

## HOW TO GUARANTEE BABY IDENTITY BASED ON FINGERPRINT BIOMETRY

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**Abstract:** *In this work will present exclusive results of qualitative research - acquisition fingerprint minutiae of newborn baby. Also, exclusive part of qualitative research which will be presented that confirmed scientific fact for newborn to possess formed fingerprint and that it can be used for identity guarantee.*

*It can be used to provide identity of each newborn baby and implement new system of identification based on biometry. This will eliminate possibility of human error or steal or replacement of baby identity.*

**Keywords:**

*Algorithm, Baby, Biometry, Birth, Fingerprint, Patent.*

### I INTRODUCTION

First let say something about Algorithm in different science fields and disciplines. As for a computer science algorithm, it is a step by step set of commands, instructions and operations that are going to be performed. The purpose of algorithms is to provide calculation, the automatization of actions and data processing.

An algorithm is a set of steps as explained. One has to learn how to make algorithms using pseudo-code or real code and that is why people who develop algorithms need to have programming knowledge. If you want to optimize your algorithms, then you have to possess the knowledge of mathematics as well. In the end, you have to have some basic knowledge about all that, since it represents a combination of various knowledge. Good news is that learning about algorithms can be as simple as you want it to be, and as easy as you are able to acquire. [1]

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In an attempt to solve a large human issue and remove bad shadow from possible past events in many countries, ex. stealing or replacing the identity of newborn babies, also preventing that kind of fear that all future mothers have, and make that bright moment of bringing new life to this world easier and more relaxed to gynecologists, midwives and nurses, this Patent device – Device for biometric identification of parenthood – maternity and this algorithm as the part of its software have been developed.

Qualitative research that prove thesis that baby identity is possible to determine based on fingerprint minutiae and providing optimal scanner for that purpose is something that is exclusive, not just in region but in the world.

The invention, generally, placed in filed applied Information Technology, Biometry system. Device makes a unique Identification (ID<sup>1</sup>) reference and that reference will be the Identifier for each “mother-baby relationship” for every newborn baby in maternities. [2] [3]

According to the International classification of Patents, this patent is classified with a symbol **G06F21/00** which belongs to the Biometry systems – devices for fingerprint scanners.

## II TECHNICAL SOLUTION

Technical issue which needs to be set, examined and solved with this Algorithm of the Patent device consists of three partial task as follows:

- Writing one optimal algorithm for emulating and executing every function that device for biometric identification of maternity- parentoo possesses. In future, the realization will give recommendations for traversing that pseudo-code in accurate programming language, probably C programming language, since it has to be structural and low level, not OO and high level programming language as it is JAVA or C++ . It is very important that the algorithm realization is applicable for each existing platform including hardware and software, and C programming language is a proper choice for that. [4] [5]

Beside its common purpose and scanning two fingers of different persons at the same time it will provide a unique ID reference (similar Primary Key) which will be the base for every pair of a scanned mother-baby pair.

## III EXPERIMENT

According to modern well known technical devices – fingerprint scanners which use different algorithms and

<sup>1</sup> **ID – IDENTITY** (unique data for each fingerprint scanning process)

methods in their process of work to determine the identity of individuals.

After having searched through the National base of Patents similar devices with this aim were not found, concretely dual biometric scanners, which contain their own lighting, battery supply and none of the Patents consider this idea and solution in this way, with dual biometric scanner.

It is a science fact in biometry that baby minutiae are formed until 7<sup>th</sup> month prenatal, but we have no research confirmed. That is something that lead authors throw research to provide this data and bring exclusive information in this field.

**Figure 1** shows how scanning fingerprint minutiae of new born baby for 10 times with various types of scanners.

attempt / scanner kind a	Optical	Capacitive	Pressure	Thermal
Finger 1	10	7	3	2
Finger 2	10	6	2	2
Finger 3	10	6	2	1
Finger 4	10	5	1	0
Finger 5	9	4	0	0
Percentage of success	98,00%	56,00%	18,00%	10,00%

**Figure 1**

For result we have no doubt that optical scanner is optimal for further researching and deciding which is going to be used for this purpose. For scanning all 5 fingers 10 times we have 49 successful acquisitions and 1 failure. With other type we have big difference in result, smaller accuracy is it clear.

Now, we decide to try optical with 500dpi and optical 1.000 dpi scanners to provide more accuracy, and we got expected result concerning baby fingerprint minutiae and small, needed to be scaled and they are not so tactical as adults fingerprints. [5]

**Figure 2** present those results.

Attempt / scanner type	Optical 300dpi - Acquisition process	Optical 500dpi - Verification process	Optical 1,000dpi - Acquisition process	Optical 1,000dpi - Verification process
Finger 1	10	10	10	10
Finger 2	10	10	10	10
Finger 3	10	10	10	10
Finger 4	10	9	10	10
Finger 5	9	9	10	9
Percentage of success	98,00%	96,00%	100,00%	98,00%
Total	Both 97% 			

Figure 2

#### IV DISCUSSION

However, this device does not have two fields for simultaneous scanning the fingers of two different persons, which at the same time generates unique unchangeable ID reference and is an additional guarantee of a person's identity and guarantee the of Parenthood of baby – precisely the maternity of a newborn baby.

**We have not listed scanners OEM because it is not important here, but we listed various types of scanners to show which is optimal for this purpose.**

**Science fact in Biometry**, as a branch of Advanced security systems, Discipline - Informatics and Computing, Science Field - Natural Sciences and Mathematics, **is that fingerprint is formed during prenatal period for every fetus and stays constant in the shape of minutiae during whole life. We can not prove prenatal, but we proved that it is formed and can be acquired at very moment of birth.** [6] [8]

According to many researches realized on fingerprints of fetus, ultra waves and biometry scanning the minutiae on each finger are formed by the end of 7<sup>th</sup> month of pregnancy. It is important to mention that babies who are born before regular time of birth, during 8<sup>th</sup>, and especially **by the end of 7<sup>th</sup> month of pregnancy have fingerprint on each finger, both hands and foots fingers already formed.** [9] [10] [11]

We proved that science fact in practical terms. Here is short overview.

This is essential because minutiae – ridges and valleys are the only biometry that is formed prenatally and it can be used for the purpose of guaranteeing biometry identity. The whole idea for Patent Innovation is based on this scientific fact confirmed by both Biometry system as Computer science and gynecology – midwifery as a branch of HealthCare protection system. [7]

Other biometrics such as Iris recognition is unstable, because until 4<sup>th</sup> year the pigmentation in children's eye is changing and becoming different. The shape and color both change which makes it impossible to be used for this purpose and for this goal.

The head, hand and body shape and size are rapidly changing since they normally grow up so it is obvious why they cannot be used. That is why this incredible scientific fact that fetus's fingerprint is formed prenatally, by the end of 7<sup>th</sup> month in a uterus of a pregnant mother and stays constant with the same construction of minutiae, is so great that is amazing. [12]

#### V CONSLUSION

At moment of birth there are a large number of various fears during birth process, both of mother and of people in medical Care system in maternity. Reading and learning on study which was made in Australia and New Zealand from 2009 until 2011 and 17 workshops with over 700 midwives this device can prevent a part of one of those big fears – dealing with unknown (n=32). [7]

It prevents any possible theft or replacing the baby's identity, which has unfortunately being probably happened at some places and parts of the World, especially in South-East Europe, in the Balkans, countries of former Yugoslavia. We provide strong elements for further research in this field and prove that is possible guarantee new born baby identity based on fingerprint minutiae.

The inventor of the Patent has taken maternity symbolically because the maternal instinct is the strongest instinct in nature.

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