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PROJECT PROPOSAL

(Virtual Makeup Application)

Introduction

The Virtual Makeup Application is an innovative web-based project that allows users to apply virtual makeup in real-time using their webcam or uploaded images. It leverages machine learning models to detect facial landmarks and overlay makeup styles such as lipstick, blush, and eyeshadow. This project aims to provide a fun and practical tool for users, including beauty enthusiasts, e-commerce platforms, and makeup artists, enabling them to try on makeup virtually without physical application

Problem Statement

Traditional makeup trials require physical products, which can be time-consuming, expensive, and often inaccessible for online shoppers. Additionally, concerns about hygiene during physical trials have increased. This project addresses these challenges by providing a virtual, browser-based solution for trying makeup in real-time, eliminating the need for physical trials while enhancing the shopping experience.

Goals/Objectives

- Develop a machine learning model that accurately detects facial landmarks in real-time.

- Integrate customizable makeup options (e.g., lipstick, eyeshadow) into a user-friendly web interface.

- Ensure seamless performance for real-time webcam processing across various devices and browsers.

Proposed Methodology/Scope of Work

- Dataset Preparation: Use pre-trained facial landmark models such as TensorFlow.js's Facemesh to detect key points on the face.

- Model Integration: Implement facial landmark detection to map makeup styles onto facial regions such as lips, eyes, and cheeks.

- User Interface Development: Build a responsive web application that allows users to select makeup styles, preview them in real-time, and save or share their looks.

- Testing and Optimization: Test the application on various devices to ensure accurate detection and smooth performance. Optimize the makeup rendering for natural transitions.

- Deployment: Host the application on a platform such as GitHub Pages, Vercel, or Netlify for public access.

Conclusion

The Virtual Makeup Application is designed to enhance the makeup trial experience by offering a real-time, browser-based solution. By using machine learning for facial landmark detection and virtual makeup rendering, this project provides a hygienic, cost-effective, and fun tool for users to experiment with makeup styles. The application has the potential to revolutionize the beauty industry, bridging the gap between e-commerce and customer interaction.