

# UGM Researchers Develop Nuclear Battery Prototype

Monday, 25 November 2019 WIB, By: Marwati




Nuclear and Physics Engineering researchers team from Universitas Gadjah Mada (UGM) have made a nuclear battery prototype that can be used for electronic devices.

The prototype made by 4 lecturers and 6 assistant researchers has been witnessed by former State-Owned Enterprises Minister, Dahlan Iskan.

“This was initially funded by the Minister. He wanted us to create something using nuclear technology. We had started it even if this is still a small thing,” said Ir. Yudi Utomo Imardjoko, M.Sc., Ph.D, team chairman, on Friday (22/11).

In the past two years, the research has been funded by Research and Development Agency in the Defence Ministry and completed. Despite imperfections, he said, the prototype was good enough compared to others.

The research had been hampered by funding issues with the cost of plutonium 238 component which was pretty expensive and still imported from Russia.



Regarding this issue, Dahlan Iskan said the problem could have been resolved if Indonesia had its own thorium reactor, because plutonium is the waste of thorium.

“Actually, we don’t need to import plutonium if we have our own thorium reactor. This reactor design has been completed actually, made by these researchers themselves, and I happened to fund it. Now the problem is on how to materialise it,” he said.

In his visit to the Centre for Engineering Sciences Studies UGM, Dahlan Iskan listened to an explanation on the battery components and mechanism. The battery is equipped with solar cells to expand the amount of electricity it produces.

“The nuclear battery is converted directly. The output is small, so we combine it with solar cells to make the output bigger,” said Elly, assistant researcher.

The battery research started from the idea to find a small power source that is long lasting.

“Lithium battery can last for two years only, while nuclear battery will last 40 years,” she said.

With more research, the battery can be developed to produce a bigger output while having a smaller size.


Dean of Faculty of Engineering UGM, Prof. Ir. Nizam, M.Eng., D.Eng., said the Faculty always encouraged its researchers to be able to downstream research products that are useful for society. So, support is indeed needed from others, government and society to achieve nuclear energy utilisation in the country.

“According to our researchers, thorium is potential to be developed further. We know the technology, so we don’t have to depend on imported products. Our researchers already know how to turn the waste into batteries,” said Nizam.

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