

Augmented reality-based virtual keyboard for Elderly & Disabled

The NUS team's invention which is equipped with a head-mounted device with cameras and special eye-glasses, enables users to control target electronic gadgets through a virtual keyboard by just turning their heads from side to side.

A team from the Department of Mechanical Engineering led by Associate Professor Ong Soh Khim and Professor Andrew Nee has won the Samsung DigitAll Hope 2005 for their project Augmented Reality Assistive Keyboard. They share the prize, a grant of US\$500,000 with 11 others from Southeast Asia and Australia.



SAMSUNG WINNER: Clockwise from left: Ms Zhang Jie, NUS researcher; Mr Sang-Jin Park, Regional CEO and President, Samsung Asia; Dr Vivian Balakrishnan, Minister for Community, Youth and Sports and Second Minister for Trade and Industry; Associate Professor Ong Soh Khim, NUS and Ms Shen Yan, NUS researcher.

The team has invented a device which marries Assistive and Augmented Reality technologies, to help the elderly and disabled use full computer functions in composing and sending emails, control household appliances, such as television sets and lights. Assistive technology is used in devices like writing aids for those with difficulty in moving their hands and fingers for example, allowing limited movements of limbs to operate certain equipment. Augmented Reality (AR) technology allows the overlay of virtual information onto a real scene through the use of computer - providing augmented information in the form of interactive media, such as texts, computer graphics and video clips, customised to the user's needs. The technology developed by the team will also help physically-disabled students participate in mainstream schools, allowing them to better integrate into society.

"With Samsung DigitAll Hope's funding, we can customise the Augmented Reality Assistive Keyboard for different applications. We envision the project to be useful to individuals with disabilities to carry out their daily tasks and we hope to bring it to users in other countries as a useful assistive tool," said Associate Professor Ong who is also a Nominated Member of Parliament.