INNOVATION

New ideas for energy

ROZANA SANI
rsani@nst.com.my

WITH fossil fuels, the main source of energy depleting, people on this planet could well be faced with an energy crisis in the not-so-distant future. How could we then mitigate the problem in an innovative manner?

Efficient energy management and the use of alternative energy sources could provide the answers, according to undergraduates from the Asia Pacific University of Technology & Innovation (APU) and UCSI University that are both located in the Klang Valley.

APU Year 3 electrical and electronics engineering student Chama Serenje and mechatronics engineering students Ting Ding Ching and Mohammad Haadi Goolfee believes that the introduction of smart grid system at a low cost using microcontrollers and the Internet can translate into a sustainable, reliable, and economic manner transmission and consumption of electricity by consumers and industries.

"The current electricity production system in Malaysia, which has been in use for 100 years is too dependent on gas and coal which produces 92 per cent of energy, is not a smart system and lacks feedback on consumption details. There is no avenue for using alternative energy in the grid nor allowing consumers or industries to give back or store excess power. And the cost of building a new grid system is too expensive," said Chama Serenje who hails from Zambia.

So, Chama, local student Ting and Mauritian Mohammad Haadi proposed integrating the low-cost system in the older grid instead of discarding the whole system.

"The sensors put into the system coupled with the use of Internet cloud allows for real-time monitoring, energy storage, easy access to data for customers and providers to track their usage," said Chama.

"If we integrate this system, ultimately utility companies can plan for growth. Then productivity equates demand," he stressed.

UCSI electrical and electronics engineering students Muhammad Hafidz Khairudin and Ganesh Kumar Tinakaran from Malaysia and Rifayet Ashraf from Bangladesh, meanwhile, looked at how energy produced during exercise on stationary bicycles in the gym could well produce alternative energy through a solution called Smart Self Sustaining Green Gym.

"There are many gyms in Kuala Lumpur and other big cities in the country with members who exercise for hours and hours. Why not translate this into usable energy. Walking 10km per hour for six minutes can generate 100 watt-hour (Wh). Imagine if the bicycles are hooked up to devices that do this on a bigger scale," Hafidz said.

He added that small things can trigger changes and all it takes is time and effort to put this in place.

"We only have to innovate the concept," he said.

The APU team and the UCSI team were first prize and runner-up winners respectively at the ABB Inaugural Intervarsity Innovation Challenge held in Kuala Lumpur in December last year.

Organised by the Stockholm-based technology company, the competition's objective was to stimulate creativity and innovative thinking amongst undergraduates, apart from building an interactive platform between the academic circle and industry experts. The competition core theme was "Smart Technology, Intelligent Upgrading".

ABB Malaysia Bhd sales and marketing senior manager Koo Siang Wooi said that the scoring comprised 50 per cent innovativeness, 30 per cent on feasibility and 20 per cent on presentation.

"This competition is based on a corporate-university collaboration model. The proposals

are the students' intellectual property. Other than the cash prize of RM10,000 and RM5,000 respectively, they can always come back to ABB with the refined versions of the proposal or go to other companies to sell their solutions. In other countries where ABB have held the competition, winning IPs that are viable have been bought by the company and winners have been offered employment," he said.

More than 54 undergraduate teams submitted proposals for the competition.

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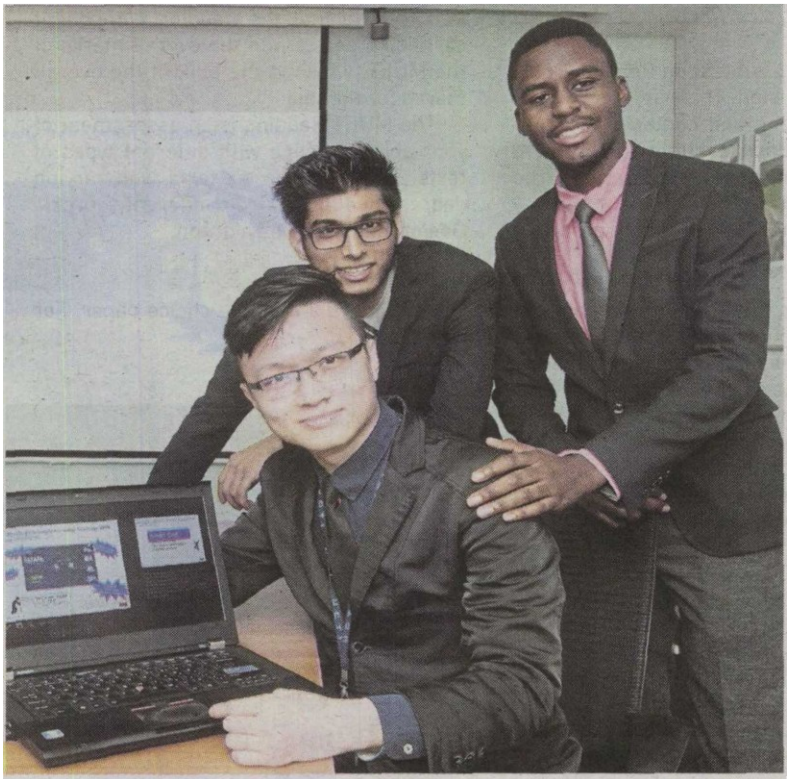
>
> **MUHAMMAD HAFIDZ KHAIRUDIN**



The winning team from APU comprising (from left) Ting Ding Ching, Mohammad Haadi Goolfee and Chama Serenje with their presentation.

Sessions at the gym gave UCSI team members (from left) Muhammad Hafidz Khairudin, Rifayet Ashraf and Ganesh Kumar Tinakaran ideas for the Smart Self Sustaining Green Gym.