

“Transillumination Imaging of a Finger”

- Accuracy comparable to IRIS scan
- More convenient and user friendly

1. Introduction of Bionics Co., Ltd
2. Features of blood vessel authentication
3. Performance analysis of personal identification by transillumination imaging of a finger.
4. Blood Vessel Authenticator VA-100
5. Application sites in Japan
6. The world of created by blood vessel authentication

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C.E.O.
Bionics Co., Ltd

Introduction of Bionics

Company history

2001. Jan. /Established the company.

Sep. /Introduced Blood Vessel Authenticator VA-100.

2002. Oct.- /Room access control, attendant management, network security system etc. were developed.

2003. Aug. /Scientific Paper on Transillumination Imaging of a Finger was released in Sydney”.

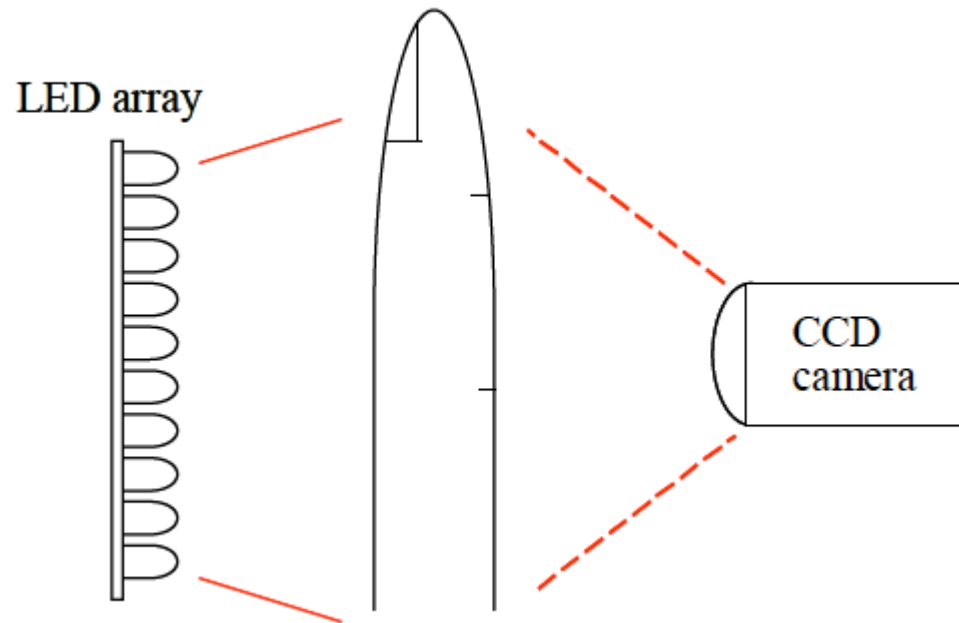
2004. Feb. /Awarded The 3rd Japan Bio-venture Grand Prize of Minster of Economy, Trade and Industry.

Mar. /Marketed the 2nd version model VA-200 for condominium security system in Japan.

Features of Blood Vessel Authentication

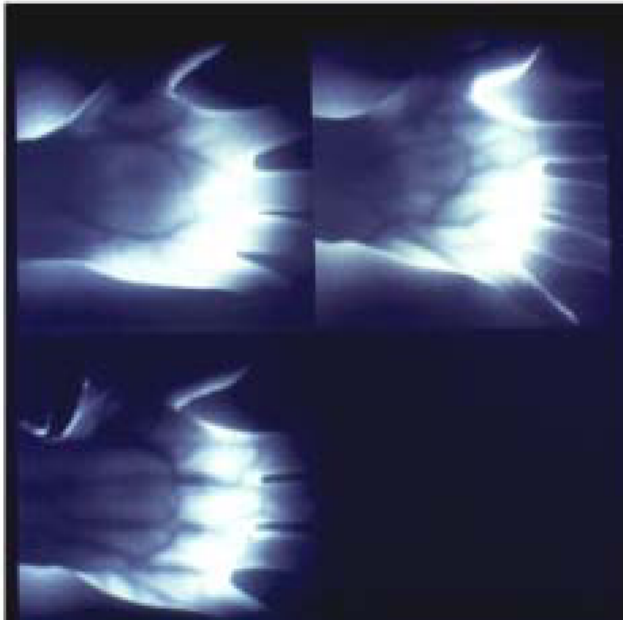
- The pattern of blood vessels is individual-specific
- Minimum affect from dirt and scars on the surface
- Personal privacy advantages over other techniques
- Difficult to counterfeit
- Scans people that do not have fingerprint
- Ease of use

Principal of Transillumination Imaging

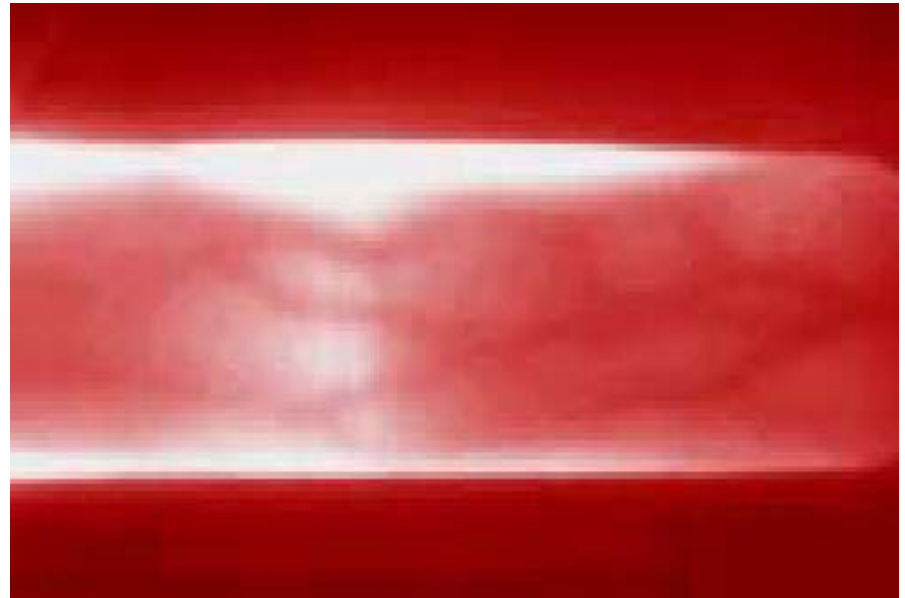


Transillumination Image of Fingers

Image from CCD Camera



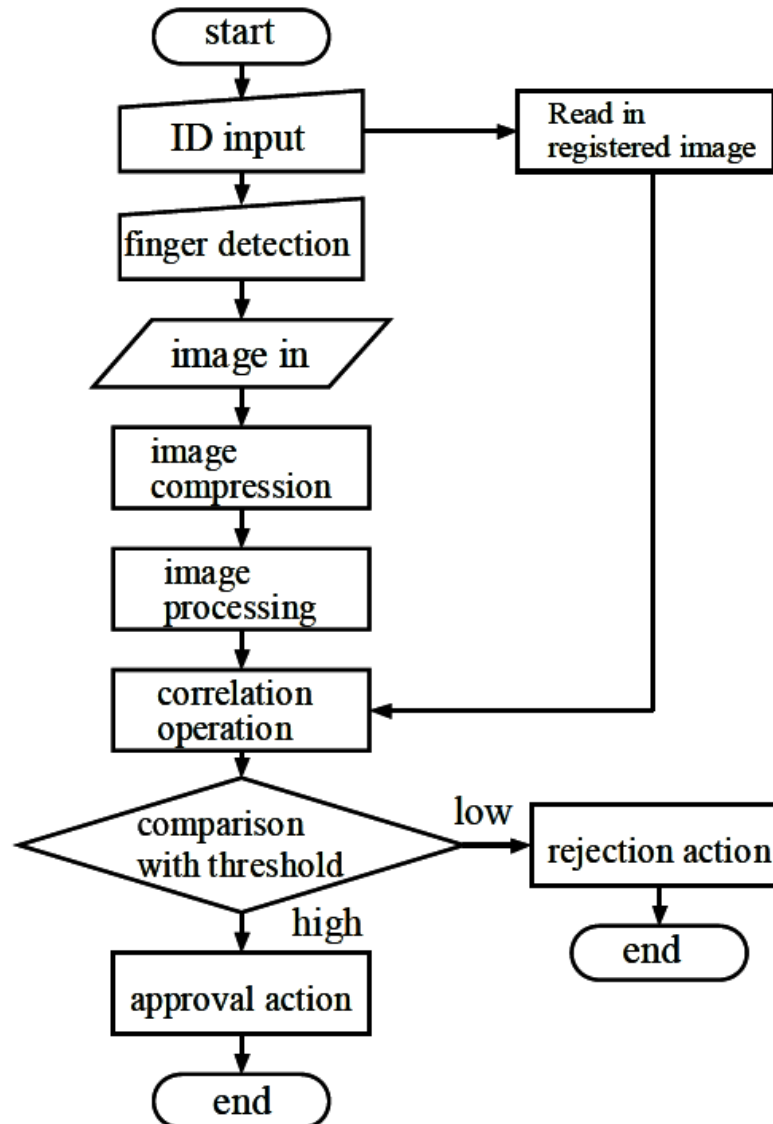
hands



finger

Finger Has Lower False Rejection Rate

Flow of Identification Process



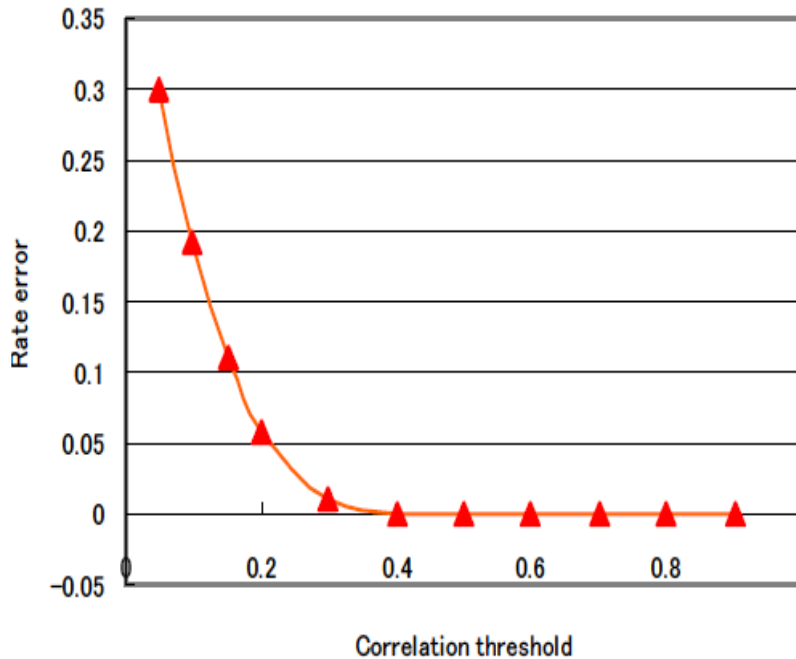
Concept Validation

Hokkaido University

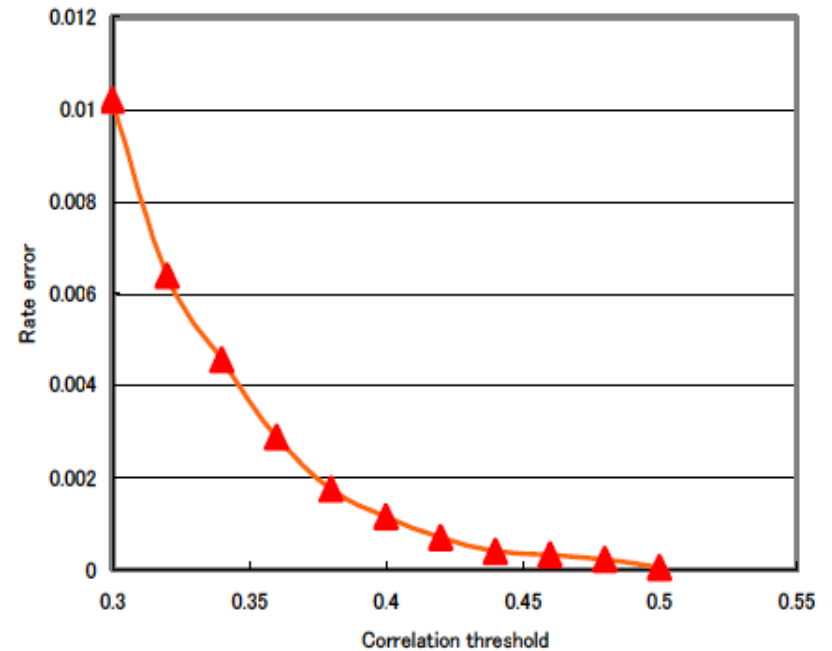
To examine the effectiveness of the personal identification using the transillumination image of blood vessels, the fundamental characteristics of the Bionics **VA-100** were analyzed.

FAR on Correlation Threshold

Hokkaido University Test Results



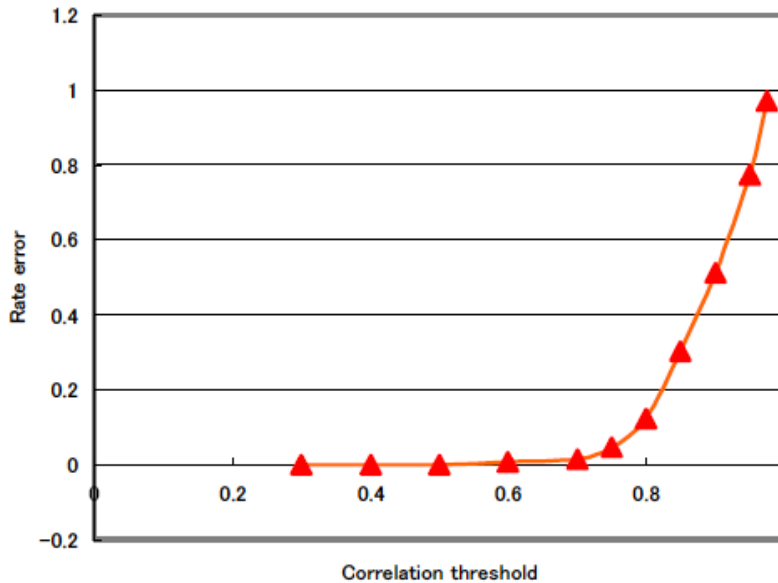
(a) overall characteristic



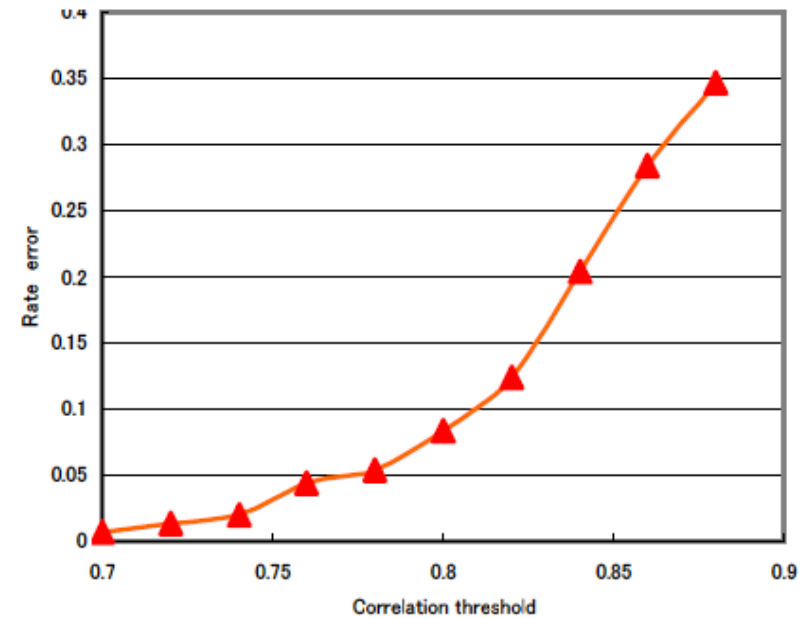
(b) diminishing area

FRR on Correlation Threshold

Hokkaido University Test Results



(a) overall characteristic



(b) appearing region

Conclusion of Experiment

- The dependence of the rejection and acceptance errors on the correlation threshold was verified.
- The errors can be controlled by selecting correlation thresholds.
- Low error rate can be achieved.

VA-100

Blood Vessel Authenticator

Authentication time	1.0 seconds
False Rejection Rate (FRR)	0.01%
False Acceptance Rate (FAR)	0.0001%
ID code number	1-7 digit
Interface	RS-232C, RS-485
A maximum number of net	32 gate
Power supply voltage	AC100V \pm 10% or customize
Power supply frequency	50/60Hz
Consumption electric power	18W
Use environment	Temperature 0-50°C
	Humidity 30-90%







VA-200

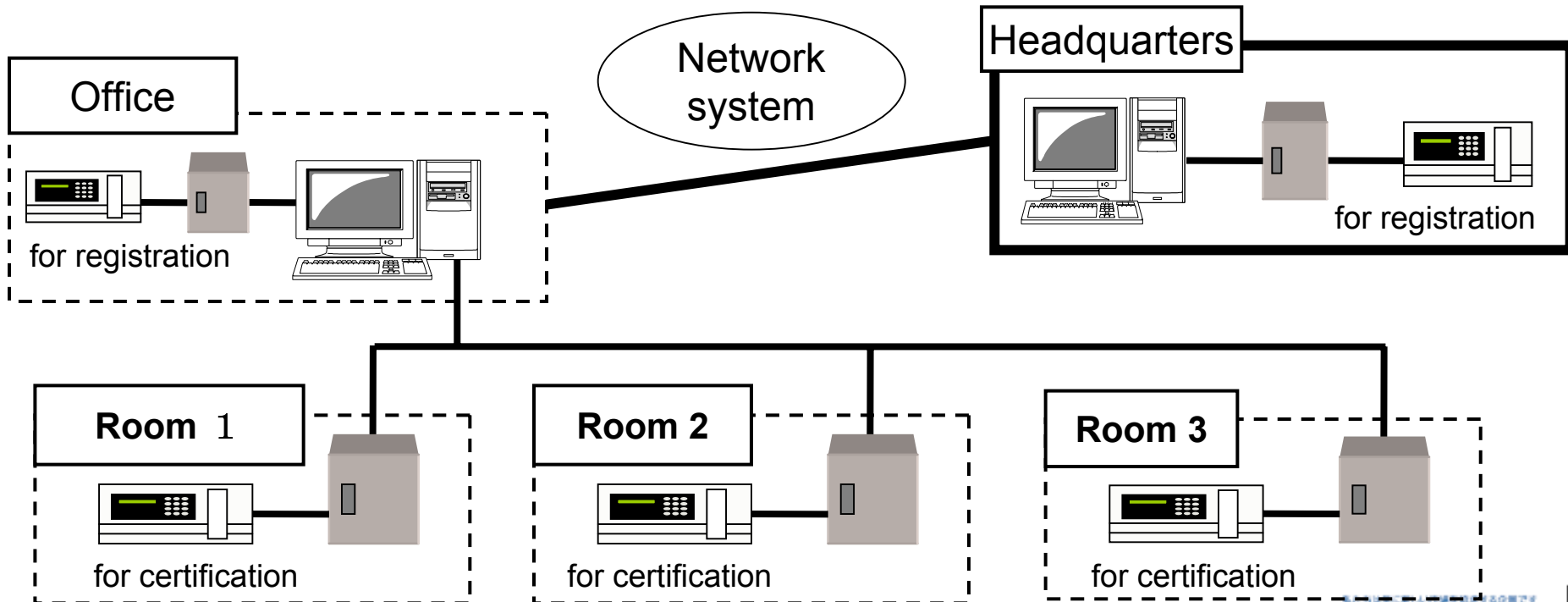
Next Evolution of the VA-100

VA-100/200 in a Networked System

- ..Used in conjunction with room access control software, room access status can be displayed in real time
- ..System can be combined with Smart Cards such as employee IDs, etc.
- ..By connection to the internet, remote control from headquarters is possible
- ..The operation hours of verification equipment can be set by the Supervisor



Ideal for an office that requires PC record management



Application sites in Japan



NTT Tele-park buildings in Osaka



Office of Financing Company in Tokyo



TRI of Clinical Laboratory in Kobe

Application sites in Japan



Japan Nuclear Cycle Development Institute



Data Center in Power Company



Office tenant buildings of Orix Group
in Osaka

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