

3D TECTOR, 3D Printer Disconnected Filament Detector

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3D printing technology is essential as an innovation that gives convenience to the society to produce customized things as they want. Therefore, it is potential to become a trend in the future, particularly in the innovative industry sector. Currently, 3D printing has been utilized to make prototypes in many industries, particularly architecture, automotive, and biotechnology.

However, 3D printer in Indonesia still has several system weakness. In many cases, the failure of 3D printing is caused by the disconnection of fiber filament during the printing process. Therefore, several UGM students create 3D Tector as a technology innovation to detect the disconnected filament in a 3D printer. They are M. Aisya Fatima Sampurno, Syahirul Alim Ritonga, and Aji Nur Sahid from Mechanical Engineering Department, collaborating with Moh. Nur Fauzan and Hilmi Yafi Al-Faruq from Electrical Engineering Department. Those students are under the supervision of Dr. Eng. Herianto, S.T., M.Eng., cooperating with the Centralab enterprise in the production.

According to Aisya, the filament can be disconnected because of bend or high temperature. It can cause the program algorithm to still work but the material or the filament to stop which can make production gap and defect of the product.

“Besides causing production gap, the manufacturer also has to repeat the printing process from the



start and throw away the defective product,” said Aisyah on Wednesday (19/7).

Fortunately, those problems on 3D printing can be solved by 3D Tector. The technology can detect the disconnected fiber filament during the printing process. How it works is simple. It detects the sustainability of raw material filament addition to a 3D printer. If a failure is detected, the machine will automatically stop and give warning towards the operator via text message or phone call. It can preclude the manufacturer from production failure because of the disconnected filament and increase the productivity time efficiency.

Aisyah further said the existence of small and medium enterprises in Indonesia is essential because it can give job opportunities for the society. Therefore, 3D Tector is expected to enhance the Indonesian competitiveness, particularly in the 3D printing sector.

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