Logistics and Supply Chain MultiTech R&D Centre
物流及供應鏈多元技術研發中心

For Immediate Release

LSCM Wins 6 Awards at 48th International Exhibition of Inventions of Geneva

29 April 2023, Hong Kong — The technologies developed by Logistics and Supply Chain MultiTech R&D Centre (LSCM) garnered 6 awards at the 48th International Exhibition of Inventions of Geneva, including 1 Gold Medal, 1 Silver Medal and 4 Bronze Medals. These remarkable results demonstrate LSCM's R&D capabilities, passion for technology innovation and dedication in driving the development of the logistics and supply chain related industries as well as smart city development in Hong Kong.

Mr Simon Wong, Chief Executive Officer of LSCM, said, "We are excited that our technologies are once again well recognised internationally and have received these awards at the 48th International Exhibition of Inventions of Geneva, one of the world's most renowned events devoted to invention. Looking forward, LSCM will continue to innovate, utilising our R&D expertise and know-how in the logistics, supply chain and related industries, to develop innovative technologies to enhance the productivity and efficiency of the industries, as well as facilitating the smart city development in Hong Kong."

LSCM's Award-winning Projects

Gold Medal: *Electronic Power Assist Trolley System*

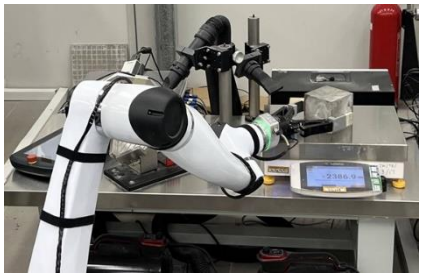
This is an electronic power assist trolley system with an intuitive control scheme. Sensors are strategically embedded in the trolley handlebar to measure the micro deformation of the materials when force is applied by the user. The torque vector is calculated 100 times per second based on the sensor's value by an onboard AI controller. Amplified torque is generated by two motors connected to the wheels of the trolley. Turning left/right or forward/backward depends on the calculated torque vector. The manoeuvre of this power assist trolley is the same as a traditional mechanical trolley without buttons, joysticks and controllers. No prior training is required when using the trolley and it can be manoeuvred like an empty trolley even if it is heavily-loaded. The built-in power regeneration and brake system make it safe for use even on a ramp.

Silver Medal: *RFID Device (Two-piece Device for Tolling Application)*

The system consists of a two-piece structure of RFID tag, comprising an RFID card and the card slot. The unique identity of the driver's tolling account is kept in the standalone RFID card with a short-read range of around 3 cm. Once the card is put into the card slot, the amplifying antenna in the card slot will couple with the RFID card, extending the read range to more than 6 metres. LSCM also designed a magnetic locking feature in this two-piece tag device which facilitates the application in tolling systems. To suit the application in commercial vehicles with multiple drivers, the

two-piece tag device can easily differentiate different drivers, while the RFID card can also serve as the driver's identity card. In the tolling application, information of both the drivers and vehicles can be collected simultaneously in each transit.

Bronze Medal: *Automated Concrete Cube Testing System*



Jointly developed by LSCM and the Civil Engineering and Development Department (CEDD), the Automated Concrete Cube Testing System is the first of its kind in the world. It can automatically carry out the complete concrete cube testing procedures, including concrete cube curing, weight and dimension measurement, and compression testing. The system comprises an overhead xyz-axis moving stage, robotic arm on rail, laser 3-dimensions measurement device and compression test machine. Equipped with AI technology, the system can also distinguish whether the fracture mode of a concrete cube sample meets the requirements using computer vision technology. This system has already been put into operation at CEDD's Public Works Regional Laboratory (Sham Shui Kok) on Lantau Island.

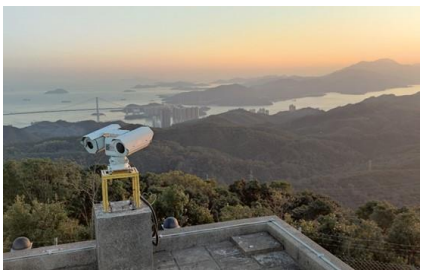
Bronze Medal: *AIoT Herbal Picking and Delivery System for Traditional Chinese Medicine Hospital*

Taking reference from the operation of hospitals and adapting it to common Chinese medicine practices, LSCM developed this system with the latest technologies including AI, IoT and robotics. The system applies AI Visual Analytics to visually verify the Chinese medicine items according to the prescription while deploying IoT technology in the traditional "Chinese Medicine Cabinet" for pick-to-light assistance in Chinese medicine dispensing. Further, conveyancing robots are also used to deliver the Chinese medicine to designated locations in the hospital.

Bronze Medal: *Vehicle Detection and Alert System for Better Mobility*

To achieve better mobility, LSCM has developed this real-time vehicle-actuated traffic signal system for determining the traffic flow using suitable detection technologies on the roadside, deriving the optimal duration for the green light signal automatically and interfacing with the conventional traffic signal system. In addition, the system also displays alerts on electronic variable message signboards when opposite and/or idle vehicles within the traffic control area are detected to warn motorists well ahead of time.

Bronze Medal: *AI Vision Technology for Heat Source Detection to Enhance the Effectiveness of Automated Hill Fire Surveillance*



Wildfires in Hong Kong are mostly caused by human activities, such as the careless use of joss sticks and papers during Ching Ming Festival. LSCM has therefore developed this technology to introduce an effective approach for detecting hill fires at an early stage, minimising the risks and threats to human life and city facilities. A unique fusion of AI, video analytics and robotic technologies is deployed for automated wildfire detection in one of the fire lookout facilities in Hong Kong.

The 48th International Exhibition of Inventions of Geneva

The 48th International Exhibition of Inventions Geneva is running from 26 to 30 April 2023 at Palexpo. With a history of more than 40 years, this world-renowned exhibition attracts around 1,000 inventions from over 40 countries every year, ranging from industrial and commercial companies, universities, inventors and researchers to private and state organisations and institutes. This annual flagship global event was arranged under the patronage of the World Intellectual Property Organisation (WIPO), the Swiss Federal Government, and the State and the City of Geneva, to showcase innovations and inventions from around the world.

About LSCM

The Logistics and Supply Chain MultiTech R&D Centre (LSCM) was founded in 2006, with funding from the Innovation and Technology Fund of The Government of the Hong Kong SAR, and is co-hosted by the University of Hong Kong, the Chinese University of Hong Kong and the Hong Kong University of Science and Technology. It aims to strengthen the local logistics sector and related industries by providing a one-stop resource for applied research and technology transfer, and to reinforce cooperation between the industry and research institutes, so as to bring about meaningful and significant benefits to the industry and the community. For more information, please visit www.lscm.hk.

Photo caption

Photo 1

Logistics and Supply Chain MultiTech R&D Centre (LSCM) garnered 1 Gold Medal, 1 Silver Medal and 4 Bronze Medals in the 48th International Exhibition of Inventions of Geneva.

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