



## Robot Swans Patrol Singapore's Reservoirs, Hunting Pollution

**If you're going to fill your water with robot sensors, why not make them fit in?**

The NUSwan might sound like a bio-engineered creature from *Blade Runner*, but it has more in common with the Roomba that sweeps your home. The robot swans have been deployed by the [National University of Singapore](#) to swim around water reservoirs and keep an eye on water quality.

Right now, monitoring Singapore's reservoirs is done by humans in boats, which is impractical, slow and not very scaleable. The NUSwan can swim tirelessly, continually testing pH, dissolved oxygen, turbidity (cloudiness) and chlorophyll. The results are transmitted wirelessly back to researchers, the GPS-equipped swans sweep the lake without duplicating any already-tested spots, and they automatically return to base for recharging when batteries run low.



The whole thing is a bit Las Vegas-y, where artifice is regularly swapped in for the real thing, but if you're going to build a water-roving robot, why not build it into a swan?

"We started with a number of smaller bird models, before we decided on the swan. It's just the right size," Assistant Professor Mandar Chitre [told Channel News Asia](#). "If you look at it in the environment, it just looks like a swan swimming around."

The name is also worth a mention, so neatly and conveniently does the acronym fit both the swan and its home, the NUS. NUSwan stands for *New Smart Water Assessment Network*.



The NUSwans are tough enough not to break if they get a whack from a wayward oar or suffer a kayak collision, and upgrades are already planned. The addition of phosphate sensors, which the university has prototyped itself due to a lack of commercial availability, will let the NUSwan check for [algal blooms](#), which can choke water ecosystems.

The swans have a future outside Singapore, and a wide-scale deployment, coupled with planned cloud-storage of data, would allow global monitoring of coastal and inland waterways. The Chinese will use them to test river waters for pollution, and Chitre and team plan to upgrade the NUSwan to operate in salt water. This will let them monitor coastal waters, although they might not be quite so incognito when bobbing along on the beachside waves.

<http://www.fastcoexist.com/3048660/robot-swans-patrol-singapores-reservoirs-hunting-pollution#1>