

Room to work on robotics and AI in new DSO Complex

Technology plays crucial role in defence, says Ng Eng Hen at launch of defence research organisation's HQ

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In the face of a decline in manpower, the role of technology in defence is more important than ever, said Defence Minister Ng Eng Hen yesterday.

He was speaking at the launch of DSO Complex, the new headquarters of defence research organisation DSO National Laboratories.

With a total floor area of 69,000 sq m across two eight-storey buildings, the complex in Science Park Drive houses more than 1,000 staff working across 200 laboratories and offices, said DSO. It declined to comment on the cost of the building.

Dr Ng quoted former deputy prime minister Goh Keng Swee, who noted in 1970 that manpower constraints meant that the Singapore Armed Forces (SAF) was dependent on technology.

"If technology was important then when we had fertility rates above replacement level, how much more so now and in our future, when our manpower supply falls?" said Dr Ng.

Dr Goh had established the predecessor of DSO in 1972 when he was defence minister.

DSO Complex will play a key role in driving "experimental laboratories" to provide the SAF with "indi-

genous and special capabilities" to meet a wide spectrum of security challenges, said Dr Ng.

These include facilities dedicated to two key areas: artificial intelligence (AI) and robotics.

The Playground – a dedicated space where DSO staff across various disciplines can explore and test ideas – features an artificial intelligence hub, which works on projects such as the use of video analytics to identify and track suspicious targets based on attributes such as height and clothing, and even one's gait.

It is also working on a platform that can profile suspected terrorists across multiple social media platforms.

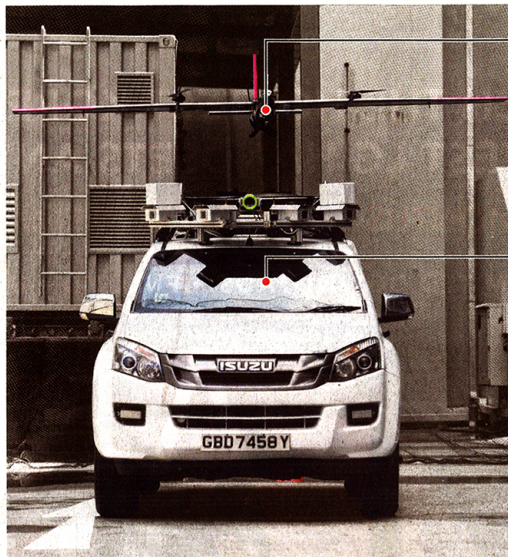
DSO is currently engaging various government agencies on the implementation of the technology, said information division laboratory head Teow Loo Nin.

Meanwhile, a 500 sq m robotics laboratory allows engineers to develop and test robotic systems, prior to field trials. These include a variety of unmanned vehicle systems that can operate across land, sea and air.

Unmanned ground vehicles, developed by DSO, are able to navigate their way through forested areas without the benefit of GPS, said robotics autonomy programme manager Hikaru Fujishima. "We had to develop com-

Unmanned surveillance team

The key focus of the robotics lab at the new DSO Complex is teaming up unmanned air and ground vehicles, which will help provide the Singapore Armed Forces with superior surveillance and intelligence-gathering abilities.



Unmanned aerial vehicle (UAV) - V15

- Vertical take-off and landing, able to take off and land within a 1 sq m space
- Able to take off and land on a moving unmanned ground vehicle
- Can provide aerial surveillance to ensure a safe route for ground vehicles

Unmanned ground vehicle (UGV)

- Able to navigate in complex terrains such as forested areas
- Using Light Detection and Ranging (Lidar) and vision sensors, the UGV is able to navigate without the use of GPS or road maps



Both the UGV and UAV can be equipped with smart sensors that can continuously identify and track both vehicles and humans

Source: DSO PHOTO: NG SOR LUAN STRAITS TIMES GRAPHICS

plex, in-house algorithms to process the sensor data that allows the vehicles to operate in off-road environments," he said.

These ground vehicles can be paired with unmanned aerial vehicles for surveillance and intelligence-gathering purposes.

In order to meet the changing needs of both the Ministry of Defence (Mindef) and the SAF, DSO needs to harness expertise across various science and engineering disciplines, said DSO chief executive Cheong Chee Hoo.

The new complex is designed to facilitate collaboration not only between DSO scientists and engineers, but also with its partners in Mindef, SAF and other agencies, he added.

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