Biometric Solutions –
Bringing you the Future Today

KABA®

Biometrics in Data Collection

This is true of access control and time recording as well as unambiguous identification for process flows in manufacturing or administration. The decisive arguments in favor of acquiring biometric systems are a simple, comfortable and safe data collection.

Biometrics is already being used successfully in a wide range of sectors. For example for time recording in the City of Bielefeld hospitals.

What is Biometrics?
Biometrics is the science of verifying and establishing the identity of a person through individual physiological features and behavioral traits. These traits are the basis of any type of biometric identification.

Why Biometrics?
The continuously increasing flow of information puts high demands on the human memory. However, password and PIN have the disadvantage that they can get lost or misplaced.
So what would be better for identification than one's own physiological, biometric traits?
Biometric traits cannot be forgotten, passed on or stolen.

Kaba is the trendsetter in data collection and opts for biometrics as a modern alternative.
It is important to distinguish between the theoretical discussion about biometric traits in personal identity documents and its use in practice. Biometric systems are already being used today successfully in data collection. This is demonstrated by the large number of installations already functioning to the entire satisfaction of our customers.
The fingerprint method is the most widely spread biometric technology. Many of the reservations previously expressed against biometric recognition methods have since been eliminated. Biometrics is gaining acceptance in all industrial sectors.

The Fingerprint Method
From a variety of different biometric methods, Kaba has decided in favor of fingerprint recognition as the identification method.
It is the most universal method with a very high user acceptance in the market.

The fingerprint method can be simply integrated in different terminals as reader module. They can be operated intuitively by user-guidance and have proven their effectiveness for daily use in rough environments.
Kaba is already using biometric systems in a wide range of sectors. Some include manufacturing, trade, banking, public authorities, food industry, hospitals, and aviation.

Functioning of the Fingerprint Method

Digital image of a fingerprint showing the minutiae recognized and used by the system.

5178954
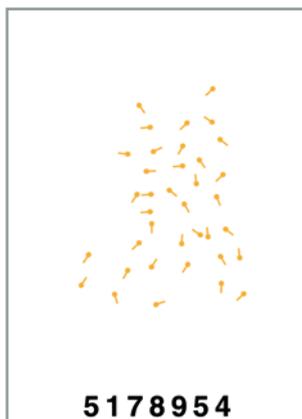
The minutiae are transformed into a group of figures by means of an algorithm. This means that no images of the fingerprints are stored but pure groups of figures.

The careful recording of the fingerprint, which is saved as reference print, ensures a perfect and quick function of the biometric solution.

How does biometric recognition with fingerprints work?

The concept is easy. A scanner unit generates a digital image of the fingerprint.

The recorded lines of one's finger, such as junctions, end points of print ridges, and minutiae, are transformed into a column of figures with the help of an algorithm. This means that no images of the biological fingerprints are stored but pure groups of figures. The storage medium can be a hard disk, the memory of a terminal, or a chip card.

The algorithm does not allow the template to be reconverted into a biological fingerprint.

During the recognition process, the fingerprint is scanned and compared with the stored template data. This process is called matching.

If the stored reference template matches the scanned fingerprint, the person is positively and legally binding identified.

Why is the enrollment of a reference finger so important?

The most important prerequisite for proper functioning of a biometric solution is the first-time accurate recording of the fingerprint that is stored as a reference.

In practice, any finger can be placed on the sensor's glass surface or simply swiped across the surface.

For safety reasons, a second finger is scanned in case the first finger cannot be read due to an injury.
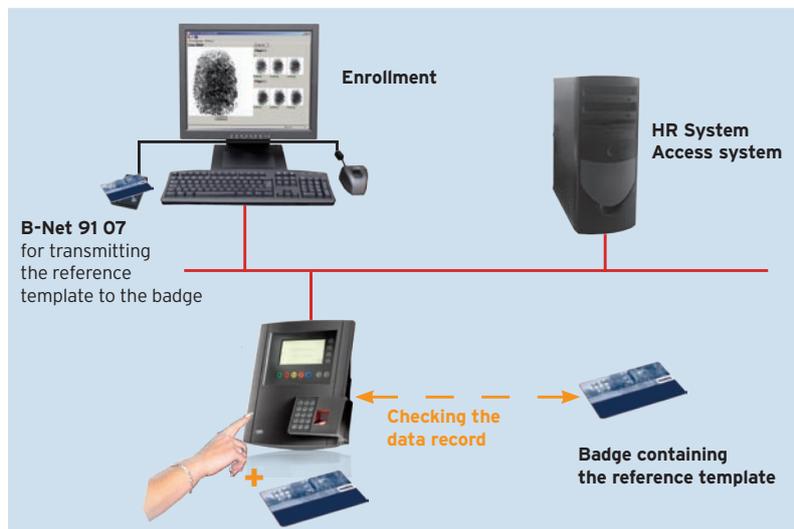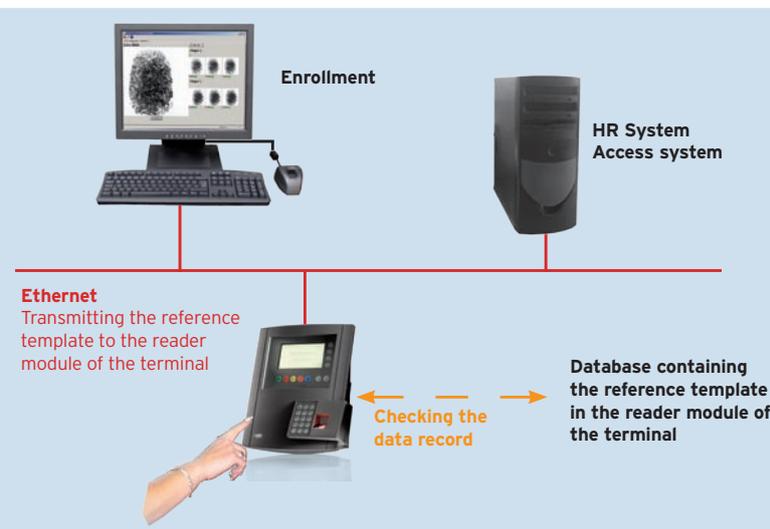
The PC's self-explaining user interface ensures a simple, accurate enrollment process.

This enrollment process is done once or several times until a high quality fingerprint is obtained.

The better the enrollment of the reference template, the higher the probability that a quick and correct match with a fingerprint produced at the terminal is obtained. The latter can be of lower quality, for example due to placing the finger differently or due to the finger being dirty.

The number (e.g. 5178954) that results from the reference template is stored in a database (identification) or a storage medium, for example a LEGIC chip (verification). This number is then assigned a badge or personnel number, which will then be checked in the access control system.

Identification or Verification

Enrollment

**HR System
Access system**

Ethernet
Transmitting the reference
template to the reader
module of the terminal

**Checking the
data record**

**Database containing
the reference template
in the reader module of
the terminal**

**Kaba's Identification Solution –
One-to-all matching of the fingerprint data.**

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Enrollment

**HR System
Access system**

B-Net 91 07
for transmitting
the reference
template to the badge

**Checking the
data record**

**Badge containing
the reference template**

**Kaba's Verification Solution –
1 : 1 matching of the fingerprint data via badge.**

Kaba offers two different types of biometric recognition methods from which the user can choose: According to his requirements, he can choose between an identification and a verification solution. The basis of both methods is the use of the reference fingerprint for identifying individuals.

Kaba's Identification Solution
The enrollment station is connected to the PC that runs the enrollment software and the concentrator database. The first-time recording of fingerprint data is done via the enrollment station. The enrollment software files the recorded information as a reference template in the concentrator database. The template is supplemented by a badge/personal number and distributed to the terminals.
This distribution takes place once. After that, all data is managed directly in the terminal.

The terminal identifies the employee by matching the employee's fingerprint with a template containing the employee's personnel number. This comparison with all stored reference data is called 1-to-all (1:n) matching. With this trendsetting procedure no badges are necessary - each person uses the fingerprint for identification. Thus, no badge management is necessary.

Kaba's Verification Solution
During verification a person's fingerprint is recorded at the enrollment station, converted by an algorithm to a biometric reference data record, and transferred to the individual's data carrier, for example a LEGIC badge of the person. For the recognition process, the reference template is read out from the storage medium. The fingerprint is then scanned, converted, and compared with the badge's reference data record. This comparison is also called one-to-one (1:1) matching. If the two data records match, the employee's identity is confirmed. Another advantage of this solution is that the employee's biometric data is stored on the badge and responsibility is with the holder. This guarantees the data protection regulations.

Biometrics - its Benefits Will Open your Eyes!

- Today, fingerprint technology is the most universal method of all biometric systems.
- Employed in almost any application where safe organization and ease of use are important factors.
- Biometric traits cannot be forgotten, passed on, spied on, or stolen, as a badge or PIN can.
- Simple handling of the recognition process.
- High user acceptance.
- Legal certainty - who was identified when.
- Sophisticated systems that have been in use for years to complete customer satisfaction.
- Simple addition to existing data collection systems.
- Option to select between identification and verification solutions.

- Identification solution based on the Sagem technology, which is also used by security services.
- Adaptation to already existing workflows and integration of biometrics into IT structures.
- Comprehensive terminal range for time recording and production data collection applications and for access control.
- Personal data protection because it is not possible to reconstruct the biological fingerprint from the stored finger template.
- The use of the trendsetting biometric system emphasizes a company's positive appearance.
- Suitable for daily use in rough environments.
- Optionally for use in outdoor installations.

- Due to the unambiguous identification, a misuse such as ''in or out booking'' for other employees is impossible.
- Process optimization and cost savings with the identification method:
  - no badges necessary
  - no costs arise because of lost badges or badges that have not been returned
  - no late booking entries because there is no badge to be lost
  - Employee turnover and seasonal variations of employee numbers can be implemented more costeffectively than with traditional badge systems.