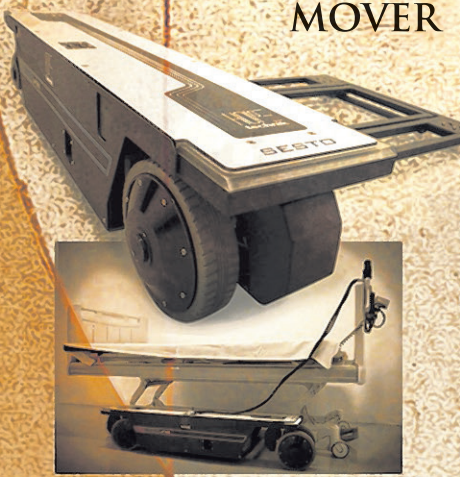


# Doctor who?

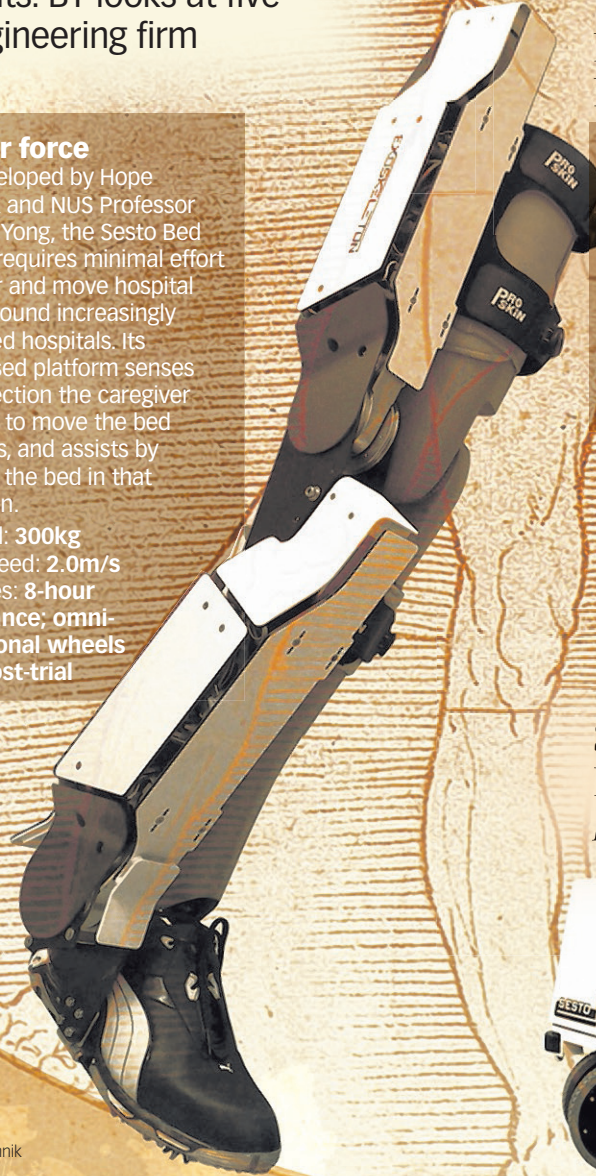
In recent years, experts have debated if the future of medical practice would be more robot than doctor. Robots like the da Vinci Surgical System\* have advanced to facilitating complex surgery, with arms that act as scalpels or scissors and controlled by a surgeon from a console in the same room. In Singapore, automated guided vehicles (AGVs) are increasingly sought after by hospitals to reduce the workload of caregivers: in delivering drugs or documents or even talking to patients. BT looks at five robots designed by homegrown engineering firm Hope Technik. *By Jacquelyn Cheok*

## SESTO BED MOVER



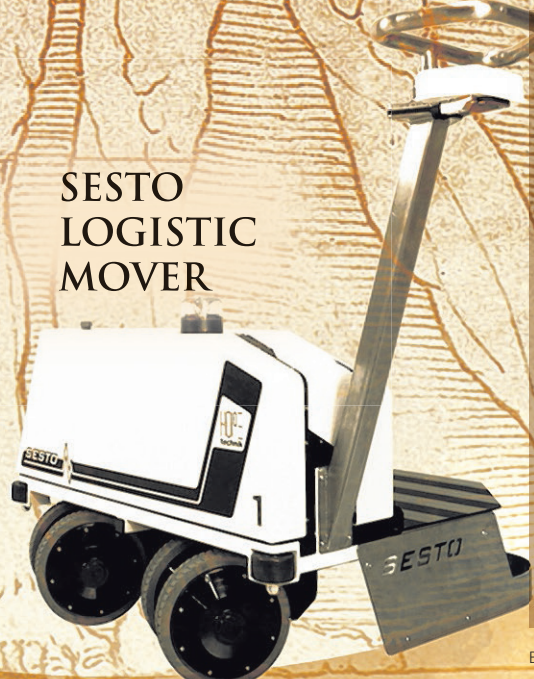
**Finger force**  
Co-developed by Hope Technik and NUS Professor Yu Hao Yong, the Sesto Bed Mover requires minimal effort to steer and move hospital beds around increasingly cluttered hospitals. Its motorised platform senses the direction the caregiver intends to move the bed towards, and assists by moving the bed in that direction.  
Payload: **300kg**  
Max speed: **2.0m/s**  
Features: **8-hour endurance; omni-directional wheels**  
Use: **Post-trial**

## REHABILITATION EXO-SKELETON



**Iron man**  
A wear-on robotic lower limb assistive structure, the Rehabilitation Exo-Skeleton co-developed by Hope Technik and NUS' Prof Yu is meant to assist patients during physiotherapy and gait rehabilitation sessions.  
Use: **Pre-trial**

## SESTO LOGISTIC MOVER



**Body check**  
The Sesto Logistic Mover is able to detect and avoid obstacles when in autonomous control mode; auto-brake, and hold its position on slopes. Like the bed mover, it assists logistics personnel by sensing their intention and assisting in moving hospital equipment in the desired direction.  
Payload: **200kg**  
Max speed: **2.0m/s**  
Features: **8-hour endurance; incline climb of up to 8 degrees**  
Use: **Changi General Hospital, manufacturing and logistics companies**

## By hand

For the ad-hoc delivery of small items around cluttered environments, such as the delivery of chemical samples from one part of a lab to another, the Sesto S AGV uses laser beams to way-find and avoid obstacles, ensuring minimal infrastructural alteration to the workspace.  
Payload: **50kg**  
Max speed: **0.7m/s**  
Features: **Spot turning; customisable shelves**  
Use: **Changi General Hospital, Ng Teng Fong General Hospital**

## SESTO S AGV



## SESTO M AGV

### On legs

The Sesto M AGV is built to transfer large objects around wide spaces such as warehouses and production houses. Its centralised-tasking, route-optimisation algorithms ensure the AGV travels on the best path as it goes about its job.  
Payload: **200kg**  
Max speed: **0.7m/s**  
Features: **10-hour endurance; spot turning**  
Use: **Changi General Hospital (trial), manufacturing and logistics companies**



Cost of AGVs  
s\$65k-  
s\$150k

Source: Hope Technik

\*According to American manufacturer Intuitive Surgical, its robot is named 'da Vinci' in part because Leonardo da Vinci's study of human anatomy eventually led to the design of the first known robot in history.

Global healthcare mobility solutions market worth

US\$84.8m

US\$24.3m

2015 2020

Compound annual growth rate

28.4%

Source: MarketsandMarkets