

FACIAL SOLUTIONS For Casino's



Supplied by Specialised Video
Solutions (Pty) Ltd.

Facial Recognition

What is facial recognition?

- ! Face recognition is a non-intrusive, biometric method of matching a given face to a database of faces.
- ! Can be used to secretly identify one or many persons against an image database
- ! Can be used to identify a possible shop lifter / thief / suspect against an image database



Facial Recognition

2D vs 3D

2D

- ❗ 2D systems typically used for identification comparing an image captured with static images. Security personnel tries to find a match

- ❗ 3D systems typically used for verification of people or for identifying with minimal or no personnel involvement

3D



Facial Recognition

3D System

Deploying HNET 3D technology to IDENTIFY PEOPLE coming into the casino

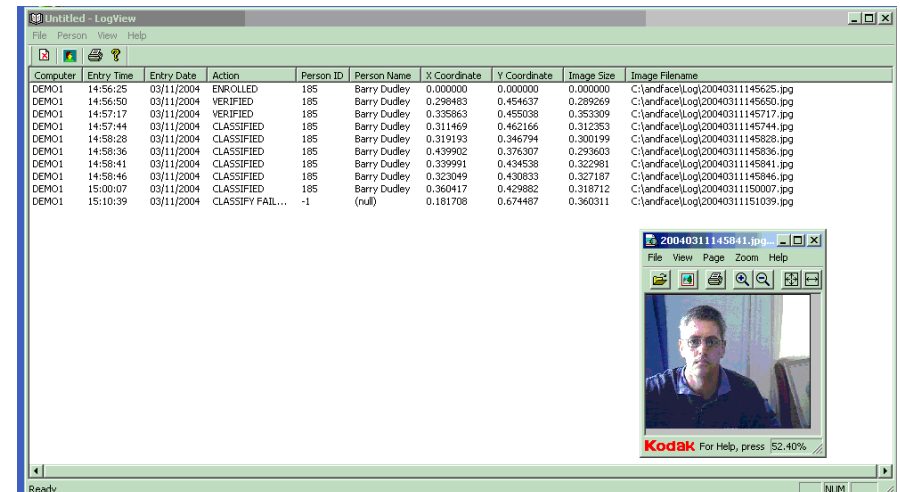


Facial Recognition

3D System – What does this do?

The solution allows for: -

- Multiple image capture of the person from a high resolution colour camera;
- Face finding within the image;
- Searching database and display of results;
- Entry of images/ details not in the database;
- Compilation of image database per individual that includes multiple perspectives, expressions and head placements
- Automatic assessment of people being scanned.
- Opening od door or turnstyle if person is allowed
- Alarm if person is not allowed
- Sending of result to a PDA
- Logging of all people who have passed the camera



Facial Recognition

3D System – What does this do?

Enrolment procedures and options: -

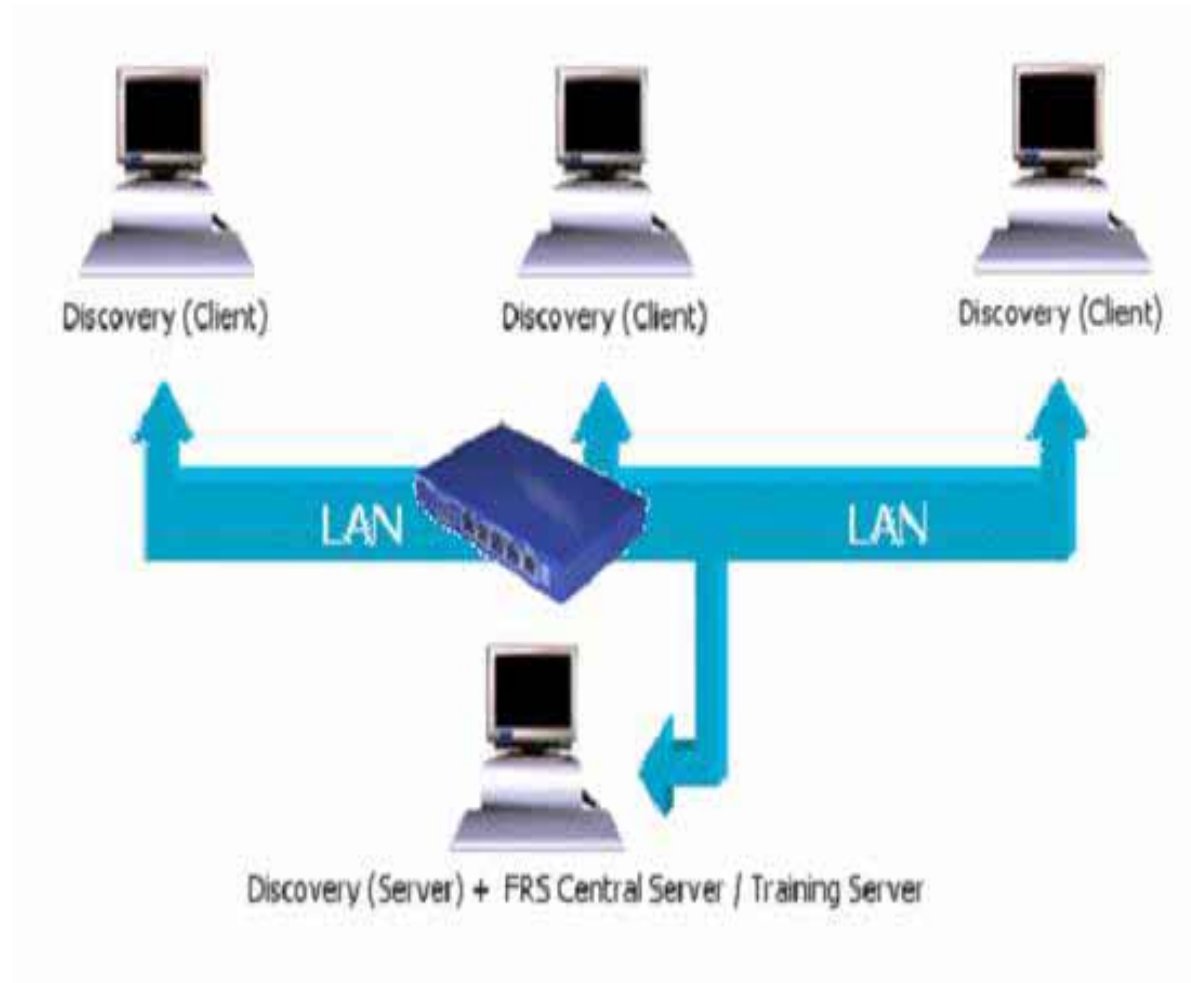
- Pre-register users from current databases of images obtained from shopping centre, police stations, banks etc.
- Where a suspect caught, get them to look at a live camera or DVR or take a picture.
- FRS will ask you to provide a wide range of different expressions and facial sizes
- When the person is next seen FRS system will identify them more accurately



Facial Recognition

3D System – How does this get connected?

FRS Network (multiple clients, one server): -



Facial Recognition

3D System – What are the benefits?

Speed, accuracy and intelligence are among the key qualities

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."

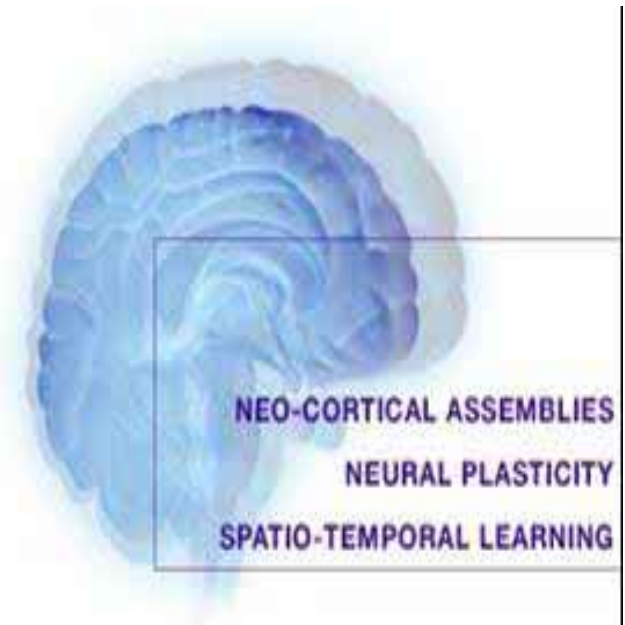
48 Security Focus April 2004



Facial Recognition

3D System – Speed

Using a revolutionary core technology HNet, based on neural networks, I-CUBE facial recognition delivers cutting-edge security and split-second processing times.



Facial Recognition

3D System – Accuracy

The proposed FRS was the most accurate technology tested in the International Biometric Group’s Comparative Testing for IT Security and E-Commerce

The screenshot displays the AcryS facial recognition software interface. The window title is "Activity Log Viewer - [Log] - [View All]". The interface includes a menu bar with "File", "Options", and "Help". The AcryS logo is prominently displayed. Below the logo is a table with the following columns: ID, Date/Time, User Name, Computer Name, and Activity Detail. The table contains 20 rows of data, all for user "DAVID MARSHALL" on computer "DEMO\FUTUREX". The activity details are categorized as "Verify Success Face" or "Verify Failure Face". To the right of the table is a grid of four face images, each with a timestamp below it. The images show a man's face from different angles and expressions, used for verification.

ID	Date/Time	User Name	Computer Name	Activity Detail
0	2004/11/17 12:21:00	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
1	2004/11/17 12:26:22	DAVID MARSHALL	DEMO\FUTUREX	Verify Failure Face
2	2004/11/17 14:23:57	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
3	2004/11/17 12:27:11	DAVID MARSHALL	DEMO\FUTUREX	Verify Failure Face
4	2004/11/17 12:23:04	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
5	2004/11/17 09:36:29	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
6	2004/11/17 09:36:24	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
7	2004/11/17 09:36:20	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
8	2004/11/17 09:36:17	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
9	2004/11/17 09:36:13	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
10	2004/11/17 09:36:09	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
11	2004/11/17 09:36:05	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
12	2004/11/17 09:36:01	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
13	2004/11/17 09:35:58	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
14	2004/11/17 09:35:54	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
15	2004/11/17 09:35:50	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
16	2004/11/17 09:35:46	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
17	2004/11/17 09:35:42	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
18	2004/11/17 09:35:38	DAVID MARSHALL	DEMO\FUTUREX	Verify Failure Face
19	2004/11/17 09:35:34	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face
20	2004/11/17 09:35:30	DAVID MARSHALL	DEMO\FUTUREX	Verify Success Face


Facial Recognition

3D System – Intelligence

The proposed FRS learns, remembers and recognises, becoming more familiar with your face each time it sees you, adjusting for difference due to aging and cosmetics.

Fred Bloggs

250 image(s) - 0 image(s) selected



1 11/11/04 10:34:30 2 11/11/04 10:34:44 3 11/11/04 10:34:49 4 11/11/04 10:34:51 5 11/11/04 10:34:56

The image shows a software interface for facial recognition. At the top, the name 'Fred Bloggs' is displayed in a white box. Below it, the text '250 image(s) - 0 image(s) selected' is shown. The main area contains five small portrait photographs of a man, each with a green rectangular bounding box around his face. Below each photo is a small number (1-5) and a timestamp: '11/11/04 10:34:30', '11/11/04 10:34:44', '11/11/04 10:34:49', '11/11/04 10:34:51', and '11/11/04 10:34:56'. The photos show slight variations in the man's appearance, such as different backgrounds and lighting, illustrating the system's ability to recognize the same person under varying conditions.

Facial Recognition

3D System – What does it look like to the person using the system?

- ! The display area will show the image forwarded by the DVR and will scan the image and look for facial features and will track onto the faces
- ! The system, once it has tracked onto a face – illustrated by the markings around the face- will then compare the algorithm derives from the image with the database of people enrolled and will look for a match
- ! The match can be identified through a voice module or on the screen or can be output to another device or system

Facial Recognition

3D System – What does it look like to the person using the system?



Facial Recognition

Equipment required:

ITEM	DETAIL	Provided BY
Face Recognition SERVER	Ability to add facial images and personal details, create multiple Databases, view closest matches	SVS
Face Recognition CLIENTS	Ability to capture from a VIDEO FOR WINDOWS source and	SVS
Frame Grabber	S912 Video capture device PLUS IP Based DVR (1 port – motion recording)	svs
PC	<ul style="list-style-type: none">• Microsoft® Windows® 2000 Professional (SP 4)• 3 GHz Pentium 4 Processor• 1 GB RAM• 200 GB HDD	Casino
Monitor	19" flat screen	Casino
Key & M	Wireless Keyboard & Mouse	Casino
Cables	To link camera from Staff entrance to PC and Operator	Casino
Training	3 Hrs to MonteCasino Staff / Operators	SVS