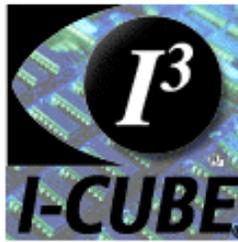


Face Recognition FID (Face Image Database) User Manual

www.I-Cube.co.za



Integrated, Intelligent Imaging

Document Configuration

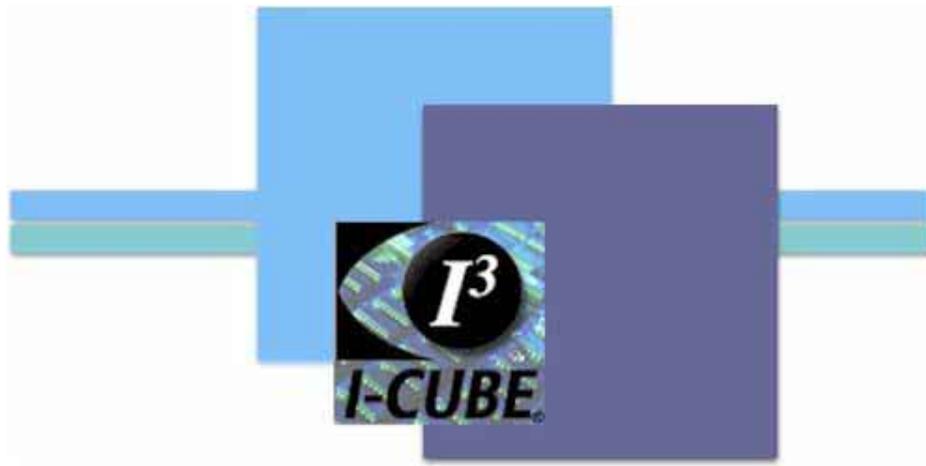
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HARDWARE CONFIGURATION SETUP

1.1. Components

The following components may be included in the system:

- Lap top;
- Power supply;
- Frame grabber / video to digital convertor;
- Warrenty

The following components may be included in the system:

- Camera;
- Lens;
- Power supply;
- Instruction CD;
- International plug (US, UK, EU)



Figure 1 face recognition system

2. FID (FACE IMAGE DATABASE)

The I-CUBE FID (Face Image DataBase) is designed to simply, easily, and quickly get a fully functional faceFID (Face Image DataBase) application up and running.

2.1. Face Image Comparison

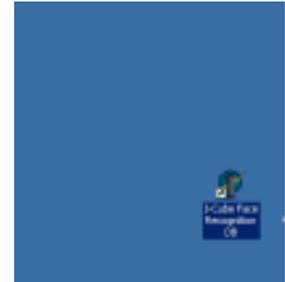
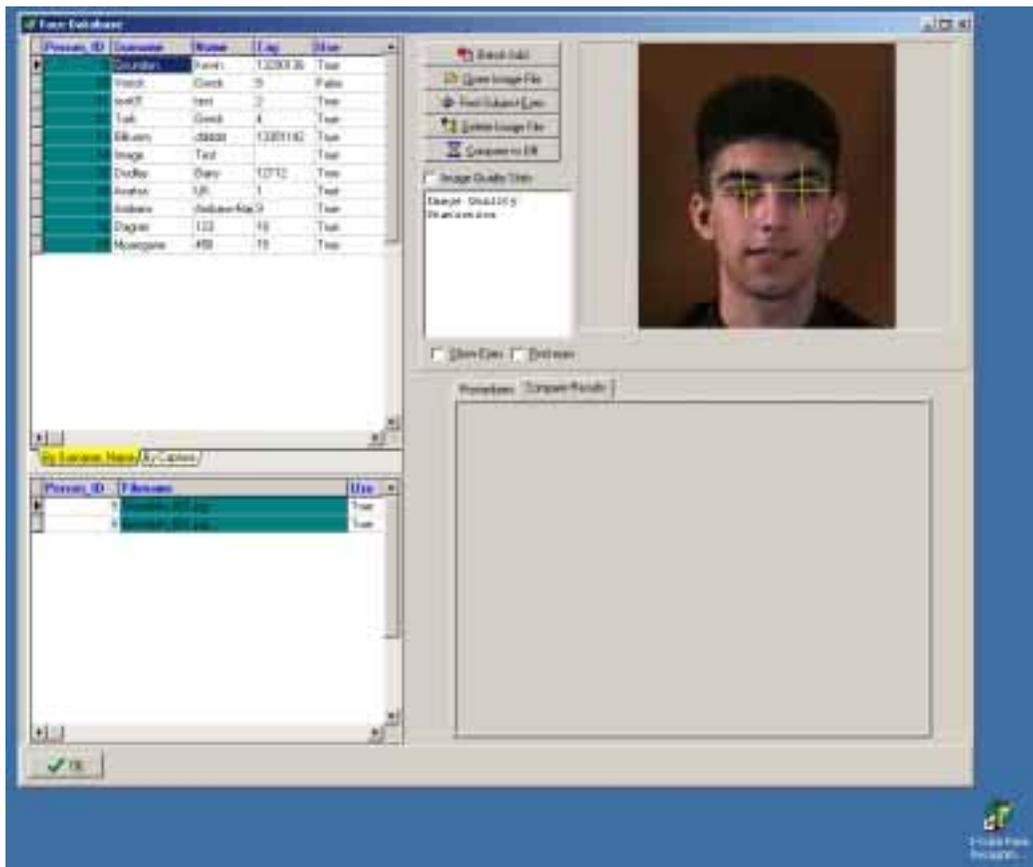


Figure 2 FID desktop icon

Open the application by double clicking the short cut on the desktop "I-CUBE FID" or select the application from: Start, programs, I-CUBE, FID.



application

Figure 3 FID

The total number of images in the database is listed on the left, as Person ID. Next to this is the actual image number currently selected, shown by an arrow and highlighted in blue.

| Person_ID | Surname | Name | Tag | Use |
|-----------|---------|-------|----------|-------|
| 9 | Gounden | Kevin | 13290136 | True |
| 10 | Vonck | Derck | 8 | False |

There are 5 columns:

Figure 4 Face Recognition FID Application Column names

Person_ID – lists the people as they are added.

Surname – Surname of the person

Name – name of the person

Tag – a user specified number

Use – if you wish to search against this person (I.E. if they were to leave and you did not want to use those images).

2.1.1. Creating a NEW Subject

| Person_ID | Surname | Name | Tag | Use |
|-----------|----------|------------|----------|-------|
| 9 | Gounden | Kevin | 13290136 | True |
| 10 | Vonck | Derck | 8 | False |
| 11 | test01 | test | 2 | True |
| 12 | Turk | Derck | 4 | True |
| 13 | Bliksem | dddddd | 13301142 | True |
| 14 | Image | Test | | True |
| 15 | Dudley | Barry | 12112 | True |
| 16 | Acatsa | UK | 1 | True |
| 17 | Ambarw | Ambarw-Nar | 9 | True |
| 18 | Dagran | 123 | 18 | True |
| 19 | Mpangane | 456 | 19 | True |
| 20 | Ksunth | KS | 20 | True |
| * | | | | |

Figure 5 Creating a new subject line in the database (Arrow down, after the last person)

| Surname | Name | Tag | Use |
|----------|----------|----------|-------|
| Groundin | Kevin | 13290126 | True |
| Wardh | Devik | 8 | False |
| lev01 | test | -2 | True |
| Tuik | Devik | 4 | True |
| Bikuein | dddd | 13301142 | True |
| Inage | Test | | True |
| Dudley | Bary | 12112 | True |
| Acatsa | UK | 1 | True |
| Arbaw | Arbaw-Na | 9 | True |
| Dagari | 123 | 10 | True |
| Mpangani | 456 | 15 | True |
| Kuuth | KS | 20 | True |
| Marthago | HA | 447373 | |

Figure 6 The details of the new person have been added in the image above.

The screenshot shows a software interface with a 'Face Database' table on the left, a 'Batch Add' button, and a 'Select File in Directory' dialog box. The dialog box is open to the 'K:kuuth' directory and shows two files selected: 'kuuth_1.jpg' and 'kuuth_11.jpg'. The 'File name' field is empty, and the 'File of type' is set to 'JPG files'. The 'Open' button is visible.

Figure 7 The images of the new person, where they are in a single folder, can be added with batch add.

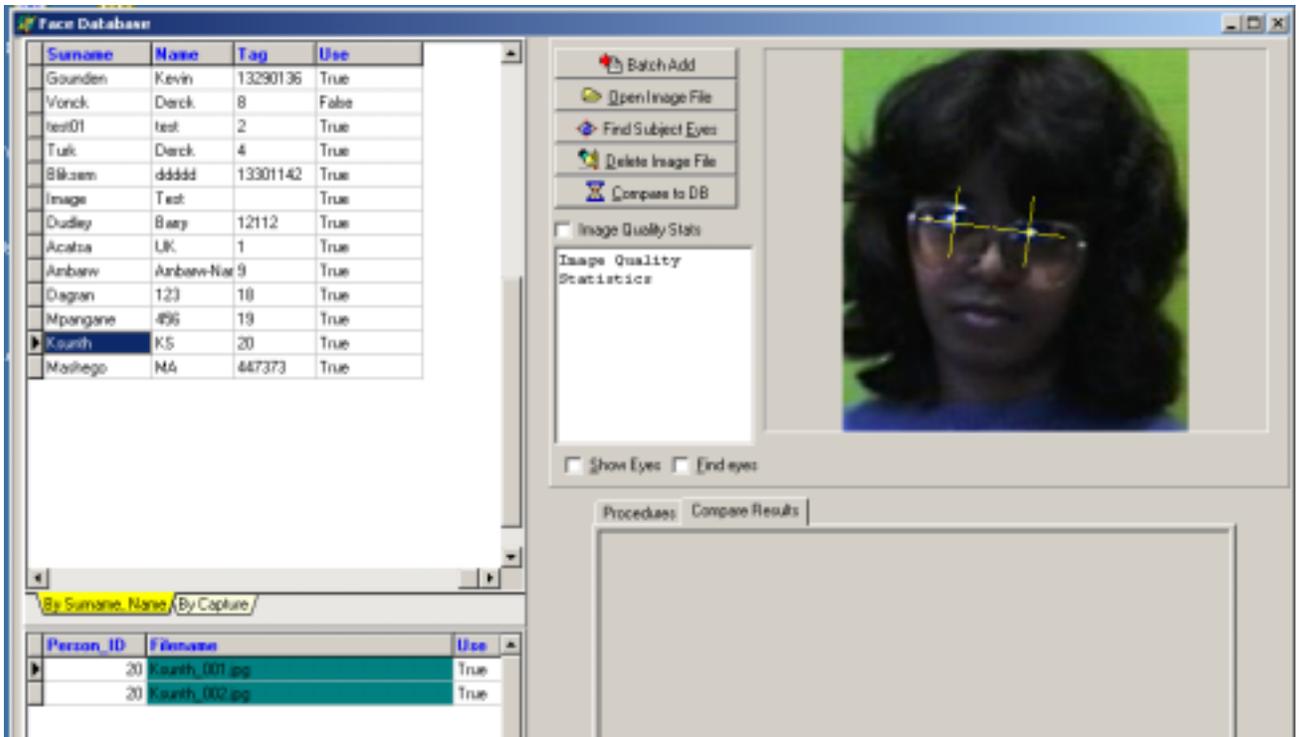


Figure 8 The images of the new person are added as the person name, and increasing image no.

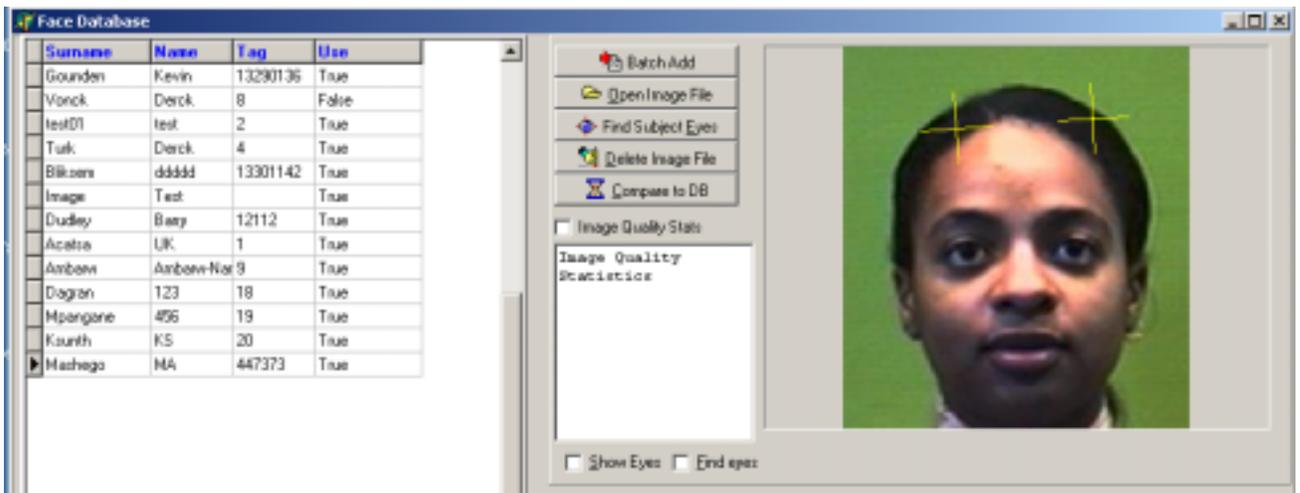


Figure 9 Ensure the new person images eyes are correctly aligned in order for comparisons to work well.

Once a subject is set, its face position must be determined. This can be done manually by clicking on the eye positions with the mouse or by pressing the Auto Alignment button on the subject search dialog.



Figure 10 Manual correction - Zoom in with the mouse by pressing the left button.

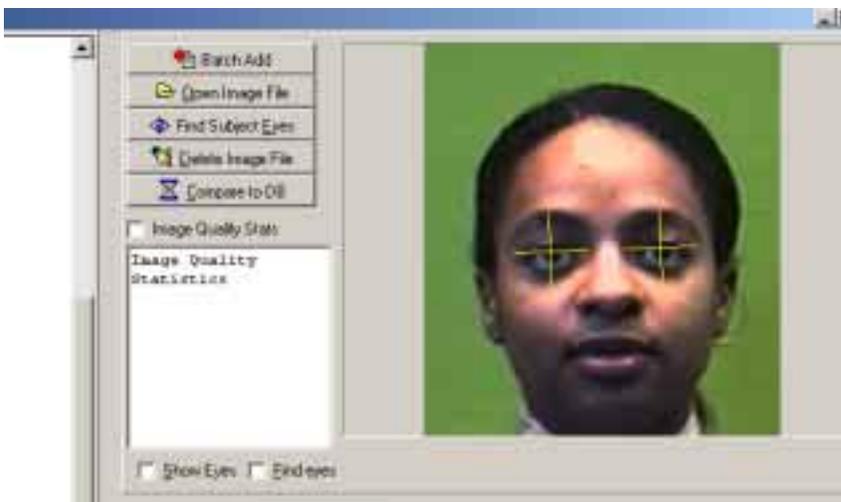


Figure 11 The eyes are correctly aligned in order for comparisons to work well.

2.1.2. Searching for a Subject

The results are ranked according to confidence, being the degree of match better the two images. The name of the image is listed on the right. An identical image obtains a value of 10. Use the arrow key down to see the other possible matches.

Due to changes in lighting, size, colour, orientation, reflections, glasses, hair, expression, etc. it may be necessary to check the top 5-10% of search results (images) in order to confirm that the person is not in the database.



Figure 12 Select the image to compare to the database, then use “Compare to DB”. Scroll down to review the full results.



Figure 13 Select the image in the “Compare Results” window in order to see the details of the compared image.



Figure 14 When the image in the “Compare Results” window is selected the details of the compared image appear.



Figure 15 When the image is not in the database, use “Open image File”. Only those images above 8 are shown, below 8 the image is added to image test in the database.



Figure 16 When the image is not compared with a high score to the database, “Search failed” appears and the image is added to the Test Image user.



Figure 17 The above image is in the Image Test folder of the database .



Figure 18 In order to move the image to a new record, create the record and then drag the image to the folder.



Figure 19 When the image is not required delete with 'Delete Image File'.

Figure 20 Image types supported

The following image files are supported: JPEG (*.jpg), Bitmap (*.BMP), GIF (*.gif), Tiff (*.tif and tiff).

When saving the images, ensure they are saved to their own directory, so that each person would have a directory of all images relating to one person.

2.2.1. Standardizing Your Images

Although FaceIt DB/Surveillance is adept at matching records with a wide number of variables, images taken under similar conditions will always give you better recognition.

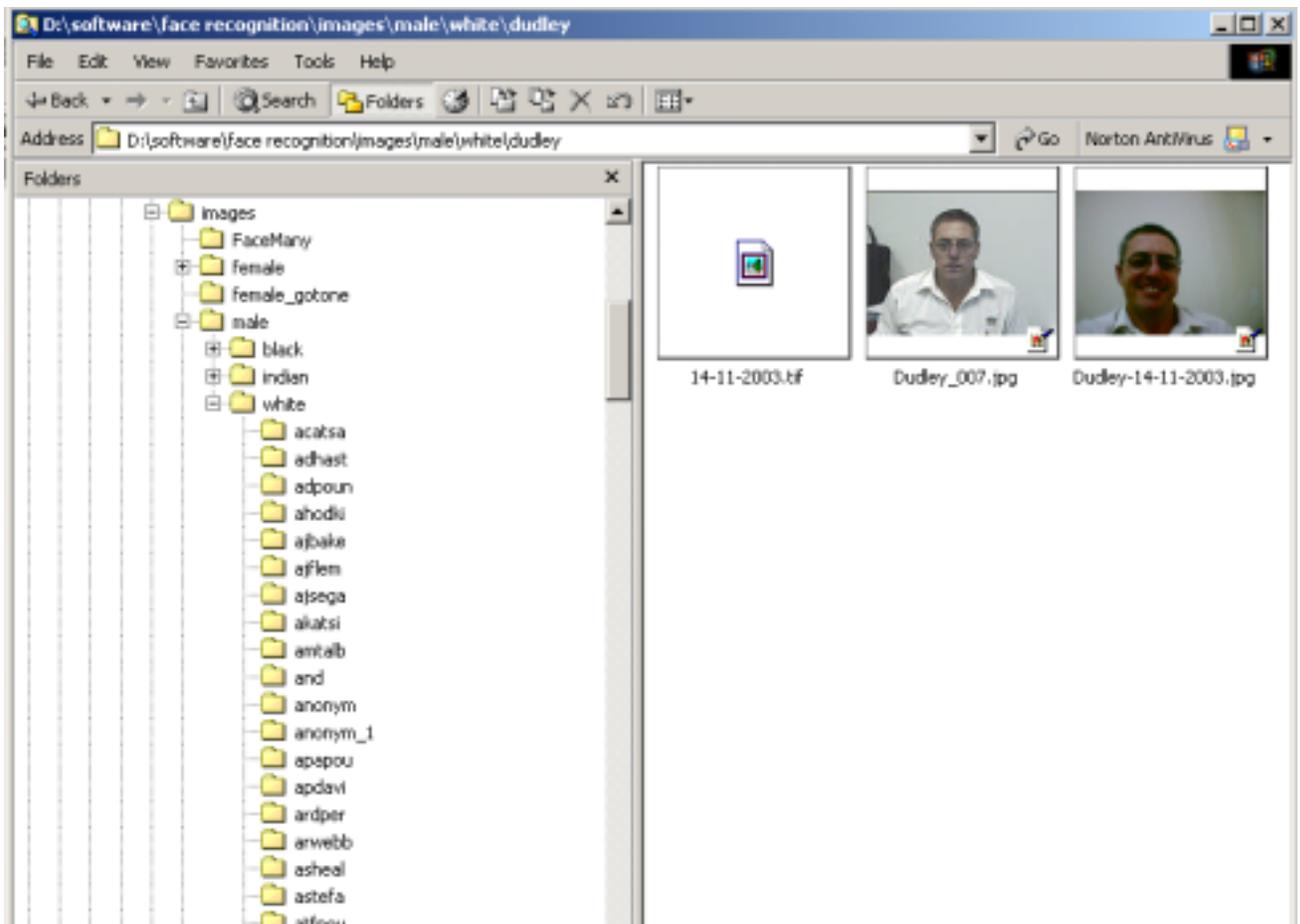


Figure 21 Each person must get their own folder of images

The more similar the camera distance, lighting, and head and eye positioning, the better your chances for a match. The best time to standardize your images, of course, is right when you capture them. Here's a brief checklist you can go through when you're capturing images:

1. Make sure your camera is properly configured.
2. Make sure you have adequate lighting.
3. If your subject is wearing a hat or sunglasses, ask them to remove it.
4. The subject's entire head should be visible in the video feed.
5. The subject should be face forward, with their eyes looking directly into the camera lens.

2.2.2. Analogue image capture (CCTV input)

Open the image capture application.

When the person is in the field of view, capture a number of images.

Save the image as a JPEG image to the persons directory. If required edit the image with I-CUBE Media Editing application.



Figure 22 CCTV camera application

Figure 23 Demonstration of the optimal size of the face in the image

2.2.3. Digital camera input

Ask the person to stand against a light wall.

Take a number of images of the person.

Transfer these images to the persons folder on the lap top.

If required edit the image with I-CUBE Media Editing application.



Figure 24 Face recognition Digital image capture

2.2.4. Existing digital images

Any existing images will be added for free to the database for you by I-CUBE when the order is placed. Either e-mail or write all images to CD and send to I-CUBE.

2.3. Creating own/new image database

This section is for ADVANCED USERS only. Only continue if you are certain you are computer literate and an advanced face recognition user.



Figure 25 Open the BDE Administrator, located in the Control panel

The database is located in the I-CUBE folder. Change the PATH to the new folder.

Copy the contents of the original directory and then edit it via the FID application, creating and removing images as required.

2.3.1. Create the Face Templates

Under PROCEDURES are found:

- Rename image files from log to image (where log files are kept);
- Batch Compare (to compare images);
- Recalculate full + vector templates (on a per image basis)
- Set Licence information

Before you can search a database, you must create the Face Templates. This is done for you automatically with the FID application when you load the images.

You can not search quickly if you search directly on the images. Each face must have a corresponding template stored in the database.

IF YOU HAVE ANY PROBLEMS PLEASE E-MAIL SUPPORT@I-CUBE.CO.ZA