A 3D SCANNING SYSTEM FOR FABRIC FUZZINESS EVALUATION Bugao Xu and Wurong Yu The University of Texas at Austin Austin, TX

Abstract

The system consists of a stationary laser sensor that has a depth resolution of 10 um, and a motorized x-y table that transports a fabric sample. When the table moves in the x-direction, the laser sensor yields one profile showing the depth variation on one horizontal line. Stacking consecutive profiles in the y-direction generates the 3D surface of the sample. The surface is first leveled with the best-fit plane, and then a set of the roughness parameters defined by an ANSI/ASME standard are calculated to quantify the fuzziness of the fabric. Since the measurements are based on the height data above a certain level, they are independent of the color and structure of the fabric.