

## DEPARTMENT OF ELECTRICAL ENGINEERING HAS WON FIRST

Following the achievement of their 'Forerunner' , the FIFA football champion of the World Robocup, the Department of Electrical Engineering has once again demonstrated their brilliance in another contest. They have won the first and second prize and various other prizes for Outstanding Work among 100 plus contestants from different universities in the Nios Embedded Processor Design Competition organized by the Galaxy Far East Corporation. The same 'Forerunner' team, which is comprised of voice-controlled robots, has won the second place, whereas the first prize went to the technology of "Personal identification system using fingerprint image" , developed by the same department. Both designs won praise by the majority of the judges.

The awards ceremony was held at the Lakeshore Hotel in Hsin-chu City last Tuesday, Oct. 28. The department was awarded with NT\$ 50,000 and 20,000 and certificates for the first and second prize respectively. In the ceremony, there was a display area where the top three prizes as well as other Outstanding Work, including those of TKU' s were on view. A number of renowned researchers and experts in this field were invited to attend, among whom were some TKU alumni. The latter were impressed by the development and accomplishment of TKU' s technology.

The prerequisite of participating in this contest was that all the works had to use the Nios processor design system in their applications. TKU' s designs surpassed those of National Cheng Kung University, National Yunlin University of Science and Technology and several other national and private universities. Even among the Outstanding Work category, TKU entries, such as "The application of Nios CPU in the robotic positioning technology and terrain surveying" and "The application of Nios CPU in MP3 zipping and unzipping interface" have earned significant attention.

The first prize, which deals with personal identification and fingerprint imaging is a team work of Liu Che-wei, a second year doctoral candidate, Lin Jia-ching and Lee Jian-yin, first year graduate students, led by professor Huang Tsong-liang. The design consists of a fingerprinting identifying machine, a keyboard, and a monitor. The first step is to place fingers on the fingerprinting machine, which will store and analyze the fingerprints. Then, it is operated by keying in a personal code and password. Some seconds later, the machine will show the results of analysis after matching the person and fingerprints on the screen.

Lee Jian-yin, one of the team members stated that the potential for further advancement is enormous. For example, improving the speed and precision of the analysis and developing reliable patterns to reduce errors caused by similar fingerprints. The team spent the entire summer improving the system by much calculation, hypothesizing and experimenting. The reason for their success, said the team captain, Liu Che-wei, was due to its wide application in personnel management and security systems, such as door locks. Nonetheless, they did not expect to win first prize. Liu added modestly that it was the first time their research laboratory had participated in such a competition, so the first prize came as a big surprise. When they heard the news that they had won, they all shouted, "We are the winners" ecstatically.

The team captain of the "Forerunner" Huang Kai-hsiang, which won the second prize, on the other hand, expressed what it was like to win again in a different occasion. He said that having the opportunity of presentation at the exhibition last Tuesday explaining to visitors about their work was a great learning experience in itself.

As for the organizer, Galaxy Far East Corporation, which is the Taiwan area distributor of the chips produced by Altera, in the US, this product has the biggest world market share currently and the Galaxy Corp. is raising its profile in Taiwan by hosting such a contest. Some Taiwanese companies such as Wan-Hon, and Yi-long have also hosted other contests based on similar IC processor design.

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