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The Development of Personal Identification in Prisons

I build my publication upon 12 years of experience that I have spent in the IT field at the prison service since 2007. During this period, I continuously analysed the possibility of identifying prisoners by their biometric characteristics and I am currently conducting research on the same subject. Summary documentation on prisoner identification is currently not available. My article provides a comprehensive picture of the identification systems used in Hungarian prisons and their development, and at the same time outlines the future of personal identification.

Keywords: biometrics, prison, identification, fingerprint, QR code

1. Introduction

Biometric identification is one of the most common and most advanced means of identification, the essence of which is to be able to establish someone's identity with great certainty, quickly and credibly. Taking advantage of the explosive and dynamic development of information technologies, biometric identification methods are also undergoing continuous and rapid development. This type of authentication is multi-faceted, depending on what the expectations are, what purpose it is used for, how much money is planned to be spent on their implementation, and how the identification system envisioned can be designed.

In Hungary, the biometric identification method has not yet become widespread in prison service.[2]

My article focuses on summarising the identification systems having been used so far in Hungarian prisons. In the prison service, personal identification has played a key role in the admission of a detainee and in his or her daily phone calls and shop purchases in recent decades.

I believe that the biometric identification system of the Hungarian Prison Service, which I envisaged a long time ago, is already close to physical implementation.

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[2]   Katalin Kondás and Endre Szűcs, 'A személyazonosításra vonatkozó speciális szabályok a büntetés-végrehajtásban', Biztonságtudományi Szemle 2, no 2 (2020), 15–21.

2. Paper-based identification

Until 2004, prisons had not had an automatic identification system for identifying detainees. The convicts had the opportunity to make phone calls with the telephones placed in the prison wards. The registration was done on paper. The detainee filed a phone call appeal, requesting, within the regulated framework, a call to be made to his or her relative. A member of the prison service staff could provide the phone call at a specified time. The phone call was made using a telephone card, with the participation of the prison service staff. The relative or lawyer was called by the prison service staff at the time corresponding to the permit, and after making sure that it was the authorised person that actually picked up the device, the prison service staff member handed over the phone to the detainee, who could thus begin the conversation. If, according to the judicial ruling, the detainee's telephone calls could only be made with the prison service staff monitoring, then the personnel were present throughout the telephone call. At that time, the calls were only administered on paper, as were the purchases made at the institute's shop.

3. Automatic identification system

In 2004, the Hungarian prison system underwent significant development. The installation of an IT system began, with which all telephone conversations of convicts could be monitored and interrupted when prohibited information was communicated. The process of automation started. Establishing the system came at a huge cost, but the development, which was in the amount of two hundred and fifty-one million forints, delivered the expected results, and the work of the prison personnel was made easier a great deal.

They introduced the Contel telephone system, which was developed for prison service institutes to monitor the telephone conversations of convicts. The convicts were given a piece of paper with a barcode, which was made durable by laminating. This card was the barcode identification card. The barcode was the unique identifier that identified the cardholder, so it did not contain any monetary information or pre-paid minutes. A camera was installed next to the telephone. The function of the camera was that the camera feed was monitored by an operator and it could be established from the data stored in the system whether it was indeed the card owner who was making the call. The system already knew which telephone numbers belonging to the person, previously provided by him or her and verified by the authorities, could be called. In compliance with the framework of legal provisions, the operator was able to listen in on all calls, so the telephone calls no longer required a personal presence on the part of the prison service staff.

At that time, the construction of telecommunication and IT systems using databases had already begun. Each convict received a barcode identification card, identified him/herself with a card reader before the phone conversation, and thus the device allowed the detainee to call the phone numbers he or she was allowed to. Convicts could make purchases the same way. In the past, it had been much more

complicated to check phone calls, as a guard had to be placed next to each convict.[3] The new system received positive reviews and has been developed and used in all institutes over the years.

The system operated adapting to legal changes, e.g. it stored and monitored call options. A further advancement in the system was storing the facial images of inmates and the use of these images for identification. By the year 2006, a camera installed in the telephone was able to perform an automatic check using the IT system. The facial identification was rudimentary at the time.[4]

3.1. Barcode-based telephone system

The basis of the system is that each prisoner has a unique barcode identification card, and the given card also has a photo of the prisoner assigned to it, stored in the IT register. If the prisoner wants to make a phone call, for identification he or she will need the identification card, the barcode of which having been scanned, the camera built into the telephone will take a photo of the detainee and compare it to the photo in the database. Identification is based on this.

The conversations can be fully monitored, and telephone charges are settled automatically based on data from the financial system. It is important to note that the barcode card can be used for phone calls as well as for purchases at the institute store if the prisoner has financial coverage.

The first and most important activity in the system relating to the phone conversations is the safe and fast identification of the detainee. At the beginning of the call, when the detainee picks up the receiver, he or she is given a verbal instruction through the device to show the barcode on his barcode card to the flashing light of the code reader and face the camera. After the card is presented, if the light goes out, the identification has been done automatically.

The biometric identification of the detainee is carried out by comparing the image extracted from the detainees' database as put on the screen and the image from the webcam attached to the telephone.

3.2. Barcode based shopping in the store

The financial system for inmate phone calls and in-store shopping is the same. The costs of purchases and phone calls are immediately reflected in the convict's financial flows.

At a store purchase, the inmate hands over his or her barcode ID card to the seller, who reads it with the barcode reader. The photo stored and belonging to the scanned card is displayed on the monitor on the counter. In addition, the screen shows the amount of money that can be used in the store. The monitor is positioned in such

3   Hajnalka Fülöp, 'Elektronikus pénztárca a börtönben', NOL, 10 February 2006.
4   Gergely Gárdonyi, 'Az állóképes arcképazonosítás Magyarországon', Belügyi Szemle 69, no 7 (2021), 1133–1148.

a way that both the seller and the buyer can see it well, so the inmate can easily decide how much money to spend in the store and how much to leave to make phone calls.[5]

The Electronic Public Administration Operational Program was a significant development that allowed the introduction of new identifications.[6]

4. System-wide development

For the Hungarian prison system, the largest system-wide reform started already back in 2010. Between 1 January 2013 and 30 June 2014, within the framework of the Electronic Public Administration Operational Program, the Ministry of the Interior implemented their priority project "Responsibility and Preparedness in Penitentiary Enforcement Phase 2", in co-operation with the National Command for Penitentiary Enforcement, with a budget of HUF 500 million. Within the framework of the project, the development of the classified data management system was implemented, 7 audited security areas were established, an encrypted data connection ensuring the electronic transmission of classified data was also established between the security areas, and the system for handling non-classified data was expanded as well. 1,200 workstations were replaced with thin clients, with expanding server capacity where necessary. The reform affected the modernisation of local networks, the increase in the number of endpoints, the entirety of computer equipment (servers, workstations) and the replacement of records based on outdated software technology, as well.[7]

The aim of the reform was to create a homogeneous, standard, uniformly solid, nationwide, closed IT system.[8] At all of its locations, the system provides an identical infrastructural background for the operation of the newly developed records by creating a homogeneous office environment. At the same time, the existing IT systems were replaced by newer ones.[9]

The network bandwidth has increased, local data storage has been replaced by central data storage, remote access.[10]

Thanks to the project, with the expansion of the prison system, the ability to exchange data is improved and the administration is sped up. Thanks to the modernisation, the nominal electricity consumption of the penitentiary organisation will be reduced by HUF 30 million annually.

In 2013, the operation of the Hungarian penitentiary system received a new legal basis as the new Penitentiary Act was enacted. The greatest system-wide IT development in the life of Hungarian prisons was also made during this period. Law CCXL

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5   Katalin Kondás, Fogvatartotti azonosítás a büntetés-végrehajtásban. MA thesis, 2013, 13–40.
6   Attila Sebestyén, 'Büntetés-végrehajtás informatikai fejlesztési projekt', in Kommunikáció 2009, ed. by Károly Fekete (Budapest: Zrínyi Miklós Nemzetvédelmi Egyetemi Kiadó, 2009).
7   Government Decree 1236/2012 (VII.12.).
8   Tibor Farkas, 'Védelmi infokommunikációs hálózatok és rendszerek – szakmai felkészítés', Hadtudományi Szemle 13, no 1 (2020), 37–48.
9   Katalin Kondás and Endre Szűcs, 'Informatikai korszakváltás egy büntetés-végrehajtási intézetben', Hadmérnök 12, no 2 (2017), 272–279.
10   Tibor Farkas and Szabolcs Prisznyák, 'Kormányzati célú infokommunikációs hálózatok. A rendészeti szervek infokommunikációs rendszere', Hadtudományi Szemle 10, no 4 (2017), 583–596.

of 2013 on the implementation of penalties, measures, certain coercive measures and the imprisonment for committing misdemeanour contains the determination of the convicted person's identity. The Penitentiary Institute of the Prison Service Organization is obliged to verify the identity of the convicted person, during which, based on the data recorded in the documents that form the grounds for admission, they take over the data of the convict that are handled in the personal identification and photo registries of the criminal records system and verify the data in the records.[11]

In order to identify the convict, the institute now also records the convict's fingerprints and initiates the comparison at the expert registration body pursuant to Section 82 (5) (b) of Act XLVII of 2009 on the criminal record system, the registration of convictions of Hungarian citizens by the courts of the Member States of the European Union and the registration of criminal and law enforcement biometric data. The comparison is made electronically by scanning with the electronic equipment designed for this purpose.[12]

With the change in the law, detainees were given the opportunity to keep in touch with their family members with a mobile phone provided by the organisation, which is a stripped-down device and its use does not require identification. Wall-mounted telephones have largely been phased out, with only two institutes still having this system these days. For in-store purchases, object-based identification has been retained, coupled with a more modern IT system and using a QR code.

In 2015, the replacement of QR code identification with palm vein biometric identification was discussed. The solution was not implemented due to high costs. I examined the practical application of palm vein identification in Turkish health insurance.[13]

5. Introduction of the NFC technology

The system called Service Application to Facilitate Detention (hereinafter: SAFE) enables fast, electronic retrieval of information and data on detainees and is also suitable for recording the implementation of standard protocols. Only applications required to perform service duties may be installed and run on SAFE mobile devices.

Each cell of the institute has an NFC tag that displays all the relevant information about the cell on the SAFE device, e.g. who is the detainee, what degree of security he or she has, whether the cell is a smoking cell. The inmate also has an NFC tag, which provides quick information, using the SAFE device about the inmate.

In 2019, the NFC (Near Field Communication) technology was introduced in the institutes, which allows file exchange between devices, data transfer or reading of various information from NFC tags. The two main benefits of the technology are

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11   Act CCXL of 2013.
12   Act XLVII of 2009, para 82, point 5.
13   Tibor Kovács, István Milák and Csaba Otti, 'A biztonságtudomány biometriai aspektusai', in A biztonság rendészettudományi dimenziói: Változások és hatások, ed. by Zoltán Hautzinger (Budapest: Magyar Rendészettudományi Társaság, 2012); Szabolcs Prisznyák, 'A tenyérvéna alapú azonosítás egyes alkalmazási lehetőségei', Pécsi Határőr Tudományos Közlemények 15 (2014), 225–234.

that it is secure and that it can be used in many ways in combination with NFC tags. This technology is able to connect devices in seconds, but only when they are a short distance apart and only when the smartphone screen is not locked. As a result, no one can connect to our device without our consent. NFC tags are tiny chips that are most commonly available in the form of stickers. The tag is freely programmable and can be affixed to the desired location.

In 2019, a pilot project was set up at the organisation to provide inmates with NFC bracelets, to ensure the rapid flow of information, and to lighten the daily workload of the staff. However, the use of the bracelet did not prove to be adequate. It was concluded from the use of the bracelet that a more robust solution was needed in the penitentiary institutes to maintain NFC technology. The introduced NFC bracelet was more prone to wear and tear due to the environmental effects, so a supplementary solution became necessary. Thus, in addition to the NFC bracelet, an NFC prisoner card was also introduced. The card is no longer paper-based but made of plastic and is more durable. The new card has a cover with the image of the owner, as well as an NFC tag and a QR code containing the detainee's personal identification.[14]

6. The future

It is one of my goals to set up a prisoner identification system using biometric features in Hungarian penitentiary institutions, for which the IT system is already available. One of the main advantages of biometric identification in prisons is that the detainees do not have to carry any identifier items on them. Thus, they cannot lose them and they cannot be stolen by others.

Considering the fact that fingerprints are taken at the admission of detainees in order to identify the person, my research does not cover which biometric feature would be appropriate for identification. The prison service has fingerprint readers, they are used to identify the persons admitted, so the fingerprints are practically available. However, the law does not currently permit fingerprints to be stored or used for other purposes by the penitentiary.

The first step is for detainees to be able to make purchases in the shops of the institutes using the newly introduced biometric identification. Telephony is not subject to changes, given that inmates have their own cell phones. The two institutes where the wall-mounted devices are still in use may be an exception to this.

Taking into account the requirements of the prison service, I would like to introduce an identification system equipped with a fingerprint scanner. With the fingerprints available, they could be used for other purposes as well, thus speeding up and lightening the daily workload.

For the time being, the introduction of biometric identification would take place on a strictly voluntary basis, in parallel with the current card identification. Upon its introduction, the detainee, by signing a statement, gives his consent to participate in

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14 Zsolt Kocsis, Büntetés-végrehajtási biztonsági ismeretek közép- és felsőfokú szaktanfolyami képzés. Jegyzet (Büntetés-végrehajtási Szervezet Oktatási, Továbbképzési és Rehabilitációs Központja, 2021).

the testing of the new system. Naturally, those who do not do so will not have any disadvantages, they keep on using the system the same way as before.

If the use of a fingerprint reader achieves the desired level of safe operation at the test institutes, its introduction could be extended to the entire country in the years ahead. However, its mandatory use requires changes in the law. The introduction of the newly envisioned systems must take place according to a specified schedule. The primary goal for me is to explore the most optimal option for prison service and to put together a concrete plan as result of a series of long analyses.

7. Summary and research results

In the course of my work, I have dealt with the identification of prisoners. The topicality of my choice of theme is justified by the dynamic development of information technologies and the possibility of using biometric identification methods.

In the course of my research, I have summarised the identification methods used throughout the organisation and their practical application. I have described the structure of the currently installed system. I have found that the IT system set up by the organisation has brought the possibility of introducing biometric identification closer. I suggest that the replacement of object-based identification be realised with fingerprints, given that the fingerprints are available during institutional admissions. However, when deploying the new identification system, it is important to emphasise that the legal background of the organisation needs to be changed before the introduction of biometric identification.

Biometric identification is constantly evolving. It can also be used in prisons. Fingerprint scanners are a cheap solution. However, because of the Covid-19 epidemic, palm vein identification and facial identification are preferable because they do not require physical contact.

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