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Computer Vision-Runtime Remote Video Quality Assessment

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ABSTRACT- ***This project presents a Runtime Remote Video Quality Assessment system based on Computer Vision techniques. The system evaluates the visual quality of uploaded videos by analyzing important quality parameters such as brightness, contrast, and blur. It provides a simple web-based platform that enables users to register, log in, upload videos, and receive instant quality assessment results. The proposed system ensures efficient and automated video quality evaluation, reducing the need for manual inspection. Traditional video quality assessment methods often rely on reference videos, specialized software, or human evaluation, making the rmtime-consuming, for real-time applications. These methods also lack a simple and accessible platform for remote video quality monitoring. There is a need for a lightweight, cost-effective, and automated video quality assessment system that can accurately evaluate video quality and provide immediate feedback to users. The proposed system addresses these challenges by integrating Computer Vision and Image Processing techniques to deliver fast, reliable, and user-friendly video quality analysis.***

KEYWORDS:Computer Vision, Runtime Remote Video Quality Assessment, Video Quality Assessment (VQA), Image Processing, Video Analysis, Brightness Analysis, Contrast Analysis, Multimedia Systems.

INTRODUCTION

Runtime Remote Video Quality Assessment aims to evaluate the visual quality of digital videos efficiently and accurately. With advancements in Computer Vision and Image Processing, automated video quality assessment has become an effective approach for monitoring video quality without manual inspection. This project analyzes key visual parameters such as brightness, contrast, and blur to estimate the

overall quality of uploaded videos. The proposed system provides a user-friendly web-based platform that enables users to upload videos and receive instant quality assessment results. By offering a lightweight, fast, and cost-effective solution, the system improves the monitoring of multimedia content and provides a foundation for future enhancements using advanced machine learning and deep learning techniques for real-time video quality analysis.

LITERATURESURVEY

Video Quality Assessment (VQA) has become an important research area due to the increasing use of multimedia applications such as video streaming, surveillance, and video conferencing. Traditional methods often require manual inspection or reference videos, making them less suitable for real-time applications. Recent advancements in Computer Vision and Image Processing have enabled automated video quality assessment by analyzing parameters such as brightness, contrast, and blur. These techniques provide faster, more accurate, and efficient quality evaluation. The proposed Runtime Remote Video Quality Assessment system utilizes these concepts to deliver a simple, web-based solution for assessing uploaded video quality quickly and effectively.

RELATED WORK

Several researchers have proposed Video Quality Assessment (VQA) techniques to improve the quality of multimedia applications such as video streaming, video conferencing, and surveillance. Early methods mainly relied on reference-based quality assessment, where the original video was required for comparison. Although these techniques provided accurate results, they were computationally expensive and unsuitable for real-time applications. Recent advancements in Computer Vision and Image Processing have enabled automated quality assessment using visual features such as brightness, contrast, blur, and noise. These approaches have improved the efficiency and practicality of video quality evaluation for modern multimedia systems.

EXISTING SYSTEM

The Existing video quality assessment systems mainly depend on manual inspection or full-reference methods that require the original video for comparison. These approaches are time-consuming, computationally expensive, and difficult to

use in real-time environments. Many systems also require specialized software and technical expertise, limiting their accessibility. They often lack a simple web-based interface for instant video quality evaluation. As a result, traditional methods are less suitable for runtime remote monitoring and efficient quality assessment of uploaded videos.

PROPOSED SYSTEM

The proposed system is a Computer Vision-based web application for automated video quality assessment. It allows users to register, log in, and upload video files for analysis. The system evaluates key quality parameters such as brightness, contrast, and blur to calculate an overall video quality score. It provides instant assessment results through a simple and user-friendly interface, offering a fast, lightweight, and cost-effective solution for runtime video quality evaluation.

SYSTEM ARCHITECTURE

The architecture of the proposed Runtime Remote Video Quality Assessment system consists of a user interface, authentication module, video upload module, video quality analysis module, database, and result display module. Users first register and log in to the system before uploading a video. The uploaded video is analyzed by extracting key quality parameters such as brightness, contrast, and blur. Based on these parameters, the system calculates an overall quality score and displays the assessment result. The database stores user information and uploaded video details, providing a simple, efficient, and automated solution for video quality evaluation.

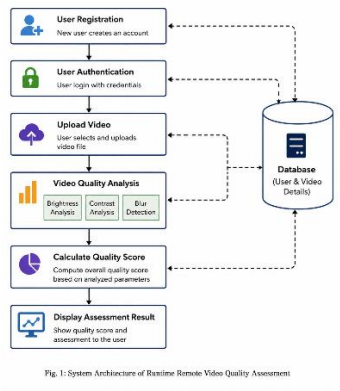

Fig1: System Architecture

METHODLOGY DESCRIPTION

The proposed Runtime Remote Video Quality Assessment system follows a simple methodology that includes user authentication, video upload, video quality analysis, and result generation. The uploaded video is analyzed by extracting brightness, contrast, and blur values to calculate an overall quality score. The assessment result is then displayed through a user-friendly web interface, providing a fast

and efficient solution for automated video quality evaluation.

RESULTS AND DISCUSSION

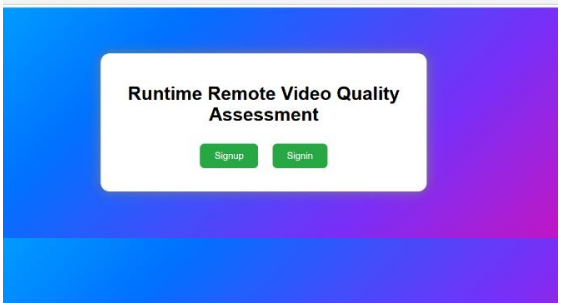

Fig2: Home Page of Video Quality Assessment

The home page serves as the primary interface of the Runtime Remote Video Quality Assessment system. It provides users with simple navigation options such as **Signup** and **Signin**, allowing secure access to the application before performing video quality assessment.

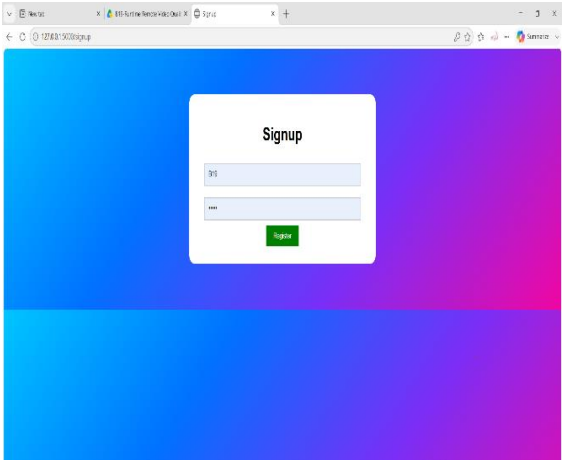

Fig 3: Signup page of Video Quality Assessment

The signup page enables new users to register by entering a username and password. The user credentials are securely stored in the database, allowing authenticated access to the system forfuture use.

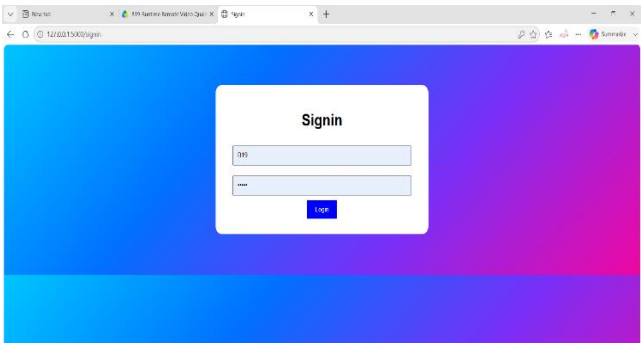

Fig 4: Signin Page

The signin page allows registered users to log in using their credentials. After successful authentication, users are redirected to the video upload page to begin the video quality assessment process..

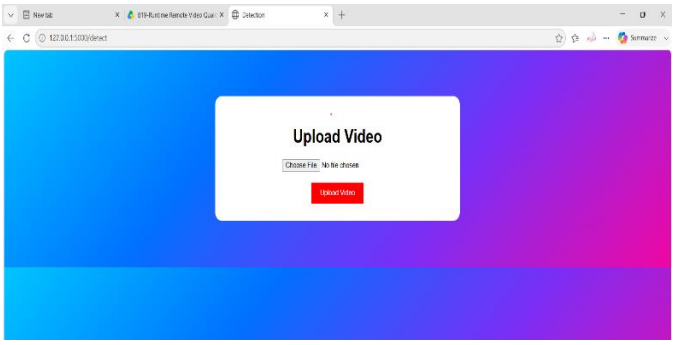

Fig 5: Upload Video and Choose File

The **Face Recognition** module is the core component of the AI-based system, responsible for identifying or verifying individuals by

analyzing facial features. This module operates by comparing real-time facial data with stored information in the user database to determine identity.

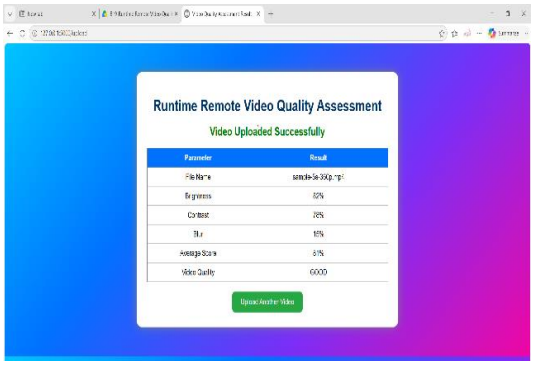

Fig 6: Video Uploaded Successfully and Quality Result

The upload video page allows users to select and upload a video file from their local device. Once uploaded, the system processes the video and extracts quality parameters required for assessment.

CONCLUSION

The Runtime Remote Video Quality Assessment system provides an efficient and automated solution for evaluating video quality using image processing techniques. The system analyzes important quality parameters such as brightness, contrast, blur, and overall quality score to assess uploaded videos accurately. Its user-friendly interface and real-time assessment capabilities make it suitable for applications requiring quick and reliable video quality evaluation.

FUTURE SCOPE

The proposed Runtime Remote Video Quality Assessment system can be further enhanced by integrating advanced deep learning models for more accurate video quality prediction. Additional quality metrics such as noise level, sharpness, color distortion, frame rate consistency, and compression artifacts can be incorporated to provide comprehensive analysis. Cloud-based deployment and mobile application support can enable remote access and large-scale video assessment. Real-time video stream analysis and AI-based quality optimization techniques can also be integrated to improve the system's performance and usability.

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