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JTC to use robot in trial for building inspection in early 2017

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SINGAPORE'S industrial developer JTC will deploy a robot in a trial to help look for architectural defects of an almost-completed project early next year, with the aim of replacing some aspects of human inspection in the near future.

This 70-kg, 1.8-metre robot, equipped with high-tech cameras and laser scanners, will be used in JTC Space in Gul to pick up building defects such as cracks and uneven surfaces.

If the trial proves successful, JTC will consider reaching out to the Building and Construction Authority to see if the robot can help meet regulatory requirements.

Commercial production may soon follow, with end-2017 estimated as the earliest possible date, said Koh Chwee, director of JTC's technical services division, at a press briefing on Wednesday, showcasing the robot's capabilities.

"Once we find out that everything (at the trial) turns out to be as planned, then the next step would be we'll try to cover more uses, and see if we can totally replace this aspect of the inspection of spaces with robots," he said.

Named QuicaBot, short for Quality Inspection and Assessment Robot, the robot is the culmination of a year's work for scientists from Nanyang Technological University (NTU).

It was also co-developed by JTC and local startup CtrlWorks. The National Research Foundation also supported the project under a funding initiative.

At the current phase, the cost of the robot is about the annual salary of a human inspector, said Chen I-Ming, director of NTU Robotic Research Centre, at the briefing.

QuicaBot's deployment in Gul will be the first real-life test of its functionalities. It will pair up with a human inspector during the inspection, who can control it via a laptop. Otherwise, the robot can function autonomously.

It will upload three-dimensional data of scans of the building and upload the data into a database, which will then be measured against regulatory standards.

This way, it is expected to deliver cost savings in this phase of a building's construction, while ensuring consistency and accuracy in inspection.

For example, if it takes two human inspectors a day to complete an inspection, JTC estimates that a human inspector and robot pair will take only half a day, said Mr Koh.

JTC will also consider extending the robot's use to other kinds of buildings such as commercial and residential.

The robot can also be used overseas. Its algorithms can be tweaked so that it can work within the parameters of overseas regulators, said the project's principal investigator Erdal Kayacan, who is also assistant professor from NTU's School of Mechanical and Aerospace Engineering.

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