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Modeling of Advanced 'Imaging' Process for E-Commerce Usability

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ABSTRACT: *'Imaging' is utmost pivotal in e-commerce and particularly in online trading. The commercial viability of 'Imaging' is indispensible as emerging online trends are captivating the minds of consumers. Thus all trading now offers online modus and the integrity of 'Imaging' has doubled manifold. In this regard Hidden Markov Model (HMM) is a driving force in postulating 'Imaging' and it involves numerous pragmatic visualizations. Fuzzyfying HMM leads to augmentation of 'Imaging' and the e-commerce popularized extensively. Another substantial methodology omnipresent in contemporary 'Imaging' is Hidden Surface Removal (HSR) topology. The authors here amalgamate the trio to incorporate them in e-commerce. This short technical communication deals with a typical 'Imaging' crisis and eventually propose an economic solution. The authors offer a vibrant 'Try Me!'-an app i.e., very much consumer friendly.*

KEYWORDS: *E-commerce, Fuzzy logic, Imaging, Hidden Surface Removal Model, Hidden Markov Model*.

I. Introduction

Presently all commercial entities are bended themselves within the vicinity of internet based minatory transactions [1, 2]. This has augmented the commercialization electronically. Subsequently new methodologies are being adapted to mobilize extended flexibility in e-commercialization. To achieve this height researchers and economists went hand in hand to develop models which are not only real time aspirant but they equilaterally present tremendous potential in smoothening 'business' akin to local marketing. Several new topologies are being in-vogue and several are awaiting for elegant solutions.

Here the authors intend to mobilize one such soft computational venture to address the situation often faced by consumers while trying trendy outfits. Regarding this primarily the authors relayed upon Hidden Markov Model(HMM) and categorically defines the 'Imaging' of the consumer for trial purpose. Then after the authors introduced Fuzzification to obtain clarity and perfect positioning of the facial for easy trial of the outfits. Last but not least Hidden Surface Removal(HSR) was implied upon the Fuzzyfied HMM technique in order to attain virtual reality amid any surface.

Following sub-section illustrate HMM, Fuzzyfied HMM & HSR unilaterally but inconsequence to each other. Several snapshots have been included to commensurate the proposed endeavor. The flowchart is included for procedural scholastic analysis.

II. Hidden Markov Model(HMM)

HMM for 'Imaging' is indispensible in e-commerce milieu. To construct statistical model of images using HMM technique catered significant attention by global researcher from its very inceptions. De Menthon.et.al. [3], empirically demonstrated HMM incorporation in 'Imaging'. Later on Nefian.et.al demonstrated face recognition [4] using HMM. This particular model is of specific interest in our study. It is based on the extraction of 2D-DCT feature and it significantly eliminates the computational complexity of conventional face recognition system without compromising the recognition rate. This is an extended work of Samaria [5]. In the proposed 'Imaging' the authors encapsulate hair, forehead, eyes, nose and mouth sequentially from top to bottom and rotate in 3600 left to right imitate it in a perpendicular image pane as shown in Fig. 1.

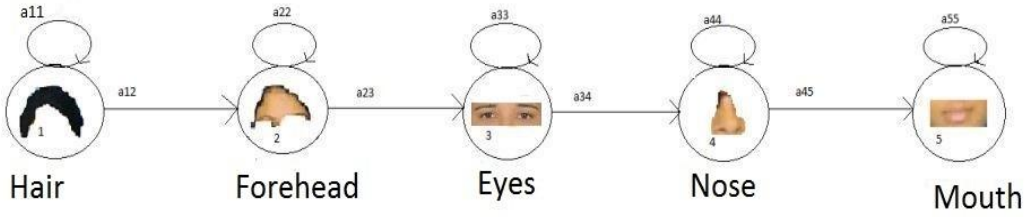

Fig1. Left to Right HMM for Face Recognition

In Fig(1) the following formula has been used

$$T = \frac{H - L}{L - P} + 1 \quad \text{..... (i)}$$

This is how HMM was integrated in our proposed model and it revels the observation vector oriented in each HMM computations. Thus HMM training scheme is much efficient in prototyping the 'Imaging' process for advance e-commerce system.

III. Fuzzyfied HMM Technique

Fuzzyfication has no boundaries. The endless captivation of Fuzzy logic adhere research scope in 'Imaging'. The authors in order to exactly gain enormous insight into the 'Imaging' Fuzzyfied HMM and there by Fuzzyfied HMM model was generated. It provided optimum result for various boundary conditions and simultaneously paved definite conclusion for some missing input information of HMM. Following are the procedures conducted for Fuzzyfied HMM face detection

1. Input is taken as RGB (Red Green Blue) image.
2. Following image is converted into HSV(Hue Saturation Value), YIQ, YCbCr model.
3. Lower and upper bound for CrCb and I,Y values are selected.
4. Clusters like face is tried to detect.
5. A cluster is selected and Fuzzy Logic is applied to decide whether it contain the face or part of face or not.
6. Go to step 4 if all clusters are process else go to step 5.

But the fragility is that Fuzzyfied HMM alone cannot counterfoil the unwanted pixels around the 'Imaging'. Hence fore Hidden Surface Removal (HSR) model is assigned to get greater adequacy in 'Imaging'.

IV. Hidden Surface Removal Technique (HSR)

HSR popularly known as Visible Surface Determination (VSD) categorically employs surfaces and parts of surfaces that are visible from a certain point of view. HSR renders excellent accuracy in 'Imaging' in order to obtain virtual reality beyond any surface. Several topologies are prolific in HSR algorithm. Z-Buffering, C-Buffering, S-Buffering and Painters algorithm, Binary partition are few salutation to HSR. Apparently ray tracing affectively sorts geometries per pixel basis in HSR technique. Last but not least the Warnock algorithm is a pioneering technique that overlaps polygon within depth extent for surface or partial surface removal in HSR technique. The authors here considered Z-Buffering of HSR as it provides excellent credentiality in solving aliasing phenomenon. Here the current pixel lies beneath the pixel in the Z-Buffer which is primarily rejected or shaded depth value using Z-Buffer. It supports dynamic scenes in quite simplicity, this is why Z-Buffering is currently improvised in numerous graphic hardware. Also this is cost effective in nature & uses up to 4bytes per pixels. Thus HSR model is typically included in this technical endeavor. Fig() depicts the Z-Buffering amid HSR technique. The figure shows that the unwanted collars are diminished using 'crop' button.

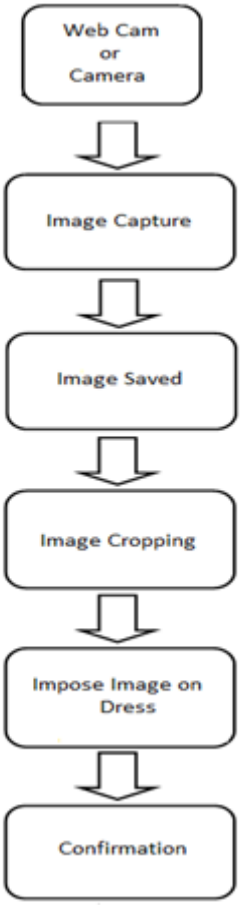

Fig. 2 Procedural scholastic analysis of applicational software

V. Operational Maneuver

The entire task was to improve 'Imaging' for e-commerce system. The modus operandy of the system lies in the fact that a virtual image of a consumer without compromising the actual image of the intended consumer. HMM technique substantiate the 'Imaging' and the robustness in omnipresent. Later on Fuzzyfying HMM enhances the credibility of image which in turn produces a look alike of the consumer and reasonably fits perfectly in trendy outfit. Later on for obscure free 'Imaging' the authors rendered upon HSR technique. Last but not the least the authors developed a scholastic model 'Try Me!' and the results are depicted in following figures

VI. Conclusion

The authors here report the technically adapted in prototyping an e-commerce to solely dedicated for 'Imaging' and further more for typing online outfits. The novelty of this software is that the clarity of the image is sufficiently administered within the limits of trusted vicinity. The authors here intended to virtually put the consumers in the projected outfits without compromising the integrity and privacy of the consumer. It is anticipated that such offerings will revolutionize the conventional e-commerce system and will provide excellent flexibility in 'Imaging'.

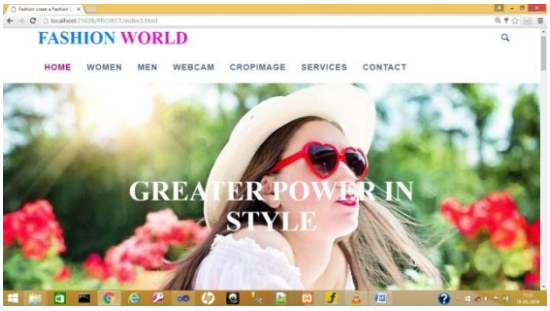

Fig. 3: Home Page

Fig. 4: Sign in form Page

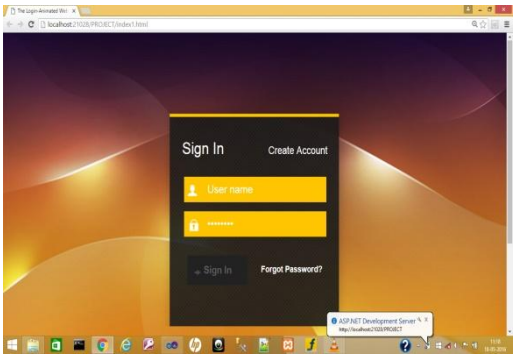

Fig. 5: Sign in Page

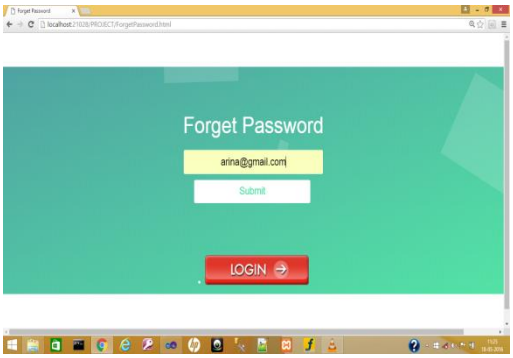

Fig. 6: Retrive password Page

Fig. 7: Women Collection Page

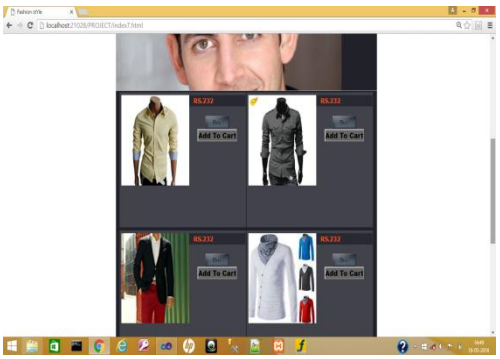

Fig. 8: Men Collection Page

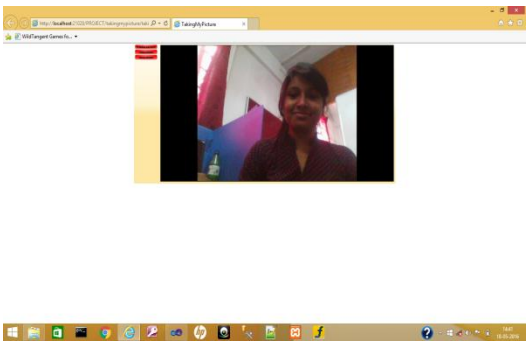

Fig. 9: Web cam Page

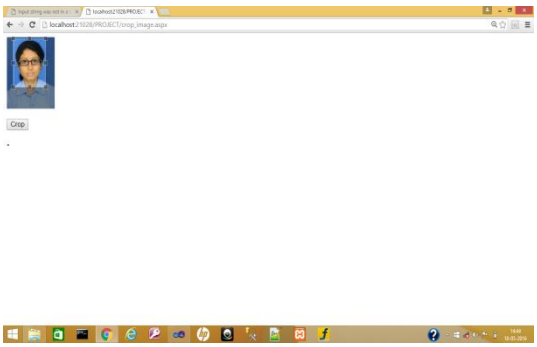

Fig. 10: Crop Image Page

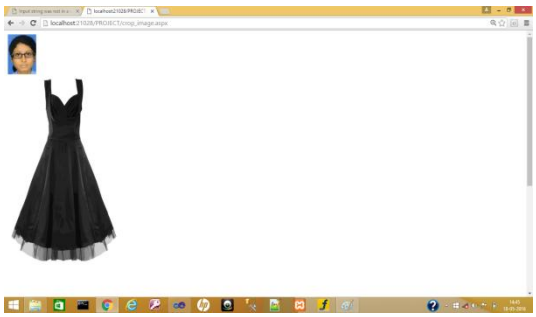

Fig. 11: Adjustment of image in the outfit

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