


## Awards and Commendation

### The 2010 iF Communication Design Award Is Granted to YunTech Department of Visual Design


A medal for the packaging design category of iF Communication Design Award

Under the instructions of Professor Fang-suey Lin, the design group formed by students Chih-lin Tseng, Hsuan-chuan Shen, Jui-lin Shen, Ying-chen Hsieh and Chu-ya Ji conducted a project entrusted by the Tatung Soy Sauce Corporation. The project was implemented in order to promote the corporation's brand image and marketing communication. The project itself was chosen as an excellent project for the 2009 "Commercial Design Improvement Project" sponsored by the Department of Commerce of the Ministry of Economic Affairs. Besides, the packaging designed by the group for the corporation's new products won the packaging design award at the 2010 iF Communication Design Award in Germany.

As one of the three representative agricultural products of Siluo, Yunlin County, the Tatung Soy Sauce already has one hundred years of history. In response to the

global tendencies and its diversified management strategies, the Tatung Soy Sauce Corporation, established in 1911, has been making efforts to promote its product identification by infusing both traditional and innovative elements into the product design. In order to achieve the goal, the design group followed the three main features of the corporation's products, "Naturally Excellent-Brewed from Black Soy Beans", "Ancient Brewing Technique-Hand Brewing" and "Dietary Culture-New Life Aesthetics", and designed innovative packaging that suits the feature of each product. It was expected that this packaging could successfully promote the corporation's brand image and at the same time attract younger people to be the product consumers.

Since the black soy sauce is usually brewed by going through the four seasons of a year, the packaging was designed and characterized by the features of spring, summer, autumn and winter. The Chinese traditional painting and calligraphy were also infused into the packaging which not only demonstrate the beauty of Chinese characters but also highlight the natural and delicate quality of the soy sauce inside a pyramidal glass bottle. This packaging is innovative, competitive for international standards and reveals a completely new feature of Taiwan's corporate culture.

The winning pieces for the packaging design category

## YunTech Snares One Gold, One Silver and Two Coppers at the IENA Nuremberg

As the first and the oldest creative trade fair in history, the "IENA International Trade Fair, Ideas-Inventions-New Products, Nuremberg Germany" entered its 62nd year and attracted more than 800 entries from around the globe to compete against one another. YunTech presented six pieces and four of them were recognized by a gold medal, a silver medal and two copper medals.

The gold-awarded work:
This work entitled "Separative extended gate field effect transistor based vitamin C sensor and the forming method thereof" is a patent approved technology invented by Professor Jung-chuan Chou, Chien-cheng Chen (graduate student),Chang-chi Lee (graduate student) and E-ling Huang (graduate student). The invention provides a vitamin C sensor that is low-cost, small and disposable. It not only can monitor and measure at the same time, but also can improve the sensibility and linearity of a traditional single sensor through data fusion method.

The silver-awarded work:
Invented by Professor Jung-chuan Chou and two of his graduate students, Ying-tsung Liu and Yi-ming You, this silver-winning invention entitled "Fabrication of dye-sensitized solar cell with compact nanocrystalline TiO2 electrode by RF-sputtering system" provides a dye-sensitized solar cell that is translucent and can therefore be used as a sun helmet, heat insulation helper and power provider. It has such high market potential that in the future it can be further applied to household appliances and portable electronic products, such as calculator, electronic dictionary, watch, cellular phone, laptop and electronic backpack.

The copper-awarded works:
Invented by Professor Chuen-chang Lin and graduate

Silver winners at the 2010 IENA International Trade Fair, Nuremberg Germany

student Jui-cheng Wei, the copper-winning work "Carbon nanotube aluminum foil electrodes" provides a highly efficient aluminum electrolytic capacitor that can store up static electricity 5-10 times higher than a general aluminum electrolytic capacitor. Because of its high electric capacity and high voltage, this small, light capacitor can be used to serve as an energy storage device for electric vehicles or a capacitor for 3C electronic products.

The other copper winning invention "Foldable container (coffee postcard)" was created by Professor Chih-kao Nieh, Chia-chan Hsieh (assistant) and Cheng-wei Lin (student). Inspired by the global coffee-drinking habits, the inventors put coffee and tea into a postcard and combined them all into one. The exterior packaging of the postcard was printed with the images of Chinese solar terms and fruit totems. It can also be decorated with other images in accordance with special occasions. Not only the packaging itself but the taste inside can change by following different seasons or occasions. People who drink it would enjoy the deep warmth and affection transmitted by this creative and attentive design.

Protected under a patent granted by the Taiwan Patent and Trademark Office or the United States Patent and Trademark Office, the above inventions also received awards at the 2010 Taipei International Invention Show and Technomart. They are highly competitive in market and can help to improve the quality of people's lives and living convenience.

## YunTech Wins Two Champions at the 2010 Robot Competition

Jointly held by the Ministry of Economic Affairs, Precision Machinery Research and Development Center, National Taiwan University, Shin Kong Security Co. and Hiwin Technologies Corp., the awarding ceremony of the "2010 Robot Competition" took place at the Taipei World Trade Center on October 22. The "2010 Robot Game", "2010 Shin Kong Security Robot Competition" and "HIWIN Robotic Hand Competition" were also held on the same day.

Instructed by Professor Ching Yang of YunTech Department of Industrial Design, the "MORI Care" gained the first prize for the outward appearance design category at the "2010 Robot Game". The other two works that were invented also under her instructions, "Hug Touch" and "Hi-Bee", were evaluated as good works for the same category. The other first prize winning entry for the industrial application category was the "Automated Bicycle Rental System" which was instructed by Professor Tung-ming Koo of the Department of Information Management. Besides, two inventions directed by Professor Kuo-lan Su of the Department of Electrical Engineering were also evaluated good at the "HIWIN Robotic Hand Competition". The above outstanding performance not only earned a large bonus up to NT$500,000 for the participating groups but also demonstrated YunTech's creative potential that is getting even stronger day by day.

One of the champion awarded entries, "MORI Care", was designed by Wei-yuen Ting and Yi-chun Chen from the inspiration of the Empty Nest Lifestyle emerging in today's society. It was created to help take care of the everyday life and health of the parents whose children have grown up and left home. This robot was manufactured with a human-like appearance and an easy operative interface, and expected to serve as a warm and heart-touching company to the elder people. The other first prize winning entry, "Automated Bicycle Rental System", was designed by Chih-ching Chen, Yin-chun Li, Wei-chung Wang and Hsuan-ting Chang. It is a system that was inspired by the pile-up idea of automatic warehouse equipment and with the help of this system bike rental stations can be automatic and

The group led by Professor Ching Yang gain one first prize and two good awards at the "2010 Robot Game"

more convenient. A specific membership card was also invented with expectation to help the government reach the goal of energy saving and carbon reduction, thus promoting an ideal green lifestyle.

## Professor Jet-chau Wen Receives the University Level Industry Economic Contribution Award from the Ministry of Economic Affairs

Founded by the Ministry of Economic Affairs, the "University Level Industry Economic Contribution Award" aims to encourage the integral cooperation between academic and industrial sectors and to promote Taiwan's industry upgrading and technological independence, thus creating a new industry that is internationally competitive. People who are honored with the award are strongly recognized for their contributions to the industry-academia cooperation. By the cooperation with Taiwan Yunlin Irrigation Association, Professor Jet-chau Wen who serves at the same time as the director of YunTech Research Center for Soil & Water Resources and Natural Disaster Prevention has been eagerly encouraging water use efficiency for irrigation and devoted himself to the land subsidence prevention. All his efforts and contributions were recognized when he was announced to be the winner of the "2010 University Level Industry Economic Contribution Award". An award presentation ceremony was held on the September 8 of the same year.

Unlike the cooperation model between a high-tech industry and a university, that is, the university offers technology for the industry to apply to products and make profits, the cooperation between Director Wen and Taiwan Yunlin Irrigation Association is to have the limited water resources efficiently used through specific management strategies. It not only infused new energy to the already fossilized operation model of Taiwan Yunlin Irrigation Association, but also increased possibility for the Association to be beneficial to farmers and help them earn profits. Most importantly, Director Wen's cooperation project involved the increasingly important concept of environmental protection, which deserves more praise and applause.

# Academic Exchanges

## The Sixth International Conference of Asian Academic Society for Vocational Education and Training 2010

Held by YunTech Graduate School of Technological and Vocational Education, the sixth "International Conference of Asian Academic Society for Vocational Education and Training 2010 "took place at YunTech International Hall on November 7, 2010. Dr. Tsong-ming Lin, deputy minister of the Ministry of Education, was invited to deliver an address.

Besides Taiwan's scholars, the conference attracted various scholars from around the world, including Japan, Korea, Malaysia and China. The conference was conducted in the ways of keynote speech, forum, thesis presentation and poster presentation, focusing on the current state and development tendency of the vocational education and training in Asian countries. In addition to Professor Seung il Na at Seoul National University, Korea, who was invited to be the keynote speaker, Professor Zhong-shan Sun of National Kaohsiung Normal University was invited to serve as the forum moderator and other five distinguished guests as the discussants. They were Professor Moriki TERADA of Nagoya University, Japan, Dr.RamLee B. Mustapha, professor of Sultan Idris Education University, Malaysia, Professor Zhi-qun Zhao of Beijing Normal University, Professor Won-sik Choi of Chungnam National University, Korea and Professor Hsi-chi Hsiao from Cheng-Shiu University, Taiwan. A total of

Group photo of the sixth International Conference of Asian Academic Society for Vocational Education and Training 2010

28 research papers and 21 posters were presented at the conference. The topics included “The Current State of the Vocational Education and Training in Asian Countries”, “Development of Human Resources”, “Innovative Vocational Courses and Teaching” and “E-learning in Vocational Education”.

An extensive number of Taiwan’s researchers have been devoted themselves to the vocational education research and gained fruitful achievements. The conference was a great opportunity for them to exchange ideas and share research results with scholars from other countries. It was expected that after the conference an interactive channel could be established and that the development of Asian vocational education could be enhanced.

## The 19th Hydraulic Engineering Conference

The “19th Hydraulic Engineering Conference” was held from Wednesday, November 10 to Thursday, November 11, 2010 and attracted approximately 300 to 400 people from governmental organizations, industrial and academic sectors.

The change of climate in the past years has devastated the territories and affected the way people live around the world. Taiwan is one of the affected countries and has been stricken by typhoons, floods and mudflows. In response to the disasters, the conference involved various issues for discussion, including (1) Water and Flood Control Measures, (2) Urban Hydrologic Analysis, (3) Water Resources Planning and Management, (4) Flood Forecasting and Inundation Simulation, (5) Wetland and Agricultural Water Conservation, (6) Environmental Hydraulics, (7) Hydraulic Structure, (8) Water Infrastructure, (9) Coastal & Harbor Engineering, (10)Ocean Engineering, (11) Hydroinformatics Technology and Application, (12) The Development and Management Policy of Water Conservancy, (13) Flood Disaster Prevention and Management, (14) Control of Groundwater Extraction and Land Subsidence Prevention, (15) Watershed Management & Soil and Water Conservation and (16) Climate Change Adaptation and Disaster Risk Reduction. With more than 100 papers presented at the conference, it was expected that a platform for academic exchange could be established among professionals, students and groups from industrial, governmental and academic circles. It was also hoped that through different perspectives and practical experience shared by both national and international professionals, the technology of water control and flood prevention in Taiwan could be improved, thus ensuring the lives and property of Taiwanese people.

## 2010 International Workshop of Innovation Design

Held by YunTech College of Design, Design-led Innovation Center and Department of Industrial Design, the “2010 International Workshop of Innovation Design” took place on the four Saturdays between November 18, 2010 and October 9, 2010. Many highly regarded professionals were invited to deliver keynote speeches and serve as workshop instructors, including Mr. Jiun-yan Wu, director of the Design Department of Zippo Manufacturing Company in Taiwan, Mr. I-te Liu, chief adviser of Jiva Design Association and Mr. Chia-hao Chang, design director of DataFab Systems Inc. Besides, three well-known scholars were invited to contribute instructions and comments. They were Professor Ching Chiuan Yen of National University of Singapore, Professor Chun-Hsien Chen of Nanyang Technological University, Singapore and Professor Robin Ko of Nagoya University of Arts and Sciences, Japan. It was hoped that inspired by the guidance and experience sharing of these professional designers and a discussion over the new relationship between human beings and products, students’ creative and practical abilities could be cultivated and their critical thinking competence could be triggered.

During the workshop the participants were divided into different groups and worked with the group members on the design topic they were assigned to follow. They were expected to find advanced enabling solutions to the difficulties they faced during the design procedure and then propose ideal and feasible plans. The topics they worked on included topic identification, market analysis, user observation and interview, development of horizontal and vertical perception, assessment

as well as design presentation. After brainstorming discussion and practice, the participants presented a range of remarkable designs, including graphic design, physical model and multimedia design. They were later displayed on October 15-17, 2010 for those interested in design to provide feedback and suggestions.

## Outstanding Performance

### Student Fang-chun Tsai of the Department of Industrial Design Receives Gold Award at the PQI "i•Design, My USB Drive"

With the purpose of encouraging and discovering design talents, the Power Quotient International Corporation (PQI) hosted its first design contest called "i•Design My USB Drive". In addition to encouraging the current designers to discover their potential for innovation, the PQI hoped that through the contest an exchange channel could be established, thus creating chances for them to conduct idea exchanges. The contest itself thus became an open platform for the designers to learn from each other.

After long and competitive primaries and review process, 30 among 963 qualified entries were chosen to compete for a final round. The judging panel that judged the final round was formed by nine directors from PQI's Research and Development Department, Marketing and Sales Department, Business Department and Logistics Department. Based on four criteria, creativity, feature functionality, appearance design and market application, they conducted an evaluation and from these 30 selected entries chose the top three for the gold, silver and bronze awards with a bonus of NT$30,000, NT$ 20,000 and NT$10,000 respectively and five for potential award. An awarding ceremony was held on December 4 at the Taipei World Trade Center during the Information Technology Month. Besides the bonus, these award winning pieces would have opportunities to be manufactured with the designer's name printed on the packages after an evaluation and then sold to the world. The PQI has attempted to combine design with commercialization and successfully brought Taiwan's "Good Design" to the global market.

The gold awarding entry "Collector" was designed by student Fang-chun Tsai under the instructions of Professor Deng-chuan Cai of the Department of Industrial Design. It was designed to become a big size USB drive by collecting all the small size memory cards and then combining itself with a card reader. This function grants the standby memory cards a new life and enhances the convenience in use which would attract consumers to conduct the purchase. It can also be used as a memory card to manage data of different categories and for difference purposes.

Gold award winning work - Collector

### YunTech Department of Electrical Engineering Wins Two Awards at the Third HIWIN Robotic Hand Competition

With the instructions of Professor Kuo-lan Su of the Department of Electrical Engineering, the ISL group


Professor Kuo-lan Su and his students win awards at the third HIWIN Robotic Hand Competition

consisting of Ming-wei Huang, Shih-hsien Chen, Po-hui Wang, Chih-hung Kuo, Sheng-wen Hsiao, Ho-shun Chen, Yi-cheng Chang and Yi-lin Liao invented two robotic hands called “Dragon Arm of NYUST” and “Ultimate Kylin Arm”. They were granted “Good Award” with a bonus of NT$140,000 at the third “HIWIN Robotic Hand Competition” sponsored by the HIWIN Technologies Corporation and the Industrial Development Bureau of the Ministry of Economic Affairs.

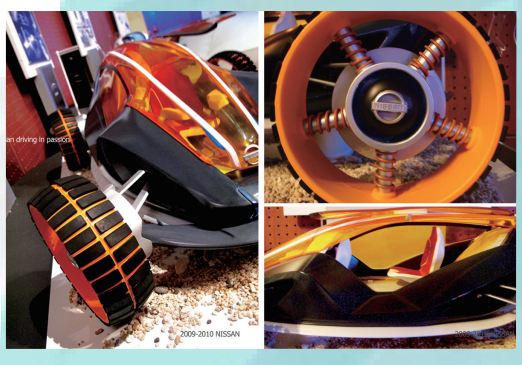
The “Dragon Arm of NYUST” is a six-axis robot arm that is composed of a NI motion control card, ball screw, Maxon motor and driver. With the application of the high precision NI motion control card along with the ball screw, the robot arm maintains X, Y, Z axis high-accuracy positioning and ensures its function to automatically grab a specific target. In accordance with its precision positioning feature, it can also write, draw or grab balls in selected areas. For the other award-winning invention “Ultimate Kylin Arm”, a control system for the robot arm was developed using CAN bus communication network along with Maxon motor and Maxon position controller as joint and motor driver respectively. With high speed and precision, this seven axes robot arm can function in a stable and quiet way. It can operate with some simple motions, such as catch an article and put it steadily in a specific area. Besides, it can also do some motions that have a higher degree of difficulty, such as throw balls with precision and remove light bulbs.

The robot arm has become indispensable for the automation plan that is currently conducted in industrial sectors. It not only can replace people to undertake operations, but can largely increase productivity as well. The ISL team has been making efforts to invent different kinds of robot arms in order to satisfy the different needs of factories. By eagerly participating in both national and international contests, The ISL team has tried to absorb the research experience of others and applied it to develop a more efficient robot arm. It is hoped that in a near future the team will become capable of helping companies to train people for robot arm development and the follow-up maintenance.

## YunTech Wins Silver Award at the 2009-2010 Nissan Design Competition

The “Guardian”, an off-road vehicle designed by the TJ team formed by Ming-teng Tang and Po-chun Chan, students of YunTech Department of Industrial Design, received silver award for the appearance design category at the Nissan Design Competition. With “leopards” as the core idea, the attractive shape of this award winning piece was inspired from the body lines and proud expression shown by the leopards in motion. The team mocked the leopard’s strong legs and its adaptation power and designed tires featured by leopard claws. The tires are capable of changing wheelbase and the vehicle height, with which the Guardian performs outstandingly under any road conditions. The vehicle appearance is shown mainly by the black and yellow colors with leopard stripes. Its high-tech control cabin is designed to be able to sense the racer’s emotions, which leads to a human-vehicle unity driving mode.

The designers indicated that this experience had been the toughest since the first time they participated in contests, especially during the second phase where they were required to put their ideas into practice, including the model making and presentation preparation. They ever said jokingly that they would be reluctant to go back to the life during that period of time. Besides them, there were three more teams taking part in the contest. They helped each other in both practical and technical aspects and performed outstandingly.




A close-up shot of the leopard claw tires

The Nissan Design Competition is currently the largest car design contest around Taiwan. Its judging panel was composed of professionals from both domestic and international car design sectors. The silver award winning of YunTech representative team after strict evaluation and keen competition truly deserves praise and commendation. This award winning glory also maintains YunTech's reputation in the realm of car design.

## The Use of Coal Fly Ash in Cement Mortar for Thermal Insulation

The function of the coal fired thermal power plant is to convert the energy available in the coal to electricity. However, this coal based thermal power plant affect the air quality of the surrounding region. In order to avoid possible air pollution, an electrostatic precipitator is installed on the plant's stack to collect the particles from the smoke produced when coal is burning. The collected particles are periodically weeded out and the waste is called fly ash.

Professor Cho-liang Tsai explains the influence fly ash produces on the heat conduction of cement mortar

A group led by Professor Cho-liang Tsai of YunTech Department of Construction Engineering discovered after one year of research that adding a proper proportion of fly ash to cement mortar can enhance that cement mortar's thermal insulation effect.

The group comprising graduate students Ching-wen Chuang, Chia-lun Wu and Yi-chang Lin used the fly ash provided by the Chu Yeh International Limited to replace the cement and sand that are used to make mortar and fabricated blocks of 7.5cm'7.5cm'3.6cm. It was found that the temperature of the space covered by these blocks was at least two degrees lower than the temperature in other ordinary space. The difference was even more obvious from 2 pm to the early morning of the following day. Because of the fly ash, the compressive strength of the blocks was found to increase at age of 56 days.

This method can be applied to the binder materials for the heat insulation bricks on a roof or wall tiles outside a house. It is expected that the temperature inside will drop one to two degrees. The finding is helpful and valuable especially at the moment when people are facing the crisis of energy depletion and serious greenhouse effect around the world.

**Publisher:** Yeong-Bin Yang
**Publication Office:** National Yunlin University of Science and Technology
**Chief of Newsletter of NYUST Editing Committee:** Chu-Chin Hsieh
**Chief Editor:** Shinn-Hwa Chen
**Executive Editor:** Yi-Lan Dong
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