

## ABSTRACT

This project introduces a novel approach to enhance user experience in video playback systems through real-time face recognition and eye state detection. The system is designed to dynamically adjust video playback based on the viewer's age and eye state, ensuring optimal engagement and comfort. Leveraging advanced machine learning algorithms, the system accurately identifies individuals' faces, categorizes them into age groups such as baby, younger, and adult, and detects the state of their eyes as open or closed. The primary objective is to provide seamless video playback control, where videos pause automatically when the viewer's eyes are closed and resume when the eyes open. Additionally, the playback speed may vary based on the age group of the viewer, catering to different attention spans and preferences. The system offers a user-friendly interface for customization, allowing users to set preferences for playback behavior and adjust sensitivity levels for eye state detection. Key features of the system include real-time processing of video streams, robust face recognition algorithms capable of handling varying lighting conditions and facial expressions, and efficient eye state detection utilizing both facial landmarks and eye tracking techniques. The implementation involves integration with existing video playback platforms, enabling easy adoption and compatibility with diverse multimedia applications.