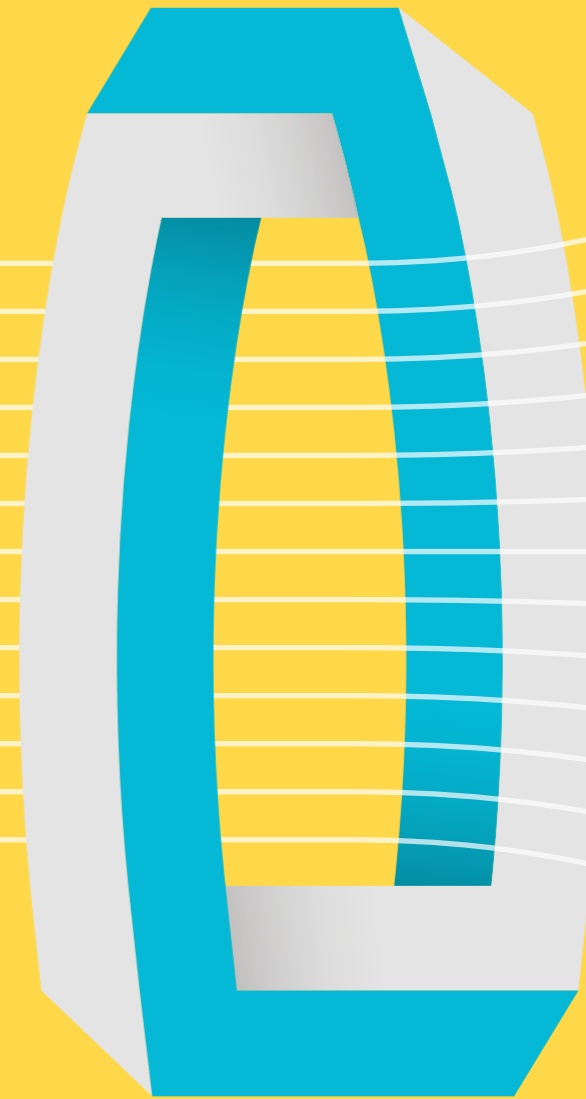


# I'M POSSIBLE

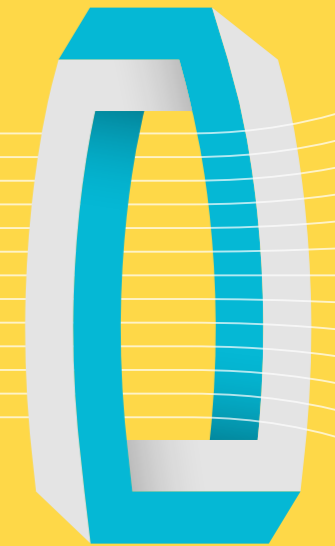
# I'M POSSIBLE



# I'M POSSIBLE

創新在我，就有可能！

# I'M POSSIBLE



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# INTRODUCTION OF 2019 LITE-ON AWARD

## 2019 光寶創新獎前言

2019 年的光寶創新獎在合作企業夥伴默克 (Merck)、英飛凌 (Infineon) 共同推動下，許多優秀的創新作品脫穎而出，利用最新科技改善目前社會環境所面臨的問題與挑戰。今年共收到來自全球各地超過 1,100 組作品爭奪金賞桂冠，單組首獎獎金為新台幣 40 萬元。本屆入圍作品多聚焦在數位醫療、智能生活、智慧城市三大領域，從現有生活問題出發，發揮「I'M POSSIBLE 創新在我、就有可能」的競賽精神，為人類未來生活注入進步的原動力。

本屆技術創新組金賞作品為來自清華大學團隊所設計的《搭配手機辨識軟體之 C 反應蛋白紙基檢測試片開發》，可檢測全血中 C 反應蛋白濃度的紙基檢測試片，搭配其試片的手機應用程式，讓使用者迅速且方便地了解身體狀況。銀賞作品為工業技術研究院與台灣科技大學所共同設計的《鮮度感測器》，運用無線感測器與人工智慧測量食物新鮮的程度。銅賞作品為南臺科技大學《新型助聽器解決方案》，以即時語音降噪的深度神經網路 AI 技術進行語音重建，改善現有助聽器無法處理多重人聲的問題。

設計創新組由明志科技大學《RESEW'S 永續布料銀行》摘下金賞桂冠，該設計讓衣物生產過程中產生的不規則廢布料透過 AI 影像分析，被有效的歸納與利用，並結合自動化倉儲系統與大數據應用，使用者可簡便快速的買賣廢布料，使廢布料有效再利用，落實永續概念。設計創新組銀賞作品為實踐大學《兒童氣喘保衛戰》，整合兒童氣喘產品與照護系統，以趣味的方式讓孩童學習控管氣喘疾病，並且讓家屬以及醫生可精準掌握病症以急用藥狀況。銅賞作品為台灣科技大學《智能護手》，裝置設有肌肉偵測感測器，結合專屬 APP 紀錄手部的施力狀況，適時發送警訊，可預防患者手部病情惡化的情況發生。

為了提供國內設計愛好者接軌國際的最新趨勢，光寶創新獎每年邀請來自全球的專家來台演講，今年以「體驗設計·共創科技新未來」為題，邀集微軟醫療事業體首席設計師 Moni Wolf、Frog Design 執行創意總監呂奇昇與美國麻省理工學院包盛盈博士與聽眾暢談如何在創新過程中導入體驗設計，進而實踐科技產品對人們生活的意義與價值。

光寶科技每年透過舉辦「光寶創新獎」，結合競賽、校園創新講座以及國際論壇等活動，持續推動全球華人對於科技產品與創新設計重視，提供青創團隊在台灣就能與國際一流企業、學術、技術專業以及社會資源接軌的平台。光寶期望藉由這一系列活動養成年輕世代積極參與科技領域的創新力，縮短學用落差、增加其就業競爭力與機會，鼓勵青年創新設計者能朝向高附加價值的潛力市場發展。

LITE-ON Group again joined hands with Merck and Infineon to host the competition. Many outstanding and innovative works were recognized in the Award. The participants employed the latest technologies to address current issues and challenges in the society and environment. This year, more than 1,100 works from around the world competed for the grand prize. The first prize for each category was NTD 400,000. Entries this year mostly included digital health, smart living and smart city applications. The solutions addressed existing issues in modern life and they embraced the spirit of "I'M POSSIBLE" of the contest to help power human advancement.

The Gold Award in the Technology Innovation Category this year was awarded to the "Paper-Based C-Reactive Protein Device with Mobile Phone Software" which detects the level of C-reactive protein in blood and uses the mobile app for the tester to provide the user with quick and convenient access to information on the state of their health. The Silver Award was awarded to the "Food Polygraph" designed by the Industrial Technology Research Institute and National Taiwan University of Science and Technology. The solution uses wireless detectors and artificial intelligence to measure the freshness of food. The Bronze Award was awarded to the "Novel Hearing Aid Solution" which uses deep learning neural networks and AI technologies to achieve real-time audio noise-cancellation and audio reconstruction. It resolves the issue of the inability of existing hearing aids to process multiple human voices.

The Gold Award in the Design Innovation category was awarded to the "RESEW'S Fabric Sustainable Banking." The design uses AI image analysis to analyze irregular waste fabrics produced in the manufacturing process of clothes and implements effective classification and usage. It also makes use of the automatic warehousing system and big data applications for users to trade waste fabrics quickly with ease and thus facilitate the effective reuse of waste fabric and promote sustainability. The

Silver Award was awarded to Shih Chien University's "Kid's Asthma Defense" which integrates children's asthma products and healthcare system to teach children how to control and manage their asthma issues in a fun manner. It also helps family members and doctors gain precise control over their symptoms and medication usage status. The Bronze Award was awarded to "Handicare" from National Taiwan University of Science and Technology. The device is equipped with muscle detectors and a dedicated app which records the force exerted by hands and send alarms at appropriate times to prevent hand conditions from worsening.

To provide design lovers in Taiwan with the latest international trends, LITE-ON Award invites experts from all over the world to give speeches in Taiwan each year. The theme this year was "UX Design: New Future for Technology." We invited Moni Wolf, Principal Designer of Microsoft Healthcare; Chaz Lu, Frog Design Executive Creative Director and Dr. Sheng-Ying Pao from Massachusetts Institute of Technology to discuss with audience on how to introduce UX design into innovative process and create meaning and value of technologies and products for humans.

LITE-ON Award each year hold contests, campus seminars and international forums to push forward advance technologies and innovative designs in global Chinese community. It provides young creative teams with a platform where they are able to exchange ideas with international top-notch corporate, academic, technical experts and social resources in Taiwan. Through these activities, LITE-ON hopes to encourage the younger generation to actively participate in technology innovation, reduce the gap between their studies and their occupations, increase their competitiveness and opportunities in the labor market, and inspire young innovative designers to pursue careers in high value-added potential markets.

光寶集團董事長  
宋恭源

宋恭源

# WORDS FROM THE CHAIRMAN OF LITE-ON GROUP

## 光寶集團董事長期許

光寶創新獎從 2000 年開始舉辦到現在，秉持著「取之於社會、用之於社會」與「飲水思源」的初衷，讓光寶集團在追求永續經營的同時，也成為社會的資源。舉凡對創新技術應用與設計領域有興趣的學生、青年創意家或一般人士皆可報名參與，期許「光寶創新獎」成為全球華人創新設計者展現創意和才華的舞台。

非常感謝合作夥伴默克 (Merck) 連續六年、英飛凌 (Infineon) 連續二年共襄盛舉，攜手邀請全球有設計與技術專長的創新者們，發揮「創新在我、就有可能」— "I'm Possible" 的精神，運用科技解決人類重要的問題。兩家全球領導企業不但設立企業特別獎，更動員多位資深主管們參與今年十多場校園講座，無私地分享最新的產業前瞻資訊給台灣上千位師生，也讓所有與會者獲益良多。

光寶創新獎也非常榮幸，今年第五度與科技部「創新創業激勵計劃」(FITI) 合作，讓入圍選手有機會接受國內最好的培訓，將創新想法商品化，甚至獲得百萬創業獎金，接軌創業。光寶創新獎同時邀請了國內外具權威性的新創、技術、設計專家擔任評審，讓青年創新團隊透過參賽，就能與一流的企業、學術、技術專業以及社會資源交流。

光寶深信創新是人類未來生活進步的動能，希望每一位經歷重重關卡、脫穎而出的創新設計師們，都能突破藩籬、發揮創造力，勇於實現創新的想法，發展成出眾的產品、甚至成立品牌、公司。

The LITE-ON Award have been held since 2000. The Company upholds the ideals of "giving back to the society"; therefore, LITE-ON Group devotes itself to transforming the company into resources for the society as we pursue sustainable development. The LITE-ON Award opens to students, young designers, and anyone interested in creative technology applications and innovative designs. We hope to create opportunities with the award for innovative designers in the global Chinese community to express their creativity and talents.

I am very grateful for our partners, Merck and Infineon, for their continuous support. This year, we again joined hands with Merck and Infineon inviting innovators with design and technical expertise from across the world to embrace the spirit of "I'M POSSIBLE" and use technologies to resolve key issues for mankind. The two global leaders have established Enterprise Special Awards and mobilized many senior executives to join in more than ten campus seminars. They generously shared the latest information and insights in the industry, enlightening thousands of students and teachers in Taiwan.

The LITE-ON Award is also honored to take part in the fifth collaboration with the "From IP to IPO Program (FITI)" of the Ministry of Science and Technology this year. We provide candidates with access to the best training in Taiwan, helping them commercialize their innovative ideas and even win million-dollar startup funding to create their businesses. LITE-ON Award also invited authoritative experts in innovation, technology, and design from home and abroad to serve as judges and allow young innovative teams to participate in the contest and exchange ideas with world-class corporate, academic, technical experts and social resources.

LITE-ON firmly believes that innovation powers the advancement of human future. We hope that each innovative designer, after winning their place by passing numerous tests, can break through barriers and use their creativity to fulfill their ideas for innovation, develop outstanding products, and even establish brands and companies.



**黃育賢 | Yuh-Shyan Hwang**

國立臺北科技大學特聘教授兼電資學院院長  
Dean of College of Electrical Engineering and Computer Science,  
National Taipei University of Technology

1996年獲得國立臺灣大學電機工程博士學位，2003年加入國立臺北科技大學電子工程系，於2011~2017年擔任國立臺北科技大學教授兼電子工程系主任，目前為國立臺北科技大學特聘教授兼電資學院院長。黃教授已經發表超過100篇國際期刊及研討會論文。並於2017年榮獲IEEE TRANSACTIONS ON VLSI SYSTEMS 最佳副主編獎，於2018年榮獲IEEE ACCESS 傑出副主編獎。

Yuh-Shyan Hwang received the Ph.D. degree from the Department of Electrical Engineering, National Taiwan University in 1996. He joined the Department of Electrical Engineering, National Taipei University of Technology in 2003, where he was a Full Professor and served as the Department Chair from 2011 to 2017. Now he is currently a Distinguished Professor and serves as the Dean of College of Electrical Engineering and Computer Science. He has authored over 100 international SCI journal and conference papers. Dr. Hwang is a Technical Program Committee member of the VLSI Design/CAD Symposium in Taiwan. Then he obtained the Best Associate Editor Award of IEEE TRANSACTIONS ON VLSI SYSTEMS in 2017 and the Outstanding Associate Editor Award of IEEE ACCESS in 2018.



**林啟萬 | Chii-Wann Lin**

工研院生醫與醫材研究所所長  
Vice President and General Director in Industrial Technology  
Research Institution

林所長於美國凱斯西儲大學獲得醫學工程博士，畢業後加入臺灣大學醫學院醫學工程研究中心，之後為專任醫學工程學研究所教授。任職臺大期間曾任臺大工研院合設奈米研究中心主任，以及陽明大學醫工所兼任副教授，研究方向涵蓋神經系統工程、醫用微感測元件與系統、醫療光電及醫療器材品質驗證系統。由此可知，林所長於產學研領域均具備豐富經驗。

Director Lin received a Ph.D. in medical engineering from Case Western Reserve University. After graduation, he joined the Medical Engineering Research Center of National Taiwan University School of Medicine, and later served as a professor at the Institute of Medical Engineering. During his tenure at National Taiwan University, he served as Director of the Nano Research Center of the National Taiwan University and the Associate Professor of the Yangming University Medical Institute. His research interests include neurological engineering, medical micro-sensing components and systems, medical optoelectronics and medical equipment quality verification system. Director Lin has extensive experiences in the field of industry, academia and research.



**蔡慶祥 | Fred Tsai**

中經合台灣辦公室副總經理  
Vice President, WI Harper Group

蔡慶祥先生具有台灣大學電機工程碩士與物理學士學位，為中經合台灣辦公室副總經理，擁有超過12年以上產業投資、運營及公司治理策略規劃經驗，涉獵領域橫跨半導體、材料以及多種科技項目。加入中經合集團之前，蔡慶祥先生曾任職華威國際創投(CID Group)，負責PE與VC投資業務，投資領域專注在半導體、物聯網、雲計算與大數據、AI與深度學習、機器人等產業，致力於投資與產業資源連結，同時參與新創公司經營與管理。在此之前蔡先生服務於工研院(ITRI)、美國IBM Almaden研究中心，爾後加入宏達國際電子(HTC)。

Mr. Tsai holds a M.S. in Electrical Engineering and B.S. in Physics from National Taiwan University. As a Vice President at WI Harper based in the Taipei office, he has more than 12 years of experience in investments, strategic business and management, and operations in industry. Prior to joining WI Harper Group, Mr. Tsai worked at CID Group in Taiwan, where he was responsible for VC/PE investments in TMT sector covering semiconductor, IoT, robotics, cloud computing, artificial intelligence and green technologies. He also engaged in portfolio company management by leveraging cross border industry resources to provide operational added value to companies. Previously, Mr. Tsai served at ITRI and IBM Almaden research center as a research fellow engaging in technology development of spintronic memory, and later he joined HTC, responsible for smartphone project management in engineering.



**黃文正 | Vincent Huang**

光寶科技光電事業群研發處處長  
Director, R&D Division, Optoelectronics Product Solution SBG,  
LITE-ON Technology Corp.

黃文正於光寶科技光電事業群擔任研發處處長，負責先進光電半導體元件和模組產品研發、光機電熱技術與產官學合作平台建立，以及新進人員招募與人才培訓。黃處長在2003年於國立台灣大學化學工程學系取得博士學位，致力於光電元件和模組相關技術的研發工作超過十五年，擅長於電腦、通訊、消費性電子和車用等4C產品光電元件的應用設計，擁有超過100件發明專利。曾出任工研院光電技術顧問委員、智慧財產局與標準檢驗局審查委員、經濟部技術處調和會光電技術委員，協助訂定國家光電相關標準。

Dr. Huang serves as director of Research and Development (R&D) in Optoelectronics Product Solution SBG. He is in charge of the advanced research and development of optoelectronics device and module; building the platform of optical, mechanical, thermal and electronic technology; partnership of industry-government-university; recruitment and training of R&D talents. Dr. Huang obtained his Ph. D in Chemical Engineering from National Taiwan University, Taiwan, in 2003. Afterwards, he dedicates himself to the optoelectronic industry and focuses on the research and development of optoelectronic devices and modules over 15 years. He is good at the applications of optoelectronic devices in computer, communication, consumer electronics and car electronics. He holds over 100 patents. He served as an optoelectronics consultant for ITRI, Intellectual Property Office, Bureau of Standards, Metrology & Inspection, and Department of Industrial Technology of MOEA to help to establish national standards of optoelectronics products.



**包盛盈 | Sheng-Ying Pao**

美國麻省理工學院博士  
Doctor of the Massachusetts Institute of Technology

包盛盈是美國麻省理工學院博士，連續兩年思科院士(MIT Cisco Fellow)得主，MIT首位PhD Arts Scholar，並獲選為Adobe Creative Thinker。她曾創立兩家公司，結合賽局理論與人機互動等應用於金融與健康產業，分別被Bank of America技術轉移及被Google等企業併購，爾後擔任跨國集團之創新策略總監，受邀出任美東玉山科技協會理事，同時於麻省理工學院授課。此外，她近年結合現代科技與創新藝術設計，獲得多項國際設計大獎，包括iF設計獎、德國紅點設計獎、麻省理工學院TechX創新大獎、英國倫敦Best Design of the Year 2014等。

Dr. Sheng-Ying Pao is an award-winning innovator and serial entrepreneur. Her creations, integrating AI, art, and design, have been acquired by companies, including Google and Bank of America. She has been invited to serve on the board of various companies, to mentor startups, and direct innovation strategy that led to international partnerships and startups across Asia and the US. Pao received her PhD from MIT. She was named the MIT Cisco Fellow for two consecutive years and was selected as the MIT Arts Scholar. Her work, integrating technology innovation and artistic expression, has been invited and featured in international shows and museum exhibitions. She is honored as the Adobe's Creative Thinker, one of the only four scholars from MIT featured in a documentary series on extraordinary innovators around the world.



**胡佑宗 | Hugh Hu**

唐草設計創辦人 & 總經理  
Founder & President of NDD Design Tainan

胡總經理擁有臺灣成功大學工業設計系、德國柏林藝術大學工業設計系 Diplom Designer 學位，現任唐草設計 NDD Design Tainan 總經理、亞洲設計連 (TDAA) 會員。2008 年起擔任國立臺灣工藝研究發展中心多門工坊之設計講師，以現代設計觀點啟發臺灣的工藝潛力。同時也是臺灣重要設計策展人，聚焦在臺灣生活美學與工藝設計發展趨勢上，透過策展、各種跨領域交流與自有品牌之籌設，嫁接起現代設計與本土文化脈絡之關連。

Hugh Hu is the president of NDD Design Tainan. He graduated from National Cheng Kung University in Industrial Design and received Diplom Designer from Berlin University of the Arts. Hugh Hu is also a member of TDAA. He has been a teacher in National Taiwan Craft Research and Development Institute since 2008, and shared his unique insights to inspire the potential of the craft design in Taiwan. He is also an important curator in many Taiwanese design exhibitions. He has been devoted himself to life aesthetics and industrial design development in Taiwan. Through exhibitions, multi-cultural communications and private brand management, Hugh has built a close connection between modern design and local culture.



**陳啟亮 | Charles Chen**

大予創意設計策略總監  
Strategy Director, AJA creative

現為大予創意設計策略總監，台灣使用者經驗設計協會理事長，實踐大學工設系講師。專長領域在於資訊環境中的消費者、用戶、市場與媒體研究、傳播行銷策略以及資訊架構與介面設計。歷經過網路社群與媒體、資訊系統整合、數位行銷、廣告媒體、體驗設計等不同產業。因此，他擅長交錯著用「使用者」「消費者」「閱聽人」「公民」「顧客」的不同觀點與方法來探究同一件議題。

Charles Chen is now the Strategy director of AJA creative, the Chairman of Taiwan User Experience Design Association and the lecturer of Shih Chien University Industrial Design Department. His expertise is in studying the consumer, user, marketing and media research, communication strategies, information architecture and interface design in the information environment. He has worked through different industries for 20 years, such as internet community and media, information system integration, digital marketing, advertising media, and experience design. Therefore, he is good at using the different topics and methods of "users," "consumers," "listeners," "citizens" and "customers" to explore the same topic.



**簡大為 | Dave Chien**

奇想生活股份有限公司董事  
Board Director, THAT Innovations

台灣工業設計師，歷練消費性電子與國內外設計服務產業，具有豐富的設計實務以及品牌與設計顧問輔導經驗。長期擔任政府技術人與民間企業之設計創新顧問，個人專長為商業模式創新、品牌與設計管理、設計策略、使用者經驗 UX 與設計思考引導，致力於將設計思考融入企業經營策略，以需求導向的創新流程為品牌發展開創新契機。曾獲 iF 國際論壇設計獎、德國 Red Dot 紅點設計獎、美國 IDEA 設計獎、日本 G-mark 等四大國際獎項。

As the founder of Mistolab, Dave Chien has the experiences in consumer electronic and design industry in Taiwan and abroad. Moreover, he is full of design practice, branding and design consultant experiences. His specialties are branding and design strategies, design management, UX design, and design thinking guidance. He dedicated himself to combining design thinking into business operation strategies and opened new opportunities for brand development with demand-oriented innovative process.

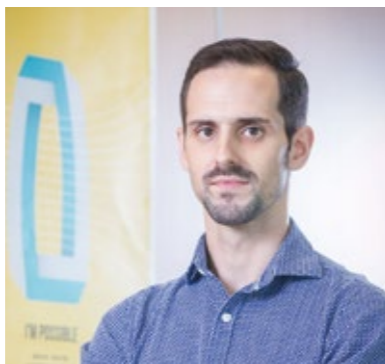


**李盛弘 | Sheng-Hung Lee**

復旦大學上海視覺藝術學院副教授  
Adjunct Associate Professor,  
Shanghai Institute of Visual Arts, Fudan University

李盛弘是一名產品體驗設計師、創客與復旦大學上海視覺藝術學院副教授。其背景是工業設計和電機工程，他熱衷於研究設計及技術在生活中的實踐運用及其所帶來的社會影響力。此外，他還曾受邀擔任諸多國際設計競賽評委，包括 IDEA、Spark Design Award、IDA 和 A'Design Award and Competition。李盛弘擁有台灣國立成功大學工業設計學系和電機工程學系雙學士學位。他的設計作品曾贏得 IDEA 金獎、德國百靈設計獎、美國 Core77 設計獎、德國 Red Dot (Best of the Best)、Spark Design Award、歐洲產品設計大獎金獎和德國 iF 獎在內的諸多獎項。

Sheng-Hung Lee is an industrial and product experience designer, maker and an adjunct associate professor at Shanghai Institute of Visual Arts, Fudan University. He is trained as an industrial designer and electrical engineer, and his approach to problem solving is influenced by his passion for how design and technology impact on and can be integrated into society. He was invited to be a jury for multiple international design competition including IDEA, Spark Design Award, IDA Award and A' Design Award and Competition. Sheng-Hung graduated with a double Bachelor's degree in Industrial Design and Electrical Engineering from National Cheng Kung University. His works have won prestigious awards including IDEA Gold, Braun Prize, Core77 Design Award, Red Dot (Best of the Best), Spark Design Award, European Product Design Award (Gold) and iF Award.



**Oscar Coutinho**

CRE8 DESIGN 資深設計師  
Senior Industrial Designer, CRE8 DESIGN

Oscar 現任 CRE8 DESIGN 資深設計師和人因專家，擁有近 10 年的產品設計和工業設計經驗，曾與 Dell, Corsair, Best Buy 等眾多國際客戶合作，專注在 CMF、設計策略，並擅長產品創新。出身於巴黎，在迷人的城市與文化歷史薰陶下，激發了 Oscar 對設計的喜愛並進入巴黎 Creapole 設計學校，最後取得交通設計碩士學位。他曾在台灣納智捷汽車公司實習，進一步提升在汽車設計方面的專業知識。爾後 Oscar 進入 MIT legend (一個高級家居用品與家用風格之產品公司)，他於這段期間培養了深厚的產業洞察力、設計製造知識以及市場技巧。

With nearly 10 years of experience in product design and industrial design, Oscar is now a senior designer and human factors expert at CRE8 DESIGN, where he works with international clients from various industries including Dell, Corsair, Best Buy and many others. He also specializes in CMF, design strategy, and excels at product innovation. Having grown up in Paris, he was largely inspired by the artistic charm of the city and its cultural scenes, which encouraged his creative spirit and passion for the pursuit of studies in design, earning him a Master's degree in Transportation Design from Creapole Design School in Paris. After his internship at Luxgen Taiwan to further his expertise in automobile design, Oscar then joined MIT legend, a brand of premium housewares and lifestyle products. He has cultivated his abilities in industry insights, design-for-manufacturing knowledge, as well as go-to-market skills.

**官政能 | Cheng-Neng Kuan**

實踐大學榮譽講座教授  
Honorary Chair Professor, Shih-Chien University

官教授於 1980 年榮獲紐約普瑞特學院工業設計碩士學位，其專業領域為設計策略與管理，以及設計理論與創作。經常獲邀擔任海內外知名設計競賽之評審委員，以及為數個企業擔任設計顧問。出版設計專書六本，發表設計論文、論述一百八十餘篇。現任臺灣實踐大學榮譽講座教授，並曾擔任該校副校長 (2008-2017)。於 1992 年創立工業產品設計學系，並擔任創系主任 (1992-1999)。在此期間，又創辦工業產品設計研究所，並擔任創所所長 (1998-2007)。亦曾擔任中華民國工業設計協會會長。

In 1980, Prof. Kuan earned a master's degree in Industrial Design (MID) from the Pratt Institute in New York. His fields of expertise include design strategy and management as well as design theory and creation. Having published various books on design and over 180 research papers and articles, he is an active member of design juries in his home country and internationally. He is also a consultant to major enterprises on product development and design strategy. He is currently an honorary chair professor and has served as the vice president of Shih-Chien University from 2008 to 2017. He founded the Department of Industrial Design in 1992 and served as department chair until 1999. Moreover, he was the founding director of the Graduate Institute of Industrial Design from 1998 to 2007. Also had he held the position of the chairman of the board of Chinese Industrial Designers Association (CIDA).

**Moni Wolf**

微軟醫療事業體首席設計師  
Principal Designer, Microsoft Healthcare

Moni 現任微軟醫療事業體首席設計師。她將自己在設計方面的核心優勢與軟體開發、生物醫學和工程相結合，提供全面的產品體驗。自 2009 年到 2011 年，她是微軟移動平台的首席創意總監，其中包含國際商業合作及用戶體驗合作部門。爾後，自 2011 年到 2014 年，她負責微軟 XBOX 和下一代消費設備的設計開發。在加入微軟之前，Moni 是 Motorola 在美國和歐洲的消費者體驗設計 (CXD) 設計總監。她的早期設計生涯在美國和歐洲，以產品、家具、展覽和建築設計為基礎。

Moni is a Principal Designer for Microsoft Healthcare. She combines her core strength in design with software development, medical science and engineering to deliver holistic product experiences. From 2009 to 2011, she was the Principal Creative Director for Microsoft's Mobile Platform, which includes user experience partner and international business partners. From 2011 to 2014, she led the design development of Microsoft's XBOX and next-gen consumer devices. Prior to Microsoft, Moni was Motorola's Design Director for Consumer Experience Design (CXD) in the US and Europe. Her early design career in the US and in Europe was based on the product, furniture, exhibit, and architectural design.

**呂奇晃 | Chaz Lu**

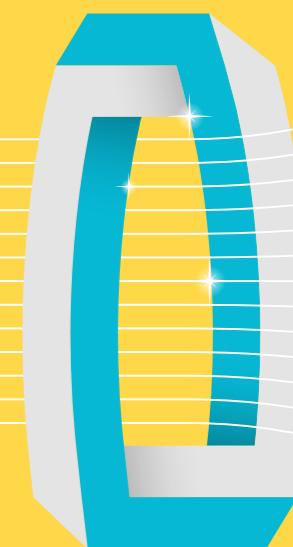
Frog 執行創意總監  
Executive Creative Director, Frog

Chaz 現任 Frog 執行創意總監，在上海協助亞太地區客戶推動設計與商業創新。他曾在阿里媽媽帶領全國創意團隊，透過數據洞察驅動的創意，推動網路廣告創新。在加入阿里媽媽之前，Chaz 打造了 ArcheX，一個專注在食物與數位創新的孵化器。Chaz 與他的團隊在品牌、體驗與組織設計上提供了高度客製化的策略與落地推進，同時將優質的學習機制與創新基因，帶入共事的客戶與合作夥伴之中。在創立 ArcheX 之前，Chaz 曾擔任 IDEO 互動設計主管、在台灣與美國的數位互動設計公司任職。

Chaz is the Executive Creative Director of Frog, who devoted himself to supporting clients of APAC region to implement creative design and business innovation in Shanghai. He used to lead nationwide creative teams of Alimama to carry out groundbreaking online advertisements driven by big data. Prior to Alimama, Chaz founded ArcheX, an incubator for food and digital innovation. Chaz and his team delivered highly customized strategies and effective execution in branding, experience and organization. They also helped their clients and partners to establish outstanding learning system and innovation DNA. Before founding ArcheX, Chaz hold a managing position of interaction design in IDEO and had worked in different digital interaction design companies in Taiwan and the US.

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## 搭配手機辨識軟體之 C反應蛋白紙基檢測試片開發

### Paper-Based C-Reactive Protein Device with Mobile Phone Software

本設計為可以檢測全血中C反應蛋白濃度的紙基檢測試片，並開發搭配其試片的手機應用程式。紙基檢測試片上具有三個不同方向的流道，當檢體滴在試片上後，檢體會在三向流道中形成不同的流動距離，我們可以透過應用程式拍攝試片檢測結果，檢視試片上三向流道各自的長度，並根據長度差別與試片判斷標準以提供血液中的C反應蛋白濃度，讓使用者迅速且方便地了解身體狀況。

This is a paper-based CRP diagnostic device for determining the C-reactive protein level in whole blood associated with the mobile application to both record and analyze the diagnostic result. There are three flow channels with different directions on this diagnostic device. Once we place our whole blood onto this device, the whole blood would flow through three channels and form different flow distances. The mobile application that we have developed helps us to record and analyze the length difference of this diagnostic device. Moreover, it would automatically compare the length difference with the official guideline, and then tell the users their test results, enabling the users to immediately gain insights about their body situations.

設計者 李亭諭、鄭兆珉、李怡姿、王玟心、吳欣芳  
指導老師 鄭兆珉  
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地區 台灣

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## 鮮度感測器 Food Polygraph

鮮度感測器是一無線感測裝置，用於測量食物從新鮮到腐壞的狀態，判斷能否安全食用。使用時僅需將感測端置於食物包裝上，配合無線控制介面取得食物介電係數的雙參數進行分析比對，也能透過雲端系統以人工智慧伺服器來進一步分析比較數據趨勢。此裝置可廣泛應用於製造業品管、物流業監控、零售業販售庫存、消費者家電等各種食品相關產業之智慧物聯網情境。

Food Polygraph is a wireless sensing platform for measuring food freshness. The user only has to put the sensor end onto the food packaging, and both parameters of the dielectric constant can be easily acquired for the content inside via the wireless control interface. The results can then be uploaded to the server in the cloud for further analysis, comparison and pattern recognition by artificial intelligence. This product can be readily used in a wide array of scenarios for the intelligent Internet of Things in the food industry, including quality control in manufacturing, monitoring in transportation and logistics, stocktaking at retailers, appliances for consumers, and so on.

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指導老師	彭盛裕
機構／學校	工業技術研究院 台灣科技大學
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Designer	Chieh-Feng Chang, Zong-Yi Hsiao, Yung-Hsiang Wu, Huang-Shiang Chang
Instructor	Shen-Yu Peng
Institute / School	Industrial Technology Research Institute National Taiwan University of Science and Technology
Area	Taiwan





## 新型助聽器解決方案

### Novel Hearing Aid Solution

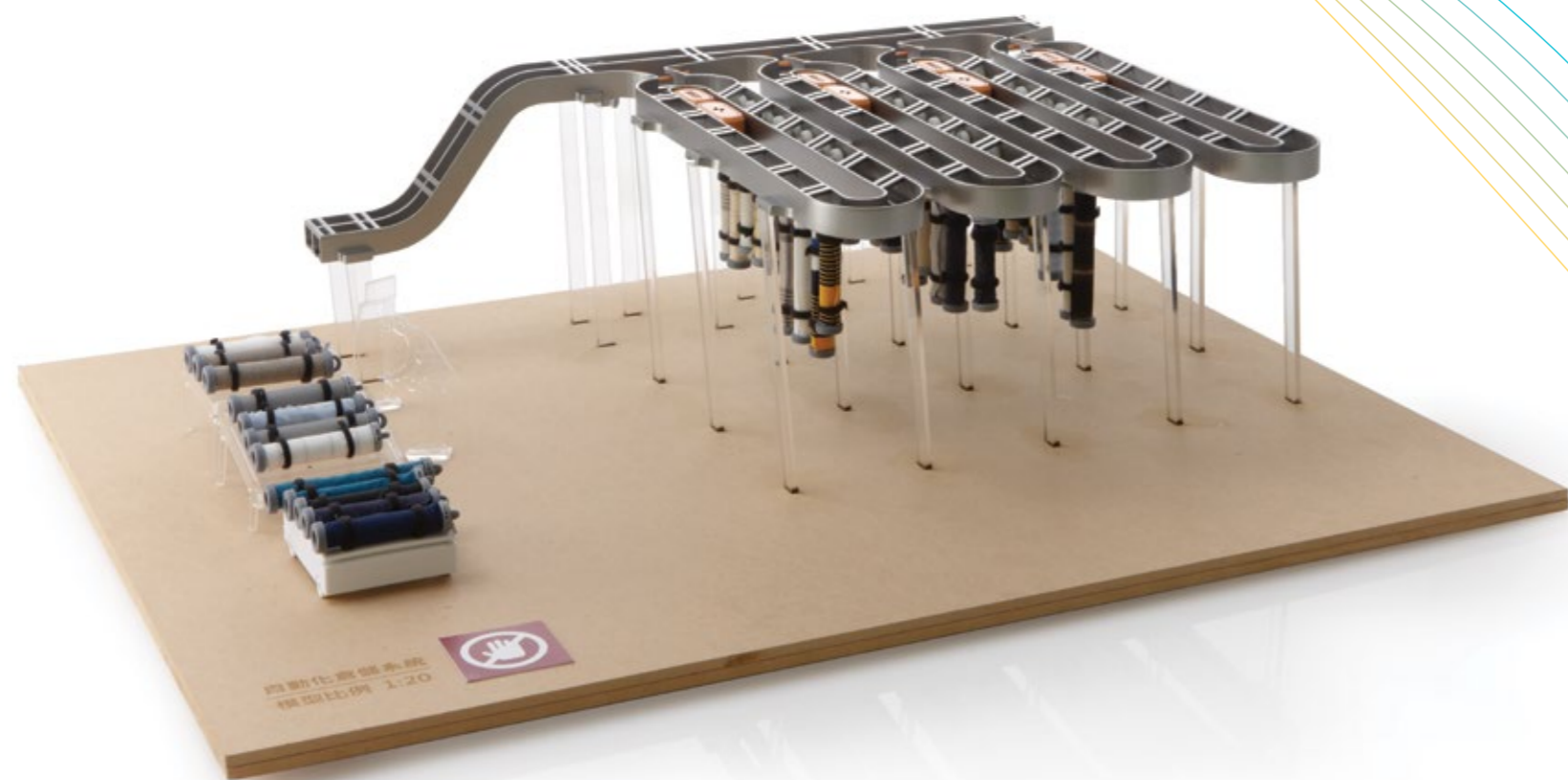
目前的助聽器無法處理多重人聲，當同時多人說話時，聽者無法辨識聲音。本團隊的產品是模擬人類的聽力路徑進行開發，讓助聽器模擬人類，藉由視覺訊號找出目標講者並定位，以人類行為設計機率演算法標記目標講者。隨後，運用波束成型技術進行空間性濾波與降噪，最後搭配即時語音降噪的深度神經網路AI技術，進行語音重建，針對目前的助聽器提供更好的改良方案。

Current hearing aids cannot deal with multiple vocals. When many people speak at the same time, the listener is unable to hear clearly. In order to solve this problem, our product takes the human hearing processing path as reference and develop the technology to find the target speakers and locate them via visual signal. Subsequently, the beam-forming technology is used for spatial filtering and noise reduction. The AI technology of the deep neural network with instant denoise was used for voice reconstruction, and a complete solution for the current hearing aid is provided.

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指導老師 杜翌群  
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## RESEW'S 永續布料銀行 RESEW'S Fabric Sustainable Banking

大量廢布料在追求流行與衣物生產過程中被產生，且這些廢布料形狀差異大，很難被直接再利用。因此RESEW'S永續布料銀行平台讓這些不規則的廢布料能透過AI影像分析，進行有效的歸納與利用。該平台結合自動化倉儲系統與大數據應用，讓使用者可透過RESEW'S APP快速從線上選購需要的廢布料。使用者還可拍攝量測手邊的廢布料並上傳APP，和其他使用者進行互動，推薦可製作的成品並在線上販售。RESEW'S使廢布料有效再利用，落實永續概念。

A large amount of waste fabrics are produced during the process of manufacturing trendy clothing. These waste fabrics vary in shape and are difficult to reuse directly. RESEW'S Renewable Fabric Bank platform allows these fabrics to be effectively classified and utilized via AI image analysis. Combined with automated storage system and big data application, users can purchase the waste fabrics, measure the waste fabrics on hand and upload the information through the APP. Users can interact with others, make their own products and sell them online. RESEW'S enables the waste fabrics to be reused effectively.

設計者 陳乃瑄、黃雅筠  
指導老師 李錫朮  
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## 兒童氣喘保衛戰

### Kid's Asthma Defense

兒童氣喘保衛戰為兒童氣喘產品與照護系統的整合，透過趣味的方式學習控管氣喘疾病。在硬體設計方面，改變現有產品讓兒童能更輕易使用，至於軟體App則是透過遊戲獎勵機制，培養兒童持續記錄與用藥的動力。家長使用App衛教動畫的協助，帶領兒童了解氣喘該如何治療。App可視化紀錄的設計，讓家長與孩童都能了解自己的照護狀態。對於醫生來說，透過App紀錄，讓醫生能了解更完善的用藥紀錄，進行更有效的氣喘治療。

Kid's Asthma Defense is the integration of asthma products and the care system. It aims to control the asthma disease in an interesting way. In terms of hardware design, we change existing products to make it easier for children to use. Through the game reward mechanism, the App is designed to train children's motivation for continuous recording and medication. With the help of animated health education via the App, parents are able to lead their kids to understand how asthma is treated. The design of the App's visual record allows parents and children to easily understand their care status. For doctors, through the App record, they can obtain a more complete medication record for more effective asthma treatments.

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## 智能護手

### Smart Hand Care Device - Handicare

Handicare是一款智能手部護具，主要給患有狹窄性腱鞘炎(俗稱媽媽手)的病患使用。Handicare設有肌肉偵測的感測器，透過專屬APP紀錄手部的施力狀況，適時發送患者手部過度使用的警訊，預防患者工作過度及施力不當而導致手部病情惡化的情況發生。護具上設有可更換的舒緩模組，針對狹窄性腱鞘炎的疼痛部位進行舒緩。而護具的內部結構上，本護具採用按壓式幫浦，以氣體支撐取代傳統內附鋼條式的笨重護具，更能達到輕量化及服貼手部的效果。

Handicare is a smart hand protector designed for patients with stenotic tenosynovitis (commonly known as mother's twist). Handicare has a muscle detection sensor that records the hands' muscle status by presenting the collected data through Handicare's App. The App sends notifications when it detects excessive muscle usage of the patient's hand in order to prevent the patient from over-stressing and improper use of their hands. The protective device has a replaceable soothing module to soothe painful parts of the stenotic tenosynovitis. A pump is used to send air into the inner airbag of the protective gear, replacing steel strips found in traditional ones. With air cushioning, the protector becomes a light-weighted tool and allows freedom of adjustment.

設計者 王暉閔、劉家勳  
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## 智慧導眼

### Smart Guide

本作品為可供視障人士使用的智慧輔具，包含智慧眼鏡、手杖、腰掛式裝置與手機APP。當視障者走至路口時，輔具會透過藍芽接收行人號誌訊號，視障者可透過無線耳機得知紅綠燈狀態與秒數；穿越斑馬線時，智慧眼鏡上的攝像頭會傳送影像至腰掛式裝置進行辨識，當偏移時可透過耳機語音提示，藉此降低視障者因走偏而造成意外。家屬可透過GPS即時定位，得知視障者的所在位置，若發生跌倒意外，手機APP可立即接收到緊急訊息，得知發生位置。

We propose an intelligent assistance system for visually impaired people, which is composed of wearable smart glasses, an intelligent walking stick, waist-mounted device, and mobile devices application. When the visually impaired people arrive at the intersection, they will receive the pedestrian signal via bluetooth and know the remaining seconds of pedestrian signals and its lights. The waist-mounted device can recognize the front image when the visually impaired people are crossing the road. If not walking on the right path, they will receive voice reminder via the wireless earphone. Furthermore, if a visually impaired person accidentally falls down, his family members will immediately receive the information through mobile devices application and GPS.

設計者	藍文謙、王子慶、蔡易晉、林甫軒、謝承佑、鍾函諺、楊峻翔、蔡承翰、楊景翔、周煜堂、吳振豪、魏弘晉、卓榮耀、林宏益
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學校	南臺科技大學
地區	台灣
Designer	Wun-Clan Lan, Zi-Qing Wang, Yi-Chin Tsai, Fu-Hsuan Lin, Cheng-Yo Sie, Han-Yen Chung, Jun-Xiang Yang, Cheng-Han Tsai, Jing-Hsiang Yang, Yu-Tang Zhou, Zhen-Hao Wu, Hong-Jin Wei, Jung-Yao Zhuo, Hong-Yi Lin
Instructor	Wan-Jung Chang, Yang-Kun Ou
School	Southern Taiwan University of Science and Technology
Area	Taiwan

## 智慧型人體呼氣疾病檢測晶片

### Intelligent Gas Sensor Array for Breath Disease Detection

智慧型呼吸疾病感測晶片，整合新穎奈米電子元件與元件焦耳自熱輔助原子層沉積（ALD），可達成選擇性沉積不同的氣體感測材料在感測陣列個別元件的高靈敏感測區表面。相較於目前的氣體感測器，此晶片可感測多種氣體，除了微小化外，也可達到更快速的訊號響應與更高的靈敏度，降低操作功率的消耗。同時，經AI機器學習後，可提供準確的呼吸疾病檢測，並應用於其他相關智能氣體感測。

A gas sensing array chip has been demonstrated via the integration of novel nanoelectronic devices with selective deposition of sensing materials through device Joule heating assisted atomic layer deposition (ALD) so that the sensing regions of nanodevices possess different sensing materials. Multi-dimensional responses from the sensing array are suitable for AI machine learning so that an accurate breath disease detection chip with ultra-low power consumption, fast response, and high sensitivity can be fulfilled. With different combination of sensing materials on the array and different working temperature of each device, this sensing array can work for different applications and also integrate with mobile device.

設計者	林育生、顧若喬、林若彤
指導老師	許鈺宗
學校	國立交通大學
地區	台灣

Designer	Yu-Sheng Lin, Ruo-Chiao Ku, Jo-Tung Lin
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# 語音ID

## Voice ID

語音ID藉著AI模型識別使用者的聲紋，在讀取語音的同時，做出辨識及接收指令的行為。使用者可以藉此儲存他的語音ID，讓裝置能夠具有許多功能，像是家長監護、裝置鎖定或是傳送特定資料給特定使用者。語音ID能夠在裝置上獨立運作而不需要網路存取，所以可以直接藉Wi-Fi或是藍芽連線到其他裝置，也能在智慧型手機以外的裝置上運行，讓使用者有更多使用上的彈性。

Voice ID uses AI model to recognize a user by identifying his voiceprint. In this way, a user can save his voice ID which can then be used by devices for multiple applications such as parental control, device locking or delivering specific content to users. Voice ID runs on the mobile device itself and it doesn't require internet access. It can connect directly with other devices by using a Wi-Fi or Bluetooth connection, and operate on devices other than a smartphone. Thus, users have more flexibility in using their Voice IDs.

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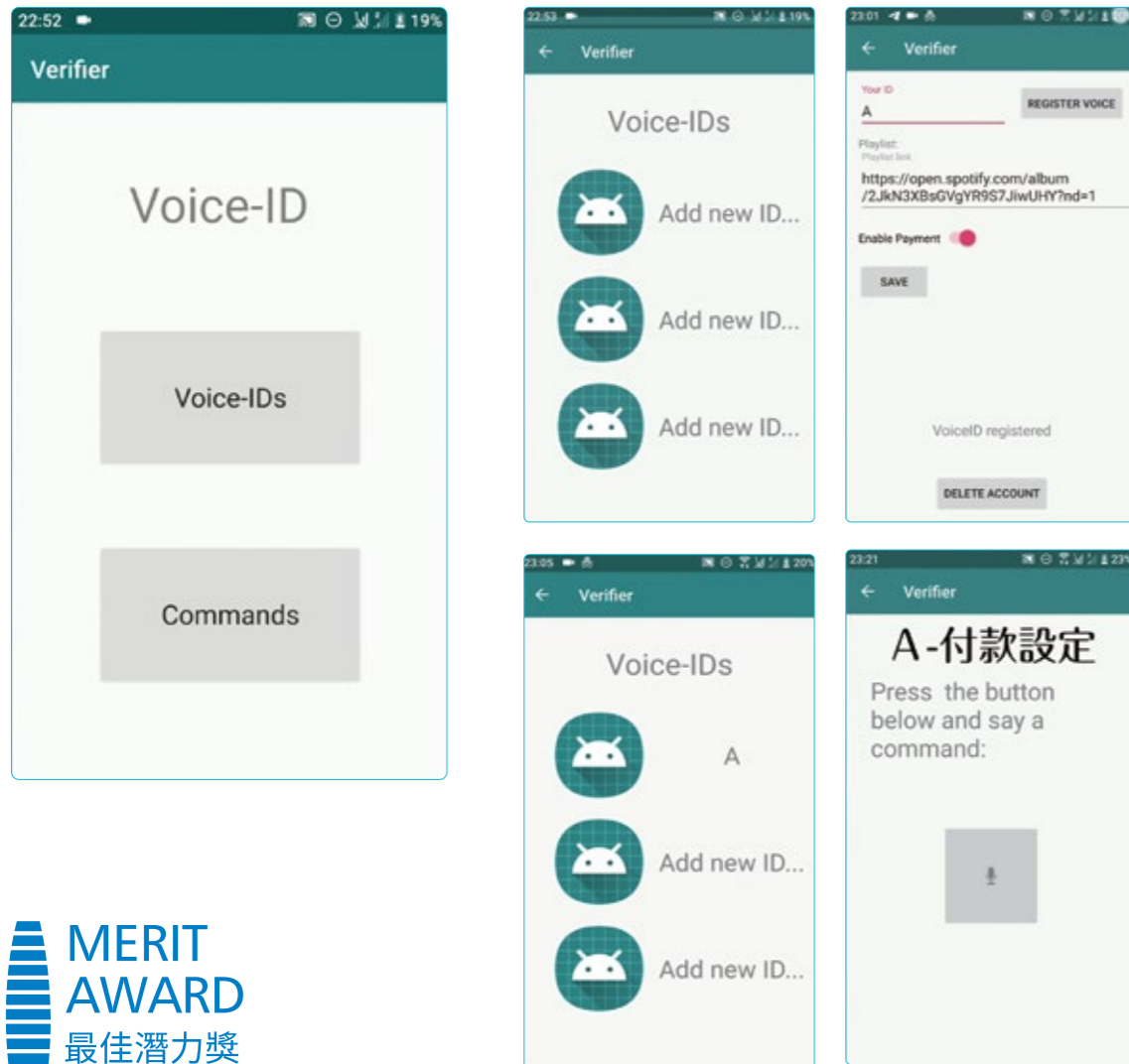
## 新型熱管奈米細孔與接合導熱系統 Novel Capillary Nanoporous and Bonding of Heat Pipe Thermal Conductivity System

本產品為傳統熱管之新技術改良，可於薄銅材料上利用低溫有機酸還原法使銅薄表面形成奈米細孔，並以室溫超音波接合製作熱管導熱系統，達到提高導熱轉換效率、低溫和快速之生產製程、輕薄、回收無污染、形狀可塑性及材料可複合性選擇之目的。

This product is a new technology improvement of the traditional heat pipe. It can be used by thin copper material using the low-temperature organic acid reduction method to form the nanoporous structures on the thin foil copper surface in heat pipe thermal conductivity by ultrasonic bonding at room temperature. The product can achieve the purpose of improving thermal conductivity conversion efficiency, low temperature and rapid production process, thin and light, and recycling without pollution.

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## 基於共振光之無線光通訊與 功率傳輸系統

### Optical Wireless Information and Power Transfer System by Fiber-Based Resonant Beam

本作品是基於共振光的技術，使用在無線光通訊與功率傳輸系統架構中。利用光纖布拉格光柵與光耦合器達成同時無線光通訊與功率傳輸技術，並利用訊號產生器，在自由空間中傳輸與接收訊號。在接收部分，同樣使用光纖布拉格光柵作為共振波段的選擇，將完成的訊號傳送至光檢測器，並將交流與直流分開輸出。本技術可利用於室內與室外，接收端的使用者可利用使用波段內的不同波長之光纖光柵，形成共振光束。

This work proposes a resonant beam (RB)-based technology used in the optical wireless information and power Transfer (OWIPT) system structure. Fiber bragg grating (FBG) and optical coupler were used to achieve simultaneous wireless optical communication and power transmission technology, and signal generator was used to transmit and receive signals in free space. In the receiving part, the fiber bragg grating is also used as the resonance band selection, and the completed signal is transmitted to the photodetector (PD), and the AC and DC circuit are output separately. This technique can be utilized indoors and outdoors. The user at the receiving part can use the fiber grating of different wavelengths in the band to form a resonant beam.

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## 具可攜式無線慢性腎臟病預防 與監控之晶片系統與平台

### Portable and Wireless Urine Detection System and Platform for Prevention and Monitoring of Chronic Kidney Disease

本作品係透過整合系統晶片、電化學式微電極感測晶片，檢測尿液中肌酸酐與白蛋白濃度，結合APP與雲端介面，評估使用者罹患慢性腎臟病的嚴重程度。此系統平台具可攜式之優點，方便快速且不受地點拘束，能隨時進行檢測。使用者將拋棄式感測晶片插入檢測器中，並將感測晶片前端放入尿液，等待約30分鐘，即可從手機APP獲得疾病評估報告與建議。平台亦可結合馬桶、小便池、尿布等，讓慢性腎臟疾病的早期篩檢能落實在居家生活與社區快篩。

This work is to develop a system-on-chip and electrochemical microelectrodes chip to detect the concentration of albumin and creatinine in urine. The smart application platform designed in this work also helps to evaluate the stage of chronic kidney disease (CKD). This system platform has the advantages of being portable, convenient and fast, and the detection is not limited to location. The user inserts the disposable sensing chip into the detector, and places the front end of the sensing chip into the urine, waiting for 30 minutes to obtain the reports of CKD status assessment from the mobile APP. The system platform can also be applied to toilets, urinals, diapers, etc., making the early-stage screening of CKD easier to be implemented in our home life and community rapid screening test.

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## 創新瞬時低溫可撓性電路製作

### Novel Low Temperature Flexible Circuit Manufacturing in a Flash

微電子技術的發展，對可撓或可彎曲軟板電子的需求大幅增加。為配合軟板基材製程並縮短加熱時間，我們使用方便易用的網版印刷，來取代傳統微影蝕刻的技術，預先在軟性基板(Polyimide,PI)上印刷所需之圖案，再利用毫秒級脈衝Xenon光照射金屬墨水，即可得到導電性佳、可撓性佳之成品。選用之金屬粒子為金屬銅氧化物，解決了保存和高成本之問題，成功整合為單一製程，將銅氧化物還原純銅並燒結成可撓性導線。

The development of microelectronics technology has greatly increased the demand for flexible or bendable soft board electronics. In order to cooperate with the process of the soft board substrate and shorten the heating time, we use the convenient and easy-to-use screen printing to replace the traditional lithography etching. We pre-print the pattern on the flexible substrate (Polyimide, PI), and then irradiate the metal ink with millisecond pulse Xenon light to obtain a finished product with good conductivity and flexibility. The metal particles used are metal copper oxides. We use oxides to solve the problem of preservation and high cost, and successfully integrates into a single process. Copper oxides can be reduced to pure copper and sintered into a flexible wire.

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## 掌握

### HANDLE

患有帕金森氏症、小腦萎縮症等疾病的年長者，可能會有四肢僵硬、手腳顫抖等症狀，HANDLE是針對這些症狀所設計的可單雙手使用的復健訓練裝置。HANDLE藉由搭配平板電腦遊戲與產品背面的加重塊，使患者在遊戲的過程訓練手部平衡感與肌肉群，並間接培養反應與思考能力。透過握力偵測器與平板電腦遊戲能記錄復健狀況，進而分級調整遊戲難度與重量配置。HANDLE結合了復健器材及娛樂遊戲的功能，改善病人及家庭的生活品質。

Elder people who suffer from Parkinson's disease and Spinocerebellar Atrophy may cause muscle stiffness and shaking in hands. HANDLE is a rehabilitation device designed to improve these symptoms and can be operated by one or both hands. With the tablet games and weights on the device, the patients can train their hands balancing and muscle strength, and improve reaction time and thinking skills. Through the grasp detector and the tablet games, HANDLE can record the rehabilitation status to adjust the game difficulty level. As a combination of rehabilitation and entertainment, HANDLE improves the quality of life of patients and their families.

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## Stand Break 智能防久坐坐墊 Anti-Sedentary Cushion

“Stand Break” 是一款針對辦公室久坐人群而設計的智慧充氣坐墊，它能提醒人們減少久坐時間，避免久坐帶來的風險和危害。它可以即時監測使用者坐著的時間，同時使用者也可自行設定時間，坐墊會藉由充氣和變形，提醒長時間工作的人們起來走走。當使用者離開坐墊後，坐墊會在五分鐘內恢復到之前的狀態，之後使用者便可再次全心投入工作，同時可透過APP得知今天自己坐著的時間和螢幕使用時間。

“Stand Break” is a smart inflatable cushion designed for the sedentary people in the office. It can remind them to reduce sedentary time, thus avoiding the risk and harm caused by sitting for a long time. It can instantly monitor the user's sitting time, and the user can also set the time by himself. The cushion will remind people who work for a long time to stand up and walk around through inflation and deformation. It will return to its previous state within five minutes, and the user can sit and work again. In addition, the App can be used to know the sitting time and screen use time of the day.

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## 微觸—

## 糖尿病足家用下肢護理產品

### WEICHU- Diabetic Foot Home Lower Limb Care Products

糖尿病足是糖尿病患者後期面臨的嚴重併發症之一，病症可從輕度的神經症狀到嚴重的潰瘍感染和神經病變性骨折。糖尿病足是可預防治療的，所以早期的預防及有效的護理尤其重要。WEICHU是一款基於患病老人情感意識和行為習慣而設計的可進行精確檢測及輔助治療的家用醫療護理產品，患者佩戴產品後對下肢進行撫摸按壓，產品會立即對下肢的皮下血管進行掃描檢測與清堵治療。

Diabetic foot is one of the serious complications in the later stages of diabetes, ranging from mild neurological symptoms to severe ulcer infections and neuropathic fractures. In fact, diabetic foot is preventable and treatable, so early prevention and effective care are especially important. WEICHU is a home medical care product that can be used for accurate detection and adjuvant treatment based on the emotional awareness and behavioral habits of the elderly. The patient touches and presses the lower limbs after wearing the product, and the product immediately scans and clears the subcutaneous blood vessels of the lower limbs.

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## 氣·癒

### Aircure

Aircure是一套可將大型病房分割成數個隔離區的空調系統，用於當發生集體高傳染性疾病，而專業隔離病房不足時的情形。Aircure以軌道型主機與垂掛於下方的布簾組成，布簾採抗菌、除臭、抗輻射的銀纖維材質製成，搭配氣流控制，可創造簡易隔離區。軌道型主機為內有UVC殺菌的空調系統，可為病患提供無菌且適宜的溫濕度環境。Aircure上可變色的電子紙資訊系統，讓醫護人員快速知曉病房內各病患的狀況與空氣品質。

Aircure is an air conditioning system capable of dividing large wards into several isolated areas for situations where collectively contagious diseases occur and professional isolation wards are insufficient. It contains the host machine with tracks and the curtains made up of antibacterial, deodorizing, anti-radiation silver fiber material. With the control of its airflow, simple isolated zones can be created. The host machine contains the UVC antibacterial air conditioning system, providing germless environment with proper temperature and humidity. The Electronic paper information system of Aircure enables medical staffs to know about the patients' conditions and air quality in the ward.

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## 離岸流警報器

### Rip Current Alarm

Rip Current Alarm為可偵測離岸流的水域警戒線裝置。利用超音波流速感測器偵測海浪退潮的水流速度，當超出一般流速達到離岸流流速(1~2m/sec)時，上方浮板會立即變為紅色，藉此警戒戲水遊客與救生員該區域為離岸流區域，並讓救生員能提前做出適當的處置，降低意外的發生。

Rip Current Alarm (RCA) can be installed on the security line of the water area. The ultrasonic flow velocity sensor is used to detect the water flow velocity. When the general velocity exceeds 1~2m / sec, it will be judged as a rip current. The floating plate above the RCA will soon turn red and alert the tourists and lifeguards to the dangerous area, helping lifeguards make appropriate disposals.

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## 工地用水霧空間

### Worker Space

WORKER SPACE是為了改善施工現場粉塵濃度過高影響人員健康與造成生命危險，進而設計的智能噴灑細水霧系統。WORKER SPACE可在粉塵濃度過高的區域進行高空噴灑細水霧，有效減少粉塵含量、降低溫度與產生對流，改善施工現場的空氣汙染與人員中暑現象，並降低發生塵爆的機率。使用者可透過WORKER SPACE上的握把與輪子進行搬運補水，為施工現場建立噴霧防塵網，透過環境偵測與行動裝置可即時監控與調整配置，提高系統的運作效率。

WORKER SPACE is a smart spray water mist system that improves health and serious impact of high dust concentration on the construction site. It can spray fine water mist at high altitude, which can reduce dust amount, lower temperature, generate convection, improve air pollution and heatstroke of staffs, and reduce the chance of explosion. Users can use the grips and wheels of WORKER SPACE to transport water supply and build a spray dust-proof net. By environment detection, mobile device App, real-time monitoring and adjustment configuration, it can improve operation efficiency.

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## 腦波義肢MR訓練裝置

### GET SET

腦波義肢的技術雖成熟，但事前準備卻相當繁瑣，且許多殘疾人士已歷經多年病症，腦部控制殘疾部位的神經元也已經退化。為了更快的銜接上腦波義肢，此訓練裝置將MR（混合實境）科技與腦波偵測裝置結合，幫助殘疾人士找回退化的腦部神經元，並解決幻肢痛的問題。使用方法僅需將頭戴式裝置穿戴於頭上，再將手環穿戴至殘疾部位，用來偵測肌肉數據以輔助訓練裝置，就緒後影像將呈現於畫面中。

Although the technology of brain wave prosthetics has gradually matured, the preparation is quite complicated. Besides, many people with disabilities have been disabled for many years, and neurons in the brain that control the disabled parts have also been degraded. In order to connect the brain wave prosthetics faster, "GET SET" combines MR (Mixed Reality) technology with brainwave detection devices to help people with disabilities retrieve degenerated brain neurons and solve the problem of phantom limb pain. They only need to wear the head mounted device and wear the bracelet on the disabled area. It will detect muscle-related data to assist the training device. Once ready, the image will appear in the monitor of the device.

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# INTRODUCTION OF LITE-ON SPECIAL AWARD

## 2019 光寶特別獎前言

第十九屆的光寶創新獎今年再度攜手與全球領導企業默克 (Merck) 和英飛凌 (Infineon) 共同設立特別獎獎項，從企業觀點評選出兼具創新性與市場性的優秀作品。本屆特別獎獲獎作品多聚焦於創新醫療、自動駕駛與人工智慧等領域之相關應用。

默克 (Merck) 今年以「數位醫療 Digital Health」為主題，鼓勵參賽者以患者為中心設計生物感測模式，結合數位資訊與科技協助病患自主管理健康。殊榮獎作品「創新無抗體稀有細胞分離篩選晶片與系統」應用於細胞檢測，改善現有技術高成本、抗體低生存率的缺點。特別獎作品「乳糜血即時量測之分離式電磁生物晶片」採用非侵入式的量測，並簡化乳糜血量測操作步驟；「智慧型數位影像解析之黃體生成激素排卵檢定器」則是利用唾液來檢測女性的月經週期，精準預測排卵期。

英飛凌 (Infineon) 以「Future Mobility E 動未來」為今年的競賽主題，期望參賽者積極參與設計未來智慧城市中，深具創新機會的各項智慧生活應用。殊榮獎作品「移動城市藍圖」，住家本身即為一台車，可與其他建築物結合，使人們在移動上具有高度自由與彈性。特別獎作

品「A 柱畫面顯示器」利用電子紙和眼球追蹤裝置，可避免因 A 柱視線死角而發生車禍；另一作品「基於深度網路之道路品質檢測系統」則為運用自駕車即時偵測路面資訊，以大數據提高行車安全。

光寶特別獎的三件獲獎作品分別為「新型助聽器解決方案」，結合視覺訊號與演算法，搭配 AI 技術進行語音重建，解決現有助聽器無法處理多重人聲的問題；「智慧馬桶」為現代文明病 - 大腸癌提供即時檢測分析與 AI 診斷，讓使用者掌握健康狀態；「AR 急救箱」則是在緊急情況發生時，透過 AR 眼鏡指導手足無措的平常人仍能按照急救步驟，及時搶救生命。

特別獎設立的初衷是為了獎勵青年學子發想兼具創新與高可行性的作品，透過與國際企業夥伴的合作，除了組成多元專業的業界評審團選出優秀作品之外，光寶也攜手默克、英飛凌兩家夥伴在台灣多所重點大學舉辦 16 場新知講座，為同學帶來業界最前端的趨勢，共吸引了超過千位師生參與。未來光寶也會持續結合業界之力，點燃台灣科技產業創新柴火，培育廣大青年創新創業人才。

The 19<sup>th</sup> LITE-ON Award this year included special awards from world leading companies Merck and Infineon in the selection of innovative and commercially viable winners from the corporate perspective. The winners of the Special Award mostly addressed innovative applications in digital health, autonomous driving and artificial intelligence.

Merck's theme this year was "digital health" and it encouraged participants to design a patient-centric biological sensing model and integrate digital information and technologies to help patients manage their own health. The Award of Honor was awarded to the "Innovative Label-Free Rare Cell Screening Biochip and System," an application which was used for cell detection to improve the deficiencies of high-cost existing technologies and low survival rate of antibodies. The Special Award was awarded to the "Real-time Chylemia Detection Based on Separating Bio-Electromagnetic-Chip" which uses non-invasive measurements to streamline the operating procedures for measuring chylemia. "The Luteinizing Hormone Ovulation Detector of Analyzing Intelligent Digital Images" uses saliva to detect women's menstrual cycle and predict ovulation periods with precision.

Infineon's theme was "Future Mobility" and it encouraged participants to actively take part in the design of future smart cities and various smart life applications with opportunities for innovation. The Award of Honor was awarded to "CR" which transforms residences into a vehicle that can be integrated with other buildings to provide people with high levels of freedom and flexibility in mobility. The Special Award was awarded to

the "0 Blind Vision" which uses electronic paper and eyeball tracking devices to prevent traffic accidents due to blind spots created by the A-pillar. Another work "Road Detector" uses information from autonomous vehicles' real-time detection of road conditions and big data to improve transportation safety.

There were three teams winning the LITE-ON Special Award. "Novel Hearing Aid Solution" uses visual signals, algorithms and AI technology for audio reconstruction to resolve the issue of the inability of existing hearing aids to process multiple human voices. "Smart toilet" provides real-time analysis and AI diagnosis for a common illness of the modern era — colon cancer. It provides users with information on their health status. The "AR First-Aid Kit" uses AR glasses to instruct helpless ordinary people perform life-saving procedures in the event of emergencies to save lives.

The Special Awards were established to reward young students for their ideas for innovative and feasible works. By working with international corporate partners, LITE-ON has formed a diverse and professional panel of judges from the industry to select outstanding works. The Company also worked with Merck and Infineon in organizing 16 seminars on advanced technology in important universities in Taiwan. The seminars provided information on the latest trends in the industry for students and attracted over one thousand students and professors. LITE-ON will continue to consolidate resources of the industry and continue to pass on the torch for innovation in the industry to cultivate young innovation and entrepreneurial talents.



# MERCK SPECIAL AWARD 2019 : IMPROVING HUMAN WELL-BEING WITH INNOVATION

## 2019 年默克特別獎： 以創新為人類帶來更美好的生活

作為一家充滿活力的科學與科技公司，默克很榮幸能在超過 350 年的企業歷史當中，以我們橫跨醫療保健、生命科學和特用材料三大領域的專業和好奇心，參與人類進展的許多重要時刻。今年，在我們慶祝默克集團在台成立三十周年的同時，我們很榮幸能連續第六年參與光寶創新獎的盛事，與光寶攜手為青年人才打造一個孕育創意的平台，為專屬於這個時代的重要趨勢做出貢獻。

今年，我們依然從默克的專業領域出發，邀請參賽者與我們一起關注數位醫療議題下的創新熱話。隨著全球急速增長的人口數量，我們在醫療產業之中看見了對更具永續性、更個人化之照護方案與服務的需求。這些「以病患為中心」的創新議題，由人類在數位科技領域所取得的進展所驅動——而當醫療數據能夠以一種合乎規範和倫理的方式被收集，並讓人們獲得對相關資訊的解讀和妥善應用，我們非常期待看到這樣的趨勢能為個人健康帶來更透明和可管理的新局面。

秉持著為未來的病患和人們創造更加優化的自我健康管理的願景，我們將今年的默克特別獎主題訂為「生物感測器與介面」，希望鼓勵參賽者聚焦在生物與數位世界之間的介面和互動機制。

立足於這樣的期待，我們很高興看到每一年，有越來越多來自不同背景的創新人才都齊聚一堂，投入探索這個對你我至關重要的議題。我們也很開心能與光寶作為企業夥伴，一起在這場熱烈的討論當中，貢獻我們的專長並見證屬於未來的創造力。在將創新的可能性拓展到全新境界的過程中，我們鼓勵年輕世代在那些他們最關切的議題上，尋找並延伸那些有潛力造福更多人的想法。最後，請與我們一起 # 永保好奇心！

As a vibrant science and technology company that operates across Healthcare, Life Science and Performance Materials, Merck is proud to be dedicating its efforts in over 350 years of human progress with our curious minds. This year, as we celebrate our 30<sup>th</sup> anniversary of the company's presence in Taiwan, we feel most honored to be partnering with Liteon for the sixth consecutive year in the renowned LITE-ON Award – a platform that engages young talents to brainstorm and contribute to the megatrends unique to the present-day world.

Rising to the challenge from our areas of expertise, this year, we invite the contestants to take a closer look at the digital health topic. With the rapid-growing global population, we see an increasing demand for sustainable, personalized solutions and services in the healthcare industry. These 'patient-centric' innovations were made possible by developments in the digital technology spectrum - and with the data collected in a regulatory compliant way and utilized to extract insights, we are excited to see applications of how such healthcare data can become more tangible and manageable.

Aiming at empowering future patients or human beings in general to better manage their health, "Bio-sensing and Interfaces" was chosen as the topic for the Merck Special Award, encouraging participants to focus on the interface between the biological and digital world.

With this vision in mind, we are delighted to observe that each year, more and more innovators from diverse backgrounds are joining forces to explore this topic that is important to every individual. We are glad to take part in facilitating this dynamic conversation of future-oriented creativity along with LITE-ON. To push innovation beyond its current boundaries, we encourage the younger generation to find inspiration in the topics closest to their hearts and expand that idea into something that would potentially benefit the well-being of many more. Last but not least, be #Alwayscurious!



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## 默克殊榮獎

# 創新無抗體稀有細胞分離篩選晶片與系統

## Innovative Label-Free Rare Cell Screening Biochip and System

本設備以光誘發電場效應，實現可分選細胞之晶片與系統平台，並應用於無抗體式稀少細胞分選。相較於目前市面上多數採用的化學性方式，存在著細胞回收率隨細胞變異而降低，抗體低生存率與高成本的缺點，本設備具有高回收率、高生存率與低成本之無抗體式細胞分選物理性方法，並可廣泛應用於循環腫瘤細胞檢測、母血中胎兒細胞檢測，以及跨領域應用至水中雜質的檢測。

This device integrates the biochip and platform by light-induced dielectrophoresis (LIDEP) and is applied to antibody-free rare cell sorting. The chemical method is most commonly used when performing rare cell sorting, but there are disadvantages that the cell recovery rate decreases with cell variation, and the antibody has low survival rate and high cost. Our device has the advantages of high recovery rate, high survival rate, and low cost. This antibody-free cell sorting physical method can be widely used in circulating tumor cell detection, fetal cell detection in maternal blood, and cross-disciplinary application of water impurity detection.

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## 默克特別獎

# 智慧型數位影像解析之黃體生成激素排卵檢定器

## The Luteinizing Hormone Ovulation Detector of Analyzing Intelligent Digital Images

本設計為一款智慧型排卵檢定器，利用唾液中黃體生成素濃度的不同，來檢測女性的月經週期，可預測安全期、過渡期與排卵期。原理係將唾液塗抹在光學透明的載玻片上，配合高倍率數位顯微鏡之投光光源以及底蓋的反射光柵，即可觀察由顯微鏡擷取放大後的唾液結晶影像，再將儀器經由行動裝置之傳輸線輸出，該影像輸出訊號即可傳送至行動裝置，以APP運算分析軟體進行分析，不僅可顯示長期紀錄和圖表分析，並可精準預測排卵期。

This work is designed to detect the menstrual cycle of women by the different concentration of the luteinizing hormone in saliva. It can predict the safety period, transition period and ovulation of women. After smearing the saliva on an optically transparent glass slide, users can observe the amplified saliva crystal image by using a high-magnification digital microscope with a light source and a reflective gate on the bottom. Then, the images can be output and sent to mobile devices, and be analyzed by the operation analysis software. In this way, the user can accurately predict the ovulation by the long-term records and chart analysis.



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## 默克特別獎

# 乳糜血即時量測之分離式電磁生物晶片

## Real-Time Chylemia Detection Based on Separating Bio-Electromagnetic-Chip

本作品旨在分析血脂濃度實現乳糜血即時量測，並用簡單便宜的操作及設備取代現有繁雜、非即時性的分析技術。透過結合微流體生物晶片以及互補式裂隙環形共振器(CSRR)的特性，利用人工的方式進行血漿血球分離，再觀測微流道中血漿的介電係數變化及數值來判斷黏滯係數及三酸甘油酯比例，來達成乳糜血的即時量測。微流體技術所需的檢體量極少，可進行非侵入式的量測。整體製作成本低廉、生產過程簡便，只需要簡單的操作即可獲得結果。

This project is aimed to realize the real-time detection of chylemia, and replace the complex unreal-time existing techniques. To reach the goal, microfluidic bio-chip and complementary split-ring resonator (CSRR) is designed for viscosity and permittivity of blood plasma detection, and a manual whirligig-like method is used to separate blood plasma, blood cells, and chylomicron which might disturb the detection. In terms of microfluidic channel techniques, only a little sample is required, and it can do non-invasive detection. Simple procedure and low cost are required, and only few steps should be done for measurement.



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英飛凌

## INFINEON ONCE AGAIN PARTICIPATED IN LITE-ON AWARD OF LITE-ON TECHNOLOGY, INVESTING IN CORPORATE SOCIAL RESPONSIBILITY WITH SEMICONDUCTOR TECHNOLOGY

### 台灣英飛凌再次參與光寶科技—LITE-ON AWARD，以半導體技術專業投入企業社會責任

英飛凌科技是全球半導體解決方案的領導者，目前在所有主要市場排名第一或第二，包括車用電子、電源管理、射頻和感測器以及基於硬體的數位安全解決方案等領域。為了在競爭中保持領先地位，我們必須努力維持領先優勢。這意味著，我們一次次向客戶證明，我們是協助其業務發展的最佳合作夥伴。

英飛凌的領先地位和卓越聲譽，來自於我們的企業文化和經營策略：

- › 我們的經營策略：透過理解客戶的系統及其市場需求，並運用這些技術專長，協助客戶一起邁向成功。
- › 我們先進的技術專業是我們事業的支柱：我們不斷地創新，使英飛凌始終獨樹一幟，持續鞏固我們技術領導的地位。
- › 我們獨特的製造策略使我們處於掌控地位：優化內部生產讓我們在競爭中脫穎而出，為客戶帶來更多優勢，確保可靠的交期、品質和降低成本。
- › 我們著力培養卓越領導力，打造成成長型環境：讓英飛凌建構強大的高績效文化。

英飛凌自 2006 以來，就擠身為光寶的策略性供應商，特別在「電源管理」及「綠色能源」領域，更是重要且長期配合的合作夥伴，透過業務上的緊密合作關係，追求營收與獲利成長同時，一起推動企業社會責任，藉以持續源源不斷的營運動力及企業競爭力。面對全球對功率半導體的需求正急劇增長，英飛凌身為功率半導體市場的領導者，致力於讓生活更簡單、更安全、更環保。

今年 Infineon 再次受邀參與創新獎共同設立特別獎，因應市場發展趨勢，Infineon 繼 2018 設定以 Smart Building 為題，在今年 2019 更擴大範圍以『Future Mobility “e” 動未來』做為競賽主題，鼓勵參賽者能夠以智慧物聯網、智慧運輸、智慧節能為題，以最環保、經濟和社會責任的方式來打造一座『未來城市』，透過多種創新的應用、系統整合與管理，營造更舒適、便利、健康、節能、安全、人性化的生活空間。感謝光寶科技的再次邀約，讓 Infineon 有機會為關注科技人材的培育盡一份心力，期待未來與光寶科技更多合作的機會！

台灣英飛凌科技總經理  
詹啓祥  
Vice President & Managing Director,  
Infineon Technologies Taiwan Co. Ltd.  
Deyoung Chan

吳志遠



Infineon is a world leader in semiconductor solutions, currently ranked number one or two in all key markets, such as automotive, power management, RF & sensors, as well as in hardware-based security. To stay ahead of the competition, we need to work on maintaining our leading edge. This means proving to our customers time and again that we are the best possible partner to drive their business forward.

Infineon's leading position and strong reputation are the result of our culture and business strategy:

- › Our business strategy: We thoroughly understand our customers' systems and the requirements of their markets, and apply this expertise for their success.
- › Our advanced technological know-how is the backbone of our business: We keep strengthening our position as a technology leader by continuously differentiating Infineon through innovation.
- › Our distinctive manufacturing strategy puts us in control: In-house production sets us apart from our competitors and provides advantages for our customers by ensuring delivery reliability, quality and reduced costs.
- › Our will to foster leadership excellence cultivates an environment of growth: We build on a strong high-performance culture throughout the company.

Since 2006, Infineon has been a strategic supplier of LITE-ON, especially in the areas of “power management” and “green energy,” and is an important and long-term partner. Through close cooperation, while pursuing revenue and profit growth, both companies promote corporate social responsibility together to continue operational momentum and corporate competitiveness. The global demand for power semiconductors is growing rapidly. Infineon is the leader in the power semiconductor market and is committed to making life easier, safer and greener.

This year, Infineon was once again invited to set up a special award together with LITE-ON Award. Infineon's main focus for 2018 was on “Smart Building”. This year, we used “Future Mobility” as the theme of the competition to encourage participants to create a future city in the most environmentally friendly, economical, and socially responsible way with the smart IoT, smart transportation, and smart energy, and through various innovative applications, system integration, and management, create a more comfortable, convenient, healthy, energy-saving, safe, and humane living space. Thanks to LITE-ON Technology for inviting us again, giving Infineon the opportunity to pay attention to the cultivation of technology and talent. We look forward to more opportunities for cooperation with LITE-ON Technology in the future!

## 英飛凌殊榮獎

# 移動城市藍圖

CR

本作品旨在提供人們一個全新的居住型態，住家的本身就是一台車，可隨意地變大和縮小，並與不同性質的建築物結合，可使自己的家成為如圖書館、游泳池、百貨公司等建築的一部分，目的要使人們在移動、通勤上都較現今更為自由且彈性。

This project is aimed to provide people with a new type of living. The home itself is a car that can become bigger and smaller at any time and be combined with buildings of different natures to become part of a building, such as a library, swimming pool, department store, etc. The purpose is to make people more free and flexible in terms of mobility and commuting.



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## 英飛凌特別獎

# 基於深度網路之 道路品質檢測系統

Road Detector

在自動駕駛車的應用情境中，常因為道路上不可預知的情況，例如路面不平整、路面破損，導致車輛感測器的感測能力下降，進而影響自動駕駛車的行車安全。因此，本團隊提出基於深度網路之道路品質檢測系統，即時產生路面品質密度圖，準確偵測路面破損的位置與範圍，並同時評估各路段的路面品質。本系統可導入自動駕駛車的設計，提高行車安全。

In the scenario of automatic driving, unpredictable conditions on the road, such as uneven or damaged road surface, may result in a decrease in the sensing capability of the vehicle sensor, which affects the driving safety of the autonomous vehicle. Therefore, we propose a pavement quality detection system called Road Detector, which is based on deep convolutional neural networks to improve the automatic driving safety. We directly detect the pavement distress from images recorded by in-vehicle cameras. This involves determining its exact location on the road and giving the labels. Besides, we also evaluate the pavement quality of each road, which is based on the quantity of the distress.



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## 英飛凌特別獎

# A柱畫面顯示器

O Blind Vision

本作品是套不更動車輛整體結構的前提下，也能看見A柱視線死角的顯示器系統。在車輛內部A柱位置內建或外掛電子紙材質的軟性螢幕，搭配安裝於左右後照鏡的攝像頭與安裝於駕駛者前方的眼球追蹤裝置，將視線死角反映至螢幕上補齊，並且追蹤駕駛者的視線做攝像頭角度的調整。透過這套軟體可以使駕駛者在行車視野上更加的完整，降低因為視線死角的車禍發生率。

O BLIND VISION is a display system that can see the A-pillar viewing blind spot under the precondition of not changing the overall structure of the vehicle. The system is an OLED soft screen built within or externally mounted in the A-pillar position of the vehicle. The camera mounted on the left and right rear-view mirrors are linked with the eyeball tracking device installed in front of the driver, which then reflects the blind spot on the screen. The camera angle is also adjusted by tracking the driver's sight. Through this system, the driver is able to have a more complete field of vision while driving, which reduces the probability of car accidents occurring due to blind spots.



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## 光寶特別獎

# 新型助聽器解決方案

## Novel Hearing Aid Solution

目前的助聽器無法處理多重人聲，當同時多人說話時，聽者無法辨別聲音。本團隊的產品是模擬人類的聽力路徑進行開發，讓助聽器模擬人類，藉由視覺訊號找出目標講者並定位，以人類行為設計機率演算法標記目標講者。隨後，運用波束成型技術進行空間性濾波與降噪，最後搭配即時語音降噪的深度神經網路AI技術，進行語音重建，針對目前的助聽器提供更好的改良方案。

Current hearing aids cannot deal with multiple vocals. When many people speak at the same time, the listener is unable to hear clearly. In order to solve this problem, our product takes the human hearing processing path as reference and develop the technology to find the target speakers and locate them via visual signal. Subsequently, the beam-forming technology is used for spatial filtering and noise reduction. The AI technology of the deep neural network with instant denoise was used for voice reconstruction, and a complete solution for the current hearing aid is provided.

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## 光寶特別獎

# 智慧馬桶

## Smart Toilet

大腸癌的罹癌原因與飲食有著極大關聯，而糞便是判斷身體狀態的重要指標。因此，智慧馬桶以糞便偵測來判斷腸道健康，讓使用者能透過分析結果來了解自己的身體狀態。智慧馬桶將紅外線感測埋入馬桶坐墊中，利用熱成像影像，將糞便的2D熱平面圖合併成3D的立體圖，並且傳送至APP進行AI診斷，提供使用者飲食上的建議及健康風險的提醒，藉此來達到改變飲食習慣以及減少大腸癌罹患的機率。

The main cause of colorectal cancer is related to diet, and feces can be an important indicator of body status. Therefore, the smart toilet uses fecal detection to determine the health of the intestines. In this way, users can understand the status of their bodies through the analysis results. The smart toilet embeds infrared sensing into the toilet seat cushion, using thermal imaging images to combine the 2D heat map of the feces into a 3D perspective. Besides, it is linked to the related App and it can transfer the information to the App for AI diagnosis, providing users with dietary advice and physical risk reminders. In this way, users can change eating habits and reduce the risk of colorectal cancer.



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## 光寶特別獎

# AR急救箱

## AR FIRST-AID KIT

這是一個可應用於公共場所中，工作人員進行急救時的輔助產品，包括一副AR眼鏡、一副智能手套和醫療急救用品。首先，透過AR眼鏡上的攝像頭掃描患者的基本身體數據，找到相應的急救按壓位置，並且透過AR眼鏡交互技術指導工作人員按照步驟對患者進行急救，並顯示相關數據。在急救過程中還可以透過智慧感應手套檢測患者的身體狀況，這些信息都會及時反饋給眼鏡，幫助工作人員及時搶救生命。

This is an auxiliary product applied in emergencies for the staff in public. It includes AR glasses, a pair of smart gloves and some medical first-aid supplies. Firstly, the camera on the AR glasses scans the patients' bodies to get basic data to find the corresponding pressing position. Then, through the interactive technology, the AR glasses can instruct the staff to give first aid according to the steps, including displaying the relevant data. During the first-aid process, the patient's physical condition can also be detected in real time by intelligent sensing gloves, and the information will be transferred to the glasses at once. This product can help the staff save lives in real time.



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# WORDS FROM THE WINNERS

## 技術組得獎感言



## 搭配手機辨識軟體之C反應蛋白紙基檢測試片開發

### Paper-Based C-Reactive Protein Device with Mobile Phone Software

感謝光寶科技給予一個能促進創新研發的舞臺，同時非常感謝評審們給予的肯定，我們團隊所開發的「C反應蛋白紙基檢測試片」希望能簡化複雜的檢體處理步驟，並搭配手機辨識軟體進行數據判讀與紀錄，成為一個快速且方便的檢測工具，使一般民眾也能進行居家檢測，自我監控身體發炎狀況，我們希望能藉由此技術的發展，幫助國人甚至是偏遠地區提升醫療照護品質。

We would like to thank LITE-ON for providing us with a stage for promoting innovation and R&D. We also feel grateful for great support from the judges. We hope that "Paper-Based C-Reactive Protein Device with Mobile Phone Software" developed by our team can simplify complicated processing procedures for test specimens. Meanwhile, we use mobile phone identification software for data readings and records to provide a fast and convenient test tool so that people can conduct tests at home and monitor the status of inflammation in their bodies. We hope that the development of this technology can help citizens and even people living in remote regions improve healthcare quality.

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## 鮮度感測器

### Food Polygraph

「鮮度感測器」是由工業技術研究院與臺灣科技大學的技術合作成果，使用者藉由輕便可攜的手持式裝置，與大數據與雲端分析技術結合後，讓食材的新鮮度可以被量化，此技術可為大眾的食安問題把關，降低食物中毒風險與減少食物浪費問題。感謝指導教授的引領與組員們的努力，讓鮮度感測器可以在光寶創新獎中開花結果，得到銀賞的殊榮，也謝謝主辦單位與評審委員的鼓勵與建議，我們將持續研發鮮度感測器，並希望其技術可以推廣到相關應用，讓此技術成果可以遍地開花。

"Food Polygraph" is a product of technology collaboration between ITRI and National NTUST. The user can use a lightweight and portable hand-held device which is coupled with big data and cloud analysis technologies to quantify the freshness of food ingredients. This technology can help maintain food safety for the public, reduce risks of food poisoning, and reduce food waste. Thanks to advisors' guidance and team members' hard efforts, "Food Polygraph" finally won the Silver Award in the competition. We also would like to show our gratitude to the organizer and judges for their encouragement and recommendations. We will continue to improve this device, hoping that the technology can be expanded to related applications and the technology can be widely adopted.

## 新型助聽器解決方案

### Novel Hearing Aid Solution

我們團隊來自南臺科技大學電機系與奇美醫院，作品的創作理念是有鑑於全球聽力損失患者逐年上升，而現行的助聽器雖能有效提升音訊強度並降低環境穩態噪聲，但對於多重人聲的降噪效果卻相當有限。因此本團隊參考了人類對於語音訊號的處理路徑，導入電腦視覺與AI技術打造新一代的解決方案。除了提升助聽器的效能外，也能大幅改善聽障者的日常生活與社交關係，實現有溫度的永續科技。最後再次感謝光寶科技與評審委員們的肯定，團隊會帶著這項殊榮持續努力，往改善人類生活的方向前進。

Our team members are from the Department of Electrical Engineering of Southern Taiwan University of Science and Technology and Chi Mei Hospital. We created the work in response to an increase in the number of patients suffering from hearing loss across the world. Existing hearing aids may effectively improve the intensity of audio sources and reduce steady noises in the environment, but they have very limited effects on reducing the noise level of multiple human voices. The team therefore studied the paths of transmission of audio signals from humans and introduced computer vision and AI technologies to create the next-generation solution. The solution helps improve the performance of hearing aids and it greatly improved daily life and social interactions of people suffering from hearing loss. It is a solution that uses sustainable technologies to bring warmth into people's lives. We are very grateful for the support and recognition from LITE-ON and the judges. We will continue to work hard to bring a better tomorrow for all people.



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# WORDS FROM THE WINNERS

## 設計組得獎感言



### RESEW'S 永續布料銀行

#### RESEW'S Fabric Sustainable Banking

很榮幸可以參與這次競賽，由於我們的作品是一套龐大的倉儲管理與服務系統，有別於競賽一直以來獲獎的產品類作品，整個作品的發展過程中也與產學合作的廠商訪談多次，因此在競賽過程中除了獲得了很多評審的肯定與鼓勵，也吸取了他們給予的建議。最讓我們驚喜的是我們的作品可以獲得金賞，受到評審的青睞，未來我們將持續優化系統，朝向更實際面的方向發展。

We are honored to be a part of this contest. Our work involves a massive warehouse management and service system, which is different from other winning entries in the contest that has consisted of product design in past years. We interviewed multiple companies of the industry when developing the system in order to enable our idea to be more feasible to the market. We received recognition and encouragements from judges in the process and we also heeded the advice they gave us. We were most surprised when our work won the Gold Award and admiration from the judges. We will continue to optimize the system and make it more practical in the future.

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### 兒童氣喘保衛戰

#### Kid's Asthma Defense

我畢業於實踐大學，工業產品設計學系。這次的作品「兒童氣喘保衛戰」，訴求是能改善兒童、家長、醫生這三者的照護體驗，讓治療氣喘的過程能夠透過有趣的體驗，達到有效的治療目標。感謝指導老師以及光寶科技、評審委員的肯定，讓我的設計能更成熟、完整並且讓更多人知道。

I graduated from the Department of Industrial Design of Shih Chien University. My work, "Kid's Asthma Defense," seeks to improve the experience of the children, parents, and doctors, make the treatment of asthma a fun experience, and achieve effective treatment. I wish to thank my instructor and LITE-ON for their encouragement which has made my design more mature, complete and well-known.



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### 智能護手

#### Smart Hand Care Device - Handicare

我們是來自臺科大設計系的團隊，我們希望藉由「智能護手」能幫助患有手部慢性病的患者改善病情。感謝光寶創新獎的肯定，讓我們獲得這個榮耀，也讓我們的作品能被更多的人看見。感謝光寶科技對設計的支持，也期許光寶創新獎能提拔更多優秀的青年學子。

We are a team from the Department of Design of NTUST. We hope to use "Handicare" to help people with chronic hand conditions to improve their discomfort. We'd like to thank LITE-ON Award for the encouragement. We feel honored to receive this Award. It also helps our work to be known to more people. We thank LITE-ON for its support for design and we hope that LITE-ON Award can help support more talented young students.



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# REMEMBERING THE EVENT

活動記錄

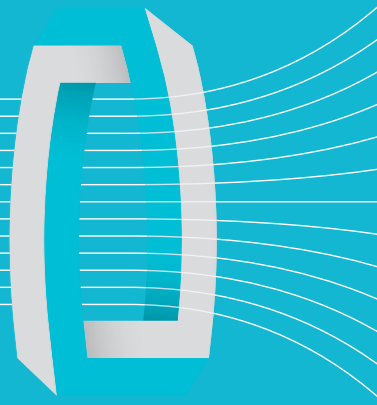


# REMEMBERING THE EVENT

活動記錄



# ABOUT LITE-ON TECHNOLOGY



## 關於光寶科技

光寶創立於 1975 年，以「光電節能、智慧科技最佳夥伴」為願景，聚焦核心光電元件及電子關鍵零組件之發展，致力以資源整合與管理最佳化建立量產優勢。光寶提供產品廣泛應用於電腦、通訊、消費性電子、汽車電子、LED 照明、雲端運算、工業自動化及生技醫療等領域，其中旗下產品包括光電產品、資訊科技、儲存裝置等皆居全球領先地位。

光寶 40 年來專注於建立量產競爭優勢，將多元化產品組合進行效益最佳化的資源整合與管理，實現優質的營收成長與獲利能力。2014 年光寶順利完成「One LITE-ON」九大子公司整併，主要營運策略聚焦於提升資產使用率、運用自動化生產優化產能與效率、推動精實生產改造整體生產流程與效能；長期則著重於實現獲利、穩健營運體質，提升股東權益報酬，期為百年企業的永續經營扎根。

光寶近年來積極由資通訊產業朝向雲端運算、LED 照明、汽車電子、智能製造、IoT 等領域轉型，積極打造光寶新一波營運成長動能。時值全球科技產業正迎來新一波變革，光寶期許在此極具變動與挑戰的時代中，發揮世界級卓越企業的既有優勢，成為全球客戶在發展光電節能與智慧科技之創新及應用時，首選的最佳事業夥伴。

Founded in 1975, LITE-ON embraces being "Best Partner in Opto-Electronic, Eco-Friendly and Intelligent Technologies" as its vision to focus on the development of opto-electronic and key electronic components, and strives to build up competitive edge through resource integration and optimized management. LITE-ON produces products that are used in a broad range of applications, such as computers, communications, consumer electronics, automotive electronics, LED lighting, cloud computing, industrial automation as well as biotech and healthcare. LITE-ON is a worldwide leading provider of optoelectronics, information technology and storage devices components.

For more than 40 years, LITE-ON has concentrated on establishing a competitive advantage in mass production. Through resource integration and management, we maximize the returns from a diverse product portfolio to realize excellent revenue growth and profits. In 2014, LITE-ON successfully completed its "One LITE-ON" program by integrating nine of its main subsidiaries under one management, while the main business strategy remains focusing on improving resource utilization, automation, production optimization, and streamlined processes for better productivity and efficiency. In the long term, the focus is on profitability, sound governance and improving shareholder returns to lay down the foundation for a sustainable century enterprise.

In recent years, LITE-ON has been shifting its production focus from IT and communication towards cloud computing, LED lighting, automotive, smart manufacturing and IoT (Internet of Things) applications. The global technology industry is now set to welcome a new wave of changes, LITE-ON aims to leverage its existing advantage as a world-class enterprise in this age of changes and challenges to become the partner of choice for global customers developing innovations and applications for photonics, energy-saving and smart technologies.

