Haircut Recommendation Approach Using Image Processing: An Overview

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Abstract-The modern trend of diversification and personalization has encouraged people to boldly express their differentiation and uniqueness in many aspects, and one of the detectable confirmations is the wide assortment of haircuts that we could watch today. Given the requirements for hairdo customization, methodologies or frameworks, extending from 2D from programmed to manual, have been proposed or created to carefully encourage the selection of haircuts. In any case, about all current methodologies experience the ill effects of giving reasonable hairdo combination results. By expecting the contributions to be 2D photographs, the striking quality of a hairdo re-union outcome depends intensely on the evacuation of the first haircut, in light of the fact that the conjunction of the first hairdo and the recently re-blended hairdo may prompt genuine relic on human discernment. We settle this issue by stretching out the dynamic shape model to all the more decisively extricate the whole facial form, which would then be able to be utilized to trim away the hair from the info photograph. After hair evacuation, the facial skin of the uncovered brow should be recuperated. Since the skin surface is non-stationary and there is little data left, the conventional surface blend and picture in painting approaches don't fit to take care of this issue. Our proposed technique yields a more wanted facial skin fix by first introducing a base skin fix, and pursued by a non-stationary surface blend. In this paper, we additionally might want to diminish the client help amid such a procedure however much as could reasonably be expected. We have concocted another and inviting facial shape and haircut modifying instrument that make it amazingly simple to control and fit a coveted hairdo onto a face. What's more, our framework is likewise furnished with the usefulness of removing the hairdo from a given photograph, which makes our work more total.Moreover, by extracting the face from the input photo, our system allows users to exchange faces as well.

Index Terms-*Active Shape Model ;Skin Texture Synthesis; Hairstyle Extraction.*

I. INTRODUCTION

Modeling hair is essential to computer graphics for various applications; however, realistically representing hair in structure, motion and visual appearance is still an open challenge. Hair displaying is critical for making persuading virtual people for some assorted CG applications. Hair displaying is a troublesome undertaking fundamentally because of the multifaceted nature of hair. A human head regularly comprises of a substantial volume of hair with more than 100,000 hair strands. Be that as it may, every individual hair strand is very little in breadth. Thinking about this duality, specialists have inspected whether hair ought to be treated as a general volume or as individual associating hair strands. Currently, there is no method that has been accepted as the industry standard for modeling hair. In the real world, the structure and visual appearance of hair varies widely for each person, making it a formidable task for any one modeling scheme to capture all diversities accurately. Additionally, because of the high unpredictability of hair the calculations that give the best visual constancy will in general be too computationally overpowering to be utilized for intuitive applications that have strict performance requirements. The diverse applications that incorporate hair modeling each possess their own challenges and requirements, such as appearance, accuracy, or performance. Furthermore, there are as yet obscure properties about genuine hair, making the making of a physically right displaying plan subtle as of now. In this survey, we will discuss the primary challenges involved with modeling hair and also review the benefits and limitations of methods presented in the past for handling these complex issues. Furthermore, we will give knowledge for picking a proper hair displaying plan dependent on the necessities of the expected application.

II. LITERATURE SURVEY

According to system presents an algorithm for segmenting the hair region in uncontrolled, real life conditions images. Our method is based on a simple statistical hair shape model representing the upper hair part. We identify this

area by limiting a vitality which utilizes dynamic shape and dynamic form. The upper hair area at that point enables us to take in the hair appearance parameters (shading and surface) for the picture considered. At long last, those parameters drive a pixel-wise division strategy that yields the coveted (finish) hair locale. We demon- strate the applicability of our method on several real images.

According to system Based on a multi-step process, an automatic hair segmentation method is created and tested on a database of 115 manually segmented hair images. By extricating different data parts from a picture, including foundation shading, confront position, hair shading, skin shading, and skin cover, a heuristic-based strategy is made for the discovery and division of hair that can distinguish hair with a precision of roughly 75% and with a false hair overestimation mistake of 34%. Furthermore, it is shown that down sampling the image down to a face width of 25px results in a 73% reduction in computation time with insignificant change in detection accuracy.

According to system system present a study of transferable belief model for automatic hair segmentation process. Firstly, we recall the transferable Belief Model. Also, we characterized for the parameters which portray hair (Frequency and Color) a Basic Belief task which speaks to the conviction that a pixel was or not a hair pixel. At that point we present a limiting capacity dependent on the separation to the face to expand the dependability of our sensors. Toward the finish of this procedure, we section the hair with a tangling procedure. We compare the process with the logical fusion. Results are evaluated using semi-manual segmentation references.

As illustrated by Magnenat-Thalmann et al., hair modeling can be divided into three general categories: hairstyling, hair simulation, and hair rendering. Hairstyling, viewed as modeling the shape of the hair, fuses the geometry of the hair and indicates the thickness, appropriation, and introduction of hair strands. Hair recreation includes the dynamic movement of hair, including impact identification between the hair and items, for example, the head or body, and in addition hair shared communications. At last, hair rendering involves shading, shadows, light diffusing impacts,transparency, and anti-aliasing issues related to the visual depiction of hair on the screen.

While there are several known techniques for hair modeling, hair look into started by survey hair as singular strands, or one-dimensional twists in three-dimensional space. Developing these foundations, authorities have focused on how these individual strands speak with each other to contain the whole volume of a full head of hair. Despite the fact that few ways have been pursued, displaying a full head of hair remains an open test because of the geometric unpredictability and thin nature of an individual strand coupled with the complex collisions and shadows that occur among the hairs.

Choe et al.also use a vector field to compute global hair position while accounting for hair elasticity. Their calculation computes hair joint points that best record for both the impact of the vector field and the characteristic pattern of the strand for recovering its rest position. Another imperative component of the methodology is the capacity for the client to characterize hair requirements. A hair requirement causes an imperative vector field to be produced over a bit of 3D space that later changes the first vector field relatively to a weight parameter. Hair twisting is registered by utilizing the past calculation connected on the adjusted vector field. By and by, the client can determine three sorts of limitations: point constraints, trajectory constraints and direction constraints. Hair constraints turn out to be very useful for creating complex hairstyles involving ponytails, bunches or braids.

Lee and Ko developed a method to model the effects of hair gel on a hairstyle. A styling power is utilized to empower haircut recuperation as the hair moves because of outer power or head development. Accordingly, an underlying haircut can be reestablished after movement. At the point when gel is connected to the hair, the craving is to hold the disfigured haircut instead of coming back to the underlying style. This calculation saves the twisted shape by refreshing the styling power amid the reenactment. On the other hand, fragile static connections or dynamic bonds can be utilized to catch hairdo recuperation by applying additional spring powers between adjacent areas of hair to impersonate the additional amassing of hair made by styling items. Styling items additionally increment the firmness of hair movement permitting a twisted area of hair with styling items connected to hold a tight twist as the hair moves. Using a double skeleton demonstrate for reproducing hair, separate spring powers can be utilized to control the twisting of hair strands versus the extending of twists. Styling items would then be able to modify the spring firmness' autonomously to make wanted outcomes.

III. RESEARCH METHODOLOGY

The advanced pattern of expansion and personalization has urged individuals to strongly express their separation and uniqueness in numerous perspectives, and one of the observable confirmations is the wide assortment of hairstyles that we could observe today. Given the needs for hairstyle customization, approaches or systems, ranging from 2D from automatic to manual, have been proposed or developed to digitally facilitate the choice of hairstyles. However, nearly all existing approaches suffer from providing realistic hairstyle synthesis results. By expecting the contributions to be 2D photographs, the striking quality

of a haircut re-amalgamation result depends vigorously on the expulsion of the first hairdo, in light of the fact that the concurrence of the first haircut and the recently re-combined hairdo may prompt genuine antiquity on human recognition. We settle this issue by stretching out the dynamic shape model to all the more absolutely extricate the whole facial form, which would then be able to be utilized to trim away the hair from the information photograph. After hair evacuation, the facial skin of the uncovered brow should be recouped. Since the skin texture is non-stationary and there is little information left, the traditional texture synthesis and image in painting approaches do not fit to solve this problem. Our proposed strategy yields a more wanted facial skin fix by first introducing a base skin fix, and pursued by a non-stationary surface blend. In this paper, we likewise might want to decrease the client help amid such a procedure however much as could be expected. We have contrived another and inviting facial shape and hairdo altering system that make it greatly simple to control and fit a coveted haircut onto a face. What's more, our framework is additionally outfitted with the usefulness of removing the haircut from a given photograph, which makes our work more complete.

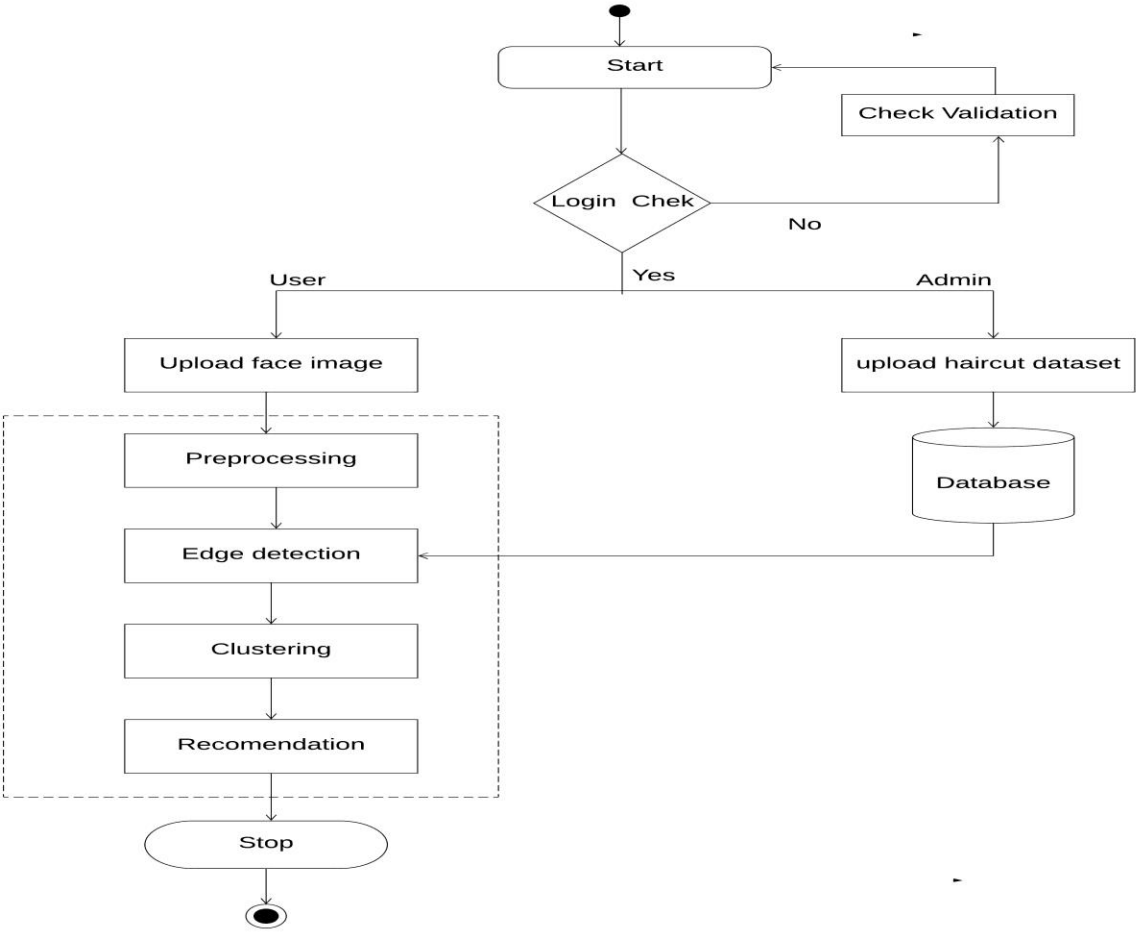

Fig.1: System Architecture

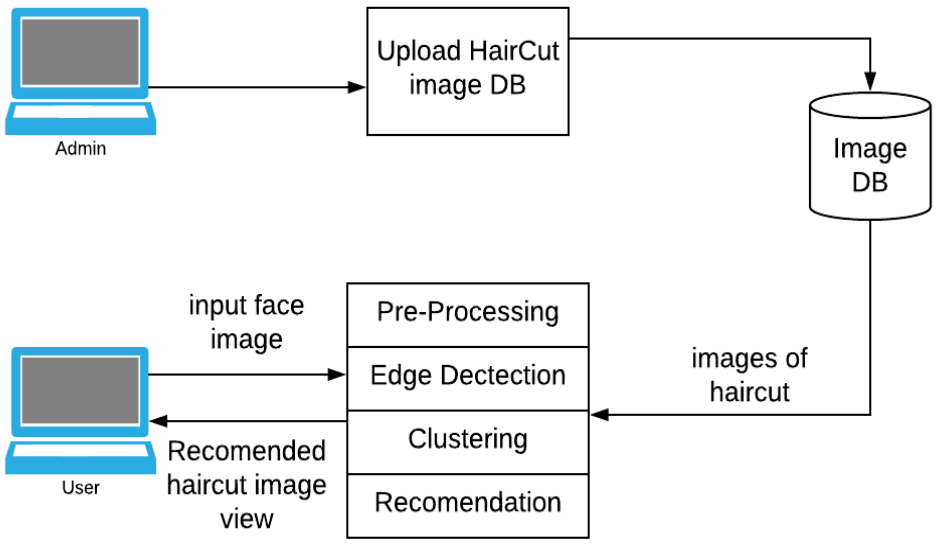

Fig.2:System Architecture

Hardware components and software components.

A. A.SQLite Database : We have contrived another and neighborly facial form and hairdo altering system that make it greatly simple to control and fit a coveted haircut onto a face. Furthermore, our framework is additionally furnished with the usefulness of removing the hairdo from a given photograph, which makes our work more total. Besides, by extricating the face from the information photograph, our framework enables clients to trade faces too.

B. Web service : A web service is a standard for trading data between various sorts of uses regardless of dialect and stage. For instance, an android application can interface with java or .net application using web services

C. Front End

1) Android DSK 4.5

2) Internet Explorer 6.0/above

3) Tool : Eclipse or net beans

4) Android, java

D. Back-End

1) SQLite

E. Hardware Requirements

1) Processor:- Intel Pentium 4 or above

2) Memory:- 2 GB or above

3) Hard Disk:- 500gb

IV. CONCLUSION

In this paper, we present a novel approach to face shape classification for constructing a hairstyle recommendation system. In this Proposed System We Successfully implemented a method this can automatically perform hairstyle extraction for face images.And Also canny edge detection algorithm for find the face edges. And also implemented an image processing approach using CNN for increasing the accuracy of detection.

V. FUTURE WORK

In addition, the performance of the proposed age estimation approach was compared to human age estimation. Through this research, it was possible to conclude that the machine outperforms human in the age estimation task. Some factors affected the performance of the proposed approach such as facial wrinkles which are generally removed by the photographer or through make-up. Essentially, a few pictures from the datasets were taken utilizing brilliant lighting sources, impediments like glasses, facial hair, and so forth.

REFERENCES

[1]. P. Julian, C. Dehais, F. Lauze, V. Charvillat, A. Bartoli, A. Choukroun, Automatic hair detection in the wild, Pattern Recognition (icpr), 2010 20th International Conference on, IEEE. 2010,

[2]. P. Aarabi, Automatic segmentation of hair in images, 2015 IEEE International Symposium on Multimedia (ISM), IEEE. 2015, pp. 69–72.

[3]. C. Rousset, P.-Y. Coulon, M. Rombaut, Transferable belief model for hair mask segmentation, 2010 IEEE International Conference on Image Processing, IEEE.,2010

[4]. N. Magnenat-Thalmann and S. Hadap, "State of the art in hair simulation," in International Workshop on Human Modeling and Animation, ser. Korea Computer Graphics Society, June 2000, pp. 3–9.

[5]. R. Rosenblum, W. Carlson, and E. Tripp, "Simulating the structure and dynamics of human hair: Modeling, rendering, and animation," The Journal of Visualization and Computer Animation, vol. 2, no. 4, pp. 141–148, 1991.

[6]. B. Choe and H.-S. Ko, "A statiscal wisp model and pseudophysical approcahes for interactive hairstyle generation," IEEE Transactions on Visualization and Computer Graphics, vol. 11, no. 2, March 2005

[7]. D.-W. Lee and H.-S. Ko, "Natural hairstyle modeling and animation," Graphical Models, vol. 63, no. 2, pp. 67–85, March 2001.

[8]. K. Ward, N. Galoppo, and M. C. Lin, "Modeling hair influenced by water and styling products," in International Conference on Computer Animation and Social Agents (CASA), May 2004, pp. 207–214