

Aviation Safety Technology

Enhanced 3-D Luggage Screening System



NASA offers companies an innovation that provides a major leap in non-invasive package and luggage screening technologies.

Developed at NASA Marshall Space Flight Center, this patented technology is an improvement over current luggage and package screening devices used at airports, ports of entry, government installations, and other locations where security checkpoints are located. The device described creates a three-dimensional (3D) X-ray image of the contents of luggage or any sealed package. The primary benefit of using a 3D image is a clearer image resulting in better identification of contents.

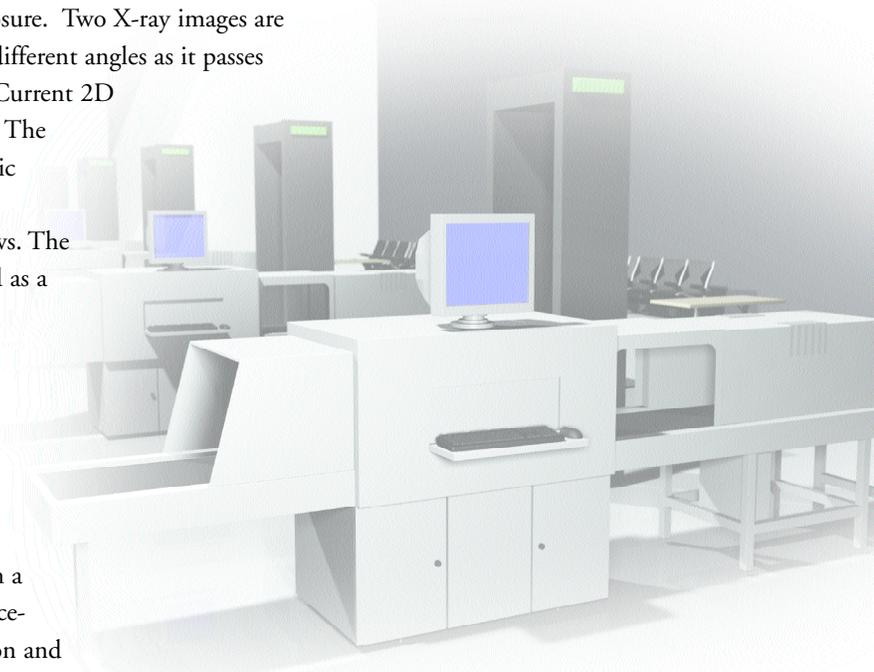
Benefits

- Increases accuracy – images of the luggage contents are more clearly defined, allowing for easier and better identification of contents by the inspector.
- Relatively inexpensive – cost to fabricate the system is significantly cheaper than competing 3D imaging technologies such as Computer Aided Tomography (CAT).
- Similar dimensions to current 2D X-ray machines – can be built to the approximate size of current 2D systems.
- Reduces fatigue – provides a clearer image of package contents to provide potential relief to eye fatigue.
- Uses commercial off-the-shelf X-ray technology – uses many of the same components as current 2D systems (including belts, drives, and X-ray components).
- Relatively high throughput – The technology can scan packages at rates similar to current 2D systems and provide a better image for faster identification of contents.



The Technology

The device works similarly to current 2D luggage scanners. The package is placed on a conveyor belt that enters the enclosure. Two X-ray images are taken of the package at different angles as it passes through the enclosure. Current 2D systems take one image. The resulting two radiographic images have two slightly different perspective views. The two images are presented as a stereo pair on the video screen. This provides the human inspector with a three-dimensional image of the luggage contents. This technology may also be used in conjunction with a variety of existing enhancements such as colorization and z-back-scattering. Significant improvements to the described system have been made and can be discussed with NASA upon request.



For More Information

If you would like more information about this technology or about NASA's technology transfer program, please contact:

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Partnering Opportunities

This technology is part of NASA's technology transfer program. The program seeks to stimulate development of commercial uses of NASA-developed technologies. NASA is flexible in its agreements, and opportunities exist for licensing and joint development. Marshall Space Flight Center would like to identify a partner to further develop and commercialize the technology. Additionally, further improvements have been made to the technology and can be discussed with NASA upon request.

Commercial Applications

The primary commercial market is for package screening at security checkpoints. This includes airport security, government installation checkpoints, or any industry where sealed packages are examined. This technology is a major leap forward and is superior to current 2D luggage screening systems.

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