**ABSTRACT**

The AI-Powered Online Assessment Proctoring System is an intelligent, automated solution designed to maintain the integrity and security of online examinations by detecting and flagging suspicious activities in real-time. Unlike traditional proctoring methods that rely on safe browsers or human invigilation, this system leverages artificial intelligence (AI) for automated violation detection. It incorporates real-time face detection to ensure the presence of the test taker, tab switch monitoring to track any attempt to navigate away from the exam window, noise detection to identify external disturbances, and mobile phone detection to flag unauthorized device usage. Each violation is recorded throughout the test, and upon submission, a proctoring score is generated based on the severity and frequency of violations. This score is then weighted and factored into the final test marks, ensuring fairness in assessment. The system consists of three key user roles: Administrators, Teachers, and Students. Administrators manage users, including teachers and students, with features such as bulk student uploads, while teachers create, assign, and oversee tests, analyse student performance through reports, and modify test settings. Students can participate in tests and access their performance reports. Built on the MERN stack, the system ensures scalability and high performance, efficiently managing multiple exams simultaneously. Initially designed for local deployment, the system has potential for future cloud-based expansion. By integrating AI-driven monitoring, this proctoring system enhances the fairness, security, and transparency of online assessments while minimizing human intervention.

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