



# Capabilities Statement

# Automated Measuring Technologies

# ABOUT ADVANTECH, INC.



- AdvanTech, Inc. (ATI) was founded in 1996 with the mission to provide “advanced technology for competitive performance.”
- Since then, we have successfully improved the operations and bottom line of our Clients by providing total solutions that substantially improve:
  - ✓ the **Accuracy** of the data collected;
  - ✓ the **Visibility** of all their assets; and,
  - ✓ the **Accountability** of specific functional areas to track and report their individual performance against their targeted goals.
- With it’s headquarters in Annapolis MD, we have a presence in 18 states across the US. ATI services a wide variety of commercial industry-leading firms and Government agencies across the United States.

ACCURACY. VISIBILITY. ACCOUNTABILITY.

# MISSION STATEMENT

*At ATI, our entire team is committed to something greater than ourselves. We listen to clients' needs, clearly articulate their challenges and work with them to achieve their desired outcomes.*

## We hold ourselves to the following standards:

- **Accuracy**: Everything we do as an organization must be measured as objectively and accurately as possible and tracked over time to document our performance.
- **Visibility**: Everything we do is totally transparent to our team members and our clients.
- **Accountability**: Each team member is held accountable for their actions, decisions and communicating to every one who is or may be effected by those decisions.



***Improvements in Accuracy, Visibility and Accountability translate to actual dollars to the bottom line.***

ACCURACY. VISIBILITY. ACCOUNTABILITY.

# Automated Data Capture Technologies

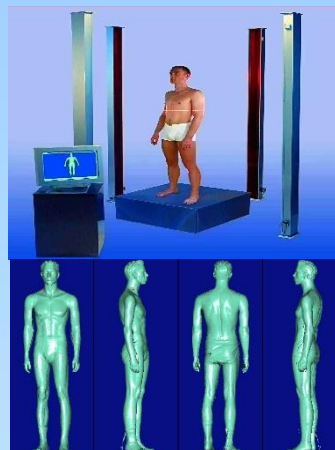
## RFID



## Bar Code



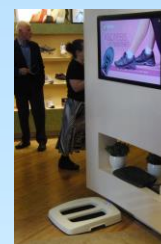
## Measuring Devices



## Whole Body Scanning



## Kinect

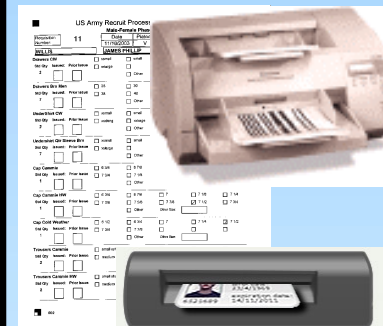


## Foot Scanning



## Hand Measuring

## Others



## OCR



## Voice Recognition

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# Automated Data Capture Technologies

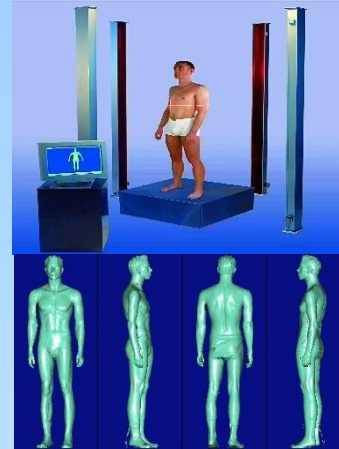
## RFID



## Bar Code



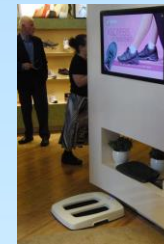
## Measuring Devices



## Whole Body Scanning



## Kinect



## Foot Scanning

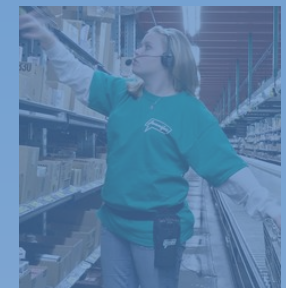


## Hand Measuring

## Others



## OCR

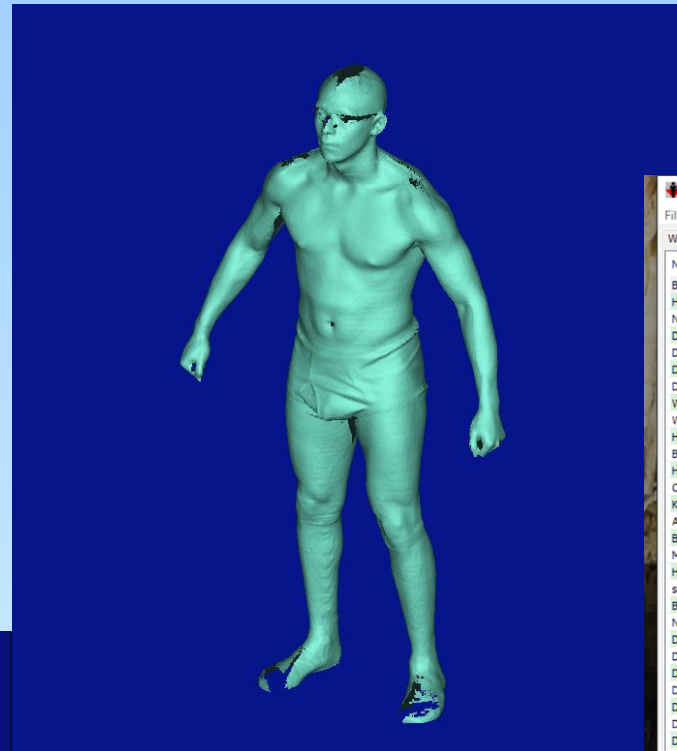


## Voice Recognition

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# 3D Whole Body Scanning

**Up to 150  
Measurements  
with 1mm  
variance**



**Detailed 3D View**

Measure Inspector

File Edit Options

Wizard Wizard Configuration Feature Points

Name	Id	Value	State	OK
Body height	0010	67.17 in	C	
Head height	0020	8.76 in	C	
Neck height	0030	58.42 in	C	
Distance neck to buttock	0040	23.54 in	C	
Distance neck-knee	0050	39.83 in	C	
Distance waist-knee	0060	24.01 in	C	
Distance waistband-knee	0065	22.58 in	C	
Waistband height	0070	40.48 in	C	
Waist height	0080	42.60 in	C	
High waist height	0085	43.43 in	C	
Buttock height	0090	34.87 in	C	
Hip height	0095	32.71 in	C	
Crotch height	0100	30.85 in	C	
Knee height	0110	18.59 in	C	
Ankle height	0120	2.96 in	C	
Belly circumference height	0150	40.77 in	C	
Maximum belly circumference height	0155	40.38 in	C	
Height of shoulder blades	0160	51.80 in	C	
scapula height 2	0165	51.44 in	C	
Breast height	0170	49.10 in	C	
Neck height front	0180	54.79 in	C	
Distance 7CV - vertical	0510	11.43 in	C	
Distance neck front to vertical	0515	14.96 in	C	
Distance scapula to vertical	0520	8.19 in	C	
Distance waist back to vertical	0530	9.61 in	C	
Distance buttock to vertical	0540	7.94 in	C	
Distance abdomen to vertical	0550	17.91 in	C	
Distance breast to vertical	0600	17.56 in	C	
Distance back in breast height to vertical	0610	8.41 in	C	
Distance belly to vertical	0620	18.20 in	C	
Distance back in belly height to vertical	0630	9.45 in	C	
Distance waistband front to vertical	0640	17.99 in	C	
Distance waistband front to vertical	0641	17.60 in	C	

Update

Auto Update

Save

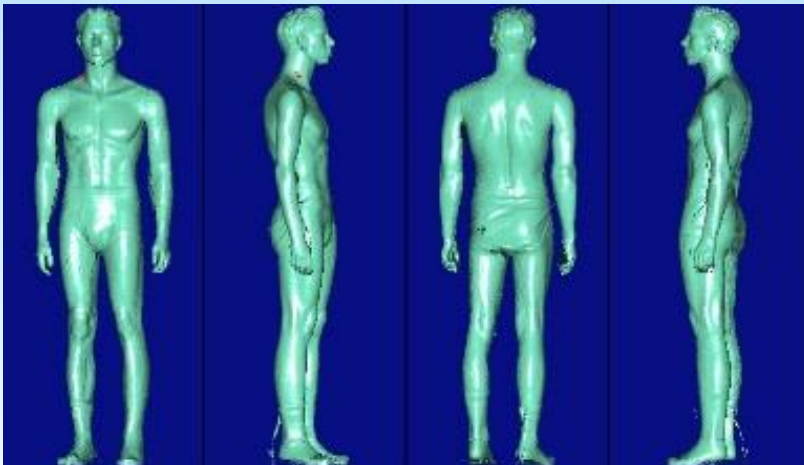
0010

Interactive Measure

67.17 in

Body height

← →



**High Definition – Laser Quality**

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# 3D Whole Body Scanning

## Sizing

US Army  
US Air Force  
British Army  
Arma Suisse  
German Bundeswehr

## Made to measure

Raymond  
Scabal  
Wilvorst

## Size Surveys

China  
Spain  
Germany  
Italy



## RAMSIS Human Model

BMW  
Chrysler  
SAE

## Research

Cornell University  
U of Michigan  
AFRL  
NASA  
NBA

## 3D Forms & Avatars

S.Oliver  
Hugo Boss  
Adidas

# 3D Whole Body Scanning



FootIn3D



Vitus bodyscan

Laser Technology



Ditus MC



Depth Sensor Technology

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# 3D Whole Body Scanning

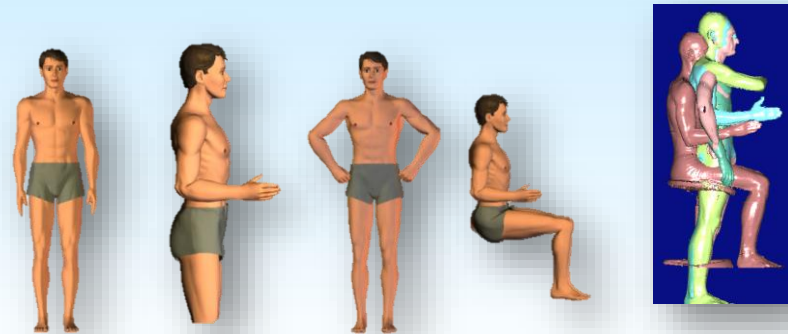
	DITUS MC	VITUS bodyscan	
			
Applications	Size Surveys	no	yes
	Made-to-Measure	yes	yes
	Corporate Fashion	yes	yes
	Virtual Mirror	yes	yes
	Individual facial features	no	yes
Features/Specifications	Mobility	high	acceptable
	Accuracy	+/- 6mm	< 1mm
	Measurement range	2.1m x 0.9m x 0.9m	2.1m x 1m x 1.2m
	Dimensions	2.4m x 2.4m (triangle) x 1.85m	2.2m x 2.2m x 2.95m
	Area	5 m <sup>2</sup> (triangle)	4.84 m <sup>2</sup>
	Total weight	50 kg	200 kg

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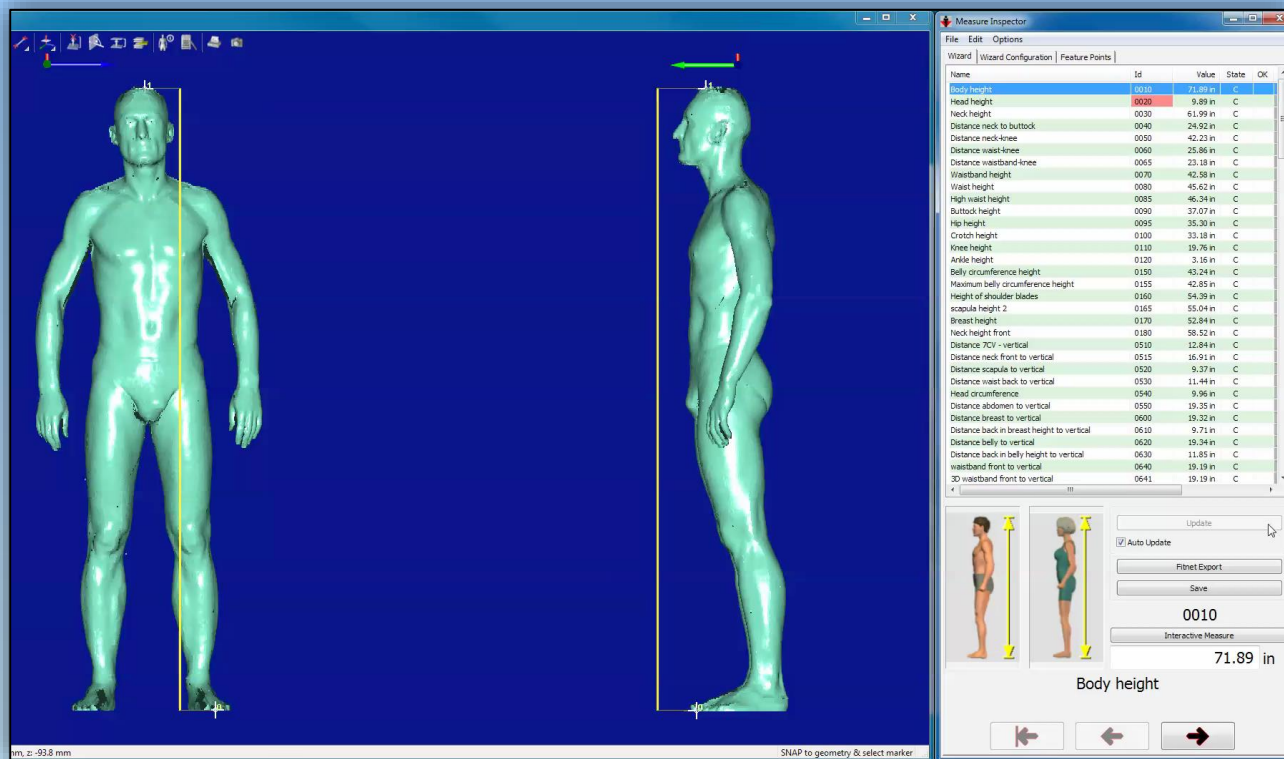
# 3D Whole Body Scanning



- Scanning process is fast (6-10 seconds per posture)
- Analysis of body dimensions without the need having the subject present
- Scans are stored forever – later implementation of new measurements possible
- Storage of results in database for easy access and analysis
- Scan export in standard 3D formats (OBJ, ASCII, STL)



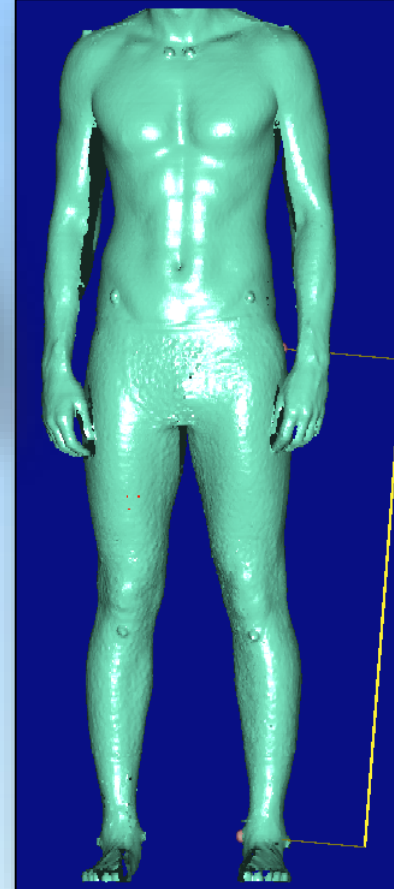
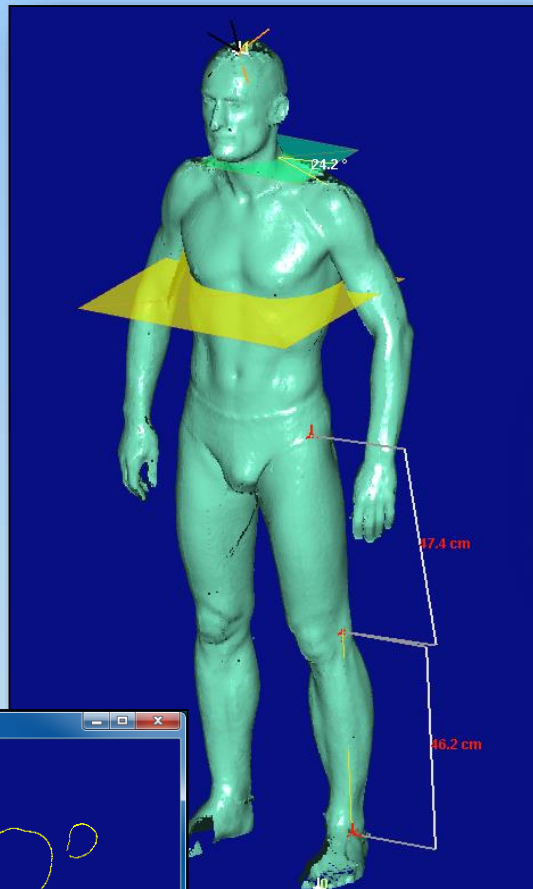
# 3D Whole Body Scanning



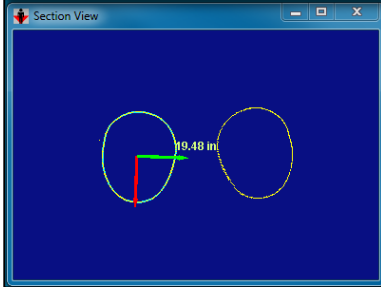
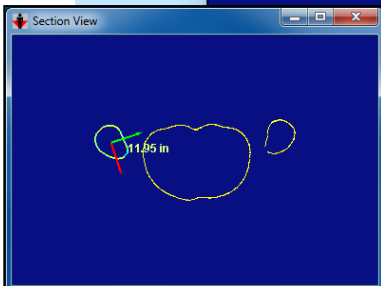
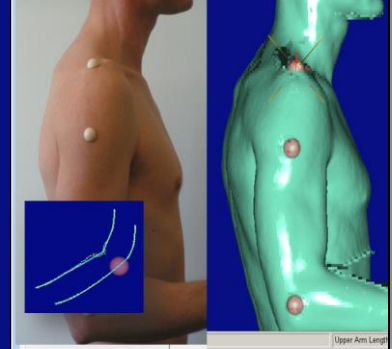
## Anthroscan Software

- Automated determination of body landmarks and acquisition of up to 150 body dimensions
- Landmarks and measurements can be reviewed and revised
- Creation of measurement protocols
- Batch mode for multiple scan processing

# 3D Whole Body Scanning



Name	Id	Value
AC Angle	ACAN	1.3 °
AC Joint Height Diff	AChD	0.9 cm
AC Joint Height Left	ACHL	175.2 cm
AC Joint Height Right	ACHR	174.3 cm
AC Rotation	ACRO	-4.4 °
ASIS Angle	ASAN	-0.6 °
ASIS Height Diff	ASHD	-0.3 cm
ASIS Height Left	ASHL	119.9 cm
ASIS Height Right	ASHR	120.2 cm
ASIS Rotation	ASRO	-2.8 °
ASIS-TT Length Left	ATLL	69.8 cm
ASIS-TT Length Right	ATLR	69.2 cm
Seventh Cervical Vertebra Height	C7HT	180.5 cm
Greater Trochanter Height Diff	GTHD	1.0 cm
Greater Trochanter Height Left	GTHL	109.6 cm
Greater Trochanter Height Right	GTHR	108.5 cm
GT-TT Length Left	GTLL	59.3 cm
GT-TT Length Right	GTLR	57.3 cm
Inferior Angle of Scapula Height	IAHD	0.0 cm
Inferior Angle of Scapula Height	IAHL	157.4 cm
Inferior Angle of Scapula Height	IAHR	157.4 cm
Lateral Malleolus Height Diff	LMHD	0.0 cm
Lateral Malleolus Height Left	LMHL	8.2 cm
Lateral Malleolus Height Right	LMHR	8.2 cm
Medial Malleolus Height Diff	MMHD	0.0 cm



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# 3D Whole Body Scanning

## Anthroscan Scan Database



For scan data storage and management

The screenshot displays a software interface for managing scan data. On the left is a table with columns for scan ID and a small 3D figure icon. The table contains several rows of data. To the right of the table are three visualizations: a scatter plot of red dots, a histogram titled 'Body Measures Distribution: Bust/chest girth', and an 'Individual Questionnaire' form. The questionnaire includes fields for Gender (male), Age (38), Ethical Background (Asian), Sport (Golf, Tennis), Favorite (Golf, Tennis), Training Frequency (ambitious), Body Fat % (25.5%), and Dispendence.

For statistical analysis of a group of scans



This screenshot shows a detailed view of an individual's scan data. It includes a table of 'Body Measurements' with columns for Measure Name and Code. A line graph titled 'Body circumference (cm)' shows data points for three dates: 10/20/10, 10/26/10, and 11/03/10. The graph shows a peak in circumference around 10/26/10. Below the graph are several circular diagrams representing different body measurements with red lines indicating the measurement points.

Monitoring Your Training Success for Mr. John Doe

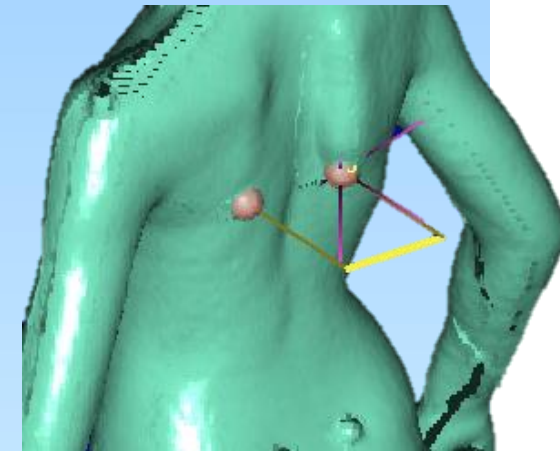
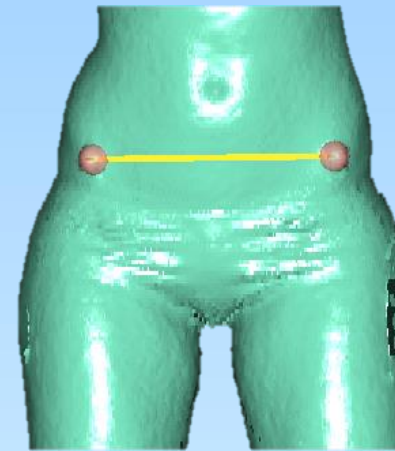
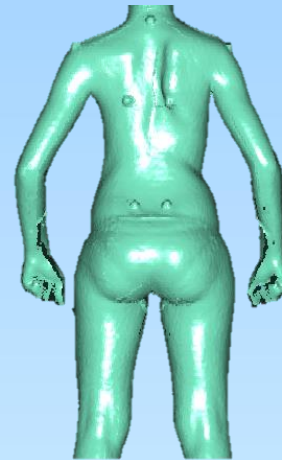
Date	Start	Month #1	Month #2	Month #3	
Chest	Absolute	101,0 cm	98,3 cm	96,1 cm	94,1 cm
	Change		-2,7 cm	-4,9 cm	-6,9 cm
	Percentage		5%	10%	14%
Waist	Absolute	93,0 cm	84,9 cm	81,6 cm	75,9 cm
	Change		-8,1 cm	-11,4 cm	-17,1 cm
	Percentage		17%	25%	37%
Hip	Absolute	91,1 cm	84,4 cm	81,7 cm	77,6 cm
	Change		-6,7 cm	-9,4 cm	-13,5 cm
	Percentage		15%	21%	30%
Seat	Absolute	94,5 cm	93,5 cm	91,5 cm	90,9 cm
	Change		-1,0 cm	-3,0 cm	-3,6 cm
	Percentage		2%	6%	8%

For evaluation and tracking of an individual

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# 3D Whole Body Scanning

## Success Stories in Medicine Sanomed Orthopaedic Engineering



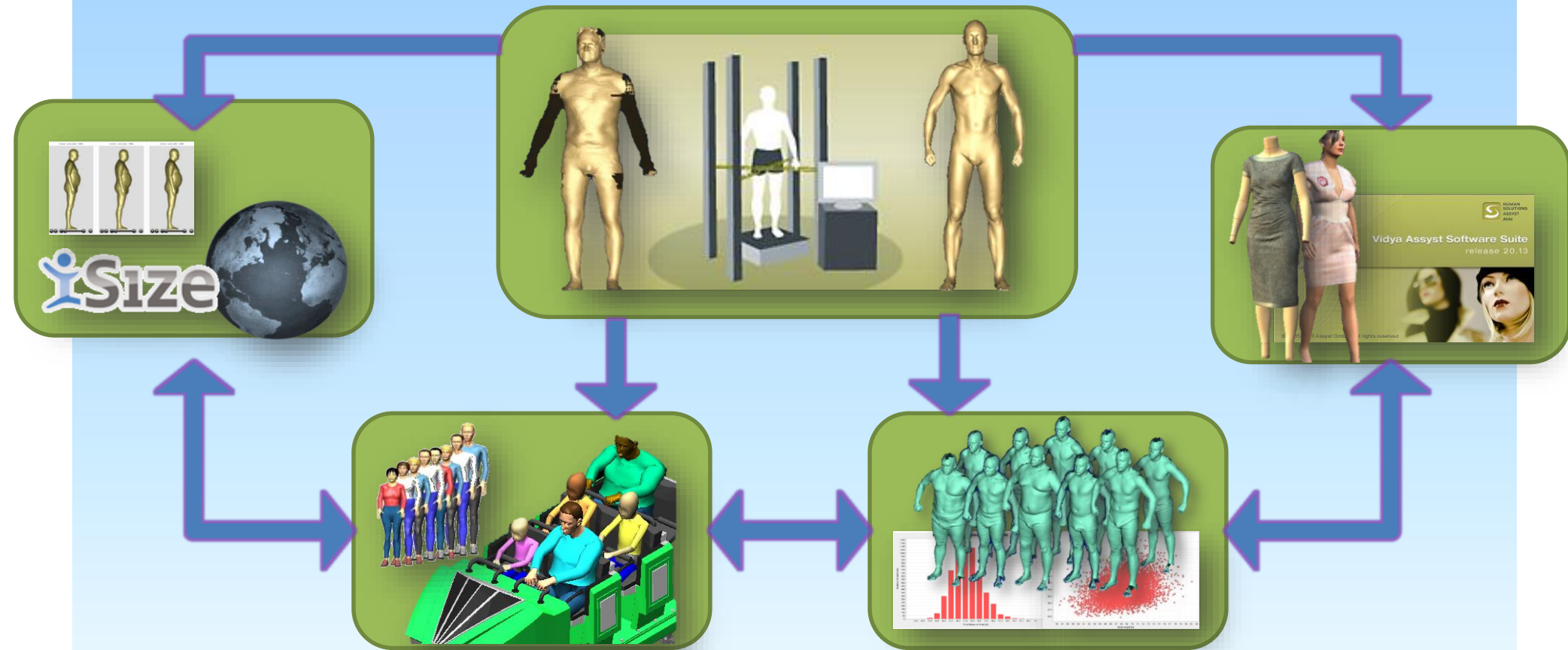
Source: [www.sanomed.de](http://www.sanomed.de) Information for Patients – Procedural method scoliosis brace  
01/24/2013

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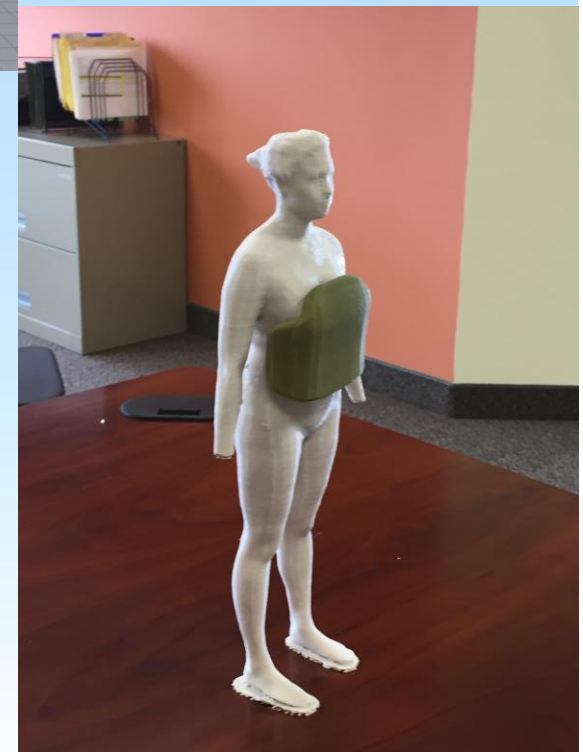
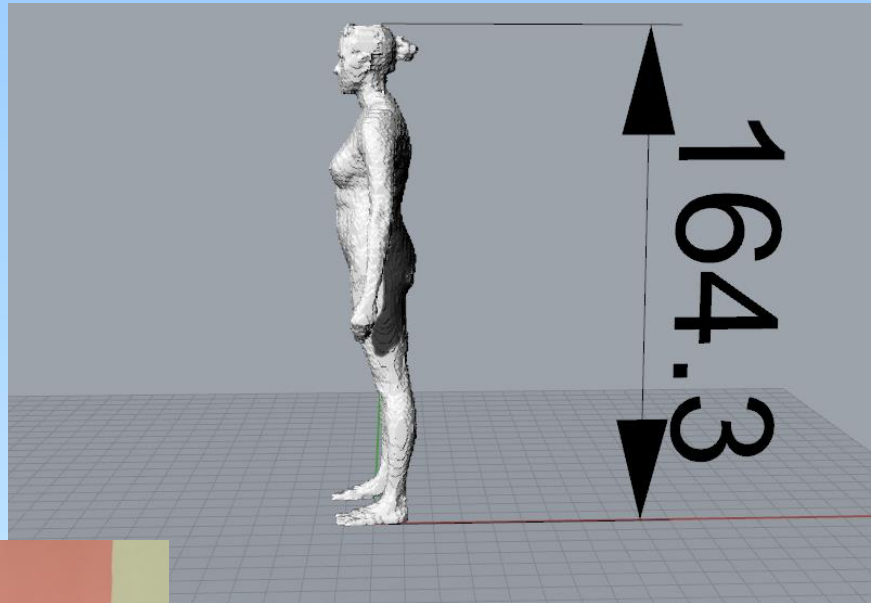
# 3D Whole Body Scanning

Seamless Integration of Size, Design and Fit Technologies



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# 3D Technology for Prototype Development



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# Concept behind Measure-IT



**Measure Person**



**Measure Garment**



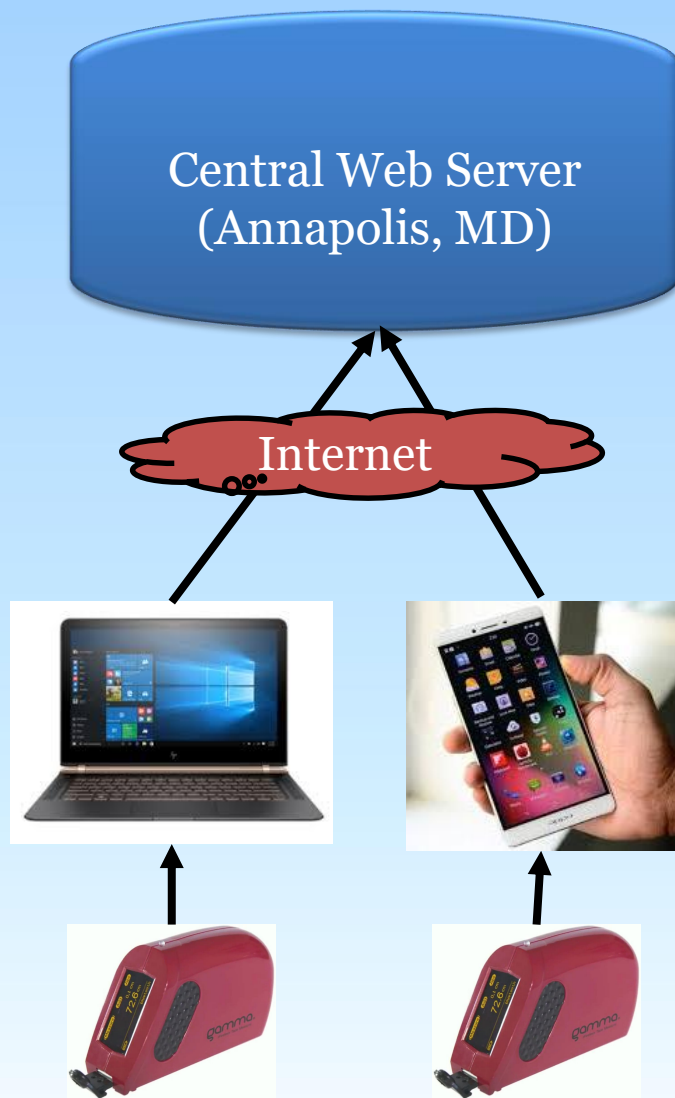
**GAMMA / Measure-IT**

1. Take Measurement
2. Write it down
3. Re-enter measurement
4. Repeat Steps

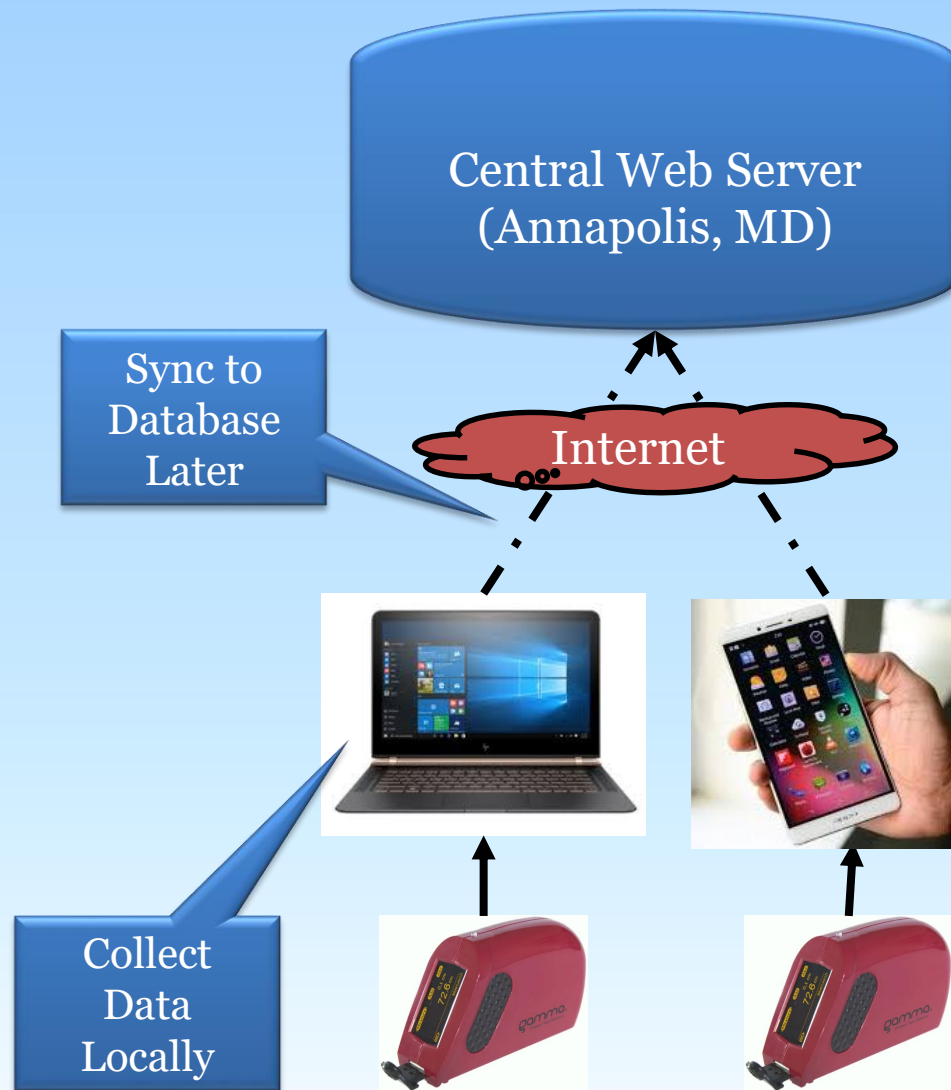
1. Take Measurement
2. Repeat Step

# Concept behind Measure-IT

## Web-based Application



## Local Application with Auto Sync



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# Concept behind Measure-IT

## Multiple Uses

Menu		
NSN	Reference	Order Number
suit	<input type="text"/>	<input type="text"/>
Enter Comments:		
<input type="text"/>		
Made to Measure Suit Made to Measure Suit		
Measurement	Value	
Neck Circumference	<input type="text"/>	
Shoulder Width	<input type="text"/>	
Chest Circumference	<input type="text"/>	
Arm Length Right	<input type="text"/>	
Arm Length Left	<input type="text"/>	
Waist Girth	<input type="text"/>	
Inseam	<input type="text"/>	
Outseam	<input type="text"/>	
<input type="button" value="Clear All"/>	<input type="button" value="Submit"/>	

# Concept behind Measure-IT

## Multiple Uses

**Menu**
**Auto Enter Measurements**

NSN	Reference	Order Number	Lot Number	Class
8415016446397				Production
Enter Comments:				
GLOVE COLD WEATHER MEDIUM				

Measurement	Base	Minus Tolerance	Plus Tolerance	Value	Variance To Base
(A) Bottom of wrist to top of middle finger	8.8750	0.0000	0.0625	<input type="text"/>	
(B) Lowest point of crotch to top of first finger	3.0000	0.0000	0.0625	<input type="text"/>	
(C) Crotch to top of second finger	3.3750	0.0000	0.0625	<input type="text"/>	
(D) Crotch to top of third finger	3.0000	0.0000	0.0625	<input type="text"/>	
(E) Crotch to top of fourth finger	2.2500	0.0000	0.0625	<input type="text"/>	
(F) Crotch between thumb and first to top of thumb	2.6250	0.0000	0.0625	<input type="text"/>	
(G) folded edge just above thumb crotch	4.0000	0.0000	0.0625	<input type="text"/>	

Clear All
Submit

# Concept behind Measure-IT

## Multiple Uses

The screenshot displays the Measure-IT web application interface. At the top, there is a navigation menu with options like 'NSN', 'Reference', and 'Order Number'. The main content area is titled 'Measure-IT' and includes a form for entering measurements. The form has fields for 'NSN' (8415016446397), 'Reference', 'Order Number', 'Lot Number', and 'Class' (Production). Below the form is a table with columns for 'Measurement', 'Base', 'Minus Tolerance', 'Plus Tolerance', 'Value', and 'Variance To Base'. The table contains data for various measurements such as 'Half Chest', 'Back Length', 'Sleeve Length - Right', 'Sleeve Length - Left', and 'Collar Width'. The interface also includes a sidebar with measurement categories and a 'Submit' button at the bottom right.

Measurement	Base	Minus Tolerance	Plus Tolerance	Value	Variance To Base
Half Chest	20.2500	-0.7500	0.7500		
Back Length	28.0000	-0.7500	0.7500		
Sleeve Length - Right	23.2500	-0.7500	0.7500		
Sleeve Length - Left	23.2500	-0.7500	0.7500		
Collar Width	2.3750	-0.1250	0.1250		

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# Concept behind Measure-IT

## Multiple Uses

The screenshots illustrate the 'Multiple Uses' of the Measure-IT application. The top screenshot shows the main menu with options like 'NSN', 'Shoulder', 'Chest', 'Arm Length', 'Waist Girth', 'Inseam', and 'Outseam'. The middle screenshot shows the 'Measure-IT' interface with a table of measurements. The bottom screenshot shows a detailed table of measurements with columns for Measurement, Base, Minus Tolerance, Plus Tolerance, Value, and Variance To Base.

Measurement	Base	Minus Tolerance	Plus Tolerance	Value	Variance To Base
1/2 Waist Relaxed	18.0000	-0.5000	0.5000		
Inseam Left	29.0000	-0.7500	0.7500		
Inseam Right	29.0000	-0.7500	0.7500		
Outseam Left	39.5000	-0.7500	0.7500		
Outseam Right	39.5000	-0.7500	0.7500		
1/2 Leg Opening Left	9.0000	-0.5000	0.5000		
1/2 Leg Opening Right	9.0000	-0.5000	0.5000		

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# Concept behind Measure-IT

## Customizable Reports

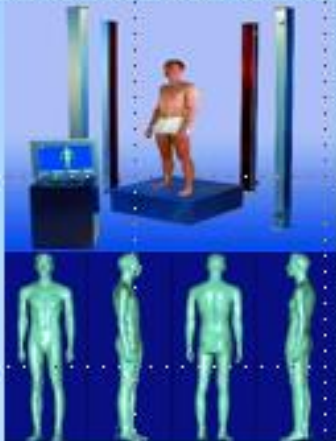
Final Inspection Report  
USMC MARPAT Trousers, Woodland  
Unisex

End Item:	USMC MARPAT Trousers, Woodland - Unisex		
Contract:	124012		
Spec. No./Date:	Disposition: <input checked="" type="checkbox"/> Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>		
Lot #: 2	Lot Size:	Sample Size: 4	Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>
QC Auditor:		Date:	3/2/2017 4:49:09 PM

Size	Tolerance	1/2 Waist Relaxed +1/2,-1/4	1/2 Waist Stretched NA	Inseam Left ±3/4	Inseam Right ±3/4	Outseam Left ±3/4	Outseam Right ±3/4	1/2 Leg Opening Left ±1/2	1/2 Leg Opening Right ±1/2
S-L (10004)	Spec.	14	16	34.75	34.75	45.75	45.75	17	17
	Actual	15.16	16.1	33.43	31.46	44.21	49.33	14.69	16.61
	Variation	<b>1.125</b>	<b>0.125</b>	<b>-1.375</b>	<b>-3.250</b>	<b>-1.500</b>	<b>3.625</b>	<b>-2.250</b>	-0.375
XS-XS (rfid)	Spec.	12	14	28.75	28.75	37.75	37.75	17	17
	Actual	12.95	14.45	23.82	27.32	22.44	30.55	16.89	16.81
	Variation	<b>1.000</b>	<b>0.500</b>	<b>-4.875</b>	<b>-1.375</b>	<b>-15.250</b>	<b>-7.250</b>	-0.125	-0.250

# Thank you for your Time

## Measuring Devices



Whole Body Scanning



Kinect

Foot Scanning



Hand Measuring

Measure-IT

AdvanTech ACCURACY. VISIBILITY. ACCOUNTABILITY.



Measure - IT

User:

Password:

Logon



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