

Rat sensors to be used in markets, hawker centres

NEA will equip its centres with surveillance tech to detect rodents under two-year project

Cheryl Tan

All hawker centres and markets under the National Environment Agency (NEA) will be fitted in batches with rat surveillance technology to remotely detect the presence of rodents as part of a two-year project.

NEA said in response to queries from The Straits Times that it will be tapping tools such as sensors, cameras and smart traps as part of efforts to enhance operational capabilities through a “progressive and careful” integration of technology, where applicable.

It added that there will be around 20 deployments of surveillance technology a month, starting with markets and hawker centres.

“NEA will study the outcome of the deployments and periodically review emerging technologies for adoption, where feasible,” said its spokesman.

It said it continues to work closely with its stakeholders on rat control, through measures such as implementing good house-keeping habits, ensuring the

proper removal of food sources and eliminating areas that harbour the pests.

“To be effective, stakeholders must ensure that the control measures are sustained, as rats propagate quickly under conducive conditions,” it added.

According to tender documents seen on government e-procurement portal GeBiz, the tender was awarded to pest control company Origin Exterminators for rodent surveillance, under its brand known as Ratsense.

Ratsense general manager Derek Tong told ST that the technique involves installing a network of infrared motion sensors in specific nooks and crannies, such as on pipes and cable trunking, areas rodents are known to typically frequent.

“This involves a good understanding of rodent behaviour – such as their preferences in movement, food source and breeding locations,” he added.

Infrared motion sensors can help detect rodent presence through a change in temperature within a certain area.

Singapore has two main rodent species – roof rats, which are of-



Ratsense's infrared motion sensors can help detect rodent presence via a change in temperature in an area.

ten found nesting in higher ground, and sewer rats, which frequently emerge from the drains and can be seen scurrying around, he noted.

“Our rat surveillance system will be installed mainly on high ceilings,” said Mr Tong.

“What we intend to do is to install these sensors for a stipulated period of time, review the data, and let the respective site owners know whether any corrective action is needed,” he added.

To differentiate between rodents and other pests like cockroaches and lizards, the movement detected by these sensors

will be compared with algorithms which resemble the rodent’s signature movements.

“The algorithms, which we continually fine-tune through our years of rodent surveillance in places like shopping malls, allow us to generate the required analytics,” he added.

The company has worked with a few malls such as Jewel at Changi Airport and Singapore Sports Hub to install the monitoring system.

Mr Tong added: “Pest control operations always tend to be more reactive, so we felt that installing these surveillance measures could help to pre-empt the rat infestation problem entirely and to nip the problem in the bud.”

The company’s Internet-of-Things (IoT) devices use a type of communications system known as a low-power wide-area network, which allows wider coverage that can be used both indoors and outdoors while requiring low power to operate.

This technology is more suitable for IoT solutions than Wi-Fi-powered sensors, which require multiple routers to be installed on-site, which may be tricky where power sources are limited, he added.

NEA and Origin Exterminators did not say if they had seen rat infestations increase over the years.

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A tilt tree sensor installed by technology company Styl Solutions at Bishan-Ang Mo Kio Park as part of a pilot by the National Parks Board in the first quarter of last year. PHOTO: STYL SOLUTIONS

Sentosa to install 100 sensors to prevent tree-falling accidents

Ang Qing

About 100 sensors will be installed on trees on Sentosa to monitor and prevent them from toppling.

The Sentosa Development Corporation, which called for the tender last Monday, told The Straits Times that in recent years about eight to 10 trees on Sentosa have fallen annually, typically after a heavy downpour.

Early detection of leaning trees through this first batch of sensors will allow the corporation to prevent accidents through mitigation measures including improving soil conditions and pruning tree crowns, said a Sentosa Development Corporation spokesman.

According to tender documents, the sensors will be installed on “important and prominent” trees along the island’s beaches, as well as at Fort Siloso, Siloso Road, Imbiah Walk and the Imbiah Trail buggy track.

These tilt tree sensors will be added to the 1,500 already installed by the National Parks Board (NParks) in Singapore under its digitalisation masterplan announced in 2018.

The board has placed electronic tilt sensors primarily on mature, large or heritage trees in green spaces and on some trees along busy locations, said NParks group director of streetscape Oh Cheow Sheng.

This came after a 40m tall heritage tree toppled and killed a 38-year-old woman while she was attending a public concert with her husband and children at the Singapore Botanic Gardens in 2017.

The coroner said a combination of factors including heavy rainfall, strong winds and root problems had uprooted the Tembusu tree, which was estimated to be 270 years old.

Almost a year ago, another 38-year-old woman died after a 20m-tall tree fell on her in Marsiling Park.

This was despite the tree having been found to be healthy when it was last inspected in April 2020.

Mr Oh told ST that the wireless sensors monitor tree movements and detect leaning that could oc-

cur from progressive weakening over the years.

With trees in Singapore generally inspected once in six to 24 months, data from the sensors will help guide NParks staff on risk mitigation and intervention measures.

Data collected from the wireless sensors also allows the board to monitor tree behaviour during strong wind and heavy rain conditions on a larger scale across locations and species, said Mr Oh.

As the Republic experiences heavier downpours, NParks plans to eventually install more sensors on some of the six million trees it currently manages.

Last year was the second wettest year here since 1980, with nearly all of the rainy months ranking within the top 10 wettest such months over the past 40 years.

With the continuous strengthening of NParks’ tree management regime, which includes detecting tree tilt, the annual number of tree incidents has fallen from about 3,100 in 2001 to 471 cases last year, most of which involved snapped branches, said Mr Oh.

While the take-up rate of tree tilt sensors is still nascent in Singapore, it is expected to rise as more trees in the urban environment mature, said Mr G.K. Yeo, sales director of Singapore-based tech business Styl Solutions.

The electronics company started developing its own Internet of Things (IoT) tree tilt sensor system in 2019.

Since early last year, the firm has installed its in-house-designed sensors at an education institution, outdoor learning premises and green spaces overseen by NParks.

The weatherproof tilt sensor remotely transmits measurement data to a cloud-based IoT platform for analysis and generates alerts for any major movement that may lead to whole tree failure, said Mr Yeo.

Having these sensors near playgrounds, such as one on a tree in Fort Canning Park located just above a slide, is especially pertinent as they help improve the safety of the area for children, he added.

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Ratsense sensors being installed at Mei Ling Market and Food Centre last Friday. Markets and hawker centres under the National Environment Agency will be fitted with rat surveillance technology in batches. ST PHOTOS: JASON QUAH



Students lead hair donation drive to make wigs for cancer patients

Bryan Cheong

If you are planning to get a haircut soon, hold off on that. Let it grow longer, so that you can donate your hair to make wigs for cancer patients and make a difference in their lives.

Project Haircatchers, a non-profit initiative by a group of 23 students from different schools, hopes to make at least 50 wigs with the support of 200 donors this year. The wigs will be distributed to its four partner organisations – Bali Pink Ribbon, Cancer Society of Maldives, FeM Surgery and Breast Cancer Foundation (BCF).

The Early Bird Donation (EBD) drive began in June last year, when donors who met the requirement of having at least 22cm of non-

curly hair could donate in advance. The donation took place from July to August last year, and 18 wigs were made with the support of more than 70 donors.

The main donation drive will take place this month and next. Some donors can go to Hazelina Salon, located at Delfi Orchard, till Feb 27, and D’tress Salon in Clementi from March 7 to 27.

But most donors still have to find their own means to cut their hair, as the salons provide free haircuts only to donors allocated by Project Haircatchers.

Project Haircatchers has also set up various means of fund raising to cover the cost of making wigs, which is a hefty \$180 per piece. Donors can visit its Instagram account to find the QR codes, or visit the Give.Asia platform.

The project was initiated by stu-

dents from Nanyang Girls’ High School (NYGH) in 2017. It continued in 2018, but was briefly discontinued afterwards.

It was limited to NYGH students, who collected donations and donated hair. In both years, 78 wigs were delivered.

In late 2020, students Yeo Limin and Rebecca Koh, now both 19, decided to resume the project, as they were inspired to do more for those with cancer.

Student Megan Wong, 20, was part of the pioneering team in 2017, and continues to contribute to the project as a mentor.

She said: “I had a heart for cancer patients, as my younger brother is a survivor of childhood leukaemia. Hence, when there was this opportunity to pioneer a self-initiated project for cancer patients, I jumped at it.



“The experience has been very rewarding. In the first year, things were easier, as we received guidance from the Recycle Your Hair (campaign), and we could focus on raising awareness and volunteer recruitment.

“In the second year, we ran the event ourselves. It was not an easy process, but we were thankful to the NYGH staff for their continuous support to help us hit our targets and raise enough funds to produce all the wigs.”

BCF partnered Project Haircatchers in 2017 and 2018, and will partner with the project again this year. BCF runs a complimentary Wig Loan programme which allows members to borrow the wigs and return them once they no longer need them, so other members can benefit from them.

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National University of Singapore medical student Isabel Siow, 24, donated 11 inches of her hair. Project Haircatchers aims to make at least 50 wigs this year. PHOTO: ELSIE TAN