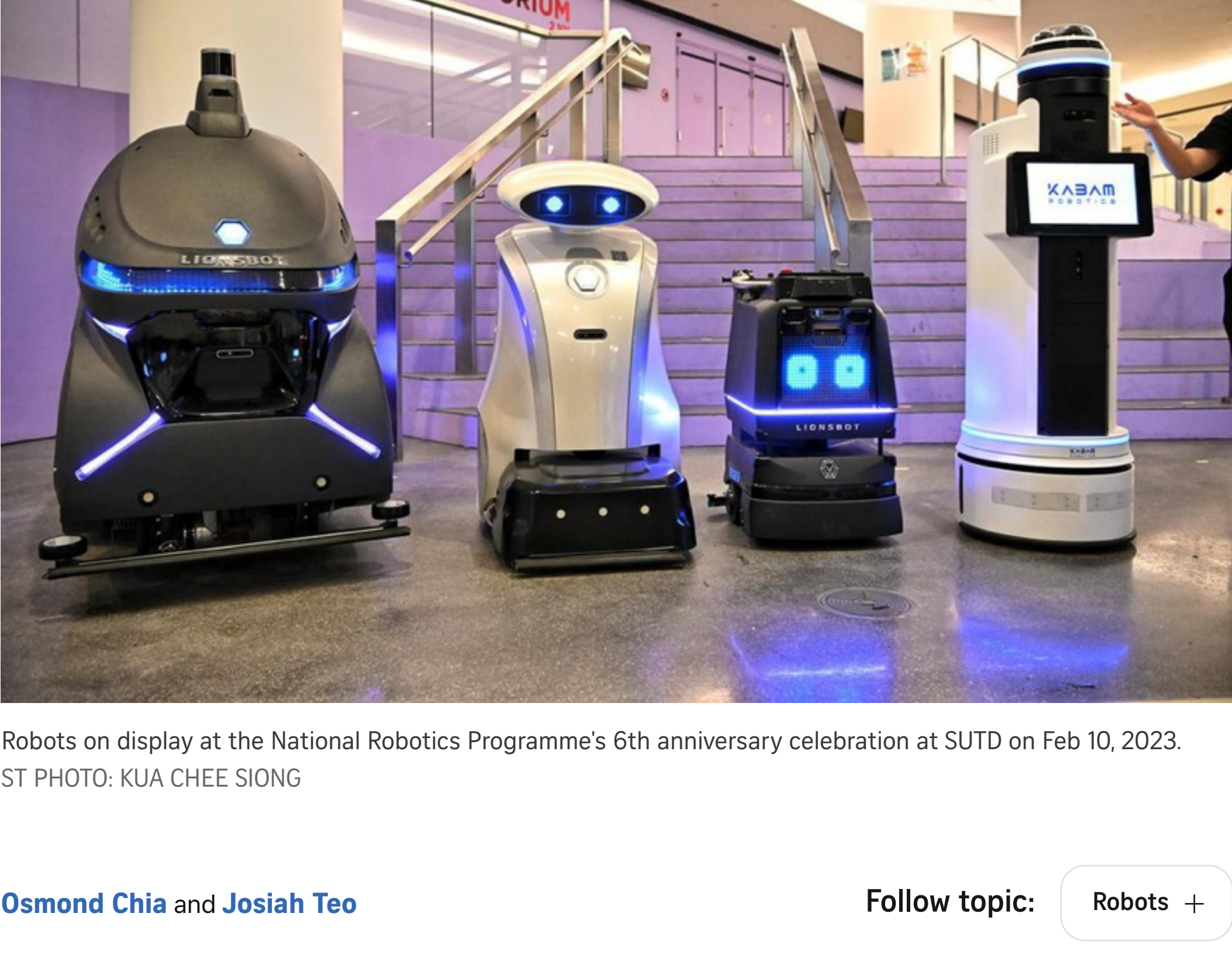


Robots assemble! Meet Singapore’s robotic workforce

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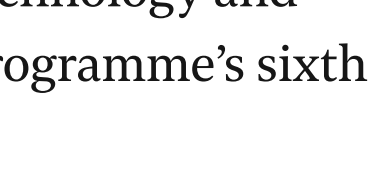


Robots on display at the National Robotics Programme’s 6th anniversary celebration at SUTD on Feb 10, 2023.
ST PHOTO: KUA CHEE SIONG

Osmond Chia and Josiah Teo

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Published Feb 14, 2023, 05:00 AM
Updated Nov 22, 2024, 05:11 PM

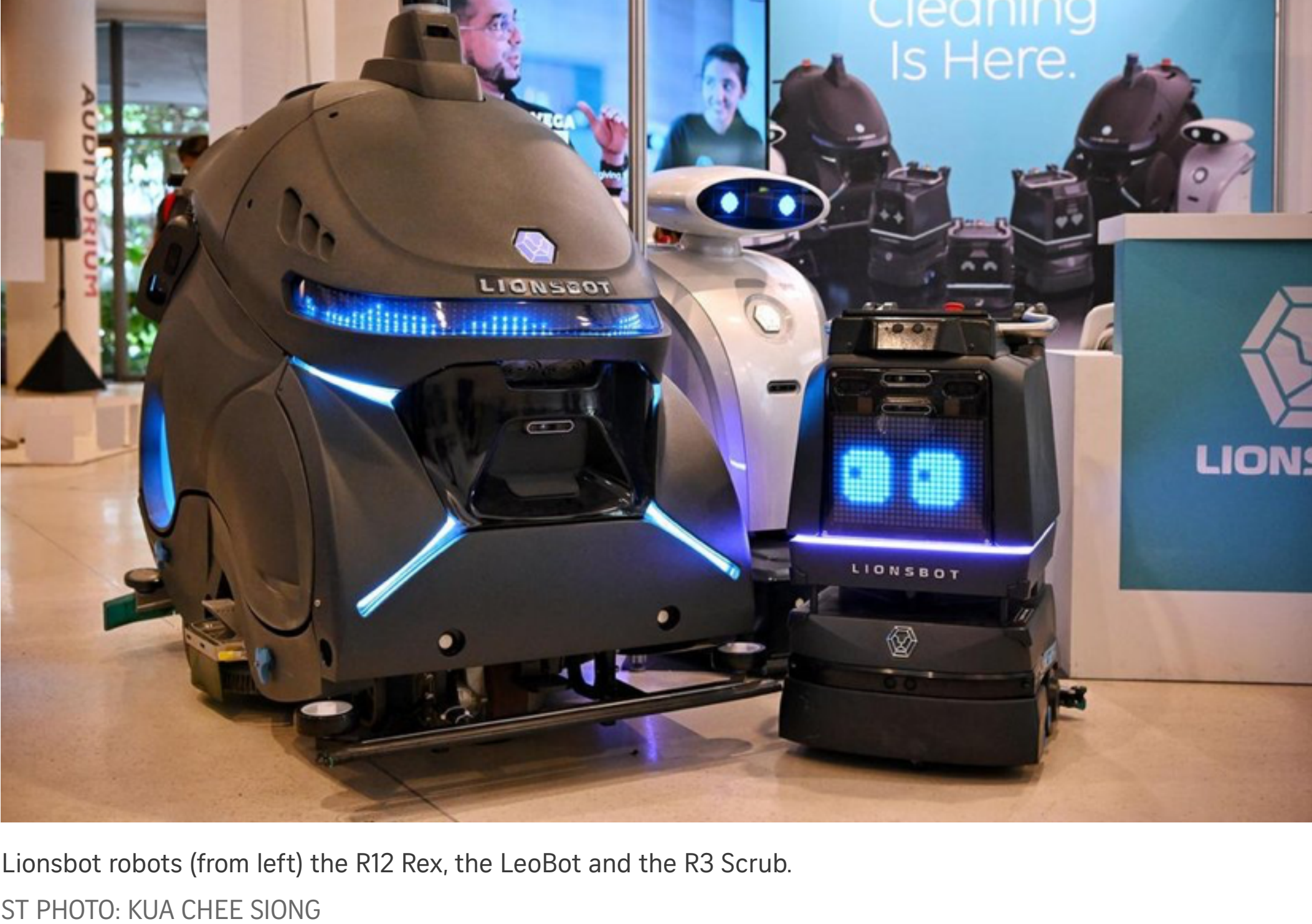


SINGAPORE - They are the Republic’s robotic workforce and plugged labour gaps during the Covid-19 pandemic, easing people’s workload.

Dozens of these robots made an appearance at the Singapore University of Technology and Design (SUTD) during a robotics festival to celebrate the National Robotics Programme’s sixth anniversary on Friday.

The Straits Times looks at 10 outstanding robots – some familiar and frequently seen, others to make their debut soon.

A friendly face



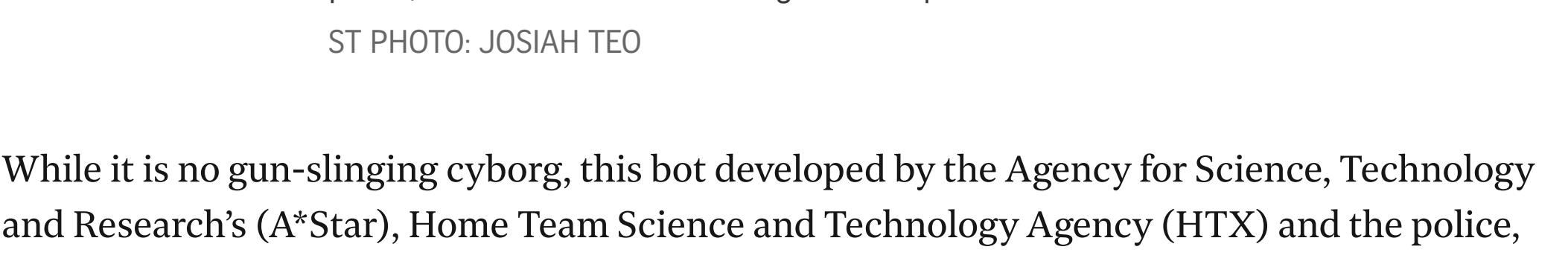
Lionsbot robots (from left) the R12 Rex, the LeoBot and the R3 Scrub.
ST PHOTO: KUA CHEE SIONG

With expressive blue eyes that resemble Eve’s from the Pixar sci-fi animation film Wall-E, the LeoBot has become a familiar sight here, [keeping Changi Airport’s walkways and the Esplanade clean](#).

Launched in 2019 by home-grown robotics firm Lionsbot, the LeoBot comes in several models that can quietly clean floors and lug up to 450kg of cargo around.

Lionsbot’s latest cleaning robot, the R3 Scrub, is smaller and can map its surroundings instead of simply navigating by using pre-installed maps.

Singapore’s RoboCop

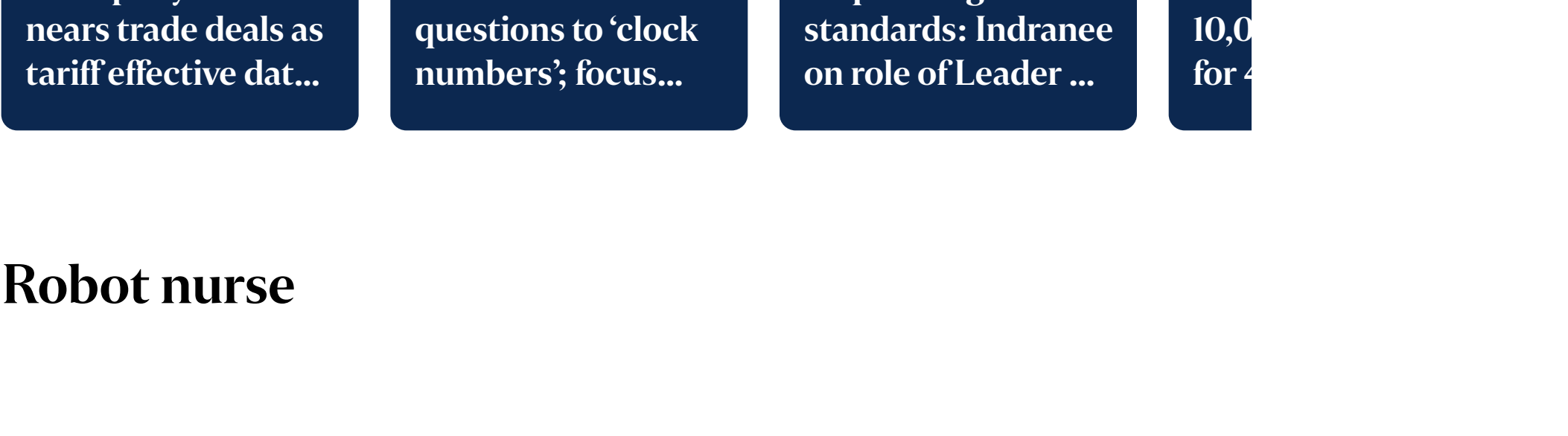


The Matar roams public areas to provide a 360-degree view to the police, and can broadcast messages to the public.
ST PHOTO: JOSIAH TEO

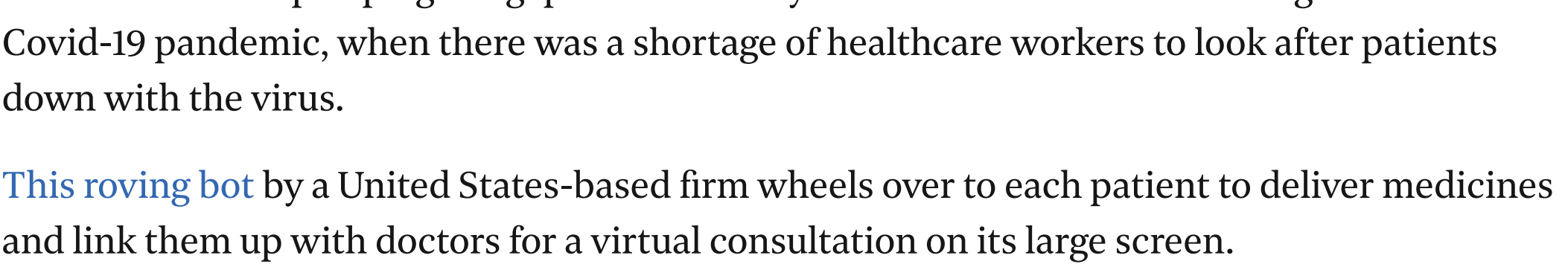
While it is no gun-slinging cyborg, this bot developed by the Agency for Science, Technology and Research’s (A*Star), Home Team Science and Technology Agency (HTX) and the police, does plenty to keep the streets safe. The Multi-purpose All-Terrain Autonomous Robot – or Matar – [roams public areas](#) to provide a 360-degree view to the police, as well as broadcasts messages to the public through in-built speakers.

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Robot nurse



The Temi-Bot helps deliver medicine to patients, and links them up with doctors for virtual consultations on its screen.
PHOTO: TEMI

The Temi-Bot helped plug the gap in community treatment facilities at the height of the Covid-19 pandemic, when there was a shortage of healthcare workers to look after patients down with the virus.

[This roving bot](#) by a United States-based firm wheels over to each patient to deliver medicines and link them up with doctors for a virtual consultation on its large screen.

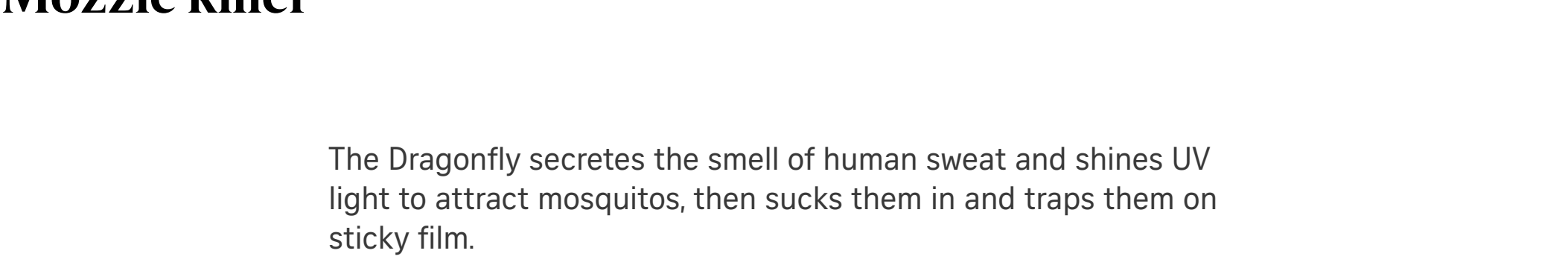
Robot dogs

Robotic dogs can help conduct patrols and deliver goods to areas such as tunnels or disaster zones.
ST PHOTO: KUA CHEE SIONG

They fetch items and scurry where no human would dare to enter without any complaints. These robotic canines can replace people in conducting patrols and delivering goods to areas such as tunnels or disaster zones.

The latest model developed by local robotics firm Weston Robot is able to carry payloads of up to 40kg and last roughly 2.4 hours per charge. A similar robot originally built by Boston Dynamics was seen [reminding visitors of safe distancing measures in Bishan-Ang Mo Kio Park in 2020](#).

Mozzie killer



The Dragonfly secretes the smell of human sweat and shines UV light to attract mosquitoes, then sucks them in and traps them on sticky film.
ST PHOTO: KUA CHEE SIONG

The Dragonfly is a menacing mozzie exterminator – a mosquito trap on wheels. Seen in public areas with potential breeding grounds like Gardens by the Bay, the Swiss Club area and the National University of Singapore, the robot secretes the smell of human sweat and shines an ultraviolet light to attract mosquitoes.

Once they approach, a small fan sucks the mosquitoes in, trapping them on a replaceable sticky film housed within the bot, which was developed by SUTD.

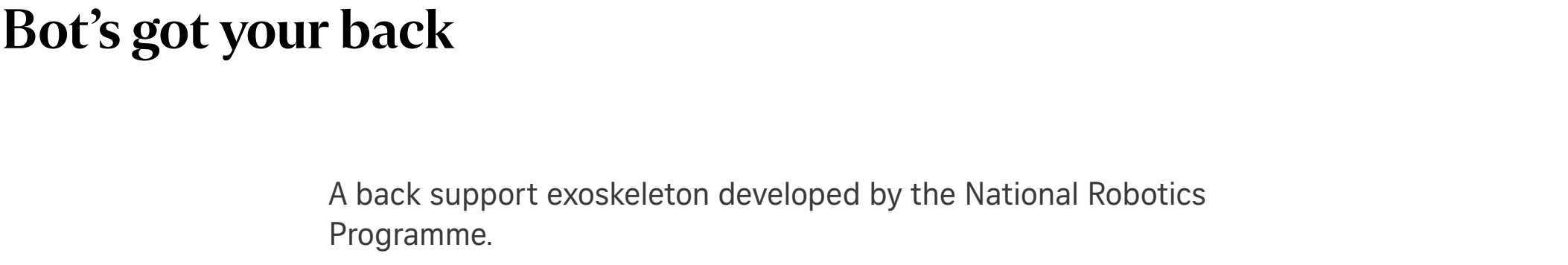
Shapeshifter

The four-sectioned Smorphi cleaning bot can line up like a train to squeeze into narrow areas, or roll into a block to cover more surface area.
PHOTO: WEFAA ROBOTICS

This caterpillar-like bot can change its shape depending on its task. Its four sections can line up like a train if it needs to squeeze into narrow areas for tasks such as cleaning, or roll into a block to cover a greater surface area.

The Smorphi is developed by SUTD and is being tested for various functions by robotics firms including Lionsbot.

Bot’s got your back



A back support exoskeleton developed by the National Robotics Programme.
ST PHOTO: OSMOND CHIA

Many workers in factories and industrial sites develop back injuries from lifting heavy objects. To the rescue comes a mechanised exoskeleton that gives its wearer a boost when carrying objects, protecting his spine.

The machines make the items feel half as heavy and can go a long way to reducing workplace injuries, said the exoskeleton’s developers from the National University of Singapore.

Maple seed drone

The Single Actuator Monocopter, a drone inspired by a maple seed, is powered by a single motorised rotor.
PHOTO: A*STAR

Most drones come with four motors that power the propellers to keep the devices airborne, but SUTD developers have found a new way to drastically cut the number of parts needed to build a drone.

Their drone is inspired by the aerodynamics of a maple seed and is powered by a single motorised rotor attached to one end, keeping the whole device hovering level in the air. The concept for the Single Actuator Monocopter can be developed for various uses in the field, including surveillance.

High-altitude cleaning

The multi-purpose drone hovers into areas too dangerous or tricky for humans to access, and can be programmed for cleaning or inspection.
ST PHOTO: KUA CHEE SIONG

This coffee-table-sized drone can be seen zipping around the Supertrees of Gardens by the Bay, hosing the branches down with water to keep the structure clean.

The multi-purpose drone, developed by SUTD and local firm Spinoff Robotics, hovers into areas too dangerous or tricky for humans to access, and can be programmed for cleaning or inspection.

A human touch

Tacniq’s touch sensors allow robot arms to gently touch an item to assess how sturdy it is.
PHOTO: TACNIQ

Would you trust a robot claw to grab an egg without cracking it? Home-grown start-up Tacniq’s sensors enable robot arms to gently touch an item to get a sense of how sturdy it is, much like a human approaches delicate items with caution.

The sensors could allow automated bots in packing facilities to handle different items on the same factory line without fear of them being damaged.

More on this topic

[Facility launched in SUTD in Changi to test drones without breaking no-fly-zone rules](#)

[NEA exploring table-cleaning robot at hawker centres to support manual labour](#)



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