IJIRCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 10, Issue 7, July 2022

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 8.165

9940 572 462 | 6381 907 438 | ijircce@gmail.com | www.ijircce.com

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165

|| Volume 10, Issue 7, July 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1007035 |

Finding Missing Person using AI

Prof. Nethravathy V,Kuravalli Rajashekhar Reddy, Moida Lokesh Naidu, Satish Jagadevappa Bannetti, Akash T M

Department of Computer Science and Engineering, Bangalore Institute of Technology, Bengaluru, India

ABSTRACT: Importance of face recognition systems has sped up in the last few decades. Face recognition is a part of biometric processing. Everyday hundreds of people go missing throughout the world. These people are either kidnapped, taken as slaves or forced to work underage, or beg on railway platforms, small shops or compelled into prostitution, human-trafficking or various other illegal activities. The posts of missing people are found in our day to day lives on social media platforms, news channels, newspapers etc. This research wok has been proposed to help them locate missing people in an easier way. The proposed tool, tends to reduce the time taken to trace the person and improve the process of finding the missing person. While app can look for people who are missing, if a new face, which is not present in the database occurs, a new case can be filed for the same. Tool has an Android application for the common citizens as well as a desktop software built using Python for the police stations by also including a face recognition algorithm based on CNN. Compared with normal deep learning applications, our algorithm uses convolution network only as a high-level feature extractor and the child recognition is done by the trained CNN classifier. Choosing the best performing CNN model for face recognition, VGG-Face and proper training of it results in a deep learning model invariant to noise, illumination, contrast, occlusion, image pose and age of the child and it outperforms earlier methods in face recognition based missing child identification.

KEYWORDS: Missing people, CNN, Facial points, Kidnap, Lost people, Trace, Face recognition

I. INTRODUCTION

Facial recognition systems have developed tremendously in the past 10 years. Biometrics have become a very vital element whenever it comes to any legal proceedings. In today's world, where kidnapping and human trafficking never fails to grab the headlines, biometrics, especially facial aspects of the person become the most crucial assets to trace the person. Whenever suspicious people are found to be doing laborious tasks in places they should not be, it ignites a spark of doubt in the minds of common citizens that whether the person belongs to that occupation. But due to lack of resources or the proper means of acquiring knowledge about the same, the common citizens fail to turn into vigilant citizens of the nation. This leads to the sacrifice of thousands of people daily due to the sheer negligence of the citizens.

Despite of the numerous attempts carried out by the government, police force, NGO's and many other entities of the society, there still remain 400 people who remain untraced after they were reported to be missing. And this is a big issue to worry about in a country where the children and the youth formulate 50% of the population. There is an urgency to stop the various cases of kidnapping, trafficking, prostitution and all other illegal activities where people are being forced without any hope of help. This would only become possible if these people could be tracked down quickly and safely. If we as citizens take the charge in our hands by using our presence of minds and save these people by posting their pictures on social media or any other media to communicate with the common citizens and the police force of our country, we could reduce the time taken to trace these innocent lives and scale down the burden on the police force to start from scratch.

A framework and methodology for developing an assistive tool for tracing missing person is described in this paper. An idea for maintaining a virtual space is proposed, such that the recent photographs of children given by parents at the time of reporting missing cases is saved in a repository. The public is given provision to voluntarily take photographs of children in suspected situations and uploaded in that portal. Automatic searching of this photo among the missing child case images will be provided in the application. The proposed system is comparatively an easy, inexpensive and reliable method.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165

|| Volume 10, Issue 7, July 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1007035 |

II. RELATED WORK

Inthissectionpresentstheexistingmethodsandrelevantapproacheswhicharesurveyedasfollows.In this paper they proposed a system that makes use of mobile-based web service to search for missing people. Here no modern technologies are used to search. The guardian uploads the details of the missing person in the portal. If any person spots the missing person in the portal, he can report it to the guardian using the contact they provided. This is a very straightforward approach and is inefficient [1]. This addresses a face recognition system built by using Principal Component Analysis (PCA) method. It not only reduces the dimensionality of the image, but also retains some of the variations in the image data. The system functions by projecting face image onto a feature space that spans the significant variations among known face images. The two main disadvantages of using the PCA method are that computational complexity is high and it can only process the faces that have similar facial expressions [2]. They proposed novel missing person detection framework in IoT. The proposed framework is to live location of all over smart city/area. In this framework recognize missing person and caught missing person live photograph and location of missing person send to the close-by police headquarters. The system consists of four layers such as Application layer, Database management service layer, Gateway Layer and Sensor/Smart object layer. The main drawback of the system is it is not possible to find the missing person if the compliant of the missing person is registered late [3]. This application contains functionality to add complaint as well as view all complaints. By using these complaints, Trust members will try to find lost person in various areas. This application will upload complaint on web server which can be accessed by any of the trust member having this application. This project Finding Missing Person using Face Detection on Android Application presents the solution for this problem. We are using four modules User, Police, Compliant holder, Admin for getting appropriate result. Admin continuously Update database and delete unnecessary data, they have used SWF-SIFT to compare faces. But SIFT is computationally heavy and therefore costs lots of time as it is based on Histogram of Gradients where each pixel in the patch needs to be computed [4]. In this paper, the researcher used the LBPH (Local Binary Patterns Histograms) algorithm to produce a prototype of a system that will find missing people using facial recognition. The major objective of the research is to determine the accuracy of the system as well as the recognition rate. The proposed system had a face recognition rate of 67.5%. because LBPH algorithm is not sensitive to the variation of luminosity [5]. This paper describes the face identification model, in this system they are trying to extract an entry in the database with the help of face encodings. It is accomplished by comparing the face encodings of the uploaded image to the face encodings of the images in the database. If a match is detected, it will be alerted to the police and the people related to the missing person along with the location of where the person is found. The limitation of the system is when the age of person is below 10 years the accuracy drops [6]. In the presented paper Robert edge detector method is used for detecting face edges and Gaussian filtering technique for removing non-desired edges and noise from it. Then the KNN Classifier will be used to train the classifier. The main drawback of the system is that accuracy of finding the correct match is 72.34% [7]. In the paper presented by the Shefali Patil and his teammates, in this system they were detecting the facial key points of lost person; dlib facial landmark produces about 68 unique points for a face. KNN classifier is used as training model. When the person goes missing the respective guardian of that person can upload the image, which then will get store in our database. Next is, the face recognition model in our system will find a match of that person in the database. If a match is found, it will be notified to the police and the guardian of that person. As public has the authority to enter the details this may lead to misuse of the application [8]. At the point when an individual disappears, individuals identified with that individual or the police can transfer the image of the individual which will get put away in the data set. At the point when the public experience a dubious individual, they can catch and transfer the image of that individual into our entryway. The face acknowledgment model in our framework will attempt to discover a match in the data set with the assistance of face encodings. It is performed by contrasting the face encodings of the transferred picture to the face encodings of the pictures in the data set. In the event that a match is discovered, it will be advised to individuals identified with that individual. They built front end by using reactjs. They used face-api.js for face recognition and then implemented fast2sms api. The system showed good results in the beginning as the dataset increased the accuracy dropped gradually [9]. In the paper proposed by VishakhaShelke and his team mates the designed system is a combination of both – an Android app for the common citizens and a desktop software for the police stations which has an enhanced face recognition algorithm based on KNN and SVM with PCA. The drawback of the system is time taken by KNN algorithm is nearly 30 times more the time taken by SVM with PCA. The accuracy of KNN is double that of SVM with PCA [10].

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165

|| Volume 10, Issue 7, July 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1007035 |

III. PROPOSED ALGORITHM

Considered all possible paths at beginning.An android app for the common citizens and a desktop software for the police station which has an enhanced facial recognition algorithm based on CNN. The modules are:

- Case Registering: - Initially, the civilians capture the photo of suspicious looking people who are working in places where they should not be. This procedure is quite concise as the details are filled (if available). Also, the families whose members are lost under certain circumstances can avail this feature.
- Encoding the facial points: - The 68 pair of facial points are recognized are encoded in a cryptographic format. The encoded text generated is used for further processing. As mentioned, we have the mechanism of encoding the facial points.
- Traversing through police database: - Once the encoded key is generated, now it is matched with the keys of other photos. As understood, the key of every distinct individual photograph will be unique. This matching of keys can also be understood as matching of faces or facial attributes. Once a match is found; it is displayed else it shows as a new record in the repository.

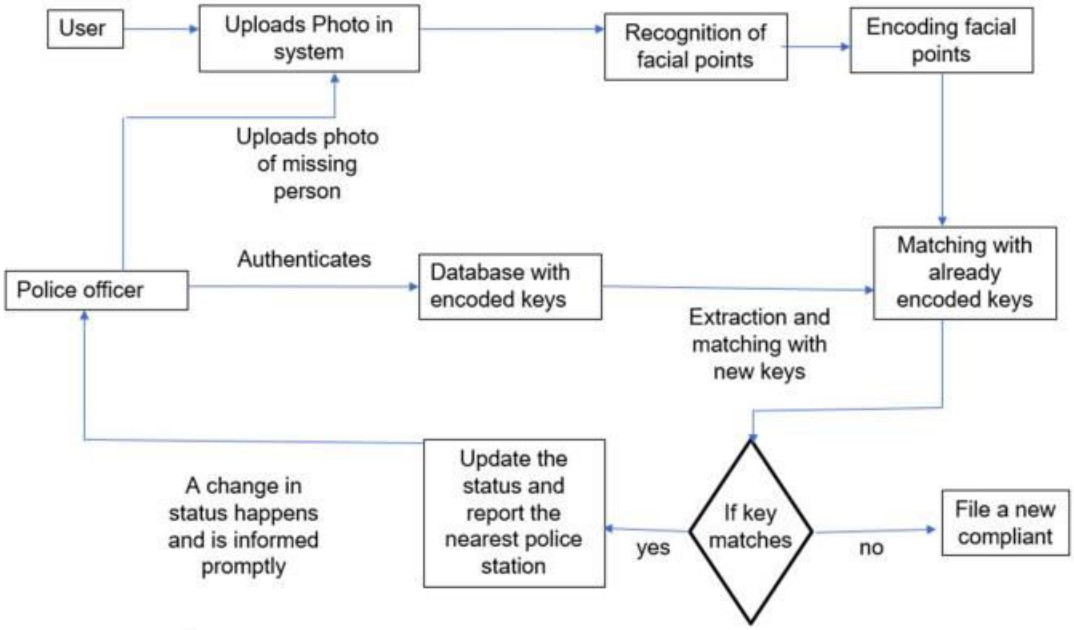

Fig.1 Block diagram of the proposed system

IV. PSEUDO CODE

Step 1: Load the Dataset.
Step 2: Split the Dataset into training and testing.
Step 3: Pre-processing.
Step 4: Train the dataset using Sequential Model.
Step 5: Classify the input image using the trained model.
Step 6: Obtain the result

```
if result= match_found:
        Display(details)
        Report_to_police()
else:
        Display(Match not found)
        Register_NewCase()
```

Step 7: End

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165

|| Volume 10, Issue 7, July 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1007035 |

V. SIMULATION RESULTS

The A test report is an organized summary of testing objectives, activities, and results. Once our deep learning model is built (with your training data), we need unseen data to test our model. This data is called testing data, and we can use it to evaluate the performance and progress of our algorithms' training and adjust or optimize it for improved results. Finally, the test data set is a data set used to provide an unbiased evaluation of a final model fit on the training data set. If the data in the test data set has never been used in training, the test data set is also called a holdout data set.

Data created or selected to satisfy the execution preconditions and inputs to execute one or more test cases. Below, are some of the test reports provides a final, real-world check of an unseen dataset to confirm that the system was trained effectively.

First the user needs to login through the application to view the information. If the particular user is not registered to the application, he/she must register with the name, email-id, password and mobile number. If the login credentials are matched in the database, then success message is displayed and directed to display information page.

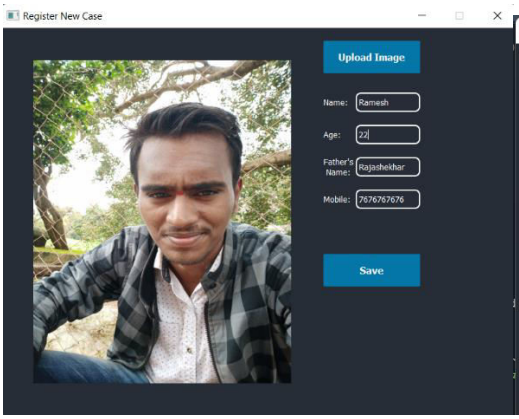

Fig 5.2 Registering case of missing person

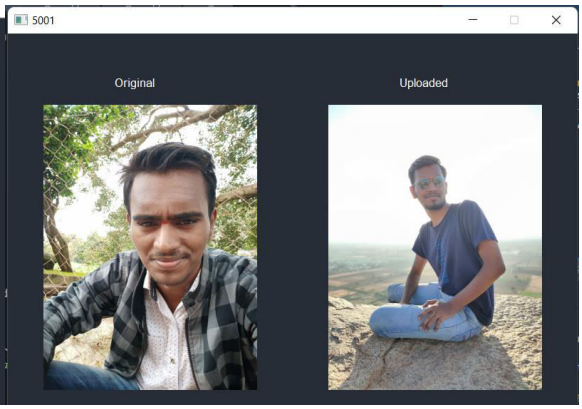

Fig5.3 Displayed matched images

VI. CONCLUSION AND FUTURE WORK

Throughoutthe world, the number of missing people keeps on increasing every day and more than half of them remain untraced.They are either left to beg or handicapped in such a way that they become almost unrecognizable. Using the proposed system, it is very much possible for the common civilians to interfere in these illegal activities and try to curb the crimes.

A missing person identification system is proposed, which combines the powerful CNN based deep learning approach for feature extraction and support vector machine classifier for classification of different child categories. This system is evaluated with the deep learning model which is trained with feature representations of children faces. By discarding the SoftMax of the VGG-Face model and extractingCNN.

REFERENCES

1. Thomas M. Omweri, “Using a Mobile Based Web Service to Search for Missing People – A Case Study of Kenya”, in International Journal of Computer Applications Technology and Research, Vol. 4, Issue 7, 507 - 511, 2016.
2. Rohit Satle, Vishnuprasad Poojary, John Abraham, Mrs. Shilpa Wakode, “MISSING CHILD IDENTIFICATION USING FACE RECOGNITION SYSTEM” in International Journal of Advanced Engineering and Innovative Technology, Vol.3, Issue.1, July – August 2016.
3. D. Jadhav, S. V. Chobe, M. Vaibhav and L. Khandare, "Missing Person Detection System in IoT," *in International Conference on Computing, Communication, Control and Automation (ICCUBEA),* 2017, pp. 1-6.
4. BirariHetal, Sanyashiv Rakesh, Porje Rohan, Salve Harish “Android Based Application - Missing Person Finder”, in Iconic Research and Engineering Journals, Vol.1, Issue 12, JUN 2018.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165

|| Volume 10, Issue 7, July 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1007035 |

5. Peace Muyambo, 2018, An Investigation on the Use of LBPH Algorithm for Face Recognition to Find Missing People in Zimbabwe, INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH & TECHNOLOGY (IJERT) Volume 07, Issue 07 (July 2018).
6. Bharath Darshan Bala, D S Kavya, Chandana M, Anush E, Vishwanath R Hulipalled, "Efficient Face Recognition System for Identifying Lost People", International Journal of Engineering and Advanced Technology (IJEAT), 2019.
7. Kumar, Mithilesh; Singh, Shikar; Dipesh L I Harish Raju; S Sasidhar Babu. "Locating Missing Persons Using Artificial Intelligence" International Journal of Advanced Research in Computer Science; Udaipur Vol. 11, Iss. Special Issue 1, May 2020: 43-46.
8. Shefali Patil, PratikshaGaikar, Divya Kare, & Sanjay Pawar. (2021). Finding Missing Person Using AI. International Journal of Progressive Research in Science and Engineering, 2(6), 101-104.
9. Aryan Patel, Dhru Prajapati, Dimple Jadhav and Mudra Doshi "MISSING PEOPLE DETECTION SYSTEM" in International Research Journal of Engineering and Technology, Volume: 08, May 2021.
10. V. Shelke, G. Mehta, P. Gomase and T. Bangera, "Searchious: Locating missing people using an optimised face recognition algorithm," 2021 5th International Conference on Computing Methodologies and Communication (ICCMC), 2021, pp. 1550-1555

INNO SPACE
SJIF Scientific Journal Impact Factor

Impact Factor: 8.165

doi cross ref

ISSN INTERNATIONAL STANDARD SERIAL NUMBER INDIA

निस्केयर NISCAIR

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

9940 572 462 6381 907 438 ijircce@gmail.com

www.ijircce.com

Scan to save the contact details