

## ELECTRICAL ENGINEERING AND CIVIL ENGINEERING RECEIVE MILLION DOLLAR NSC RESEARCH GRANTS

英文電子報

The National Science Council has published the list of recipients of research grants under the scheme for “promotion of research and development capacity in private universities”. Among the recipients are Tamkang University’s Departments of Electrical Engineering and Civil Engineering, whose projects win three-year grants totaling over NT\$20, 000, 000.

The project of the Department of Electrical Engineering, “Smart Pre-Warning, Monitoring and Guidance Network System for the Blind via Wireless Optical Communication”, is conducted by Professors Wong Ching-chang (project coordinator), Lee Yang-han, and Chiang Jen-shiun (department chair). The project bears the hallmark of Tamkang University. Prof. Wong says: “Our plan is to combine finger print identification chip system, infra-red sensor, and new guiding stick to allow blind students to know where they are on campus through the sensor on the stick and the voice guidance. We hope to make the campus a safer, barrier-free space.”

Prof. Chiang, chair of the department, adds that this is an integrated project. Prof. Lee Yang-han is responsible for setting up several sensors on campus. The Resource Center for Blind Students will set up base stations, with Dean of Academic Affairs, Keh Huan-chao, in charge of system management and network matters. The new guiding stick will contain anti-theft finger print identification, voice system, sensor equipment and emergency button. When a blind student needs immediate help, a small robot, developed by Prof. Wong Ching-chang, will move swiftly along the sensor spots to where help is needed. If the project is successful, small robots may be seen walking around on campus. Prof. Chiang Jen-shiun hopes this Tamkang-styled project will create a practical and safe campus environment

for the disadvantaged.

The project of the Department of Civil Engineering, “Investigations on the Wind Loads and Structural Responses of Large Structures: Full-Scale Measurements, Wind Tunnel Tests, and Numerical Simulations”, coordinated by Prof. Cheng Chii-ming, combines the expertise from Tamkang Wind Tunnel Lab, the best equipped in Taiwan. Together with eight professors from departments of Civil Engineering, Water Resources and Environmental Engineering, and Aerospace Engineering, Prof. Cheng will conduct wind monitoring on towers and bridges. Cheng says: “In Taiwan there has never been a full-scale measurement on location we can only consult lab figures. Our project will combine satellite remote measurements and high-rise building equipment to find out the impact of surface wind pressure, wind velocity, and vibration on buildings.” Prof. Cheng will be the first in Taiwan to conduct such full-scale measurements.

Prof. Cheng is planning to set up equipment on the 100-meter-high tower of Tamsui Central Radio. He is also on the lookout for suitable bridges for measuring typhoons. He expects this project to be the first step in Taiwan toward full-scale measurements. The figures gathered at various locations will be sent via the internet to be compared with figures obtained in the lab. Hopefully, the research results will be reflected in the building regulations in Taiwan and beneficial to the society.