Biometrika

FxISO SDK

FxISO Software Development Kit

FxISO is a collection of powerful software modules for fingerprint acquisition, processing and matching.

FxISO works with fingerprint templates compliant with ISO/IEC 19794-2 (2005) thus enabling full interoperability with third party systems. This is very important in any large-scale and government application.

The use of highly novel image processing, feature extraction and matching algorithms, derived from intensive research in cooperation with universities, makes FxISO, not only highly interoperable, but also extremely accurate and efficient.

Technical specifications

Features

- High accuracy and efficiency
- Compliant with ISO/IEC 19794-2 (2005)
- Multiple templates (more fingerprints & more samples in the same template)
- Template Encryption

Supported Sensors

- Fx2100, Fx3100, HiScan e HiScan-PRO
- Functionalities for scanner management and configuration
- Fingerprint acquisition functionalities

Functionalities

- WSQ support
- Advanced graphical interfaces for fingerprint acquisition and user enrollment
- BioApi compliant (1.1)

Interface and Development

- Supports all main programming languages (C, C++, VB6, VB.Net, C#.Net, Java,..)
- Operating system: Windows XP/Vista/7/8, Linux

Optimized image enhancement	FxISO implements novel fingerprint enhancement algorithms, capable of reliably processing most of the low quality fingerprints (e.g., dry or wet fingers, damaged ridges, etc.). This reduces the number of false rejections thus increasing robustness of the whole fingerprint recognition system.
Direct gray-scale feature extraction	Minutiae are directly extracted from the gray-scale image by means of an innovative algorithm (requires no image binarization) in order to avoid the loss of important details and to reduce verification time.
Interoperability: ISO 19794-2, WSQ	FxISO works with fingerprint templates compliant with ISO/IEC 19794-2 (2005) thus enabling full interoperability with third party systems. FxISO also permits to load/save Fingerprint Images in WSQ compressed format.
Fast and very accurate	Less than 1 second is necessary for feature extraction and (1-1) matching on a Pentium class PC. Quoting absolute FRR and FAR performance does not make sense: these measures are strongly dependent on the database used for the test. Over FVC2006 (DB2) FxISO achieves an Equal Error Rate (i.e. FRR = FAR) equal to 0.0015 (0.15%), and a ZeroFAR (i.e. FRR when FAR=0) equal to 0.0064 (0.64%). These numbers are very close to the World top-performing algorithms on the same database (see http://bias.csr.unibo.it/fvc2006/). **Note** that FxISO was able to achieve such level of accuracy with a very compact template (about 0.5KB) whereas FVC participants typically use larger templates (2-5 KB) storing minutiae and several other features.
Multiple template and Encryption	The software provides primitives for enrollment from multiple fingerprints images, and key-management routines for storing and transmitting encrypted templates (128 bit symmetric encryption).
Configurable	Developers can adjust some algorithm parameters (e.g. matching speed, max. template size) for the optimization of performance for each specific application.
Support several sensors	All the Biometrika scanners (including Fx2100, Fx3100 and HiScan) are supported by FxISO SDK.
Easy development	The SDK have been specifically designed to facilitate for an easy application development and provides "graphic dialogs windows" for the most commons tasks (user enrollment, on-line acquisition, …).
Supported O.S.	The SDK requires Windows XP/Vista/7/8 or Linux, and can be used with all the usual programming languages and tools (including Visual C, Visual Basic, C#, …).