

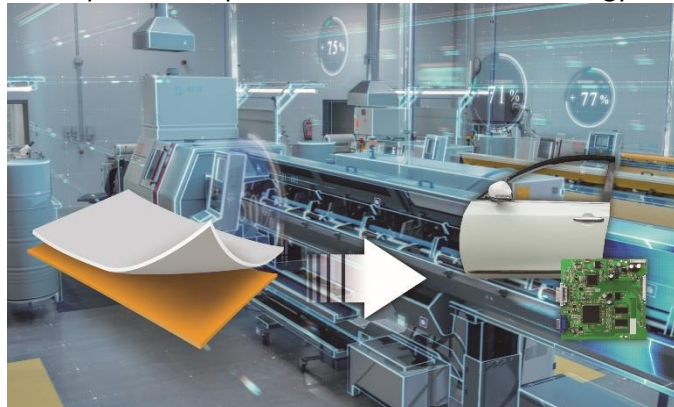
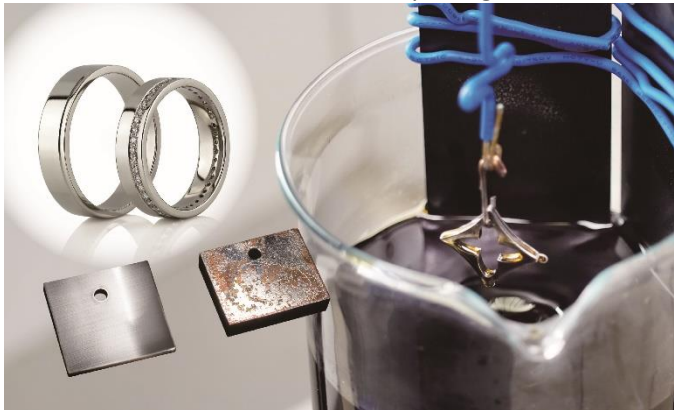


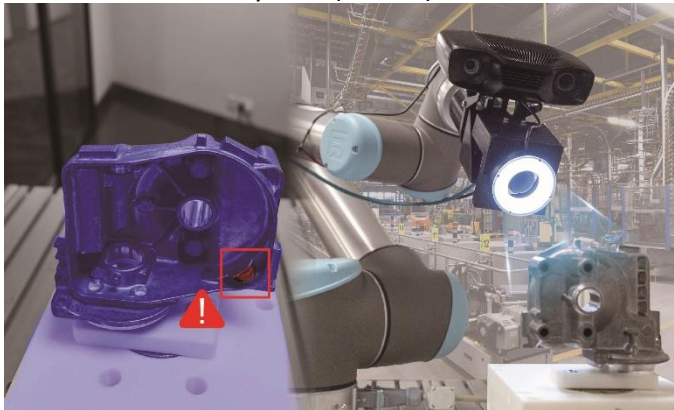






Appendix




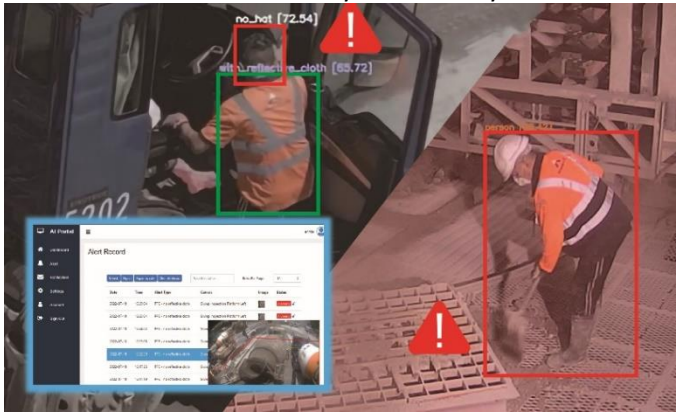
HKPC's winning projects and details of "2023 Geneva International Exhibition of Inventions"





(High resolution images can be downloaded at: https://u.hkpc.org/hkpc_geneva2023)





Award	Project	Description	In Collaboration With
<p>Gold Medal with Congratulations of Jury</p>	<p style="text-align: center;">High Mast Inspection Robot</p> 	<p>This is a robust robotic system that can climb masts of up to 35 metres high to inspect lamp poles and the rust status of high masts using cameras and make records.</p>	<p>Green Light Multiplex Company Limited</p>
<p>Gold Medal with Congratulations of Jury</p>	<p style="text-align: center;">Microwave-assisted System for Bio-diesel Extraction from Animal Waste</p> 	<p>A technological breakthrough to release bio-diesel oil from animal fatty tissue cells by using microwave. It can increase the oil extraction rate and shorten the extraction time.</p>	<p>Champway Technology Limited</p>
<p>Gold Medal with Congratulations of Jury</p>	<p style="text-align: center;">Rapid One-step Plastic Metallisation Technology</p> 	<p>A one-step eco-friendly pre-treatment of plastics for metallisation without using toxic chromium. It is cost-effective, efficient, and applicable to a large variety of materials.</p>	<p style="text-align: center;">/</p>



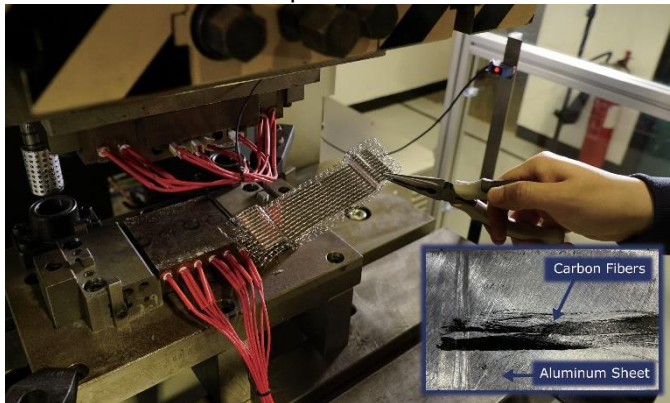

<p>Gold Medal with Congratulations of Jury</p>	<p>Waterless Platinum Electroplating Process</p>  <p>The image shows a laboratory setup for electroplating. On the left, two metal rings are shown, one with a smooth surface and one with a rough, corroded surface. In the center, a blue electrode is being used to deposit platinum onto a metal substrate in a beaker containing an ionic liquid electrolyte.</p>	<p>Using ionic liquid to replace the conventional aqueous electrolyte for platinum electroplating, this method effectively mitigates hydrogen embrittlement of platinum coating. (Product on the right: without using this technology; Product on the left: utilised this technology)</p>
<p>Gold Medal</p>	<p>Intelligent Fault Catcher</p>  <p>The image shows a train platform with a train. A blue wireless signal icon is overlaid on the train, and a black IoT device is mounted on a pole on the platform, connected to the train's system.</p>	<p>An AI powered Prognostic and Health Management (PHM) system with IoT edge computing to monitor status of automatic doors and other industrial equipment, detect and predict faults, and predict Remaining Useful Life (RUL) with deep learning.</p>
<p>Gold Medal</p>	<p>Virtualised Manufacturing in the Metaverse</p>  <p>The image shows a person wearing a VR headset and holding a controller, standing in a virtual factory environment. The environment includes various industrial machines, conveyor belts, and a large screen displaying data.</p>	<p>A fully-immersive industrial simulation achieving cost reduction through the optimisation of production lines in the Metaverse.</p>
<p>Silver Medal</p>	<p>Anomaly Recognition Graphical Universal System (ARGUS)</p>  <p>The image shows a robotic arm with a 3D camera mounted on it, inspecting a blue mechanical part. A red box highlights a defect on the part, and a red warning triangle is overlaid on the image.</p>	<p>An AI defect inspection system with a 3D camera on a robot arm designed for quick deployment in various production lines and products. Minimal data is required for AI training.</p>


<p>Silver Medal</p>	<p>Rapid Food Thawing System by Ultrasound</p> 	<p>This device shortens the thawing time up to 90% of frozen products by applying low-pressure and ultrasound. It safeguards food safety by minimising the growth of microorganisms.</p>	<p>/</p>
<p>Silver Medal</p>	<p>Novel Packaging System for Traditional Chinese Medicine</p> 	<p>A GMP-compliant smart packaging solution that eases the labour-intensive process of dispensing high therapeutic Traditional Chinese Medicine vials for all powder-form products.</p>	<p>Wai Yuen Tong Medicine Company Limited</p>
<p>Silver Medal</p>	<p>AI Based Car Exhaust Noise Detector</p> 	<p>It identifies modified exhaust system of a vehicle by mapping engine sound spectrum and its visual features with deep learning algorithm to reduce vehicle noise pollution.</p>	<p>/</p>
<p>Silver Medal</p>	<p>Heavy Duty Fully Self-driving Transporter</p> 	<p>Using LiDAR cameras for detection & AI decision on path finding, this automotive robot can carry 800kg loads with gradeability and move continuously in indoor and outdoor scenarios.</p>	<p>/</p>

<p>Silver Medal</p>	<p>Roadside LiDAR and V2X Communication System</p> 	<p>It enhances the safety of auto-vehicles using roadside LiDARs and AI with bird view to eliminate the driver view's blind spot, then connect them to emergency braking control systems.</p>
<p>Silver Medal</p>	<p>Laser-Assisted Progressive Forming (LAPF) Process</p> 	<p>Use laser to heat and soften sheet metal locally then deform it with forming die to enhance formability, improve dimensional accuracy, prolong die fatigue life, reduce forming steps, and avoid defective products. (Product on the left: without using this technology; Product on the right: utilised this technology)</p>
<p>Bronze Medal</p>	<p>Cross-material Structural Monitoring by Acoustic Reflection and Transmission</p> 	<p>This invention uses AI technology to identify damage in various engineering structures & materials using ultrasonic-based diagnosis to ensure their integrity and safety.</p>
<p>Bronze Medal</p>	<p>BESS - Birds Eye Site Safety</p> 	<p>This AI vision control system improves worker safety management, preventing entry to unauthorised areas with a simple set-up of cameras and broadcast system.</p>

<p>Bronze Medal</p>	<p>C-S Hyper Construction Site Robot</p> 	<p>An autonomous multifunctional construction site service robot able to equip replaceable modules such as inspection & patrol, disinfection, and material transportation.</p>	<p>China State Construction Engineering (Hong Kong) Limited</p>												
<p>Bronze Medal</p>	<p>IoT enabled Remote-Controlled Concrete Skip</p> 	<p>It enables control of concrete skip discharging gate with radio frequency, enhances the operation safety and minimises physical input from workers, with additional I/Os for further IoT modules development.</p>	<p>Construction Industry Council</p>												
<p>Bronze Medal</p>	<p>AI-based Quality Prediction System</p> 	<p>An AI-based system that analyses various production data of a manufacturing process so as to perform quality prediction and root cause analysis to improve product quality.</p>	<p>/</p>												
<p>Bronze Medal</p>	<p>Smart Pier Monitoring System</p>  <table border="1" data-bbox="730 1543 868 1648"> <thead> <tr> <th>ID</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>HP1230</td> <td>Normal</td> </tr> <tr> <td>HP1240</td> <td>Normal</td> </tr> <tr> <td>HP1250</td> <td>Alert</td> </tr> <tr> <td>HP1260</td> <td>Normal</td> </tr> <tr> <td>HP1270</td> <td>Normal</td> </tr> </tbody> </table>	ID	Status	HP1230	Normal	HP1240	Normal	HP1250	Alert	HP1260	Normal	HP1270	Normal	<p>Using real-time data to inspect and identify defects of marine structures for efficient and accurate maintenance works via smart surveying and sensor technologies.</p>	<p>Civil Engineering and Development Department of the HKSAR Government</p>
ID	Status														
HP1230	Normal														
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HP1250	Alert														
HP1260	Normal														
HP1270	Normal														

<p>Bronze Medal</p>	<p>AI Driven Highly Adaptive Hydrogen Fuel Cell Hybrid System</p> 	<p>Using hydrogen as fuel, this AI driven hybrid fuel cell system provides maximum adaptable solutions for many applications with clean, green, and fast solutions, and facilitates green and smart transportation.</p>	<p>Startec Limited</p>
<p>Bronze Medal</p>	<p>AI Based Autonomous Vehicle Control System for Minibus</p> 	<p>Integrating AI adaptive drive, sensor fusion & AI decision-making in its model, the Autonomous Vehicle Control System enables full auto-piloting and supports Level 4 auto-driving.</p>	<p>/</p>
<p>Bronze Medal</p>	<p>IoT-based Smart Battery Monitoring System for Emergency Lighting</p> 	<p>This system autonomously monitors the conditions of emergency light batteries and is the first one complying with safety requirements of emergency light discharge test in Hong Kong.</p>	<p>Green Light Multiplex Company Limited</p>
<p>Bronze Medal</p>	<p>Departure Alert System for Minibuses</p> 	<p>By door side detectors & thermal cameras along aisle, it ensures safety of minibus passengers with no small objects caught by folding doors and passengers seated before departure.</p>	<p>Golden River Technology International Ltd</p>

<p>Bronze Medal</p>	<p>Crane Position Monitoring System</p> 	<p>It monitors crane position of crane truck by determining its extent and width, ensuring height limit compliance before and during departure. Applicable to mobile and lorry cranes.</p>	<p>Hong Kong Professional Hoisting Engineering Association Ltd</p>
<p>Bronze Medal</p>	<p>Enzymatic Extraction of Collagen from Eggshell Membrane</p> 	<p>A new way to extract collagen and organic calcium from eggshell waste by using acid-reductant-enzyme hydrolysis reaction. It reduces waste production and the need of waste treatment.</p>	<p>Luen Tai Hong Kong Liquid Eggs Limited</p>
<p>Bronze Medal</p>	<p>Accumulative Roll Bonding of Aluminium-Carbon Fibers Composite Sheets</p> 	<p>This innovative process can continuously fabricate aluminium-carbon fiber composite sheets which are light but strong, and have high resistance to damage to protect casing of electronic devices.</p>	<p>/</p>
<p>Bronze Medal</p>	<p>Smart Mask Production and Packaging System</p> 	<p>Installed with embedded sensors, IoT and networking systems, this smart system enables automated and monitored mask production and packaging with minimum human supervision.</p>	<p>L.K. Machinery International Limited</p>

<p>Bronze Medal</p>	<p>Fibre-reinforced Composite Material Production System</p> 	<p>An effective way for the production of composite parts by simplifying the production process, including eliminating material preparation and post processing.</p>	<p>/</p>
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