Facial recognition technology and live monitoring systems are pivotal in ensuring the integrity of online exams. This review explores their implementation, leveraging deep learning and computer vision advancements to authenticate users and detect suspicious behaviors, thus enhancing online assessment security [1].

The implementation of face recognition technology in online exam proctoring is crucial for maintaining exam integrity. Focusing on the training process, the research proposes an incremental training approach to enhance the accuracy and efficiency of facial recognition systems. By eliminating the need for additional preprocessing steps, such as image equalization and Speeded Up Robust Features (SURF), the incremental training method reduces computational costs and processing time while maintaining high accuracy rates.

YOLO-face, introduced as a real-time face detection system based on the YOLOv3 architecture [2], addresses the challenges of detecting faces with varying scales and poses. By optimizing the YOLO framework for face detection, incorporating anchor boxes, and utilizing a precise regression loss function, YOLO-face outperforms traditional YOLO models. Its superior performance makes it suitable for real-time face detection applications, including online proctoring.

ProctorEx [3] is an automated online exam proctoring system designed to monitor student behavior during online exams in real-time. Leveraging facial recognition, gaze tracking, head pose estimation, and browser monitoring, ProctorEx detects suspicious activities such as switching tabs or looking away from the screen. By providing educators with comprehensive monitoring capabilities, ProctorEx enhances exam integrity and prevents cheating behaviors.

The integration of facial recognition technology into online proctoring systems [4] is essential for maintaining exam integrity and ensuring fairness in remote learning environments. By analyzing facial features and movements, such as eye tracking and head pose estimation, researchers aim to identify cheating behaviors during online exams.

The application of face recognition technology in online proctoring [5] enhances exam security and reliability. By integrating face recognition with online proctoring systems, researchers aim to detect cheating behaviors and prevent unauthorized access to examination materials.

An online proctoring system that integrates deep learning techniques for face recognition, eye blinking detection, and object detection [6] enhances the security and reliability of online assessments. The study demonstrates high accuracies in face detection and recognition, validating the effectiveness of the deep learning-based approach in online exam proctoring.

An automated online exam proctoring platform [7] integrates facial recognition, gaze tracking, and browser monitoring to detect cheating behaviors during online exams. By monitoring student behavior in real-time, ProctorEx enhances exam integrity and prevents cheating, ensuring fairness and transparency in online assessments.