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Robot: Scientists develop a disinfection robot to help cleaners fight COVID-19 – Latest News

By **Isaac Novak** - April 15, 2020

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Scientists have developed a semi-autonomous robot that can quickly disinfect large surfaces and reduce the risk of cleaners picking up the new coronavirus from potentially contaminated areas. Researchers at

Nanyang University of Technology (NTU) in Singapore plan to hold public trials to support the fight against COVID-19.

Called eXtreme Disinfection roBOT (XDBOT), it can be controlled wirelessly via a laptop or tablet, eliminating the need for cleaners to be in contact with surfaces, the researchers said.

The new robot differs from other disinfection robots currently on the market that are primarily intended for cleaning and vacuuming floor surfaces and cannot disinfect oddly shaped surfaces or anything above ground level, they said.

Composed of a semi-autonomous control unit with motorized wheels, XDBOT has a six-axis robotic arm that can mimic human movement to reach uncomfortable places, such as under tables and beds, as well as door knobs, tables, and light switches .

According to the researchers, instead of a conventional pressure spray nozzle, it uses an electrostatic-charged nozzle to ensure more and more spread of the disinfectant, behind and on hidden surfaces.

Unlike typical nozzles, the XDBOT nozzle discharges chemicals with a positive electrical charge, they said.

These disinfectants, the researchers noted, will be attracted to all negatively charged surfaces.

They explained that surfaces that are already covered with the disinfectant will repel the spray, making this method very efficient.

Professor Chen I-Ming, an NTU roboticist, said the XDBOT was conceived when COVID19 cases began to increase worldwide in mid-February, and disinfection efforts at airports, hotels and hospitals were intensifying.

"To stop the transmission of a virus means that we need a way to quickly disinfect surfaces, which is a repetitive and laborious activity," Chen explained.

"Using our new robot from a distance, a human operator can precisely control the disinfection process, increasing the surface area cleaned up to four times, with zero contact with surfaces," he said.

XDBOT can navigate semi-autonomously in any environment using LIDAR (Light and Range Detection) and high-definition cameras, while its arm is controlled by a human operator, such as a tank with a rotating turret, the researchers said.

The operator can control the robot from up to 30 meters using a laptop or tablet, which can be increased to 50 m or more with more antennas installed on XDBOT, they said.

Investigators said the robot has an 8.5-liter tank that can carry a variety of disinfectants appropriate for different environments, such as daycares, hospitals, nursing homes and shopping malls.

They said it can run for four hours straight with a rechargeable battery, and it is estimated that it can disinfect a surface up to four times that of manual cleaning.

Recharging its batteries takes eight hours today, but the researchers said this can be further improved by adopting fast-charging technology.