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## DENSO supports student projects in smart-car technology

In a ceremony held last month at the Parkview Campus, DENSO North America Foundation (NAF) provided a \$20,000 grant to promote student projects that advance smart vehicle technology. The 10-month project should be completed next spring for 46<sup>th</sup> Conference on Senior Engineering Design Projects (SEDP).

**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) – presented the check.

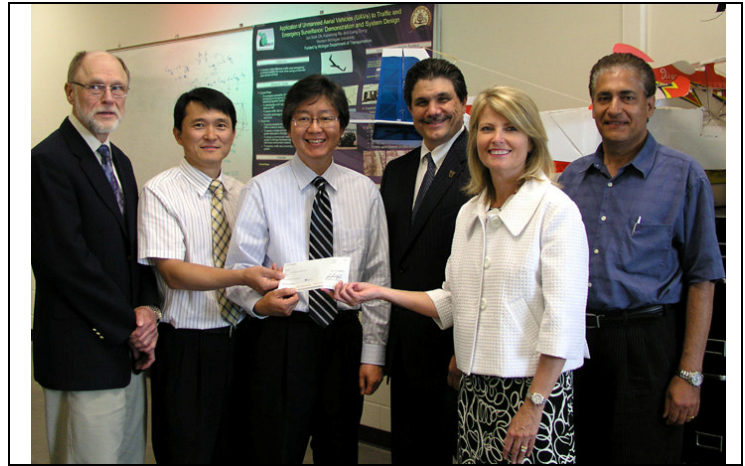
**Drs. Jun-Seok Oh, Liang Dong and Kapseong Ro**, faculty in Departments of Civil and Construction Engineering (CCE), Electrical and Computer Engineering (ECE), and Mechanical and Aeronautical Engineering (MAE) respectively, will use the funds for the Smart Vehicle Laboratory (SVL) and to support multi-disciplinary student engineering projects related to smart-car technology. “The idea is to trigger students’ interests in advanced automobile features,” Ro said.

The SVL is a multi-disciplinary laboratory being developed to expose undergraduates enrolled in CCE, ECE, and MAE majors to smart vehicle systems research and development. The lab will emphasize hands-on activities designed to enhance student understanding of advanced vehicle navigation systems.

“The research plan calls for the development of traffic simulations and test platforms of a Global Positioning System / Inertial Navigation System (GPS/INS) integrated with a vehicular ad-hoc network (VANET) environment,” Dong said.

According to Ro, the VANET system functions will also be incorporated into microscopic traffic simulation models using PARAMICS for processing the collected data and producing suitable output statistics that would mimic VANET and GPS/INS system operations.

A multi-disciplinary senior design team consisting of civil, electrical, and mechanical engineering students will be formed to conduct research in developing the systems and simulation platform. The final results will be presented next April at the Conference on SEDP.



At a CEAS Parkview Campus ceremony, **Karen Cooper-Boyer** (front), - 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 WMU alum presents check to (back, from left): **Dr. John Gesink** (ECE chair), **Dr. Jun-Seok Oh** (CCE), **Dr. Kapseong Ro** (MAE), **Dr. Tony Vizzini** (CEAS Dean), and **Dr. Parviz Merati** (MAE chair)

Plans call for the formation of more senior design student groups after the overall architecture has been developed to support projects on vehicular wireless communications and networking systems.

The simulation results and hardware demo will attract students into smart vehicle research and will support academic work in at least four ECE courses, three CCE courses, and four ME courses

**Pat Resetar**, CEAS development director, said that in addition to the DENSO NAF grant, other funding for this project has been committed by CEAS and WMU departmental sources.

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Last fall, DENSO NAF provided funding for WMU’s Sunseeker solar car project by providing a Controller Area Network (CAN) test bench which offered multiple opportunities for hands-on student-centered learning.