

ABSTRACT

The development of 3D printing technology in the field of education has opened many opportunities to introduce digital manufacturing concepts, product design, and engineering techniques to students. One of the technologies introduced is the 3D Printer E20, a locally developed product by Damel Tridimensi Indotama, marketed through Bandung Techno Park. Although the 3D Printer E20 provides many benefits in education, its use and maintenance face several challenges related to the casing design, which complicates access to key components such as the filament compartment, bed plate, and drive motor.

This research aims to design a special casing for the 3D Printer E20 that facilitates access to these components and simplifies machine maintenance. This study uses a qualitative approach with methods such as observation, interviews, and documentary research to identify problems and user needs at Bandung Techno Park and Damel Tridimensi Indotama. The outcome of this research is a functional casing design that considers ease of access and maintenance without altering the main specifications of the machine. This design is expected to provide convenience for users in the education sector, particularly laboratory operators responsible for machine maintenance.

The benefits of this research are expected to contribute to a better understanding of efficient casing design in digital manufacturing, offering practical solutions that can be applied in educational institutions to support the integration of 3D printing technology. The success in designing this innovative casing is also expected to facilitate the implementation of 3D printing in various educational institutions, thus enhancing the utilization of this technology in the learning process.

Keywords: 3D Printer E20, casing design, accessibility, and machine maintenance