Newsletter of YunTech

National Yunlin University of Science & Technology
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Latest News

The Pride of Taiwan: Distinguished Chair Professor Shu Chi Min wins prestigious NATAS 2017 Mettler Toledo Award

NATAS (North American Thermal Analysis Society) has announced that the winner of the 2017 Mettler Toledo Award is the Deputy Principal of YunTech, Shu, Chi Min, also a Distinguished Chair Professor in the Department of Safety, Health and Environmental Engineering. This award represents the highest honor in the international thermal analysis academia. Deputy Principal Shu attended the award ceremony personally on August 10, 2017 (US time) and received the award from Mettler-Toledo representative Dr. Kevin P. Menard. The Mettler Toledo Award was established by NATAS in 1968 to recognize distinguished achievements in the thermal analysis academic research. Deputy Principal Shu is the fourth winner of Chinese background to be awarded the Mettler Toledo Award since its establishment 50 years ago.

Our Deputy Principal Shu, Chi Min receives his award from Mettler-Toledo representative Dr. Kevin P. Menard.

Deputy Principal Shu, Chi Min is the only award winner this year. As his outstanding achievements and his efforts in founding the Process Safety and Disaster Prevention Laboratory, which has contributed significantly to the practice field, are highly recognized by the Society, he was invited to give a Plenary Speech. His supervising Ph.D. student Wang-Bin Lai was

awarded the Student Travel Award by NATAS. This is a great affirmation of Deputy Principal Shu's long-term effort and contribution in the thermal analysis field.

Deputy Principal Shu obtained abundant practical experience while he was in the United States. Upon his return to Taiwan, he devoted himself to academia and founded the "Process Safety and Disaster Prevention Laboratory". He is dedicated to chemical engineering-related disaster research. He has made outstanding contributions to both the academic and industrial community through his research achievements in hazardous substance thermal decomposition and runaway reaction, and the flammable and explosive characteristics of explosive substances. He is considered an extremely experienced scholar in both the international and domestic safety and disaster prevention academia.

NATAS Conference Chairman Steve Sauerbrunn congratulates Deputy Principal Shu, Chi Min

Delegation from Indonesian Semarang State Polytechnic visits YunTech and signs sister school partnership agreement

In accordance with the government's New Southbound Policy, YunTech has worked vigorously to enhance academic cooperation and exchange with Indonesia. On September 14, delegations of our Indonesian sister school Semarang State Polytechnic and representatives from four of their alliance schools (University of Muhammadiyah Semarang, University of Muhammadiyah Bengkulu, Bali State Polytechnic, and University of Jendral Soedirman Purwokerto) paid a visit to our school. All four alliance schools have signed sister school agreements with YunTech for future partnership. Principal Neng-Shu Yang, Vice Principal Chwen-Tzeng Su, Dean of International Affairs Shi-Chang Tseng, Deputy Dean of International Affairs Wei-Te Liu, Group Leader Po-Yu Kuo, and Chairman of the College of Management Cheng-Hsui Chen all attended the signing ceremony. The delegation also discussed potential exchange visits and short-term academic programs with the Department of Business Administration and Department of Finance.

Four alliance schools sign sister school agreement with YunTech for future partnership

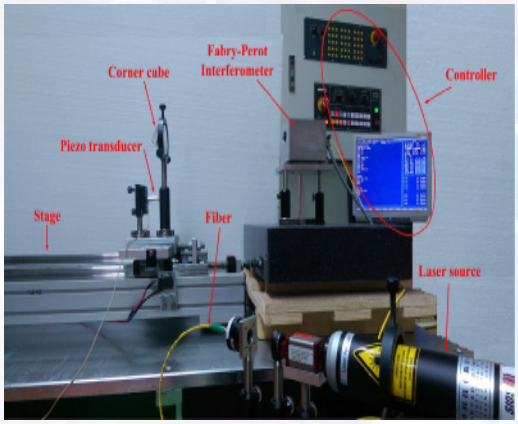
In order to allow the visitors to gain an in-depth understanding of the campus, the School also arranged for an on-campus hot spot guided tour. The tour included the library and art center, which showcases the School's abundant cultural and artistic heritage. In addition to extending friendly contacts with our sister school Semarang State Polytechnic, it is the School's sincere hope that our new partnership with its alliance schools can also flourish into fruitful developments in the future. We are confident that the delegation departed with a wonderful impressions given our passionate reception personnel and the bountiful academic exchanges that took place.

YunTech signs the agreement with University of Muhammadiyah Semarang

YunTech wins 1 Gold, 2 Silver at the Pittsburgh Invention & New Product Exposition (INPEX)

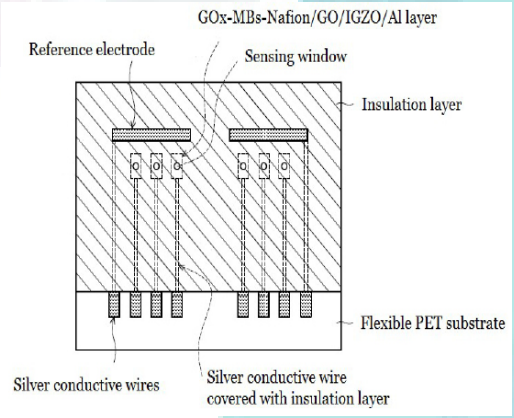
The Invention & New Product Exposition (INPEX) was held from 13 to 15 June 2017 in Pittsburgh, United States. Considered the Oscars for inventors, the invention is hosted in three places: Pittsburgh (United States), Nurnberg (Germany) and Geneva (Switzerland). This year, YunTech won 1 Gold and 2 Silver at the 2017 INPEX in Pittsburgh.

Among all the products that represented YunTech in the exposition this year, Gold was awarded to “Multi-interferometric displacement measurement system with alternative measurement mirrors” designed by Dr. Wang, Yung-Cheng from the Department of Engineering. His research team included Shu, Li-Hon, Chang, Chung-Pin, Dong, Bi-Zheng and Huang, Jhen-Ling. This common-path shift determination system has a technological resolution level that has reached nanometer scale. It has a high measuring range and is advantageous for its environmental interference resistance and mirror tilting mechanism, which are convenient for its application in the precision machinery industry.



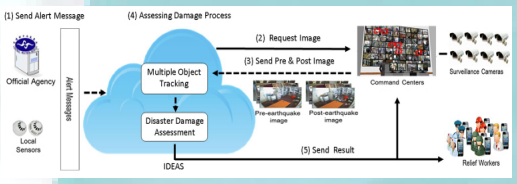
“Multi-interferometric displacement measurement system with alternative measurement mirrors” designed by Dr. Wang, Yung-Cheng

One of the two silver awards were won by Dr. Chou, Jung-Chuan of the Department of Electronics and his research team that included Huang, Min-Xiang, Liao, Yi- Hung, Lai, Zhi-Xian, Chen, Chien- Hsiun, Chuang, Po-Yang and Yan, Siao-Jie). Their awarded project is titled “Glucose sensor, the manufacturing method and package structure with micro-fluidic channel”.



“Glucose sensor, the manufacturing method and package structure with micro-fluidic channel” designed by Dr. Chou, Jung-Chuan

The other silver was awarded to Dr. Chu, Tsung-Hsien from the Department of Computer Science and his research team (Wu, Chong-Zhi and Huang, Pin-Jui) for their project “Active Indoor Disaster Surveillance and Response System.” By adopting image processing technology, this design is able to actively identify the condition of the disaster indoors and determine its intensity by correspondance to the Mercalli intensity scale. With a 97.6 % level of accuracy, their invented system can be successfully integrated with existing surveillance systems.



“Active Indoor Disaster Surveillance and Response System” designed by Dr. Chu, Tsung-Hsien

YunTech's R&D achievements shine again at the Japanese Invention Expo

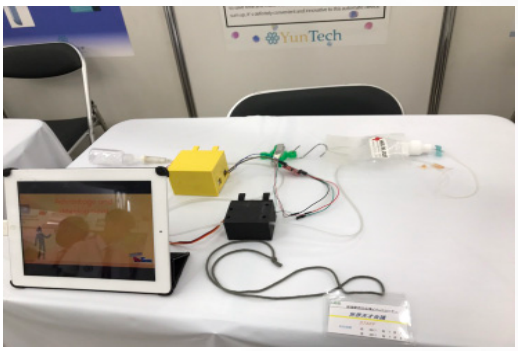
As the 31st World Genius Convention and Education Expo unfolded, news of victory was again delivered from Tokyo, Japan. Among all 5 inventions that YunTech had put forward at the exhibition, we received an amazing 3 Gold, 2 Silver and the Best School Award.

The first of the three Gold awards was won by Dr. Ho Chian-Cheng from the Department of Electrical Engineering and his research team that included Wang, Kuan-Chieh and Ho, Ming-Che. They designed the "Infrastructureless augmented reality path navigation and push advertisement wearable device." This design resolves the integration issues that traditional two-dimensional and three-dimensional virtual map navigation models or graphic information models encounter. As a result of typically encountered integration issues,users are prevented from accurately experiencing or perceiving the real world through navigation. These issues may also cause negligent or peril accidents. This design is suitable for various indoor wearable path navigation applications, such as location guidance, event guidance, product search and guided social meetings. This product can also be applied to various indoor wearable push ad application devices, such as attraction information, campaign promotion, store marketing, and social networking.

Photo of YunTech students Kuan-Chie Wang and Yi-Ting Kuo taken at the event

The second Gold was awarded to Dr. Lu, Hsueh-Yi from the Department of Industrial Management and his research team (Kuo, Yi-Ting and Cheng, Ping-Jui) for their design "Smart Drainage of Control System". Patients usually require health monitoring immediately upon hospitalization. Adjustment to the amount of inflow and outflow fluids is usually required according to the patient's actual health condition. A roller clamp is usually used by medical practitioners to control the amount of fluids. However, as this device requires manual adjustment based on personal experience, flow velocity may not be accurate, and the adjusted outcome may not be in line with what is intended, thereby increasing the risk of danger to the patient.

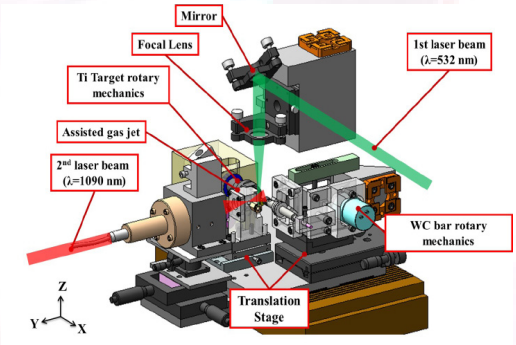
By operating a remote via a mobile device to control the flow of the drainage tube, the new design enables the drainage system to be more intelligent. Through this device, we are able to assist patients by controlling flow velocity appropriately. Physicians and paramedics are able to understand drainage condition and gain control of the drainage tube directly by accessing the mobile device. Physicians can adjust the flow accurately based on patient condition, and paramedics are able to save time and plan a sophisticated routine, in order to achieve a "Smart Drainage Control System".



Dr. Lu, Hsueh- Yi's "Smart Drainage Control System"

The third Gold award was won by Dr. Chang, Yuan-Jen from the Department of Engineering and his research team that included Hsu, Jin-Chen, Ho, Chao-Ching and Kuo, Chia-Lung for their project titled "Material supply method in laser cladding". The aim of this design is to create a laser cladding device that is able to supply the covering material directly inside the nozzle. This design has the advantages of possessing a better laser cladding effect, it is flexible in that it allows for a match with a bias electrical field and solenoid coil, and it has the ability to supply the covering material directly within the nozzle. In particular, this design aims to resolve the problem of low laser usage ratio caused by non-

deposited metal powder or ion being blown out of the deposited area (restrictions of traditional devices). It also does not need an extra second ray of laser and high-frequency RF arc discharge and it does not create bias circuits or other technical issues.



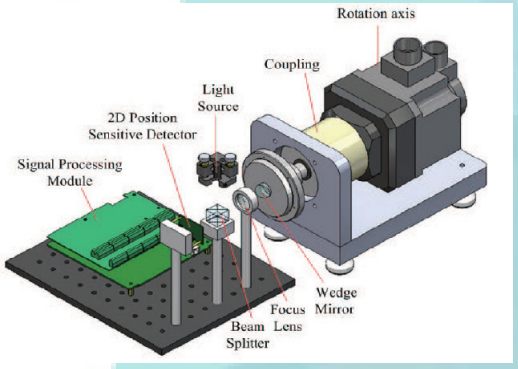
"Material supply method in laser cladding" designed by Dr. Chang, Yuan-Jen

Two silver prizes were awarded to Dr. Wang, Yung-Cheng from the Department of Engineering and Dr. Chen, Hsi –Chao, from the Department of Electronics, along with their respective research teams, namely Shu, Li-Hon, Chang, Chung-Pin, Dong, Bi-Zheng and Huang, Jhen-Ling and Lin, Yu-Feng, Chong, Wang-Ling, Chen, Ting-Yun, Yen and Ming- Hsien. Their awarded works are titled "Multi-beam interferometric displacement measurement system utilized in the large measuring range" and "Skin Tester".

YunTech shines at Russian Invention Expo with 2 Gold, 1 Silver

The 20th Russian Archimedes International Invention Expo was held in Moscow from 16 to 19 May, 2017. Participants came from 20 countries and brought along 750 competing designs. For the three competing designs that YunTech put forward this year, we have been awarded 2 Gold and 1 Silver prize. This tremendous victory symbolizes the collective innovation and invention capabilities of our teachers and students.

One of the two gold prizes was awarded to Dr. Wang, Yung-Cheng from the Department of and his research team that included Lin, Jui-Cheng, Shu, Li-Hon, Chang, Chung-Pin, and Huang, Jhen-Ling for their invention "Precision Rotating Angle Measuring System". Through optical inspection, this rotary angle measuring tool improves the measuring error that is easily caused by assembly of the traditional rotary encoder. This rotary angle measuring tool is easy to set up and prevents measuring errors caused by eccentricity. The other gold award was won by Dr. Wu, Tzi-Yi from the Department of Chemical and Materials Engineering and hisresearch team that imcluded Kuo, Chung-Wen, Huang, Yu-Ting, Jiang, Meng-Hsin, Dong, Yi-Xuan and Lee, Bo-Yin for the creation of adopting tricarbazole benzidine and dithiophene carbazole copolymer as electrochromic anode materials and its application to long-term conversion stability and a high optical contrast intelligent window. "Bian lian" of the Sichuan Opera is a unique technique where performers change their vividly colored masks almost instantaneously on stage with a swipe of a fan, a movement of the face or their costumes. This electrochromic product has a similar feature like the Sichuan face-changing illusion but the difference is that it is able to change into 3 or more colors instantaneously. By applying a small amount of power, this object can change into many different colors right before your eyes, and the color change is reversible.



Gold Prize -"Precision Rotating Angle Measuring System" designed by Dr. Wang, Yung-Cheng

A Silver prize was awarded to "Crystalline-Silicon Solar Cells with Silicon-Germanium Films" that was designed by Dr. Lin, Jian-Yang from the Department of Electronics and his research team that included Lin, Yi-An, Wu, Eden and Shen, Bo-Xuan). This technology uses metal to induce crystallization for producing poly-Ge thin films and a P+ type silicon, in order to form single crystalline germanium/P+ silicon/poly-Ge heterojunction solar cell. In addition to improving battery conversion efficiency, this technology does not require expensive and high-risk gases and has the advantage

of a simple production process. By applying this technology to general silicon solar cells on the market, it promotes its generation performance and product value.

In addition to devoting ourselves to academic research, YunTech also has the vision of “Industry-Academy Conjunctive Innovation”. By strengthening our cooperation with the industrial circle, we hope to promote the development of industrial automation, and commercialize the award-winning designs that our teachers and students have put forward at domestic and international invention competitions.

International Exchanges

Delegation of the Thailand Higher Education Commission and Incubators Alliance visits YunTech to promote international incubation exchange and cooperation

In response to the Thailand 4.0 policy, delegations from the Thailand Higher Education Commission and Incubators Alliance management representatives visited the YunTech Incubation Center for Academia-Industry Collaboration and Intellectual Property on June 15. Both parties made in-depth exchanges in the discussion of “Incubation Counselling: OTOP (One Town One Product)”.

Chang Chuan-Yu, Dean of the Research and Development Division introduces YunTech

Delegations from the Thailand Higher Education Commission visited Taiwan, along with 13 Incubators Alliance management representatives. They attended the Sixth Taiwan-Thailand Higher Education Forum in Taiwan on June 13 at the Tainan Cultural and Creative Industrial Park on June 14 and YunTech on June 15. The theme of the visit was “Incubation Counselling: OTOP (One Town One Product)”, with an aim to observe and learn how Taiwanese incubators provide different counselling support to various industries. After careful selection, stationed enterprises Hondou Taiwan Specialty Coffee was selected as the location of this visit. In his presentation, Mr. Chang Chuan-Yu, Dean of the Research and Development Division, showcased our abundant academic research achievements and case studies regarding customized counselling that the Business Incubation Center provides to various Yunlin townships. Mr. Ping-Yi Yang, Management Representative of Hondou Taiwan Specialty Coffee, presented the existing industrial circumstances and specific mentoring support received from the Business Incubation Center. Both parties engaged in dynamic interactions and exchange of counselling and industrial experiences, which contributed to a friendly and warm atmosphere.

Interactions and exchange among YunTech Incubation Center for Academia-Industry Collaboration and Intellectual Property, Hondou Taiwan Specialty Coffee, and Delegations from the Thailand Higher Education Commission

Mr. Chang Chuan-Yu said, as a premier technological university in central Taiwan, YunTech has a wealth of resources for academic research that serves as powerful support for small and medium size businesses. The Business Incubation Center has devoted itself vigorously to local traditional industries by providing

customized counselling according to specific industrial features. This event provided an opportunity for the exchange of international business incubation experiences and both parties benefited tremendously from the exchange. As the school's Industry-Academia Research Building is expected to be completed by end of year, it is the school's sincere hope to attract more stationed businesses to demonstrate the superior quality and professionalism of our academics in leading industries to prosperity.

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