



# **Iris ID Solutions For Correctional Services**

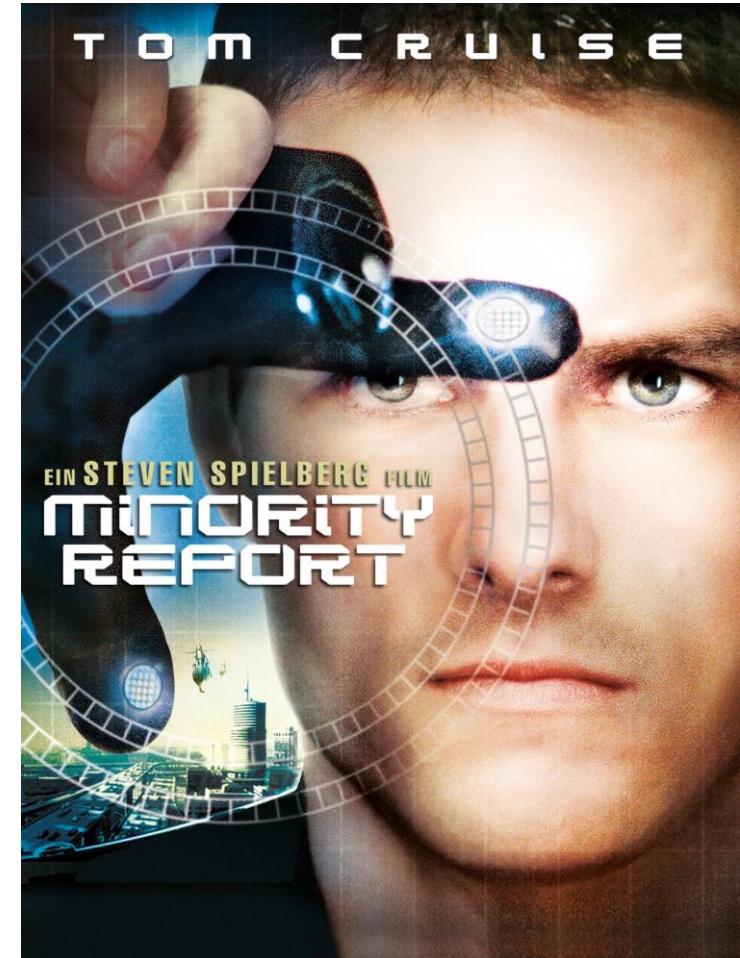


# **Iris Recognition Solution**



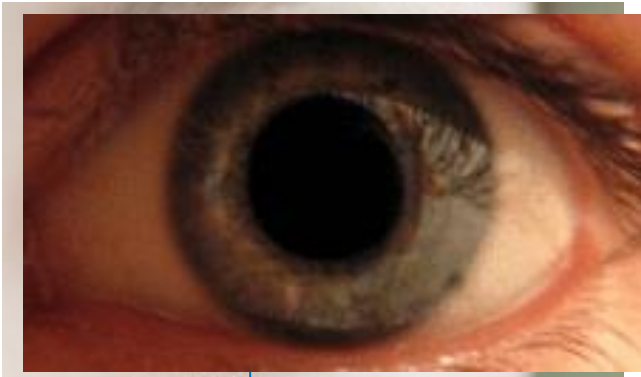
# Digital Identity and Biometrics

- Future of Identity example
  - Minority Report – Movie in 2002 – Set in 2035
  - [Watch movie clip](#)
  - Iris scanning is used for digital identity

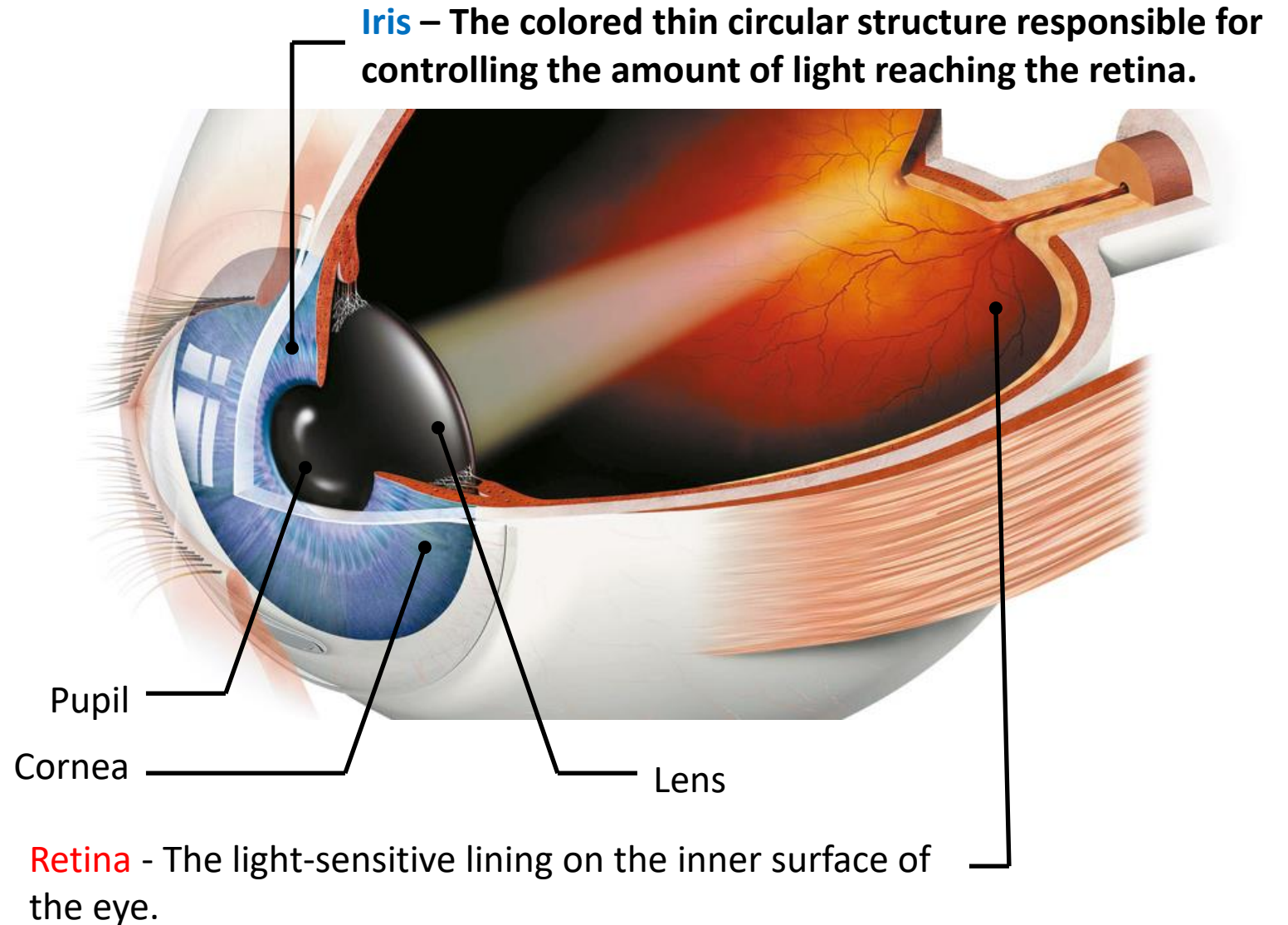


# The Iris is NOT the Retina

- ❑ The donut shape of the eye except the black part(pupil) is the iris.
- ❑ Iris recognition technology is different from retina scan. It is same as taking pictures with a normal digital camera – there is no worry about eye safety



Iris





# Most Accurate Biometric

- Statistical probability of iris achieving a false accept is 1 in 1.2 million at 0.325 HD threshold.
- Examines more than 240 measurable variables (degrees of freedom) in the human eye.
- Iris ID Matcher is tuned for an optimum balance of speed and accuracy on a large scale
- Uniqueness = Accuracy
  - The probability of two individuals having the same iris pattern is 1 in  $10^{78}$
  - Twins have same DNA but different iris patterns
  - Right and left eye are totally different
  - Stable for life after age 1
- Iris recognition does not suffer from bias
  - Gender bias
  - Race bias
    - Eye
    - Skin
    - Facial features



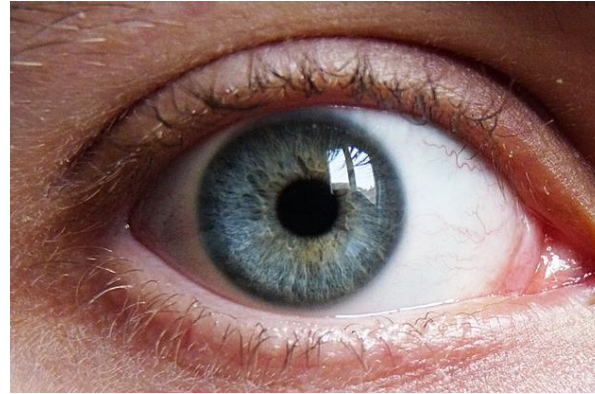
Flakes falling on Earth in one year =  $10^{23}$



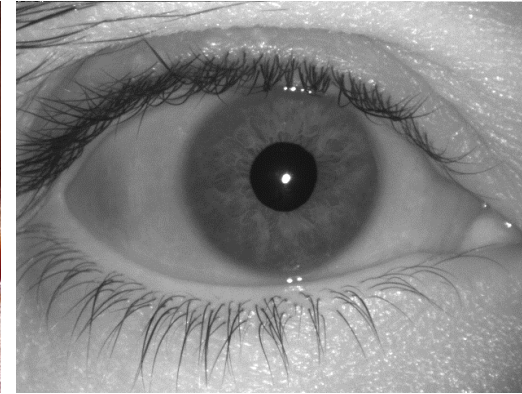
Est. probability of two like irides  
=  $10^{78}$

# Iris Template Creation

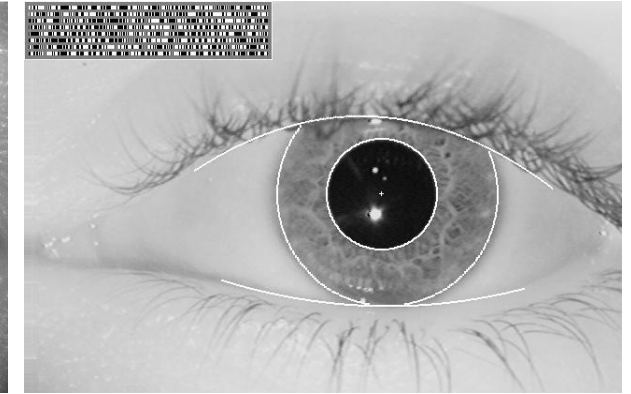
- ✓ Non-Iris pattern data is removed (including eye lashes and specular reflections).
- ✓ The algorithm analyzes the iris pattern and creates a mathematical representation.
- ✓ An iris template (512 bytes) is created for storage in the database or on a smart card



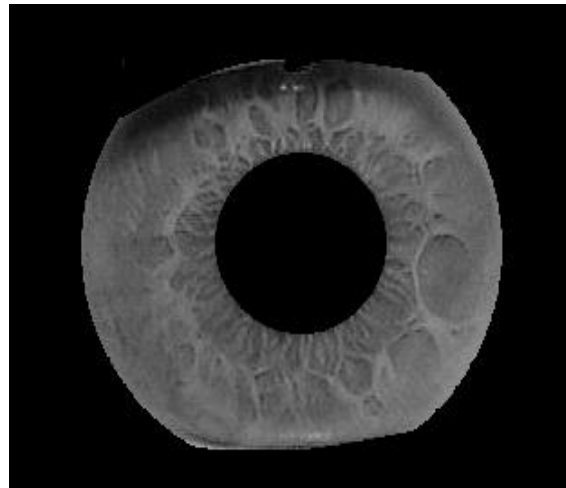
Human Iris



Infrared image



Segmentation



(representación visual, no plantilla de iris real)



# Iris Works Where Other Biometrics Don't

- Essential Coverings

- Hazmat suits and PPE
- Glasses and goggles, face shields, masks
- Burqa, hijab, turbans, hats,



- Medical conditions

- Bandages, scars
- Handicap, disabilities
- Disease, infections
- Twins (facial)



- Challenging Environments

- rough and dirty work – abrasion, oil, dirt
- Clean-room - laboratories, research area,
- construction sites, mines, farms, oil fields, motor mechanics,





# Iris Recognition VS other Contactless Biometrics

- Why some other form of contactless biometric is not suitable in Covid-19 era
- Face
  - Less accuracy
  - Will mostly fail in any kind of environment with any part of face covered – mask and PPE
  - Limited success in verification with mask even using AI
- Contactless FP
  - Will fail with any gloves
  - Will need movement (finger wave) - problems with limited space, limit use of hand (free hand), handcuffs,
  - Problems with injuries, disabilities, damaged fingerprints
- Vein (finger or palm)
  - Less accuracy
  - Will not work with most gloves – some may be able to use thin latex gloves
  - Need 'touch' movement - risk of touching and need a free hand
  - Problems with injuries, disabilities, damaged fingers

## NEWS

### NIST Launches Studies into Masks' Effect on Face Recognition Software

Algorithms created before the pandemic generally perform less accurately with digitally masked faces.

July 27, 2020



Credit: B. Hays/NIST  
NIST digitally applied mask shapes to photos and tested the performance of face recognition algorithms developed before COVID appeared. Because real-world masks differ, the team came up with variants that included differences in shape, color and nose coverage.

Now that so many of us are covering our faces to help reduce the spread of COVID-19, how well do face recognition algorithms identify people wearing masks? The answer, according to a preliminary study by the National Institute of Standards and Technology (NIST), is with great difficulty. Even the best of the 89 commercial facial recognition algorithms tested had error rates between 5% and 50% in matching digitally applied face masks with photos of the same person without a mask.

#### MEDIA CONTACT

Chad Boutin  
charles.boutin@nist.gov  
(301) 975-4261

#### ORGANIZATIONS

Information Technology Laboratory  
Information Access Division  
Image Group

#### RELATED PUBLICATIONS

Ongoing Face Recognition Vendor Test (FRVT) Part 6A: Face recognition accuracy with masks using pre-COVID-19 algorithms

#### SIGN UP FOR UPDATES FROM NIST

Enter Email Address

Sign up

**Algorithm accuracy with masked faces declined substantially across the board.** Using unmasked images, the most accurate algorithms fail to authenticate a person about 0.3% of the time. Masked images raised even these top algorithms' failure rate to about 5%, while many otherwise competent algorithms failed between 20% to 50% of the time. - **NIST** - Ongoing Face Recognition Vendor Test (FRVT) Part 6A: Face recognition accuracy with masks using pre-COVID-19 algorithms- July 2020



## **Iris ID Systems, Inc. Profile**



# Corporate Overview



**Inc.  
5000**

Iris ID Named to Inc. 5000 List of America's Fastest-Growing Private Companies  
Cranbury, N.J. - Aug. 13, 2020 - Iris ID, a leading provider of biometric iris recognition technology, today announced it was ranked number 2,947 in the 2020 version of the Inc. 5000, an exclusive ranking of the nation's fastest-growing private companies.

- US-directed global business unit
  - Established in 2002
  - Reflecting importance of security post 9-11, and US/G-20 influence driving technology adoption
  - Spin-off unit created from LG to Iris ID Systems Inc in Dec. 2010.
- Commands attention of senior management previously from LG IRIS
  - Focus on future development of the technology
  - Creating Alliances with best of breed ID companies
- GBU is IRT experience-rich
  - In technology
  - In marketing and sales
  - In support and service
- Vision, mission, growth reflect core competence
  - Identity authentication, not iris, biometrics, security, access control, or identity management

CEO	Charles Koo
Established	2002
Address	8 Clarke Drive, Cranbury, NJ 07726, USA
Employees	NJ, USA, Seoul, Korea, Bangalore, India
Business	Total Iris Biometric Solution



Iris ID business areas include Large Scale ID Systems  
Workforce Management and Access Control

Item		Description	Vertical Market
A R E A	Identification	<ul style="list-style-type: none"> <li>- Large scale National ID Project</li> <li>- Mid/small scale Civil ID Project</li> <li>- Corrections, Healthcare, Welfare</li> </ul>	Government, Public Institution
	Access Control	<ul style="list-style-type: none"> <li>- Passport/VISA System</li> <li>- Border Crossing</li> <li>- Physical Access Control</li> </ul>	Government, Corporate, Public Institution, Hospital, Bank, Airport, Harbor
	Time & Attendance	<ul style="list-style-type: none"> <li>- Exact T&amp;A record (No Buddy Punching )</li> <li>- High Throughput</li> <li>- Large scale factory / tough environment</li> </ul>	Government, Corporate, Public Institution, Hospital, Construction Site, Coal Mine
	RFID	<ul style="list-style-type: none"> <li>- Steel industry asset/inventory control solution</li> <li>- RFID H/W &amp; special tag</li> </ul>	Government, Corporate, Public Institution



# Iris Recognition in Contactless Biometric Uses Cases

Environments	Factors	Examples	References
Cleanest	disease, virus, chemicals, outside contamination	Laboratories, hospitals, clean-room, R&D center,	      
Dirtiest	hazardous material, oil, chemical, dust, sharp and abrasive item, dirt, minerals,	Mines, construction sites, farms, factories, shipyards, processing plants,	     
Challenging	Highest security	Nuclear plants, detention centers, data centers, asset protections	       
Demanding	Highest throughput	Civil identities, Border control, student attendance, large factories and offices, gym members	          

# Product Overview



Advanced Identity Authentication



LATEST!



**iCAM M300**  
Multimodal Biometric PDA



**iCAM T10**  
USB Iris Camera



**iCAM TD100**  
Iris Recognition & Face Camera



**OU75**  
OEM Iris Recognition Camera Module



**iCAM R100**  
High-Speed Dual Iris Reader



**OU7S-AK**  
Iris Capture Module

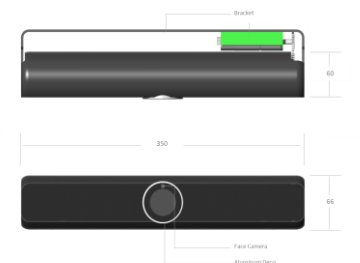
SOLUTIONS  
**IrisAccelerator®**  
**INSiDE®**  
**IrisAccess EAC**  
**iData IRIS SDK**



**iCAM7 series**  
Multi-Biometric Iris Reader



**iCAM D1000**  
Iris & Face Capture System



**IrisBar**  
OEM Advance Iris & Face Capture System  
for Kiosk



**RP70A BIO**  
Advance Biometric Tablet



**iCAM D2000**  
Advance Iris & Face Capture System



**IrisTime iT100**  
Iris & Face Access Control & Time  
Attendance System

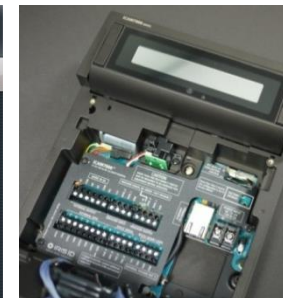
NEW!



# Access control / time and attendance with ICAM7S

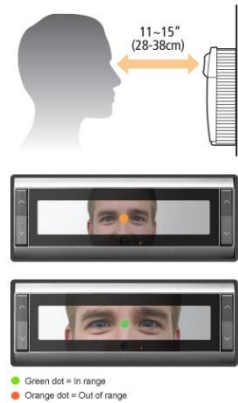
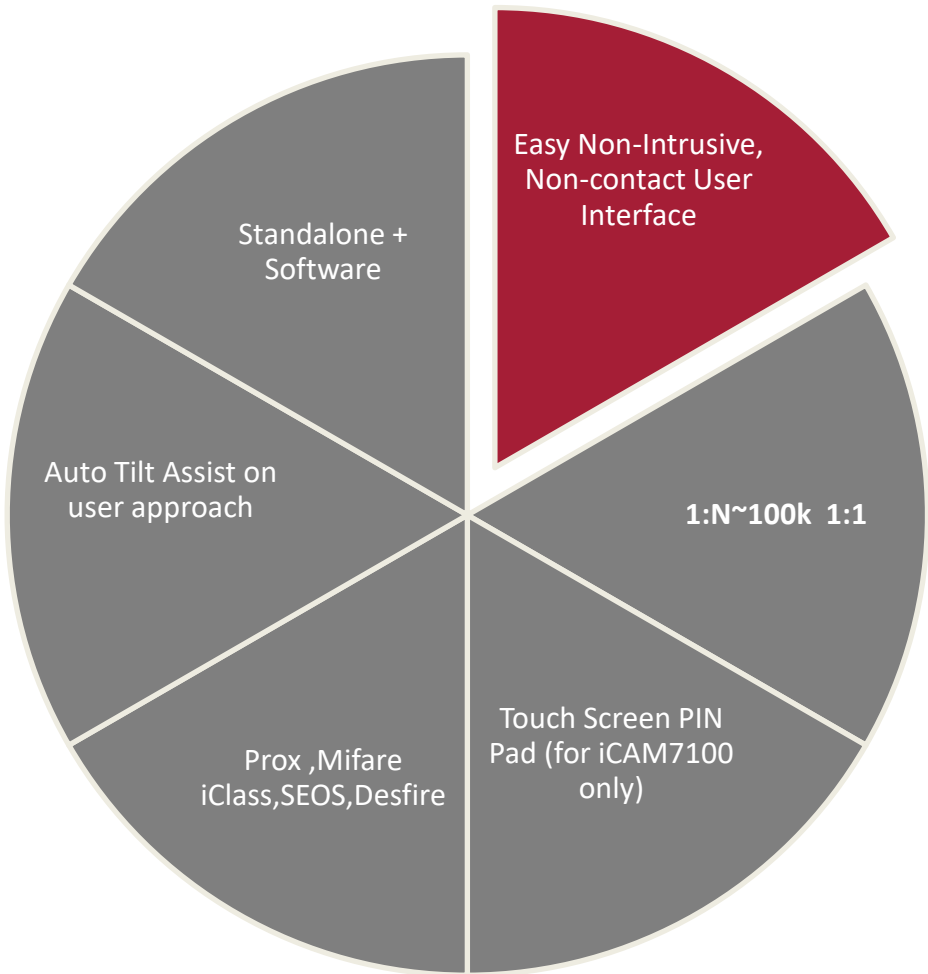
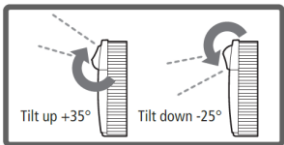


- 6 function keys
- LCD 4.3 touch screen
- High quality face camera (5M pixels)
- Integrated audio
- Automatic capture and tilt
- Custom display message
- Online / offline administration
- Multiple interface (Ethernet, Wiegand, RS422, RS232, Relay, GPIO)
- External speaker connection available
- OSDP Capable





# iCAM7 S series



# iCAM7 S series models

7 x x x S - x x x

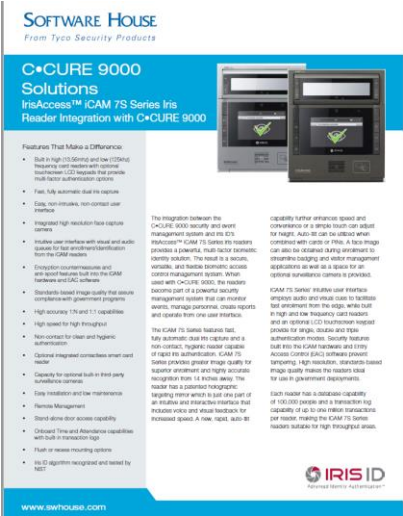
0 = LCD  
1 = LCD screen

0 = without card reader  
1 = include card reader

0 = without PIN  
1 = with PIN - LCD Screen

B = Black Color  
T = Titanium Color

None = without card reader  
H1 = include card reader



<https://www.swhouse.com/Products/iris-id-irisaccess-icam-7s-series.aspx>



SWH  
code



iCAM7000S-B  
IID-ICAM7S-B / T

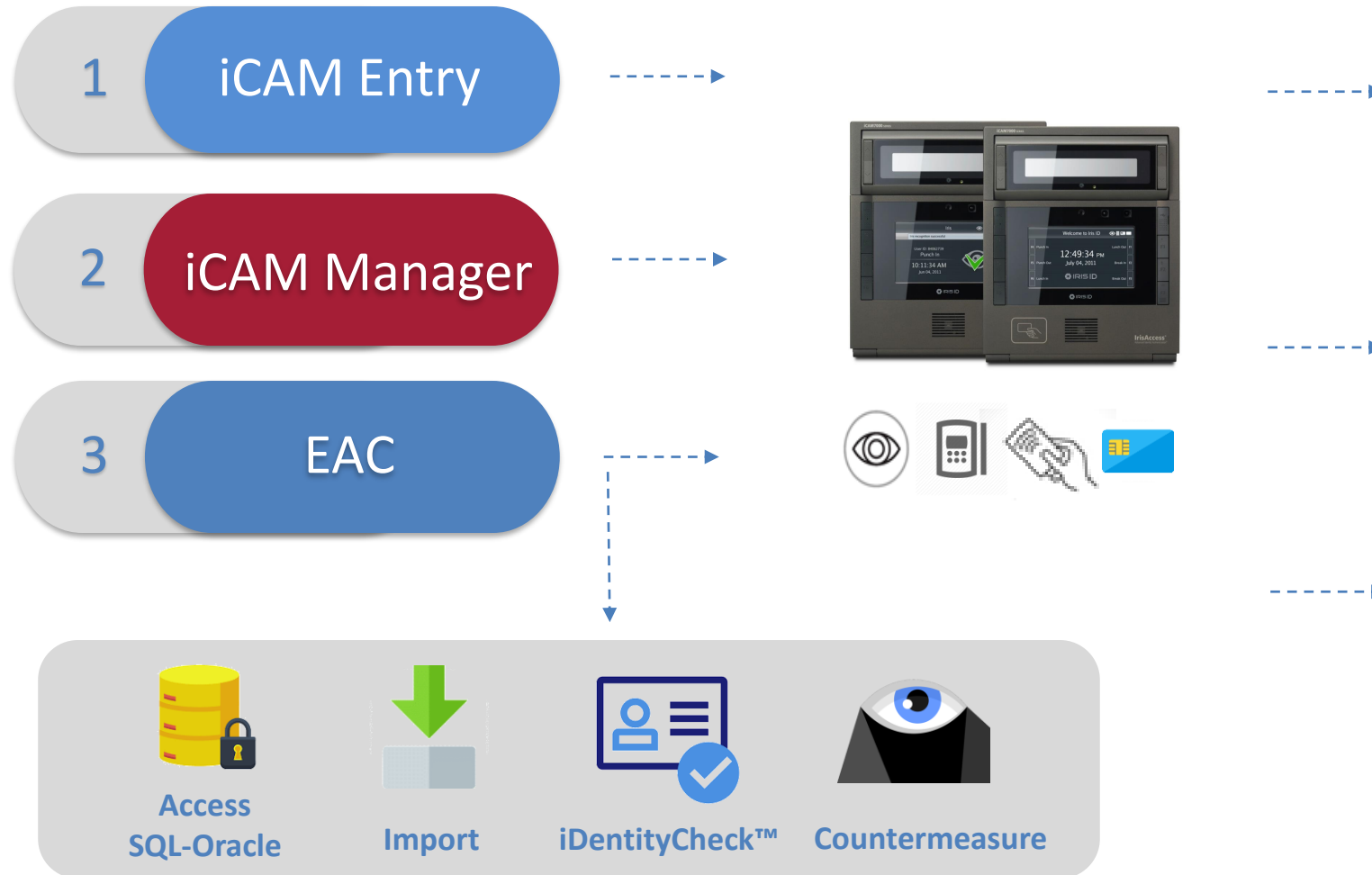
iCAM7010S-H1B

iCAM7101-B  
ID-ICAM7LCD-B / T

iCAM7111-H1T  
IID-ICAM7S-H1T / B



# Software Solutions for iCAM7S



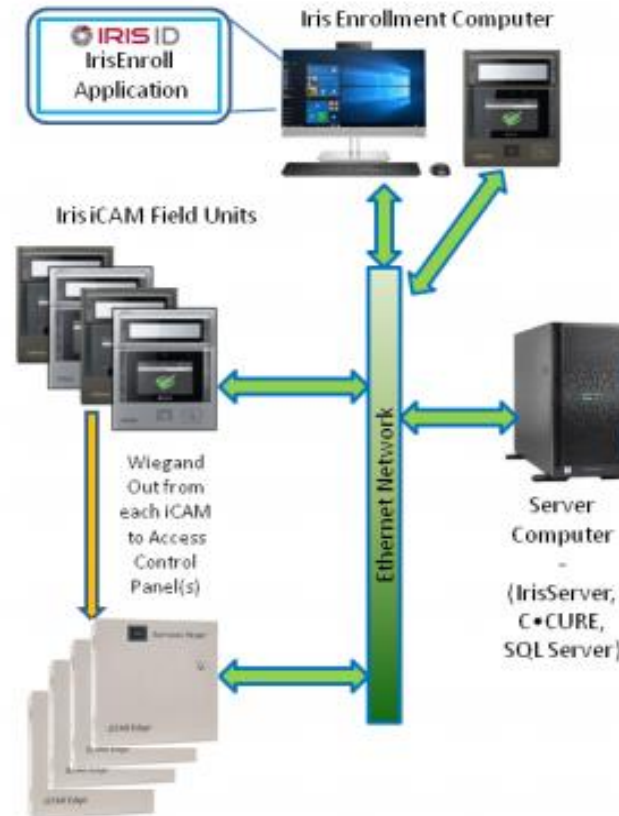
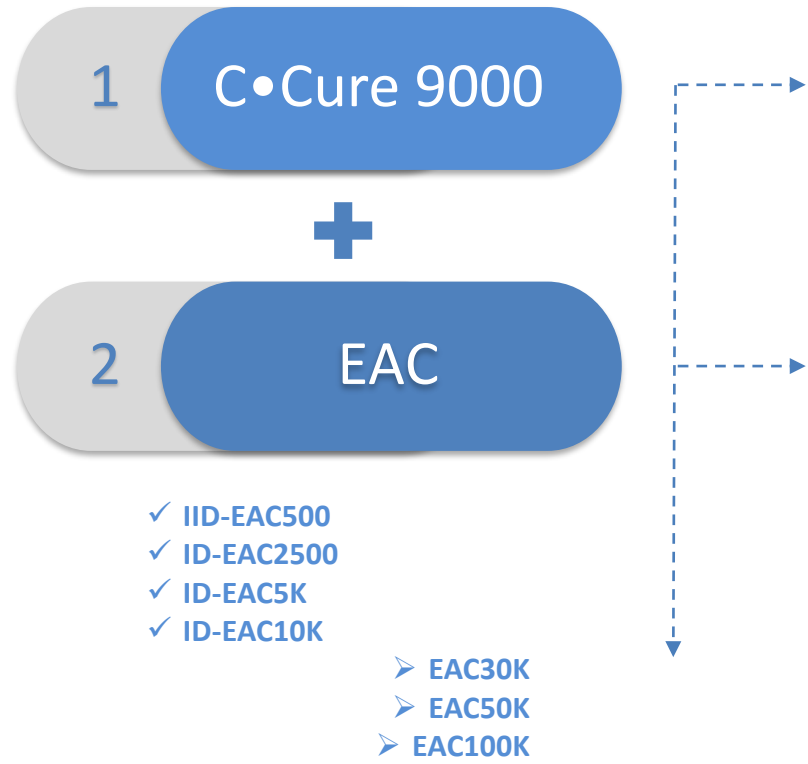
- ✓ Complete solution up to 3 readers
- ✓ Wiegand connection for ACS
- ✓ Stand-alone operation or online

- SDK development kit for custom applications

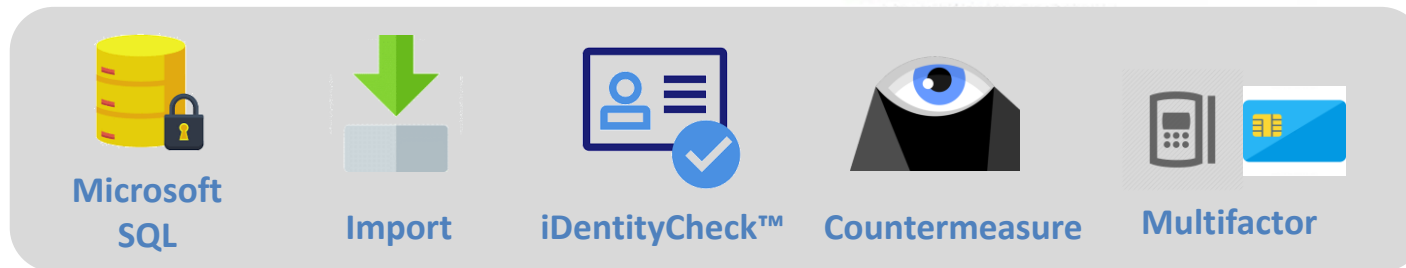
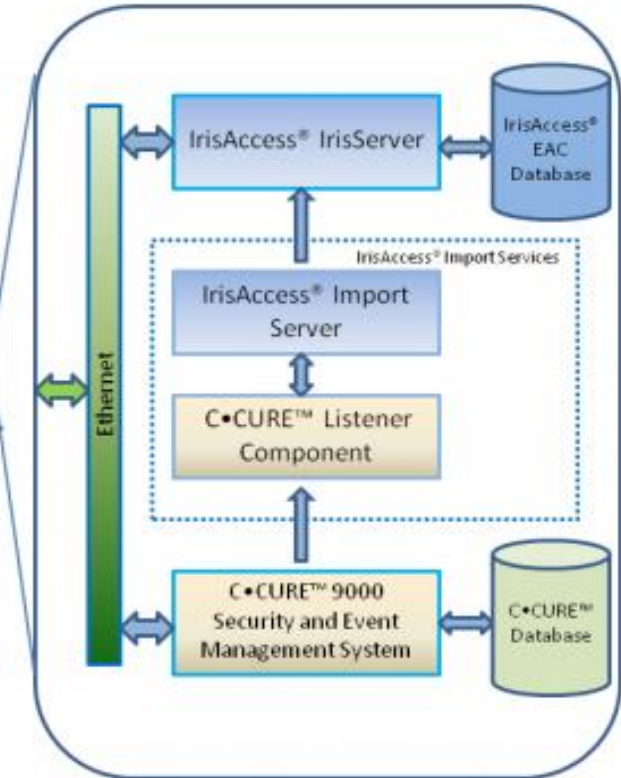
- ✓ Management 1 up to 250+ iCAM7S
- ✓ 3rd integration, personnel management
- ✓ Virtually any Wiegand-based ACS



# IrisAccess™ (EAC) + C•Cure 9000 Integration (example)



CC9000-IRISID - No Charge



# iT100 Overview

- Time clock for the modern workforce
  - New IrisTime™ for Time and Attendance solution
  - New iT100 hardware designed from scratch to cater for the time attendance market demand
  - New iTMS designed with integration in mind
- On Device enrollment and identification
- Auto face / iris detection
- Auto tilt (+/- 25 degrees)
- Working distance up to 24 inches (30-60 cm)
- User-based Authentication Mode (Fusion, And, Or Mode)
- Security
  - Counter measures (Live eye detection)
  - Encryption
  - Secure boot
- 7" LCD touch screen
- Open Android platform
- Fully customizable application development,
  - Custom 3rd-Party App support & iT100 SDK
  - Restful API



IrisTime®

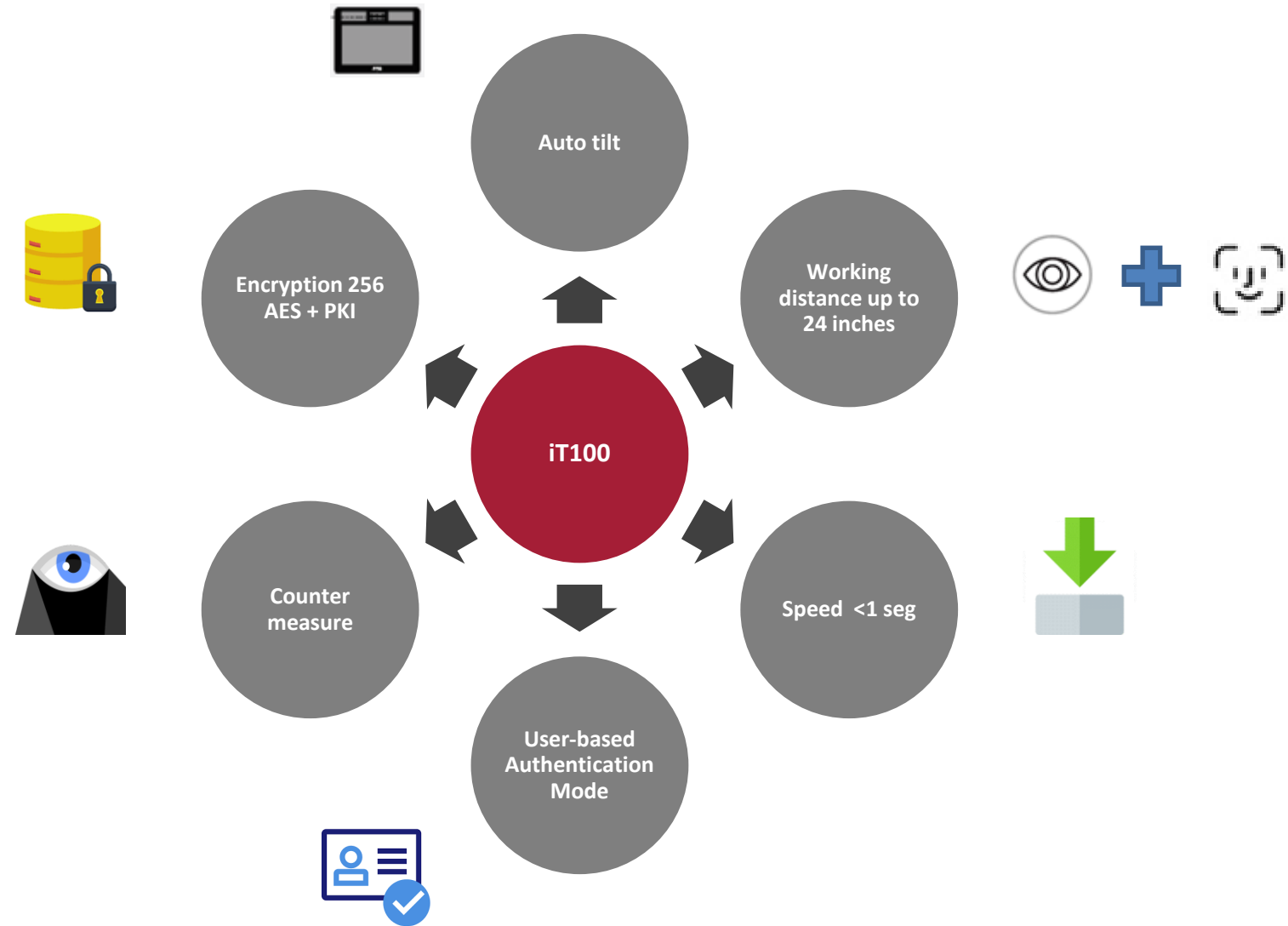
Time Clock for the Modern Workforce **iT100**



**FAST · ACCURATE · NON-CONTACT · IRIS-FACE FUSION**

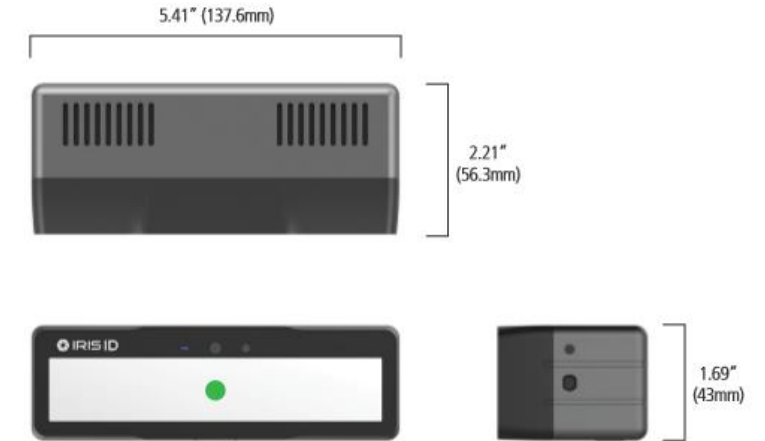


# iT100 Features





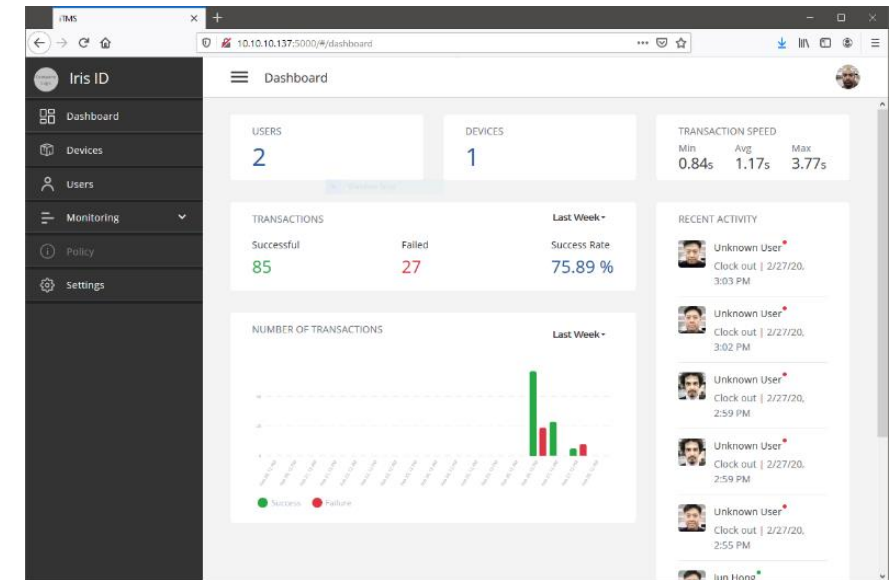
# iCAM R100



- Most popular OEM iris device for integration with kiosk, gates and other devices.
- Auto Iris & Face Capture
- Dual Iris Enrollment & Recognition
- Face Capture
- Hologram in Mirror Guidance
- Standards Compliant:
  - (ISO 19794-6 (Iris) & ISO 19794-5 (Face))
- USB Interface
- Standard Tripod Mount
- Lightweight
- Convenient and Intuitive User Guide
- Ideal Choice for Enrollment Kit or Kiosk

## iTMS is the iT100 device management application

- Compatible with Windows / Linux / MAC
- Device Configuration Administrator / Users
- Device discovery within the same LAN
- Device activation and configuration
- Export of transaction logs and import of user data (CVS, Excel file format and JSON)



The screenshot shows the iTMS Transaction Log interface. It includes a search bar, a time period filter set to '04/12/2020 - 04/13/2020', and a table of transaction records. The table has columns for Time, ID, Device Name, First Name, Last Name, Type, Result, and User ID.

TIME	ID	DEVICE NAME	FIRST NAME	LAST NAME	TYPE	RESULT	USER ID
4/17/20, 12:48 PM	15	IT100-9110-0021	Jun	Hong	System Admin	Success	1000
4/17/20, 2:15 PM	29	IT100-9110-0021	Jun	Hong	Clock In/Out	Success	1000
4/17/20, 2:52 PM	28	IT100-9110-0021	Jun	Hong	Clock Out	Success	1000
4/17/20, 2:52 PM	27	IT100-9110-0021			Clock Out	Failure	
4/17/20, 2:51 PM	26	IT100-9110-0021	Jun	Hong	System Admin	Success	1000
4/17/20, 2:51 PM	25	IT100-9110-0021	Jun	Hong	Clock Out	Success	1000
4/17/20, 2:50 PM	24	IT100-9110-0021	Jun	Hong	Clock Out	Success	1000
4/17/20, 2:50 PM	23	IT100-9110-0021	Jun	Hong	Clock Out	Success	1000
4/17/20, 2:50 PM	22	IT100-9110-0021	Jun	Hong	Clock Out	Success	1000
4/17/20, 2:50 PM	21	IT100-9110-0021	Jun	Hong	System Admin	Success	1000
4/17/20, 2:50 PM	20	IT100-9110-0021			System Admin	Failure	
4/17/20, 2:50 PM	19	IT100-9110-0021			Clock Out	Failure	
4/17/20, 2:49 PM	18	IT100-9110-0021	Jun	Hong	Clock Out	Failure	1000
4/17/20, 2:33 PM	17	IT100-9110-0021	Jun	Hong	Clock Out	Success	1000
4/17/20, 12:48 PM	16	IT100-9110-0021	Jun	Hong	Clock Out	Success	1000
4/17/20, 12:47 PM	14	IT100-9110-0021	Jun	Hong	System Admin	Success	1000
4/17/20, 12:45 PM	13	IT100-9110-0021	Jun	Hong	System Admin	Success	1000



## Proposed Programs For Malaysian Prison Department



# Proposed Programs For Malaysian Prison Department

There are three programs proposed:

1. National Prisoners Database Program.
2. Malaysia Prison Department Time and Attendance.
3. Malaysia Prison Visitor Management.

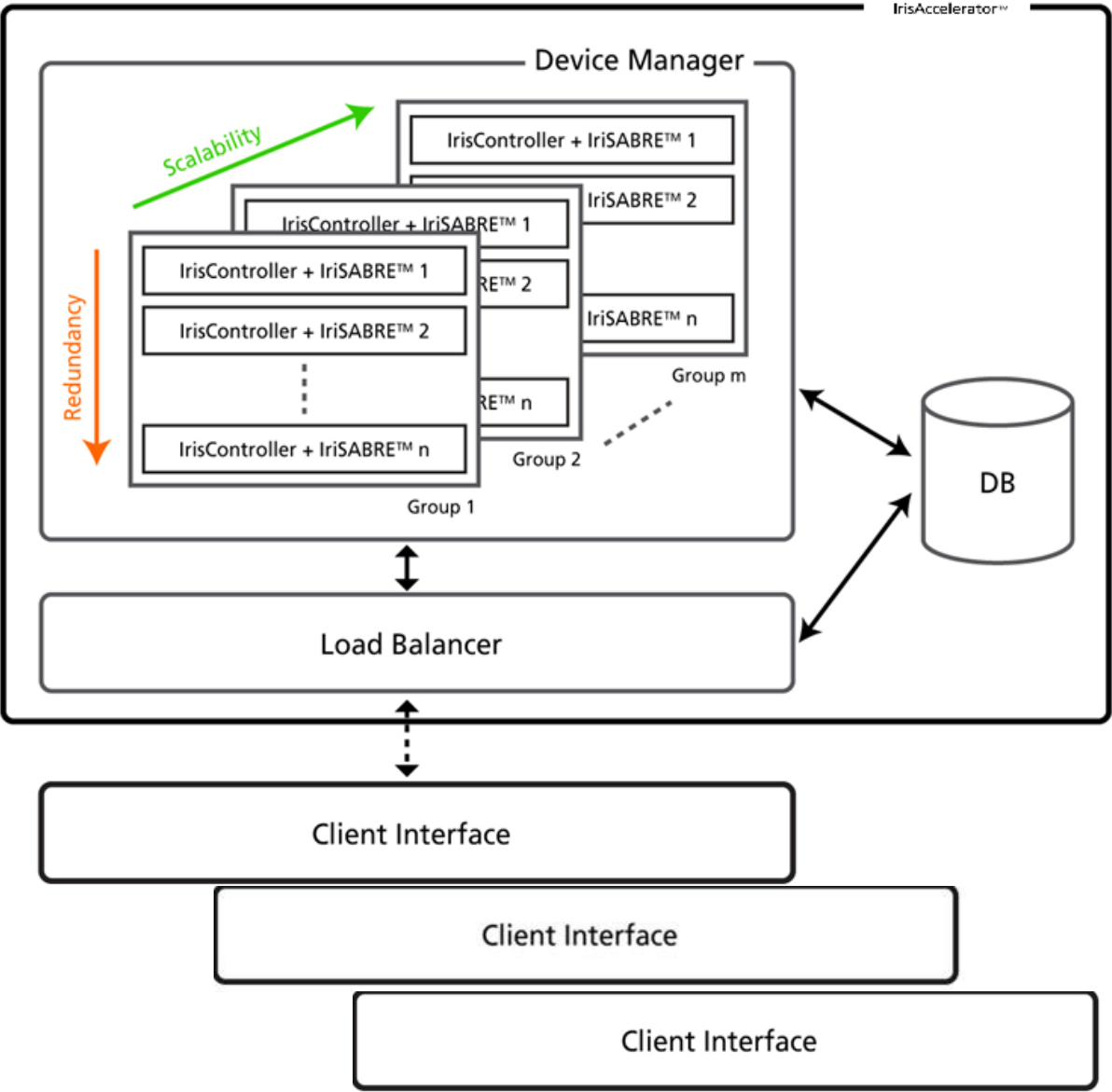


# National Prisoners Database Program

The National Prisoners Database Program objectives are:

1. Collecting iris code from prisoners nation wide.
2. Allowing other government agencies to access over the secured cloud for quick verification.
3. Interchange between database for border control.

# National Prisoners Database Program

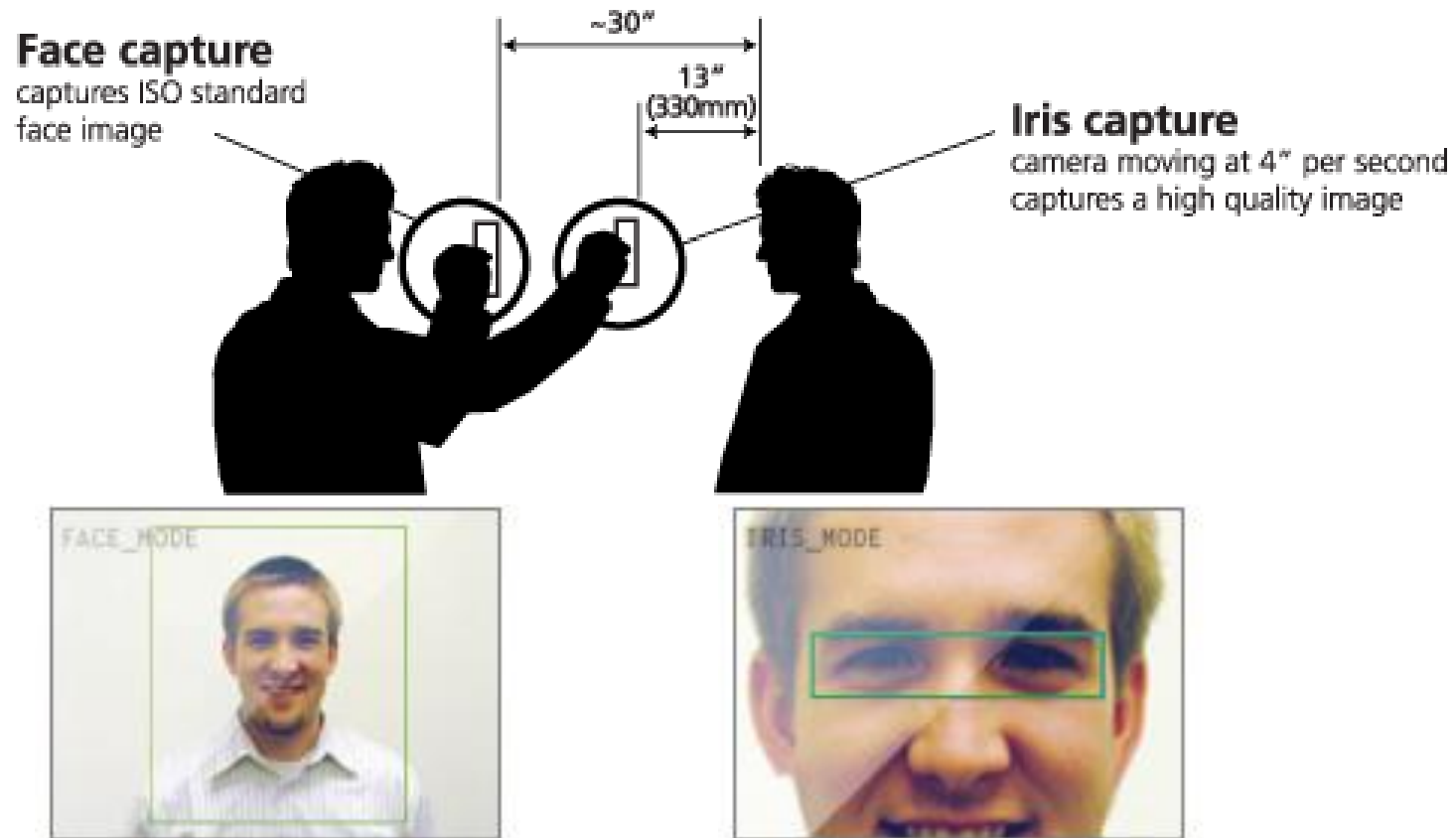


IrisMatcher

Client for various agencies.

# National Prisoners Database Program

The enrollment will capture both full face and iris code.



# National Prisoners Database Program

Mobile On-site quick verification and/or enrollment device .

Multimodal - Iris, Face & Fingerprint

High Speed Dual Iris Capture Standards

MRZ & Magnetic Swipe Card Reader

IP54 Compliant – Dust & Water Resistant

Connectivity - 4G LTE / HSPA+ / GSM / GPRS and Wireless WAN & LAN, GPS





# Iris Mobile Devices

## iCAM T300 Tablet

- All in One Tablet
- Document reader
  - Passports
  - Smart cards
  - Barcodes/QR codes
  - NFC
- Biometric Scanners
  - Iris
  - Fingerprint
  - Face



## Mobile enhancement device

# X-Series

A powerful and rugged device designed to capture biometric and biographic data in the most challenging environments.

## Seeing is believing

**Includes proprietary Iris Recognition technology built into the Grabba device.**

Bringing accuracy and integrity to identity transactions, and empowering a bold new vision for law enforcement and citizen safety.



# Malaysia Prison Department Time and Attendance (T & A)

Malaysia Prison Department Time and Attendance (T & A) objectives are:

1. Time and Attendance automation.
2. Accurately record punch in and out timing.
3. Record both iris code and face photo for verification and audit.



# Malaysia Prison Department Time and Attendance (T & A)

IrisAccess EAC TimeReport™

**TimeReport™**

Reports

- Attendance Report
- Absence Report
- Punch Report

Settings

- EAC Database Settings
- Punch Report Settings
- Punch Report Service
- Customization
- Report Field Labels

Attendance Report

Date Range: 05/12/16 - 05/13/16

Reload Report

Date	Employee Name	Employee ID	First In	Last Out	In Hours (hh:mm)	Project Code
2016-05-12	Jackie	postal1	10:08:09		00:00	
2016-05-12	Del Piano Joseph	4733	08:45:25	17:40:28	09:55	
2016-05-12	DePew John	4732	08:39:03	17:41:43	09:02	
2016-05-12	Gadde Ravindra	4712a	08:28:49	17:43:09	09:15	
2016-05-12	Jung Sehhwan	4790	08:26:37	12:40:20	04:14	
2016-05-12	Lee Jaesuk	jaesuklee	08:28:26	19:51:43	11:23	
2016-05-12	Mazumdar Monalisa	4746a	07:11:12	16:03:55	08:52	
2016-05-12	Murad Mohammed	4721	08:02:45	17:52:52	09:50	
2016-05-12	Thangamani Gobinath	5743	08:48:26	18:01:03	10:13	
2016-05-12	Westadt Dan	4742-3	07:58:50		00:00	
2016-05-12	Yoon Katie	4717	08:34:22		00:00	
2016-05-13	Del Piano Joseph	4733	08:38:23		00:00	
2016-05-13	DePew John	4732	08:43:56		00:00	
2016-05-13	Gadde Ravindra	4712a	08:38:30		00:00	
2016-05-13	Jung Sehhwan	4790	08:28:48		00:00	
2016-05-13	Lee Jaesuk	jaesuklee	08:33:58		00:00	
2016-05-13	Mazumdar Monalisa	4746a	07:14:47	08:24:33	01:10	
2016-05-13	Thangamani Gobinath	5743	10:12:29		00:00	
2016-05-13	Westadt Dan	4742-3	07:41:33		00:00	
2016-05-13	Yoon Katie	4717	08:33:41		00:00	

Print Export



# Malaysia Prison Visitor Management

Malaysia Prison Visitor Management objectives are:

1. Record both iris code and face photo.
2. Accurately record in and out timing.
3. Provide physical access control.



## Relevant Applications / Case Studies




\*) Other Applications / Case Studies can be provided

# United Arab Emirates Expellee Program

- Since 2003 all borders and jails use IrisAccess devices to enroll deported persons.
- Each airport counter has iris devices which provide 1:N matches on Iris ID provided backend .
- The implementation started with IrisAccess 2200 upgraded to IrisAccess 4000. currently implementing iCAM 7000 and review iCAM D1000



# New South Wales Corrective Services



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## Australian state contracts Unisys to deploy iris and face biometrics in prisons for \$12.8M

🕒 Sep 7, 2022, 2:33 pm EDT | [Alessandro Mascellino](#)

CATEGORIES [Biometrics News](#) | [Facial Recognition](#) | [Iris / Eye Recognition](#)





The New South Wales (NSW) government in [Australia](#) has entered a \$12.8 million contract with American IT firm Unisys to roll out new facial recognition technology in the state's prisons.

According to [InnovationAus](#), the Unisys system will replace the existing touch devices for identification with multimodal contactless scanners able to capture and process iris and face biometrics simultaneously.

"The replacement biometrics system will allow for faster processing at all stages of the identification process," a spokesperson told InnovationAus.

"This will provide a better experience for all people as they enter and exit correctional centers and will support the safety and security of those individuals."

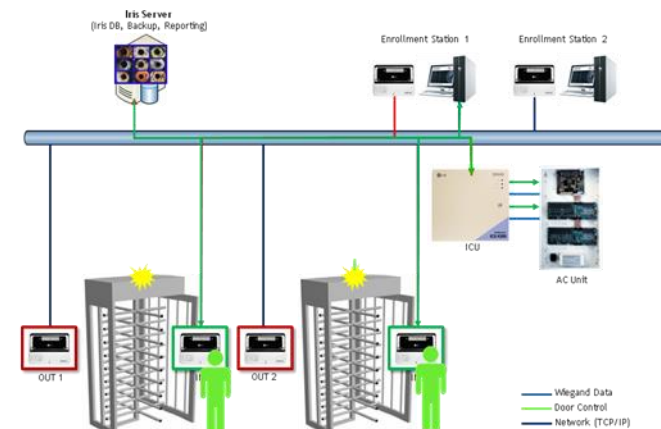
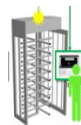
Those individuals include visitors to the state's 16 correctional facilities. The Corrective Services NSW



- The New South Wales (NSW) government in Australia has entered a \$12.8 million contract with American IT firm Unisys to roll out new facial recognition technology in the state's prisons.
- According to InnovationAus, the Unisys system will replace the existing touch devices for identification with multimodal contactless scanners able to capture and process iris and face biometrics simultaneously.
- "This will provide a better experience for all people as they enter and exit correctional centers and will support the safety and security of those individuals."
- Those individuals include visitors to the state's 16 correctional facilities.
- Iris ID Systems Inc provided iris recognition devices (iCAMR100) and Iris Accelerator matcher to Unisys.

# Turkish Ministry of Justice, Prison - Visitor Management

- Since 2003, 24 prisons across Turkey.
- Each site contains 11 iCAM's and Iris ID software.
- The implementation started with IrisAccess 3000 and IrisAccess 4000. currently implementing iCAM 7000

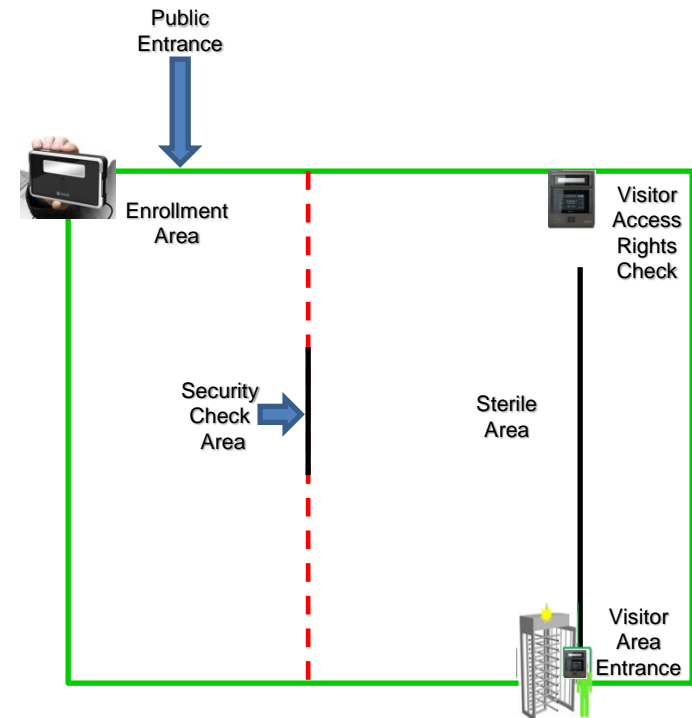




# Jalisco Jail, Mexico

## Prison - Visitor Management

- Implemented in 2012, prison population 20,000.
- Multiple prison complex, each site contains iCAM 7000, iCAM TD100 and Iris ID software.
- Each prison visitor enrolled in iCAM TD100 and given access right to the prison for a specified period.
- Upon exit the visitor access rights are removed and transaction is logged for auditor review



# INSiDE IS @ York County Pennsylvania USA

- Fast and Easy Inmate Book and Release Records Management
- Non-contact Iris Recognition
- Face and Easy Enrollment
- Simple , Easy and Intuitive User Interface
- De-duplication to Prevent Duplicate Enrollment (iIdentityCheck)
- Fast and Easy Dual Iris Enrollment
- Customizable GUI







**LACRIS**  
LOS ANGELES COUNTY  
REGIONAL IDENTIFICATION SYSTEM



Iris Pilot Live Scan



## Booking Station iris camera set up with articulating arm





## US State Deployments for Iris ID -

### Deployed

- California
- New Mexico
- Arizona
- Texas
- Louisiana
- West Virginia
- Georgia

### Pending

- Iowa
- Michigan
- Pennsylvania
- Virginia
- Ohio
- New York

States must have their fingerprint repository be able (upgraded) to handle Type 17 Iris Transactions

FBI is providing funding assistance for ABIS upgrades.

Other county level systems exist for Transportation / Book & Release and Parole Check in .

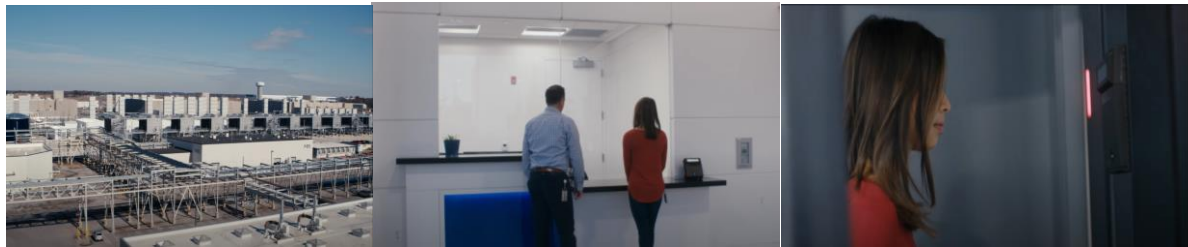
# Iris in Data Center Security



- IrisAccess™ Deployed since 2009
- IrisAccess solution provided to all Google data centers
- IrisAccess – Used in U.S., Asia and Europe (Ireland, Finland, Belgium) data centers
- Integrated with multiple existing access control systems on an enterprise level

- Link to Video

[https://www.youtube.com/watch?time\\_continue=4&v=zKx3npndgYg&feature=emb\\_logo](https://www.youtube.com/watch?time_continue=4&v=zKx3npndgYg&feature=emb_logo)



- IrisAccess deployed at Apple data centers globally
- Headquarters and Security Operation Center
- IrisAccess deployed since 2009
- Integrated with existing access control system



## CASE STUDY: Iris ID as Time Attendance Solution



# Get More Information



[www.irisid.com](http://www.irisid.com)



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**Thank you very much.**