

Biometrics in China

— A National Activity Report

China National Body
ISO/IEC JTC 1/SC 37 Biometrics
London. July 10, 2006

China's Participation in SC37

- Joined SC37 in 2004
- Participated 2005 (South Africa)
- Participating 2006 (London)

Outline

- Biometrics in China
 - Background
 - R & D
 - Applications and Markets
- Standardization Efforts
 - Organization
 - Current Activities

Background

Nation's Facts (1)

- Country of the largest population
 - Population 1.3B
 - Floating Population 140M
- Economy growth, rapid increase in the use of computer and Internet users
 - 100+ M Internet users
 - 4,500 billion USD e-bank transactions in 2005
- Government – Supportive
- Acceptance of biometric applications

Nation's Facts (2)

- Biometrics R&D started in early 1980s,
- Commercial systems appeared in 1993
- Industry: 200+ companies
- Academia: 100+ research teams
- R&D Areas: Face, iris, fingerprint, palmprint, hand, voice, gait, signature, vein, etc
- Compelling technologies developed

Biometrics Meetings in China

- Chinese Biometrics Forum since 2003
- Annual Sino-biometrics Conference since 2000 (merged to ICB since 2006)
- Asian Biometrics Forum, 2006



R & D

Leading R&D Teams

- Center for Biometrics and Security Research (CBSR)
Institute of Automation, Chinese Academy of Sciences (CASIA)
- Joint Research & Development Laboratory for Advanced Computer and Communication Technologies (JDL)
Institute of Computing Technology, Chinese Academy of Sciences (CASICT)
- Electric Engineering Dept, Tsinghua University
- Center for Information Research, Perking University
- Biometric Research Center, Hong Kong Polytechnic University
- Center of Forensic Sciences, Beijing Genomics Institute

Center for Biometrics and Security Research (CBSR)

Institute of Automation, Chinese Academy of Sciences (CASIA)

- Largest Biometrics Team in China
 - 10 Researchers, 3 Advisors, 30 Ph.D Students, 30 Master Students, 10 Engineers, 3 Admin Staff
 - Face, Iris, Fingerprint, Palmprint, Signature, Gait, Voice
- Advocate of Nation-wide Biometric Activities
- Biometrics Books:
 - Handbook of Face Recognition. S.Z. Li and A.K. Jain (Ed), Springer, 2005
 - Human Identification based on Gait. M. Nixon, T.N. Tan, R. Chellappa. Springer, 2005
 - Encyclopedia of Biometrics. Editor-in-Chief: S.Z. Li. Springer, 2008.
 - 250 A-Z entries, 1000 pages, covering all aspects of biometrics. XML version updated annually
 - "Harmonized Biometric Vocabulary" will be adopted as much as possible
 - Contributions of entries from SC37 participants are welcome

Advanced Technologies

- Face (Visible Light & Near Infrared)
 - CASIA
 - Institute of Computing Tech, CAS
 - Tsinghua University
- Fingerprint
 - CASIA
 - Peking University
 - Many Companies
- Iris
 - CASIA
- Palmprint
 - Hong Kong Polytech Univ
 - CASIA

Algorithm Competition Winners

- Face -- ICPR 2004 (Banca database)
 - No.1 in all tests (Tsinghua Univ.)
- Face -- ICB 2006 (XM2VTS database)
 - No.1 in all tests (Institute of Comp. Tech, CAS)
- Fingerprint -- FVC 2004
 - 3rd on the open category, 7th on the light category (CASIA)

Biometric Databases

- CASIA Iris Database
 - Used by 1600 organizations from 70 countries/regions
- CAS-PEAL Face Database
 - Used by 95 organizations from 30 countries/regions

Applications & Markets

Significant Biometric Applications

- Governmental
 - Self-Service Border-crossing (deployed)
 - ShenZhen – Hong Kong Boarder since June 2005
 - Zhuhai – Macau Boarder since April 2006
 - Biometric E-Passport (on-going)
- Enterprise: Time attendance and access control
 - Finger, Face, Iris, Hand
- Consumer products
 - Face Logon – on notebook PC
 - Finger Logon – on mobile phone
 - Finger Lock

Biometric Border-Crossing: ShenZhen – HongKong

- 400,000 border-crossings every day
- Two scenarios: Passengers & Vehicle Drivers
- 100+ gates deployed by now
- Two Modalities: Face & Fingerprint
- 1,600,000 people enrolled.
- Verification Speed: 6 sec / crossing
- 35,000,000 crossings since June 2005



Market: Biometric Sales

Modality	Sales (units)	Revenue (m)	Mkt share
Fingerprint	165,000	462.0	95.2%
Palm	500	15.5	3.2%
Face	(licenses)	5.1	1.1%
Iris	100	2.2	0.5%
	Total	484.8	100%

Market: Application Sectors

Applications	Mkt share
Time Attendance	42.2%
Access Control	27.6%
Lock	14.3%
Government	4.1%
Information Security	0.97%
Police AFIS	7.58%
Others	3.25%
Total	100%

Standardization

Standardization and Testing: Organizations

- Standardization Administration of China (SAC)
 - National Standardization Technical Committee for Information Technology (TC28) ↔ ISO/IEC JTC1
 - <http://www.nits.gov.cn>
 - TC28 secretariat: China Electronics Standardization Institute (<http://www.cesi.ac.cn>)
- Related Organizations
 - TC100 ↔ IEC TC79
 - www.tc100.org.cn
 - TC100 secretariat: Ministry of Public Security
 - Center for Biometric Product Testing
 - A Branch of Center for Information Security Product Testing
 - Host: CBSR (www.cbsr.la.ac.cn)

Ongoing Works: National Standards

- SAC/TC28 (\leftrightarrow ISO/IEC JTC1)
 - Developing product standards (Eg: Technical specification for iris authentication systems)
 - To absorb SC37 standards as national standards (2007 projects)

Ongoing Works: Product Standards

- SAC/TC100 (\leftrightarrow IEC TC79)
 - For Public Security Related Applications
 - Developing Standards for
 - Fingerprint, Face, Iris, and Hand Geometry

Future Perspectives

1. China to become a great market for biometrics (currently very small)
2. China to become a provider of biometric technologies and systems (visible now)
3. China to contribute to SC37 (We will do our best)

Thank You



Thank You



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