

BodiData's Patented Multi-Sensors Handheld 3D Body Scanner

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Abstract

The current state of 3D body scanning technology has limitations with respect to size, mobility, clothing constraint and accuracy.

BodiData's patented multi-sensor handheld 3D body scanner meets these needs as a small, portable, system capable of scanning a fully clothed individual and extracting the body measurements accurately. BodiData has built the largest 3D body dimensions database, which contains over 1M individual scans and is used to support a novel progressive scanning algorithm.

The BodiData handheld scanner is designed as a retail accessory that easily attaches to the backside of a tablet, an innovative bracket concept securely holds the tablet to the scanner - no wires are needed. This ultra-portable lightweight device requires minimal setup and can be used in a variety of retail settings bringing immediate benefit to both the customers and retailers as dimensionality data can be obtained to find a matching garment.

The system is designed to measure a fully clothed human body in less than 2 minutes and accurate body measurements are acquired by integrating data from the optical depth camera and radar system.

The scanner is powered with Li-ion batteries that provide up to 5 hours of cumulative scanning. The off-the-shelf batteries can be quickly swapped out to support extended scanning sessions if needed, there is no need to take the scanner out of service to wait for recharging.

The optical depth camera, having a wide-angle view and large depth of field captures range information to the clothed portion of the body and is accurate to within +/- 2mm.

During active scanning, the low-power radar system that operates in the 57-64GHz unlicensed ISM band uses highly directional antennas to make a precise distance measurement to the body. At 40cm away, the radar resolves distances to a roughly 9cm² area of the body. In a typical scan, the radar will collect and process over 2 Million pieces of range data.

An advanced inertial and positioning system is utilized to keep track of the unit in space as the operator scans the individual. The scanner module contains an on-board processor that combines the output from the optical system, the radar system and a suite of other sensors and transfers the related pieces of data to the tablet for additional processing, rendering and measurement extraction.

Customer privacy is assured, as the device only uses scan data from a fully clothed person and the radar is a range finding device and will not resolve detailed images of the body. The full set of data is used to build a physical model of the person to ultimately drive a garment-fitting engine to produce a sizing recommendation. While sizing is the primary role of the scanner, the retailer can also use integrate the system with a customers POS system to provide additional value.

Keywords: Handheld Scanner, 3D Body Scanner, Multi-Sensors, Portable Scanner, Millimeter Wave, Radar, Optical Depth Camera

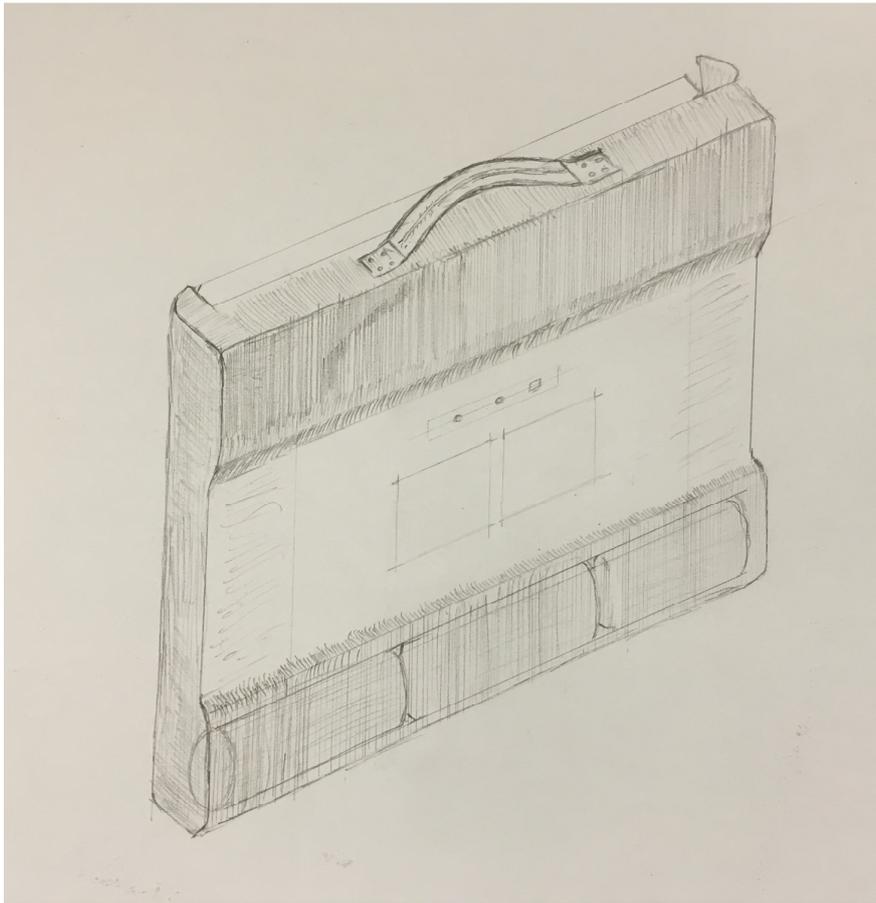


Fig. 1. Front View of Scanner.

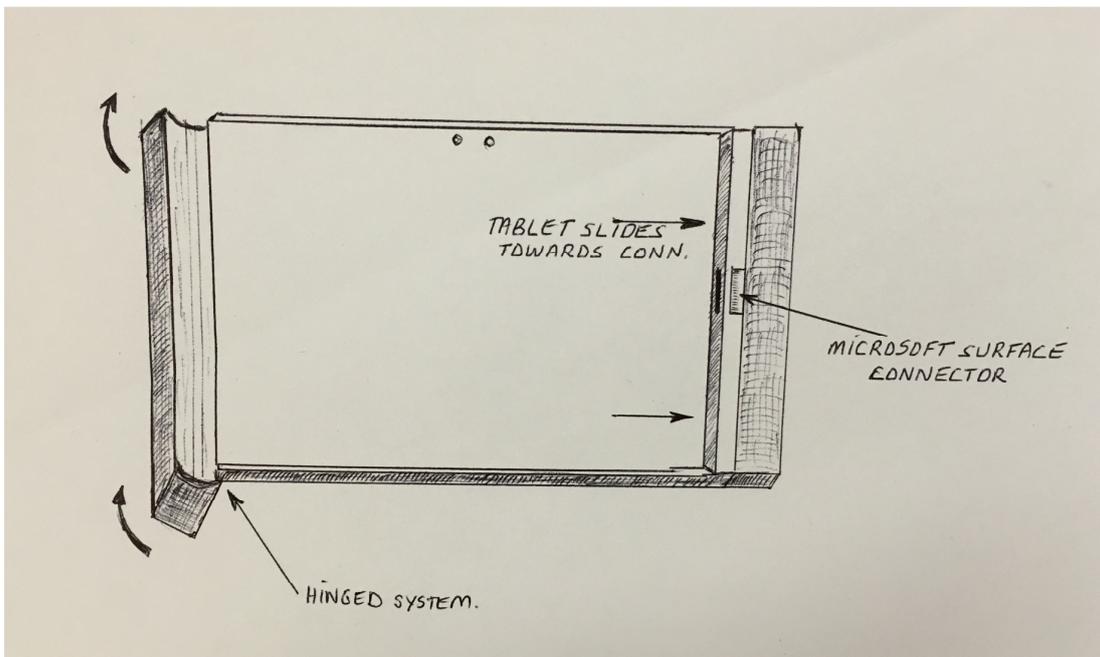


Fig. 2. Back View Showing Tablet and Latch Mechanism.