Iris Recognition: Technology, Background and its Future in Our Touchless Identity World

Iris Recognition Technology
Identity Authentication

Iris Recognition Webinar
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Unlike other forms of authentication, such as passwords or tokens, biometric recognition provides a strong link between an individual and a data record. One area where biometrics provide the biggest benefit is in guarding against attempts to fraudulently establish identities.
Type of Biometrics

Physiological
- Iris
- Fingerprint
- Ear
- DNA
- Vein print
- Face

Behavioral
- Voice
- Gait
- Signature

Most used biometrics
Finger - Face - Iris
## Biometrics in multiple vertical applications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Vertical Market</th>
</tr>
</thead>
</table>
| Identification | - Large scale National ID Project  
- Mid/small scale Civil ID Project  
- Corrections/Detainee Management                                           | Government, Public Institution                       |
| Access Control | - Passport/VISA System  
- Border Crossing  
- Physical Access Control                                                   | Government, Corporate, Public Institution, Hospital, Bank, Airport, Harbor |
| Time & Attendance | - Exact Time & Attendance Record (No Buddy Punching)  
- High Throughput  
- Large scale factory / tough environment (coal mine)                  | Government, Corporate, Public Institution, Hospital, Construction Site, Coal Mine |
Iris Recognition Solution
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 the retina scan. It is same as taking pictures using normal digital camera – there is no worry about eye safety.
Contactless Biometrics in the COVID-19 Era

• Coronavirus pandemic has people concerned about contacting surfaces for fear of spreading disease

• Studies have shown COVID-19 can survive on plastic and metal surfaces for up to three days

• Some biometric devices require surface contact; many do not

• Ideally, biometric technology should work with Personal Protective Equipment worn by system users
# Iris Recognition Technology

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Positive Identification</strong></td>
<td>After 12 months of age, the iris pattern is completed and does not change through life. The iris pattern is unique - left and right iris are different, the irides of twins are not the same.</td>
</tr>
<tr>
<td><strong>Most Accurate</strong></td>
<td>The probability of two individuals having the same iris pattern is 1 in $10^{72}$. The most accurate biometric technology commercially available as of today.</td>
</tr>
<tr>
<td><strong>Easy of Use</strong></td>
<td>Just take a look from a distance of 12-inches (31-35cm) up to a one meter. Identification is possible even when wearing sunglasses or contact lens.</td>
</tr>
<tr>
<td><strong>Rapid Speed of Throughput</strong></td>
<td>Iris recognition is especially powerful in a large scale environment such as airport or borderline where high throughput is needed (1:N recognition in 10’s of millions database - less than 2 seconds).</td>
</tr>
<tr>
<td><strong>Non-Invasive</strong></td>
<td>Iris recognition is non-contact and non-invasive which means it is safe from any harmful contamination among people.</td>
</tr>
<tr>
<td><strong>Highly Scalable</strong></td>
<td>It's highly scalable from mid/small size office environment to large scale enterprise system or ultra large scale national ID project.</td>
</tr>
<tr>
<td><strong>Countermeasure</strong></td>
<td>Iris becomes a higher standard of biometric security solutions. IrisAccess has perfect countermeasure solution for filtering photo, video or fake eye intrusion.</td>
</tr>
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</table>
Iris compared to other biometrics

• **Accuracy** -- Probability of false accept is lowest for Iris
  ─ Face will have challenges at 1:N scale particularly in the case of twins and family members

• **Cost** – Cost of the matching system processor is less for iris as compared to face and fingerprint

• **Standards** – Standards for iris interoperability and between iris vendors is clearly established for images

• **Hygiene** -- Always contactless
Iris Camera Cost

- Price ranges from under $1,000 to the $15,000 range.
- The price varies directly with respect to capture distance
  - The further away the higher the cost of the capture device
- Similar price variance exists with face capture cameras too.
- Iris and Face are often combined in a single device reducing system cost.
## Government Iris Databases

<table>
<thead>
<tr>
<th>Client</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOHA Airport Qatar – Immigration</td>
<td>15 M</td>
</tr>
<tr>
<td>Aadhaar Card - Unique ID Authority India</td>
<td>1.2 billion</td>
</tr>
<tr>
<td>Mexico National ID Program</td>
<td>130M capacity ~ 27 M enrolled</td>
</tr>
<tr>
<td>Columbia Military</td>
<td>&gt; 300K</td>
</tr>
<tr>
<td>Pentagon Force Protection Agency</td>
<td>&gt;90,000</td>
</tr>
<tr>
<td>US State Department</td>
<td>300K</td>
</tr>
<tr>
<td>Somaliland Voter Registration</td>
<td>1.4 M</td>
</tr>
<tr>
<td>York County Correctional Facility</td>
<td>&gt;450K</td>
</tr>
<tr>
<td>Mexico Driver License – 5 States</td>
<td>&gt;2 M</td>
</tr>
<tr>
<td>LA Sherriff Department</td>
<td>CJIS Pilot – LACRS ABIS Aug 2020</td>
</tr>
<tr>
<td>UNHCR – Refugee ID</td>
<td>&gt;500K</td>
</tr>
<tr>
<td>UAE Expellee Program</td>
<td>15M</td>
</tr>
<tr>
<td>Iraq Government National ID</td>
<td>32M</td>
</tr>
<tr>
<td>NATO</td>
<td>1M</td>
</tr>
<tr>
<td>Paraguay Passport Program</td>
<td>&gt;200K enrolled to date</td>
</tr>
<tr>
<td>Africa Health Care Initiative – Gates Foundation funded</td>
<td>100K enrolled, 50M by 2022</td>
</tr>
<tr>
<td>Dominican Republic National ID</td>
<td>~2M</td>
</tr>
<tr>
<td>Australian Department of Corrections - NSW</td>
<td>&gt; 500K</td>
</tr>
<tr>
<td>OBIM – AKA US Visit (Including US Border Patrol data)</td>
<td>&gt;2M</td>
</tr>
<tr>
<td>US DOD ABIS</td>
<td>&gt;2M</td>
</tr>
<tr>
<td>State Department Diplomatic Security</td>
<td>&gt;100K</td>
</tr>
</tbody>
</table>
Iris Recognition around the World

Biometric identity service using iris recognition and fingerprint. Located in 65+ airports & venues

U.S. Customs & Border Protection uses iris recognition for identification on the southern border

Third busiest airport in Europe. Has been using biometric identification for 17 years

Qatar’s principal and only international airport

Aadhaar is the world's largest biometric ID system with more than 1 billion registered users.
Iris Recognition in U.S. Government Programs

- DOD BAT A
- State Department Diplomatic Security screening.
- U.S. Border Patrol E3 Program Detainee Management
- FBI CJIS Iris Pilot Program
- DMDC
- U.S. government ID cards PIV, CAC, TWIC
  - The card data model has a container for iris
  - DMDC is beginning to populate the CAC card with iris data
ENFORCEMENT SYSTEMS DIVISION

BIOMETRICS ON THE FRONT LINE

Assistant Chief Jason R. Thompson
Transportation Security – CATSA

• 34 airports deployed by Canadian Air Transport Security Authority.
• 180,000 - 200,000 participating employees.
• Employees carry their iris & fingerprint template on a secure smart card
• Integration with existing airport security systems.
• Operational since 2004.
Canada Border Services Agency  Nexus Program

Expansion of enrollment centers for CBSA Canada Border. 2.5 million registered travelers enrolled as of 2019.
DOD BAT A

• Anthony Iasso Incadence Corp

See The Kind of Work We Do at InCadence
Gaining Acceptance Worldwide

- Asset Protection
- Data Center Security
- Lab Security & Bio Hazard Containment
- Infrastructure Protection
- Workforce Management
- Hotels Clubs
- POS & Retail

This is a partial list, for representation only.
Gaining Acceptance Worldwide

Transportation Security

Government & Public Safety

Civil Identity

- Amsterdam Airport Schiphol
- Dubai Airports
- CatSa ACSTA
- Albany International Airport
- FEMA
- India
- Kingdom of Jordan
- Vietnam
- State of Qatar
- Sultanate of Oman
- Kingdom of Saudi Arabia
- Canada/US Border
- Mexico

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Get More Information

International Biometrics +Identity Association
www.ibia.org

Iris ID
www.irisid.com