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Singapore

Robot swans to help monitor water quality in Singapore's reservoirs

Robot swans developed by PUB, NUS and the Tropical Marine Science Institute that help real-time quality water monitoring. (Photo: Jack Board)

SINGAPORE: Five robotic swans will be used at various reservoirs in Singapore to monitor raw water quality, announced national water agency PUB on Monday (Jan 15).

The robots, called the Smart Water Assessment Network (SWAN), use water monitoring technology to collect data in real time. They are designed to resemble real swans so as to blend in with the natural surroundings.

Jointly developed by PUB, the National University of Singapore's (NUS) Environmental Research Institute and the Tropical Marine Science Institute, SWAN completed tests in 2016 to evaluate its capabilities in sampling and navigation as well as power usage.

It is one of the technological solutions PUB is adopting to better understand reservoir conditions and improve raw water quality.

The robotic swans will be deployed at Marina, Punggol, Serangoon, Pandan and Kranji reservoir. PUB said more data needs be collected from newer reservoirs Marina, Punggol and Serangoon, so as to better understand the reservoir conditions.

As for Kranji and Pandan, these tend to see greater growth of algae during dry weather, so there is a need to monitor water quality more closely, it said.

Koay Teong Beng from NUS remotely controls the robotic swans on Pandan Reservoir. (Photo: Jack Board)

Channel NewsAsia first reported on the tests in July 2015. Then, the NUS team said that they conceptualised the robot back in 2010 but only started testing it in 2014.

During the tests, the robotic swans were used to monitor different physical and biological compounds in fresh water, including pH, dissolved oxygen, turbidity and chlorophyll, which are common indicators used to determine if there are problems in a water source.

At present, water authorities face the logistical challenge of physically having to collect samples from large bodies of water, normally using a boat. It is an approach that requires time and manpower and restricts the speed at which officials can act in the case of an outbreak or a contamination, the researchers said.

The swans work by trawling particular areas of interest in a water body and wirelessly sending back data through cloud computing. Programmers will be able to remotely control the robots, but the aim is to ensure they are as autonomous as possible, requiring just basic monitoring and operation, which can happen from anywhere with an Internet connection.

They are durable enough such that even if a recreational water user such as a kayaker, or even a small boat, hits the robot swans, they will not be damaged, according to the teams behind the technology.

Source: CNA/cy
Read more at https://www.channelnewsasia.com/news/singapore/robot-swans-reservoirs-monitor-water-quality-pub-9861686