Missing Person Identification using Machine Learning Algorithms

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Abstract: From last few years there are many missing person cases reported at police station which are not yet solved. In our project we are solving this issue using various machine learning algorithms like SVM, KNN etc. Basically, using facial expressions, we can train model and depending on matched feature we will get known persons identity. This will generate fast and accurate results. For this we are taking missing person dataset from Kaggle. In output we will get persons identity depending on various classified features like gender, age, geographical location. Results will be forwarded to police for further investigation. In this, there are countless number of people missing every day from which most of them are children. This project proposes a system that would help the police and the public by accelerating the process of searching using face recognition. When a child goes missing, the police can upload the picture of the missing person by taking the latest picture of child or person from the parents when the case is registered and gets stored in the database. In this model, an automated facial recognition system for missing child, person and stored in database. Then classification done like teen,with without marks, with without beard and when person is founded after long years system perform matching with teen,with without marks, with without beard and give results.
Keywords: Machine Learning, KNN, SVM, Face Recognization, Biometrics

I. INTRODUCTION

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. If only each citizen had the authority or the privilege of saving these people, the world would have prospered with every citizen taking the charge of every nation. 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. But when these sorts of cases arise, the matters fall into the hands of the police who don't have enough information to carry out the necessary proceedings. 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.

II. LITERATURE SURVEY

In the paper presented by Dr.S.Matilda[1], They create web application using flask using beautifulsoup tools for scrapping images from web.They using the harcascade algorithm classifier.

In the paper presented by Prof.Digambar Jadhav,Prof. S. V. Chobe [2], They used the 4 layers application layer,databaselayer,gateway layer,sensor connection layer.In application layer missing person photo uploading,In database management service layer they store the data ,In gateway layer they use communication gateway like WAN,Wi-Fi,Ethernet etc.,In snart object connectivity layer they use smart physical device(sensor,camera,Barcode,Gps,etc).

In the paper presented by Dariusz Pierzchala, Tomasz Gutowski[3], classify the rate of missing person of male, female,children and by year wise using decision tree and random foreset classifier.

In the paper presented by Muhammad Ashraf , Nauman Qadeer, Amir Mehmood[4], They track the missing person in crowd and where the many more person are gathered in public places.

III. PROPOSED SYSTEM

In fig 1. as we have displayed the detailed system architecture. a software for the police stations which has an enhanced face recognition algorithm based on KNN. This hybrid approach facilitates the process of identifying . This would lead to quicker actions from the police as well as the citizens who would become aware about the mis-happenings around them.

In this architecture first upload the photo and the details of the missing person then encoding the images and do the classification the image in(teen, with or without spect,with or without marks) using KNN or SVM algorithm then make face detection store it into database this process is done when the person or any missing person relative come for police station to complaint.and when the missing person is found then capture the image of that person an d make encoding of face and detection of landmaks and face detection after that make comparison with stored image and captured image.if the match is found update the status.and if match is not found then police will store it as new complaint to database.
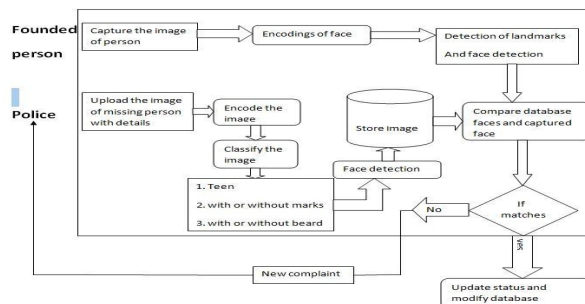

Fig 1.System Archeitecture

KNN is a type of occasion-based learning where the function is only estimated locally and all calculation is delayed until classification. In KNN, an object is categorized by a majority vote of its neighbors, with the object being designated to the class most common amongst its k nearest neighbors.

A KNN algorithm is used which cross-checks these vectors with all of the entries in the database using Euclidean distance in order to discover whether this new face is a match with any faces on record.Support Vector Machine(SVM) is a supervised machine learning algorithm used for both classification and regression. Though we say regression problems as well its best suited for classification. The objective of SVM algorithm is to find a hyperplane in an N-dimensional space that distinctly classifies the data points.

The modules are:

A. Case Registering

Initially, the upload the images and details of missing person.police take it as complaint and store it in the database.

Fig 2.Traversing through database
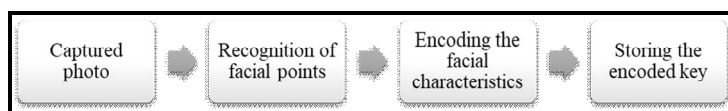
B. Encoding the Facial Points

Fig 3.Encoding of facial points

C. Traversing through database

Once the encoded key is generated as shown in Fig 3. now it is matched with the keys of other photos.once we capture the photo of founded person then it started encoding of face and face detection after that it will compare the captured photo with stored images and once the match is found update the status and if not the police will registerd it as new complaint and stored to new complaint .
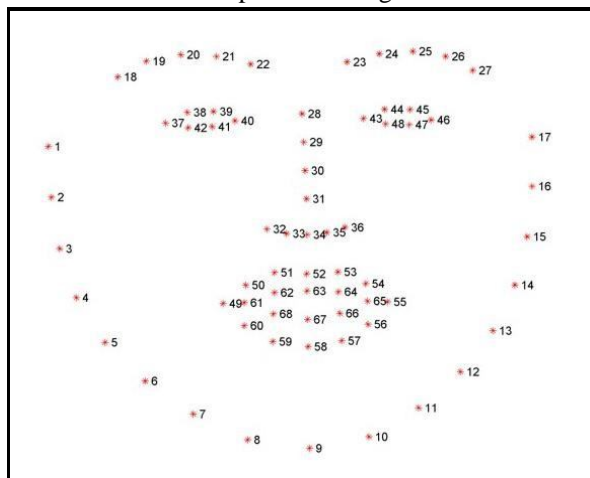

Fig 4. Landmarking done by shape predictor 68 face landmarks model.

IV. CONCLUSIONS

Throughout the world, the number of missing people keeps on increasing every day and more than half of them remain untraced and become prey to various negatively impacting professions. In this project we have introduced Missing Person Identification which will help you to identify the missing person. We have proposed a Missing Person Identification system based on face detection and Classification algorithm. In this proposed system using the KNN we classify the data which helps to identify the missing person if the person found after some years and any changes are occur in founded person. A person who went missing years ago, can be easily recognized, found to a safe location. The time spent by the police and the people related to other photos. Once we capture the photo of founded person then it started encoding of face and face detection after that it will compare the captured photo with stored images and once the match is found update the status and if not the police will register it as new complaint and stored to new complaint .

V. ACKNOWLEDGMENT

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