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Project Phase-I Report
for
Pocket Fashionista - A Complexion based Outfit Color Advisor
using Neural Networks



This is to certify that the Project entitled “**Pocket Fashionista - A Complexion based Outfit Color Advisor using Neural Networks**” by **Tejashri Wagh, Anisha Gharat and Siddesh Sonawane** is approved for Phase-I presentation.

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Introduction

Whenever we go shopping either be it a store or online , we do follow the ongoing trend of being a fashion enthusiast. But there is always a case where we get the perfect T-shirt with the perfect color but can't match the pants with that color , or the cloth color does not match your complexion but it did match the model's skin tone. Or we just need to change our wardrobe , but are confused with selecting the suitable color combination which matches with the user's looks and skin type.

So the solution to this is a program which recommends the user a list of color combinations according to the user's skin tones. The model especially focuses on Indian skin tone. It can be a personal fashion advisor on the basis of users' complexion . The user will upload one of his pictures , and the face detection algorithm will detect the skin colour of the user. Algorithms will match the skin colour within the skin colour meter and recommend the best possible colour combinations for the top and bottom combined. The system can also suggest the best color and outfit combinations according to the weather and also on the basis of occasions where the user has the liberty to choose the choices according to the surrounding and in accordance with it the intelligent recommendations will be provided. It will also help the user to try different color combinations from their own wardrobe which they never might have thought of.

Color plays a very important role in coordination, and even the same clothes may have different images depending on color matching. However, the conventional invention is focused on the coordination or sale of the product while the user directly dresses, and thus does not really help users who lack color sense or do not fully utilize the clothes they own.

So we also plan to make a virtual trial room where after suggesting the color combinations of various outfits , it will display the T-shirt and Pant of the recommended color on his body , just like some of the snapchat filters when the camera is faced towards the user.

The outcome of this project will be an app which recommends the colors and outfits to a user which is personalized for that specific user. The never ending confusion of matching color to make it a perfect outfit can be solved through this process.

Literature Survey

Many of the people find it difficult to get the best possible colour combinations of their clothes in their day to day life and also for some special events or occasions. While shopping online many people get confused while selecting the clothes. There is a need for assistants that can intelligently recommend clothes to the users along with the different colour combinations that can perfectly suit the user's profile and give a personalized recommendation to the user.

In context with this issue, many systems have been developed to provide personalized recommendations to the user. In [1], a recommendation system for clothes based on Season, occasion, posture and skin colour is proposed. Here recommendations are based on personalised clothing styles according to fabric styles and colour. A broad classification of the personalized indicators for recommendation makes this work remarkable. Also a simple mobile interface which is provided to the user gives an optimal solution. User preference is also given importance in certain works such as giving recommendations from the users closet or wishlist[8].

Another few approaches go with the users input that is taken into consideration for providing recommendations. Knowledge graph technique is used for such implementations wherein it constructs knowledge graph of user, knowledge graph of clothing and knowledge graph of context, utilizing Apriori algorithm to capture the intrinsic correlations between clothing attributes and context attributes[4]. It recommends which has the most similar to user's collected clothes through the similarity of clothing ontology to improve the efficiency and accuracy of the recommendation. Also recommendations that are particularly suitable to a user based on the user's personal preference, history of clothing items and the user's evaluations of previous system recommendations are also made[5].

An improved approach which gives a really personalized recommendation system is where users are prompted to provide their Photos so as to give recommendations based on their facial features and skin tone that suit them well. Skin segmentation technique has powered this system[9]. Providing weather based suggestions for apparel is a challenging task to be achieved. The user is given personalized recommendations based on the ongoing weather so that he can feel both comfortable and trendy in whichever weather is going on[6].

Virtual trials of clothes have gained importance over the years. This not only helps to visualise how the clothes will look on the users body but also helps to save the users time in trying out the clothes[2][7]. Basically image warping techniques are used for solving this problem. Fitting the clothes to 2D or 3D models is achieved by Warping techniques. Complexity of the model's pose and even the scenario body parts can overlay over the clothes are well overcome in such solutions[2]. Event based recommendations are given to the user so that he can get proper fashion tips which we can follow and impress his social circle[3]. This makes him confident to attend the social events by following the latest fashion trends via a small personal fashion advisor.

Research Gap Identified

In most of the works proposed earlier , the authors have mentioned skin segmentation and skin color detection only on the basis of 3 colors , that is black ,white , and brown. Which do not completely relate to the particular indian skin tones. Indian Skin tones lie on the meter between fair and dark and accordingly seven skin colour metres can distinguishably identify the indian skin tones .

As mentioned above , the color recommendation system was implemented on the basis of some specific color as an input , which may not apply to every single user and hence there is a need to specifically provide choices and recommendations based on the user's suitability which can be achieved through the skin color.

Personalized recommendation systems involve suitable recommendations for various events in the users life or based on the surrounding. So Weather and Occasion based recommendations will also be provided to the user.

And lastly , an optimum solution for saving a lot of time and energy , is by providing a Virtual Trial Room System , where the user can actually figure out , which color combination recommended by the system looks best on users personality in seconds.

Problem Statement

People usually find it difficult to get the best clothing color combinations that suit their skin tone well and go well with the existing fashion trends.

The aim is to develop a complexion based clothing color recommendation system that will help to choose the best possible clothes color combinations.

It will also allow the users to virtually visualize how they will look in the recommended color combinations.

The application will allow users to make best choices with their clothes color combinations and thus saving their time and energy in even trying out the clothes.

Easy for merchants to master the real-time demand of consumers.

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