Annex G:

Factsheet on Singapore Polytechnic's collaboration with Tanjong Pagar Community Club

As part of the collaboration, up to 10 Singapore Polytechnic (SP) students will go on a six-week internship at Tanjong Pagar Community Club (TPCC) to help train and educate the community on digital making and creating starting from September 2017. Through this collaboration, SP hopes to play a part in helping the community to prepare for the possibilities of a digital economy as well as Smart Nation.

The students from SP's School of Electrical & Electronic Engineering will help to plan and conduct coding or tech making workshops for Tanjong Pagar residents. Some of these workshops may include:

1. Programming a micro:bit
2. Computer-aided Design & Modelling
3. 3D Scanning & Printing

To further foster a spirit of innovation and experimentation, residents who are keen to take their digital making skills further can pursue a modular Fab Academy Diploma at SP's FabLab: http://goo.gl/vdFbVY

The Fab Academy Diploma programme teaches the principles and applications of digital fabrication and provides a hands-on introduction to the resources for designing and fabricating smart systems. The course which is taught by Prof Neil Gershenfeld (Director, Massachusetts Institute of Technology Center for Bits and Atoms), also puts emphasis on learning how to use digital fabrication tools and understanding how they work.

As this is a modularised course, participants can take only the modules they are interested in amid their busy schedules. They can also go through the full 20 week course for 30 hours each week.

SP's FabLab was established and began its operations in 2011. It is the first in Singapore to be recognised by the global FabLab platform, created by the Massachusetts Institute of Technology. A Fab Lab is a technical prototyping platform for innovation and invention and is also a platform for learning and innovation.

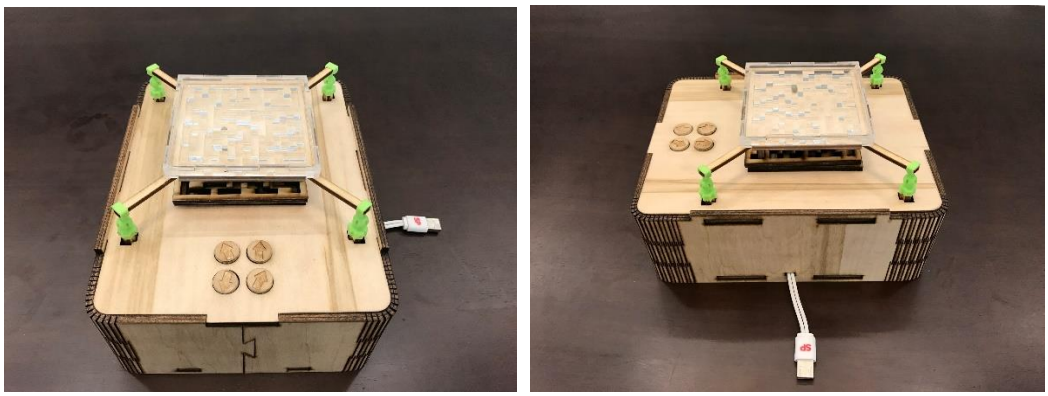
SP's FabLab currently houses equipment such as 3D printers, Laser cutters, 3D CNC Prototype Mill, PCB Mills and Electronic Workbenches for students from different diploma courses to work on multi-disciplinary projects and create prototypes.

Student Profiles

Ashley Chua Jun Hong
Second year student from the Diploma in Aerospace Electronics

As a teenager, Ashley was interested in airplanes and he would wonder how such large objects could fly effortlessly. A hands-on learner, Ashley decided to pursue his passion at Singapore Polytechnic (SP).

As part of his diploma course, Ashley was exposed to digital making and creating in his first year. Prior to his project, he had no experience at all.



The Spidaze project has moving mechanical and electronic parts which are fabricated in SP's FabLab.

His project, Spidaze, was built over a period of 18 weeks at SP's FabLab. Spidaze is an interactive maze game with electronic and moving mechanical parts. The aim of Spidaze is to move a ball through the maze using the built-in buttons.

To design Spidaze, Ashley picked up 3D modelling and went through many iterations and prototypes before deciding on the final look. He also tapped on the FabLab's plasma cutter to cut out the shapes of his maze. Along the way, Ashley also picked up simple programming and electronic engineering skills to complete his project.

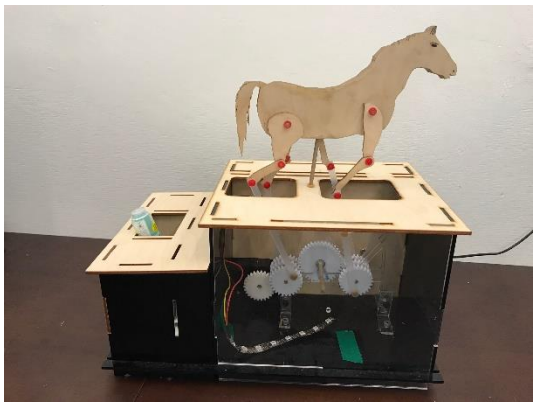
Ashley hopes to impart the skills he has picked up to residents at Tanjong Pagar CC and to assure residents that anyone can embrace new technology easily while having fun.

Sim Jia Ren
Second year student from the Diploma in Aerospace Electronics

Jia Ren's love for helicopters led her to have a strong interest in Science and Technology in secondary school. After doing well for her O levels, she chose Singapore Polytechnic (SP) to help harness her interest and reach her potential.

While figuring out the best way to build a prototype of a mobile phone cover for her first school project, a friend introduced her to SP's FabLab and digital making. Jia Ren was amazed at the endless possibilities in 3D printing and modelling.

A passionate self-starter, she went online and began her own research on how to design and use some of the equipment in SP's FabLab. Her passion and sense of achievement even led her to design and solder a metal plane to test for air resistance for a subsequent project.



The interactive project Höffice can be customised to suit the user's preference

Over a period of 18 weeks, Jia Ren and her team put together an interactive customisable project, Höffice, which combined their skills in 3D printing, laser cutting and programming. Through a series of microchips, circuits and a sensor, the horse will start to move when it detects an object in front of it. The user can customise the animal in the project.

The project was a challenge for Jia Ren and her team as they had to work with new equipment and pick up new programming skills. However, it was all worth it as Höffice has brought laughter and joy to those who have interacted with it.

Jia Ren hopes to help train residents at Tanjong Pagar CC on digital making skills that will allow them to create their own toys.

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