

## **Factsheet**

**5<sup>th</sup> October 2011**

### **General Specifications of NASH (NTU Advanced Smart Humanoid):**

**Height:** 1.8m

**Weight:** 80kgs

**Number of motors:** 40 force/torque motors (6 per leg, 6 per arm, 6 per hand, 2 for neck and 2 for trunk).

**Construction:** Aluminium frame with customisable plastic panelling. Current plastic panels can be replaced with customised panels such as foam panels in future, for other needs such as impact protection or waterproofing.

**Load:** It can carry up to 40kg worth of payload on its torso, and hold up to 10kgs per arm.

**Basic movements:** Walk forward, backward, sideways, up stairs, down stairs, turn left, turn right, squat in position, walk on uneven ground

**Hand movements:** open hand, close hand, pick up an object, and hold an object and other programmable functions

**Vision capabilities:** able to see in stereo colour vision, identify its pathway and target its location or object.

**Battery life:** 1,000watt lithium-ion battery; Average two hours operation time. Installing bigger capacity batteries will increase operation time.

**Communication:** Audio, text via wireless connection, remote connection.

**Special abilities:** Capability to understand meaningful sentences (i.e. “walk towards the guests”; “walk over to the cup and pick it up”. For most robots you will need to be specific in your instructions: “move 5 meters to X,Y coordinates”).

### **Profile of Lead Scientist:**

Associate Professor Xie Ming, Division of Mechatronics and Design, School of Mechanical & Aerospace Engineering, Nanyang Technological University

谢明副教授, 南洋理工大, 工学院, 机械与宇航工程学院, 机电与设计系

Prof Xie is the author of the best-selling book in robotics, “Fundamentals of Robotics”, published in 2003, and has published over 100 research papers in renowned scientific journals so far.

The 48-year-old scientist is also the Editor-in-Chief of International Journal of Humanoid Robotics (Indexed by SCI/SCIE), a position he has held since 2004. He is also the Associate Editor of IEEE Transaction on Autonomous Mental Development, also another respected journal from the Institute of Electrical and Electronics Engineers (IEEE).

A leading authority in the field of robotics, Prof Xie has also served as the General Chair of International Conference on Climbing and Walking Robots in 2007, and International Conference on Intelligent Robotics and Applications in 2009.

### **Media contact**

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