

Development of a Secure and Scalable E-Commerce Marketplace for 3D Printable Designs

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Abstract: *With the rapid adoption of 3D printing technologies, the demand for accessible and high-quality digital design files is growing exponentially. This paper presents the development of a live e-commerce website that hosts 3D printable designs made in SolidWorks and CATIA. Our platform enables clients to browse, preview, and securely download files for immediate 3D printing. The system addresses key challenges including intellectual property protection, file compatibility, printability validation, and user experience design. We implemented a full-stack web solution, developed and tested in-house, that combines technical reliability with a user-friendly interface. This paper explores the architecture, methodologies, and practical implementation of the platform and discusses future enhancements like print-on-demand services and blockchain-based licensing..*

Keywords: 3D Printing, E-commerce Platform, SolidWorks, CATIA, Additive Manufacturing, Digital File Sharing

