

Case study Fujitsu PalmSecure

Ferencváros Soccer Club scores with BioSec biometric personal identification system for its new stadium

»Highest security, user friendly characteristics«

Peter Györgydeák, CEO of BioSec, Hungary



technologies and is one of the most modern in Europe. Due to its capacity, the stadium has also proven to be ideal for concerts and other major events.

The challenge

For the new stadium there was a need of a biometric personal identification system besides the ticketing and the card based physical access control system. The defined goal of the biometric identification was to prevent banished people to enter the stadium for the time of their banish, additionally to guarantee that each visitor can only enter its designated sector (e.g. that supporters of the two teams cannot get close to each other) and finally to prevent stolen or lost fan cards to be used by others, since within the stadium it serves as cashless payment system.

After taking into consideration also other biometric solutions (face recognition), the decision was made by Ferencváros Soccer Club to use the BioSec palm vein identification system, based on Fujitsu PalmSecure technology, for secondary identification at the turnstiles. The expectation of Ferencváros Soccer Club was to find the most secure solution, which is identifying fast enough to let 22 000 people in within 60 minutes at 36 gates. The solution had to be compatible with the RFID fan card reading system and meet all the legal regulations concerning data protection (especially in a public facility as this), be safe against vandalism, weather resistant and user friendly for all age groups. Every visitor, who wants to enter the stadium has to register once in a lifetime at the Ferencváros Soccer Club office to receive a fan card, since tickets can be only bought by using the Ferencváros Soccer Club fan card number and cashless payment within the stadium is also done with the fan card.

The solution

For the biometric personal identification the BioSec LifePass solution was chosen. 8 registration points were created at the ticketing office for registering the visitor, handing out the fan card and enrolling the biometric templates of the person. At the registration point we read out the member ID number stored on the fan card and assign the person's biometric ID (left and right hand) to it in a separate database. We do not store any personal data, therefore the biometric database remains anonymous. As software developer all API's were developed by BioSec. Specially for the stadiums separate terminal and hardware

The customer

Country: Hungary
Category: Soccer Club founded 1899
Stadium: Albert-Flórián-Stadium
Visitors: max 22.600 + 29 vip lounges
Website: www.fradi.hu



The challenge

Identification system besides the ticketing and the card based physical access control for mass personal identification.

The solution

BioSec LifePass solution based on Fujitsu PalmSecure palm vein technology

- BioSec 100 terminals
- BioSec BS-CAN controller
- BioSec LifePass authentication server software, "middleware"

The customer

The Ferencváros Soccer Club in Budapest, Hungary was founded in 1899 and its new own stadium on was built in 2014 to house not only the national league games of the team but also international level games. The 23000 seat stadium is equipped with the latest

solutions were developed to meet the above mentioned criteria and FIFA / UEFA requirements.

At one of the 36 entry gates (turnstiles) the visitor holds its fan card to the RFID reader, the member ID will be read out. According to the member ID the physical access control system checks the following information:

- does the person has a valid ticket?
- if yes, is he at the right gate for the designated sector?



In case the answer for both questions is yes, the BioSec system receives the member ID and the person puts its hand onto the BioSec terminal (at the gate) to read out its biometric ID. In case there is a matching with the previously recorded, we grant access to the stadium.

Using BioSec LifePass for secondary identification it is easy to ensure that the real owner of the card is standing at the turnstile and nobody can misuse any personal identity or card.

The BioSec LifePass system has been calibrated to handle 80 000 people (160 000 biometric templates!).

The benefit

- Easy to handle also for large number of people
- Second identification time
- Highest security with optimal data protection, two level mini hash protection
- Minimal hardware infrastructure needed
- Supports family friendly stadiums
- It has proven itself in the hardest environment in relation with sports.

The benefit

With BioSec System a cost efficient solution was installed, which ensures a 100% certainty that only those visitors can enter the stadium, who are allowed to. BioSec system supports the goal of Ferencváros Soccer Club to create a peaceful and family friendly temple of sport. Since the BioSec LifePass solution is a middleware it was easy to integrate into the ticketing and RFID access control system.

In opposite to other biometric technologies (e.g. face recognition), there

is no possibility to trick the palm vein scanning based BioSec system, since the person is scanned individually and there is no chance to "change" or hide the hand in order to avoid identification. The palm vein based biometric ID doesn't change statistically from the age of 14 during our whole life, therefore it is enough to register into a system once in a lifetime. In case of the theft of biometric data, it cannot be used, since every fake or stolen biometric template hash code will be recognised immediately, due to the two level BioSec mini hash security system.

How palm vein detection works:

Palm vein recognition is based on the absorption of infrared rays, i.e. heat rays, which encounter venous blood in the palm veins, i.e. blood that is flowing back to the heart. The sensor in the entrance terminal sends near infrared light to the palm. The oxygen-reduced blood in the veins absorbs the infrared light.

Palm vein recognition with PalmSecure is practically impervious to environmental influences and is due to its touch-free nature a very hygienic procedure. It only works with living tissue and in view of the present state of technology is free from manipulation. PalmSecure also provides significantly higher precision and security than the biometric recognition of a finger print or an iris. As the use of PalmSecure at Ferencváros Soccer Club shows, it is easy, quick and convenient for the user to handle.

Biometric palm vein sensor technology is also increasingly proving itself in everyday life. The advantages of this technology are:

- Age-independent, individual vein structure
- A secure and manipulation-free biometrical feature under the human skin is scanned.
- Impervious to dirt, moisture and superficial injuries of the hand
- High degree of precision and protection against forgery, CC-certified (Common Criteria)
- Ergonomic, simple handling
- Error rate in practice of 0.00008% as regards an unauthorized person falsely gaining access or 0.01% for an authorized person being incorrectly denied access

About Fujitsu

Fujitsu is the leading Japanese information and communication technology (ICT) company offering a full range of technology products, solutions and services. For more information, please see www.fujitsu.com.

About BioSec

BioSec is a leading developer of biometric solutions based on Palm Secure, especially in the field of 1:n or mass personal identification, IT Security (e-mail encryption, Windows Log in) and biometric digital signature. For further information: www.biosecgroup.com.



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