MISSING PEOPLE IDENTIFICATION USING ONLINE SOCIAL NETWORKS

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Abstract— **Disaster management is the initiative for any mishap that generally occurs. People aim in attempting different methodologies for finding their beloved ones, who are missing during mishap. Missing in general, may occur for many reasons. Disaster may not be the only reason for all the cases that has been recorded under missing. The advent effort of the social networks has been taken as a promising aspect for this management. The present paper proposes the advent usage of different levels of searching algorithms at different stages on par of information that one persist regarding the person who is claimed to have been missing. The first stage correlates to the usage of certain string algorithm like Tuned Boyer-Moore (TBM), which has been used to match person information either on basis of first or last names. The next stage hails with the aspect of dealing with certain effigy based algorithm like Linear Discriminant Analysis (LDA), which works on the image of the person that is present in the information that has been quoted on the social network.**

Keywords— **Disaster management, online-social network, Tuned Boyer-Moore, Linear Discriminant Analysis Introduction**
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I. INTRODUCTION

Internet, a vague word, termed to an informative and best suited aspect for rapid distribution of information that has been under many rapid changes from its origination. Internet, which is first coined to be just an informative passing network path, has become a part of everyone's life. It is a multi-facet aspect which deals with distributing different forms of data at different multimedia levels. It is no longer a piece of entertainment. It has been a bridge for many inter and intra networking. There has been an introduction for the aspect of utilising the internet for many investigation purposes.

Information sharing has become a very simple method wherein it is being spread in a very less amount of time, mainly using certain online social networks. With the state of being as a luxury or as a fun item, social networking has now been a necessity. There have been many investigations made, depending on the activeness, type of posts or other involvements in the social networks. There raised a strong belief for analyzing mindset, a part of psychometric analysis, depending on the activities on the social networks.

There has been many scenarios being recorded where investigation became simple by the analysis made on the person's social networking attitude and style. It will not be an exaggeration if major employment scrutiny is claimed to have been depending on this networking site analysis. The advent income of the various social networking sites with the primitive Orkut, g-talk with the new generation Facebook, Twitter, and MySpace has made the mode of

information transfer, easier and with more ease. Social networks are no longer a mode of entertainment but has become as an information transfer medium. Social networking has become generic which is not limited to a particular block or sector of people. Online social networks are not merely being used for posting photos on wallpapers, simple chat or for picture sharing, but also have been used for sharing socio-educational issues. These online networks help in sharing technological aspects between people even with less technical domain knowledge. The base created by these networks is being spread in an exponential manner. Theoretically unclaimed networks can also be formed by these network connections. There have been many issues being solved by these OSNs (Online Social Networks). Users can generally maintain their entire profile; link their profiles with different organizations or with other people of varied sectors, provide latter access to individual one-level social networks. These profile information are being maintained as a core elementary for identification. In general, context-dependent, information-specific and personal-profile information is being maintained for a specific sector. Public or semi-public access has been given for easy access.

Disaster management is one of the major disciplines of science, which has a great demand. With the level in the increase of population, there has been an increase of mishaps taking place at the same level. Mishap may end with a pathetic situation where people lose their dear-ones permanently or temporarily. Disaster management deals with the aspect of taking necessary control measures in finding the people who are generally claimed to be missing. Disaster might not be the only reason for missing. Mishap might not be always due to natural calamity but could be of other socio-economical reason. People may intentionally or unintentionally get missed. So people may either abscond for being treated different due to some socio-economical reason or may miss as a result of mishap.
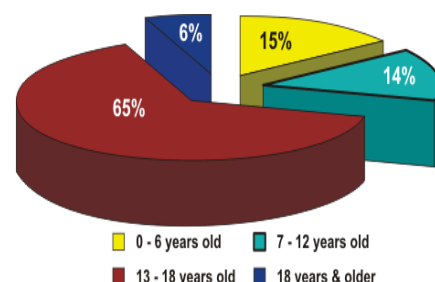

Figure1. Analysis of Missing people with age factors

The above figure1 states the analysis of missing people depending on the age factor. It has been clearly observed that people within age limit of 13-18 are taking the major part in the circle of missing cases that are being recorded over a period of time. There might be many social, economical aspects or majorly due to discrimination made

basing on the educational quality. The aspects like failure in the educational examinations, racial discriminations, poverty, high level restrictions posed, stress-based education, freedom related issues, arguments raised, absconding after investigation.

In this paper we mainly aimed to implement identification of missing people through online social networks by following few preconditions like missing people awareness of the online social networks, if candidate register himself in the online social networks and should register with meaningful data, not with the fake data and finally frequently update their current status/current place.

II. RELATED WORK

People misplaced or injured during a disaster will lose contact with their family and friends. However, they finally find them in evacuation shelters or hospitals that gather and post data that the public will search for missing survivors. To assist with this method, the Lister Hill Centre, an R&D division of NLM, developed the people locater (PL). Hospital personnel, relief employees, or relations will enter names, photos, and alternative data regarding lost or found people on the PL web site, and skilled counsellors or the general public will then search the data [1]. Recently one article printed in BBC News a missing 11-year-old boy in India has been found once he was noticed by a member of the general public United Nations agency received a whatsApp alert sent out by police [2].And additionally printed in another article printed within the Times of India new facial recognition tool to assist realize missing people.[3]. Social Network Sites (SNS) like Facebook, MySpace, LinkedIn, and Twitter are getting progressively standard. many users access these sites as a part of their daily routine .[4]Online Social Network (OSN) applications and services such as image sharing, wall posting, and therefore the like, these days they're having a powerful impact on the method users act with one another. catering for a broad vary of users of all ages, and a colossal distinction in social, academic, and national background, these applications and services enable even users with restricted technical skills to share a wide vary of non-public data with a theoretically unlimited variety of partners [5]. an online social network includes many main options, which permit for users to: (a) Maintain a private profile, (b) link the non-public profile to the profile of others and (c) give latter access to the individual one-level social network (without any mediator) various users are organized in on-line social networks. the non-public profile page corresponds to the corpus of the net identity. Intrinsically it's the origin of all networking activities; it contains each personal and extra context-dependent knowledge, data and documents of various kinds. Users will management access to their personal profile and resources and should grant public or semi-public access. Therefore solely appointed teams of individuals may even see the shared data and social resources [6]. Social Networking Sites (SNSs) have turned out to be the main platform for communications by changing into the "most trafficked" websites. SNSs give easy customized services with varied functionalities and networking applications to management the method data is shared. These SNSs have embedded integrated platform that facilitates users to integrate their profiles with social networks and get access to users in this network. This facility enabled business organizations to use SNSs for locating the correct potential staff during this user market. Whereas studies have conducted within the past on however these SNSs are changing the buyer behaviour, very little is thought on whether or not users utilize them to reinforce their careers. The aim of this analysis is to analyse the usage of Social Networking Sites as a career enhancement tool (CET) among Generation Y. This paper will analyse the attitudes and intentions of Generation Y in using SNSs as a CET [7]. Face recognition has received lots of attention in biometrics and computer vision. Lots of face recognition algorithms are developed throughout the past decades. This paper reviews 3 classical ways Principal part Analysis (PCA), Linear Discriminant Analysis (LDA), and Elastic Bunch Graph Matching (EBGM). 3 algorithms are enforced with Mat lab. The algorithm performance is evaluated on 3 totally different databases. Eventualities and performance benchmarking are compared for every of the algorithms in terms of recognition accuracy, computational price, and recognition tolerance [8]. Social networks have the stunning property of being "searchable": standard people are capable of guiding messages through their network of acquaintances to achieve a particular however distant target person in just some steps. We have a tendency to gift a model that gives an evidence of social network search ability in terms of recognizable personal identities defined on a number of social dimensions. Our model defines a class of searchable networks and a method for looking them which will be applicable to several network search issues together with the placement of knowledge files in peer-to-peer networks, pages on the World Wide Web, and data in distributed databases [9].

III. Methodology

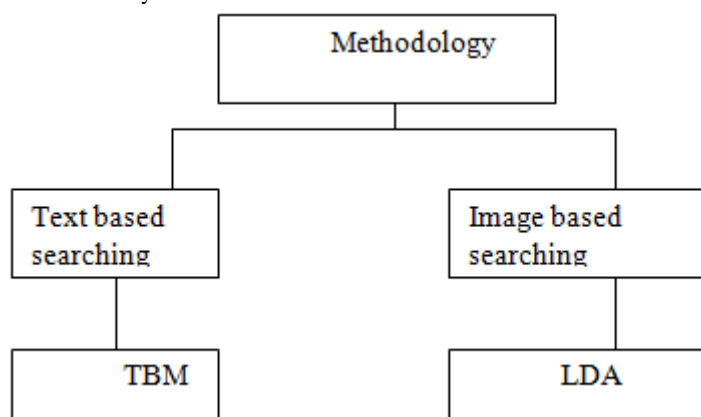In order to achieve our goals as per our requirements we follow the below hierarchy

Figure 2.Flow of methodology

Text based searching

In text based searching, certain personal information like NAME, INITIAL NAME, and LOCATION are being recorded as point of search. Text based searching uses the TBM (Tuned Boyer-Moore) algorithm.

3.1. Tuned Boyer Moore (TBM) Algorithm

Searching for a simple string in a text file is one of the classic problems in the history of computing. There are numerable text based searching algorithms in existence. After many of our testing's and comparisons we filter out TBM algorithm as our best choice. Why because when compared to other algorithms TBM plays vital role in finding sufficient search input patterns. Due to its ease of implementation fast in practice, we pick out the TBM algorithm. Tuned Boyer Moore is one of the exact string matching algorithms. The Tuned Boyer Moore algorithm is a simplified version of the Boyer –Moore algorithm which is very fast in practice. The most costly part of the string matching algorithm is to check whether the character of the pattern match the character of the window. To avoid this part often, it is possible to unrolled several shifts before actually comparing the characters. The calculation utilized the terrible character shift function to find x[m-1] in y and kept on shifting until finding it, doing blindly three shifts in a row. This is required in saving the value of bmBc[x[m-1]] in a variable shift and then to set

bmBc[x[m-1]] to 0. This is also required to add m occurrences of x[m-1] at the end of y. When x[m-1] is found then -1 other characters of the window are checked and a shift of length shift is applied. The comparisons between pattern and text characters during each attempt can be done in any order. The Main features of Tuned Boyer –Moore algorithm is simplification of the Boyer-Moore algorithm and easy to implement and very fast in practice.
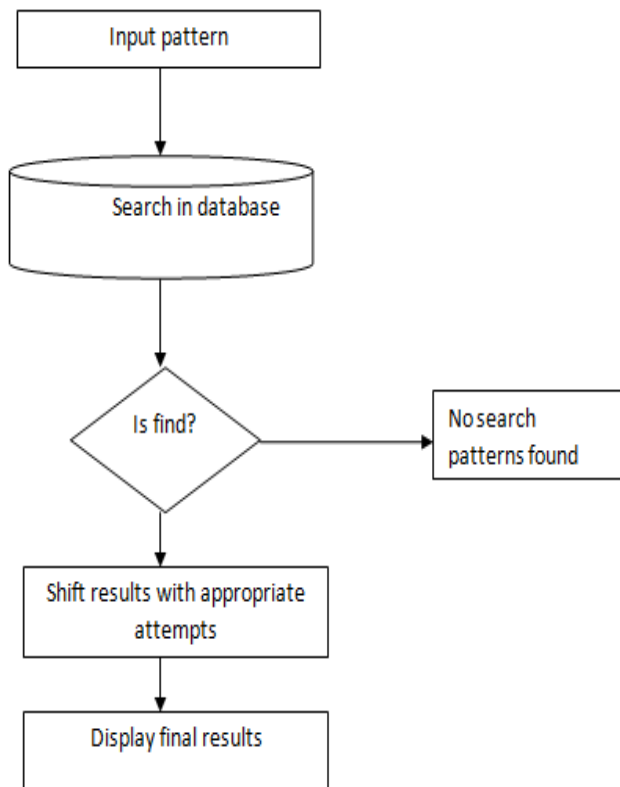

Figure 3. Work flow of TBM algorithm

Image based searching

An image based searching system is a computer system for browsing, and searching images from a large database of digital images. Under the image based searching we taken LDA algorithm.

3.2.Linear Discriminant Analysis (LDA) Algorithm

Linear Discriminant analysis or Fisherfaces method overcomes the limitations of eigenfaces method by applying the Fisher's linear discriminant criterion. This criterion tries to maximize the ratio of the determinant of the between-class scatter matrix of the projected samples to the determinant of the within-class scatter matrix of the projected samples. LDA analysis allows objective evaluation of the significance of visual information in different features of the face for identifying the individual. The LDA of faces also provides us with a small set of features that carry the most relevant information for classification purposes. The features are obtained through eigenvector analysis of scatter matrices with the objective of maximizing between-class variations and minimizing within-class variations. The result is an efficient projection-based feature-extraction and classification scheme for facial recognition. Each projection creates a decision axis with a certain level reliability. Excellent classification accuracy is achieved for a medium-sized database of human faces with the use of very-low-dimensional feature vectors. We compute the LDA algorithm in scattered matrices. The representation of scattered matrices with in class and between

class scatter matrices. Now with in class scatter matrix 'S_w' and between classes scatter matrix 'S_b' are defined as follows:

$$S_w = \sum^C \sum^{N\,j} \left(\Gamma_i^j - \mu_j \right)\left(\Gamma_i^j - \mu_j \right)^T$$ --------------- (1)

Where $\Gamma_j{}^i$,i^{th} samples of class j, μ_j is the mean class j, c is the number of classes, N_j is the number of samples in j.

$$S_b = \sum_{j=1}^{C} (\mu_j-\mu)(\mu_j-\mu)^T$$ ------------------------ (2)

Where μ , represents the means of all classes.
Then the subspace for LDA is spanned by a set of vectors W=[W1 , W2, ….., Wd] , Satisfying

$$W = \arg\max = mod[\frac{w^T S_b w}{w^T S_w w}]$$ --------------------- (3)

The with class scatter matrix represents how face images are distributed closely with-in classes and between class scatter matrix describes how classes are separated from each other. When face images are projected into the discriminant vector W.
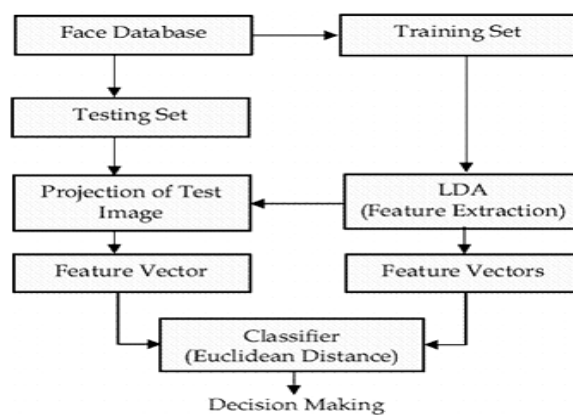

Figure4. LDA approach for face recognition

IV.　　EXPERIMENTAL RESULTS

In my project using TBM algorithm the search results follows using like full name, initial name and Location.

Table1. TBM search results

S.NO.	Type of searching	Total accuracy (%)	Time (seconds)
1	Full Name	90	1s
2	Initial Name	85	2s
3	Location	95	1s

Suppose, to change the character 'pravin' replace of 'praveen' then change accuracy following Table2

Table2.character change in the pattern & accuracy rate
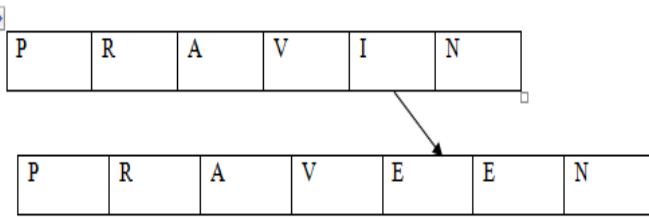
P	R	A	V	I	N

P	R	A	V	E	E	N

S.NO	Character change in pattern	Total Accuracy (%)
1	Pravin	88
2	Praveen	81

The well known face database, the ORL database used to demonstrate the effectiveness of the LDA approach. Here we test all our test images with image number 1to 10 images. The entire test image compares with the image of our Training Data Set using linear discriminant techniques. We get true results, means 9 images are recognized correctly by the face images of correct person. And we get false result 1 time; means 1 image are recognized by face images of wrong person. The result of our experiment is as follows:

Figure 5. ORL Database

Table3. Result of Experimental Right result & Wrong Result

Test image number	Right Result	Wrong Result
1	T	-
2	T	_
3	T	-
4	T	-
5	T	-
6	T	-
7	T	-
8	T	-
9	T	-
10	-	F

Therefore in our experiment 9 images of human face recognized correctly and we get the appropriate matched image in output. And the total number of tested images here is 10.So the true positive rate is (=9÷10) 0.9.

V. CONCLUSION

In universe, each and every one has its own pros and cons. Likewise our proposed one has succeeded to fulfil our goals with few preconditions. We believe that our work and relevant resultants will be helpful to find out missing people through online social networks. Our further enhancements are to make advanced implementations with relevant changes and eradicate few limitations in our targeted one.

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