

# VOICE LINK

機電  
傳聲

機電工程署  
EMSD



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## Build a Smart City Together



# 「咪錶」智能大變身 創科專長領先河

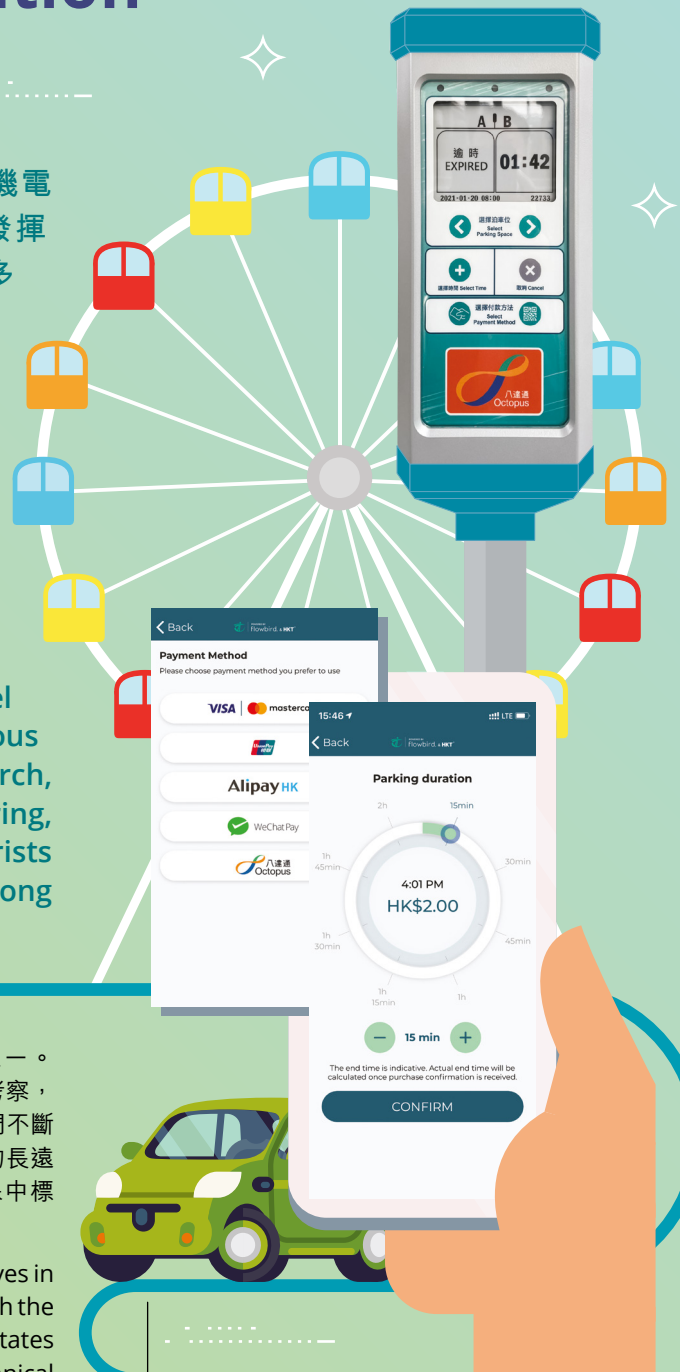
## Enabling Smart Parking Meter System with Expertise in Innovation and Technology

新一代路旁停車收費錶系統於2021年1月正式推出。機電工程署(機電署)為運輸署擔任項目技術顧問，積極發揮創科發展促成者的角色，為落實這項新猷密切跟進多方面的開發工作，包括市場研究、技術支援、工程協調和監察等，為駕駛者提供更方便的泊車配套，與客戶合力拓展香港的「智慧出行」藍圖。

The new generation of on-street parking meter system was rolled out officially in January 2021. Serving as a technical advisor to the Transport Department for the project, the Electrical and Mechanical Services Department (EMSD) actively leveraged its role as a facilitator of innovation and technology development to accomplish the novel endeavour. The EMSD has closely followed up on various aspects of the development work, such as market research, technical support, project co-ordination and monitoring, providing more convenient parking facilities for motorists and developing the blueprint of “Smart Mobility” for Hong Kong in collaboration with the client.

落實安裝新一代智能停車收費錶，是實踐「智慧出行」的重點項目之一。數年來，機電署團隊與客戶一起走訪中國內地、美國及新加坡進行實地考察，並合作研究不同方案，由制訂技術要求、招標、設計、安裝至啟用，我們不斷為客戶提供技術建議。在項目設計與流程方面，機電署更細心照顧客戶的長遠需要，例如建議客戶採用「管理、營運及維修合約」的合作模式，確保中標供應商有誘因使用更耐用的技術及組件，長遠減少維修的次數及成本。

The installation of new smart parking meters was one of the key initiatives in achieving “Smart Mobility”. Over the years, the EMSD team, together with the clients, conducted on-site visits to the Mainland of China, the United States as well as Singapore, and explored various solutions. We provided technical advice to the clients throughout the project stage, from formulation of the technical requirements, tendering, design to installation and commissioning. In regard of the project design and work processes, the EMSD took into consideration the clients’ long-term benefits. For instance, co-operation in the mode of “management, operation and maintenance contract” was recommended to the client to ensure that the successful tenderer would have incentive to use more durable technologies and components, and thereby reducing the frequency and cost of maintenance in the long run.



駕駛者可使用流動應用程式「入錶易」在現場繳付泊車費和遙距付款延長泊車時間。

The mobile app HKeMeter enables motorists to pay parking fees on-site and extend their parking time by remote payment.

## 克服技術困難 開發智能系統 Overcoming Technical Difficulties in System Development

新停車收費錶接受多種方式繳付泊車費，包括八達通、非接觸式信用卡、轉數快及二維碼等支付工具，並支援新開發的流動應用程式「入錶易」，方便駕駛者在現場繳付泊車費及遙距付款延長泊車時間。因應新收費錶提供多種付款方式，機電署在開發過程中致力協調收費錶系統供應商與多個支付服務承辦商進行技術交流。由於每種支付方式在技術、安全和測試方面的要求都不盡相同，項目團隊積極跟進達致每項要求的進度，並靈活安排已準備就緒的支付工具進行早期測試，務求盡早找出並解決技術問題。

新停車收費錶並配備車位傳感器，以毫米波雷達技術偵測泊車位是否已被佔用。在研發期間，項目團隊設定了各式各樣的泊車場景，包括平路、斜坡、私家車位、貨車位、被其他雜物霸佔的車位等，又利用不同大小、顏色與型號的車輛來模擬現實情況，在白天和晚上進行超過1000次實地泊車測試。有了精密的偵測設備，便可在「入錶易」和「資料一線通」網頁發放實時車位資訊，協助駕駛者尋找空置泊車位。

為了便利駕駛者繳付泊車費之餘，同時防止車位被長期佔用，在設計「入錶易」應用程式的遙距付款功能時，項目團隊充分考慮到實際使用收費錶的情況，利用二維碼在指定時限內綁定駕駛者的應用程式和收費錶，只容許遙距繳付最多兩段連續「最長泊車時間」的泊車費。

新停車收費錶已率先於2021年1月20日在中環耀星街、屯門文質路和西貢清水灣等地點啓用。

The new parking meters accept payment of parking fees by multiple means, including Octopus, contactless credit cards, Faster Payment System (FPS) and QR code. The system also supports the newly developed mobile app HKeMeter, which allows motorists to pay parking fees on-site and extend their parking time by remote payment. Against this background, the EMSD made meticulous efforts in co-ordinating technical exchanges between the parking meter system vendor and payment service providers during the development process. As each payment option has its own technical, security and testing requirements, the project team kept a close eye on the progress of each requirement being met and flexibly arranged preliminary testing for the payment options that were ready for operation, so as to identify and resolve technical problems as early as possible.

The new meters are also equipped with occupancy sensors making use of the technology of millimeter wave radar to detect whether parking spaces are occupied. The project team set up various parking scenarios, including flat roads, slopes, private car parking spaces, goods vehicle parking spaces and spaces occupied by other objects. Vehicles of different sizes, colours and models were also used to simulate realistic situations in more than 1000 on-site parking tests performed during daytime and night-time. With the development of the sophisticated sensors, real-time parking space information could be disseminated to motorists through HKeMeter and DATA.GOV.HK to assist them in finding vacant parking spaces.

In striking a balance between bringing convenience in paying parking fees and preventing prolonged occupation of parking spaces, the project team took into consideration the actual usage of the smart parking meters when designing the remote payment function of HKeMeter, and decided to use a QR code to bundle the motorist's mobile app and the parking meter within a specified time period during which remote payment will only be accepted for a maximum of two consecutive sessions of the "longest parking period".

The new parking meters made their debut at Yiu Sing Street in Central, Man Chat Road in Tuen Mun and Clear Water Bay in Sai Kung on 20 January 2021.



新停車收費錶提供多種支付泊車費方式，方便駕駛者付款。  
The new parking meters offer multiple payment options for the convenience of motorists in paying parking fees.



機電署團隊與客戶探訪美國的Los Angeles County Metropolitan Transportation Authority，實地考察新一代智能停車收費錶以汲取經驗。

The EMSD team and the clients conducted overseas duty visits at Los Angeles County Metropolitan Transportation Authority in the United States to study the new generation of smart parking meters in order to gain more experience.





機電署同事在開放年花銷售點前，為系統進行最後調整。  
The EMSD staff conducted final adjustments for the systems before the opening of the flower sale points.

## 靈活部署迅速應對 年花銷售點無懼疫情 Flexible Deployment and Quick Response Help Fight Virus at New Year Flower Sale Points

2021年年花銷售活動在疫情下如期舉行。為減低場內大量人羣聚集和病毒傳播風險，機電署善用科技為食物環境衛生署設計及部署人流監察、輪候及派籌機制系統，迅速完成15個年花銷售點的安排，讓市民在保持社交距離下逛逛年花銷售點，感受新年的氣氛。

The sale of New Year flowers were held as scheduled in 2021 under the epidemic. To avoid gathering of the crowd and reduce the risk of virus transmission, the EMSD designed and deployed a footfall monitoring, queuing and ticketing system for the Food and Environmental Hygiene Department (FEHD) and completed the arrangements at 15 flower sale points promptly, by making good use of the technology. The system enabled members of the public to visit flower sale points to enjoy the festive vibes while observing social distancing.

年初疫情反覆，繼政府落實設立年花銷售點後，我們必須與時間競賽，在短短兩星期內為全港15個年花銷售點安排各項機電系統。機電署除了迅速為場地安排臨時電力供應及照明外，還兵分多路為15個年花銷售點建立以雲端系統為基礎的中央人流監控系統，配合傳感器、派籌系統及顯示屏，讓客戶部門可以掌握入場人次及安排輪候取籌，從而達致人流控制的目的。

Early in the year, the epidemic situation was fluctuating. As soon as the Government decided to open the flower sale points, we had to race against time and immediately set up various E&M systems at the 15 flower sale points across the territory within only two weeks. Apart from making on-site arrangements for temporary electricity supply and lighting, the EMSD also deployed different teams to install the cloud-based central footfall monitoring system, together with the sensors, ticketing systems and display screens, at 15 flower sale points, to enable our client department to control the crowd by monitoring the number of visitors and making arrangements for visitors to queue up for tickets.





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 was ensuring the smooth operation of the footfall monitoring system.

機電署在室內安裝人流監控系統深具經驗，但因應戶外天氣情況、人流反方向進出等戶外場地所面對的不確定因素，我們於年花銷售點的各個出入口設置了三套紅外線傳感器，分別點算出入人數以策萬全。人流數據經雲端系統運算後，場內的顯示屏上即顯示資訊，紅黃綠指示燈則相應發出入場燈號。另外，所有年花銷售點亦安裝了政府物聯通基站，迅速應付人流監控系統的網絡接駁需要，協助接收紅外線人數監測器的數據，以及發送控制紅黃綠指示燈及顯示屏的訊號。每個銷售點還裝設了一座流動式基站，增強網絡的可靠性。



The EMSD has extensive experience in setting up indoor footfall systems. However, given the uncertain factors like outdoor weather conditions and the potential reverse flow of visitors walking at the outdoor venues, three sets of infrared sensors were set up at every entrance and exit of each flower sale point for counting footfall to provide multiple assurance. After computation by the cloud-based systems, 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. Also, the Government-wide Internet of Things Network (GWIN) gateways, which were set up at all sale points, rapidly addressed the need of the footfall monitoring systems for network connection, and facilitated the receipt of data from the infrared sensors for footfall monitoring and the dissemination of signals for controlling the green, amber and red indicator lights and screen display. A mobile gateway was also installed at each sale point to enhance network reliability.



年花銷售活動舉行期間，設於政府總部及機電署總部(上圖)的中央控制及指揮中心緊密支援場內同事，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。

During the time when the flower sales were organised, the Central Control and Command Centre at the Central Government Offices and the EMSD Headquarters (top) closely collaborated with the staff on site to deal with unexpected circumstances, ensuring the smooth operation of the footfall monitoring systems at 15 flower sale points across the territory.

在年花銷售點現場，我們亦需即時應變。年花銷售活動舉行期間曾一度風雲變色，已安裝傳感器的水馬被強風吹倒，駐場同事迅即安排重置與測試傳感器，確保人流監控系統如常運作。

前線爭分奪秒，後勤亦毫不鬆懈，我們於機電署總部設立中央控制及指揮中心，由高級工程師輪班當值，以掌握不同地區的實際情況並作全面協調，雙管齊下，讓年花銷售活動圓滿舉行，為市民送上春節祝福。

從這次活動汲取的寶貴經驗為將來同類大型活動的人流管制及監控安排奠下基礎。

In the flower sale points, we also had to respond quickly to unexpected circumstances. The weather once deteriorated during the time when the flower sales were held. Water-filled barriers installed with sensors were blown down by the strong wind. Our on-site colleagues immediately arranged for re-instating and testing of the sensors to ensure normal operation of the footfall monitoring system.

While our frontliners were racing against time, our support teammates stood fast on their posts at the Central Control and Command Centre established at the EMSD Headquarters, where our senior engineers worked on shifts to monitor and co-ordinate the situation of all sale points. With this two-pronged approach, the flower sales were successfully held as scheduled, extending warm wishes to members of the public during the Lunar New Year.

The valuable experience gained from the event lays a foundation for future crowd control and monitoring at similar large-scale events.

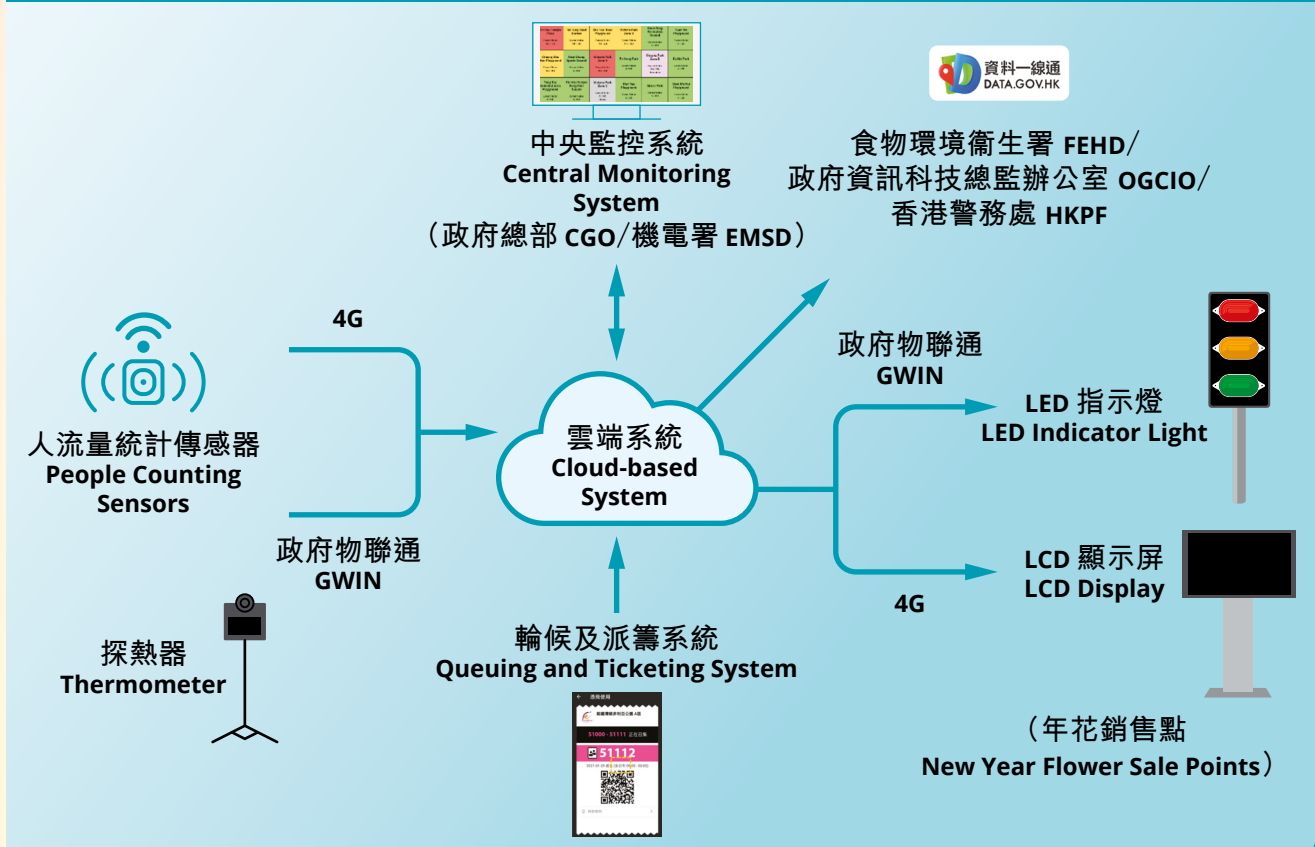


市民進場前都依照指示量度體溫，整體流程非常暢順。

Citizens followed instructions to measure their body temperature before entering the flower sale point. Overall, the process was very smooth.

## 以雲端系統為基礎的中央人流監控系統概覽

### Overview of the Cloud-based Central Footfall Monitoring System



如對上述人流控制方案有任何查詢，歡迎致電2808 3593與高級工程師陳賀賢先生聯絡。  
For any enquiry on crowd control solutions, please contact Mr. Chan Hor-yin, Steve, our Senior Engineer, on 2808 3593.

# 活用CAVE創新科技 透視世界級渠務基建

## Adopting Innovative CAVE Technology to Enable Exploration of World-class Drainage Infrastructure



多年來，機電署與渠務署維持緊密的合作關係，我們更一直為渠務署提供優質的機電服務及創科方案。過去一年，我們靈活運用創科方案，為渠務署最大污水處理廠的訪客帶來耳目一新的參觀體驗，並為其員工提供更安全的內部訓練。

As a long-term partner of the Drainage Services Department (DSD), the EMSD has always been dedicated to providing the DSD with quality E&M services and innovation and technology (I&T) solutions. In the past year, we applied an I&T solution flexibly in collaboration with the DSD to provide brand-new experience for visitors of the DSD's largest sewage treatment works and facilitate its internal staff training.

透過CAVE系統，訪客可360度參觀污水處理廠內的設施。上圖所示為沉澱池池頂，右圖為沉澱池內部。  
With the CAVE system in place, visitors can take a 360-degree view of the facilities at the SCISTW. The upper photo shows the top of the sedimentation tanks while the right photo shows the inside of the tanks.



二十多年以來，昂船洲污水處理廠每日處理來自維港兩岸的生活污水。每日污水處理量可高達240萬立方米，是現時世界上同類型污水處理廠中規模最大的廠房之一。昂船洲污水處理廠設有專門向公眾介紹污水處理的資訊中心，但鑑於污水處理的特定程序、污水處理廠的環境，以及《職業安全及健康條例》的要求等因素，實地參觀難免有所限制。有見及此，我們與客戶舉行多次會議，並安排實地考察，深入了解現時的參觀設施，以及客戶對未來導賞體驗的期望。在詳細研究後，我們最終建議客戶採用「洞穴式自動虛擬環境」（CAVE）系統，讓參觀者以虛擬方式親歷其境，360度體驗污水處理流程。

為建立全方位的立體虛擬實景，同事巨細無遺地記錄污水處理廠的內外環境。除了利用航拍機拍攝空中俯瞰場景外，更深入沉澱池底及其他實地參觀時無法到達的地方，讓參觀者超越設施局限，透視這項世界級基建設施的內裏乾坤。雖然團隊在工程衝刺階段遇上2019冠狀病毒病疫情，但我們與客戶合作無間，日以繼夜加緊推進安裝及測試工作。在各方共同努力之下相關設施得以如期啓用。CAVE方案除了用作公眾教育外，系統內的虛擬實景亦適宜用於員工內部安全訓練，以保障職業安全，同時盡量減少對設施日常運作的干擾。

For more than 20 years, the Stonecutters Island Sewage Treatment Works (SCISTW) has been handling domestic sewage generated on both sides of the harbour at a daily capacity of up to 2.4 million cubic meters. It is currently one of the largest sewage treatment works of its type in the world. To introduce sewage treatment to the public, an information centre was established at the SCISTW. However, on-site visits were inevitably bounded by the nature of sewage treatment process, the environment of the sewage treatment works, as well as the requirements stipulated in the Occupational, Safety and Health Ordinance. In view of the above, we have arranged several meetings with the client and conducted on-site visits, so as to gain a clear understanding of the existing facilities and the client's expectations on enhancing visitors' experience in the future. Upon meticulous deliberation, we proposed the Cave Automatic Virtual Environment (CAVE) system to the DSD to enable a 360-degree virtual visiting experience of the sewage treatment process for the SCISTW's visitors.

To create an all-direction and three-dimensional virtual experience, our colleagues recorded the SCISTW with full dedication, covering every corner of the facilities. In addition to using drones to take bird's-eye views of the facilities from the sky, we dived into areas inaccessible to visitors, such as the bottom of the sedimentation tanks. The virtual system overcomes physical limitations and provide visitors with an omniscient view into this world-class infrastructure. In spite of the COVID-19 epidemic that challenged our team at the final stage of the works, we continued to work closely with the client day and night to press ahead with the installation and testing works. Thanks to the concerted efforts of the involved parties, we were able to launch the system in time eventually. Apart from promoting public education, the CAVE system can also be used for internal safety training of the DSD's staff, as its virtual reality environment ensures occupational safety while keeping interruption to the facilities' daily operation to a minimum.

## 昂船洲污水處理廠 Island Sewage Treatment Works



機電署與渠務署多年來合作無間。圖為CAVE項目工程團隊成員：渠務署工程師陳穎茵小姐(右一)、機電署工程統籌主任高沛仁先生(左一)、機電署電子督察黃俊傑先生(左二)及陳家輝先生(左三)。

The EMSD and the DSD have maintained a tightly-knit partnership for years. Pictured are members of the CAVE project team, Miss Chan Wing-yan, Yanto, (1st right), DSD Engineer, Mr. Ko Pui-yan (1st left), Project Co-ordinator of the EMSD, Mr. Wang Chun-kit, Johnny (2nd left) and Mr. Chan Ka-fai, Jimmy, (3rd left) Electronics Inspectors of the EMSD.

渠務署工程師陳穎茵小姐表示：「機電署為我們提供很多創新概念，又努力尋找合適的方案，提升我們各方面的效率和表現。」客戶感到滿意就是我們的動力。我們盡心盡力與客戶溝通合作，善用創科專長，站在客戶的角度作出周詳考慮，確保方案能夠有效解決難題。展望未來，機電署會繼續與客戶攜手協作，服務市民大眾。

"The EMSD has always provided us with innovative ideas. They have been working diligently to sort out the most suitable solution to enhance our efficiency and performance in all respects," said Miss Chan Wing-yan, Yanto, Engineer of the DSD. Appreciation of the clients always brings us motivation. Committed to communicating and collaborating with our clients, we make use of our I&T specialty, put ourselves in their shoes and strive to ensure that their needs are fully met. Going forward, we will continue to join hands with our clients to serve the community with all our hearts.

## 更多抗疫創科方案相繼投入服務 More I&T Solutions Rolled out to Keep the Virus at Bay

機電署為政府總部引入兩項抗疫創科方案，分別是內置式自動梯扶手帶消毒裝置，以及消毒機械人。兩項方案自2021年1月起投入服務。自動梯消毒裝置採用紫外光消毒技術，為自動梯的扶手帶消毒。雖然新裝置的安裝工序較為繁複，但與現時較普及的外掛式裝置比較，內置式設計可避免使用者因誤觸裝置而受傷或導致機器損壞。至於消毒機械人，主要應用於大堂和會議室等公用地方。消毒機械人除了配備掃地功能外，還加裝了特別配件，可自動噴灑由本地大學研發的清潔霧劑，於室內環境進行大範圍消毒，節省清潔人手。

The EMSD introduced two anti-epidemic I&T solutions, including the built-in disinfection device for escalator handrails and the disinfection robot, to the Central Government Offices, and service has commenced since January 2021. The escalator disinfection device applies the ultraviolet light technology to sterilise the handrails. The built-in disinfection device entails more complicated installation procedures, as compared with its more commonly used external counterparts. Nevertheless, its built-in design prevents the scenarios of escalator users touching the device by accident, and resulting in injury or damage to the device. The other new I&T solution, the disinfection robot, mainly serves the common areas such as lobbies and conference rooms. Apart from the floor-sweeping function, it is also equipped with an additional component to automatically spray a disinfectant agent developed by a local university. The robot could help sterilise large indoor areas, and thereby saving cleaning manpower.



政府總部的其中一條自動梯已安裝內置式自動梯扶手帶消毒裝置。

The built-in disinfection device for escalator handrails has been installed inside one of the escalators at the Central Government Offices.



消毒機械人可於室內進行大範圍消毒。

The disinfection robot sterilises large indoor areas.

# 精準支援 開通萬里 屯門-赤鱸角隧道正式通車

## Facilitating the Commissioning of Tuen Mun-Chek Lap Kok Tunnel with Precise Professional Support



全港最長的海底隧道屯門-赤鱸角隧道（屯赤隧道）已於2020年12月27日通車，駕駛人士使用新隧道往來新界西北及北大嶼山，更方便通達。早於兩年多前，機電署已積極協助運輸署進行通車的籌備工作，自2020年年初起，與各持份者的合作更加緊密。機電署參與多次跨部門工作會議，共同討論啓用安排和擬備應變計劃，為隧道通車事宜提供專業技術支援。在隧道通車前三個月，機電署對各項機電設備和系統進行技術評估，並在通車前一星期作最後檢查，確保隧道各項機電設施運作正常，屯赤隧道通車穩妥順利。

此外，為配合青嶼幹線由屯赤隧道通車當日起豁免收費，機電署早於2019年年底開始協助運輸署，監察青嶼幹線相關機電及收費設備的情況，為須作調整的系統進行技術評估和提供專業技術支援，確保通車當日順利配合豁免安排。在屯赤隧道通車前夕，機電署同時兼顧青嶼幹線豁免收費的系統調整，以及屯赤隧道通車的準備工作，確保兩者如期同步落實。

在客戶部門、隧道營辦商、各持份者及機電署團隊的緊密協作下，屯赤隧道順利投入運作，青嶼幹線豁免收費安排亦如期推行。我們日後會繼續為客戶提供專業及技術支援，協助客戶為市民提供安全可靠的交通運輸服務。



在屯赤隧道通車前，機電署團隊進行多次技術評估及檢查。

The EMSD team conducted multiple technical assessments and inspections prior to the commissioning of the TM-CLKT.

The Tuen Mun-Chek Lap Kok Tunnel (TM-CLKT), the longest underwater tunnel in Hong Kong, was opened to traffic on 27 December 2020, allowing motorists to travel between the Northwest New Territories and Northern Lantau more conveniently and efficiently. More than two years ago, the EMSD had proactively assisted the Transport Department (TD) in the preparatory work, and since early 2020, we had worked more closely with various stakeholders, by taking part in inter-departmental conferences, discussion on the commissioning arrangements, and formulation of contingency plans, as well as offering professional and technical support for the commissioning of the tunnel. The EMSD conducted technical assessments on various electrical and mechanical (E&M) equipment and systems of the TM-CLKT three months before the tunnel was put into service. A final check was also carried out in the final week to ensure proper functioning of the E&M facilities and thereby a smooth commissioning.

In addition, to tie in with the implementation of a toll waiver for the Lantau Link on the same day of the commissioning of the TM-CLKT, the EMSD had assisted the TD in monitoring the related E&M systems and toll equipment since late 2019. The EMSD had also conducted technical assessments on the systems subject to adjustment, and offered professional and technical support to ensure a smooth transition on the material day. On the eve of the commissioning of the TM-CLKT, the EMSD oversaw the technical adjustments of the toll waiver system of the Lantau Link and the preparatory work for the commissioning of the TM-CLKT simultaneously, ensuring the concurrent and punctual delivery of both projects.

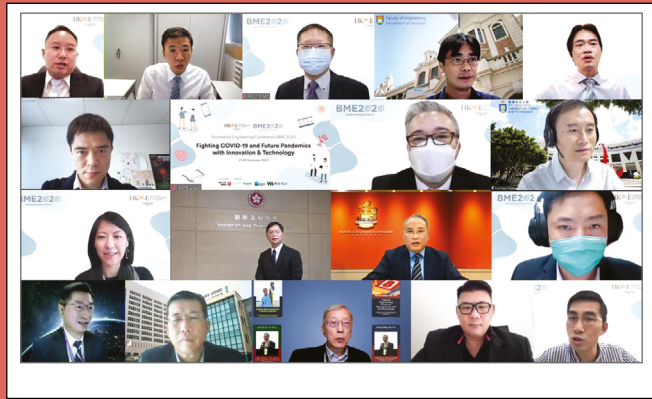
With the close collaboration between the client department, tunnel operators, various stakeholders and the EMSD team, both the commissioning of the TM-CLKT and the Lantau Link toll waiver were accomplished as planned. In the future, we will continue to offer professional and technical support to our clients, with a view to enabling their provision of safe and reliable transportation services for the public.



屯赤隧道是全港最長的海底隧道，於2020年12月27日順利通車。

The TM-CLKT, the longest underwater tunnel in Hong Kong, was opened to traffic smoothly on 27 December 2020.

# 專業翹楚喜雲集 抗疫創科齊交流 Bringing Experts Together to Share Anti- epidemic I&T Solutions



生物醫學工程會議2020網上會議匯聚各界專家，共同分享抗疫創科應用。  
Experts from around the world attended the Biomedical Engineering Conference BME 2020 online and shared their insights on anti-epidemic I&T solutions.



會議籌委會聯席主席蘇孝宇教授透過視像系統為會議致開幕辭。

Co-General Chair of the conference, Professor So Hau-yue, Richard, delivered the opening remarks via video conferencing.

機電署一直與學術界和業界保持密切聯繫及協作，以緊貼創新科技的最新動向。2020年11月27日至28日，香港工程師學會生物醫學分部舉行生物醫學工程會議2020。機電署作為協辦單位，積極參與籌備工作，包括邀請講者及制訂議程，並在活動期間提供技術支援，確保會議順利舉行。

為期兩天的會議以視像形式舉行，主題為「以創新科技對抗2019冠狀病毒病及未來的大流行傳染病」，內容涵蓋多個範疇，包括人工智能及機械人、醫療儀器開發及管理、消毒方案和個人防護裝備等。大會邀得30多位本地及海外專家，與參加者分享專業範疇的真知灼見，議題涵蓋生物醫學工程界最新的科研成果及應用方案，包括「區塊鏈疫苗護照」、「確保社交距離的可穿戴裝置」及「臨床醫療設備的研究及管理」等。有賴各方鼎力支持，會議順利圓滿舉行。是次會議籌委會的聯席主席為蘇孝宇教授以及本署副署長/規管服務潘國英先生。大會亦十分榮幸邀得創新及科技局局長薛永恒先生及香港工程師學會會長源柏樑教授致歡迎辭。會議與會人數超過300人，視像會議形式讓更多海外學者得以參與其中，匯聚各地專家為長遠抗疫需要集思廣益，業界人士亦可藉此建立和加強聯繫。

The EMSD has been working closely and collaborating with the academia and the trade to keep abreast of the latest trends of I&T. On 27 and 28 November 2020, the Biomedical Division of the Hong Kong Institution of Engineers (HKIE) organised the Biomedical Engineering Conference BME 2020. As the co-organiser of the event, the EMSD played an active role in the preparation work including inviting speakers and formulating the conference agenda. To ensure smooth running of the event, the EMSD also provided technical support throughout the conference.

With the theme of "Fighting COVID-19 and Future Pandemics with Innovation & Technology", the two-day conference was held via video conferencing, covering various major areas in I&T, such as artificial intelligence and robotics, development and management of medical devices, disinfection solutions and personal protection equipment, etc. Over 30 local and overseas experts shared their professional insights on the most cutting-edge research achievements and applications, including "Blockchain Immunity Passport", "Wearable Device Supporting Smart Social Distancing", "Development and Management of Medical Devices in Clinical Setting", etc. Thanks to the enthusiastic participation of all stakeholders, the conference was a great success. Professor So Hau-yue, Richard and the Deputy Director/Regulatory Services of the EMSD, Mr. Poon Kwok-ying, Raymond, served as the Co-General Chairs of the conference. The event was also graced by the presence of Secretary for Innovation and Technology, Mr. Sit Wing-hang, Alfred, and President of the HKIE, Professor Yuen Pak-leung, both of whom delivered opening remarks at the conference. More than 300 participants attended the virtual event, which enabled cross-border participation, facilitated exchange of ideas among experts from around the world on the long-term anti-epidemic solutions, and promoted professional networking among trade practitioners.



會議摘要已上載至<https://bme2020hkie.wixsite.com/bme2020>。  
歡迎瀏覽該網站，了解更多有關抗疫科技的資訊。

The BME 2020 Programme Book is now available at  
<https://bme2020hkie.wixsite.com/bme2020>. Please visit the  
website for more information about anti-epidemic technologies.

生物醫學工程會議2020由機電署協辦。圖為機電署副署長/規管服務潘國英先生(右二)及工程師團隊。

Biomedical Engineering Conference BME 2020 was co-organised by the EMSD. Pictured are Mr. Poon Kwok-ying, Raymond, the Deputy Director/Regulatory Services and the engineers with the EMSD.

# 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 celebrative 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 way. "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 celebrative events of the silver jubilee by visiting our anniversary website which will be available soon.

### 精益求精：

## 榮獲ISO 13485醫療器械品質管理系統認證

### Striving for Excellence: Attainment of Certification of ISO 13485 Medical Devices – Quality Management System

機電署目前負責全港公立醫院內超過四萬件醫療儀器的保養及維修工作。在2019年年底，機電署對醫療儀器保養及維修管理系統進行全面檢討，針對醫療儀器的安全性及效能，就風險管理、承辦商監管、程序文件和記錄的可追溯性、醫療事故呈報機制等方面作出進一步改善。此外，機電署加強分析維修保養數據(例如故障成因、趨勢等)，更深入了解儀器的運作情況，以及如何相應地進行針對性維修保養，讓醫療儀器運作更穩當，並更方便維修。

優化的品質管理系統於2020年8月推出，並於2021年年初成功取得ISO 13485醫療器械品質管理系統認證，成為本港少數獲得認證的多品牌醫療儀器第三方維修保養服務供應商。這項認證不但印證了機電署的服務品質達到國際認可水平，更對機電署致力為客戶持續改善和提供更安全、可靠的醫療工程服務予以肯定。

英國標準協會銷售及市場總監電子謙先生(左三)頒發ISO 13485證書予機電署署理副署長/營運服務陳志偉先生(右三)、機電署總工程師/衛生工程1李錦鴻先生(右一)及總工程師/衛生工程2李志良先生(左一)。醫院管理局總行政經理(業務支援及發展)李祥美先生(右二)及醫院管理局高級生物醫學工程師陳國鈞博士(左二)出席當日典禮。Mr. Raymond Lui, Enterprise Solution & Marketing Director of British Standards Institution (3rd left), presents the ISO 13485 Certificate to Mr. Chan Chi-wai, Richard, Acting Deputy Director/Trading Services of the EMSD (3rd right), Mr. Lee Kam-hung, Chief Engineer/Health Sector1 (1st right) and Mr. Lee Chi-leung, Eric, Chief Engineer/Health Sector2 (1st left) of the EMSD. Mr. Benjamin Lee, Chief Manager (Business Support Services) of the Hospital Authority (2nd right) and Dr. Chan Kwok-kwan, Senior Biomedical Engineer of the Hospital Authority (2nd left) attended the ceremony.

The EMSD is currently responsible for the maintenance of over 40 000 pieces of medical equipment in the public hospitals in Hong Kong. In late 2019, the EMSD conducted a comprehensive review on the maintenance management system for medical devices. Focusing on the safety and performance of medical devices, we put forth further improvements on the aspects of risk management, contractor monitoring, traceability of procedural documents and records, the medical incident reporting mechanism, etc. In addition, with enhanced analysis of maintenance data (e.g. causes of faults, their trends, etc.), the EMSD had a more solid grasp of the operation of the devices and the ways to conduct targeted maintenance correspondingly, thereby enhancing their reliability and maintainability.

The enhanced quality management system was launched in August 2020 and successfully obtained the certification of ISO 13485 Medical Devices - Quality Management System early this year. Among the third-party maintenance service providers of multi-brand medical devices in Hong Kong, the EMSD is one of the few having such certification. The certification not only testifies that our quality services reach internationally recognised standards, but also acknowledges the EMSD's commitment to our clients on continuous improvement and provision of safer and more reliable medical engineering services.



# 機電署新成員

## The New EMSD Members

我們是「機智啤啤」和「智析寶寶」，擔當機電署的親善大使，協助宣傳工作，以生動有趣的方式，向市民大眾推廣機電安全、能源效益及創新科技的各項資訊。我們希望可加強機電署與公眾在日常生活中的聯繫，並進一步促進部門與客戶及其他業界伙伴的緊密合作。

我們即將在不同的社交平台及公眾活動亮相，亦會在不同的場合與客戶見面。請大家拭目以待，多多支持！

We are Witty Bear and KnowBot. Being the ambassadors of the EMSD, we will assist in future promotional campaigns by delivering a wide range of information on E&M safety, energy efficiency, and innovation and technology to the public in a lively and interesting manner. We hope to strengthen the EMSD's connection with the public in daily life and further facilitate the Department's collaboration with clients and trade partners.

We will soon hit the social media platforms and public events, and meet with clients on different occasions. Please stay tuned and support us!



「機智啤啤」(左)和「智析寶寶」(右)。  
Witty Bear (left) and KnowBot (right).



掃描二維碼或登入網址[https://www.emsd.gov.hk/m/tc/emsd\\_mascot/](https://www.emsd.gov.hk/m/tc/emsd_mascot/)，跟「機智啤啤」和「智析寶寶」見面吧！

Please scan the QR code or visit [https://www.emsd.gov.hk/m/en/emsd\\_mascot/](https://www.emsd.gov.hk/m/en/emsd_mascot/) to meet Witty Bear and KnowBot.

您的寶貴意見對我們非常重要！如大家對《機電傳聲》有任何意見，請隨時聯絡我們，讓我們不斷改進。

如果您希望我們更新/刪除您的聯絡資料，或您的同事有興趣收取本通訊，歡迎以電郵(ccsd@emsd.gov.hk)通知我們。

Your opinion is very important to our continuous improvement in VoiceLink! If you have any comments on the newsletter, please do not hesitate to let us know anytime. In case you wish to update, remove your contact information, or your colleagues are interested in subscribing our newsletter, feel free to e-mail us at [ccsd@emsd.gov.hk](mailto:ccsd@emsd.gov.hk).

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