

Smart College Utility Hub

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Abstract: *Efficient academic management is essential for ensuring transparency, communication, and operational effectiveness within educational institutions. Traditional college management systems rely on manual processes and disconnected digital tools, resulting in delays, data inconsistencies, and limited real-time accessibility. Recent advancements in web technologies and cloud computing enable the development of centralized platforms capable of managing academic and administrative tasks efficiently. This research presents the design and implementation of the Smart College Utility Hub, a cloud-based multi-portal academic management system that integrates Admin, Teacher, Student, and Parent modules. The proposed system is developed using HTML, CSS, JavaScript, JSP, Servlets, and MySQL, and deployed on AWS cloud infrastructure for remote accessibility. The platform supports secure role-based authentication, real-time attendance tracking, assignment management, marks monitoring, and announcement broadcasting through a structured web dashboard. Experimental validation demonstrates reliable performance, secure data handling, and improved operational efficiency, making the system suitable for institutional-level deployment.*

Keywords: Academic Management System, Cloud Deployment, JSP, Servlets, MySQL, AWS EC2, Role-Based Access Control, Three-Tier Architecture, Smart Campus

