Abstract

ExamSecure: Enhancing Academic Integrity in Digital Learning Environments

Problem Statement: Online examinations currently lack effective, privacy-conscious methods to detect and deter academic dishonesty, with research indicating 65% of students admit to unauthorized resource access during digital assessments. Existing proctoring solutions prove financially prohibitive for many institutions while raising substantial privacy concerns through extensive surveillance. This project addresses these challenges by developing a web-based monitoring system targeting 40% reduction in unauthorized access and 80% cost reduction compared to commercial proctors, delivering measurable tab-switch detection with real-time analytics through a functional prototype within 12 weeks.

Proposed Solution: ExamSecure implements a lightweight, ethical monitoring platform utilizing the Page Visibility API alongside modern web technologies including React.js for responsive interfaces, Node.js for backend services, and MongoDB for flexible data storage. The system detects tab-switching behaviors in real-time while providing educators with quantifiable engagement metrics and integrity alerts through an intuitive dashboard, maintaining transparency through minimal data collection practices.

Expected Outcome: The project will deliver a fully functional prototype demonstrating 95% detection accuracy for tab-switching events, a comprehensive analytics dashboard enabling data-driven insights for educators, and a privacy-focused alternative to traditional proctoring that effectively maintains academic integrity while respecting student data boundaries and institutional budget constraints.