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# Identification of Unaided Person Using Finger Print Impression or Facial Recognition

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*Abstract:* - There have been various incidents of bombings or accidents resulting in death of people or causing severe casualties. This makes recognizing people difficult. It becomes very hard to identify / recognize the individual and inform their respective family members. With the emerging technologies, there are various ways of identifying / recognizing a person. Image processing on smart phones have been trending since last few years. Besides it has been a new and exciting field with immense challenges because of limited hardware and connectivity problem. But new technologies has helped in overcoming these limitations. Also the technologies has made Android based smart phones the core of many applications. Various approaches like feature extraction for face recognition using DCT algorithm with RBF neural network or novel fingerprint impression matching approach that uses global minor matching and the Support Vector Machine (SVM) have been used for identification of any individual. The identification process will be done using this two techniques namely Facial Recognition and Fingerprint Impression which help in recognizing people. Finger Print Impression technique lets us identify an individual by scanning there finger and recognize the person. Facial Recognition is an Android system that will identify and recognize an unaided person and inform the family, if needed. (DCT – Discrete Cosine Transform).

Keywords: Android, Finger Print Impression, Facial Recognition.

## I. INTRODUCTION

With growing violence and natural calamities, there have been incidents reporting bomb blasts, road accidents, fire accidents, massacres, etc. that result in causing severe injuries or may sometimes result in death of people. Due to these the person may or may not be able to express his/her identity. This may also make it difficult to identify the person. Identification process takes a lot of searching as well time and energy. Thus making it difficult for officials to identify the person and inform his/her respective family about the incident. Sometimes after an accident or any incident the person may be in state of calling for help but it may take time for him/her to call for help. This would result in losing one's life. Also we need to inform our family after such incidents and it may take some time to inform them too, resulting in some serious problem. As discussed about increasing criminal activities, it is difficult for the police to identify criminals. Many a times they also get the fingerprints at the crime scene. But it's a tough job to check every suspect's fingerprints manually and once the fingerprints are recognized to find their family. This system will use the Finger Print Impression and Facial Recognition techniques to identify an individual, recognize them and their family and then inform the respective family

members and officials of the same by sending a message to all the selected people. The message will contain the location of the individual and also the location of hospital where he/she is being taken. There have been various databases to store the fingerprint impressions or facial scans. But sometimes it becomes difficult to perform some operations on them using those databases. Many times it is seen that these databases can store the impressions or the scans up to a certain limit. The emerging technologies has an efficient solution to this. Big Data / Hadoop has recently been the most trending framework as a database. The meaning of Big Data is literally in its meaning. It is a collection of datasets. As open source tools, techniques and frameworks are being used more than ever before, one of the most used open source framework is Apache Hadoop. The Apache Hadoop uses Hadoop Distributed File System (HDFS) and MapReduce programming model as processing model.

#### **II. LITERATURE SURVEY**

Haibin Ling [1] discussed about system for verification of passport photo across ages using facial recognition. They proposed the task with the help of grade aspects pyramid. Classifier is used as a SVM and face verification is modelled as a class two problem. Datasets



## International Journal of Engineering Research in Computer Science and Engineering (IJERCSE) Vol 5. Issue 3. March 2018

with more than 1000 pairs of image of people with large difference in age undergo this approach. Descriptors include grade with magnitude and intensity difference. Bayesian technique are performed better in this approach. (SVM- Support Vector Machine). Rabia Jafri [2] stated that the field of image anatomy and computer figment has an effortful problem namely face recognition. Face recognition is in focus over recent years in various area due to its use. The face recognition is mainly classified in three parts based in face data accession methodology: those which coordinate with video sequences; second, which require other sensitive data such as 3D information or infrared image; third, methods which work on saturation of image.

Anil K. Jain, Salil Prabhakar [3] stated that there is an unprecedented proportions of scam of identity in our society, the identification which is based on finger impression is especially immersing into biometric-based verification. The filter dependent algorithm uses a Gaborfilters to capture both global details and local details as well in finger impression as a determinate length finger code.

According to Lin Hong [4] automatic and reliable extraction of minor from the input finger impression images is a judgmental step in finger impression matching. Minor

extraction algorithm is the matter of concern that depends up on the quality of the input fingerprint impression images. It is important to include a fingerprint enhancement algorithm in the module of minor extraction in order to guarantee to the robust automatic finger impression identification/ verification system by considering the quality of input finger impression images.

Peter N. Belhumeur, Joo P. Hespanha [5] developed an algorithm depending on face recognition which is affectless to large change in facial expression and direction of lighting. Considering an approach based in pattern classification, each image pixel as a co-ordinate is a high- dimensional space. They have an advantage that the images of a particular face, under changing illumination but fixed pose.

According to Farah Fayaz Quraishi, Summera Ahsraf [6] in the latest computerized era, due to high demand of enhancement in fingerprint identification system, a lot of disputes keep coming up in every phase of system, which include enhancement of fingerprint image, extraction of features, matching of features and fingerprint classification. Applications such as online shopping use techniques that depend on personal identification number, keys, or passwords. The main motive is to review feature extraction, authentication and identification in different images/ patterns based and minutiae- based fingerprints.

Anil Jain [7] says the most trustworthy method for personal identification is fingerprint verification. The manual verification is so tedious, time consuming, and expensive that it is not capable to cope today's increasing performance requirements. Automatic fingerprint identification system is the most needed system now a days. It has a very important role in forensics and civilian uses such as criminal identification, access control, and ATM card verification. This discussion is based on Design and implementation of online fingerprint verification system

Manop Phankokkruad [8] stated that face recognition is used for a personal identification method using biometrics which is on the urge of gaining over the attention in the field of research. The face recognition is possible without human and devices interaction, so it can be applied in several applications. Moreover they say that face recognition systems are typically implemented at different locations in abandon environments.

P. Jonathan Phillips [9] stated that the goal of FRGC is for improving the performance of face recognition algorithms by an order of magnitude over the best results in FRVT 2002. This is designed to achieve this performance goal by presenting to researchers a sixexperiment challenge problem along with data corpus of 50,000 images.

According to Ranjna Jain [10] relation represents explicit specification of knowledge in a specific group of interest in the form of the concepts and relation among them. The representation of human family tree ontology that is designed in two main stages. One includes rules that are helpful in elaborating the rich semantic knowledge encoded in the ontology. Another covers the group of human biological family tree that includes personal information that includes personal information such as name, address, phone number, date of birth, etc. and each person's health history which includes lifestyle habits, blood group, diseases, that they have been or are suffering from.

The author of this paper [11] stated that security system now a days comes into a more prominence, it is necessary for the people to keep more passwords in their mind and carry more



#### International Journal of Engineering Research in Computer Science and Engineering (IJERCSE) Vol 5, Issue 3, March 2018

cards with themselves. Such implementations however, are becoming less secure and practical, which makes the use of the biometric techniques more. Biometrics systems are those which store the physical properties of the personal in the electronic environment and make its possible use when needed. Biometrics works on principle of identifying the physical properties of the person whose changes cannot be made and which can possessed by him/her.

Chenhao Lin, Ajay Kumar [12] talks about improving the accuracy of matching fingerprint images acquired from two different fingerprint sensors is an important research problem with several promising studies in the literature. Most of these studies focus on sensor interoperability using fingerprints acquired from different kinds of contact-based sensors. However emerging contactless fingerprint technologies have shown its benefits. This investigates fingerprint sensor interoperability problem using fingerprints acquired from contactless and contact-based sensor.



Propose architecture figured above shows the working of our system. In this user is the victim who is to be identified. The identification of the victim is carried using two methods. The first method is Fingerprint Impression and the second method is facial recognition. This will be carried with help of an android application. The recognized data is processed and compared with the available database. After the match is found the alert is sent to the nearby hospital, nearby police authorities and as well as to the victim's family relations.

#### System Modules

- 1. Smartphone with Android OS.
- 2. Face Recognition.
- 3. Fingerprint Impression.
- 4. Fingerprint scanner.
- 5. Database.



Fig No: - 02

**Facial Recognition:** Face recognition is a application of computing used for verification and identification of the person from an image or video frame or source.



#### **Fingerprint Impression:**

Fingerprint recognition refers to the automated method of verifying or identifying the person based on the comparison of two fingerprints.

#### **Fingerprint Scanner:**

Fingerprint scanner is device used for fingerprint recognition used in computer security.

#### **Database:**

Database is used for maintaining the records of the users. The database used for facial recognition and fingerprint impression may be different. For example Facial Recognition is stored in SpecialDatabase32- Multiple Encounter Dataset (MEDS I/II). Same way we can also use Big Data/ Hadoop as well.

#### **IV. MATHEMATICAL MODEL**

Let G is the proposed system, Such That G= {Q,  $\varepsilon$ ,  $\delta$ , q0, qf} Where, Q = Set of States, E = Set of Inputs,

$$\begin{split} &\delta{=} \text{ Set of Transitions or functions, } q0 = \text{Start state, } \\ &qf = \text{Final State.} \\ &Q{=} \left\{q0,\,q1,\,q2,\,qf\right\} \end{split}$$



### International Journal of Engineering Research in Computer Science and Engineering (IJERCSE) Vol 5. Issue 3. March 2018

 $\varepsilon = \{FP, FR, Exit\}$ 

Where, FP= Fingerprint, FR= Facial Recognition





Where, q0= FP or FR Scanning q1= FP or FR Processing q2= Send Notification qf= Stop FP or FR Scanning  $\delta$  (q0, {FP, FR}) = q1  $\delta$ (q1,  $\epsilon$ ) = q2  $\delta$  (q2,  $\epsilon$ ) = qf $\delta$  (q0, exit) = qf

#### V. CONCLUSION

The proposed system (Identification of Unaided Person Using Finger Print Impression or Facial Recognition) is developed and studied for the first time, which can identify and send emergency message to hospital authorities or police authorities and also to victims family using the system, wirelessly. The working principle of this system is systematically interpreted. Performance of the system are tested on a prototype. Experimental data are reported to demonstrate that system is feasible and flexible. With the unique integration between the technologies of Biometric trace and Facial Recognition, it is flexible, convenient and environment friendly. Therefore, it is well-suited for various an-droid based mobile phones. As there is no such existing system, the proposed system proves to be very useful and helpful to help people and the authorities too in identifying and informing their respective family.

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