gift to students supports Sunseeker electronics

In a ceremony held last fall, DENSO North America Foundation presented CEAS Dean Dan Litynski with a \$25,000 check.



Attending the DENSO check-presentation ceremony at the CEAS are (left to right) **Dr. John Kapenga, Nicholas Killoran, Robert Olsen, Karen Cooper-Boyer, Dr. Dan Litynski, Kyle Hendricks, Trevor Case , and Dr. Brad Bazuin**

The check was presented by **Karen Cooper-Boyer** – DENSO General Manager for HR/Corporate Services at DENSO Manufacturing Michigan, Inc. in Battle Creek, a trustee on the DENSO North America Foundation Board, and a WMU alum (BBA '86, Mgmt.; MA '88, Educational Leadership).

According to **Dr. Brad Bazuin**, professor in the Dept. of Electrical and Computer Engineering, the funds will be used “to provide WMU’s Sunseeker solar car project with a Controller Area Network (CAN) test bench while also providing multiple opportunities for hands-on student-centered learning.”

While WMU’s Sunseeker is a major beneficiary, Bazuin said “CAN compatibility is currently required for on-board diagnostic in US passenger cars and light trucks; is used in high end vehicles for communications between intelligent electronic components, such as instrument panel displays, transmission, seats, door locks and trunk releases; and is moving us toward full drive-by-wire vehicles.”

For Sunseeker, CAN-based communications includes the accelerator position for driving the motors, turn signal and brake light switches and indicator lights, electric motor feedback and car velocity, instrument panel displays, and battery protection system status. “All the information about how the Sunseeker is performing is on the CAN. One of the electronic modules we have even collects the information and uses a wireless modem to transmit data to the chase vehicle in order to plan and update the race strategy in real-time,” Bazuin said.

With the DENSO gift, Bazuin, an ECE senior project team, and members of the Sunseeker electrical team will build a mock-up of all the CAN electronic modules and CAN connections that are expected in future Sunseeker “rayce” cars. The funds provided will be used to purchase test equipment, a mobile workbench, ICs, printed circuit cards, cables, connectors, and other material needed for the CAN test bench. “Before you install electronics in a vehicle, a

mock up of all available components should be built to allow proper testing and to insure correct operation. The test bench and related CAN work will result in a more robust system that should enhance safety and make WMU more competitive,” he said.

“The mock up will be constructed on a mobile workbench that can be moved to various classrooms and laboratories,” he said. “This will allow live CAN demonstrations for various courses and hands-on access for CAN-related student projects and course laboratories. It will also enable more students to be exposed to Sunseeker technology.”

Next summer, the CAN test bench is expected to be used by students enrolled in ECE 4510, Microcontroller Applications.

“One of the labs uses the CAN interface logic on two Motorola HC-12 micro-controller boards for communications. With the test bench, students will be able to observe an operational CAN system, interface with the system to capture existing messages and then send their own,” Bazuin said.

“Instead of working from notes, diagrams and specifications, the students will get to work with a real functioning interactive system ... one they will likely find in their own cars.”

“The DENSO North America Foundation has supported multiple CEAS projects,” Bazuin said. “This is one more significant contribution to WMU students and CEAS student teams.”

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Send your thoughts or suggestions for future topics to the editor at jerrie.fiala@wmich.edu
Thank you.