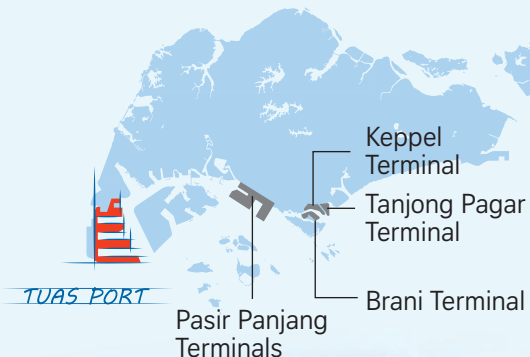


A glimpse into the future Tuas port

Held at Pasir Panjang Terminal Building 3 from Jan 10 to 17, PSA's Intelligent Port of the Future exhibition showcases its future port vision, as well as the transformation of jobs through technology and innovation. The Straits Times takes a look at the use of automation, data analytics, robotics and other applications that could be implemented at the future Tuas port.

FUTURE PORT

The current City Terminals (Tanjong Pagar, Keppel and Brani) and the Pasir Panjang Terminals will eventually be consolidated at a single location in Tuas. The new Tuas port will be capable of handling the world's biggest ships, and will also be the largest automated container terminal globally, with a handling capacity of 65 million standard containers. It will be part of a greater ecosystem connecting various stakeholders in the logistics community, both digitally and physically.



FUTURE COMMAND CENTRE

A one-stop command platform where one operator can coordinate all automated port equipment, including Automated Rail-Mounted Gantry Cranes, Automated Guided Vehicles and Automated Quay Cranes.



SMART WEARABLES

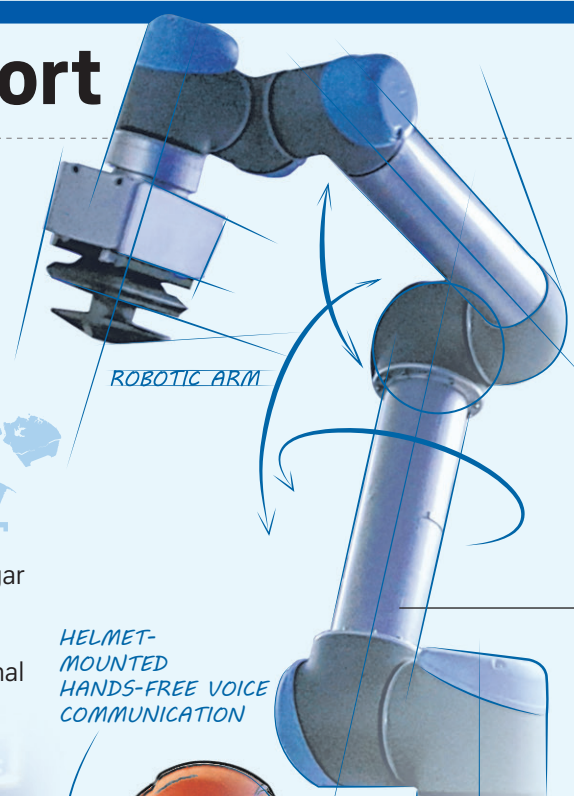
PSA is working with ST Electronics to look at the use of smart wearables for various functions. Geofencing, together with location tracking, ensures staff going into unmanned areas will be safe from port equipment and machinery, while health-monitoring gadgets allow supervisors to monitor high-risk staff. The wearables can be used to relay instructions or provide information requested by the port specialist.

EXOSKELETON

Driven by a system of motors and linkages, the powered mobile attachment enables port specialists to perform strenuous and physically demanding motions – increasing productivity and reducing physical strain.

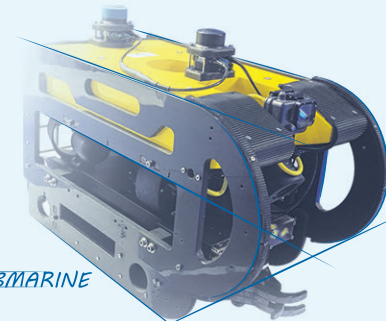


ROBOTIC ARM
HELMET-MOUNTED
HANDS-FREE VOICE
COMMUNICATION



UNMANNED DRONES

A new breed of unmanned drones that operate autonomously in the air and on water will join the workforce. Working with on-ground Internet of Things sensor networks, drones can fulfil ship-to-shore and shore-to-ship deliveries. Drone inspections can help to minimise disruption as this means engineers can perform inspections at a safer distance, eliminating the risk factors.



ROBOTIC ARM FOR TWIST LOCK HANDLING

Currently, lashing specialists fix and remove twist locks during the container loading and discharging processes alongside the quay cranes. In the future, automatic platforms or robotic arms could be used instead – and lashing specialists will no longer need to work close to suspended heavy loads and equipment. Only a single operator is required to operate three or four robotic arm units in cases of exception or error handling.

AUTONOMOUS ENGINEERING TRANSPORTER

Sending spare parts to users via a transporter using preset navigation routes to the workshops will be a norm. Future models will be capable of navigating dynamic traffic conditions to send or return spare parts to worksites.



SMART GLASSES

Support port equipment specialists will wear smart glasses for real-time visual aids and off-site assistance. The augmented reality (AR) technology helps to visualise equipment components and defects, reducing troubleshooting processes and the downtime of faulty equipment. The visual guidance also acts as an effective learning experience.

