Case study
PalmSecure™ provides members with easy and convenient access

"PalmSecure enables fast and easy access for authorized persons only - even during peak business hours and with a minimum of effort."

Thomas Bengs, Head of Security Solutions, Solution Business Group, Fujitsu Technology Solutions

The Customer

Country: United Kingdom
Industry: Leisure & Wellness
Sector: Fitness centers
Locations: Birmingham, Cardiff, Slough and Wood Green
Member customers: 3,500 to 5,000 per location
Web: www.easygym.co.uk

The Project

The requirement was to implement a member access control system with turnstiles and authentication through biometric identification of the palm veins in combination with a personal identification number (PIN). The solution is used in all the fitness centers of the easyGym group in the United Kingdom.

The Solution

Turnstiles at the entrance, controlled by an access system based on Fujitsu PalmSecure. Pilot project at the Slough location. Initial registration by the user during the registration procedure. Due to thoroughly positive experience use in all locations and, as a fundamental decision, in all future easyGym locations.

General conditions

Wellness enjoys great popularity. An increasing number of people in industrial countries attach great value to health and physical fitness. Large leisure centers with a wide range of services and a professional organization are now a market trend.

easyGym is a large fitness center chain in the United Kingdom with four sport studios in Birmingham, Cardiff, Slough and Wood Green. easyGym is expanding and plans to open a further 10 - 15 fitness centers in the United Kingdom. The group also wants to expand into other European countries. Leisure centers are becoming increasingly popular. For example, Slough already has 3,500 members and 5,000 members are registered in Birmingham. Tickets for day guests or vouchers are issued. Initial registration and payment are usually made via the Internet.

The challenge

Professional access control is essential for such a large number of members. It is necessary to ensure that only authorized persons have access to the respective fitness centers. Conventional card systems are excluded right from the outset, because cards are not only loaned, lost or stolen, they can also be forged. This means unauthorized persons would have access to the fitness centers and would then unjustifiably make use of the services. This should be prevented.

In contrast, the administration of access authorization should be simple, as automated as possible, and done with a minimum of effort. Access to the fitness center should at the same time be as inviting as possible. Large numbers of visitors during busy periods, such as weekends or after work, must be managed without any backlogs, which in turn means that the authentication procedure must be performed quickly, smoothly and without any interruptions.

The solution

As card systems were ruled out from the outset due to the possibility of manipulation, easyGym favored biometric procedures. After comparing available technologies, such as fingerprint sensors or iris recognition, and also the systems of various providers, the palm vein recognition system from Fujitsu, PalmSecure™, emerged as the ideal solution for easyGym.
The access system in Slough was the first location to be equipped with Fujitsu PalmSecure and successful put into operation. Due to a high

level of customer acceptance, the efficiency of the system and the manageable costs for the conversion easyGym management decided to use Fujitsu PalmSecure in all the group fitness centers - as well as in its future locations.

The human palm vein pattern is extremely complex. The position of the veins remains the same throughout your lifetime and is different for each and every individual. Dirt or superficial injuries to the skin have no impact on the palm vein pattern. And beneath the surface of the skin it is best protected against any misuse and manipulation.

PalmSecure can be used in an uncomplicated and intuitive way. With easyGym each new member is sent an 8-digit PIN code per letter or e-mail. A registration terminal is located in the entrance area of the fitness center. The customer registers with his PIN code, the palm vein pattern is scanned during the "programming phase" and is saved in the access system as a personal identification pattern. After initial registration, the scanning of the palm vein pattern and entry of the PIN code are done automatically. Each palm vein pattern is compared with the details in the system and the easyGym customer is accordingly allowed to enter, whereas non-registered visitors are denied access. Access verification with PalmSecure takes place at high speed and reliability; without any inconvenience whatsoever to members in the entrance area.

The benefits of the project with easyGym

Four reasons were decisive for the success and thus also the benefits of using PalmSecure at easyGym:
- High level of acceptance on the part of the members
- Low costs of the access system with regard to maintenance, and also personnel costs
- High degree of system reliability when used in practice
- Prevention of misuse

These were also the reasons that disqualified the use of a card-based system right from outset. Member authentication with PalmSecure is quick and uncomplicated with a minimum of effort. Access control takes place on a personal basis and an individual profile cannot be transferred to other persons – neither intentionally nor unintentionally. Initial registration takes place without any training and intuitively. In comparison to other biometric procedures, PalmSecure offers a high measure of security and convenience.

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. The camera of the PalmSecure sensor makes a picture of the vein pattern, encrypts it into a special algorithm and then transforms it into a biometric template, which is then saved

in a database.
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 easyGym 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

The benefits of the PalmSecure solution

- The system is easy to install and operate
- Minimal effort as regards member administration due to a high level of automation
- Uncomplicated, fast registration process
- Highly secure authentication through palm vein recognition of the person – not of a medium
- Only authorized persons have access, member id cards cannot be passed on to others
- Fast authentication process
- Impervious to environmental influences
- Exceptionally high level of user acceptance
- Simple implementation of "true authentication"
- Manageable access system operating costs
- High degree of data security - no central data storage
- Biometric data only has to be entered once in a lifetime