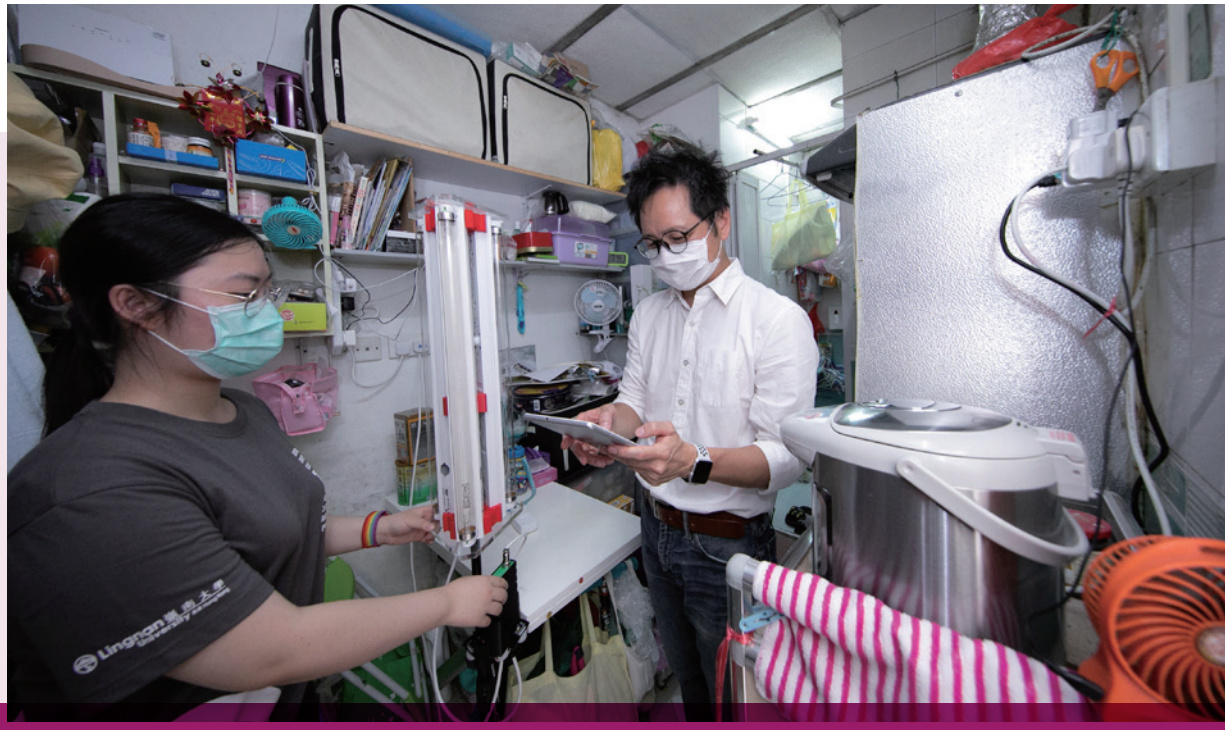
Features

LIGHT IN THE DARKNESS

Mobile UV-C system disinfects subdivided flats

The COVID-19 outbreak is causing widespread disruption to daily life. Hong Kong people living in cramped subdivided flats with poor hygiene conditions have been particularly hard hit. In light of this alarming situation, Lingnan University, Caritas Youth and Community Service, Health In Action, and Grassroots' Livelihood Alliance jointly launched **"Project Ultra Violite"** which was supported by a **HK$500,000 donation** from the **Jockey Club "COVID-19 Emergency Fund"** to provide free, efficient UV disinfection service for 1,000 subdivided flats. 120 Health Ambassadors, trained by Lingnan, have volunteered to provide the service in older districts, help prevent the virus from spreading around the units, and reduce the risks of household infection and community outbreaks.

A UV-C lamp with a wavelength of 253.7nm that can be found in a conventional biological science laboratory is used as the blueprint. Scientific research shows that UV light can effectively kill 95% of viruses, bacteria and fungi, preventing the spread of pathogens through the air or on the surface of objects. The mobile protection device, portable stand, intelligent sensors, remote control app, and the household power supply of the UV-C system have been designed and assembled by Lingnan. It takes less than 30 minutes to complete the whole house disinfection process.



This is Hong Kong's first community-wide programme using UV disinfection technology. "The germicidal UV-C light is a mature technology for disinfection, but it has no wider application in society. As there is no similar product in the market, we have to design and assemble it ourselves," said project leader **Dr Albert KO, Director of Lingnan Entrepreneurship Initiative (LEI)**, adding that the device is intended to clean cramped subdivided flats with poor hygiene conditions, where the "virus killing" is a primary concern. The device is light in weight to be carried up buildings without using elevators and equipped with a remote on/off switch and motion sensor to ensure that the UV-C lamp automatically shuts down if people enter the premises by mistake - an extra safety measure.

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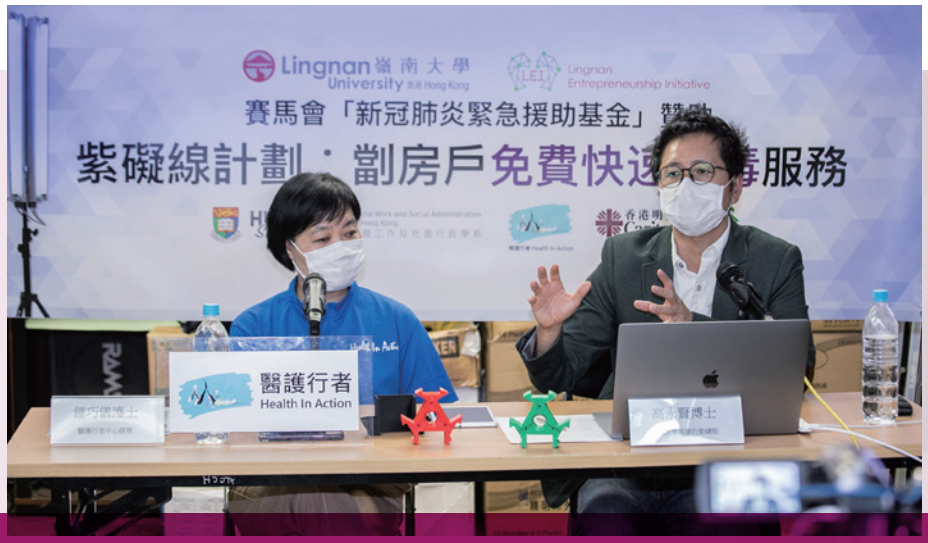

From mid-April to late-June 2020, the operation teams had carried out the disinfection service 1,032 times, and the response has been very positive and encouraging.

As a liberal arts university, Lingnan may not be thought of as a pioneer in technology, but technology is not the protagonist in this project. Rather, it is a means to serve local communities. It plays the role of **"humanitarian technology"** - a concept advocated by LEI, which aims at nurturing entrepreneurs in a liberal arts context.

More information on the project:
https://www.ln.edu.hk/lei/events/project-ultra-violite

Behind the story

Over a brainstorming phone call with a work partner on a trip to the UK, Dr Ko suggested using ultraviolet light to disinfect partitioned homes. It was a eureka moment. The duo then quickly formed a team of six. On his flight back home, the award-winning mechanical engineer drew up a design; and the team then worked intensively on the prototype. In merely nine days, an ingenious gadget, which takes the form of a UV-C lamp, was born. To date, it has helped hundreds of households disinfect their partitioned cubicles. Staying true to the notion of humanitarian technology, the team has joined the Open COVID19 Pledge and made its design available for free in fighting the pandemic, at https://www.ln.edu.hk/lei/maker/open-source-projects.