

Battelle Number(s):

10684-E; 12847-E; 12711-B; 12713-E; 13560-B

Patent(s) Issued

Available for licensing in some fields

Awards Won:

FLC Award - 2005

R&D 100 Award - 2004

Christopher Columbus Homeland Security Award - 2007

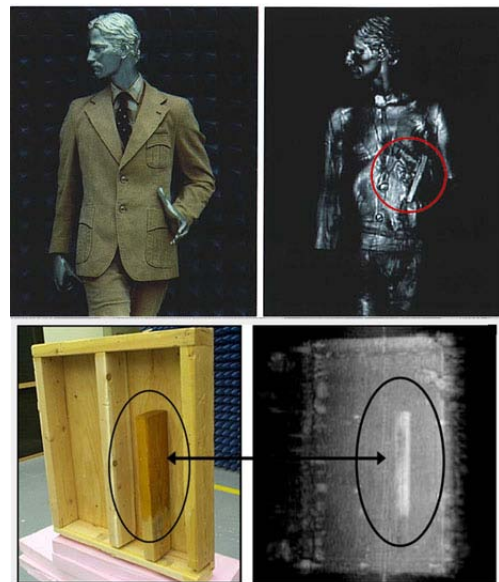
Available Technologies

3-D Body Holographic (millimeter wave) Scanner

SUMMARY

Imaging technology for security applications emerged as a need when the Federal Aviation Administration sought ways to detect concealed plastic threats that would not be picked up by traditional metal detectors in airports.

Researchers at PNNL engineered a high-resolution radar imaging technology as a way to rapidly scan for potential threats. Millimeter waves harmlessly penetrate clothing and reflect off of the body, sending signals back to a transceiver; the transceiver then sends the signals to a high-speed computer, which reconstructs them to create a final 3-D holographic image. Under the auspices of the TSA, the technology was successfully demonstrated in U.S. airports. L3 Communications has licensed the technology, and their ProVision™ whole body imaging system is currently being deployed for security screening at airports around the world.



In addition, millimeter wave technology also serves the apparel industry, taking customer measurements to help make tailored clothing through a product offered by Unique Solutions. The development team continues to develop new applications for the proven technology. Contact us today for more information about commercial licensing opportunities.

ADVANTAGES

- * Not harmful to humans; mm waves are a form of non-ionizing radiation
- * Uses extremely low-powered millimeter waves that easily penetrate clothing
- * Small system footprint allows the scanner to be located in confined spaces

In security applications:

- * Scans completed in 1-2 seconds using a two-array system to keep people moving through security check points quickly

In apparel applications:

- * High-speed scanning process requires only 6-12 seconds to provide 360-degree

scan using single array (less costly than a two-array system as used in security applications)

- * Allows highly-accurate, full-surface measurements, including circumference, lengths and contour mapping
- * Permits accurate 3-D body measurements to be taken while remaining in street clothes
- * Body scans can be conducted quickly and conveniently in public places, such as shopping centers; eliminates the need for staffed fitting rooms
- * Potentially lower system and operating costs than other measurement systems

STATE OF DEVELOPMENT & AVAILABILITY

Other potential applications include:

- * Medical: provide accurate measurements of individuals who are not mobile and may be difficult to measure for prosthetic devices
- * Ergonomics: provide measurements and images for manufacturing better office chairs, form-fitting car and aviation seats, cockpits, custom sports equipment
- * Entertainment and Gaming: create avatars for gaming, interactive human animation, virtual environment interaction
- * Non-Destructive Evaluation: provide moisture measurements: detection of moisture in wood products fabrication process, integration of microwave holographic imaging sensor into production process
- * In-wall Structure Detection: detect concealed structures behind building walls such as plastic conduit, wires, and pipes

RELATED LINKS

» L3-Safeview

Strategic Partner/Licensee
<http://www.dsxray.com>

» Me-Ality

Strategic Partner/Licensee
<http://www.me-ality.com/>

» Transportation Security Administration

Strategic Partner
<http://www.tsa.gov/>

» Applied Physics at PNNL

Learn more about the Laboratory's broad expertise in electromagnetic signatures
http://www.pnl.gov/nationalsecurity/technical/applied_physics/

» Millimeter Wave Technology Website

<http://www.pnl.gov/nationalsecurity/millimeterwave/index.stm>

Patents & Intellectual Property

- » IP Summaries
- » Patent #: 5,455,590
- » Patent #: 5,557,283
- » Patent #: 5,859,609
- » Patent #: 6,507,309
- » Patent #: 6,703,964
- » Patent #: 6,876,322
- » European Patent #: 0925517
- » German Patent #: 69708890

Technology Portfolio(s)

- » Electronics
- » Physical Sensors

Potential Industry Applications

- » Aerospace & Defense
- » Automotive & Transportation
- » Computers & Electronics
- » Energy & Utilities
- » Entertainment & Recreation
- » Fabric & Apparel
- » Healthcare, Pharma, Biotech & Medical
- » Security
- » Wood, Paper & Forestry

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