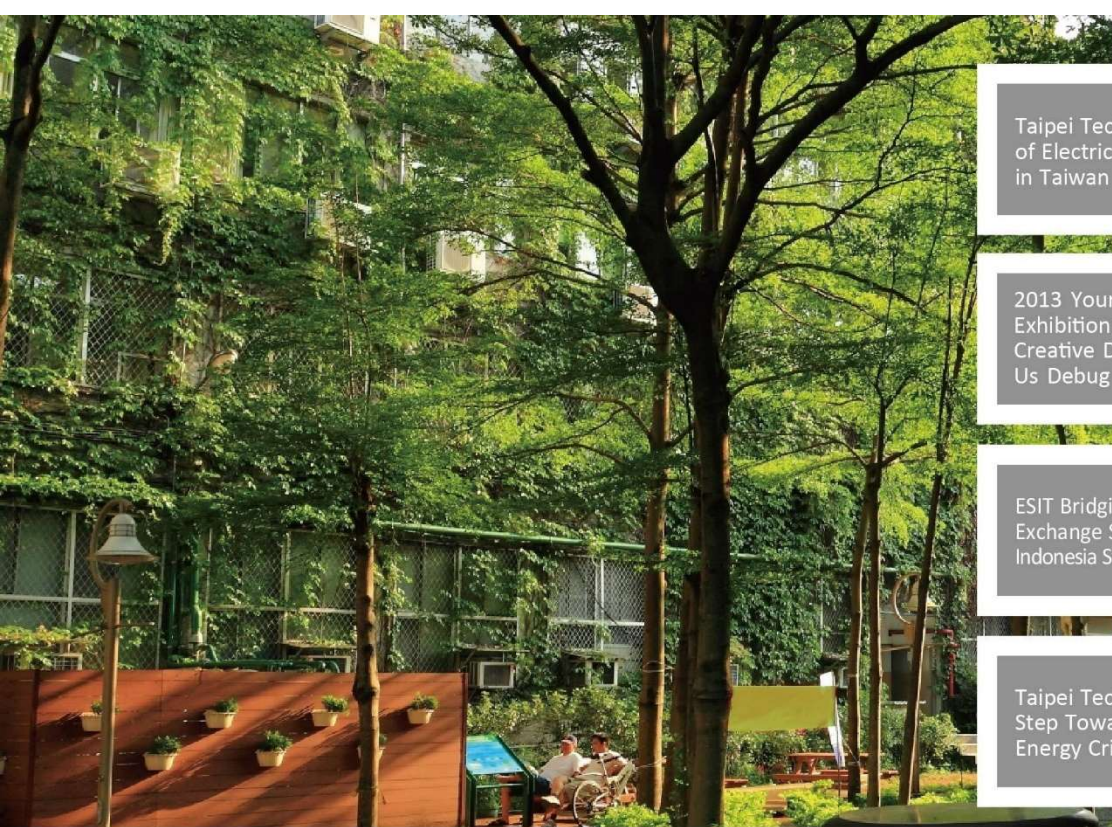




Taipei Tech on the Frontier
of Electric Motorcars
in Taiwan



2013 Young Designer's
Exhibition: Taipei Tech's
Creative Designs that Help
Us Debug Our Daily Lives



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Indonesia Study at TAIPEI TECH



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Step Towards Solving the
Energy Crisis



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Taipei Tech on the Frontier of Electric Motorcars in Taiwan

Kimberly Lee



With the collaboration of the Ministry of Economic Affairs, Taipei Tech is sanctioned to import 200 electric motorcars, the two-seater Tazzari Zero from Italy, and will offer rental services starting in June. The rental services not only provide an exciting opportunity for citizens to experience the green technology on wheels, but it also allows Taipei Tech to collect data in line with the government's green policy.

Each electric motor car's building cost is NT \$1.3 million (US \$44,000). Despite its high price, with only NT \$350 (US \$12) registration and rental fee, citizens can rent it for 7 hours. Many citizens have seen the Taipei Tech electric cars being tested near the campus, and the university has received many calls with people showing interest in renting the car. Since the development of electric motor cars in Taiwan is still in its preliminary stage and is still relatively unadvertised to the public, electric motor cars are only available for rental. According to Car Plus, one of the prevailing car rental companies in Taiwan, the rental records on the latest holiday show that the 38 motorcars that Car Plus offered were fully booked. This is a promising number which indicates that more and more Taiwanese are aware of and are looking for greener alternatives for transportation.

From the general public's view, citizens are very much willing to give electric motorcars a try. Yet, the commonly shared doubt is the specification and capacity of the battery for electricity storage. However Taipei Tech has foreseen the problems and provided solutions; Chien-Te Lee, the project owner of Taipei Tech electric motorcars, indicates that the Taipei Tech electric cars can be charged at specific charging stops for electric vehicles or simply at home with regular electricity

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specification. The charging process takes 1-3 hours depending on the remaining electricity stored in the battery. Taking an example of an average three-hour charging process on an empty battery, it only costs NT \$30 NTD (US \$1) and the electricity stored allows the car to run for about 200 km, which is a lot more capable compared to other existing brands of electric motorcars.

While Taipei Tech welcomes citizens to register for affordable rides, the Automotive Research & Testing Center (ARTC), with the full support of Taipei Tech, grandly established the Future Automotive Technology Cooperation Center. With the Cooperation Center located in Taipei Tech campus, both divisions will continue to facilitate innovation and technological cooperation in the automobile industry, develop independent technology, and furthermore cultivate the next generation of young Taiwanese specialists of vehicle engineering.

ARTC is the pioneer automotive research institute in Taiwan that boasts critical technology, and Taipei Tech's Department of Vehicle Engineering is also renowned for its focus on automobile expertise. The joint collaboration between the two is promising in the long run as President Yao explains the aim of the Future Automotive Technology Cooperation Center. The Cooperation Center endeavors to participate and lead government authorized or industrial research and development projects. So far, the Cooperation Center has started its engagement in six projects including the research on enhancing the endurance of electric motorcars, ultrasound space domain scanning, auto-car-parking navigation system via camera positioning, and smart energy-saving system.

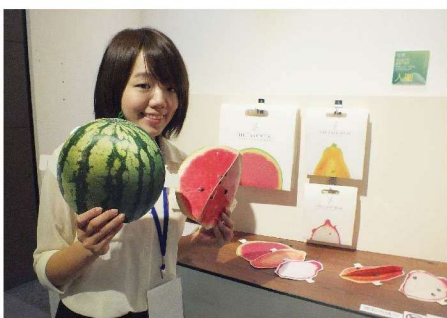
As the Cooperation Center gets more actively involved in each research and development project, precision instruments and technical personnel will be largely incorporated. The objective is aimed at transferring finalized technology to relative industries and commercializes it into products available for the market, and the Taipei Tech electric car is the perfect debut of this collaboration.



Taipei Tech electric cars charging at the school's electric charging station.

2013 Young Designer's Exhibition: Taipei Tech's Creative Designs that Help Us Debug Our Daily Lives

Nina Tai



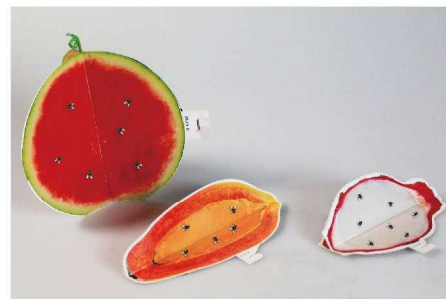
Taipei Tech student Guan-Wen Lin showcasing her design "The Last Meal"

The Young Designer's Exhibition is the largest design exhibition featuring students in Asia; the exhibition draws the attention of young aspiring student designers each year. This year Taipei Tech has a total of 37 pieces nominated, and it won 2 Silvers, 5 Bronzes, 5 Vendor Awards and 16 Excellence awards. The Taipei Tech students showcased many creative inventions that debug the small obstacles in our daily lives.

"The Last Meal", designed by Guan-Wen Lin (林冠文), a student from the Industrial Design Department, is the flypaper in shapes of fruits. Inspired by her mother's food stand in Changhua County, Lin finds the flaws of the traditional flypapers. When the traditional flypaper is fly-studded, it is not aesthetically appealing and can be revolting to customers. Consequently, she had an idea to create mouthwatering fruit-shaped flypapers to replace the traditional ones. The fruity fragrance of the improved flypaper not only attracts flies, but is also easy on the nose for users. There are currently 3

designs of the fly paper: watermelon, dragon fruit and papaya; all with the similarity that their seeds are black. If not looked at closely, the apprehended flies look like fruit seeds on the fruit-shaped flypaper. This simple design adds a delightful pleasantness to the repulsive flypaper.

Another design, called the "Flapping Ear" is a pet-friendly electric scooter that provides a safe transportation vehicle for pets. The front footrest space of the current average motorcycle is quite narrow; a dog usually stands horizontally with its head and tail hanging out of the scooter, which can be quite dangerous. However, this situation is debugged by Xue-Wei Chung (鍾學威) and Shi-Yung Wang (王詩容), students from the Industrial Design Department.



(continued on p.3) The actual product of "The Last Meal"

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Seeing the danger of normal scooters, they added a platform for smaller pets and depth to the footrest of motorcycles. They even install seatbelts for pets, turning the footrest of the motorcycle into a pet-friendly space. They took not only safety, but also comfort into account. The design has a small clear window at the front panel of the scooter, so that the pets can also enjoy the same scenery as their owners. They even added small details such as ventilation holes on the pet windshield to allow breeze to go through. The whole scooter is stream lined and comfortable for both the owner and the pet. This design has also won the prize from KYMCO Motorcycle Design Competition.

These are just the two out of the many exceptional innovative designs that were conceived by Taipei Tech students.



Design students Xue-Wei Chung (left) and Shi-Yung Wang (right) with their design "Flapping Ear"

ESIT Bridging Program Exchange Students from Indonesia Study at TAIPEI TECH

Scully Chiu



The Students meet with Dr. Weng, Sung-Shun, the Dean of College of Management, and three current international students of the college.

Recently, TAIPEI TECH has cooperated with the Elite StudyInTaiwan (ESIT) Bridging Program, whose purpose was to provide necessary services for the higher education cooperation that exists between Taiwan and Southeast Asian countries as well as to create new opportunities. This was the second time that TAIPEI TECH has received exchange students from the Elite Bridging Program. There were ten students from Indonesia in 2012, and all were impressed by TAIPEI TECH's beautiful green and clean campus. In addition, they were very pleased with the staff and lecturers at TAIPEI TECH, along with the hospitality and helpful attitude that the University exhibited. The students stated that the TAIPEI TECH staff and faculties were "very welcoming to exchange students" and "very humble, friendly and polite."

The students were awed by the multimedia systems and equipments on campus, which allowed them access to research papers and online resources. They later found out that it was very helpful for carrying out research. One of the students stated that, "these opportunities are very difficult to gain in Indonesian universities." According to the students, "TAIPEI TECH is one of the top ten universities which focused on technology research," and they have received much information from each course in the professional,

practical, and cultural fields. Also, the students were very impressed with the internationalization of TAIPEI TECH that despite their lack of Chinese language abilities, they were still able to communicate and express their needs and thoughts to the faculty and staffs of the Office of International Affairs.

During their three-month stay at TAIPEI TECH, the students took four courses: English, Chinese, and two professional courses. The students especially enjoyed the lab tour because they could see different kinds of IT research conducted at TAIPEI TECH. They were satisfied with their lecturers as well as gained information about research projects, facilities, and how to do research. Overall, the students stated that they gained new knowledge from the lectures they attended at TAIPEI TECH, and they were all pleased and excited about the culture tours planned by the Office of International Affairs.

Overall, the ten exchange students were delighted with their stay at TAIPEI TECH and stated that, "TAIPEI TECH is a very good destination for foreign students who wish to pursue graduate studies." Some of the students considered applying for the 2014 admission for the doctoral degree in the Department of Management. They have contacted their advisors and prepared for the English exam (IELTS or TOEFL) in order to fulfill admission qualifications.

They look forward to the future studying in TAIPEI TECH, and the students who went back to Indonesia to continue their education were willing to encourage their fellow students to study at TAIPEI TECH for graduate programs.



The Office of International Affairs staff, took the students to Kaohsiung for the culture tour.

Taipei Tech Takes Another Step Towards Solving the Energy Crisis By Rebecca Lynn Li



Director of Molecular Science and Engineering Department, Professor Su and her team of graduate students

As the numbers on the electronic tag lit up, there was a hush of disbelief and then a wave of excitement broke out among the people in the laboratory located at the highest floor of the Molecular Science and Engineering building in Taipei Tech. The team of students under the solar cell education program had just successfully powered an electronic tag using solar cell technology. However, they did it not with sunlight but with indoor light.

Led by Professor ChaoChin Su (蘇昭瑾), a team of graduate students in the Molecular Science and Engineering Department constructed a Dye Sensitized Solar Cell (DSSC) Module which could power an electronic tag using just indoor light. When dye molecules in DSSC are given enough energy by a light source, they are excited and then the electrons from the dye molecules are injected into the anode electrode. The electrons then pass through the circuit and reduce the previously oxidized dye molecules, which creates a continuous electric cycle. Several DSSCs are connected in series or in parallel to construct the DSSC module which has an increased voltage or current capable of powering the electronic tag. The success of the researchers at Taipei Tech meant another step taken to achieving the eventual goal that all green energy researchers want to achieve: the ability to power everyday objects with renewable energy. This accomplishment can also be added to the list of accomplishments of Taipei Tech as

the Paradigm University.

Currently capable of generating enough electricity for low power devices, the DSSC is a viable solar cell technology that has ample potential to be one of the key answers to the earth's energy crisis. This is clearly demonstrated when an electronic tag was powered by DSSC with efficiency of only 5%. For future research, Professor Su and her colleagues at the Molecular Science and Engineering Department along with their students are looking towards ways of increasing the efficiency of DSSC. To explore the effectiveness and the limitations of different materials, endless research possibilities are created to test the structure of dye molecules and the morphology of semiconductor nanoparticles.

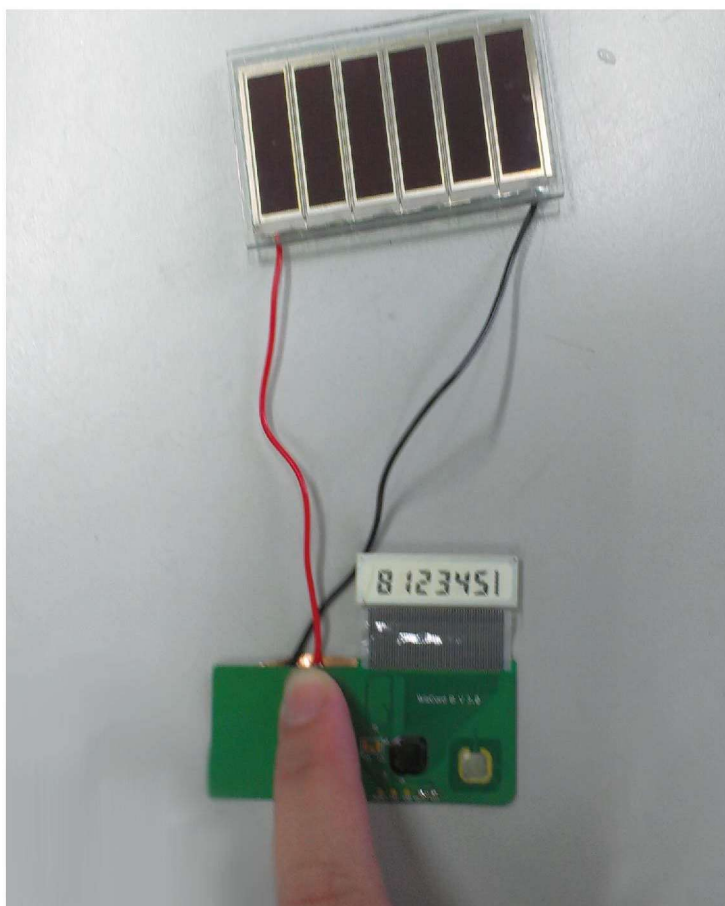
"The greatest obstacle in assembling the solar cell is to match the anode on one piece of glass to the cathode on the other piece of glass so current can pass through", said Akira Hsu(許雅淳), one of Professor Su's students enrolled in the master's program. When asked what can be done to overcome the difficulties in her research, Akira expressed, "Constant

practice is the only key!" Akira, like many other graduate school students in Taipei Tech, work endlessly each day to produce remarkable results in their respective fields.

Each department in Taipei Tech has its distinct purpose and area of specialty geared to educate undergraduate students, and provide graduate students with necessary experiences for their future careers. In the five decades since the Molecular Science and Engineering department was founded and with Textile Engineering Department as its forerunner, the aim of the department has always been to recruit and train talented young minds with an interest in the applied chemistry of organic and polymeric soft matter. The molecular science and engineering department at Taipei Tech is the first department set up in Taiwan which combines the two molecular based academic disciplines together. With textile engineering as its foundation, the department took the science of molecules and expanded it into three interlinking educational programs: organic materials, polymeric materials and textile fiber programs. These three

programs explore the areas of green materials, photonics materials, bio materials, energy materials, nano materials, and textile materials from a microscopic level. The developments in these respective areas are all reliant on the applicability of the most fundamental research of molecular science and engineering.

The fact that the development in the applications of DSSC occurred in this department is no small coincidence. With a history of textile engineering, researchers in the Molecular Science and Engineering Department have a unique understanding of the properties and uses of dye which enabled their advancement in the research of DSSC. Only time can tell what other kinds of groundbreaking research would be presented to the world from the molecular science and engineering department at Taipei Tech.



DSSC module successfully powering an electronic tag

Wish you have a great day ahead,

A handwritten signature in black ink, reading "Wenlung Li". The signature is written in a cursive, flowing style.

President

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