

ABSTRAK

Penelitian ini bertujuan mengembangkan sistem *Learning Management System* (LMS) berbasis web untuk mengatasi kendala pembelajaran konvensional di SMA NU 2 Gresik, seperti keterbatasan akses materi, komunikasi guru-siswa yang kurang efektif, dan proses evaluasi akademik yang belum efisien. Sistem dirancang agar sekolah dapat mengelola data secara mandiri tanpa bergantung pada server eksternal guna meningkatkan keamanan. Fitur utama mencakup pengelolaan materi, tugas, *Computer-Based Test* (CBT) dengan soal teracak dan *One-Time Access Token*, serta rapor online. Metode pengembangan menggunakan *Rapid Application Development* (RAD) dan menerapkan teknologi *Single Page Application* (SPA) untuk meningkatkan performa sistem. Hasil pengujian *Black Box* menunjukkan seluruh fitur berjalan sesuai spesifikasi. Sementara itu, *User Acceptance Testing* (UAT) memperoleh tingkat penerimaan sebesar 87,5% dari 8 guru dan 79,07% dari 20 siswa. Implementasi sistem menunjukkan peningkatan efisiensi dan kualitas pembelajaran dibandingkan metode konvensional. SMA NU 2 Gresik dibandingkan metode konvensional sebelumnya.

Kata Kunci : *Learning Management System, Computer Based Test, Rapid Application Development, Randomized, One-Time Access Token, Single Page Application, Black Box Testing, User Acceptance Testing*

ABSTRACT

This research aims to develop a web-based Learning Management System (LMS) to address challenges faced by conventional learning at SMA NU 2 Gresik, such as limited access to materials, ineffective teacher-student communication, and inefficient academic evaluation processes. The system is designed to enable schools to manage data independently without relying on external servers, enhancing security. Key features include managing materials, assignments, Computer-Based Tests (CBT) with randomized questions and One-Time Access Tokens, and online report cards. The development method used Rapid Application Development (RAD) and Single Page Application (SPA) technology to improve system performance. Black Box testing results showed all features performed according to specifications. Meanwhile, User Acceptance Testing (UAT) achieved an acceptance rate of 87.5% from 8 teachers and 79.07% from 20 students. The system implementation demonstrated improved learning efficiency and quality compared to conventional methods at SMA NU 2 Gresik compared to previous conventional methods.

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