

# Innovating to help others

The National University of Singapore's Division of Industrial Design showcased its students' innovation efforts on Saturday. Abigail Goh highlights three projects



## NEW FINGERS

They wanted to help those who have lost their fingers.

So National University of Singapore (NUS) industrial design students Eason Chow, 24, and Nigel Geh, 23, decided to work on developing functional yet life-like prosthetic fingers.

Mr Chow, a third-year student, said: "Many in the lower-income group have jobs that require them to deal with heavy machinery, so they are prone to accidents that may cause them to lose their fingers."

Prosthetic finger options are limited. Passive ones that look more life-like cost about \$3,000 each, but are not functional. Fully functional robotic ones cost between \$50,000 and \$70,000 each and do not look real, said Mr Chow.

But with new 3-D scanning and printing technology, Mr Chow and Mr Geh, a second-year student, provided a better solution.

The students worked with the National University Hospital's Department of Hand and Reconstructive Microsurgery and spoke to experts and users of finger prostheses.

3-D scanning is used to create a digital profile of the user's opposite finger, which is then mirrored to match the required finger. A 3-D printer is then used to create a prosthetic mould with a locking mechanism that will allow the prosthesis to bend in several positions.

In two days, a cheaper, life-like, functional silicon finger prosthesis with a cost price of under \$500 can be made.

This is shorter than the usual five days it takes to fashion a new finger.

## STRAP-ON CRUTCH

Mr Mervy Quek, 25, came up with Uplift, a wearable aid that caters to the elderly with mild mobility challenges.

Mr Quek observed that the elderly often have difficulty walking, especially when climbing stairs.

Uplift is strapped to the knee and has an elastic band that stretches down both sides of the user's lower leg to provide support beneath the heel and can accommodate joint movements.

"It can be worn and concealed underneath clothing, which I felt was useful as many people in their mid-50s and 60s may experience weakened limbs yet avoid using visible mobility aids as there is a certain stigma associated with it," he said.

## SKY CAMERA

The Flying Live-interactive Unmanned Memory Maker is industrial design student Sheng Yang's final-year project.

"I'm a photographer and often I find myself having to step back and be an outsider in order to capture a memory or event. So I wanted to explore the idea of having the photographer be able to live in the moment instead of having to be an observer," said Mr Yang, 25.

His device is a camera attached to a floating balloon which can be controlled by a smartphone.

It can be used for indoor events like birthday parties and captures a continuous video, from which users can choose specific frames to save as photographs.

**HELP:**  
 (From above) Mr Nigel Geh (left) and Mr Eason Chow with their life-like, functional prosthetic fingers. Mr Mervy Quek with his mobility aid for the elderly. Mr Sheng Yang with his project that attaches a camera to a balloon that can be controlled via a smartphone.

TNP PICTURES:  
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