[EMSD wins eight awards at International Exhibition of Inventions of Geneva (with photos)](#)

The Electrical and Mechanical Services Department (EMSD) achieved outstanding and encouraging results at the International Exhibition of Inventions of Geneva, winning four Gold Medals and four Silver Medals.

"The EMSD has all along been proactive in applying new technologies to enhance service quality, and ensuring that electrical, mechanical and energy technologies are harnessed in a safe, reliable, economical and environmentally friendly manner for the betterment of people's quality of life," a spokesman for the EMSD said today (March 31).

"As the innovation facilitator of the Government, the EMSD also strengthens the matching of technological needs from the Government with innovation and technology solutions from start-ups and research and development institutes through the E&M InnoPortal, with a view to supporting and facilitating the application of innovative technologies by bureaux and departments to improve services and support smart city development. We are very pleased that our achievements have won international recognition. The EMSD will continue to adopt an accommodating and innovative mind-set to drive the industry towards innovation."

The Gold Medal-winning projects are:

1. Cloud-based Predictive Maintenance System for Real-Time Lift Monitoring

The invention uses a hybrid sensing network composed of smart neural optical fibre and an electrical sensing network to monitor the important components of lifts for formulating predictive maintenance solutions using big data technology and artificial intelligence (AI). The maintenance plan is shared with the contractor through a mobile application, providing a one-stop solution for lift maintenance.

2. Artificial Intelligent Nylon Optical Fibre Sensing Escalator Combs

The traditional escalator metal comb has been re-engineered by making use of 3D scanning and printing technology. Through the use of optical fibre sensing and AI cloud analysis technology as a whole, real-time monitoring of escalators via mobile application has greatly reduced the occurrence of escalator accidents.

3. Internet of things (IoT)-enabled Smart Toilet Bowl Cleaning System

Automatic toilet cleaning robots are supplemented with IoT-based sanitation monitoring and a data-driven cleaning strategy to improve the hygiene and cleanliness of existing toilets.

4. Building Semantic Artificial Intelligence: The Future of Automation in City Level – a real application in today

Semantic AI is a combination of knowledge graphs, natural language processing and AI, making the programs of the AI services portable across buildings in a shorter time frame for optimising system operation and energy savings.

The four Silver Medal-winning projects are 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 International Exhibition of Inventions of Geneva is one of the most significant global annual events devoted exclusively to inventions. The competition was held online for the first time this year. Around 600 inventions from over 20 countries and regions were evaluated by the international jury of specialists in mid-March. For details about the International Exhibition of Inventions of Geneva, please visit inventions-geneva.ch/en/home.

Information about the E&M InnoPortal can be browsed at inno.emsd.gov.hk/en/home.