UTeM Researchers Develop Lightweight 3D-Printed Prosthetic Leg

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Photo: UTeM

MELAKA, March 10 (Bernama) -- A team of researchers from Universiti Teknikal Malaysia Melaka (UTeM) has successfully developed a 3D-printed prosthetic leg that is lighter, more comfortable, and cost-effective compared to conventional prosthetics.

Lead researcher Mohammad Rafi Omar said the prosthetic leg weighs just one kilogramme on average, making it significantly more comfortable for users.

"It features an ergonomic design with enhanced ventilation through a perforated structure, helping to reduce perspiration. This is particularly beneficial for diabetes patients, who are prone to skin irritation and infections," he said.

The prosthetic is manufactured using Selective Laser Sintering (SLS) 3D printing technology, ensuring faster, more precise, and high-quality production.

"The cost of producing this 3D-printed prosthetic is also lower than traditional prosthetics, which are often expensive. The entire process, from design to final manufacturing, takes only about two weeks," he added.

Mohammad Rafi said the idea stemmed from user feedback, particularly from those struggling with conventional prosthetics due to excessive sweating and discomfort.

"This issue can lead to further complications, especially for diabetes patients, such as itching, infections, and even the risk of additional amputations," he said.

Meanwhile, UTeM vice-chancellor Prof Datuk Dr Massila Kamalrudin said so far, seven prosthetic legs have been distributed to selected recipients, particularly from low-income backgrounds.

"This innovation allows recipients to move more freely, improving their quality of life and enabling them to work and earn a living," she said.

She added that with industry and investor collaboration, the prosthetic has strong commercial potential both locally and internationally due to its affordability and advanced features.

"UTeM remains committed to developing innovative solutions that benefit communities, particularly those in need," she said.

The prosthetic leg handover was held during the Komuniti@UniMADANI programme at Samsung IoT, UTeM Technology Campus here recently.

The programme, coordinated by RICE UTeM-Melaka Collaboration Management Centre and funded by the Ministry of Finance, was officiated by Melaka Science, Technology, Innovation, and Digital Communication Committee chairman Datuk Fairul Nizam Roslan, with his deputy Datuk Mohd Noor Helmy Abdul Halem also in attendance.

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