



## PERSONAL BIOMETRIC IDENTIFICATION PROBLEMS

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### ABSTRACT

*In this work, the problems of biometric identification of a person are considered, in practice wide used biometric identification of methods briefly mutual comparative analysis is presented.*

Biometrics is a system of identifying a person based on his physiological or behavioral characteristics. Physiological signs include the human face, the geometric structure of the hand, the fingerprints, the colored membrane of the eyes, and so on. Behavioral traits are traits acquired or learned over a period of time. These include things like handwriting, voice, gait, and typing dynamics. Currently, there is no single "perfect" biometric system that meets all requirements. All biometric systems have a number of advantages and disadvantages specific to the biometric technologies used in them will be. However, biometric systems work on the way out in the eye catch necessary There are some generally accepted rules. First, biometric data must consist of uniquely distinguishable, unrepeatable characters. For example, "a perfectly uniform finger trace there is it's not" said the assumption confirming one row scientific in terms of based on the fact that evidence exists is a clear proof of the condition that signs are unique and unrepeatable. Methods such as identification of a person based on fingerprints and hand geometry have been around for several years using bride and last in years the face or look colorful curtain recognize get such methods are spreading widely. Some of the newer biometric identification methods being developed may have high accuracy, but will require more research, testing, and time to prove popular. Another important aspect is how user-friendly the system is. is a clear answer to the appropriate question. To do this, the identification process should be quick and easy for the user, for example photo or video camera using photo to get to the microphone to speak or touch fingerprint scanner, etc. Low cost to implement and maintain the system is also important, but in the development of biometric identification systems, these costs are not only the initial cost of the device or related software, but often, the system administration and the system monitor life cycle support costs associated with operator provisioning can exceed the initial cost of a biometric system [1,2].



A key advantage of biometric authentication is its ability to quickly and easily capture more authentication information from users without requiring additional information. The development of biometric methods and their widespread commercial use one how many level authentication or of authentication one How many categories? with work users for so much complexity does not give birth.

Biometric of methods criminals to determine and public safety provide such as widely used in expert forensic systems. The rapid development of biometric methods is one of them online banking, electron commerce and access control to do such as citizenship in software systems wide use for big gives opportunities. Online electronic banking as a result of the rapid growth in the number of electronic transactions and their use and electron commerce in the field biometric to technologies based on new to create programs needs day after day increased is going This programs credit card and from smart cards safe use, ATMs safety, check cashing , money transfers, online operations and to the internet access safety to provide own into takes Physical access manage in systems traditionally a token from based authentication is used. Biometric of methods fast is developing because of this software in systems person authentication to do for of them more and more a lot is being used [2]. A biometric system uses a pre-registered biometric sample (biometric template or identifier) to the system at the entrance received biometric example (eg access during taken finger trace or face image and etc.) with to compare done increases. Person to him belonged to something biometric parameter based on to the list get during to the system incoming special devices (cameras, sensors and etc.) using received biometric example special processed on a computer based on algorithms and mathematical methods, a vector of biometric characters is formed, and in the future comparison in the process benchmark as use information for in the base is stored. Biometric systems usually two in mode: identification and can be used in verification modes. Public biometric recognition system in identification mode in places apply can in this biometric system only to the system incoming biometric on a sample basis suitable coming sample whole data from the base in it to the list identifies the desired person by searching among the received biometric data. In verification mode, biometric system something to a person belongs to was incoming biometric sample in advance in the system from the register passed biometric benchmark with comparison through she is of a person confirms his identity. This method "one to one" comparison that too is called [3, 4].

Currently, many methods of biometric identification of a person are used in various socio-economic fields in order to ensure security. It is considered appropriate to introduce biometric systems to an object based on the selection of a suitable biometric method based on the main activity type and coverage level of this object.

Table 1 below shows the available literature of biometric methods widely used in practice analysis as a result formed advantages and disadvantages comparative analysis provided .

**Table 1. Biometric of methods advantage and disadvantages**

Biometric method name	Advantages	Disadvantages
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Finger trace recognition based on	<ul style="list-style-type: none"> <li>– High reliability;</li> <li>– Relatively cheap;</li> <li>– High accuracy;</li> <li>– User for convenient;</li> <li>– Time pass with is kept stable .</li> </ul>	<ul style="list-style-type: none"> <li>– External of the environment different low tolerance to the effects ;</li> <li>– a fake fingerprint image ;</li> <li>– Dry or contaminated fingers;</li> <li>– On the finger different defects;</li> <li>– Temporarily or constant injuries may interfere with scanning.</li> </ul>
Hand recognition based on geometry	<ul style="list-style-type: none"> <li>– Template volume smallness;</li> <li>– Hand of the skin status does not affect .</li> </ul>	<ul style="list-style-type: none"> <li>– Scanner size ;</li> <li>– Hand injury may affect ;</li> <li>– Little difference.</li> </ul>
The face recognize get	<ul style="list-style-type: none"> <li>– High at speed works;</li> <li>– High accuracy;</li> <li>– Without contact and quick identification;</li> <li>– A lot regularity;</li> <li>– User for convenient;</li> <li>– Special devices does not require</li> </ul>	<ul style="list-style-type: none"> <li>– Time pass with face change;</li> <li>– On the face beard, moustache and the presence of stains ;</li> <li>– Face partially or complete occlusion (glasses, mask, etc.);</li> <li>– Surgery by the way possibility of manipulation ;</li> <li>– Fake face image possibility of input ;</li> <li>– External bad environment.</li> </ul>
Recognizing the colored membrane of the eye	<ul style="list-style-type: none"> <li>– Reliable;</li> <li>– High accuracy;</li> <li>– Without contact identification;</li> <li>– Various to the races there is no relation.</li> </ul>	<ul style="list-style-type: none"> <li>– A lot nuclear processor demand reaches;</li> <li>– High price;</li> <li>– External bad environment;</li> <li>– Eye diseases with uncomfortable for the sick.</li> </ul>
The voice recognize get	<ul style="list-style-type: none"> <li>– Without contact identification;</li> <li>– User for convenient;</li> </ul>	<ul style="list-style-type: none"> <li>– External noisy environment;</li> <li>– Diseases under the influence of sound change;</li> <li>– Mouth and throat damage may affect;</li> </ul>

Table 1 shows that no biometric method has a clear advantage over the other. Analysis of foreign and domestic literature shows that all biometric methods have their own advantages and disadvantages.

In conclusion, it can be said that choosing a biometric method that is relatively optimal for solving the issue of personal identification, it is appropriate to build a biometric system compatible with the available technical and informational resources and with relatively few errors in the active mode of operation. Issues of development of such biometric systems are discussed in detail in works [5,6,7].



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