

ABSTRACT

Operational management in modern buildings such as Telkom University Landmark Tower (TULT) currently faces significant challenges due to fragmented energy monitoring and security (CCTV) systems. This situation not only hinders efficiency but also slows down critical decision-making processes in daily operations. To address these challenges, this research focuses on the design and development of a concrete solution: a frontend prototype for a monitoring dashboard. The aim is to create a functional and intuitive tool that can serve as a reliable Decision Support System (DSS) for stakeholders. To realize this vision, the Design Science Research (DSR) approach is applied as the research framework, guiding the creation of the solution in a scientific and systematic manner. At the technical level, the Prototyping development method was used to build a responsive web-based application, leveraging modern technologies such as React.js and TailwindCSS. After the prototype was successfully built, validation became a crucial step to measure its success from the Users' perspective. Through usability testing sessions involving end-Users, aspects of effectiveness, efficiency, and satisfaction were empirically evaluated. The results were highly satisfactory: the prototype achieved a perfect task success rate of 100% and an exceptional average System Usability Scale (SUS) score of 97.5, placing it in the "Excellent" category. These findings convincingly demonstrate that the developed prototype is not only functionally valid but also highly User-friendly and well-received by its Users. Furthermore, this artifact has significant potential to optimize workflows, enhance operational efficiency, and support a data-driven decision-making culture within smart building environments.

Keywords: Dashboard Monitoring, Design Science Research, Frontend, Smart Building, Sistem Pendukung Keputusan, UI/UX, Usability Testing