2D & 3D Digital Body Measurement Software

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Introduction
This document describes the "Body Image" project which is used for constructing digital measurements of human bodies. The objective is for customers to create a detailed 2D & 3D measurement of their bodies to be used for custom apparel fabrication, determining the "best fit" of existing apparel offerings, and other uses in the apparel industry. This technology may also be applied in other industries including the fitness and medical domains.

Overview
The basic concept is that a customer downloads the software program from a website. Included in the software is a registration or calibration symbol. The symbol is a known size and shape. The symbol is used for calibrating the image processing algorithms since the resolution of the digital cameras is unknown.

Following the instructions in the software program, the customer prints the calibration mark and places it in a known location relative to the human body. For example, the mark can be placed between the legs of the human for the front and rear images. Typical images are shown below in Figure 1 and 2.

Figure 1

Figure 2

Currently the user takes three images of the body, an image of the front, an image of the left side, and an image of the right side. Using complex algorithms, the software program determines hundreds of 2-dimensional measurements of each image. The vertical lines in Figure 3 shows some (but not all) of the measurements of the left side image. The software program allows the user to select one of the three images and "highlight" a specific area. The software will display the measurements of the highlighted area.

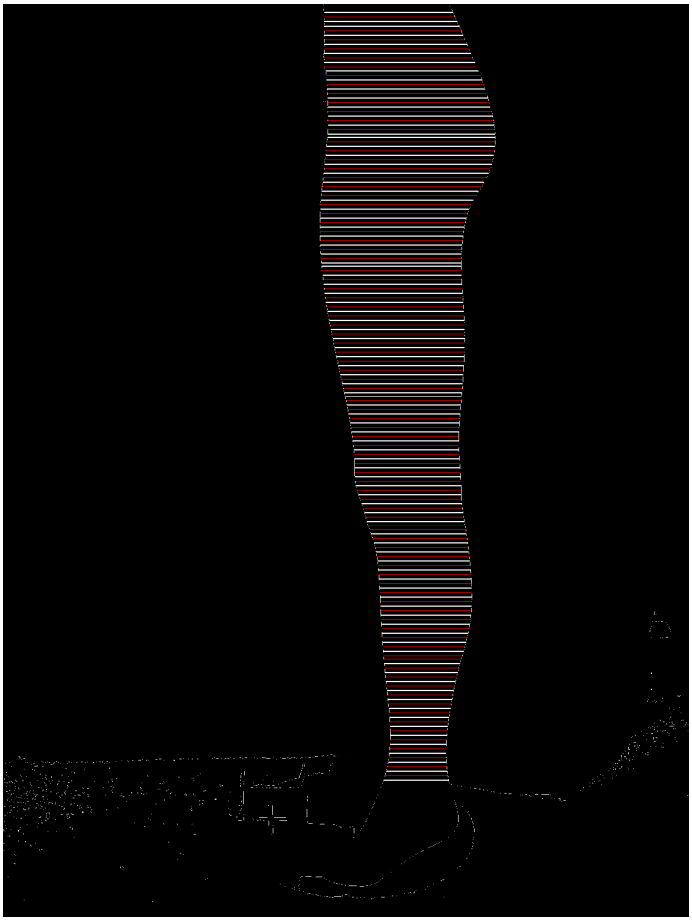

Figure 3

The software can combine the information from the 2D measurements into a single 3D model. The 3D model of the lower body is shown in Figure 4. The user may "navigate" around the model by moving the model up, down, left, and right. The user may also zoom in and out and rotate the model. The software also allows the user to highlight a specific area of the 3D model and will display the measurements at the highlighted area.

Figure 4