

# Conditions are clear

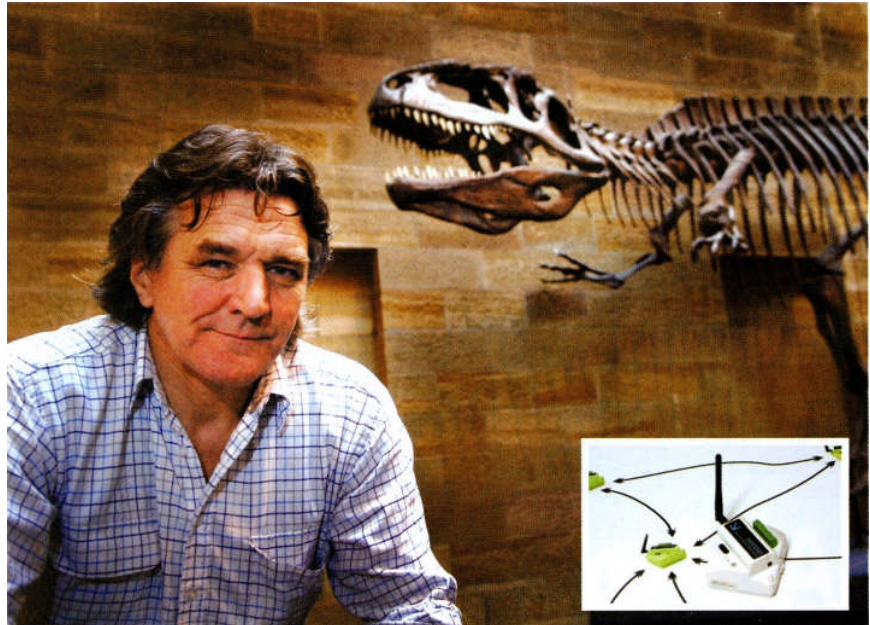
**Round-the-clock environmental monitoring has a range of uses and is becoming popular in new buildings as a means of regulating energy usage. Susanna Nelson looks at a wireless device which can collect data about the conditions in a building.**

Many of us tend to regard environmental monitoring systems as the stuff of Bond movies or the *Da Vinci Code*, existing mainly in grand public buildings to protect sensitive government archives or precious collections of valuable art. But environmental sensors used to track variations in light, sound, temperature and humidity and other conditions in buildings have much wider application, in modern and heritage buildings alike.

Marketed in Australia by engineering solutions provider NVSI, EnviroPoint is a monitoring system that can collect and store information about a range of different environmental conditions in a building and transmit that data in real time using a secure wireless connection.

Continuous monitoring means a lot more work for the cabling industry. "The sensors may be wireless, but every wireless system requires a cabled network. All it means is that the sensors themselves can be moved to areas within a building where the cables cannot go," says NVSI Operations Manager Shirley Chester.

The Australian Museum adopted the EnviroPoint system back in 2001, and recently went wireless. Curator Colin Macgregor is impressed by the sensitivity and flexibility of the system. "We were interested in making use of the cabling that had already been installed for Internet connectivity rather than hard-wiring a new monitoring system to the building. We thought it would be great to use an integrated system which could make use of email and, down the track, SMS messaging to alert us if there was anything unusual happening in the building.



Australian Museum curator Colin Macgregor and 'friend'. EnviroPoint wireless monitoring system has been protecting exhibits for the past six years. Inset: the wireless unit is ideally suited to the Australian Museum as much of the building is heritage listed and walls can't be drilled for wires.

"Much of the building is heritage listed and we can't drill holes in the walls, but the wireless pods can be placed in rooms where cabling cannot be installed and these transmit back to the nearest receiver which is plugged into an existing computer node.

"An added advantage is that we can check the calibration of these small wireless sensor pods on our monitoring computer by placing them in a sealed humidity chamber at a known relative humidity, without having to rig up wiring connections through the side of the chamber.

"Humidity is the big problem for the museum. It causes cracking, mould, shrinkage, distortion and corrosion of the

items on display. The EnviroPoint system sends an alarm via email if the humidity drops below 40% or rises above 60% at any point. The system will also alert us to water on the floors and enable us to act if there is a threat of flooding.

"Light sensitivity is also important, because extreme light conditions can cause the pigmentation of our collections to fade. With this system we can monitor lighting 24 hours a day. We even have a device which is triggered every time a camera flash goes off, and it can record the number of flashes per day. It's not such a problem for us, but somewhere like the Louvre, in Paris, where thousands of flashes go off every day, the

intensity of the light could damage the artwork," she says.

While museums and galleries form a significant part of her existing client base, Shirley Chester believes EnviroPoint has wide applicability in other industries too. "So far we have targeted museums, art galleries, heritage and archive organisations but in recent times we have had interest from warehouse owners, heating, air-conditioning and medical device manufacturers," Shirley says. "There are a number of markets for these devices."

ResMed, a medical device manufacturer which specialises in sleep disorder breathing products, has placed an order for the system. ResMed's products must be manufactured in accordance with specific process requirements for temperature, humidity and barometric pressure.



NVSI operations manager Shirley Chester believes there is a growing demand for environmental monitoring not only at commercial sites and public buildings but in the home.

ResMed test engineering manager Peter Hladky is satisfied that the readings provided are accurate. "They have an error margin of approximately 2%. We have our sensors adjusted to take samples every five minutes. The only problem is that our factory has quite dense walls and the signal is sometimes weak. Fortunately, the sensors continue to take samples and when connectivity is re-established, the data they have collected is automatically re-transmitted. It's quite a robust system in that way," he says.

"There is also a user-friendly interface with graphs and maps to help you make sense of the data. The alarm system can be set to provide warnings when conditions are approaching a set threshold as well as when the threshold is reached."

Shirley sees the construction industry as another promising market. "Profit



Conservator Melanie Findlay with the exhibits and one of the EnviroPoint wireless units.

margins in construction can be very low, and EnviroPoint can help the sector to cut costs," she says. "The requirement for vibration monitoring during commercial or industrial construction means that, currently, a qualified engineer has to survey sites, swapping data cards in static data-loggers, to preserve the chain of data transfer. The data is then downloaded back at the office but is already out of date. This seems an enormous waste of time when a product like EnviroPoint can communicate the data to the office in real time, store it securely in a database, print out reports automatically and alert the appropriate people immediately if

there is a problem."

EnviroPoint can be used to monitor energy usage in existing buildings, making it desirable for those seeking to encourage sustainable outcomes and to ensure compliance with green building regulations. "One chap we're talking to is a lighting expert and he wants to survey buildings with a view to designing lighting which gives the right amount of light in the right places to cut down on wastage," Shirley says.

"We already have some warehouses being built with automatic trip-lights for when people enter particular areas, saving lots of money in electricity. We also know that

many air-conditioning suppliers currently only monitor the exhaust air, but what happens right by the window on a sunny day? It gets hot. The EnviroPoint system can be used by heating, ventilation and air-conditioning suppliers to monitor where clients have reported problems with a service, and to improve it.

"The system can be used to monitor new, green buildings to ensure that energy usage is kept to a minimum, and ongoing monitoring will soon be seen as desirable in all homes. The concept of the smart house is already here, but I think it will become more widely accepted to monitor energy usage in the home in more ways than just the electricity meter.

"The growing emphasis on monitoring energy usage around the clock in every home is great news for cabling — there's a lot of infrastructure to install." •



NVSI	02 9809 7899 <a href="http://www.nvsi.com.au/products.htm">http://www.nvsi.com.au/products.htm</a>
The Australian Museum	02 9320 6000 <a href="http://www.austmus.gov.au">http://www.austmus.gov.au</a>
ResMed	1800 658 189 <a href="http://www.resmed.com.au">www.resmed.com.au</a>