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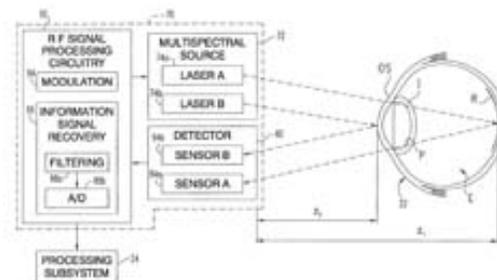
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# Facial Feature Evaluation Based on Eye Location

## SUMMARY

Viable facial recognition techniques continue to be of interest for many applications such as security screening, transaction authorization, and access control. Researchers at Pacific Northwest National Laboratory have demonstrated a unique facial feature recognition technique based on rapid eye location and 3-D facial mapping. The technology uses a laser radar scanner to measure unique biometric facial features and a millimeter wave imager to detect hidden items and disguises.



This patented technology could fulfill the commercial need for an automated, reasonably priced, and highly reliable face recognition system for security and identification marketplaces. Current commercial approaches to facial recognition rely on image processing of two-dimensional video imagery and have experienced highly publicized failures. This technology takes an entirely different approach to the problem by focusing on a different sensing method using a high-resolution coherent laser radar system combined with millimeter wave imaging.

Millimeter-wave scanning devices for 3-D face recognition systems (biometric identification) use safe, low-power millimeter waves (radar signals) to illuminate the person being measured. A high-speed computer processes the reflected radar signals, captures spatial coordinate data, and forms a single 3-D measurement of the human feature from that data. The significant advantage of millimeter-wave radar signals is that they can readily penetrate optically opaque materials such as body hair, disguises, and clothing.

Partners are sought to further develop the technology into a commercial prototype for field deployment.

## ADVANTAGES

- \* Uses strong retroreflection from retina to locate and track the eyes
- \* Uses eye-to-eye vector distance and three-dimensional facial measurement to provide high confidence facial recognition
- \* Provides non-contact, standoff measurements
- \* Provides method for detecting concealed items and disguises

### Patents & Intellectual Property

- » Patent #: 7,809,171

### Technology Portfolio(s)

- » Physical Sensors

### Potential Industry Applications

- » Computers & Electronics
- » Security

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