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Cosmetic Suggestion Based On Skin Condition Using Artificial Intelligence

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Abstract: In the field of beauty and cosmetology, certain developments utilize artificial intelligence for the advancement and betterment of personal care. The actual challenge in the beauty industry is the identification of the skin type and the identification of product that does not include any harms and allergies for the clients. There are a lot of E-Commerce applications that provide customer service for the purchase of essentials like cosmetics and facial creams but there is no application that suggest products by the prediction of the skin condition. The aim of this application is to highlight the current and developing applications of artificial intelligence and machine learning in beautification and cosmetology by digital analysis of skin condition and suggest better products based on the type of skin and digitally check the skin tone and buy harmless products for their skin using the Convolution Neural Network (CNN) algorithm to carry out the workflow of the process.

1.INTRODUCTION

Dryness has an eerie resemblance to rough, scaly, or scaly skin. Shiny, oily, or potentially big pores are signs of the oily condition. It possesses qualities that are in the middle. Combination skin, as opposed to normal skin, is skin that is oily in some places and dry in others. There are no resources available to assist non-experts in identifying their skin type. Visit a beauty salon to receive guidance on skincare practices and supplies. As a result, it could be challenging for the general public to keep up a healthy routine and select the appropriate products for their skin type. Numerous applications of deep learning exist, including speech recognition, computer vision, and natural language processing (NLP).incorporate it into my recommendations as well. Recent applications for session-based suggestions, music recommendations, and news recommendations are noteworthy. Ting ting Li,Ruche Ian, and colleagues suggested a Deep Generative Adversarial Network to transfer cosmetics from one image to another. Rio Buchwald, Yoko Namaskar, and others suggested a system for making recommendations that is based on user feedback and cosmetic ingredients. Her research focuses on identifying cosmetics that include lots of ingredients that make people look beautiful using user feedback. In essence, they created a group of individuals with equivalent skin-extracted user characteristics (such as age and skin quality) selected by the individuals during registration. For every cosmetic product, we

create lotions with a high percentage of beauty effect tags. To determine this threshold, they employed natural classification techniques. For component extraction, they applied the TF-IDF concept, which is intended to pinpoint the words that best capture the meaning of a text. Values from the TF-IDF calculation were sorted. The recommendations are based on the TF-IDF values' top components after sortie.Yuki Matsunami et al. created a tag- recommendation approach for evaluating cosmetics in a recommendation system. This study aims to draw attention to the review text. An automatic scoring system was used to assign scores to the review text. To determine the review's score, the algorithm reads the text, rates the sentences, extracts k units from the review text, rates the sentences, and adds up all of the components. After that, the machine recommends high-scoring tags to assess the expression. The integration of artificial intelligence (AI) into the realm of skincare has revolutionized how cosmetic suggestions are made, offering personalized recommendations based on individual skin conditions. This document delves into the innovative application of AI in the beauty industry, exploring how algorithms analyze skin conditions, provide tailored recommendations, and enhance user experience.The beauty industry has witnessed a paradigm shift with the advent of artificial intelligence (AI) technology. AI algorithms have the capability to analyze vast datasets, including skin types, conditions, and product formulations, to offer personalized cosmetic suggestions. This document explores the multifaceted role of AI in skincare, highlighting its impact on product recommendations, skincare routines, and user engagement.

2. Purpose of the Paper:

The purpose of Cosmetic Suggestion based on Skin Condition using Artificial Intelligence (AI) is multifaceted and encompasses several key objectives. Firstly, it aims to revolutionize the skincare and beauty industry by leveraging AI algorithms to provide personalized recommendations tailored to individuals' specific skin conditions. By analyzing vast amounts of data related to skin types, concerns, and product formulations, AI-powered systems can offer precise suggestions for skincare products and treatments that address the unique needs of each user. This not only enhances the consumer experience but also improves the efficacy of skincare regimens by matching individuals with products that are most suitable for their skin conditions. Additionally, Cosmetic Suggestion using AI facilitates accessibility to skincare expertise, particularly for individuals who may not have access to dermatologists or skincare professionals. Through user-friendly interfaces and mobile applications, AI-based platforms empower consumers to make informed decisions about their skincare routines, leading to better skincare outcomes and increased satisfaction. Moreover, by promoting the use of personalized skincare solutions, Cosmetic Suggestion using AI contributes to the advancement of preventive skincare practices, potentially reducing the prevalence of skin issues and promoting overall skin health. Overall, the purpose of Cosmetic Suggestion based on Skin Condition using Artificial Intelligence is to revolutionize skincare routines, enhance consumer empowerment, and optimize skincare outcomes through personalized recommendations tailored to individual skin conditions.

3. EXISTING SYSTEM AND DISADVANTAGES:

NeutrogenaSkin360 app, which taps into dermatologist-grade technology to analyze your face, show how it’s changing over time and help ensure your beauty regimen is achieving results—all via your smartphone. The worst part about skincare is all of the trial and error. There’s the researching of

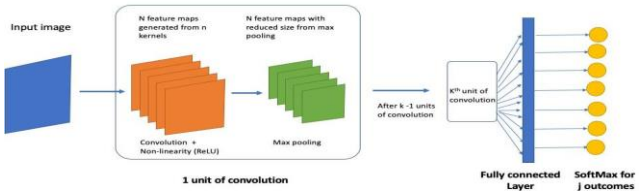
ingredients, torturing yourself listening to You Tubers review products, draining your bank account to buy said products, and then finally, trying them.All that effort usually ends up with me cocking my head to the side as I stare at my reflection, unsure if my investment did anything or if it's all in my head. Last week, I met up with Neutrogena at CES 2020 to talk about their app, Skin360. I walked into the meeting a bit skeptical—after all, their last CES announcement, Mask-ID, still hasn't seen the light of day. But after a week of playing around with the Skin360 app, I think Neutrogena might be on to something.Once that's set, the app will then ask how dedicated you are to a skincare routine, and then poof. You get a personalized routine. Through it all, there's a chat-bot called NAIA who will check in every few days about your goals, your stress levels, how often you exercise, and sleep quality. You can also read articles about specific issues, like how to minimize the size of your pores or an ex-plainer on exfoliation. Developed by NeutrogenaSkin360, a prominent brand synonymous with skincare excellence, this application harnesses the power of artificial intelligence and machine learning algorithms to conduct comprehensive analyses of users' skin conditions. By simply uploading images of their skin, users gain access to detailed assessments covering key aspects such as texture, pores, wrinkles, and hydration levels. Leveraging this data, the app generates tailored recommendations for skincare products and routines, taking into consideration individual skin concerns, preferences, and lifestyle factors.

4 Proposed System with Features:-

Cosmetic Suggestion is a method of suggesting suitable products for the applicants' skin condition by analyzing their skin condition manually by the dermatologists. We propose a method of digital analysis of skin condition of the applicant with the help of Augmented Reality and the Convolution Neural Network algorithm (CNN). The Application not only suggest the cosmetics for skin care but also the hair care.

2.3. Convolution Neural Networks (CNN):

The Convolution Neural Networks (CNN) algorithm is a deep learning algorithm that differentiate the inputs provided and provide continuous flow of work in the process. The Algorithm is used to fix the outputs for the input prior to the analysis and suggestion process so it provide the best and suitable product for the applicants. The mechanism of providing the actual results like when an applicant is of dry skin the algorithm automatically alerts the application to suggest moisturizers and if the applicant needs hair care it is programmed to suggest the chemical less shampoo and conditioners. A Convolution Neural Network (CNN) is a type of Deep Learning neural network architecture commonly used in Computer Vision. Computer vision is a field of Artificial Intelligence that enables a computer to understand and interpret the image or visual data.



5. LITERATURE SURVEY

[1] Dantcheva, J.L.Delay (2019) [1] stated that Non-permanent features influence highly the MOS and it conclude that facial aesthetics in images is substantially modifiable.

[2] Jason Brownlee."What is Deep Learning?" accessed on 29 November (2019) [2] Deep learning, a subset of machine learning, is a powerful computational approach inspired by the structure and function of the human brain's neural networks. It has emerged as a revolutionary technology in various fields, including computer vision, natural language processing, speech recognition, and many others.

[3] Khan AD, Alan MN (2019) [3] stated that the public health strategy are genuine means of obtaining information on safety of cosmetic product and their ingredients, preventing the risk associated with the use of cosmetics became a serious public health problem.

[4] Dongle, TaoLi, IrisChuoying Ouyang and Ruizhe Wang (2020) [4] stated that the study is the first attempt to understand beauty, highly perceptual to human, via a deep learning perspective. Yi Li, Liaoning song, Xiang Wu (2020)
[5] stated a new learning from generation approach for makeup invariant face verification by introduction of BI -LAN.

6. CONCLUSION

In this work, CNN and augmented reality are used for skin condition detection. The methods like supervised, unsupervised and semi-supervised have been used to identify the type of skin and predict the product. The result that has been obtained helps the customers to analyse their skin. The skin detection system provides awareness among customers about their skin. The advanced methods such as Efficient Net, Inception v3, Dense Net. Etc., could increase the performance in future.

7. FUTURE ENHANCEMENTS

AI-powered cosmetic suggestions are poised for exciting advancements. Imagine advanced image analysis that not only identifies skin type but pinpoints wrinkles, sun damage, or even early signs of concern. This analysis, combined with factors like lifestyle and genetics, could lead to hyper-personalized recommendations. Virtual try-on with AR and sample recommendations would empower users to experiment before committing. The future might even involve personalized subscription boxes or AR/VR consultations with virtual dermatologists. By integrating deeper user feedback and educational content, AI can become a powerful tool for users to achieve and maintain healthy, beautiful skin.

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