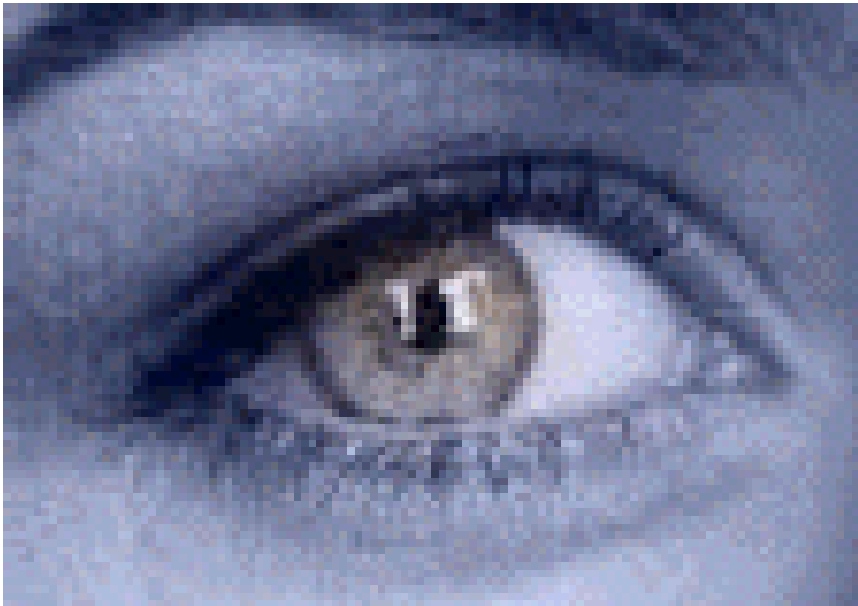


## Key Use Cases for Iris Recognition



Martin George - CEO  
Smart Sensors Limited (UK)

# Key use cases

Use case type	Sub-type	Examples	Co-operation
Access Control (incl time & attendance)	Physical (PAC)	Personal access to borders, sites, buildings, premises, facilities, clubs, hotels, operating theatres, medical stores, etc	4-5
	Logical (LAC)	Personal access to a computing environment, restricted remote data, bank account, etc	3-5
	Digital	Authorisation to view or sign a document, or conduct a financial transaction, etc	4-5
Screening	Controlled	Pinch-points, kiosks, gates	3-4
	Semi-controlled	Corridors, generally uni-directional flow – but could be two lanes	2-3
	Uncontrolled	Open areas, opportunistic capture	1
Handheld/portable biometrics	Services	Mobile ID for military services and law enforcement, e.g. US Army Biometrics Automated Toolkit, US Customs & Border Protection, US Coastguard, etc	5
	Consumer	Mobile phones, USB sticks, etc	5
ID Management	-----	De-duplication of ID databases, ID checks at enrolment, high volume matching	N/A

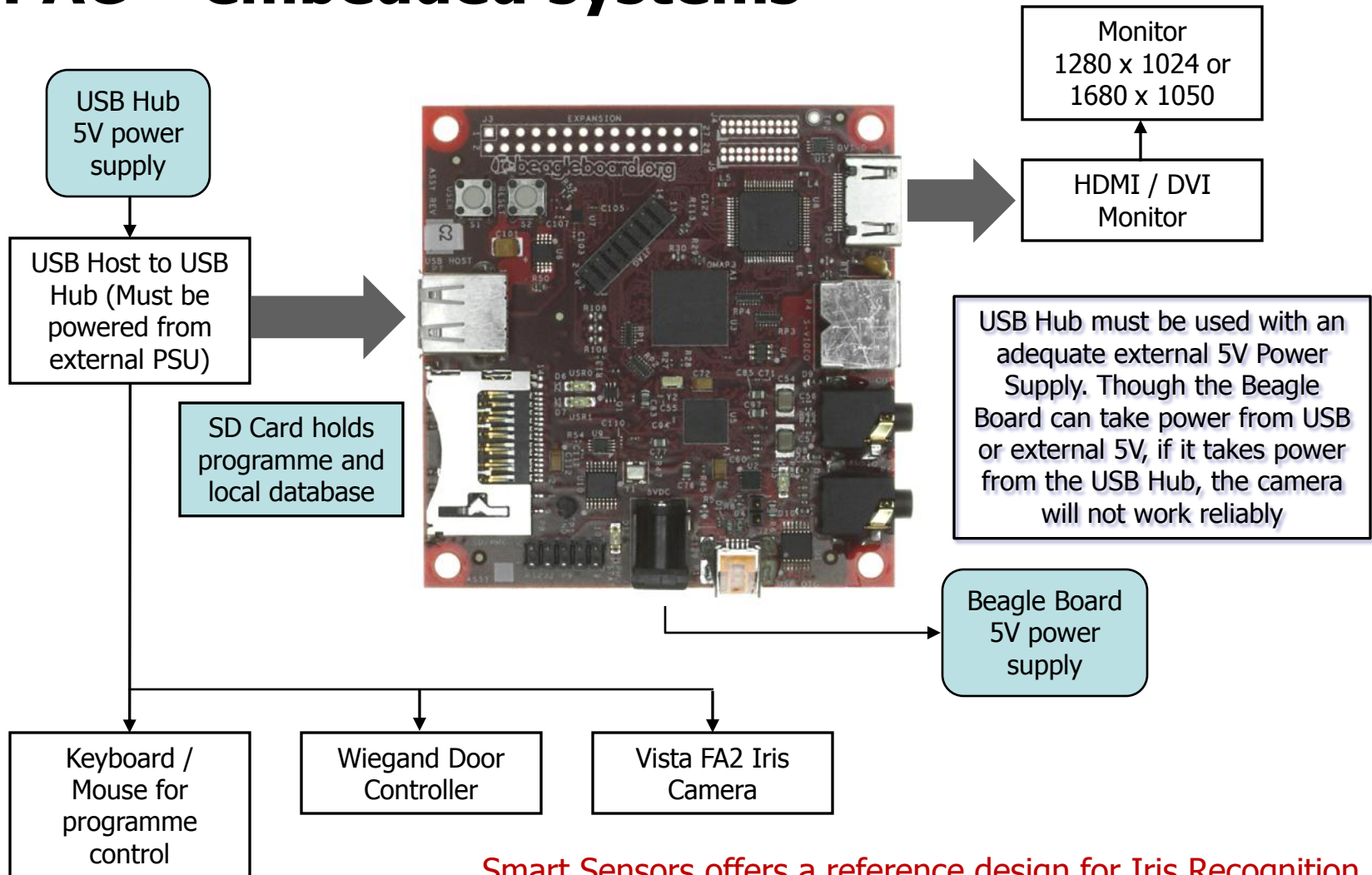


# Physical and Logical Access Control

**Iris camera at each entry station, networked to back-end server system. Option to keep local database on camera.**

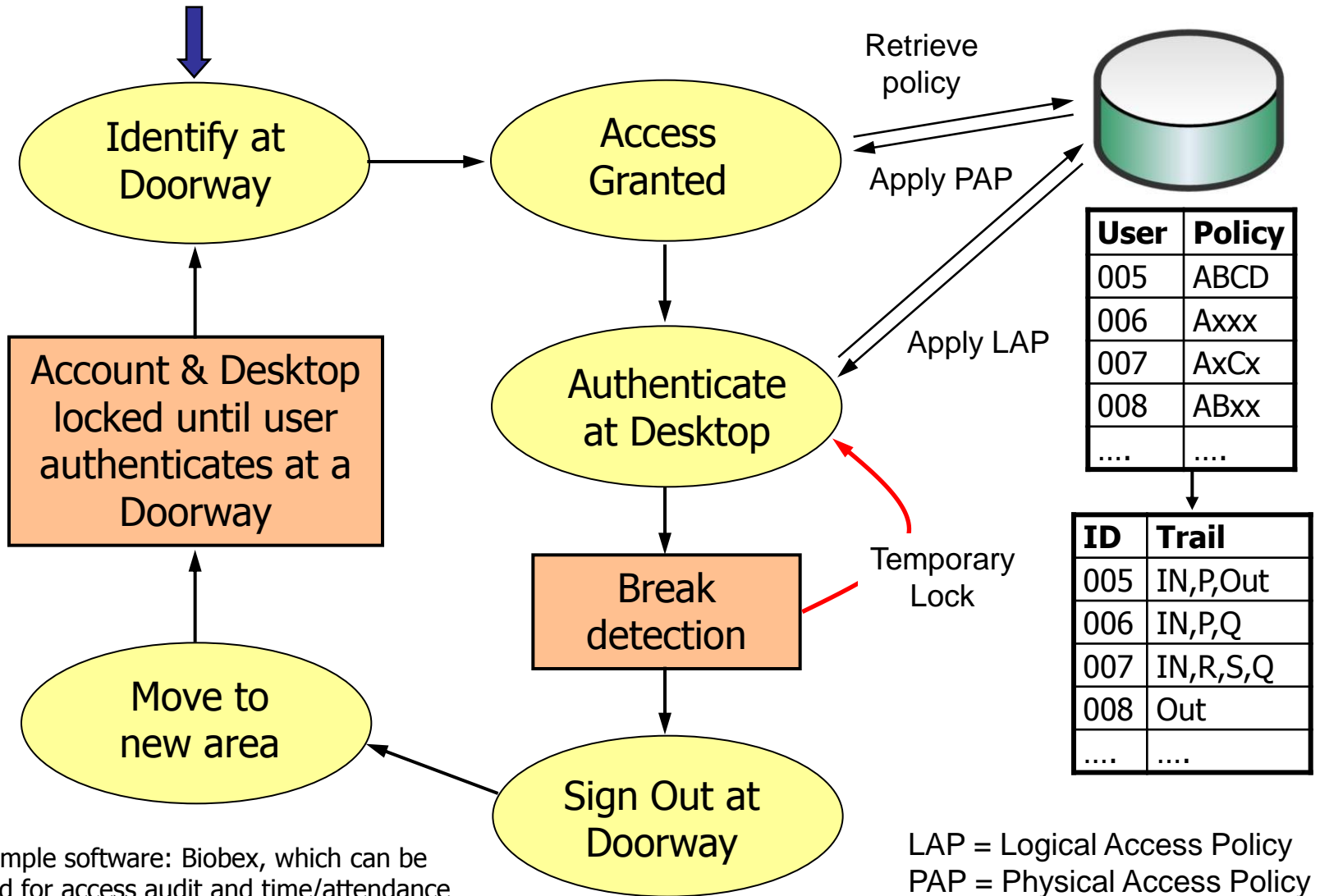
- Hands-free, non-contact, hygienic
- Automatic enforcement of access policies and hierarchies
- Remote monitoring and alerts for security personnel
- Avoid card systems and pin-pads, or strengthen their use
- **Natural integration with time and attendance systems**
- Time saved in getting staff productive upon sign-on
- Extend attendance audit trail to remote + "hot-desk" workers
- Stops "buddy punching" and "phantom workers"
- Same generic system structure – many applications

# PAC – embedded systems



Smart Sensors offers a reference design for Iris Recognition Access Control based on TI OMAP processor with on-board user database and Wiegand door control facility

# Combine Logical and Physical Access Control



Example software: Biobex, which can be used for access audit and time/attendance

# System management requirements

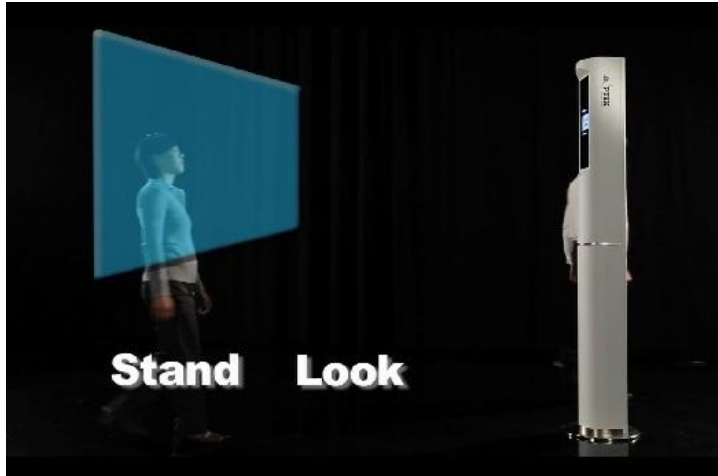
<b>Enrolment</b>	<b>Authentication/ Identification</b>	<b>Policy Admin</b>	<b>Monitoring</b>
Enrols new users into system	Captures presenter's biometric(s) and searches database to authenticate / identify	Manage / update user information including roles and permissions	Alert detection and handling system
Gathers and stores biometric samples and/or templates in a database	Retrieval of hierarchy level, and access policies associated with presenter	Manage / update security policy	Keep track of system activity and access events
Moves users' biometric data between authentication repositories	Biometric challenge / response feature (may be enabled via break detection)	System configuration	Logging and responding to access failures
Visitor/guest creation tool	At doorway – apply PAP At desktop – apply LAP	Manage physical locations of computers and access devices	Hand off user information and status to other parts of BMS
	Manage exit events		Inboard / outboard status display

# Screening of People on the move

## What's available now

- People moving through pinch-points (e.g. Sarnoff Iris-On-the-Move subsystem with MIRLIN software)
  - Low level of co-operation: keep walking, look straight ahead, keep eyes open; identification on the fly
- People moving through e-gates such as at Border Control (e.g. Aoptix Technologies' InSight™ subsystem)
  - Low level of co-operation: stand for ~2 seconds in a large capture volume; rapid identification; built-in gate controller
- Throughput up to 20 people per minute
- Many gates or pinch-points connect as clients to one identification server system (local ID also possible)

# Partner examples: Stand-off Iris Capture



## Sarnoff Iris On the Move™



**AOptix  
InSight™:**  
at 1.5-3m  
distance!



*MIRLIN compatible and demonstrated with these systems: the default option with InSight™*

### Requirements of Stand-Off Iris Capture

- Require minimal user co-operation
- Cope with glasses, contact lenses, etc.
- Opportunity to integrate facial recognition
- Identification mode - no contact needed
- Handle 20 people per minute throughput
- Optics and photon budget MUST be right!
- Iris feature processing near frame rate
- *Adaptive Optics = effortless user experience*

# Handheld and Portable Biometrics

- Multi-modal biometrics capture with credentials (cards and 1D/2D bar-codes) reader
- Iris algorithm must run fast and accurately on low-power PDA (e.g. Windows CE)
- Ability to interact with remote systems (e.g. Wi-fi link)
- Designed for mobile officers to enforce law and border control e.g. supporting national ID and electronic passports



Example: Datastrip's DSV3 Multi-modal mobile reader incorporates MIRLIN Iris Recognition Engine with TRIAD application software

# Identity Management and Fast Matching

- For rapid matching within very large databases (e.g. National ID)
- Exploits proprietary template indexing techniques, uses SAN/SSD
- 2,500 class look-ups/sec, on ANY database size
- Example: 4TB RAM holds ~50M indexed ID records, and can support 2,500 simultaneous ID queries/second run by a single PC
- Can be used with other binary templates (e.g. fingerprints)

Based on Smart Sensors' US patent applications:

- Fast Database Matching
  - 23 Oct 2006, ASN 11/585,365. Publication no. 20080097992
- Fuzzy Database Matching
  - 23 Oct 2006, ASN 11/585,358. (Granted No. 7,809,747 on 5<sup>th</sup> Oct 2010)

# Contact Details

- Further information available from:

- Smart Sensors Limited  
Carpenter House Innovation Centre  
BATH, BA1 1UD  
United Kingdom

Tel: +44 (0) 1225 388690

Wanausha Khafaf – Business Development Executive  
[wkhafaf@smartsensors.co.uk](mailto:wkhafaf@smartsensors.co.uk)

**Follow us on Twitter:** <http://twitter.com/SmartSensorsLtd>

