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Hong Kong develops UV-C disinfection robot

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The autonomous UV-C disinfection robot provides 360-degree coverage through ultraviolet rays, and sanitisesevery corner of a designated venue

Cleaning and disinfecting public spaces have become increasingly important during the COVID-19 pandemic. Based on Lingnan University in Hong Kong (LU)'s development of a successful free sanitisation service for over 1,000 subdivided flats by a mobile UV-C germicidal system last year, Lingnan University in Hong Kong has achieved another breakthrough by constructing a smart autonomous UV-C disinfection robot to provide thorough and efficient UV disinfection for large indoor establishments. While the whole disinfection process is automatic, it is far more effective and five times faster than manual disinfection with 1:99 diluted bleach.

The autonomous UV-C disinfection robot provides 360-degree coverage through ultraviolet rays, and sanitises every corner of a designated venue. It works on a 253.7 nm wavelength and obliterates viruses, bacteria and fungi with 99 per cent reliability, preventing the spread of pathogens through the air and on the surface of objects.

Since UV-C is harmful to human skin and eyes, the robot is designed to operate independently, allowing disinfection to be conducted during off-hours of a venue. It is equipped with a laser-based radar system (LiDAR), using laser surveying and terrain mapping as well as obstacle detection to plan a path for disinfection and navigate intelligently to the destination. The automatic disinfection robot is particularly suitable for use in large indoor establishments, including schools, residential care homes, rehabilitation homes, libraries and sports centres, and takes only 10 minutes to clean every corner of a 400-squa----re-foot area, thus saving significant time and effort. The robot is also equipped with a built-in intelligent sensor to ensure that it automatically shuts down if it detects any animals or humans nearby.

Dr Albert Ko, Director, Lingnan Entrepreneurship Initiative and leader of the project, said that LU is seeking financial support to produce 50 autonomous UV-C disinfection robots by the end of 2021, to provide free disinfection services for schools, care homes and NGOs. "Over the long term, we would also consider setting up a social enterprise to be of service to private organisations such as hotels and guesthouses.

"All proceeds and donations will be used for mass production of the robots, so as to provide more disinfection services, reduce the risk of spreading COVID-19, and safeguard public health.”