SURVEILLANCE ENHANCED FACE RECOGNITION
Biometrics technology has matured rapidly over recent years, and the use of it for security and authentication purposes has become increasingly common. Biometrics technology uses biological data to identify an individual by analyzing and measuring characteristics such as fingerprints, DNA, iris and other unique attributes of a person.

**Face Recognition**

Due to recent advances in the reliability, accuracy and performance, face recognition is the latest biometric technology to 'come of age'. Unlike other forms of biometric solutions, face recognition requires no physical or deliberate interaction by the subject, making it one of the more passive and less intrusive forms of biometrics.

Speed, accuracy and reliability are the main features required of a face recognition solution. Identifying people on a pre-defined watch list needs to happen without delay every time there is a near precise match. But a successful deployment of face recognition needs to consider a number of factors beyond the physical hardware and software. Lighting conditions, angles, aging, facial expressions and obstructions such as hats and facial hair, all need to be taken into account, along with calculating the required processing power and capture rates particularly if being used in a busy or crowded environment.

Like most biometrics technologies, security and public safety uses have been the driving factor behind the development and adoption of face recognition for verifying or identifying individuals. But the commercial sector is also beginning to see the potential gains to be had in recognizing an individual without the need for any interaction. Consequently, face recognition is being considered in a growing number of commercial applications which utilize the authentication and monitoring capabilities for less critical deployments.

NEC has years of experience in developing and deploying biometric technologies for security and commercial based applications across a variety of environments. This understanding of both the technology and the challenges has led to the creation of a series of face recognition applications that utilize NEC’s market leading NeoFace® face recognition software.
Harnessing the benefits of face recognition for non-security based uses can provide organisations with a number of benefits in terms of improving customer service and enhanced business intelligence, as well as offering a real competitive advantage.

The opportunities to use facial recognition in the hospitality, leisure and retail markets are endless. Forward thinking organisations in these markets are deploying facial recognition to enable discrete handling of VIPs and the prevention of undesirable visitors.

In some businesses, identifying VIPs is important, whether it is to simply alert personnel to their presence or to automate access to a specific area for the VIP to improve the customer experience. In other instances, the identification of a VIP in the database can trigger an alert or trigger a quick response to the threat.

Neoface® face recognition can be used in a variety of security applications and environments for everyday tasks that can be automated, authenticated or enhanced, providing everyday people with a better quality of life and an improved level of security. Door access, retail, hospitality, border control, immigration, CCTV surveillance and law enforcement are just some of the areas Neoface® is being used worldwide.
ABOUT NEC’S Face Recognition

NEC’s Face recognition is independently recognized as among the fastest and most accurate Face recognition software on the market place according the latest tests done by the National Institute of Standards and Technology (NIST). The tests positioned NEC’s face recognition software as the most accurate facial recognition software. These tests also demonstrated that NEC provides the fastest matching capability that is the most resistant to variants in angle, age and race.

Through the utilization of a unique matching face detection method, we are able to provide high speed and high accuracy for facial detection and facial features extraction. NEC’s facial recognition relies on a modified Generalized Learning Vector Quantization (GLVQ) algorithm. GLVQ is not easily fooled by attempts to conceal identity through the usage of caps, hats or sunglasses.

THE SOFTWARE WORKS TO A 4 PART PROCESS:

1. CAPTURE
The application takes in real time video from surveillance cameras, CCTV or archived video footage at a rate of up to 30 frames per second.

2. ASSESS
The individual frames of video are each assessed, faces are detected and then each one analysed to determine its unique facial signature.

3. MATCH
The software then undertakes a matching exercise against a watchlist database which includes enrolled images of individuals.

4. REACT
A series of outcomes can be configured from a successful match. These outcomes or actions can be configured to happen if there is a positive match against one of the images in the database or on a negative match where someone is spotted who is not in the database.
World Leader in Biometrics

NEC is a world leader in biometric solutions. NEC’s biometrics algorithms have been tested by the United States National Institute of Standards and Technology (NIST) and found to be among the best in the world. NEC was ranked most accurate in both single and multi-finger tests. NEC’s algorithms were ranked among the top three in the one-to-one fingerprint matching tests and the two-finger matching tests. It consistently achieved top rankings in the lowest false accept and the lowest false reject rates tests. In the automated latent print identification, NEC ranked first in all accuracy text categories. NEC’s Face Recognition technology was also number one in the latest Biometric Grand Challenge’s (MBGC) “Still Face Challenge”, carried out by NIST in 2009. It also ranked highly in other related face recognition tests conducted by NIST.

About NEC Global Safety Division

NEC Global Safety Division, a business division within NEC Corporation, spearheads the company’s public safety business globally. The Division is headquartered in Singapore and offers solutions in the following domains: Citizen Services & Immigration Control, Law Enforcement, Critical Infrastructure Management, Public Administration Services, Information Management, Emergency & Disaster Management, Inter-Agency Collaboration. Leveraging on its innovative solutions, the Division aims to help government and business make cities safer.

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