

TOSHIBA



Introduction of Toshiba Face Recognition Software

Why choose Toshiba's FRS^{*}?

Performance

- NIST^{**}-Proven World Top Class Accuracy & Speed
- More than 150 patents^{***}

Experience

- Over 1000 FRS have been used successfully
- Long history of Research & Development (since 1994)

Flexibility

- Allows developers to add face recognition function to their own applications
- Provided by Software Development Kit (SDK)

* "FRS" is an abbreviation of "Face Recognition Software".

** NIST: National Institute of Standards and Technology, USA

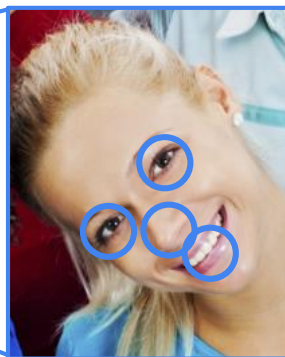
*** Patents either granted or applied for worldwide

How Face Recognition Software works ?

Face Region Detection

Feature Point Extraction

Pattern Matching



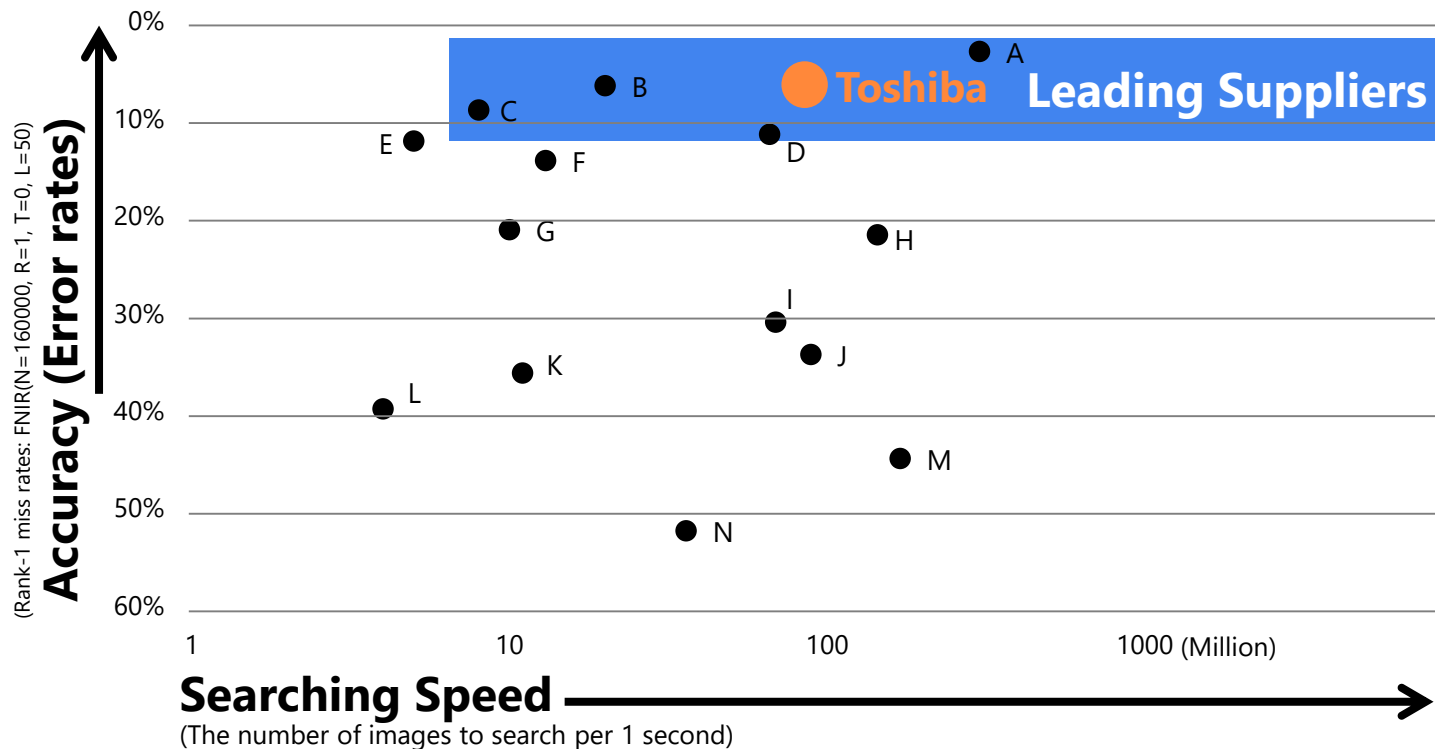
Similarities get featured



Database

Toshiba is One of The Leading Commercial Suppliers

Result of Face Recognition Vendor Test held by NIST^{*} in 2013
- One to many identification searches^{}**



* NIST: National Institute of Standards and Technology, USA.

** This figure is based on the contents of Table4 Accuracy, Speed, template sizes at N=160K, NIST Interagency Report 8009, page21.

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Toshiba Produces FRS **NOT** for test score, **BUT** for **ACTUAL USE**

100

Camera

1

Million Database

1

Second

Capable of High speed search

The software enables to search images of a hundred cameras from a database with a million images registered in ONLY 1 second (per server)*.

* The performance test was conducted under a grant of New Energy and Industrial Technology Development Organization (NEDO).

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Toshiba Produces FRS **NOT** for test score, **BUT** for **ACTUAL USE**



With or without glasses



Ageing changes



Face at an angle
(up to 30 degrees)



Face after plastic

Over 1000 Toshiba FRS have been used successfully

Face Recognition Installation Records

Police



Criminal identification screening

Government



Watch-list check screening

Access Control



Screened by stopping
Screened through walking

PC Security

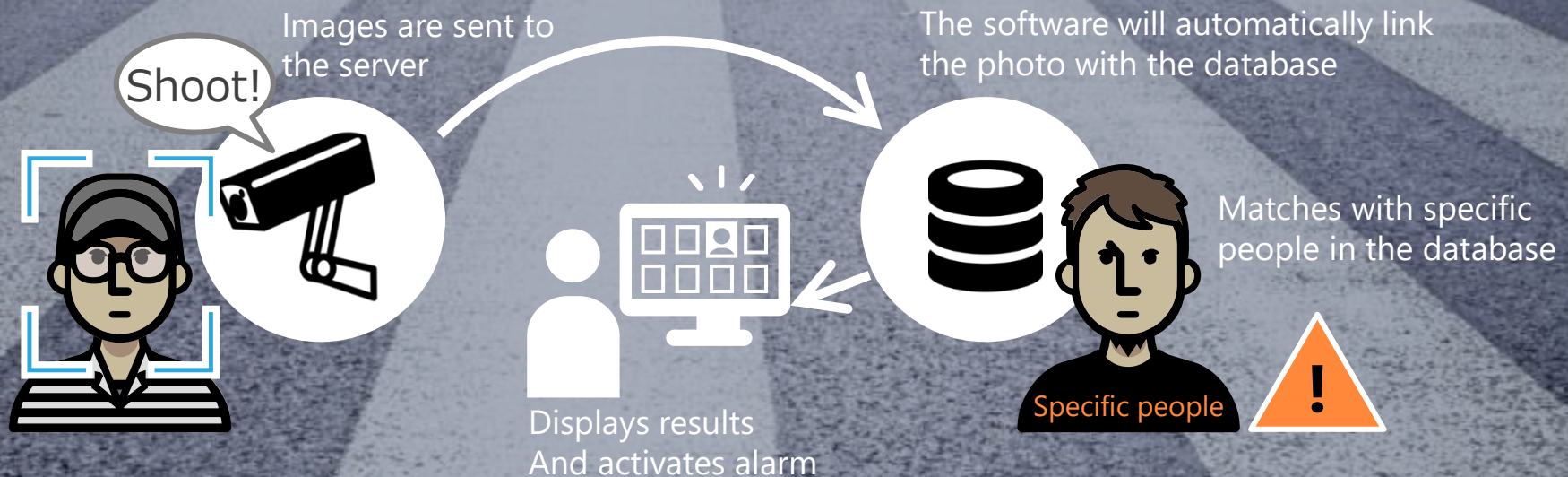


Logging identification

* Based on sales activities from 1999 to 2016

Usage for Surveillance Purposes

Even among big crowd,
Toshiba's face recognition software can
spot the suspect.



Activate in places where many people gather :
sports stadium, airports, stations, hotels and shopping malls

Usage for Verification of the Facial Images

Toshiba FRS provides

Highly accurate & Speedy Identification*.



Applicable to :

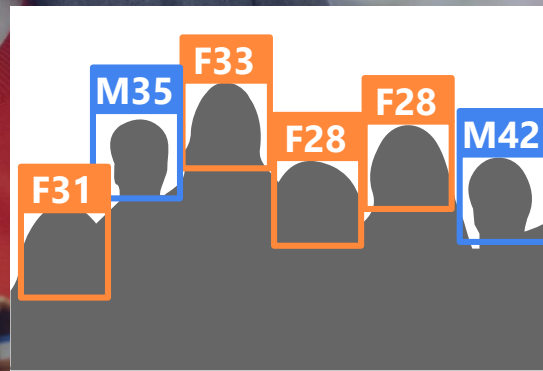
- Background check at ID issuance (Deduplication, Fraud prevention)
- Personal Identification at Immigration counter, e-gate, Banking, and Digital Certificate

* refer to page 3

Usage for Marketing purpose

Face recognition software can be used for Analytics collecting data of Gender, Age groups, etc.

Analytics



- Multiple people can be captured at once.
- The system avoids counting the same person twice.

Utilized for :
Marketing Demographics, Analyzing statistics of customers,
Digital Signage, etc.

date of publication : May 2019

Published by : Toshiba Infrastructure Systems & Solutions Corporation
Security & Automation Systems Division
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<https://www.toshiba.co.jp/sis/en/scd/face/face.htm>

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