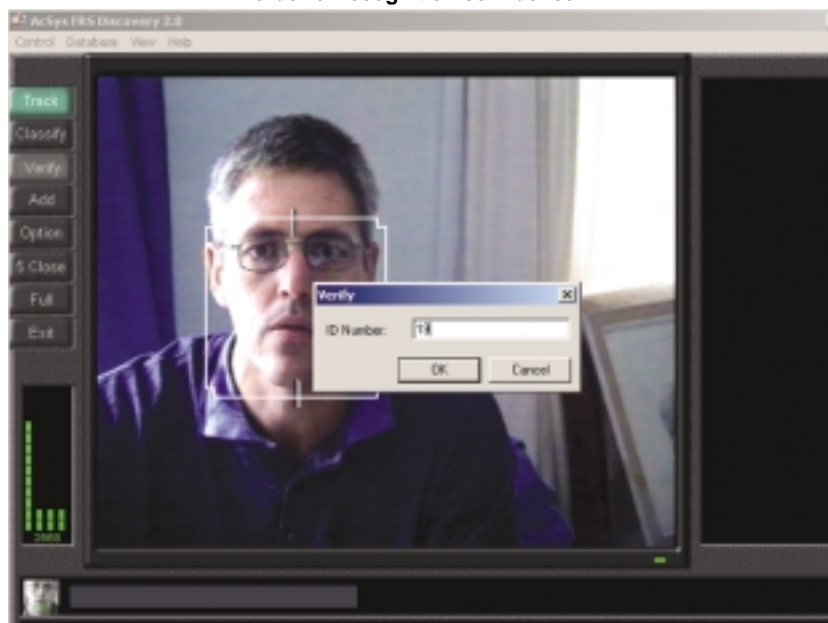


# Facts, features and benefits of facial recognition

New real-time security alternatives are a reality today, says Lodge, with its lightning fast face recognition system. A leading developer of mission critical retail solutions, Lodge says it is committed to leadership, responsiveness and unparalleled results. “We are driven to empower our clients and partners to go beyond tradition to create new benchmarks for security. Accuracy is everything.”



Facial recognition in classification mode (one-to-many identification), with the closest matches displayed on the right side of the screen in descending order of recognition confidence.



Facial verification, used primarily in access control, where the user's identity is confirmed through the facial biometric following presentation of a primary token – i.e. password, ID number, name, Wiegand access card, etc.

## FACTS

Face recognition, the art of matching a given face to a database of faces, is a non-intrusive biometric method that dates back to the 1960s. Most face recognition algorithms fall into one of two main groups – feature-based and image-based algorithms.

Feature-based methods explore a set of geometric features, such as the distance between the eyes or the size of the eyes, and use these measures to represent the given face.

These features are computed using simple correlation filters with expected templates. These methods are somewhat invariant to changes in illumination and can partially compensate for changes in camera location. However, they are sensitive to aging and facial expressions.

Image-based systems, the other main approach to face recognition, are based on ideas like eigenfaces.

After a large training set of images has been collected, principal component analysis is used to compute eigenfaces. Each new face is then characterised by its projection onto this space of principal eigenfaces.

This approach is extremely sensitive to small variations, both external and internal, though it is still one of the most popular methods in industry.

Three-dimensional systems are intrinsically position- and light-invariant, and when computed as described here, can also be invariant to some facial expressions.

Three-dimensional systems can obtain results not possible with 2D systems, such as distinguishing between identical twins under various facial expressions. Lodge offers 3D, real-time, multiple facial (up to four in the image) facial recognition systems.

## FEATURES

Speed, accuracy and intelligence are among the key qualities that differentiate Lodge products from other biometric technologies.

## SPEED

Using a revolutionary core technology called HNet, Lodge Biometrics delivers cutting-edge security with basic hardware requirements and split-second processing times.

# FACIAL RECOGNITION

## ACCURACY

The Lodge FRS (Face Recognition System) was the most accurate technology tested in the International Biometric Group's Comparative Testing for IT Security and E-Commerce (0 per cent False Acceptance Rate (caught all impostors) at an excellent False Rejection Rate of just 3,1 per cent).

## INTELLIGENCE

Lodge FRS learns, remembers and recognises. HNet emulates the human brain in structure and function, becoming more familiar with your face each time it sees you, adjusting for difference due to aging and cosmetics without increasing the size of the biometric template.

## BENEFITS

The Lodge product line offers powerful identity and verification technology for enterprises of all sizes, for physical and logical access control, and for third-party development.

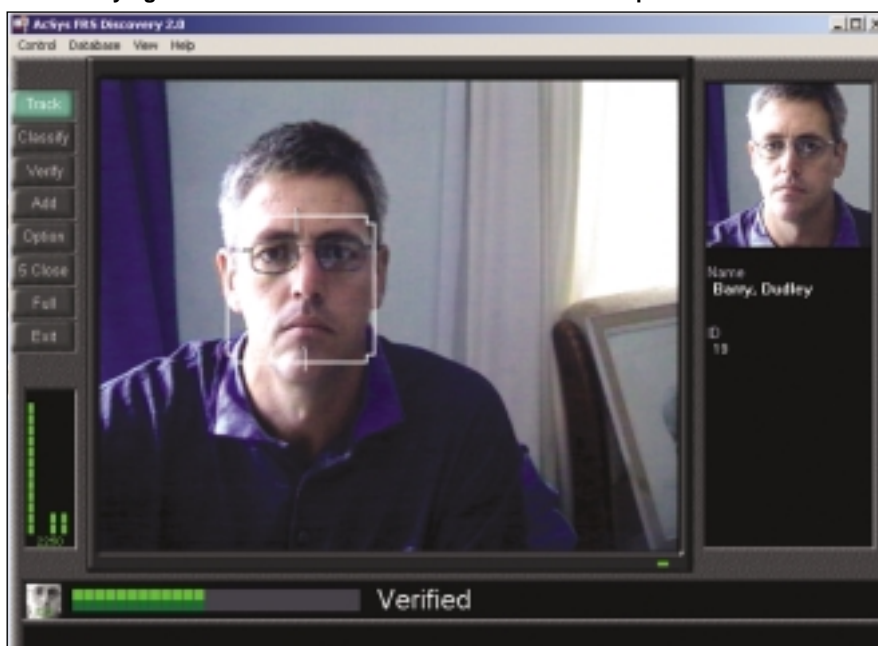
Lodge has enterprise-ready biometric solutions for diverse government agencies, as well as the financial services, hotel, airport, gaming, retail, manufacturing, e-commerce, security and health sectors.

Applications are unlimited due to the ongoing customisation of the software to suit the specialised needs of individual clients.

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The database screen showing the effect of using a HNET neural network where images with different expressions, at different head angles, lighting conditions and at varying distances from the camera are collected and updated over time.



Face recognition must be non-intrusive and flexible, so any human face is automatically located and followed within the camera's field of view, allowing freedom of movement and locomotion, and minimal co-operation with the system.



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