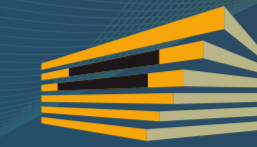


## AirSignature

### In-Air signature biometric recognition system



#### TYPE OF RESULT

##### [ New technology ]

New product  
 New service  
 New knowledge or skill



#### COMMERCIAL MATURITY LEVEL

Conceptual idea  
 Proof of concept (design)  
**[ Validated in a controlled environment ]**  
 Validated in a real environment  
 Successfully implanted



#### PROTECTION LEVEL

Non- applicable  
**[ Patent ]**  
 Software  
 Know - how  
 Utility model

#### Invention title

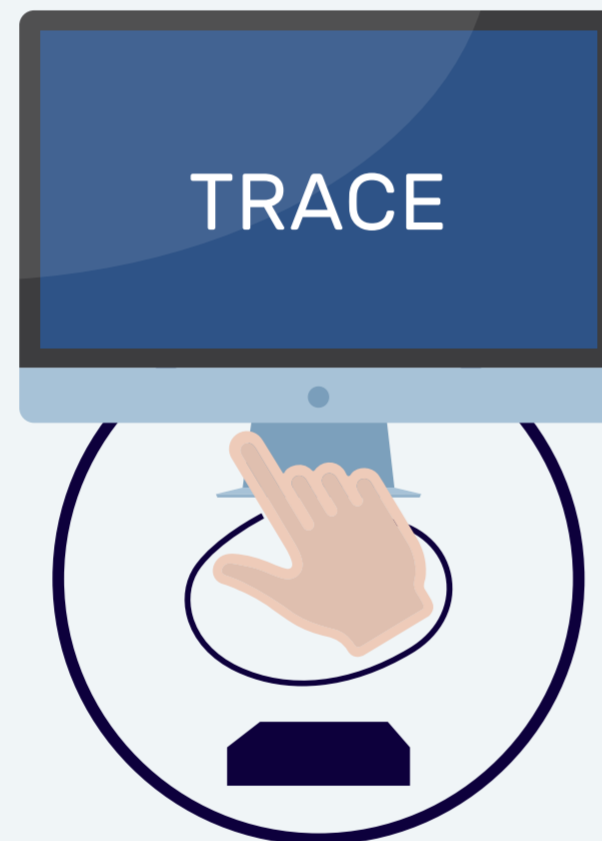
Method for the identification of people by means of the air trace of their signature described by the writing finger and characterized by the movement of the finger and the palm of the hand

**File number**  
**Priority date**  
**Status**  
**Country**

ES2632223B2  
 28/01/2016  
 Granted  
 Spain

#### Description of the solution. Problem solved

In this digital era, cybersecurity is playing an important role, and has become one of the biggest challenges of the current times. So, global growth of networks and information, triggered by the technological innovation, have allowed our society to achieve prosperity and life quality. However, this rapid change has also caused a long-term challenge: managing security risks as our world is increasingly dependent on cybernetics.



At this time, there is a large number of identification methods for digitization such as fingerprint, facial recognition or digital certificate among many others. AirSignature introduces a novel identification method consisting on a person's in-air signature by modeling the data related to movement of the finger and the palm of the hand when writing. It checks if the gesture has been done by the original user or not. This system has the following patent number: P201600090.

For this task, the system uses two volumetric sensors that get information about the user's hands by infrared scanning. Specifically, it gets information from the finger used to

write and the palm of the hand. Each sensor is able to measure within a range of a 60 cm ratio semisphere, making them ideal for to be used in situations where equipment interaction is produced (e.g., computers, etc.) and contact is not needed, allowing to be used from distance.

Using infrared spectrum makes this solution less dependent on light conditions of the visible spectrum. That means that user will be correctly identified in case of poor light conditions.

In order the biometric recognition system to work, two phases must be followed: the first one consists in registering the user for first time. User must repeat the signature 15 times; thus, a compact database can be built in order to check the access signature. These signatures are selected, characterised and stored. Second phase is accessing, and it occurs when individual selects a user name and user in-air signature. Once it is done, stroke is captured and it is compared to the previously stored data. If they match, user is verified and has access to the system.

Also, it has to be pointed out that this system is based on an affordable technology that is already being used: infrared. Also, it includes artificial intelligence module to be implemented in any other solutions.

#### Fields of commercial application

This device can be applied in an entity or company that requires a signature in any transaction such as commercial, legal issues or just as a way to register assistance, participation or time attendance.

#### Market opportunity

Signature is a biometric data completely accepted by population, it is legally recognised, and it is widely used nowadays. It is a totally transversal tool that can be used in multiple areas such as signing agreements bank transactions, purchases and many other.

Currently, there is no commercial system using 3D signature in its processes; so, in case this device is implemented it would mean a very high innovation in this area. Existing commercial systems use pens or similar, as well as on-line signatures that also require a contact device. In this sense, the system introduced hereby is completely simple and contactless, making it ideal since it is more hygienic and very useful in the current COVID situation.

#### Competitive advantage

A wide number of solutions related to people recognition through their written signature both off-line or on-line have been developed in the present years. However, this solution has the following advantages:

- **Stroke captured by sensors.** Unlike other proposed inventions, that offer applications based on an integrated accelerometer that identifies user by the gesture done with the device, this invention does not use a sensor for signing, but they are used to catch the stroke described by the finger as if they were cameras.
- **Low dependence on light conditions.** Unlike other proposed inventions, that offer applications based on an integrated accelerometer that identifies user by the gesture done with the device, this invention does not use a sensor for signing, but they are used to catch the stroke described by the finger as if they were cameras.
- **Unique.** There are no other inventions that share the same features as this solution.
- **Contactless.** This system avoids contact and exchange of objects and, therefore, it reduces the possibilities of transmitting infectious diseases.
- **Environmentally-friendly.** As with all the digital technology this system does not require any specific physical support, neither using paper, which contributes to saving costs.

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- **Affordable technology** It simply needs an artificial intelligence module that can be implemented in any electronic device.