# Saving power with 'greenovation'

ZULITA MUSTAFA
zulita@nst.com.my

DURING tough times, every household would appreciate savings in energy consumption and improved energy efficiency.

An innovation from Universiti Putra Malaysia (UPM), called DC Homes in Future Energy System, promises to do just that.

Project lead researcher Associate Professor Dr Wan Zuha Wan Hasan, from UPM's Department of Electrical and Electronic Engineering, Faculty of Engineering, said the innovation can be applied in homes or buildings that are based on Source-Load-Voltage-DC.

The DC system model, he said, involves DC power distribution to an energy system that can be renewed and stored, adding that the DC-distribution power system will be connected to household electrical appliances, such as refrigerator, television, air-conditioner and iron.

Wan Zuha said, a DC-distribution power system is the environment on which all the household appliances connect.

He added that the level of the voltage has been synthesised for the system components interconnection to verify the proposed concept.

Met at the media briefing on his invention during the university's 4th Research Exhibition & Industrial Networking organised by the Faculty of Engineering, Wan Zuha said traditional AC-distribution systems often suffer from low energy conversion efficiency when operating several types of household appliances.

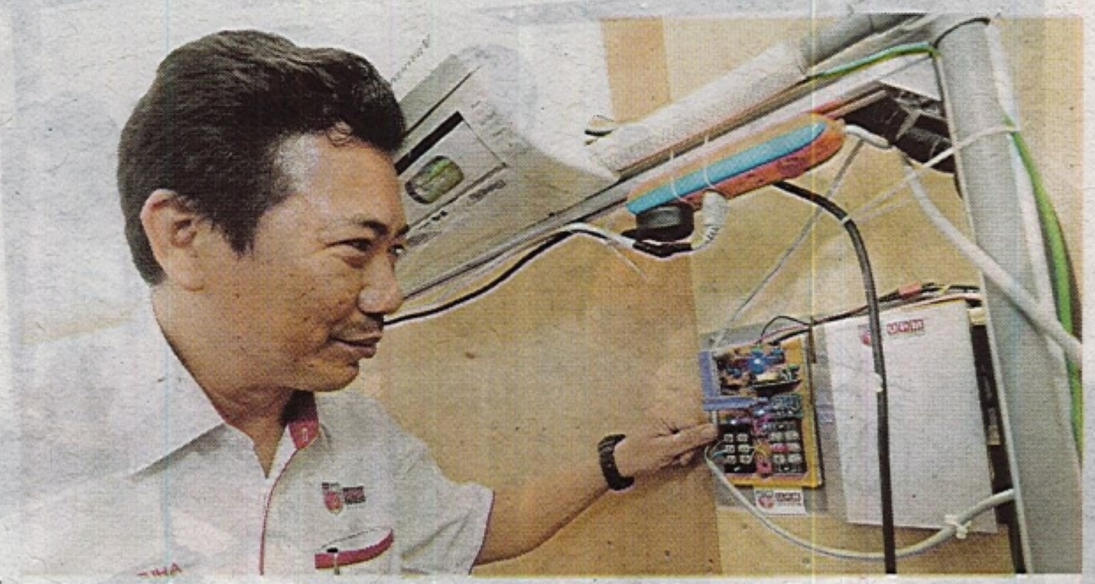
"That lower performance and the system losses are due to the conversion of power from AC to DC type. The proposed approach omits those losses by applying the DC concept.

"The invention comprises three circuits and one software. The first circuit controls the charging process from solar or electric source.

"The second circuit controls power level for household appliances and the third circuit monitors energy usage."

Wan Zuha said his invention has a number of advantages.

"This technology has high energy conversion efficiency. It is also compatible with both on-grid and off-grid Solar power system. Easy installation means cost is low.



*Dr Wan Zuha Wan Hasan with his invention, DC Homes in Future Energy System, for electrical appliances at home and office.*

Other researchers involved in the project are Dr Ahmad H. Sabry, Professor Dr Zainal Abidin Abd Kadir, Associate Professor Dr Mohd Amran Mohd Radzi and Associate Professor Dr Suhaidi Shafie.

The research began in April 2014 and ended in September last year.

Wan Zuha said he is thankful for the Putra Grants from UPM.

He is looking at commercialising the technology.

"It's ready to be commercialised. Our targetmarket will be consultants, construction companies and renewable energy companies.

"The estimated price for a DC-Homes System device (without solar panels, batteries and DC wing) is between RM2,000 and RM3,000."

At the event, 27 products were on display. Twenty-one of them are from the Faculty of Engineering and six from Institut Teknologi Maju.

"This is an annual event to foster research and commercial relations between the academicians and industry.

"It is also part of our efforts to keep up with the needs of the industry," said Nor Kamariah Noordin, dean of UPM's faculty of Engineering.