SOFTWARE DESIGN

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SCHOOL OF ENGINEERING AND TECHNOLOGY

APPROVAL SHEET

The proposed system / project / design entitled **Title of your system / project / design** which was presented on **Date of Presentation** by the proponents:

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is hereby APPROVED by the following members of the committee:

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Project Adviser

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ACCEPTANCE SHEET

The system / project / design entitled **Virtual Try-On Technology: Enhancing Customer Experience in E-Commerce Clothing Markets** has been prepared and submitted by the proponents:

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for approval to the committee for the *Project Design / Software Design / SAD.*

After thorough review and evaluation of the proposed system / design / project, the committee has accepted the presented proposed design based on the required criteria.

The acceptance is valid to the information being presented. Accepted this **Date of Presentation, Term, School year.**

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The author wishes to express his love and gratitude to his beloved families; for their understanding & endless love, through the duration of his studies.

For this achievement, I give back all the glory and praises to the omnipotent **Father Almighty.**

Table of Contents

Abstract

Abstract – The virtual try-on provided here in this paper is with an aim of improving online browsing and outfit-selection experience. As digital interaction with garments increases, inability to see the latter in virtual environments does not seem out of place. Users can upload their photos to our system to get a superimposed apparel item. Users may manually edit the size and position of clothing for enhanced visualization. The approach creates an application of a straightforward, easy-to-use interface that allows one to upload his or her photo as well as position outfits for trying on different clothing types. Key findings indicate that the ability to image clothes in an individualized way boosts users' confidence in the selection of garments.

Keywords: *try-on, overlay, clothing*

i. Introduction

The greatest challenge that users face today in this digital world of rapid change is to imagine how clothes will look on them as they shop online, since they cannot try a garment on. Online platforms lack the tangible experience afforded by traditional in-store shopping, whereby customers are allowed to interact with products directly thereby resulting in uncertainty and hesitation. This also relates to the consumer's confidence in how they would look in the clothes ordered but contributes more towards overall dissatisfaction with online shopping. Today, therefore, there is a heightened need for something that bridges this gap between virtual try-on and actual appearance-essentially giving users a better decision with online purchases.

This paper shall design a website wherein one uploads his pictures, places images of the outfit on the images of the person, and gets an idea of how that particular garment would look on his body. Contrary to the more advanced AR systems or extensive 3D modeling, this solution emphasizes simplicity and ease of use. This way, the users will be allowed to resize and reposition clothing images for a customized and more hands-on experience. The system will make virtual try-on accessible to more people in the sense that it minimizes technical know-how needed to operate the system.

This is an important study since it presents a low-cost, practical solution to a common problem-that of how, generally, consumers are not able to visualize clothing items without trying them on. Because this system simplifies the virtual try-on process, it can be an avenue in bettering user satisfaction and boosting confidence in purchase decisions as well as reducing frustration in online shopping. It could also benefit retailers, as returns might be lower in that the end-users will have much more of an idea of how the clothes look when worn. This will be a launching pad from which further innovations in online shopping technology can spring, providing a flexible user-friendly alternative to the more complex virtual try-on tools.

ii. Software Needs

The proposed virtual clothing try-on system ensures the design aligns with user needs, and fulfills the system's objectives. This system aims to provide a platform by enabling users to overlay 2D images of clothing onto their photos. Therefore, the validation process must focus on assessing the system's usability, accuracy in alignment, and overall accessibility.

Needs Validation: Micro and Macro Level

Micro-Level Needs Validation:

1. At the micro-level, validation focuses on individual components of the system:
    1.1. User Photo Upload: Is it verified that users can easily upload photos uploaded by popular formats like JPEG and PNG, etc. upload of an image should intuitively be responsive and should have clear instructions.
    1.2. Clothing Overlay System: Here in validation, one can ensure the user has an easy access and alteration of size and position of the clothing to their uploaded pictures. Users should be able to control over resizing and dragging of the clothing image to fit their body shape in case the overlay was not to their taste which is essential for the usability of the system.
    1.3. User Experience: The system should be tested for usability, and the usability test should be conducted on the target end-users to check if the system is intuitive. The validation process should confirm that specialized skills are not required to align clothing with the body image; it should also give user feedback on ease of interaction and layout simplicity and minimal learning curve.
    1.4. System Responsiveness: The website should be tested on different gadgets and resolution sizes so that it works smoothly on different resolutions, say, the desktop, tablets, and mobile devices. This will perhaps have an impact on the user experience due to the displayed overlay of the clothes upon changing the size, suggesting delay or lag time.

Macro-Level Needs Validation:

2. For macro, the system has to satisfy the macro needs of the fashion industry as well as the e-commerce industry at large as follows:
    2.1. Reducing Return Rates: Effective visualization of clothing by the system can be considered validated if the system is effectively aiding users to visualize the clothing; higher validation for their choice and lower possibility of dissatisfaction. Here customer feedback validating the system's effectiveness could be the metric in this case.
    2.2. Cost Efficiency for Users: Comparing validation of this system with more advanced visualization methods will show that this system can provide a low-cost solution. Validation may include ease-of-use and user satisfaction against existing high-tech virtual try-on solutions, which shows practical alternative value propositions..

A. Software Process Model

The Agile Model (Scrum) is chosen for this project, as it allows for progressive refinement through repeated cycles of development and validation. This model is well-suited to the project's needs, where user feedback is crucial in refining the alignment of clothing images on user photos.

Requirements Gathering and Planning:
Validation Focus: Requirements are gathered from stakeholders, including users, on how the system should allow them to upload photos of their bodies and overlay desired clothing items. The validation ensures that these requirements align with key goals such as simplicity, low-cost implementation, realistic visualization of clothing on different body types, and accessibility. Key features include support for various body shapes, accurate scaling of clothing, and ease of photo upload.

Design:
Validation Focus: In this stage, the interface is designed to be intuitive for users to upload photos and select clothes. Validation checks focus on whether the design is user-friendly and whether users can easily manipulate images (e.g., resizing, adjusting clothing onto their body image). Prototypes and wireframes are validated through stakeholder feedback to ensure that the system offers a clear and simple process for users to visualize clothing accurately.

Implementation:
Validation Focus: Core features are developed iteratively, such as photo upload, clothing selection, and adjustment tools. Validation focuses on ensuring these features work smoothly and are intuitive. Test users try out different body shapes and clothing sizes to assess the accuracy of fit and adjustments. Continuous feedback is integrated to refine the system's ease of use and visual accuracy.

Testing:
Validation Focus: Testing includes unit tests for individual components (such as image upload, scaling, and alignment features) to assess the overall user experience. Validation ensures that users can easily upload photos, adjust clothing, and visualize outfits in a way that feels realistic and intuitive. Both usability testing and performance testing (e.g., load time for image rendering) are essential to ensure a seamless experience.