



# FACIAL RECOGNITION

**ΔTRICORPS®**

A world-class blend of security and technology.

## BACKGROUND

Facial recognition technology has advanced dramatically over the past few years. The use of facial biometrics is now a reality in daily life for many consumers, like Apple's FaceID that unlocks a phone using facial features, or Facebook automatically suggesting which friends to tag in a photo using facial recognition.

However, the biggest implications for facial recognition are in the security industry, where we see law enforcement agencies use biometric software to scan surveillance footage and identify people of interest, schools to alert at the presence of known sexual predators or expelled students, and border patrol and airports to verify the identities of travelers.

## FACEPRO

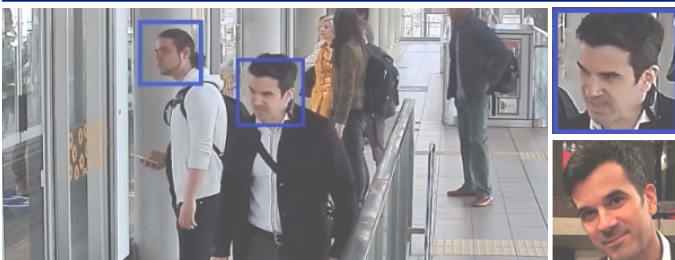
### What is FacePRO?

FacePRO is Panasonic's facial recognition system that matches a person's face using live or recorded video from Panasonic i-PRO cameras to a database of enrolled faces and then sends alerts or notifications when a face is matched.

### Accuracy

FacePRO uses deep learning technology that improves facial recognition performance by up to 500% compared to conventional systems. This deep learning enables recognition that was traditionally difficult for conventional facial recognition technology including:

SEVERELY ANGLED



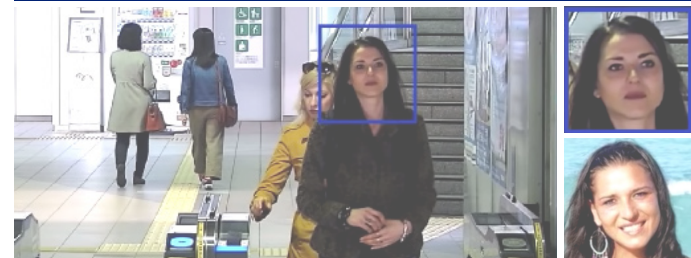
COVERED BY SURGICAL MASK



WEARING SUNGLASSES



CHANGED BY AGING





You can enroll up to 30,000 faces in the database for matching. Specific faces that are enrolled in advance will trigger an alarm when detected. The applications for this could range from terminated employees, expelled students, known shoplifters, banned patrons, to wanted criminals. Conversely, FacePRO can notify a marketing team when special guests or VIP arrives at their facility.

**Figure 1: Comparison of the distribution of the number of visits per day for the 2014/2015 and 2015/2016 seasons.**

The figure is divided into two main sections. The top section is a bar chart titled "Daily, total (2 rows scale)". The x-axis lists the days of the week from Monday to Sunday. The y-axis represents the percentage of total visits, ranging from 0 to 14. For each day, there are five bars representing different temperature ranges: 10-14 °C (light blue), 15-19 °C (dark blue), 20-24 °C (green), 25-29 °C (pink), and 30-34 °C (orange). Error bars are present on the bars for Friday, Saturday, and Sunday. The bottom section contains two donut charts. The left donut chart is for the 2014/2015 season, with a total of 42 visits, showing a distribution of 40% (orange), 30% (pink), 20% (green), and 10% (blue). The right donut chart is for the 2015/2016 season, with a total of 9 visits, showing a distribution of 40% (orange), 30% (pink), 20% (green), and 10% (blue).

The software also features an analytics section. In this area, a user is given the ability to analyze statistics such as people counting, and also allows them to detect demographics like age and gender. The system will then display the relevant information in an accessible manner.



Count people of detected face and evaluate their age and gender.



Display the result on the screen with statistical graph.



The statistical data can be saved as a CSV file for analytical use.

One of FacePRO's benefits is that it can be integrated with other electronic security elements including Security Management Systems (SMS) and access control. Because FacePRO communicates with the SMS, we can prescribe a set response to an alert like sending out SMS alerts, locking down doors, or tracking with pan-tilt-zoom cameras.

TriCorps is the only certified Panasonic FacePRO integrator in the United States armed with a mobile facial recognition demonstration kit. For information on scheduling a webinar or on-site demonstration of FacePRO, please contact TriCorps' corporate headquarters at 405.621.9006, or email us at [info@tricorps.com](mailto:info@tricorps.com).

# APPLICATION EXAMPLES

## Government Facilities

Government facilities can be targets for those who have grievances against the country. Studies show the life cycle of a terrorist incident includes broad target selection, surveillance, specific target selection, pre-attack surveillance, and attack rehearsal. In each of those planning phases, terrorists are physically on the premises collecting intelligence for their attack.

With FacePRO, you can load the entire FBI's most wanted terrorists list into your database and it would alert as soon as a recognized terrorist enters the property.

## Schools

A school can load a database of sex offenders in their region. FacePRO would alert at their presence, as well as provide incriminating video evidence that they were within close proximity to the school.

## Entertainment

TriCorps' TriWatch™ Intelligence Monitoring services can uncover threats made against individuals or corporations online. If a threat was made alluding to an attack on a baseball stadium, end users could upload pictures of persons of interest into the database to instantly alert if they arrive at the stadium. Additionally, a retroactive search could be conducted to uncover any previous visits to the facility.

## Museums

Museums are targets for crime for various reasons - they house priceless artifacts or artwork, and memorialize historical events or ideals that prompt extreme responses from some individuals. Museums using facial recognition to alert on known criminals, terrorists or banned patrons can prevent harm to others, theft, and disruption to the business.

## Retail

Many large retailers are victims of large-scale organized retail theft. Lists of known retail thieves can be loaded into the FacePRO database and used to alert when a recognized criminal is in their store. On average, a retailer could lose \$100,000 a year. FacePRO's software is a one-time licensing fee with the potential to save thousands in losses every year.