

Core Technology - Fingerprint Algorithm

Years of experience in fingerprint technology have given us an advantage to grow independently on our own. Our fingerprint technology, starting with the development of our reliable and powerful algorithm set that led to the release of our fingerprint software. The range of our software are capable to cater the demand from both private and government sectors all across the globe in providing secure fingerprint verification and authentication. Customization of software is normally an uncomplicated process due to our ability to develop the system independently. Added to this, our headquarters also produce our own fingerprint sensor and module, that are based on this algorithm, which lead us to develop various biometric devices and applications. This algorithm, *IZZIX – BSPV2.2/3.0 Fingerprint Recognition*, is the core product umbrella that that allow us to grow and develop in providing total biometric solutions worldwide.

1.1 Background of Technology

Patented technology, *IZZIX – BSPV2.2/3.0 Fingerprint Recognition Algorithm* follows the commonly accepted fingerprint identification scheme, which uses a set of specific fingerprint feature points (minutiae). In addition, it contains many advanced algorithm solutions, which enhance the system performance and reliability. Our unique algorithmic performs the fingerprint authentication process from capturing, extracting, and matching to proof one's identity.

IZZIX – BSPV2.2/3.0 which was developed by Digent Co Ltd, obtained the certificate of standard compliance and performance evaluation for fingerprint algorithm from KISA. This product's function is divided into extraction and matching. This product complies with the BioAPI 2.0 standard and supports CBEFF (Common Biometric Exchange File Format). *IZZIX* module has a very small recognition error, high speed of comparison and verification for Biometric information. This product also supports flat and rotated fingerprint image. Our powerful set of algorithms includes:

- Image Quality Check Algorithm
- Efficient Image Enhancement Algorithm
- Fully Tolerant to Fingerprint Distortion and Rotation Matching Algorithm
- Fingerprint Enroll Mode with Feature Collection
- Database Classification and Pre-Sorting by Global Feature Vector
- Suitable Algorithm to 1:1 and 1:N Mode

1.2 Description of Technology

Our algorithm supports both 1:1 matching and 1:N matching. 1:1 is One-to-one basis identification in order to authenticate a user. 1:N is to identify an individual by comparing the scanned print to many different templates stored in a database, as is commonly done with criminal background checks.

For 1:N matching, user does not have to submit user ID, only the fingerprint. Therefore, the entire security of system can be operated only with fingerprint using this function. This fingerprint algorithm has been awarded the Number 1 Fingerprint Algorithm in Korea by the Korean Government BMT in July, 2009 with exceptional speed and accuracy of 620,000 fingerprint data processing per second for PC Base (4 core) and 3,700,000 fingerprint data processing per second in the Matching Server Base (24 core).



K-NBTC Standard Conformance Test Certificate

Item	K-NBTC Standard Conformance Test Certificate
Content	<p>K-NBTC (Korea-National Biometric Test Center) certified that Digent's Fingerprint Identification Algorithm (V2.2) is qualified for the criteria of biometric system certification.</p> <p>Performance Test & Certification Services of K-NBTC is based on the Biometric Test and Reporting and Process recommended by International Standards Organization.</p>

SPECIFICATION

Standard: ISO/IEC 19784-1, 24709-1

Template size
Enrollment speed

480 Bytes
0.2 second

False Acceptance Rate(FAR)
False Reject Rate(FRR)
Matching speed
Rotation range
Matching level

< 0.0001%
< 0.1%
1/1,200 second
0 ~ 360°
Five levels

Matching Server base (24 core)

3,700,000 fingerprint data processing per second

PC base (4 core)

620,000 fingerprint data processing per second