

TAG [Robots](#) , [Robotics](#) , [Autonomous robots](#) , [China Pollution](#) , [Water Pollution](#) , [NUSwans](#)

## Robot Swans Swim Singapore River To Test And Monitor The Waters In Real-Time

By [Lauren Keating](#), Tech Times | July 13, 2:10 PM



Follow

Share(20)

Tweet(11)

Reddit

0 Comments



SUBSCRIBE



There is nothing more peaceful than watching snowy white swans wading the waters on a sunny summer day — but not if the water is swimming with pollution.

Thankfully, the swans that are now being seen in Singapore's Pandan Reservoir are not actual birds, but rather robot swans that have been sent out to test and monitor various water conditions to make sure the supply is safe from contamination.

The flock of robotic swans was developed by a team of researchers at the National University of Singapore (NUS) Environmental Research Institute, along with the Tropical Marine Science Institute and the national water agency PUB.

The NUSwan robots were originally conceptualized in 2010 by a small team at both institutes and began their first round of testing last year.

The robots are designed to look just like living, breathing swans but are strong enough to take a blow from a kayaker or even a small boat. They are equipped with advanced technology to monitor, in real-time, various physical and biological components in fresh water. Along with identifying any water contamination, the NUSwans also monitor the

level of pH in the water, the amount of dissolved oxygen, turbidity and chlorophyll. These are all compounds that can determine if there are any problems with the water.



(Photo : Channel NewsAsia | YouTube)

The robotic swans [swim in the water](#) autonomously but are often controlled by programmers and use GPS navigation to test the water in a specific location. The data is then sent wirelessly to the cloud, where researchers can analyze the water remotely in real-time. Because the robot swans are using GPS technology, they don't recover grounds they already tested unless instructed to, which saves time. Along with increasing efficiency, the robots also save money.

"It would be expensive to do similar monitoring manually or using AUVs (Autonomous Underwater Vehicles)," one of the project's lead researchers, Assistant Professor Mandar Chitre, told *Channel News Asia*. "Scientifically, the NUSwan test drives a new paradigm of freshwater monitoring, one that is persistent and interactive, and is potentially able to sample the dynamics of water quality over space and time at improved resolution at an affordable cost."



(Photo : Channel NewsAsia | YouTube)

The researchers continue to work on the NUSwans with other university researchers to expand their technological components. This includes adding a phosphate sensor for freshwater testing. Phosphate is found in algal blooms in polluted water so the swans could possibly detect the affected areas in a more timely fashion.

While the NUSwans will be tested in South [China](#)'s waters, the technology could be used elsewhere to detect and address water pollution.

"We see the potential of having NUSwans deployed in urban freshwater bodies and coastal water beyond Singapore. With the data stored in the cloud, collaborators may share and aggregate data and understand global phenomena," Chitre said.

Just remember that you can't feed these birds.

Via: [Channel News Asia](#)

<http://www.techtimes.com/articles/68454/20150713/robot-swans-swim-singapore-river-test-monitor-waters-real-time.htm>