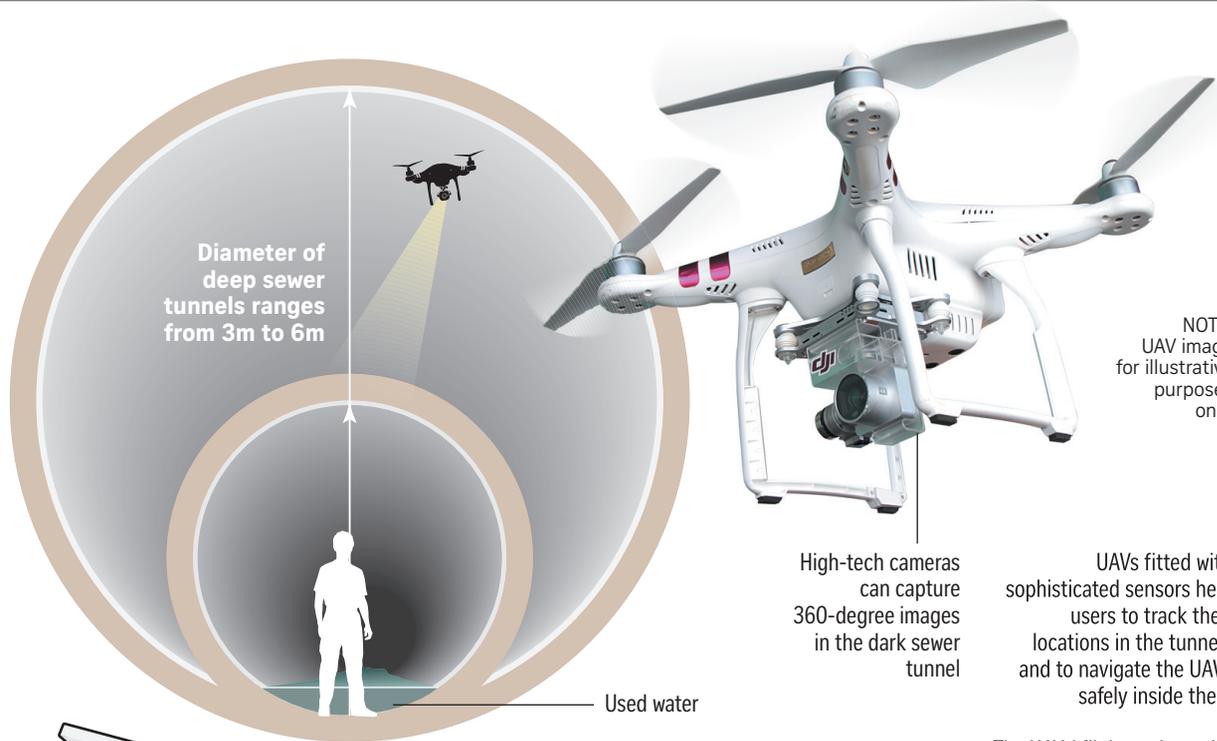


PUB gets smart

National water agency PUB will showcase its smart technologies at the upcoming Singapore International Water Week. Here is a look at some of these smart developments.

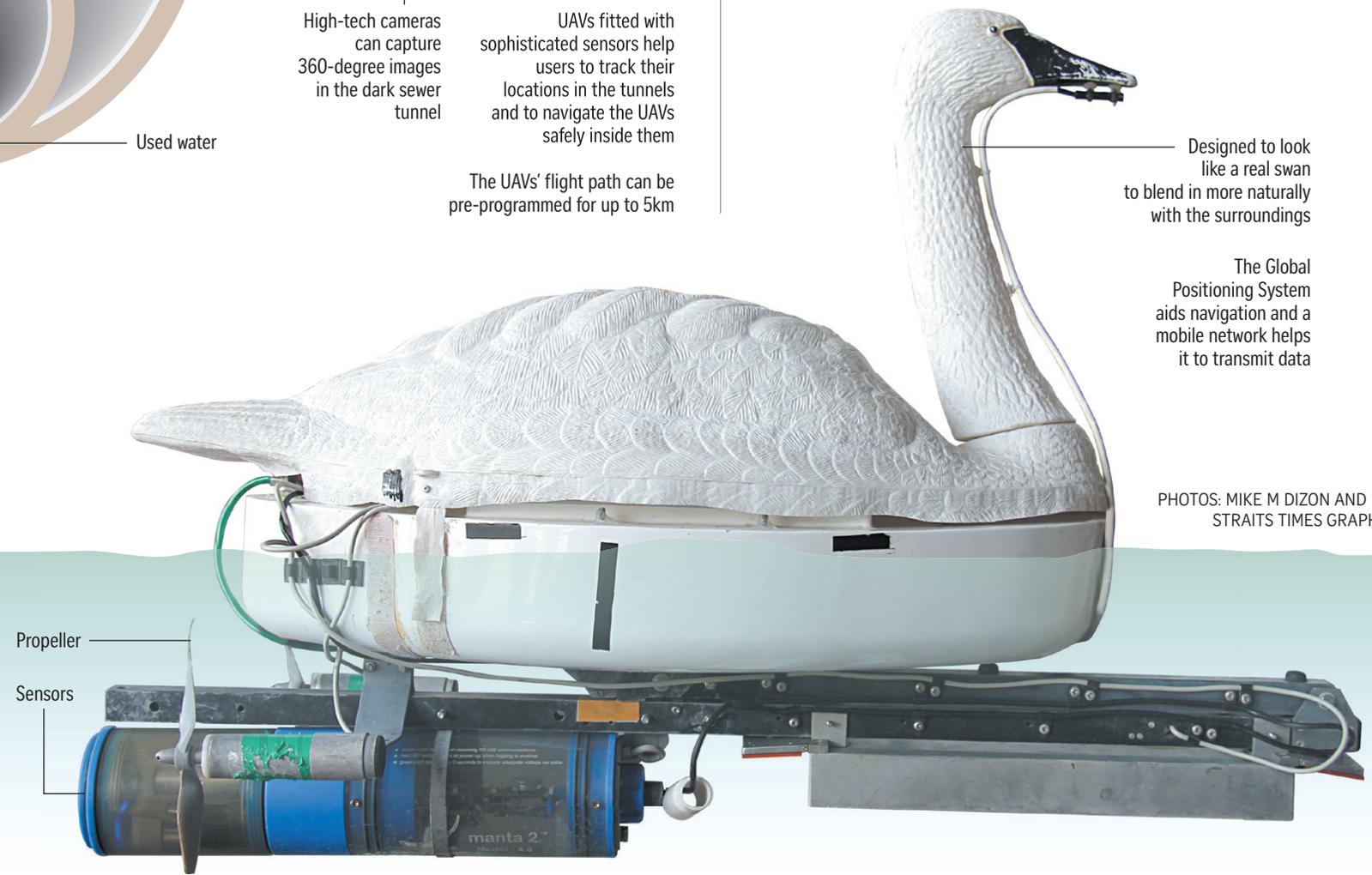
Unmanned aerial vehicles (UAVs) to inspect Deep Tunnel Sewerage System

- PUB is exploring the use of UAVs for inspection of the Deep Tunnel Sewerage System (right), a superhighway that channels used water via gravity to a centralised water reclamation plant for treatment and further purification into Newater.
- UAVs fitted with sophisticated sensors and cameras can be used to record images within this sewer tunnel, at depths of between 18m and 50m.
- Sensors also record the exact location where a photo was taken, facilitating follow-up action.



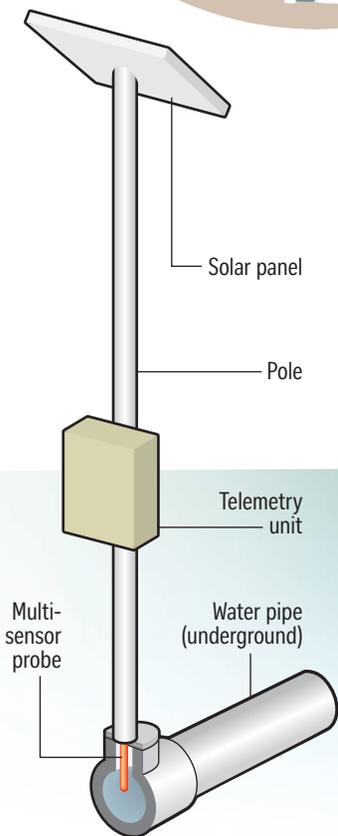
Robot "swans" to monitor reservoirs

- The New Smart Water Assessment Network (NUSwan) may look like a swan but it is no birdbrain. Built that way to blend in with the environment, the autonomous robotic platform carries out real-time monitoring of water quality. They have been tested and are ready for "release" at selected reservoirs.
- They can be remotely controlled or assigned pre-defined tasks (for example, perform scanning of a given area or collect water samples) which they can carry out autonomously.
- They can be used as sensing nodes that provide good spatial coverage.
- The real-time monitoring will enhance response time to emerging events at the deployed location.
- These robots can collect water samples and, among other functions, measure pH, temperature, and conductivity of the water.



Smart water grid sensors (right)

- Multi-sensor probe installed in water pipes to monitor water pressure, flow and quality.
- Telemetry unit transmits the data wirelessly to a central system for analysis.
- In the event of any irregular readings and analysis, the system will notify PUB to carry out the necessary repair or recovery work.



Automated Meter Reading systems

- Monitor and collect water consumption data continuously.
- The data is used for water consumption behavioural analysis.

CCTVs and image analytics

- Installed at public drains near construction sites to monitor silty discharge.
- A central server receives the images for analysis.
- More than 300 CCTVs at 250 construction sites have been linked up to the system.