Review

3D whole body scanners revisited

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Abstract

An overview of whole body scanners in 1998 (H.A.M. Daanen, G.J. Van De Water. Whole body scanners, Displays 19 (1998) 111–120) shortly after they emerged to the market revealed that the systems were bulky, slow, expensive and low in resolution. This update shows that new developments in sensing and processing technology, in particular in structured light scanners, have produced a new generation of easy to transport, fast, inexpensive, accurate and high resolution scanners. The systems are now moving to the consumer market with high impact for the garment industry. Since the internet sales of garments is rapidly increasing, information on body dimensions become essential to guarantee a good fit, and 3D scanners are expected to play a major role.

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1. Introduction

At the end of the previous century the first 3D whole body scanners emerged to the market [1]. These systems were generally rather bulky, expensive (several hundred thousands of dollars for laser based systems) and had resolution in the order of a few mm. In particular the development of megapixel CCD-chips contributed to higher resolution and improved accuracy of 3D scan images. The technology has improved over the last decade and this article aims to give an overview of existing systems and new directions of development, in particular for the clothing industry.

2. 3D scanning systems

The basic technologies available in 1998 were laser scanning, patterned light projection and stereophotogrammetry. New techniques that came to the market are based on millimeter waves and infrared waves.