



The rising STAR of Texas

Title: Person Identification Using Ocular Biometrics with Liveness Detection.

Invention Description: A researcher at Texas State University has developed an ocular biometric method for identification of an individual based on a multimodal approach utilizing a single image sensor device. The novel method utilizes unique behavioral and physiological characteristics of the eye to provide enhanced identification of individuals for high security applications.

Benefits:

- Enhanced identification accuracy
- High resistance to spoofing and shoulder-surfing compared to other authentication systems
- High counterfeit resistance based on behavioral and physiological human attributes
- Assurance that live tissues belonging to the authentic user are being identified

Market Potential/Applications: The global market for biometric systems is estimated to be over \$5B, with anticipated growth of over 20% annually. Iris recognition systems account for an increasing proportion of the biometrics industry. Standard iris recognition technology provides accurate identification, but is vulnerable to counterfeit techniques that can compromise security. Additionally, standard iris recognition technology cannot accurately assure resistance to a variety of spoofing attacks. The Texas State technology incorporates two innovative techniques that, combined with standard iris recognition technology, offer enhanced identification accuracy and security. A single sensor device captures Oculomotor Plant Characteristics (OPC), which represent the unique, internal anatomical structure characteristics of the individual eye globe and muscles, and Complex Eye Movement (CEM), which represent the strategies employed by the brain and the unique patterns of eye movement to guide visual attention in response to a stimulus. The novel multimodal approach combines OPC and CEM with iris recognition technology to achieve high identification accuracy and enhanced security.

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