

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

2021 4月
April

機電工程署
EMSD



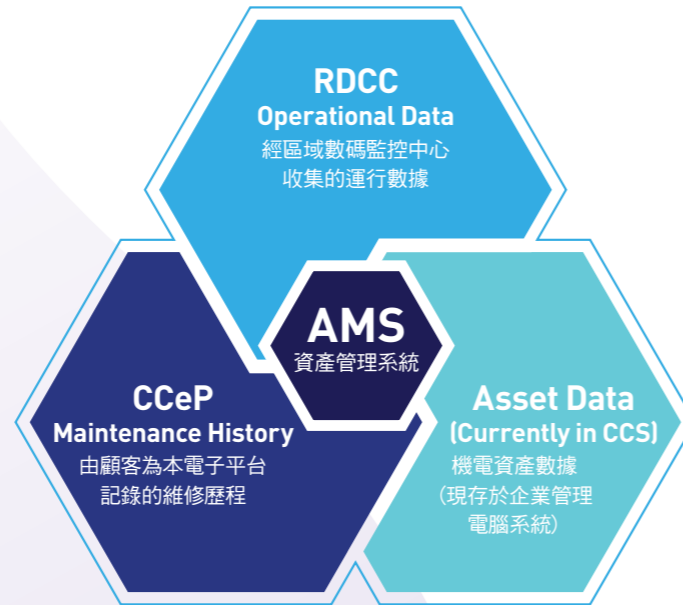
事例 CASE 1

機電資產管理系統平台先導試驗順利完成 真知灼見助日後訂定系統規格

Successful Completion of E&M Asset Management System Platform Pilot Trials Brings about Valuable Inputs for System Specifications in the Future

機電工程營運基金(營運基金)同事去年踴躍參與機電資產管理系統平台的測試，親身體驗由不同承辦商設立的三個系統平台介面，並就系統的功能提供了寶貴意見。我們考慮收集所得的意見後，會聯同顧問擬訂資產管理系統的技術規格，並展開公開招標程序。預計機電資產管理系統平台會由2022年第一季開始在10個政府場地試行，務求加強預測性維修保養，提升機電資產至最佳運行狀態。

Colleagues from the Electrical and Mechanical Services Trading Fund (EMSTF) actively participated in the trials of the E&M Asset Management System (AMS) platform last year. With hands-on experience of using three different platform interfaces provided by various contractors, they offered valuable feedback on the functions of the AMS. Taking into account the feedback collected, we will work with the consultants in drawing up technical specifications of the AMS and then commence the open tendering procedures. It is expected that trial operation will be carried out at 10 government venues starting from the first quarter of 2022 in a bid to strengthen predictive maintenance as well as optimising the performance of E&M assets with the AMS.



資產管理系統的運行機制
Operating Mechanism of the AMS

事例 CASE 2

建築信息模擬成就嘉許禮 機電署勇奪三獎

EMSD Recognised with Three Awards at Celebration of BIM Achievement

在建造業議會主辦的2020建築信息模擬成就嘉許禮中，機電工程署(機電署)成果豐碩，不但獲嘉許為「2020建築信息模擬機構」，還憑總部大樓項目贏得「2020建築信息模擬項目」殊榮，而負責此項目的高級工程師陳賀賢先生更榮獲「2020建築信息模擬專業人員」獎項。近年建築信息模擬技術(BIM)應用愈見普及，機電署也自行研發了「建築信息模擬-資產管理(BIM-AM)」系統，並取得專利。工程人員可透過平板電腦遙距查閱設備資訊，一旦系統發生故障，能夠即時進行故障機件定位及診斷成因。我們把BIM-AM系統應用推廣至多個政府及公營機構場地和建築物。另外，我們亦設立區域數碼監控中心，透過互聯網協調各區的數碼化系統(包括BIM-AM系統)，從城市區域層面集中監控多個場地內機電資產的實時狀態。

The Electrical and Mechanical Services Department (EMSD) reaped bounteous rewards in the Celebration of BIM Achievement 2020 organised by the Construction Industry Council (CIC). While the EMSD was crowned one of the "BIM Organisations 2020", our EMSD Headquarters project was named a "BIM Project 2020" and Mr. Chan Hor-yin, Steve, Senior Engineer of this project awarded "BIMer 2020". The application of Building Information Modelling (BIM) technology has gained traction in recent years. The EMSD also patented the self-developed Building Information Modelling - Asset Management (BIM-AM) system, which allows engineering personnel to remotely access equipment information through tablets. When there is a breakdown, they can immediately locate the malfunctioned components and diagnose the cause. We have promoted the adoption of the BIM-AM system at a number of venues and buildings of the Government and public organisations. We have also established a Regional Digital Control Centre to conduct centralised monitoring of the real-time status of electrical and mechanical assets in various venues at a regional city level by co-ordinating the digitalised systems, including the BIM-AM systems, across various districts via the Internet.



建造業議會的建築信息模擬專責委員會向機電署頒發「2020 建築信息模擬機構」獎狀

The Committee on BIM of CIC presented the certificate of "BIM Organisations 2020" to the EMSD

事例 CASE 3

區域數碼監控中心 全方位確保疫苗接種計劃順利進行

Regional Digital Control Centre Ensures Smooth Implementation of the Vaccination Programme

為配合2019冠狀病毒疫苗接種計劃，機電署以區域數碼監控中心的系統作基礎，配合物聯網應用，特別為所有社區疫苗接種中心設立機電監察系統，提供全天候系統監控和故障預警提示。監察系統實時遙距監察場地多項重要資訊，包括供電、室溫變化及冷藏庫溫度等，並分析數據以確保疫苗妥善存放及場地的機電設施運作正常。此外，該系統亦為疫苗指揮中心提供緊急應變流程資訊，包括預警信息、人員聯絡資訊以及流動裝置信息提示等，以便指揮中心掌握各接種中心的運作情況。

To support the COVID-19 vaccination programme, we set up an electrical and mechanical monitoring system for all community vaccination centres based on the infrastructure and system of the Regional Digital Control Centre (RDCC) and the application of Internet of things (IoT). The monitoring system provides round-the-clock real time remote monitoring and fault warning on multiple important information, including power supply, room temperature changes, freezer temperature, etc., while all the data are analysed to ensure that the vaccines are properly stored and the E&M facilities at the venues are in good operating condition. The monitoring system also provides emergency response processing information for the command centre, including early warning messages, personnel contacts, and mobile push notifications, giving a complete picture of the operation of each vaccination centre.



機電署將繼續密切監察社區疫苗接種中心的機電設施運作情況
The EMSD will closely monitor the operating condition of the E&M facilities at the community vaccination centres



位於機電署總部的社區疫苗接種中心機電監察系統
The E&M Monitoring System for all Community Vaccination Centres at EMSD HQs

事例 CASE 4

機電署人員脫穎而出 囊括世界技能大賽「電氣安裝」和「空調製冷」香港代表資格

Brilliant EMSD Technician Trainees Bagged All the Hong Kong Team Qualifications in Electrical Installations and Refrigeration and Air Conditioning Categories of WorldSkills Competition

世界技能大賽(世賽)被譽為技能界的奧林匹克比賽,是全球最具規模的國際技能活動,旨在提升專業技術水平及推廣職業專才教育。因應2019冠狀病毒病疫情,第46屆世賽將延期至2022年於上海舉行。機電署派出12名見習技術員參加「世界技能大賽香港代表選拔賽」,並首次於「電氣安裝」和「空調製冷」兩個項目中囊括所有「香港代表」的資格,成績令人鼓舞。

此外,本署將派出3名選手參加2021年在成都舉行的「第十一屆穗港澳蓉青年技能競賽」電氣安裝項目,與廣州、澳門和成都三地選手切磋技能。我們務求以賽促學,提升選手的心理質素和專業技術,以期在世賽中為港爭光,奪取殊榮。

Hailed as the "Skill Olympics", the WorldSkills Competition is the largest international technical skills event with the aim to enhance professional skill levels and promote vocational and professional education. Due to the COVID-19 epidemic, the 46th WorldSkills Competition to be held in Shanghai has been postponed to 2022. Twelve Technician Trainees of the EMSD participated in the WorldSkills Hong Kong Competition and for the first time swept the board with all the Hong Kong Team qualifications in the categories of Electrical Installations and Refrigeration and Air Conditioning. The results were highly encouraging.

We will also field three contenders to participate in the Electrical Installations category in the 11th Guangzhou/Hong Kong/Macao/Chengdu Youth Skills Competition to be held in Chengdu in 2021 to compete with contenders from the other three cities. We aim to enhance the contenders' skills in the competition, strengthening both their psychological qualities and professional skills, with a view to that they bring honour to Hong Kong in the WorldSkills Competition.



空調及製冷

電氣安裝



本署見習技術員囊括第46屆世界技能大賽「電氣安裝」及「空調製冷」香港區所有出賽資格
Our Technician Trainees swept the board with all the Hong Kong Team qualifications in Electrical Installations and Refrigeration and Air Conditioning categories in the 46th WorldSkills Competition

事例 CASE 5

機電署與廣州市人社局簽訂深化合作備忘錄 推動穗港機電人才融合發展

EMSD and HRSSGZ Sign Memorandum of Co-operation to Further Deepen Collaboration on the Development of E&M Talents of Guangzhou and Hong Kong

為進一步推動穗港機電人才融合發展,本署與廣州市人力資源和社會保障局(人社局)在2020年12月21日簽訂了《深化機電人才發展合作備忘錄》,內容包括共同推進技術人員培訓,加強世界技能大賽(世賽)選手集訓,以及為機電業從業員開發新科技培訓課程。隨着這次深化合作,穗港兩地在各機電行業共同開創了多元化的培訓模式。簽署儀式以視像會議形式在網上舉行,並邀得中央人民政府駐香港特別行政區聯絡辦公室代表、香港機電工程師商聯會會長潘樂祺先生及一眾機電業界的合作伙伴於線上一同參與。

To further deepen collaboration on the development of electrical and mechanical (E&M) talents of Guangzhou and Hong Kong, the EMSD and the Guangzhou Municipal Human Resources and Social Security Bureau (HRSSGZ) signed the Memorandum of Co-operation on Enhanced E&M Talent Development on 21 December 2020. The areas of collaboration include jointly boosting the training for technicians, strengthening the training in preparation for the WorldSkills Competition and developing training courses on new technology for E&M trades. With deepened collaboration, Guangzhou and Hong Kong establish diversified modes of training in concerted efforts. The signing ceremony was held online, in the presence of the representatives of the Liaison Office of the Central People's Government in the Hong Kong Special Administrative Region, President of the Hong Kong Federation of Electrical and Mechanical Contractors Limited, Ir Rocky Poon and various fellow partners of the E&M trades.



機電署與廣州市人社局簽署《深化機電人才發展合作備忘錄》
The EMSD signed the Memorandum of Co-operation on Enhanced E&M Talent Development with the HRSSGZ

事例 CASE 6

特定機電團隊(暖通空調)正式啓動 Official Launch of Special Duty Unit (Heating, Ventilation and Air Conditioning)

特定機電團隊(暖通空調)分享聚會暨啓動儀式於2020年10月28日順利舉行,近60位來自五個部別及兩個空調部門卓越中心的精英聚首一堂,互相分享經驗,包括他們負責的重要設施及應急方案等。部門期望特定機電團隊(暖通空調)發揮團結精神,同心協力,在應急支援及知識傳承方面樹立典範,為部門發展作出貢獻。特定機電團隊(暖通空調)會繼續籌備一系列交流活動,傳承知識和經驗,並提升團隊的應急支援能力。

The sharing session cum launching ceremony of Special Duty Unit (Heating, Ventilation and Air Conditioning) (SDU(HVAC)) was successfully held on 28 October 2020. About 60 participants from five divisions and two air-conditioning Centres of Excellence gathered to share their experience, including the important facilities under their purview and their emergency solutions. It is hoped that the SDU(HVAC) will work in collaboration and exert team spirit in setting role models on emergency support and knowledge-sharing, thereby contributing to the development of the EMSD. The SDU(HVAC) will continue to organise a series of exchange activities for passing on knowledge and experience, as well as enhancing the emergency support capabilities of the team.



特定機電團隊(暖通空調)正式啓動
SDU(HVAC) has officially launched

事例 CASE 7

「Inno@E&M 創新科技挑戰賽」化意念為實例 為衛生署安裝智能照明系統

Inno@E&M Challenge Turns Ideas into Reality in the Installation of Smart Lighting System for the Department of Health

機電署近月為衛生署公共衛生檢測中心安裝智能照明系統。智能系統可按用戶喜好調節照明亮度與照明區域分布，並會儲存照明系統的能源消耗數據，從而有效地進行能源管理。該系統更可透過智能手機或平板電腦無線操作，既能為客戶提升操作彈性，又能方便為電池燈進行定期測試，日後更可加入其他智能科技。由於系統採用了網狀網絡設計，即使有個別部件發生故障，系統仍可找尋其他通訊路徑以連接網絡，讓其他部件保持在線，大大增加系統的穩定性。這套智能照明系統亦已在其他客戶的場地安裝，例如香港消防處總部大廈地庫。隨着科技進步和物聯網技術日益普及，智能照明系統可與其他物聯網技術一起應用，例如可準確識別建築物內個別人士位置的定位信標，用於為視障人士開發室內導航系統。

The EMSD recently installed a smart lighting system at the Public Health Laboratory Centre (PHLC) of the Department of Health. The smart system provides individual brightness control and allows flexible zoning of lighting based on users' preference, while energy consumption data are recorded for better energy management. Supporting wireless control by smartphones or tablets, the system not only improves operational flexibility for customers, but also facilitates periodic tests for battery-operated lightings. It may also be expanded to include other applications of intelligent technology in the future. The mesh network design of the system allows identification of an alternative route of communication in case of any device failure, enabling other devices in the mesh network to stay connected online, thus greatly enhancing the stability of the system. The smart lighting system has also been installed at other clients' venues, e.g. the basement of the Hong Kong Fire Services Headquarters Building. With technological advancement and increasing popularity of Internet of Things (IoT) technology, the smart lighting system could be integrated with other IoT technologies, such as the location beacon, which can be used to precisely identify the location of individuals within a building, enabling the development of an indoor navigation system for the visually impaired.



衛生署公共衛生檢測中心已安裝智能照明系統
The Smart Lighting System is installed at the PHLC of the Department of Health

事例 CASE 8

應用政府物聯網監察年花銷售點人流 落實《香港智慧城市藍圖2.0》

Application of the Government-Wide Internet of Things Network to Monitor the Footfall at Flower Sale Points Realises the Smart City Blueprint for Hong Kong 2.0

今年政府首次應用政府物聯網(GWIN)監察年花銷售點場地的人流。由於疫情關係須加強控制人流，機電署與客戶部門緊密溝通，釐定計劃方針，繼而在短時間內設計和安裝人流監察及派籌系統。我們在年花銷售點各個出入口設置了三套紅外線傳感器，分別點算進出人數。人流數據經雲端系統運算後，場內的顯示屏上即顯示資訊，紅黃綠指示燈亦相應發出入場燈號。所有年花銷售點均配備GWIN基站及流動式基站，以增強網絡的可靠性。GWIN技術通過智能系統報告這些設施的使用情況，從而更有效控制人流。

This year the Government has applied the Government-Wide Internet of things Network (GWIN) to monitor the footfall at flower sale points for the first time. As crowd control has to be stepped up due to the epidemic, the EMSD liaised closely with the client department to formulate strategic plans, and then designed and installed the footfall monitoring and ticketing systems in a short period of time. We set up three sets of infrared sensors at every entrance and exit of each flower sale point for footfall counting. After computation by the cloud-based system, the footfall data collected were shown on the display screens, and the green, amber and red indicator lights for entrance were on correspondingly on site. All the flower sale points were equipped with GWIN base stations and mobile gateways to enhance network reliability. GWIN reported the facilities' usage through an intelligent system, enabling more effective crowd control.



機電署同事於現場監控人流監察系統的運作情況
On-site EMSD staff oversee the operation of the footfall monitoring system

設於機電署總部的中央控制及指揮中心，確保全港15個年花銷售點的人流系統運作暢順，應對各項突發情況
The Central Control and Command Centre at the EMSD HQs ensured the smooth operation of the footfall monitoring systems at 15 flower sale points across the territory and prepared for contingency



事例 CASE 9

機電署榮獲四金四銀獎項 揚威日內瓦國際發明展

Achieving Outstanding Results of 4 Gold and 4 Silver Medals at the International Exhibition of Inventions of Geneva

日內瓦國際發明展是全球創新科技界的年度盛事之一，今年因應疫情以網上形式舉行。國際專家評審團於2021年3月中旬對來自20多個國家約600項發明進行線上評審。

機電署榮獲四項金獎，得獎項目計有實時升降機預測保養系統；智能自動梯實時監測系統；物聯網智能馬桶清潔系統；以及建築語義人工智能系統。此外，機電署四個項目獲得銀獎，包括利用智能節能空氣過濾器技術的空氣過濾器2.0；以光纖溫度傳感系統為配電網進行預測監控；非侵入式升降機智能狀態監測數據分析系統；以及用於智慧監獄的影像分析及監察系統，成績令人鼓舞。

The International Exhibition of Inventions of Geneva is one of the most significant annual global events devoted exclusively to inventions. Due to the epidemic, it was held online this year. Around 600 inventions from over 20 countries were evaluated online by the international jury of specialists in mid-March 2021.

The EMSD won four gold medals with the projects including the Cloud-based Predictive Maintenance System for Real-Time Lift Monitoring; Artificial Intelligent Nylon Optical Fibre Sensing Escalator Combs; Internet of things (IoT)-enabled Smart Toilet Bowl Cleaning System; and Building Semantic Artificial Intelligence: The Future of Automation in City Level - a real application in today.

Also, four silver medals were won for the projects Air Filter 2.0 - Energy Saving Smart Air Filter Technology; Fibre Optic Temperature Sensing System for Predictive Monitoring of Electrical Distribution Network; Non-Intrusive Data Analytics System for Adaptive Intelligent Condition Monitoring of Lifts; and Smart Prison - Video Analytic Monitoring System. The results are reassuring.



機電署與香港生產力促進局共同研發物聯網智能馬桶清潔系統
The EMSD and Hong Kong Productivity Council co-developed the Internet of things (IoT)-enabled Smart Toilet Bowl Cleaning System



機電署於日內瓦國際發明展榮獲四金四銀獎項
The EMSD achieved Outstanding Results of 4 Gold and 4 Silver Medals at the International Exhibition of Inventions of Geneva

營運基金銀禧誌慶「同·創·傳·期」 EMSTF Celebrates Its Silver Jubilee to Co-innovate and Co-create Our Future

今年機電工程營運基金(營運基金)正式踏入第25個年頭。為慶祝銀禧紀念這個重要日子，我們會籌辦一系列精彩的誌慶活動，並建立周年網站，展示營運基金多年來的工作亮點和里程碑，讓市民大眾以不同形式回顧我們過往的努力和工作成果。我們以「同·創·傳·期」作為25周年紀念的主題，寄寓營運基金繼往開來，與客戶、業界、同工及其他持份者同行、創新、傳承、期許。展望未來，我們必定會繼續竭誠盡心，精益求精，攜手並肩服務市民。欲知銀禧誌慶資料，敬請密切留意快將推出的周年網站！

This year marks the 25th anniversary of the Electrical and Mechanical Services Trading Fund (EMSTF). To commemorate the EMSTF's silver jubilee, we will organise a series of magnificent celebratory events and set up an anniversary website to showcase our highlights and milestones over the years, giving members of the public an opportunity to review our efforts and achievements in multifarious ways. "Co-innovate and Co-create Our Future", the 25th anniversary theme, signifies that the EMSTF will grow from strength to strength and continue to connect with our clients, members of the trade, co-workers and other stakeholders in achieving collaboration and co-innovation, passing on legacies and co-creating the future. Looking forward, we will be committed as ever and strive for improvement, serving the public hand-in-hand. Stay tuned for details of the celebratory events of the silver jubilee by visiting our anniversary website which will be launched soon.



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

