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AI Based Missing Person Search System

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Abstract: ***Every day, children, young people, disabled people, underage children, elderly people with Alzheimer's disease, etc. Many people went missing, including many, and many are still missing. According to the latest data from the National Crime Records Bureau (NCRB), 59,262 children went missing in India in 2020. We propose a method that can assist police and the public by using facial recognition to speed up the search process. When a person goes missing, police can send that person's photo and keep it on file. Whenever anyone comes across a complaint, they can take a photo of that person and upload it on our portal. The facial recognition model in our system will try to find matches in the data using facial coding. The face coding of the uploaded image is done by comparing it with the face coding of the image in the database. If a match is found, the police will be notified. The app will keep track of all missing persons and when a match is found the relevant authorities in the area will be notified. In addition to the photo, the user's location at the time the video was recorded may also be useful to the police. Also children, runaway teenagers, mentally ill, Alzheimer's patients, criminals, etc. Information on all missing persons will also be classified. Many families and even governments offer rewards to people who provide information leading to disappearances. The missing person was found. We can provide information about this gift through the application. When a new photo of a missing person is uploaded to the database, all users of the app will receive a notification with the person's name, appearance, rewards offered and more. We may also combine our data with government Aadhar data, which includes biometric data that can be used in our system, if permitted. Since many mobile phones are now equipped with fingerprint sensors, fingerprint matching is also possible. In addition to all the features mentioned above, we also plan to create a child labor section where users can upload images of all child labor practices they may be engaging in and authorities will then be notified about these practices so that action can be taken.Every day, children, young people, disabled people, underage children, elderly people with Alzheimer's disease, etc. Many people went missing, including many, and many are still missing. According to the latest data from the National Crime Records Bureau (NCRB), 59,262 children went missing in India in 2020. We propose a method that can assist police and the public by using facial recognition to speed up the search process. When a person goes missing, police can send that person's photo and keep it on file. Whenever anyone comes across a complaint, they can take a photo of that person and upload it on our portal. The facial recognition model in our system will try to find matches in the data using facial coding. The face coding of the uploaded image is done by comparing it with the face coding of the image in the database. If a match is found, the police will be notified. The app will keep track of all missing persons and when a match is found the relevant authorities in the area will be notified. In addition to the photo, the user's location at the time the video was recorded may also be useful to the police. Also children, runaway teenagers, mentally ill, Alzheimer's patients, criminals, etc. Information on all missing persons will also be classified. Many families and even governments offer rewards to people who provide information leading to disappearances. The missing person was found. We can provide information about this gift through the application. When a new photo of a missing person is uploaded to the database, all users of the app will receive a notification with the person's name, appearance, rewards offered and more. We may also combine our data with government Aadhar data, which includes biometric data that can be used in our system, if permitted. Since many mobile phones are now equipped with fingerprint sensors, fingerprint matching is also possible. In addition to all the features mentioned above, we also plan to create a child labor section where users can upload images of all child labor practices they may be engaging in and authorities will then be notified about these practices so that action can be taken.***

Keywords: Missing, children, criminals, police, search, face recognition.

I. INTRODUCTION

Facial recognition is natural for us humans. "Face naming" is a problem where we recognize a person but cannot remember their name. The ability to recognize faces is so important to humans that there is an area of the brain dedicated to this task. But like most people, there is a limit to the number of faces our brain can store or how long we can remember a face. This is the logic of Woody Bledsoe, Helen Chan Wolf, and Charles Bisson, early leaders in the field of computer facial recognition. Most of his research was unpublished at that time (1964-65), but later his early studies were published on eyes, mouth, etc.

It was discovered that it involved marking various "landmarks" of the face, such as: The same principle is still used in many facial recognition algorithms today. Simply speaking,

Facial Recognition is divided into three stages:

1) *Analysis:* Analysis is the process of finding faces in images. In most cases, it is not possible to obtain a perfect passport of a person, usually their entire body or a group photograph. Therefore, checking where the face is in the picture is the first step.
2) *Analysis (Feature Extraction):* Face recognition, then identify the face image. Maps and reads facial geometry and facial expression. It recognizes the face (feature) that is important in distinguishing the face from other objects. Facial recognition typically looks at the following features:

a) Distance from eyes
b) Distance from forehead to chin
c) Distance from nose and mouth
d) Depth of eyes
e) Shape of cheekbones
f) Distance from lips, ears and shape of the jaw

3) *Recognition:* The final step, facial recognition, can identify a person by comparing faces in two or more images and evaluating the likelihood of a face match. For example, it can verify that the face seen in a selfie someone took with a mobile camera matches the face in a photo on a government-issued ID, such as a driver's license or passport. people cannot do this. This includes working accurately and instantly, storing multiple files or processing multiple files (together) so that they are always available when needed. Therefore, using facial recognition to find missing people can be helpful enough for the police and the society at large to check whether these people have been reported as missing. Using the visual image comparison system, uploaded images are compared with images in the warehouse and if a match is found, stakeholders are informed.

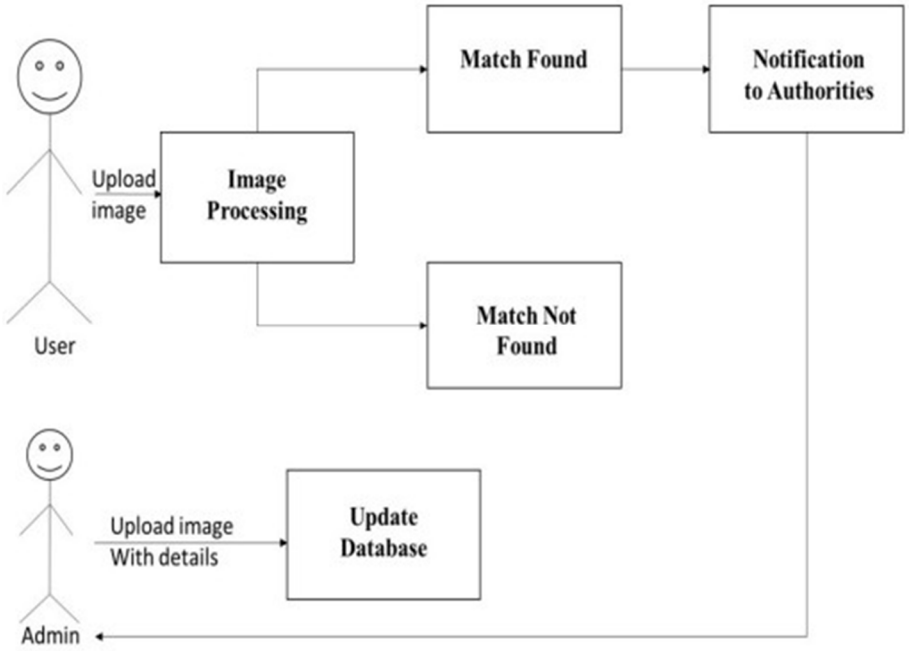
II. LITERATURE SURVEY

1) Like Adrian's method, so is FaceNet's method. It also shows some examples of work created bySatya Mallick and Adrian Roseback. The author also offers some tips on how to integrate the above techniques into your application through Esteban Uri "Real-Time Facial Recognition with Android + TensorFlowLite"
2) It offers automatic detection of faces and recognition of target detection. This method first detects skin in the image using the askincolor model using YCbCr and HSV color space. The aspect ratio is then used based on facial recognition. Finally, K. V. Arya, Abhinav Adarsh used PCA analysis techniques to accurately identify faces; "a method for facial recognition and recognition analysis" - 2015 International Conference on Computational Intelligence and Communication Networks.
3) This paper evaluates the performance of face detection system in video archives. The video archive includes pre-production information as well as homemade information. This function shows the percentage of face detection in different video formats. Tests are carried out on .3gp,.avi, .mov, .mp4, and ready-made files are available in .wmv, .m4v, .asf, .mpg file formats. PrantiDutta of. Nachamai M, "Face detection from video data in heterogeneous databases." Department of Computer Science, Christ University, Bangalore, India
4) This application is based on the method proposed by Yang along with skin color system for tracking and finding the position of the face improves real-time and reliability of face detection in fatigue driving warning systems "Face Detection and Processing for Stress" - 2015 8th International Conference on Intelligent Computing Technology and Automation

III. AIM & OBJECTIVES

1) Assist authorities in finding missing persons and criminals.
2) Use facial recognition technology to identify missing/wanted persons.
3) Use every citizen's mobile phone.
4) Provide citizens with tools that can assist police.
5) Reduce missing persons.
6) Reduce crime and ultimately help the government prevent crime.

IV. SYSTEM ARCHITECTURE



V. APPLICATIONS

The missing person tracking system can be used in the following areas:

1) *Law Enforcement:* Asking for help from the public in finding missing persons.
2) *General Public:* Capture footage and assist with police investigations.

VI. FUNCTIONAL & NON-FUNCTIONALREQUIREMENTS

A. *Functional Requirements*

1) *Facial Recognition Algorithm:* There are many types of facial recognition algorithms. Some of these weights are very heavy and require a lot of weight, but the results given are quite accurate. While some may be serious, the reality of each case is different.
2) *Database Maintenance:* Since the big image dataset is very important for the performance of the application, the data needs to be kept intact. Since DBMS activities will be largely handled by the police chief, the appropriate GUI needs to be as easily available in the office as possible.
3) *Mobile Applications:* Users must provide appropriate location and camera for the application to work properly.

B. *Non-Functional Requirements*

1) *Image quality:* The main reason for the error in the face recognition algorithm is inappropriate image. There is a saying in the technology industry that "the cleaner the data, the better the outcome." Not only performance such as aspect ratio and image detail, but also shooting style, angle, lighting and other aspects of the image contribute to performance and making sure the system works.
2) *Reliability:* Although facial recognition algorithms rarely produce bad results, there have been cases where the algorithm misidentified people. Algorithms tend to produce more inaccurate results when dealing with different races, such as Asians and Africans. Therefore, it is clear that a book review is necessary to avoid further problems after a successive campaign.
3) *Security:* Since we work in the public domainwe want to make the information available to as many people as possible so that there is no risk to private wealth if the information is leaked. The only information that needs to be protected is police information. The only big risk is recovery. It must ensure that no one changes or deletes the information in the database.
4) *Performance:* As mentioned earlier, having a clean record of captured images is crucial for your system to deliver optimal performance. Appropriate training should be created to teach users how to take the right photos for this purpose.

VII. SYSTEM REQUIREMENTS

A. *Hardware Requirements*

1) AMD/Intel i3 Processor or above Processor
2) 8GB RAM or above RAM
3) 80 GB or above Hard Disk
4) Graphics Card: NVIDIA G4 or above
5) A mobile device to test the mobileapplication

B. *Software Requirements*

1) Windows 8.1 or above
2) HTML
3) JavaScript
4) Java
5) Flutter
6) Android Studio
7) Android Emulator for testing

VIII. CONCLUSION

Facial Recognition is something researchers have been working on since the 1960s, and the technology is being largely utilized in the 21st century. Almost every mobile company nowadays include the facelock feature. Many Law Enforcement agencies like Police, Anti-Terrorist Organizations, Military agencies, etc do make use of this technologybut when it comes to a domestic problem like missing people the technology is not properly utilized. As far as using technology to solve this problem goes in India using public help, there are government websites like the Khoya-Paya portal which keeps a registry of missing children in India, but don't offer any way so the public can actively help.

Integrating facial recognition in mobile devices is the central theme of the project. The key objective is to make sure that missing individuals are found as fast as possible. We have understood what lacks in the current systems and also learned from other projects and aim to deliver a working prototype which we hope when implemented to its fullest potential will help the families of missing individuals.

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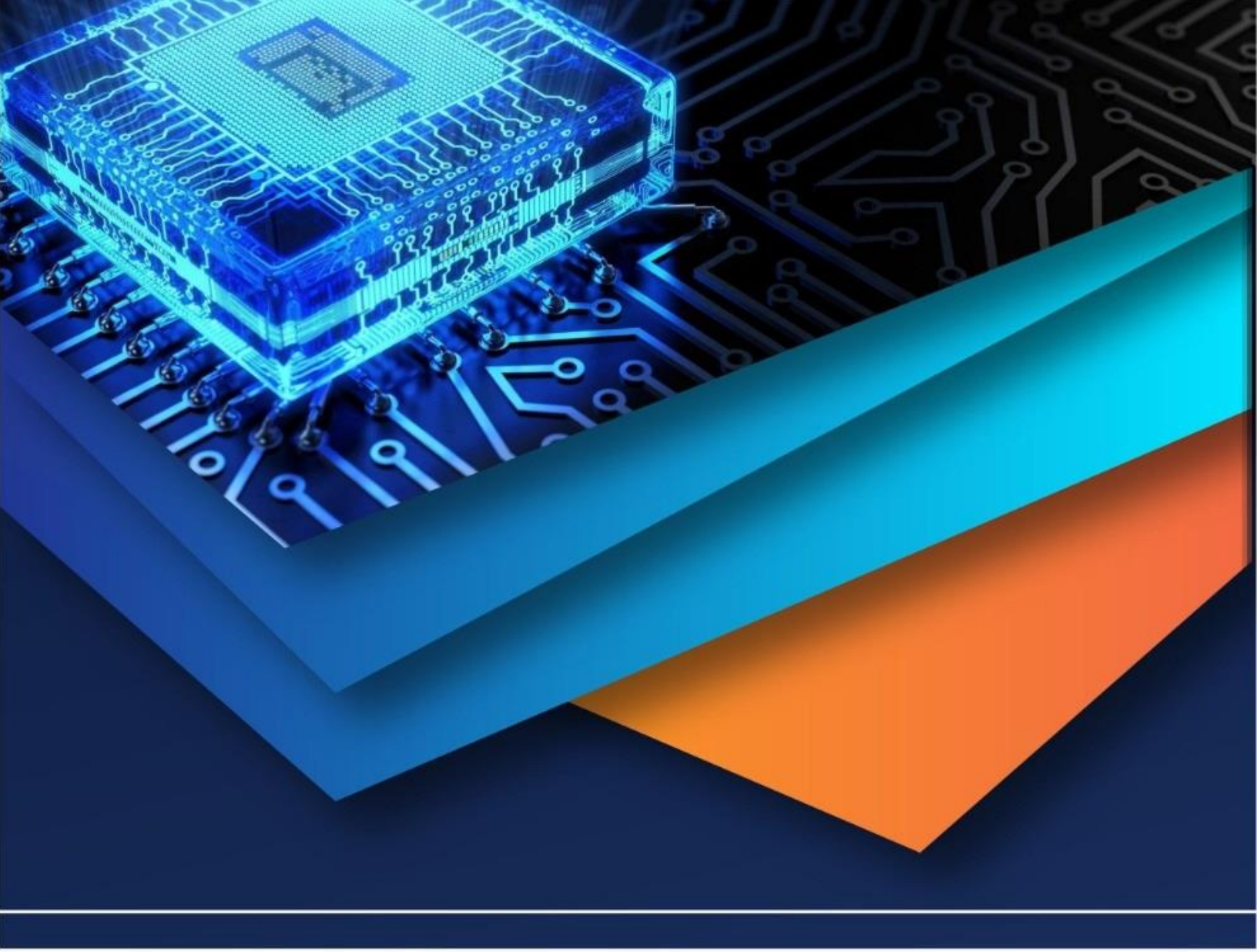

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