

智慧城市 Smart City

1. 智能廁板 Smart Toilet Seat		
問題 Problem	提高及改善生活質素	The need to enhance the quality of life
解決方案 Solution	<p>這款智能廁板不但體現了高品質的家居生活，也能滿足有需要人士對於舒適生活和健康生活的需求。它具備以下三個主要功能：</p> <ul style="list-style-type: none"> • 香薰功能：廁板內置的香薰，可以在使用中或之後通過吹風帶出香味除臭，改善如廁體驗 • 語音控制功能：通過語音控制清洗、烘乾、位置調節及溫度調節等功能 • 健康顧問功能：對排泄物進行圖像識別和分析，以手機應用程序展示用戶身體健康狀態 	<p>In addition to illustrating a high quality home living style, the smart toilet seat also addresses the need for a comfortable and healthy living. It has three major functions:</p> <ul style="list-style-type: none"> • Aroma: the built-in aroma can be diffused during or after toilet use for odour removal • Voice control: for use in functions such as cleaning, drying, position and temperature adjustment, etc • Health advisor: image recognition and analysis of excrement to depict the users' health condition, which can be accessed via a mobile app
效益/ 獎項 Benefits/ Awards	推廣智能家居及健康生活	Promote smart home & a healthy lifestyle

2. 智能街燈 Smart Street Lamp		
問題 Problem	街燈的運作情況必須定期依賴人手檢查	On site visual inspection of street lamps is carried out by regular patrol
解決方案 Solution	採用長距離 LoRa 無線通訊技術自動監控街燈運作情況	Automatic control and monitoring of street lamps using long range LoRa wireless technology
效益/ 獎項 Benefits/ Awards	<ul style="list-style-type: none"> • 自動及迅速地偵測街燈故障，以便維修，提升道路安全。 • 因應環境光度，自動調節街燈光暗，有效使用能源 • 將能源使用數據傳送給監控中心，以供大數據分析及持續改善 	<ul style="list-style-type: none"> • Automatic and instantaneous detection of malfunctioning street lamps to facilitate repair and enhance road safety • Adaptive dimming control on street lamps to improve energy efficiency • Power consumption data are transmitted to central office for Big Data Analysis and continuous improvements

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3. 輕鐵預警防撞系統 Light Rail Transit Collision Avoidance System		
問題 Problem	<ul style="list-style-type: none"> 碰撞事故頻繁發生 激光雷達在路燈下發出錯誤警報 	<ul style="list-style-type: none"> Frequent Light Rail Transit collision accidents Laser radar emits false alarm under road lamp
解決方案 Solution	<ul style="list-style-type: none"> 採用圖像技術並使用低成本攝像機預測碰撞 	<ul style="list-style-type: none"> Collision prediction using image technology and low-cost camera
效益/ 獎項 Benefits/ Awards	<ul style="list-style-type: none"> 達到 97% 的精度 為每輛輕鐵節省超過 90% 的硬件成本 贏得「2015 年 IET 創新大獎」的高度評價 	<ul style="list-style-type: none"> Over 97% accuracy Saved over 90% hardware cost for each Light Rail Transit IET Innovation Awards 2015 - “Highly Commended” recognition

4. 電動汽車充電技術及解決方案 Electric Vehicle (EV) Charging Technologies and Solutions		
問題 Problem	<ul style="list-style-type: none"> 缺乏地方安裝電動車充電器 不夠電力供電動車充電器使用 沒有整體的收費管理和收費系統 美國、歐洲、日本和中國的電動車需要不同標準的充電器 需要多類型、不同功率的充電器，例如：快充、中速、慢充、移動、天花式電動車充電器、無線充電器，滿足不同的充電需求 	<ul style="list-style-type: none"> Insufficient space for installing EV chargers Insufficient electricity supply for EV chargers Lack of holistic charging management and payment system Different EV charging standards for EVs from USA, Europe, Japan and China Demand for different types of EV chargers: quick, medium, standard, mobile, ceiling-mount and wireless, etc.
解決方案 Solution	<ul style="list-style-type: none"> 多模式充電技術 <ul style="list-style-type: none"> ➢ 中速 ➢ 快速 ➢ 移動 ➢ 天花式 ➢ 無線 多標準電動車充電器 <ul style="list-style-type: none"> ➢ IEC (歐洲) ➢ SAE (美國和日本) ➢ CHAdeMO (美國和日本) ➢ GB (中國) 小型和超薄型電動車充電器，節省空間 利用智能配電系統，安裝更多的充電器 	<ul style="list-style-type: none"> Multi-level EV chargers: <ul style="list-style-type: none"> ➢ Medium ➢ Fast ➢ Mobile ➢ Ceiling-mount ➢ Wireless Multi-standard EV chargers: <ul style="list-style-type: none"> ➢ IEC (Europe) ➢ SAE (USA, Japan) ➢ CHAdeMO (USA, Japan) ➢ GB (China) Small and ultra-thin EV chargers to save space Smart power distribution system for installation of more EV chargers

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	<ul style="list-style-type: none"> • 整體充電管理和電子支付系統 	<ul style="list-style-type: none"> • Total charging management and e-payment systems
效益/ 獎項 Benefits/ Awards	<ul style="list-style-type: none"> • 香港第一款 CHAdeMO 快速充電器 • 香港第一款移動充電器 • 香港第一款無線中速充電器 • 為業界提供總體充電解決方案 • 支持香港業界開拓電動車充電業務 	<ul style="list-style-type: none"> • Hong Kong's 1st CHAdeMO EV quick charger • Hong Kong's 1st mobile EV charger • Hong Kong's 1st wireless medium EV charger • Provides total EV charging solution to the industry • Supports Hong Kong industry to tap EV charging market

5. 智慧流動電動車充電系統 Smart EV Mobilized Charger		
問題 Problem	<ul style="list-style-type: none"> • 充電網絡不足及電池續航里程限制等問題妨礙電動車普及 • 一旦電動車電量耗盡而附近沒有充電站，便會影響旅程 • 電動車駕駛人士要面對充電泊位不足或被非電動車霸佔充電泊位等問題 	<ul style="list-style-type: none"> • EV adoption is hindered by insufficient charging facilities and range anxiety • If an EV driver fails to find a nearby EV charging station for his/her battery-drained EV, the journey will be affected • Insufficient EV charging bays, or charging bays being occupied by non-EVs
解決方案 Solution	<ul style="list-style-type: none"> • 此流動充電系統突破了傳統充電設施必須在固定位置的限制 • 如電動車因沒電而在路上拋錨，流動充電系統也可以前往提供緊急充電服務 • 它支援不同快充、慢充電動車標準，以切合駕駛者不同需要 	<ul style="list-style-type: none"> • The mobilized EV charger breakthroughs the limitation of traditional EV charging facilities which must be stationed in fixed locations • Provide emergency charging service for battery-drained EVs on road • Support various fast or medium-fast EV charging standards
效益/ 獎項 Benefits/ Awards	<ul style="list-style-type: none"> • 方便於停車場內穿梭於車位間，靈活地提供點對點充電服務 • 在公路上，它能提供應急充電服務 • 「第 44 屆日內瓦國際發明展」中榮獲銀獎 • 「2017 世界華人發明大獎」中榮獲金獎 	<ul style="list-style-type: none"> • Move around car park easily to provide on-spot EV charging • Provide emergency EV charging services on the road • 44th International Exhibition of Inventions Geneva – Silver Medal • 2017 Chinese International Invention Award – Gold Medal

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6. 50kW 電動車快速充電站 50kW Electric Vehicle Fast Charging Station		
問題 Problem	<ul style="list-style-type: none"> • 電動車需要長時間充電的問題妨礙電動車普及化 • 來自日本、歐洲和美國的電動車有不同的充電標準，不容易找到可支持所有這些電動車的充電站 	<ul style="list-style-type: none"> • A wider adoption of electric vehicle (EV) is hindered by the long charging time • With different EV charging standards set by Japan, Europe and the US, it is difficult to find a charging station that supports all types of EVs
解決方案 Solution	<ul style="list-style-type: none"> • 生產力局轄下的香港汽車零部件研究及發展中心成功研發 50 千瓦快速充電站，電動車最快只需充電 20 分鐘便能行駛 150 公里 • 支援全球電動車充電標準 - CHAdeMO、IEC Combo2、SAE 和 IEC 	<ul style="list-style-type: none"> • The Automotive Parts and Accessory Systems R&D Centre of HKPC has developed a 50kW fast charging station which takes as fast as 20 minutes for an EV to get charged up to travel 150km • Supports different EV charging standards around the world, including CHAdeMO, IEC Combo2, SAE & IEC
效益/獎項 Benefits / Awards	<ul style="list-style-type: none"> • 此快速充電站讓司機更方便及有效地使用電動車 • 香港首個獲得 CHAdeMO 國際認證的快速充電站 	<ul style="list-style-type: none"> • This fast charging system is more convenient and efficient to use for drivers • The first HK-developed EV fast charging system that attained CHAdeMO international certification

7. 先進電動車及配件技術展示平台 Advanced EV and Accessories (EVA) Technologies		
問題 Problem	提升由香港基礎工業及不同行業組成的汽車零部件製造業的競爭力	The need to enhance the competitiveness of Hong Kong's automotive parts and accessory systems industry, which consists of different foundation industries and sectors
解決方案 Solution	展示 9 項 APAS 研發成果： <ol style="list-style-type: none"> 1. 電動車整車控制器 2. 電動助力轉向系統 3. 全數字化配置儀表盤 4. 先進駕駛輔助系統 5. 電動汽車電池管理系統 6. 第二代 MOST 150 車內資訊娛樂系統 7. 電動汽車混合能量儲存系統 	Demonstrate 9 APAS R&D results: <ol style="list-style-type: none"> 1. Vehicle System Controller (VSC) 2. Electric Power Steering System 3. Full Digital Configurable TFT Instrument Cluster 4. Advanced Driver Assistance System (ADAS) 5. Battery Management System for Electric Vehicles (BMS)

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	8. 無線後視鏡頭 9. 無線充電器	6. 2 nd Generation MOST 150 In-vehicle Infotainment System 7. Hybrid Energy Storage System (HESS) for EV 8. Wireless Backup Monitor 9. Wireless Charging
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8. 廚餘全面轉化系統 FTR Food Waste Total Recycling System		
問題 Problem	<ul style="list-style-type: none"> 亞洲美食非常受歡迎，但其油膩性及有時含黏性的成分，可能令傳統的厭氧消化方法不能有效地回收廚餘 傳統工藝將廚餘轉化為沼氣及低市場價值的堆肥。但處理過程中卻產生高濃度污水，需要進一步處理和妥善的處置 	<ul style="list-style-type: none"> Asian gourmet is much loved but its oily and sometimes glutinous ingredients may not be conducive to effective food waste recycling especially through the conventional anaerobic digestion approach Conventional process converts food waste to biogas and compost with low market value. Even worse, the process generates highly concentrated wastewater which requires further treatment and proper disposal
解決方案 Solution	生產力局開發全球首創的三段式零排放「廚餘全面轉化系統」，透過特別菌種把廚餘內的有機物質全部轉化為有商業價值的物質： (i) 高純度沼氣 (ii) 含豐富蛋白質的環保魚糧 (iii) 可供製造生物柴油的高品質浮油。	HKPC developed the world's first three-step zero-effluent-discharge process with specialized microbes to convert organic compounds from food waste into three products with commercial value: (i) high purity biogas (ii) protein-rich eco fish feed (iii) quality waste oil for biodiesel production
效益/ 獎項 Benefits/ Awards	<ul style="list-style-type: none"> 2015 年 9 月在上水設立了一套每天處理 50 公斤的試驗系統 與一家私營公司簽署合作備忘錄，在內地共同開發及推廣系統。在珠海正興建一套每天處理 1 公噸的中試系統 獎項： <ul style="list-style-type: none"> 2017 日內瓦國際發明展 - 評審團特別嘉許金獎 2017 香港工程師學會環境論文獎冠軍 2016 香港工商業獎：設備及機 	<ul style="list-style-type: none"> A 50 kg/day pilot plant was set up in Sheung Shui in September 2015 Signed a MOU with a private company to jointly market the system in the Mainland. A one tonne/day pilot plant is being built in Zhuhai, China. Awards: <ul style="list-style-type: none"> 2017 International Exhibition of Inventions Geneva - Gold Medal with Congratulations of the Jury 2017 HKIE Environmental Paper

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	<p>器設計優異證書</p> <p>專利:</p> <ul style="list-style-type: none"> • 新型有機垃圾資源化回用方法及系統(CN 106282245 A) • 一種自動分類有機垃圾處理系統(CN 205797977 U; CN105903754 A) 	<p>Award - Champion</p> <ul style="list-style-type: none"> • 2016 Hong Kong Awards for Industries – Equipment and Machinery Design Certificate of Merit <p>Patents:</p> <ul style="list-style-type: none"> • Novel Resource Recycling Method and System for Organic Waste (CN 106282245 A) • An Automatic Classification of Organic Waste Disposal System (CN 205797977 U; CN105903754 A)
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9. 生產力培訓學院 Productivity Training Institute (PTI)		
服務範圍 Service Scope	<ul style="list-style-type: none"> • 為業界提供優質的專業培訓服務，讓業界提升競爭力及可持續發展能力 • 為各行業、企業及個人提供多元化的培訓課程、工作坊、考察團等培訓服務 • 為不同類型的大小企業提供一站式解決方案，透過診斷、制定、設計企業的培訓方向，孕育企業的專業學習文化 	<ul style="list-style-type: none"> • Provide quality training programmes and services to help industry enhance competitiveness and sustainability • Offer diversified training programmes, workshops and study missions for different sectors, corporations and individuals • Provide one-stop solutions through diagnosis, design and formulation of training direction to help different enterprises cultivate a learning culture
應用範圍 Applications	<ul style="list-style-type: none"> • 「香港資歷架構」認可營辦者 (資歷級別第五級課程) - 助您提升專業學歷 • 擁有 50 年培訓經驗 - 助您增強職場競爭力 • 與行業協會及國際專業團體緊密合作- 助您緊貼行業及專業發展需要 • 企業學院顧問服務 - 通過培育人才提升績效 • 備有先進設施配合學習需要 (如：專業實驗室等設備) - 助您實踐所學所得 • 培訓場地地理位置優越，交通四通八達 <ul style="list-style-type: none"> - 助您節省交通時間及吸引客戶 	<ul style="list-style-type: none"> • Qualifications Framework (QF) Accredited Operator (QF Level 5 programme) <ul style="list-style-type: none"> - Uplift your professional qualification • 50-year experience in training <ul style="list-style-type: none"> - Enhance your workplace competitiveness • Close collaboration with industrial associations and international professional bodies - help you stay abreast with the latest industry development and the needs of professional development • Corporate Academy Consultancy Services <ul style="list-style-type: none"> - Enhance performance through

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		<p>talent development</p> <ul style="list-style-type: none"> • State-of-the-art facilities to address different learning needs (e.g. professional laboratory) <ul style="list-style-type: none"> - Help you practice what you learnt • Prime location <ul style="list-style-type: none"> - Short travelling time for the convenience of customers
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10. 專利申請資助計劃 Patent Application Grant (PAG) scheme		
服務範圍 Service Scopes	<ul style="list-style-type: none"> • 此計劃是由創新科技署推行的撥款計劃，而本計劃的執行機構為香港生產力促進局 • 旨在協助本地公司和個人為其發明申請專利 • 創新科技署會根據執行機構進行專利檢索和技術評審的結果，決定應否向申請批出資助，創新科技署的決定屬最終決定 	<ul style="list-style-type: none"> • Funded by the Innovation and Technology Commission (ITC) with HKPC as the implementation agent • Aim to assist local companies and individuals to apply for patents of their inventions • Based on the result of the patent search-cum-technical assessment conducted by the implementation agent, ITC will decide whether the applications should be approved. ITC's decision will be final
應用範圍 Applications	<ul style="list-style-type: none"> • 每項批申請的最高資助額可達港幣 25 萬元，或專利申請直接費用 (包括專利檢索和技術評審費用) 總額的 90%，以金額較低者為準 • 處理超過 3,600 項申請 • 每年約收到 300 項申請 • 每年約批准 150 項申請 	<ul style="list-style-type: none"> • For an approved application, a grant of not more than HK\$250,000 or 90% of the sum of the total direct cost of the patent application (including the cost for patent search-cum-technical assessment), whichever is the lower, will be provided • Handled over 3,600 applications • Receive about 300 applications per year • Approve about 150 applications per year

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11. 可持續發展規劃及管理 Sustainability Planning and Management		
服務範圍 Service Scope	<ul style="list-style-type: none"> 過去兩年已協助客戶奪得超過 20 個國際及本地有關可持續發展報告的獎項 度身訂造的可持續發展規劃及管理服務，包括差距分析、表現評比、能力提升、制定可持續發展藍圖、提供綜合解決方案，以及制定可持續發展策略、政策及特定目標 全面的可持續發展報告服務，包括持份者參與、重要議題分析、數據管理、內容建立及報告的編寫和核實工作 	<ul style="list-style-type: none"> Assisted clients in winning over 20 international and local sustainability reporting awards in the past two years Tailor-made Sustainability Planning and Management Services, including gap analysis, performance benchmarking, capability building, sustainability roadmap formulation, integrated sustainability solutions, as well as sustainability strategies, policies and specific goals formulation Comprehensive Sustainability Reporting Services, including stakeholder engagement, materiality assessment, data management, content development, report writing, and report verification and assurance
應用範圍 Applications	<ul style="list-style-type: none"> 改善企業於經濟、環境和社會三方面的表現 提升透明度，加強與持份者的溝通及企業的整體競爭力 	<ul style="list-style-type: none"> Enhance companies' economic, environmental and social performance Enhance transparency, strengthen communication with stakeholders and overall competitiveness