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Smart and Non-Contact Monitoring of Human Body Parameters

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Abstract: *In this paper, we are going to measure accurate measurements of human body parameters without physically contacting with the customer by using Kinect v2 depth sensor. This system also recommends some suggestions to the customer with the help of Image Processing and Machine Learning. Machine Learning is a subset of Artificial Intelligence. The study shows challenges for measuring accurate body parameters with recommendation using current technologies. So, In this paper we present a current trends to get accurate measurement of human body parameters with recommendation.*

Keywords: Human Body Measurement, Image Processing, Machine Learning, Recommendation System

I. INTRODUCTION

In today's life, everybody knows the importance of time. Everybody wants everything should be performed in less time with more accuracy. Clothing playa most important role in the enhancement of individuality but customers prefer to purchase clothes after trying physically in the trial room of cloths shops but it require space and time. That's why too much time is wasted of both customer and cloths shopkeeper. Also, it is not workable in festive seasons. Now a day's most of the people are purchasing clothes via online but in some cases user don't know their accurate size.[1] So, In this paper, we are going to implement a system that measures accurate measurements of human body parameters and give some recommendation of outfits to the customers. The system measures accurate measurements of human body parameters without physically contacting with the customer by using Kinect v2 depth sensor. This system also recommends some suggestions to the customer with the help of Image Processing and Machine Learning. Machine Learning is a subset of Artificial Intelligence. The study shows challenges for measuring accurate body parameters with recommendation using current technologies. So, in this paper we present a current trends to get accurate measurement of human body parameters with recommendation. This system have justifiable range in virtual dressing room. Also, this system helps customers to make a quick buying decision and thus improves the sales efficiency of clothe shopkeeper.

II. PROBLEM STATEMENT

Normally customers in cloth shop are prefer to purchase outfits after wearing clothes physically in trial room, but it requires some space and time for individual customer. So it is not workable in festive season and hence there is big question of time as well as accuracy. Even now a day's most of the peoples are purchasing their clothes via online but in some cases they don't know their accurate size. Hence we are implementing a system, which will save our time and also will give highest accuracy. This system will measure accurate measurements of human body and will give recommendation of outfits for individual.
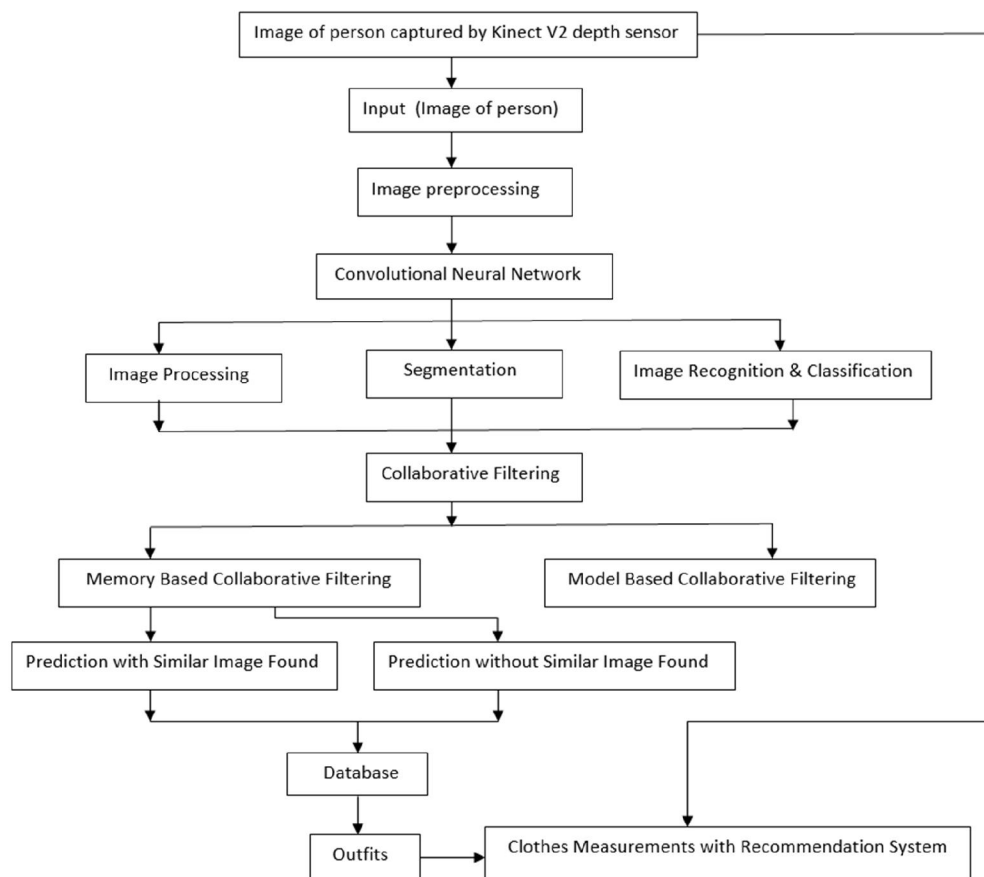
III. EXISTING SYSTEM

There are two different system one system is for measuring human body parameters and other for recommendation of outfits There are many systems for measuring human body parameters like by using single camera by using laser scanners by using kinect sensors, etc. but by using only kinect sensor the system gives accurate measurement even the person is in the motion. Also for recommendation of outfits many technologies are used. The most used technologies are image processing, convolutional neural network machine learning, deep learning, etc.[1] There are some steps like image collection, image pre-processing, segmentation and classification are performed in machine learning & image processing techniques The system has mainly four phases The first phase is to collect the dataset of different outfit's images .[2] The noise is

removed from the images in the second phase Images are segmented in the third phase using clustering techniques. Now in the last phase the different algorithms of machine learning and deen learning are trained & then compared on the basis of accuracy the algorithm whose accuracy is best and performed best in training and testing is taken into account. The classification phase of deep learning uses a fully connected layer for generating clothes vectors and recommends well founded outfits for customers.[4]
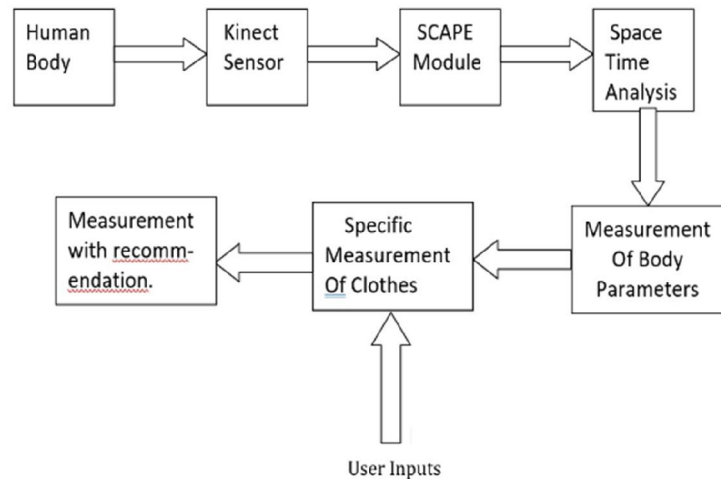
IV. PROPOSED SYSTEM

The proposed system is a combination of two existing systems, which means measurements of the human body system and recommendations of the system. The proposed system, one system which gives the measurement of humans, also recommends the outfits to the customer.

4.1 FLOW OF SYSTEM

At first people pose is captured by Kinect sensor. For pose detection and shape formation we use SCAPE model. It also constructs the synthetic training after average model reconstruction to mitigate the effect of clothes. Then we measure the human body parameters with less effect of clothes. In the next step user have to give some inputs like what they want which fabric type they want that make our system smart then proper specific measurement of specific cloth with smart suggestion displays on screen. In this project we are using some recommendation based machine algorithms . By using that machine learning algorithms system will give suggestions to the customers according to input. Input contains color, fabric type and clothes range.

Kinect is a line of motion sensing input devices produced by Microsoft and first released in 2010. The devices generally contain RGB cameras, and infrared projectors and detectors that map depth through either structured light or time of flight calculations, which can in turn be used to perform real-time gesture recognition and body skeletal detection, among other capabilities. They also contain microphones that can be used for speech recognition and voice control.[9]

4.2 BLOCK DIAGRAM

V. CONCLUSION

This survey paper concludes that Kinect V2 depth sensor ,Machine Learning and Convolutional Neural Networks are used for accurate measurement of human body parameters by recommending outfit. So, it reduces time and human efforts. Machine Learning is a subset of an Artificial Intelligence Convolutional Neural Network is also subset of Machine Learning

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