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System And Method For Capturing Vital Vascular Fingerprint

Tech ID: 23280 / UC Case 2012-577-0

BRIEF DESCRIPTION

Improved reliability of fingerprint authentication is achieved through a unique vascular fingerprint which increases accuracy and verifies liveness.

FULL DESCRIPTION

Regular morphology fingerprinting is heavily relied upon for identification purposes, but is an imperfect method of identification, which can be obstructed by an ordinary finger scar. It is further vulnerable to fabrication and cannot verify that the fingerprint belongs to a live person.

There have been attempts to remedy the shortcomings of fingerprint technology using the technique of finger vein authentication which uses LED to capture large veins in the finger. However, this reveals a vein vascular pattern which is different from a morphology fingerprint pattern requiring an additional database for analysis.

It is known that capillaries on the palmar side of a finger follow the same pattern as a morphology fingerprint and there have been images taken of that pattern. Unfortunately, those images have been of limited usefulness because they have been limited to two dimensions and can only be obtained from non-living samples.

Researches at University of California, Irvine, have successfully used optical coherence tomography to obtain non-contact, three-dimensional, fast imaging of the superficial vasculature pattern of a human finger, which can not only establish liveness while remaining invulnerable to fabrication, but also uses existing fingerprint databases.

SUGGESTED USES

Suggested uses include personal identification for regular and high security situations, remote verification of liveness, and as a substitute method where regular morphological fingerprinting fails due to the absence or mutilation of the print.

ADVANTAGES

The advantages of this system and method include greatly increased reliability of fingerprint authentication, verification of liveness, and the ability to utilize already existing morphology fingerprint databases to compare the vascular prints.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,384,404	07/05/2016	2012-577

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