Logo, company name

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**PUSL3190 Computing Individual Project**

**Project Proposal**

Virtual Dress Fitting

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Based on

As reported by

As stated by

apparel retailers

online clothing sales

ecommence apparel retail

retail ecommence sales

Global retail ecommerce sales worldwide

**Impact of Virtual Try-On Technologies** to improve user satisfactions

Considering both the user’s manual measurement and material attriiutes/metrial

user's manual measurement and the material-related size

Implement an algorithm that compares the user's chest size with the size chart and determines the best-fitting UK size.

Display the recommended UK size to the user.

# Chapter 01

## **Problem statement**



**Figure 1** (Administration, 2021)

After the covid19 pandemic in 2019, the worldwide online shopping sales has rapidly increased as shown in the above figure 1. Furthermore, 8 percent of increment in online shopping sales can be seen within the next couple of years in comparison to past few years, for all sectors including fashion clothing (Administration, 2021).

However, compared to the huge online clothing purchasing rate, the return rates of the clothing items also claimed to be high.

According to a survey conducted by Coresight Research, within US apparel brands and retailers, discovered that the average return rate of the online apparel sales in US is about 24.4% (Coresight & Zheng, 2023). The reasons for high return rates in online clothing are people having different body shapes and compared to the user body measurements the clothing brand’s size chart measurements with clothing item specifications being different. Besides the material of the clothing item should also be considered when considering the sizes.

According to Statista, comparing to other retail product categories such as shoes, bags and accessories, the highest returned rate which is 26% is for the clothing items among all the categories. (Dopson, 2023). All these researches show that customers are not happy with the purchases they made through online mostly in clothing apparel category.

# Chapter 02

## **Project description**

### Project Objectives

* Predicting/ Recommending best fitting size for the user according to the body measurement, and the material attributes.
  + According to the Coresight Research Analysis based on the survey, more than half of the respondents which is about 53% selected size or fit as the reason for the online apparel returns. Most returns included shirts and blouses (Coresight & Zheng, 2023).
  + A mobile application and a web application are used in this system. Mobile application is for the user to enter the one user-specific body measurement which is the chest size. Then that data would be sent to the related database.
  + A web application is given for the clothing brands to store the size charts with its measurements. Such as small (S) , medium (M) , large (L) , extra-large (XL), etc.. Those measurements are saved in another database as in the chart shows below. Thus, the material attributes for each clothing items are also stored in the same database.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Size | Small (S) | Medium (M) | Large (L) | Extra-Large (XL) |
| Shoulder width (in) | xxx | xxx | xxx | xxx |
| chest size (in) | xxx | xxx | xxx | xxx |
| Waist size (in) | xxx | xxx | xxx | xxx |
| hem size/ Hip size (in) | xxx | xxx | xxx | xxx |
| sleeve circumference/  Bicep (in) | xxx | xxx | xxx | xxx |

* A mathematical model would compare both the user specific measurement (chest size) and the clothing material with the clothing brand’s size chart, then find the best fitting clothing size (UK size) for the user.
* Ability to select a clothing material first and based on that searches the available items.
  + A feature for the customer to first select a material such as cotton, linen, silk, etc. Then the user could select/ search for a suitable clothing item from the preferred material.
  + This value-added feature benefits the users to find the exact same material that they are searching for. When the ordered or selected clothing item is delivered, can find whether it has the exact same material attributes. This minimizes low quality and wrong order delivering. Thus, increases brand loyalty.
* Able to improve online shopping experience.
  + With the high apparel return rates mostly in blouses and shirts as mentioned in the page number [3](#_Problem_statement), this system assists the users to find the best fitting clothing item while reducing the return rates.
* Able to improve the in-person shopping /physical shopping experience.
* Shopping malls which have different clothing brands, this system can be introduced as a new feature/ development to their already existing mobile or web application(s), which enhances the user experience.
* To visualize the system and get better understanding, 2D avatar would be used.
* Planning of visualizing the system using a 2D avatar.
* With the time frame and the scope, a 2D avatar is expected to implement for a better user experience.

### Project keywords

* Mathematical Model
* Android Studio
* Java
* MongoDB
* Nodejs

# Chapter 03

## **Research Gap**

Research about ‘Avatar manager system’, developed a system where the user can try on the clothing item they like on an avatar when do online shopping. For the men and women, they can select a suitable body type which matched for each user from the options given. Then after should select the preferred body size such as small or large or extra-large, etc. In the end of this process user can adjust the avatar’s body measurements compared to the user’s body measurements. Then it would display how the selected clothing item would fit on according to the users’ body measurements (Polke & Kumari, 2018).

In that research, it would fully visualize how the clothing item would fit. But in this project the approach is a bit different. For visualizing the system planned to use a 2D avatar. Thus, from analyzing a collection of data, system would be able to tell the size of clothing that is recommended for the user and without fully need of the visualization. And the reliability of this can be further improved with the customer feedback.

# Chapter 04

## **Requirements Analysis**

### Hardware Requirements

* Smart phones and computers with access to internet.

### Functional Requirements

* Shows the well-fitting UK size from the selected clothing item.
* Searches the clothing items according to preferred materials.
* Shows the available clothing items of clothing brands and its material.
* Asks authentication when login to the system.

### Non-functional Requirements

* Reliable system for the users (can make accurate predictions).
* Better user experience and user-friendly applications.
* Data is protected and secured in both clothing brand and user ends.

# Chapter 05

## **Finance**

This project does not require any hardware equipment. In addition to that, requirement of paid software tools/License, APIs or high-end GPUs are also not required for this project as for now.

# Chapter 06

## **External organizations**

This project does not involve an external party, or any real client. However, a survey is used for gathering the data based on material-related sizes according to the user body measurements.

A screenshot of a survey

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A screenshot of a chat

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# Chapter 06

## **Time Frame / Timeline**

A close-up of a graph

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# **Referencing / Bibliography**

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