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Personalized Music Discovery through Hand Gesture Recognition

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Abstract:

Traditional music discovery platforms often struggle to engage users effectively due to their lack of personalization. In response, we introduce a groundbreaking system aimed at revolutionizing music discovery by integrating hand gesture recognition technology. Our project focuses on offering users personalized music recommendations from YouTube in real time, addressing the deficiencies observed in existing platforms. Our innovative approach combines frontend development with HTML, CSS, and JavaScript, alongside backend processing driven by Python. Leveraging state-of-the-art Machine Learning algorithms and OpenCV, we achieve precise hand gesture recognition, enabling dynamic analysis of user interactions. This enables our system to tailor music recommendations based on the user's emotional responses, preferences, and behavioural cues, thus ensuring a truly personalized experience. The project's innovative features include real-time music recommendations and intuitive interaction through hand gestures, marking a significant advancement in music discovery platforms. By providing personalized recommendations, our system enhances user satisfaction and engagement, ultimately fostering a deeper connection between users and the music they love. Through this project, we aim to set new standards for personalized content delivery, transcending the boundaries of traditional music discovery platforms.

Technology and Frameworks used:

Flask for web development, OpenCV for video capture and processing, Cvzone for hand gesture recognition, and PyAutoGUI for GUI automation.

Keywords:

Gesture recognition, personalized music discovery, hand gestures, music recommendation, machine learning, computer vision, real-time processing, interactive systems