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I CUSTOMISE

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A B S T R A C T

The project **"I Customise "** introduces an intelligent and user-friendly platform that enables individuals to design and personalize their own clothing styles according to their preferences. The system allows users to choose fabric types, colors, patterns, and garment styles through an interactive digital interface. Using advanced visualization and recommendation technologies, the platform provides a virtual try-on experience, helping users preview customised dress models before placing an order. This approach enhances creativity, individuality, and customer satisfaction while bridging the gap between fashion designers and consumers. The application leverages modern technologies such as image processing, machine learning, and 3D modeling to generate accurate, realistic representations of customised designs.

Keywords: "I Customise" aims to revolutionize the fashion industry by offering a seamless, efficient, and personalized clothing customization experience that adapts to modern consumer needs and trends.

Introduction

In today's fashion-driven world, personalization has become an essential aspect of consumer satisfaction. The "I Customise – Dress Model Customization" system is designed to empower users to create unique dress designs that reflect their personal tastes and preferences. Traditional shopping often limits customers to pre-designed models, leaving little room for creativity or individuality. This system bridges that gap by offering a digital platform where users can select dress types, fabrics, colors, and accessories, and visualize the final look through a virtual preview.

The platform integrates advanced technologies such as 3D modeling, image processing, and artificial intelligence to ensure realistic customization and accurate fitting simulations. It enables customers to experiment with multiple design combinations before finalizing their selection, saving both time and resources. Additionally, it assists designers and manufacturers by streamlining the production process through precise digital specifications. The "I Customise" system represents a modern solution for the evolving fashion industry, promoting innovation, user engagement, and sustainable design practices through smart customization.

2.Literature review

The growing trend of mass customization in the fashion industry has inspired numerous studies and technological developments aimed at enhancing user-driven design systems. Early research in apparel customization focused primarily on Computer-Aided Design (CAD) tools, which allowed designers to create and modify garment structures digitally. However, these systems were mostly limited to professional use and lacked user interactivity. Recent advancements in 3D modeling and virtual fitting technologies have significantly improved the accessibility and realism of customised fashion design platforms.

According to several studies, virtual try-on systems utilizing 3D avatars have enhanced consumer confidence by providing accurate visualizations of garments before purchase. Researchers have explored the integration of image processing and machine learning algorithms to recommend suitable styles, colors, and fits based on user preferences and body measurements. Works on Augmented Reality (AR) and Virtual Reality (VR) have further elevated customization experiences, allowing users to interact with digital garments in real time.

3.Proposed Methodology

The proposed system, "I Customise – Dress Model Customization," is developed to create an intelligent, interactive, and user-friendly platform that enables individuals to design their own dresses with ease. The methodology involves several integrated components that work together to deliver a seamless customization experience. Initially, a user-friendly interface is designed to allow users to select dress styles, fabrics, colors, and accessories through simple navigation options. Users can enter their body measurements and fashion preferences, which are stored in the system to generate accurate and personalized designs. The design customization engine then processes these inputs using 3D modeling techniques to dynamically render the customised dress model, providing a realistic visual preview.

A machine learning-based recommendation system is incorporated to analyze user preferences and suggest complementary styles, color combinations, and design patterns. This helps users make better design choices while enhancing system intelligence over time. The virtual try-on simulation feature allows users to preview their customised dress on a 3D avatar, giving them a realistic sense of fit, texture, and style before finalizing the design. Once satisfied, the system generates a detailed specification report containing all selected design attributes, which can be used by manufacturers for production.

3.1 system overview

The "I Customise – Dress Model Customization" system is a digital fashion design platform that enables users to create personalized dress models based on their unique preferences and body measurements. The system provides a comprehensive environment for customizing garments by integrating advanced technologies such as 3D modeling, artificial intelligence, image processing, and virtual simulation. It bridges the gap between customers, designers, and manufacturers by allowing users to visualize, modify, and finalize dress designs in real time.The system begins with a user interface that serves as the main interaction point, where users can select dress styles, fabrics, colors, patterns, and accessories. Once preferences are entered, the design customization module processes these inputs and generates a 3D visualization of the dress model. To enhance personalization, the system includes a machine learning recommendation engine that suggests suitable color combinations, textures, and design patterns based on user history and fashion trends.

A key component of the system is the virtual try-on module, which uses 3D avatars to simulate how the customised dress would appear on the user's body. This allows users to evaluate fit and aesthetics before confirming their design. Once finalized, the output generation module creates a detailed design specification sheet containing all chosen parameters, which can be forwarded to designers or manufacturers for production.

3.2. data collection and processing

The "I Customise – Dress Model Customization" system relies on accurate data collection and efficient data processing to deliver a personalized and realistic design experience. The process begins with user data collection, where essential details such as body measurements, dress preferences, fabric choices, color selections, and style inspirations are gathered through an interactive user interface. Users may also upload reference images or select from predefined templates to guide their customization process. This data serves as the foundation for generating precise and user-specific dress models.

3.3 .Model collections

The **"I Customise – Dress Model Customization"** system offers a diverse range of dress models to suit different user preferences and fashion trends. The collection includes **casual wear**, **party wear**, **formal dresses**, **traditional outfits**, and **bridal gowns**. Each model is designed with customizable options for **fabric type**, **color**, **neckline**, **sleeve design**, and **length**. Users can mix and match various elements to create unique designs that reflect their personal style. The models are developed using **3D visualization** for realistic previews and accurate fitting simulations. Advanced **AI recommendations** help users select designs based on trending styles and individual preferences. Every model in the collection is adaptable, ensuring inclusivity for different body types and occasions. The collection is regularly updated to include new patterns and seasonal designs. Overall, the model collection forms the creative foundation of the "I Customise" platform, supporting innovation and personalized fashion experiences.

3.4. Implementation

The **"I Customise – Dress Model Customization"** system is implemented as an interactive web-based platform that integrates advanced technologies for design customization, visualization, and recommendation. The implementation process begins with developing a **front-end interface** using frameworks like HTML, CSS, and JavaScript (or React) to provide an intuitive and visually appealing user experience. This interface allows users to select dress types, fabrics, colors, and accessories while offering real-time visual feedback.

The **back-end** is implemented using technologies such as Python and databases like MySQL or MongoDB to manage user data, store design templates, and handle customization requests efficiently. The **machine learning module** is implemented using algorithms that analyze user preferences and generate personalized recommendations for colors, fabrics, and styles. These models are trained on historical fashion data and continuously updated to improve accuracy.

3.5. Algorithm

The **"I Customise – Dress Model Customization"** system operates through a structured algorithm that integrates user inputs, data processing, and intelligent recommendations to generate personalized dress designs. The process begins when the user provides essential details such as body measurements, preferred dress type, fabric, color, and style options. The system then validates this data to ensure accuracy and consistency, eliminating any errors or missing values. Based on the user's selections, the algorithm retrieves an appropriate **base dress template** from the database. The customization module then applies user-defined attributes—such as neckline, sleeve type, and dress length—to modify the template using **3D modeling techniques**, creating a realistic digital version of the customised dress.

4.Result and discussion

The **"I Customise – Dress Model Customization"** system successfully demonstrates the effectiveness of integrating modern technologies such as **3D modeling, machine learning, and image processing** in fashion customization. The developed platform allows users to easily design personalized dresses by selecting fabrics, colors, and styles while receiving real-time visual feedback. The results show that users could create unique dress models that accurately reflected their preferences and body measurements. The **virtual try-on feature** provided a realistic and interactive experience, enabling users to visualize the final design before production, which significantly increased satisfaction and reduced design errors.

5.Conclusion

The "I Customise – Dress Model Customization" system provides an innovative and user-friendly solution for personalized fashion design. By integrating 3D modeling, artificial intelligence, and virtual try-on technologies, the system allows users to create, visualize, and refine dress designs that perfectly match their individual preferences and body measurements. The platform enhances creativity and customer satisfaction by offering real-time customization, intelligent recommendations, and accurate visual simulations.

Through this system, users gain greater control over the design process, while designers and manufacturers benefit from reduced production errors and improved efficiency. The project demonstrates how technology can revolutionize the fashion industry by bridging the gap between creativity and digital innovation. In conclusion, "I Customise" not only promotes personalization and style diversity but also encourages sustainable and efficient fashion practices, paving the way for a more interactive and intelligent future in digital garment design.

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