

UGM Students Develop Smart Electricity Meters

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Students of Universitas Gadjah Mada (UGM) have developed smart electricity meters to minimise cases of blackout due to short circuits or overload.

The students are Oca Tantya Saputra, Damai Bela Nusantara, Muhammad Yasirroni, Dimas Pulung Herjuno, and Aliefya Fadhila Ramadhani, all Electrical Engineering and Information Technology students at Faculty of Engineering that developed SMART (Adaptive Metering Solution for Households).

Oca explained SMART functioned as additional meters to the official one supplied by the State Electricity Company (PLN).

“When it’s overload, a blackout will occur only on the equipment that we have selected in advance, for instance, the AC. So during a short circuit, the electricity will stop just on the equipment that experiences the short circuit,” he said.

SMART is supported by mobile apps that can monitor electricity at home. The apps work by preventive and responsive concept. SMART will give pop-up notification in the smartphone if limit has almost been reached, for example 90% of the total use. During overload, SMART will choose a certain electronic device to be shut down so that the use of electricity will not exceed.



"The principle will also be applied to handle short circuit cases, so the electricity will stop just on the device that is experiencing it," he added.

SMART has the potential for industrial application. If overload happens in the industry, shutting down of electricity will occur only on selected equipment, so the production machines will still run. Hence, faulty products will decrease while service time gets quicker.

Oca added SMART has the potential to resolve limited electricity supplies in Indonesia. If applied massively, SMART can communicate and form component of a smart city. Work value of SMART breaker can be altered using the remote and it can be used to accommodate voltages.

The smart meters made by the UGM students can be the solution in the future to minimise blackouts due to overload or short circuit. The tool has been funded by Directorate General for Higher Learning and it passed the selection to get through to the National Student Scientific Week (PIMNAS) in Makassar from 23-28 August 2017.

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