MEASURING BODY PARAMETERS FOR REAL-TIME VIRTUAL DRESSING ROOM USING A KINECT SENSOR

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The virtual dressing room (VDR) is a concept which can be applied on retailer shops as a fitting or changing room which enables to understand the individual shopping behavior of customers. In this paper, we present the system developed to measure real-time body parameters for virtual dressing using a Kinect Version 2. When a person stands in front of the sensor, it captures true-color (RGB) and infrared (IR) images of the person. Using the sensor middleware the skeleton positions and orientations were identified. Basic noise reduction was done by the Kinect sensor. The system developed at the initial stage is capable of detecting and obtaining personalized body parameters such as height, shoulder length, neck to hip length, hip to leg length, and arm length by incorporating the necessary skeleton joints. According to the results, the measurement on height and arm length of the person are relatively in good agreement with the actual values since the error is only around 5 % and measurement has been taken in centimeters. The highest error was recorded for the shoulder measurement. This can happen if the user is not properly perpendicular to the Kinect sensor. In order to minimize the error, it is necessary to rotate the user 360 degrees on his/her own axis so that the maximum distance between shoulder right and shoulder left was obtained. For accurate measurements it was identified that the user should be within 255 cm - 265 cm from the sensor. Gesture control graphical user interface has been introduced for the developed system of VDR.

Keywords: Human body measurement, Microsoft Kinect Version 2, virtual dressing room