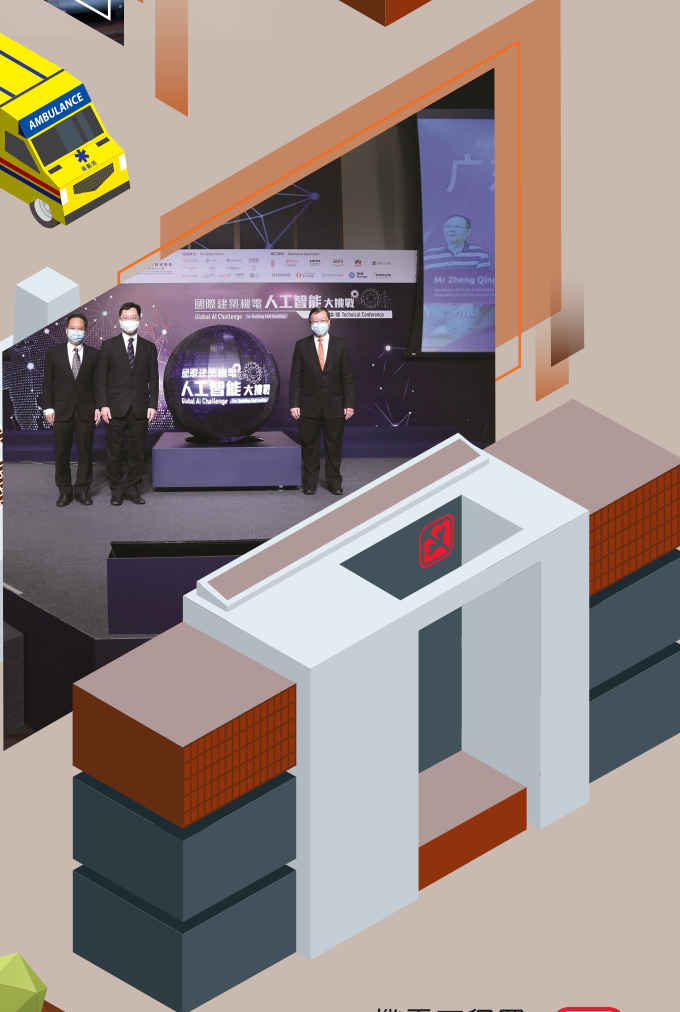
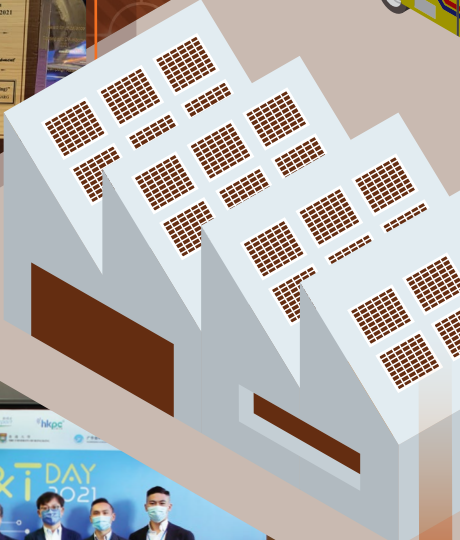
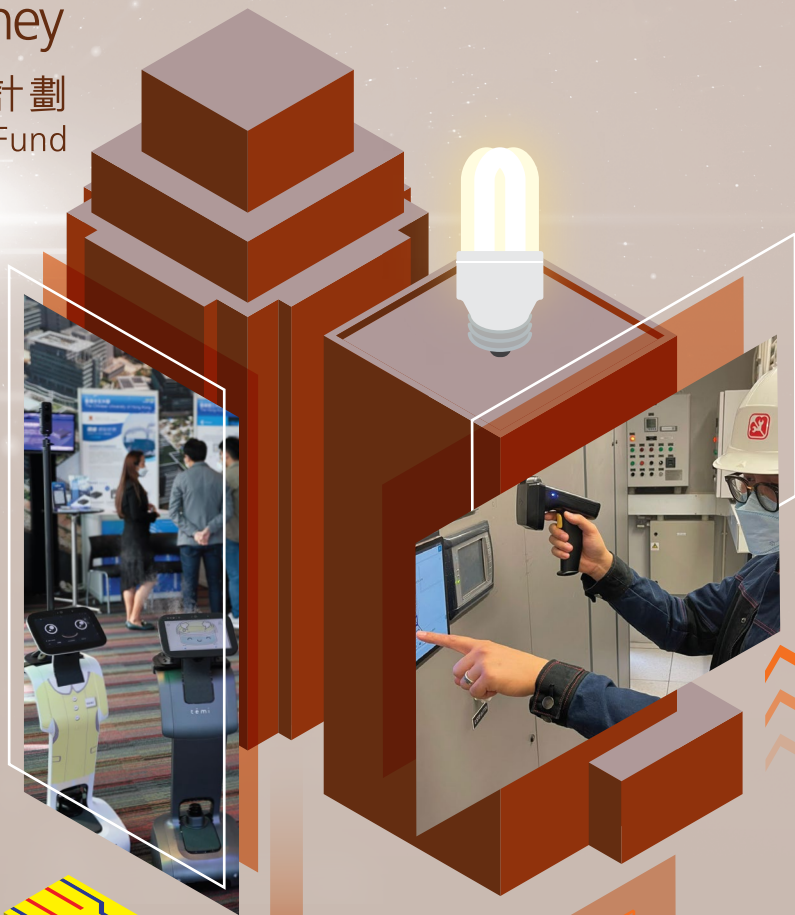
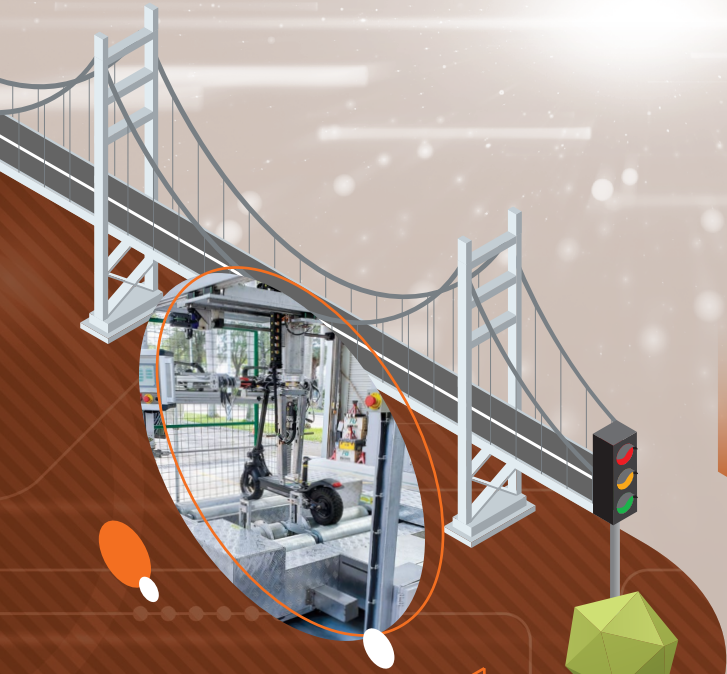


機電 E&M 2.0 服務新里程 A New Journey

機電工程營運基金第二個五年策略計劃
Electrical and Mechanical Services Trading Fund
The 2nd 5-year Strategic Plan



最新進展
Latest Progress

2022 4月
April



1 策略 STRATEGY

事例 CASE 1

機電署榮獲2021建造業議會數碼化大獎機構類別(客戶)金獎

The EMSD Won the Gold Award at CIC Construction Digitalisation Award 2021 in Organisation (Client) category

由建造業議會主辦的2021建造業議會數碼化大獎旨在表揚傑出的本地項目及機構在推動及應用數碼化工具和 workflow 方面作出貢獻，利用創新科技(創科)提高生產力、品質、可持續發展及安全。機電工程署(機電署)一直積極應用新科技及推動數碼轉型，以提高生產力、品質及安全，為公眾及客戶部門創造最大價值，並且推動機電業界走向數碼化。有關工作為機電署贏得2021建造業議會數碼化大獎機構類別(客戶)金獎，為我們的團隊帶來莫大鼓勵和支持。展望未來，機電署會繼續與合作夥伴及持份者攜手奮進，共同創新及創造，以開啓數碼未來的無限可能，造福社會。

The CIC Construction Digitalisation Award 2021, organised by the Construction Industry Council (CIC), aims to recognise outstanding local projects and organisations for their contributions in promoting and adopting digitalisation tools and workflows, and bringing about innovative technology to improve productivity, quality, sustainability and safety. The Electrical and Mechanical Services Department (EMSD) has been actively adopting new technologies and promoting digital transformation to enhance productivity, quality and safety, so as to create maximum value for the public and our client departments and motivate the electrical & mechanical (E&M) industry towards digitisation. The EMSD won the Gold Award at the CIC Construction Digitalisation Award 2021 in the category of Organisation (Client) for these initiatives, which was a huge encouragement and support to our team. Looking forward, the EMSD will continue to stride ahead, co-innovate and co-create with our partners and stakeholders to unlock unlimited possibilities of the digital future for the betterment of our society.



機電署團隊奪得金獎，開啓數碼未來的無限可能
The EMSD team received the Gold Award, unlocking unlimited possibilities of the digital future

事例 CASE 2

活用政府物聯通 行山安全更輕鬆

Enhancing Hiking Safety with Government-Wide Internet of Things Network

民眾安全服務隊(民安隊)少年團早前在民安隊圓墩營舉辦2021年野外定向比賽。鑑於該區域的流動電話網絡覆蓋欠佳，可能對參賽者構成潛在危險，機電署為活動參賽者提供行山安全手錶裝置。該裝置聯繫至政府物聯通的網絡以追蹤參賽者位置，具備定位、SOS求救及電子圍欄功能。當出現緊急情況時，參賽者可利用該裝置發送SOS求救信號。系統管理平台收到求救信號後，在現場的後援中心會把有關裝置的實時位置通知工作人員，以向參賽者提供協助，確保所有隊伍安全。

在行山安全試驗計劃方面，機電署會繼續研究相關應用，例如配合手機應用程式使用，以及利用搭載小型政府物聯通基地的無人機測試定位等，務求更方便地保障山野活動安全。

機電署同事全程於後援中心透過系統管理平台實時監察行山安全系統及手錶裝置的情況，與民安隊保持緊密聯繫
The EMSD staff monitored the real-time condition of the hiker safety system and smart devices via the system management platform at the supporting centre, and worked closely with the CAS throughout the event



手錶裝置可防止參賽隊伍遠離活動範圍，他們一旦遇上意外，亦可透過SOS求救功能向大會求助

The smart watch devices prevented participating teams from wandering off the event area and enabled them to seek help from the organiser via the SOS function in case of accident

The Civil Aid Service (CAS) Cadet Corps held the Orienteering Competition 2021 at CAS Yuen Tun Camp earlier. As the poor mobile network coverage in the area may pose potential danger to the participants, the EMSD provided hiker safety smart watch devices for all participants. The devices which were connected with the Government Wide Internet-of-Things Network (GWIN) to track the location of participants, provided location tracking, SOS and geo-fencing functions. In case of emergency, participants could send out SOS signals with the devices. Upon receipt of such signals on the system management platform, the on-site supporting centre would notify the staff of the real-time location of the devices concerned to provide assistance to participants, ensuring safety of all teams.

The EMSD will continue to study the related applications on the hiker safety trial scheme, such as the use of mobile applications with the smart devices, and the test on location tracking using the GWIN-on-drone (a drone carrying a lightweight GWIN gateway), in order to enhance safety of mountain activities more effectively.

機電數碼化 E&M Digitisation

事例 CASE 3

全港首個採用建築信息模擬 — 資產管理精簡版的場地

First Venue to Use BIM-AM Lite in Hong Kong

機電署致力為民航處總部的主要機電資產建立數碼化資產管理系統。本署不但成立了數碼化資產管理系統隊伍，更新和整理近7 000項機電資產的數據，更首次在民航處總部採用建築信息模擬 — 資產管理精簡版來構建資產信息模型。建築信息模擬 — 資產管理精簡版是一種以現有建築物的二維平面圖構建資產信息模型的方法，減省於現場採集三維空間數據的程序，避免因構建資產信息模型而影響客戶部門的日常運作。

機電署同事亦前往民航處總部的天線場實地了解系統的運作和應用，並體驗使用建築信息模擬 — 資產管理精簡版減省建立三維模型的時間，以及加快於現有場地推行建築信息模擬 — 資產管理系統的好處。除了民航處總部外，機電署團隊亦計劃為民航處的航空交通管制中心進行機電數碼化，以提升資產維修保養水平。

The EMSD strived to establish a digitised asset management system for the major E&M assets of the Headquarters of the Civil Aviation Department (CAD). We not only formed a team for the digitised asset management system to update and organise nearly 7 000 E&M asset data, but also used the Building Information Management – Asset Management Lite (BIM-AM Lite) to build Asset Information Models at the CAD Headquarters for the first time. BIM-AM Lite is a method to construct Asset Information Models with the use of 2-dimensional (2D) layout for existing buildings, which saves the workflow of collecting 3D spatial data on-site and avoids affecting the daily operations of client departments due to the construction of Asset Information Models.

The EMSD staff also visited the antenna farm at the CAD Headquarters to study the operation and application of the system on site, as well as experiencing the benefits of reducing the time required to establish 3-dimensional (3D) modelling with the use of the BIM-AM Lite and accelerating the implementation of the BIM-AM system on current venues. Apart from the CAD Headquarters, the team also planned for the E&M digitisation of the CAD's Air Traffic Control Centre to enhance asset maintenance standards.



機電署同事於民航處總部的天線場實地了解建築信息模擬 — 資產管理精簡版的運作和應用
The EMSD staff studied the operation and application of BIM-AM Lite at the antenna farm at the CAD Headquarters

機電署同事示範建築信息模擬 — 資產管理系統的操作
The EMSD staff demonstrated the operation of the BIM-AM system

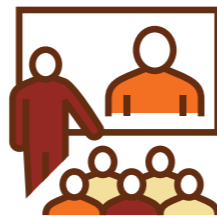




事例 CASE 4

同心同行展懋猷 屢奪殊榮創佳績

Making Multifarious Endeavours Together and Attaining Remarkable Achievements with Numerous Awards



機電署多年來不遺餘力，持續投放資源於人才培訓、發展智能技術及提升機電工程項目質素等，成績備受各界肯定。機電署積極舉辦不同的培訓計劃及課程，更憑着革新的技術員訓練計劃榮獲香港管理專業協會頒發2021年最佳管理培訓及發展獎銀獎，以及4個特別獎，包括職涯發展特別獎、未來人才發展特別獎、未來技能發展特別獎及業界最喜愛培訓及發展項目。獎項給予同事莫大鼓勵和信心，讓團隊繼續無懼挑戰，同心同行，提供優質服務。

Over the years, the EMSD spares no efforts in continuously allocating resources to talent training, smart technology development, quality enhancement of E&M projects, etc., achieving excellent results recognised by various sectors in the community. Actively organising different training programmes and courses, the EMSD was honoured with the Silver Award for Excellence in Training and Development 2021 for its innovative Technician Training Scheme, as well as 4 special awards, including Excellence in Career Development, Excellence in Future Talent Development, Excellence in Future Skills Development and HR Professionals' Favourite Campaign, by the Hong Kong Management Association (HKMA). These awards have empowered our colleagues with great encouragement and confidence while at the same time motivated our teams to continue delivering quality services together despite challenges.



機電署同事出席頒獎禮
The EMSD staff attended the award ceremony



機電署榮獲香港管理專業協會頒發5個獎項
The EMSD was honoured with 5 awards from the HKMA



機電署署長彭耀雄先生聯同項目負責人從香港管理專業協會主席彭耀佳博士手中接過5個獎項

Mr Pang Yiu-hung, Director of Electrical and Mechanical Services, together with the project team leaders, received five awards from Dr Y.K. Pang, Chairman of the HKMA



事例 CASE 5

特定機電團隊(電力)參加電力系統培訓課程 與生產廠商代表直接交流

Special Duty Unit (Electrical) Attended Electrical System Training Courses and Exchanged Views with Manufacturer Representatives Directly

特定機電團隊(電力)應邀出席「不間斷電源系統操作及保養(理論及實踐)」及「變頻式驅動器保養流程」培訓課程。課程內容和教材均為參加者度身定做，由具豐富維修經驗的同事及生產廠商代表擔任導師。導師深入淺出地講解設備的功能及分析引起故障的各種環境因素，務求增進參加者對兩項電力系統的了解和認識。

導師不但耐心地向參加者講解不間斷電源系統的內部構造、操作原理，以及不同系統配置的性能和特點，更實地示範系統測試、測試儀器應用，以及驗收和保養的程序。導師亦向出席者講解緊急旁路運作模式和隔離裝置，以及電池組的充放電程序和注意事項，讓參加者更容易掌握相關的專業知識、技術及安全措施，有助他們日後找出問題根源。

此外，參加者除了認識最新的變頻式驅動器的基本原理和故障排查步驟外，亦一起討論變頻式驅動器的預防性保養事宜及指引，彼此坦誠交流及分享心得和意見，並與廠商直接交流，通過討論互相啟發，履行「傳承相關知識及經驗」的使命。

The Special Duty Unit (Electrical) attended the "Operation and Maintenance of Uninterruptible Power Supply (Theory and Practice)" and "Maintenance Procedures of Variable Frequency Drive" training courses on invitation. The content and materials of the courses were tailored for the attendees while our colleagues who had rich experience in maintenance and the representatives of the manufacturers were the instructors. The instructors explained the functions of equipment in simple terms and analyse various environmental factors that would cause failures, so as to enhance the attendees' understanding and knowledge of the two electrical systems.

The instructors not only patiently explained the internal structure and operation principles of uninterruptible power supply system, and the performance and characteristics of different system configurations to the attendees, but also conducted on-site demonstration of system testing, and application, acceptance and maintenance procedures of testing equipment. The instructors also demonstrated to the attendees the operation mode of emergency bypass and isolation devices, as well as the charging/discharging procedures and precautions of battery banks, so that the attendees could easily master relevant professional knowledge, technology and safety precautions, facilitating their identification of the root causes of any problems in the future.

In addition, apart from learning about the basic principles and troubleshooting steps of the latest variable frequency drive, the attendees also participated in an in-depth discussion on the preventive maintenance and the relevant guidelines of the variable frequency drive, exchanging and sharing insights and views with each other and the manufacturers directly for mutual inspiration, accomplishing the mission of "passing on relevant knowledge and experience".



參加者了解驅動器的運作和保養
The attendees learnt about the operation and maintenance of the drive

事例 CASE 6

第十一屆穗港澳蓉青年技能競賽

The 11th Guangzhou/Hong Kong/Macao/Chengdu Youth Skills Competition

第十一屆穗港澳蓉青年技能競賽(競賽)由廣州市人力資源和社會保障局、香港職業訓練局、澳門特別行政區勞工事務局及成都市人力資源和社會保障局合辦。競賽已於2021年12月14日至19日舉行。為配合疫情防控需要，競賽首次以線上形式進行。機電署派出3位早前在世界技能大賽成功入圍的香港代表參加電氣裝置項目比賽，選手需要在指定時間內精確地完成布線和電氣設備安裝，並按比賽要求設計控制線路及完成功能調試，包括照明、插座、KNX編程控制、PLC控制線路等。

為積極備戰2022年10月12日至17日在上海舉行的第46屆世界技能大賽，本署會繼續為署內選手進行強化訓練，以提升他們的技能水平和心理素質。本署會從中選出一名最優秀的選手代表香港出戰上海的世界技能大賽電氣安裝項目。

Jointly organised by the Guangzhou Municipal Human Resources and Social Security Bureau, Vocational Training Council of Hong Kong, Labour Affairs Bureau of the Macao Special Administrative Region and Chengdu Municipal Human Resources and Social Security Bureau, the 11th Guangzhou/Hong Kong/Macao/Chengdu Youth Skills Competition (GHMCYSC) was held from 14 to 19 December 2021. For the sake of epidemic prevention and control, the competition was held online for the first time. The EMSD sent 3 Hong Kong representatives who were earlier shortlisted for the WorldSkills Competition to compete in the Electrical Installations category, where the contestants were required to complete the wiring and installation of electrical equipment precisely within the specified timeframe and to design the control wiring and complete the function testing for lighting, socket, KNX programming control and PLC control circuit, etc., according to the competition rules.

To actively prepare for the 46th WorldSkills Competition to be held in Shanghai from 12 to 17 October 2022, the EMSD will continue to strengthen the intensive training for our contestants to enhance their skills level and psychological capabilities. The EMSD will select the best candidate to represent Hong Kong in the Electrical Installations category at the WorldSkills Competition in Shanghai.



機電署見習技術員代表香港參加第十一屆競賽
The EMSD technician trainees represented Hong Kong to compete in the 11th GHMCYSC

選手們沉着應戰，爭取佳績
Contestants remained composed during the competition and strived to achieve outstanding results



事例 CASE 7

機電署再創佳績 日內瓦國際發明展獲19個獎項

The EMSD Achieved Outstanding Results of 19 Awards at the International Exhibition of Inventions of Geneva

日內瓦國際發明展是全球發明界的年度盛事之一，機電署繼去年獲獎後，今屆再次獲得國際專家評判團的肯定，榮獲5項金獎、13項銀獎及1項銅獎；獲得金獎的5個項目為智能升降機移動監測裝置、智能數碼自動梯監測系統、智慧升降機巡查機械人、智能鍋爐維護機械人，以及司機隨身寶。

機電署作為政府創新促成者，會繼續透過機電創科網上平台把政府需求與初創企業及研發機構的創科方案配對，支援並促成各政策局及部門應用新科技，以支持智慧城市發展，共同創新，造福社會。

The International Exhibition of Inventions of Geneva is one of the most significant global annual events on inventions. Further to the attainment of encouraging results last year, the EMSD have won recognition from the expert international jury panel again and received 5 gold, 13 silver and 1 bronze medals this year. The gold medal projects include the Intelligent Elevator Movement Surveillance Device (i-EMSD), Intelligent Digital Escalator Monitoring System (i-DEMS), Robotic Lift Examiner, Smart Boiler Servicing Robot and Smart Driver Assistant for Automated People Mover.

The EMSD, as the innovation facilitator of the Government, will continue to strengthen the matching of technological needs from the Government with I&T solutions from startups and research & development institutes through the E&M InnoPortal, facilitating the application of technologies by bureaux and departments to further support smart city development for the betterment of our society.



智能鍋爐維護機械人是機電署取得金獎的項目之一
The Smart Boiler Servicing Robot is one of the EMSD's gold medal projects

事例 CASE 8

成功研發首部電動可移動工具速度綜合測試儀

Successful Development of the First Electric Mobility Device Speed Tester

近年，在本港的道路上不時可以見到會帶來道路安全隱患的電動可移動工具，如電動滑板車、俗稱「風火輪」的電動單輪車和電動平衡車等。根據現行法例，電動可移動工具受汽車相關條例規管，而涉及電動可移動工具的案件須以科學證據證明涉案工具的速度。然而，路面測試需時，亦涉及高昂的成本及大量人手，長遠而言，會為各執法及檢控部門帶來極大壓力。

為測試電動可移動工具的速度，機電署與香港警務處及律政司合作研發電動可移動工具速度綜合測試儀。速度測試儀以機械臂模擬測試人員的四肢，控制電動可移動工具的加速、減速及剎車動作。測試儀亦適用於多款不同型號的電動可移動工具，並會自動製作測試數據報告，提升效率之餘，更可節省資源及成本，令整個流程更快捷安全。

In recent years, electric mobility devices (EMDs), such as electric scooters, electric unicycles, electric hoverboards, etc., which pose threat to road safety, are often spotted on the roads in Hong Kong. Under the current legislation, EMDs are regulated by motor vehicle-related ordinances. For cases involving EMDs, scientific evidence is required to prove the speed of the devices. However, since road tests take time and involve high costs and substantial manpower, law enforcement and prosecution departments will be under great pressure in the long run.

To test the speed of EMDs, the Hong Kong Police Force (HKPF) and the Department of Justice worked together with the EMSD and developed the Electric Mobility Device Speed Tester. The speed tester adopted an automatic mechanical device with robotic arms to simulate the limbs of the testing personnel to control the acceleration, deceleration and braking movements of the EMDs. It can also be used to test various models of EMDs and will automatically generate reports with the relevant data, which can enhance the efficiency, save resources and costs, and expedite the entire process with a higher safety level.



在啓用典禮上，機電署代表把啓動鑰匙交予香港警務處代表，象徵香港警務處正式接收測試儀
The EMSD representative handed over the activation key to the HKPF representative at the launching ceremony, representing the handover of the speed tester to the HKPF



電動可移動工具速度綜合測試儀測試電動滑板車的運作
The EMD Speed Tester tests the operation of an electric scooter

事例 CASE 9

「國際建築機電人工智能大挑戰」圓滿落幕

Global AI Challenge for Building E&M Facilities Concluded Smoothly

人工智能技術應用於建築機電管理，是邁向智慧城市必經之路，當中涉及多項創科的應用，須持續了解國際技術趨勢，方能求變求進。去年，機電署與廣東省科學技術協會在創新及科技局和中國科學技術協會港澳辦公室指導下合辦「國際建築機電人工智能大挑戰」。活動旨在通過人工智能大賽、國際論壇和工作坊等活動，鼓勵機電業界應用人工智能技術，啓發參加者發展更多人工智能解決方案，以及推動在既有建築物機電系統上應用語義人工智能。

The application of artificial intelligence (AI) technologies E&M management for buildings is crucial on the pathway toward a smart city. It involves a multitude of I&T applications, of which advancement should be achieved through ongoing apprehension of international technological trends. Last year, the EMSD and the Guangdong Provincial Association for Science and Technology jointly organised the Global AI Challenge for Building E&M Facilities, with the support of the Innovation and Technology Bureau and the Office of Hong Kong, Macao and Taiwan Affairs of the China Association for Science and Technology. This event aims at encouraging the E&M trade to adopt more AI technologies, inspiring participants to develop more AI solutions and promoting the application of semantic AI in the E&M systems of existing buildings through a series of activities such as AI competition, global conferences and workshops.



機電署署長彭耀雄先生在國際建築機電人工智能大挑戰國際論壇開幕典禮致辭
Mr Pang Yiu-hung Director of Electrical and Mechanical Services, delivered the opening speech at the Global AI Challenge for Building E&M Facilities – Technical Conference



國際論壇匯聚世界頂尖人工智能精英，除了現場出席的各界專業人士外，更有2 300多位業界人士於線上參與

The global conference gathered world AI leaders, including professionals of various fields attended in person, and over 2 300 trade practitioners participated online

事例 CASE 10

機電創科日2021

E&M I&T Day 2021

機電署於2021年12月7及8日舉辦了「機電創科日2021」。一連兩日的活動於香港科學園舉行，超過10間來自香港科技園、數碼港的策略夥伴公司通過實體和虛擬展攤、講座及網路研討會，分享他們在智慧城市及智慧建築領域的創新方案。超過250名來自不同政府部門，以及創科、機電業、大專院校和公營機構等界別人士參與，冀促成更多合作，為研發成果落地。活動舉行期間有約1 000人次觀看直播。

除了有本地大學與大灣區科研機構進行分享外，機電署亦與食物環境衛生署、運輸署及民安隊共同分享智慧城市項目的成果及最新發展，包括智能廁所試驗計劃、自動泊車系統及行山安全試驗計畫等。機電署作為政府機電工程服務的提供者及創新促成者，會繼續與不同伙伴合作，全力支持各部門落實智慧城市措施。

講者通過視像向現場參加者分享最新創新方案
The speaker shared the latest innovative solutions with the participants through live stream



機電創科日現場參觀及攤位展示情況
On-site visit and booth display of the E&M I&T Day



The EMSD hosted the E&M I&T Day 2021 from 7 to 8 December 2021. The two-day event was held at the Hong Kong Science Park with over 10 strategic partners from the Hong Kong Science & Technology Parks and Cyberport sharing their innovative solutions in the field of smart city and smart building through physical and virtual booths, seminars and online conferences. More than 250 participants from across different government departments, the innovative technology sector, E&M industry, tertiary education and public sector attended the event with a view to facilitating the realisation of research & development results. The event live stream attracted about 1 000 views.

Besides the sharing from local universities and research institutes in the Greater Bay Area, the EMSD also joined the Food and Environmental Hygiene Department, Transport Department and CAS to share the achievements and latest developments of the smart city projects, including the Smart Toilet Pilot Programme, Automated Parking Systems and Trial Scheme of Hiker Safety Initiative. As the service provider and innovation facilitator for the Government's E&M works, the EMSD will continue to cooperate with different partners to provide full support for all departments in the implementation of smart city initiatives.

網頁版本
Webpage version



如對機電工程營運基金第二個五年策略計劃有任何建議，歡迎以電郵方式向我們提出：
We welcome your suggestions on the second five-year strategic plan for the EMSTF.
For enquiries, please email us at
2nd5yearplan@emsd.gov.hk



如欲瀏覽機電工程署主網頁，請到以下網址：
To view the main website of the EMSD, please visit:
<https://www.emsd.gov.hk>

如有其他查詢，請與我們聯絡：
For any enquiries, please contact us:

☎ : (852) 2808 3168

📄 : (852) 2882 1574

