FINDING MISSING PERSON USING AI

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Abstract: Children and senior individuals alike go missing in large numbers every day. The majority of them lack tracks. Hence, a technique based on artificial intelligence is suggested in this research. A person's guardian can upload a photo of them if they go missing, and we will save that photo in our database. The mechanism operates as shown below. Our system's facial recognition model will use the KNN model and dlib technique to search the database for a match of that individual. If a match is found, the guardian and the police will be notified. It helps find the missing and could divulge the person's location so that law enforcement officials or the general public can utilise it.

Keywords: KNN classifier, FaceRecognition, Image, dlib, Missing person.

I. INTRODUCTION

There are several people missing. persons go missing every day, including children, teens, persons with mental disabilities, old people with Alzheimer's, etc. The majority of them are still unknown. The strategy recommended in this study would expedite facial recognition searches while also enhancing public safety and law enforcement. One of the many applications for facial recognition technology is locating the missing person, and it offers a number of advantages in general. The probability that the missing person will be found promptly will rise with the creation of an application that only a few volunteers can use. Police will find locating a specific person easier as a result of this.

Face recognition is now the most used method of person detection. It has been simpler and easier to discover and identify people as technology advances on a regular basis. Face detection and identification technology is unique and has made considerable strides in recent years. The objective is to develop a method for locating the missing that will be highly useful for both the general public and the police force so that missing people may be located swiftly. For individuals to report the missing person to the police, for the guardian to report them, and for the police to investigate the situation.

The database of the missing person was taken into this document in order to include images of the missing individual. This image will be compared to the other photographs in the database, and the results will be shown.

Automating the process of finding a certain individual is essential. To do this, find a specific image, compare it to another image, and decide whether or not they have the same characteristics. By doing this, it will be possible to assess the accuracy of a picture of a missing person that was captured from a specific place. If so, authorities can start looking for the person in that area.

You may use a feature of this system to preserve all the details about a missing person so that the system can recognise that picture data and locate the missing person.

II. LITERATURE SURVEY

In the beginning, S. AYYAPPAN and his colleagues from the IFET College of Engineering released a paper that addressed a problem statement and goal that were similar to those. Several surveys had been conducted, and the results had been summarised with relation to the literature review. They employ a multilayer convolutional auto encoder and deep learning-based face feature extraction and matching in their proposed solution (SCAE). The pictures of the missing persons can be found in a database. Convolutional neural networks identify faces in the photos and identify attributes. We developed a multi-class SVM classifier using these recently discovered traits. They successfully labelled and identified the child using this technique. The fundamental distinction between our work and theirs is that, with the help of volunteers who wish to have a positive impact on society, we want to compile a dataset of people who have vanished (voluntary labour). Additionally, this would not reveal the lost person's identify to the public. Additionally, the complex algorithms used by their system slow down the extraction and classification operations [1].

In a study released in 2020 by the team composed of the Jaypee Institute of Information Technology in Noida, India, is home to

Sarthak Babbar, Navroz Dewan, Kartik Shangle, and others., we were given a very clear knowledge of how Amazon Web Services (AWS) Recognition functions.

The research also compares CDAC-VS and CNN with AWS recognition as well as other algorithms and systems. The algorithm that will be used in the study, such as Amazon Web Services (AWS) Recognition, was identified thanks to this research. While the photographs in our collection remain the same, as we age, our faces will change. The precision of Residual Network (ResNet) will be researched with the intention of cross-age facial recognition. A cross-age celebrity dataset (CACD) and a verification subset (CACD-VS) are two of the data sets used to compare the performance against other methods such as Amazon Web Services (AWS) Recognition and cross-age reference coding (CARC)[2].

A paper on the use of Principal Component Analysis (PCA) to build a face recognition system was given by Rohit Satle and his colleagues in August 2020. The computational complexity of the PCA method and the fact that it can only analyse faces with comparable facial expressions are its two key limitations. Their project and ours are fundamentally different in that our system can recognise a certain person even though their facial expressions are different in both photographs. Our technology will also identify a certain person's two distinct photos, one with a moustache and the other without one. This will use artificial intelligence (AI) to recognise photographs, which will undoubtedly improve our accuracy level[3].

A 2019 study by Prof. Sumeet Pate and his associates demonstrated how face recognition technology called the Line Edge Method (LEM) may be used to locate the misplaced[4].

Zimbabwean Peace Muyambo suggests using a facial recognition technology in 2020 that use the LBPH approach to detect faces[5] in order to locate persons who have gone missing in Zimbabwe.

The same problem description and goal were also tackled by Birari Hetal and her students from the late G.N. Sapkal College of Engineering, submitted a study report on their findings. To speed up the process of finding a missing person, they created an Android app. In their proposed Android app, they use the SWF- SIFT algorithm to compare two photographs. Only the administrator and a select few other trusted users, such as the police, are allowed to frequently update the data set in their programme. The main difference between our technology and theirs is that ours will allow application users to add pictures (update data sets) of suspect people they think are missing, including young beggars. Although nobody else than the Police Department can view the photographs the user has shared on our app. We therefore strive to maintain the security of that data[6].

A paper on the RFID-Based Missing Person Identification System was given in August 2019 by the Research Centre Imarat team comprising Swarna Bai Arniker and K. Sita Rama Rao. In the future, all police stations and public meetings may adopt this RFID scanning technology. In order for their guardians to pick them up, this can be used to locate missing children, youngsters with physical limitations, and elderly people. In this scenario, the wearer must put on the RFID tag. The RFID chip that will track a specific individual can only be carried[7].

Pournami S. Chandran from the Centre for Development of Advanced Computing and colleagues reportedly released a work with the same objective. With the use of deep learning (CNN) and SVM, they created a method for extracting facial characteristics[8].

The 2019 Facial Detection Algorithm Review and Comparison Vanessa Jones Among the face recognition methods include support vector machines, face identification based on neural networks, Features from the sequential mean quantization transform (SMQT) and a classifier using a sparse network of winnows (SNOW). Using the Det Eval Software, the accuracy and recall of the various facial detection methods are contrasted. Vanessa Jones Competitive object detection rates are provided by face detection algorithms. Every time a kernel is chosen, the classification problem is evaluated, and it's possible that the results aren't as goodas those from the sample set[9].

Method of Face-Modeling The Tree of Regression Classification based on Dlib Random Forest, Training phase, was finished in 2020, and results suggest that the classification is 85% correct. All work is completed step-by-step during the training phase. The Random Forest Algorithm requires a lot of time since it is unstable (a minor change in the input causes a change in the structure)[10].

Face Tracking and Detection Using OpenCV The Cam Shift Algorithm, Haar Cascades, and other techniques are highly efficient and popular in 2020. Initially taking a lot of time, Haar Cascades now requires significantly less time thanks to modifications. The price to buy Cam Shift Algorithm is rather costly. It takes time to learn via motion[11].

III. PROPOSED SYSTEM

The suggested technique employs a number of approaches to locate the missing. Figure 1 shows the system's organisational structure.

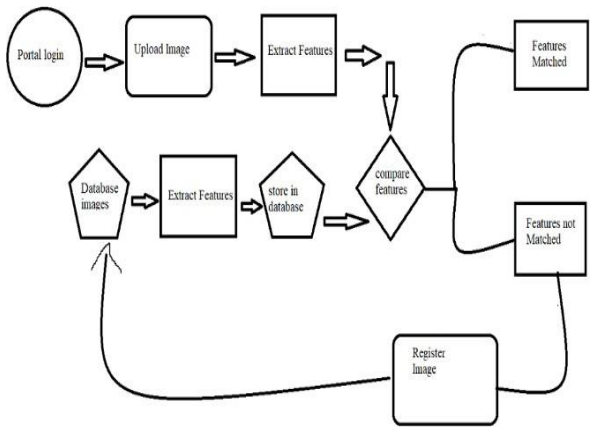

Fig. 1 shows the proposed system's overall structure.

This system has further instructions on how to add new complaints and register new cases. The suggested system has the following features.

• Sign in and file a complaint.

• Enter the missing person's name, where they are located, and their age. Then, submit the missing person's photo.

• Check the uploaded image against the database; if a match is found, indicate that; if not, create a new record.

A. Presentation Layer

Providing practical or handy logic is the responsibility of this front-end component. Prior to registering, users must first log in by giving the required information. In order to file a complaint and add the information to the database, the user must interact with the login page.

B. Commercial Layer

By sending the user's request to the database, the business layer creates a web service between the presentation layer and database layer. This layer is in charge of collecting, processing, and database-storing user data.

C. Database Layer

Data storage in the database is the responsibility of the database layer. Additionally, it answers to queries from users. We combined XAMPP database with PHP, HTML, MATLAB, and MySQL to store data in the system.

IV. METHODOLOGY

The system that has been built and is being suggested functions using the following method. About 68 distinct points are produced for a face using the dlib facial landmark, and this model locates the missing person's facial landmarks using those points. It uses the one-shot learning technique. Those points, which are float values, are accurate to around 8 decimal places. This can be compared to it.

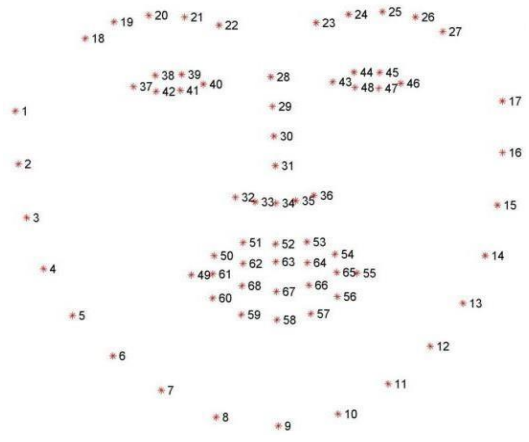

Fig.2. Facial Landmark

After registering around three incidents, the desktop programme creates 136 * 3 facial landmark points. There are 68 points, three instances total 136 in the x direction, and a y coordinate would be created for each one. These data points are subsequently used to train the classifier.
After that, all that is required to match any face is to build that person's facial landmarks. The trained KNN classifier will then be used to forecast the confidence; if the confidence is more than 60, it is assumed that the two faces are similar.
The trained model generates output and obtains the encoded label if a match is made using the KNN model. The data about that individual will be encoded on this label.

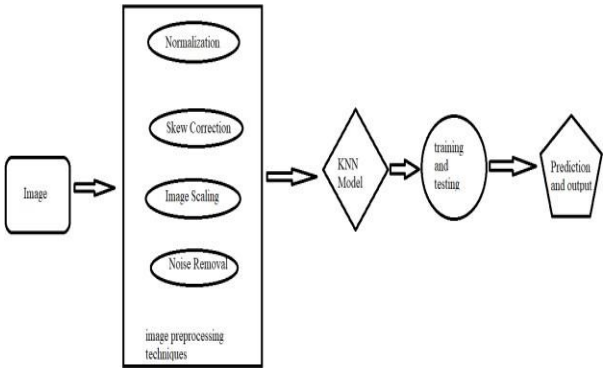

Fig.3.Methodology

V.TECHNICAL PROPOSITION

A complete open-source machine learning platform is known by the name TensorFlow. Researchers can advance the state-of-the-art in machine learning thanks to its wide-ranging, adaptable ecosystem of tools, libraries, and community resources, while developers can simply build and deploy ML-powered apps.

Even though it could need some work, using TensorFlow to create facial recognition and detection models is ultimately rewarding. Tensor Flow, the most popular Deep Learning framework, has pre-trained models that make it easier to classify pictures. CNN is used to categorise the images. In order to build a model for the categorization of the photographs, it is frequently sufficient to provide a comparable image, which is the positive image. The image is then taught, followed by retraining, utilising a method known as anchoring or transfer learning.

VI.RESULTS

User will first log in using username and password.. Then we can see a new page which as keys like New Case , Refresh , Match , New submitted case and confirmed buttons.

New case

In this we can register the new case once clicking on this it redirect to new page in which missing person details should be filled and image upload option is available in this.

Refresh

To refresh the page it is used.

Match

If the match was found from the database the by clicking on this it gives the match was found and gives the location of the missing person if it was not matchedit shows no matches were found.

Confirmed

To confirm the data we have entered after clicking on itthe details will be saved successfully.

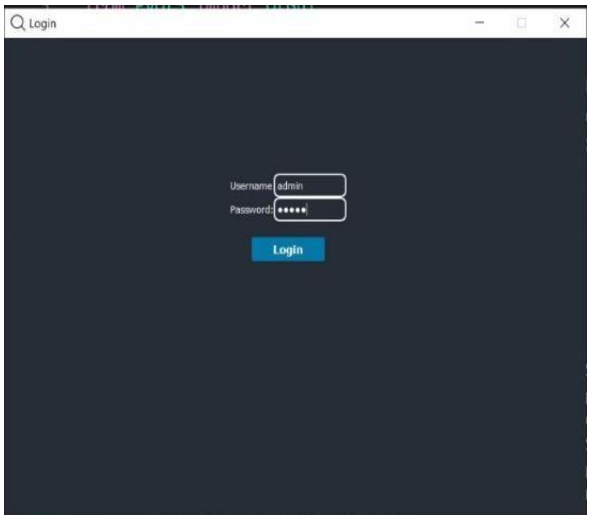

Fig.4. login page

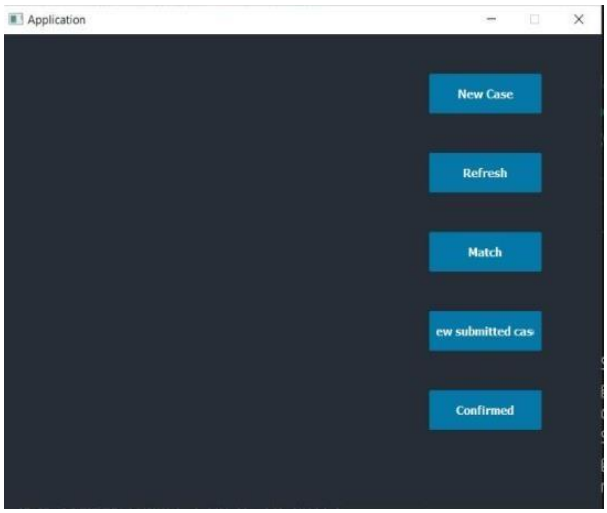

Fig.5. Application page

Fig.6. Submit page

VII.CONCLUSION

The use of one-shot learning has considerably enhanced facial recognition technologies. This technology can be helpful if utilised carefully.

The steps to find the missing people are well recognised. Instead of manually scanning databases for each image to see whether it matches, this system employs a fast face recognition algorithm to complete the task.

VIII.REFERENCES

[1] S. Ayyappan and S. Matilda, “Criminals and missing children identification using face recognition and web scrapping” IEEE ICSCAN 2020.

[2] Sarthak Babbar, Navroz Dewan, Kartik Shangle, Sudhanshu Kulshreshtra, Sanjeev Patel, “Cross Age Face recognition using Deep Residual Networks “. IEEE 2020 Fifth International Conference on Image Information Processing (ICIIP).

[3] Bharath Darshan Balar, D S kavya, Chandana M, Anush E, Vishwanath R Hullipalled, “Efficient Face recognition system for identifying lost people”, International Journal of engineering and standard technology (IJEAT), ISSN:2249- 8958, Volume-8, Issue5 S, May 2020.

[4] Ahonen, Timo, Abdenour Hadid, and Matti Pietikainen. “Face description with local binary patterns: Application to face recognition.” IEEE transactions on pattern analysis and machine intelligence 28.12 (2019): 2037–2041.

[5] 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, May2020: 43- 46.

[6] Birari Hetal, Sanyashiv Rakesh, Porje Rohan, Salwe Harish,” Android Based Application-Missing Person Finder”, IRE Journals, Volume1 Issue 12, ISSN: 2456-8880.

[7] Swarna Bai Arnikar, G. Kalyani, D. Meena, M. Lalitha, K. Shirisha, Seetasaikiran, “RFID based missing person identification system”, IEEE 2019 International Conference on Informatics,Electronics & Vision (ICIEV).

[8] Ahonen, Timo, Abdenour Hadid, and Matti Pietikäinen. “Face recognition with local binary patterns.” Computer vision- eccv 2019 (2019): 469–481.

[9] Florian Schrof, Dmitry Kalenichenko and James Philbin “FaceNet: A Unified Embedding for Face Recognition and Clustering” arXiv: 1503.03832V3 [cs.CV], 17 June 2020.

[10] Sayan Deb Sarkar and Ajitha Shenoy, “Face Recognition using Artificial Neural Network and Feature Extraction”, IEEE 2020IEEE 7th International Conference on Signal Processing andIntegrated Networks.

[11] REN S, CAO X, WEI Y, et al. Face alignment at 3000 fps via regressing local binary features[C]. Computer Vision and Pattem Recognition(CVPR). IEEE, 2019: 1685-1692.