

## AI SUPPORTING FINDING MISSING PERSON

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### ABSTRACT

*Even while social media keeps us all informed, it is now exceedingly difficult to locate a missing person since it involves a lot of paperwork, takes a lot of time, and offers few guarantees that the search will be successful. In recent years, computing technology has developed to include a variety of flavors that may be used to almost every industry.*

*For the advantage of the general public and the police department, this initiative offers a system that speeds facial recognition searches. The guardian of the missing person must upload their image for the system to work; this image will then be saved in the database. The face recognition model of the system will then check the database for a match of that person. If a match is discovered, the police and that person's guardian will be alerted. Current world scenarios and technology make substantial use of facial feature detection and recognition. On the other side, artificial intelligence has provided answers to the problems facing the modern world.*

**KEYWORDS:** Artificial Intelligence, facial features detection, missing person.

### 1. INTRODUCTION

Today, as we all know, we mostly utilize facial recognition to identify people, and technology is continually improving our ability to quickly and accurately identify faces. The technology of face recognition and detection is unique and has advanced quickly in recent years. The goal is to create a project to find missing people that will be highly useful to the general public and the police department so that they may quickly locate their loved ones. This will make it simpler for police to find a certain person. In the meanwhile, automation is required to automate the process of locating a certain person by identifying a specific image and comparing that image with another image to determine whether or not both photographs share the same qualities. By doing this, we can determine whether the missing person in an image taken from a certain location is real or fake, and if it is, the police can take further action to locate the individual from that spot. The ability to save all the information about a missing person will be part of our application, allowing the system to recognize that image data and locate the missing individual.

The myriad instances of kidnapping, trafficking, prostitution, and other unlawful acts where people are being coerced without any prospect of relief must be stopped immediately. This would only be feasible if these criminals could be located swiftly and safely. By doing so, we could shorten the time it takes to find these innocent victims and lessen the need for the police to start from scratch. In our project, we create a complete database of missing people so that the police can find them or their guardians can file a case regarding the matter. People can also contribute pictures of the missing people. This picture will be compared to the pictures in the database, and the outcome will be shown. (Figure1.1)

*1.1 Motivation*

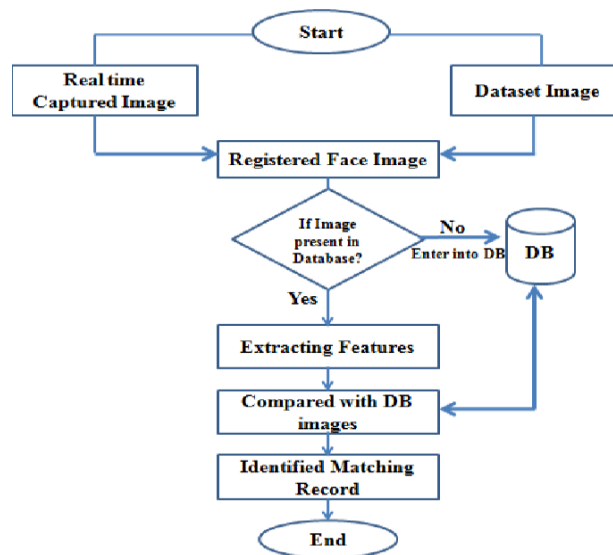
Physically, it takes a long time because it takes time to file a FIR at the police station and there is a lengthy process for finding missing people. Additionally, the personnel available during the expedient procedure is not very strong, which contributes to the mystery surrounding the remaining half of cases[2]. There are 296 missing children in India on average every day, which is a worrying statistic. And each month, there are 9,019 of them, which is a worrying amount; half of them are still unaccounted for. Displayed

Surprisingly, according to data from the National Crime Records Bureau, 1,08,234 children were reported missing in India as a whole in 2020, when the country was grappling with the Covid-19 outbreak. 15,410 boys and 33,456 girls were reported missing, and 43,661 of them were still unaccounted for at the conclusion of the year. However, the numbers show that there is no national database for missing children.

*1.2. Target*

The primary goal is to locate and recover the missing person by leveraging AI technologies. The target includes:

Missing Person Data: Gather detailed information about the missing person, such as physical description, last known location, age, gender, known associates, medical conditions, etc .Cloud service providers combine large amounts of computing, storage, and networking resources and make those resources available to users through virtualization .



**Figure 1.** Block Diagram of the Process

*1.3. WEB APPLICATION*

The front end, the admin/backend, and the internal subsystems are the three main components of the web application.[1] The basis for this separation is the contributions that each system makes to the overall system's objective. For instance, the front end is in charge of accepting user requests and saving them in the database. The backend is in charge of collecting information about found objects and putting it in the database. The internal module, on the other hand, is in charge of assisting the system's other components in carrying out their functions. For instance, after users submit the front-end form, the messaging system is in charge of giving them confirmation messages. Although both ends are designed to work separately, they both rely on the database for info (Figure1).

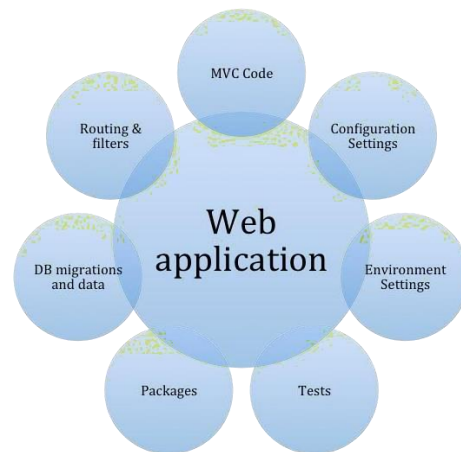


Figure 2. Web Application

1. User Registration and Authentication: Users can create accounts or log in to the web application, ensuring secure access to the system. User authentication mechanisms, such as passwords or two-factor authentication, can be implemented to verify user identities and protect sensitive information.
  2. User Interface Design: Design an intuitive and user-friendly interface that allows users to interact with the application seamlessly. Provide input fields, forms, and search filters for users to input information about the missing person relevant details.
  3. Data Collection: Allow users to input and submit information about the missing person, including text descriptions, photographs.
  4. Data Processing and Analysis: Utilize AI algorithms and techniques on the server side to process and analyze the collected data. Perform natural language processing on textual information to extract relevant keywords, named entities. Apply computer vision techniques to analyze images or videos, such as face recognition, object detection.
  5. Search and Recommendation Engine Implement a search engine that can retrieve relevant information based on user queries, such as searching by location, date, or specific keywords.
  6. Results Presentation: Display search results, insights, and visualizations to users in a clear and comprehensible manner. Present potential leads, patterns, or connections in a way that allows users to easily understand and take appropriate actions.
- Comply with relevant privacy regulations and guidelines to protect user privacy and maintain data confidentiality.

An AI web application for finding a missing person provides a platform for users to contribute to the search efforts, access search-related information, and collaborate effectively. It combines the power of AI algorithms with the accessibility and usability of a web interface, facilitating a collective effort in locating missing individuals.

## 2. WORKING OVERVIEW

So, the first part is the person who lost his or her person. The second part is the person who got the lost and the third part is the Police, which act as the intermediate body between the two parties[2].  
Data Collection: Gather relevant information about the missing person from various sources, such as family, friends, witnesses, social media, CCTV footage, phone records, and news articles. This data forms the basis for the search.

Data Preprocessing: Clean and preprocess the collected data to remove noise, standardize formats, and extract important features.

### AI Algorithms and Techniques:

Computer Vision: Process images or videos to detect the missing person's face, identify objects or landmarks in the background, and analyze activity patterns.

Pattern Recognition and Anomaly Detection: Apply machine learning algorithms to identify patterns, anomalies, or correlations in the data that may provide clues about the missing person's whereabouts. This can involve clustering, classification, or anomaly detection techniques.

Predictive Modeling: Build predictive models based on historical data and patterns from similar cases. These models can estimate the probability of different scenarios or locations where the missing person might be found. Machine learning algorithms can be utilized for this purpose.

User Interface and Collaboration: Develop a user-friendly interface, such as a web application or mobile app, to enable users (investigators, volunteers, or the public) to interact with the AI system. The interface can facilitate collaboration, allowing users to report information, share leads, and provide feedback on the search results.

It's important to note that it is a complex and sensitive task finding a missing person, often requiring the involvement of law enforcement agencies and professionals. AI systems can assist in the process, but they should not be considered a standalone solution. Collaboration with human investigators and adherence to legal and ethical guidelines are crucial for a comprehensive and responsible search.

### 3. METHODOLOGY

The proposed system, which we developed, operates according to the following methodology. Here, we are identifying the lost person's facial landmarks; the dib facial landmark (Figure. 3) generates around 68 distinct points for a face. It makes advantage of a one-time learning method[3][4]. With an accuracy of roughly 8 points after the decimal, those points are float values.

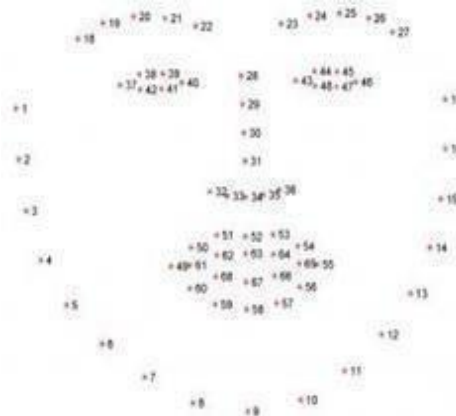


Figure.3 Facial Landmark

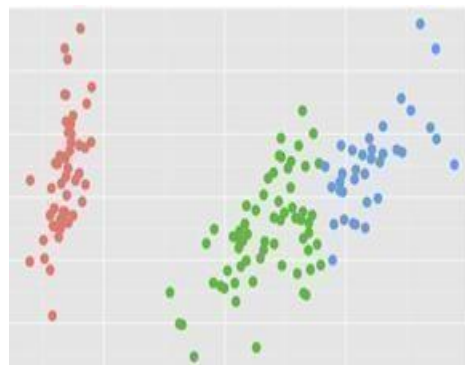


Figure.4 Working of KNN Classifier

It is comparable to this. The desktop application generates 136 \* 3 facial landmark points after registering around three cases. There are 68 points and three cases, with an x count of 136 and y coordinates created for each point[5][6]. The classifier is then trained using these points. If KNN distributed the facial landmark points in the plot, RED would represent Person 1, GREEN would represent Person 2, and BLUE would represent Person 3. (Figure 4)

## 4. MODULES

The proposed system makes use of various methods for finding missing people. The structure of the system is presented in Figure.5

We developed an idea of how the interface should be for adding new complaints or registering new cases. The features of the proposed system are as follows:

- Sign in first, then file a report of a missing individual.
- Enter the missing person's name, where they are located, how old they are, and then upload a photo of them.
- Search the uploaded image against the database; if a match is found, indicate that; if not, create a new record.

1. Admin Module: In this module, it is available for the citizen where first registered in the system and raise a complaint of Missing Person.

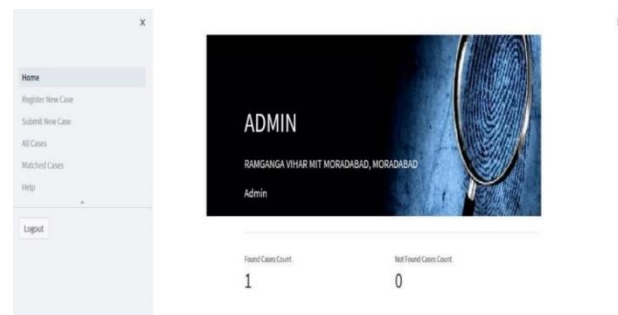


Figure 5 Admin Window

2. Register Module: In this module admin can verify the user by their email and one identity details. These details will be asked to the from the loss person missing family member when they registered themselves on the system (Figure 6).

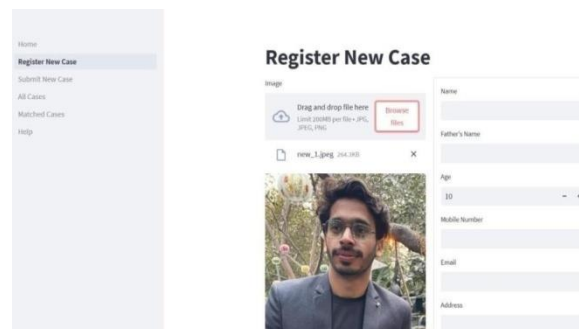


Figure 6 Register New Case Window

3. Report Module: In this module, Any Person report to the missing person with their photo and other necessary details. When a user raises a complaint of their lost item or find the item this notification directly transferred from the side of the admin side.

## 5. RESULT

Finding a person using AI can yield promising results. The use of advanced algorithms and machine learning techniques can enhance the accuracy and efficiency of locating individuals. Here are some potential outcomes and benefits of using AI for finding a person:

1. **Improved Efficiency:** AI algorithms can process vast amounts of data in a short period, enabling faster and more efficient search processes. This can be particularly useful in cases of missing persons.
2. **Enhanced Accuracy:** AI technologies, such as facial recognition can help identify individuals with a high degree of accuracy. By analyzing unique biometric or behavioral patterns, AI can distinguish individuals even in large datasets.
3. **Automation and Scalability:** AI can automate the process of searching for individuals by analyzing data from various sources, such as social media profiles, images, or public records. This allows for scalability, as AI systems can handle large volumes of data and perform searches across multiple platforms simultaneously.
4. **Improved Search Capabilities:** AI algorithms can go beyond traditional search methods by considering various data points, such as location, relationships, or online activities. This holistic approach can provide comprehensive results and increase the chances of locating a person.
5. **Support for Law Enforcement:** AI can assist law enforcement agencies in locating missing persons or identifying individuals involved in criminal activities. By analyzing surveillance footage, social media data, or other sources, AI can generate leads or provide valuable insights for investigations.
6. **Personal and Professional Connections:** AI can help individuals reconnect with lost friends, family members, or classmates. By analyzing available data and utilizing matching algorithms, AI systems can suggest potential connections or facilitate contact.
7. **Enhanced Public Safety:** AI-powered systems can contribute to public safety by quickly identifying individuals in emergency situations, such as natural disasters or security threats. This can aid in evacuations, search and rescue or threat mitigation.

While the use of AI in finding a person offers significant benefits, it is important to address ethical considerations, privacy concerns, and potential biases. The responsible implementation of AI systems, adherence to regulations and guidelines, and continuous monitoring and evaluation can ensure that the results obtained through AI are accurate, fair, and respect individuals' privacy rights.

Overall, leveraging AI technologies in the process of finding a person can lead to improved outcomes, faster search times, and increased efficiency. However, it is essential to strike a balance between the advantages of AI and the ethical considerations to ensure the responsible and beneficial use of these technologies.

## **6. CONCLUSION**

Finding a person using AI offers several benefits and possibilities. Through the use of advanced algorithms and machine learning techniques, AI can help streamline the process of locating individuals, whether it is for personal or professional reasons. However, it is essential to consider ethical and legal implications when utilizing AI for this purpose.

In conclusion, AI technologies, such as facial recognition, image processing, natural language processing, and data mining, can contribute to finding a person efficiently. These technologies can analyze vast amounts of data, including images, text, and social media profiles, to identify and track individuals. They can assist law enforcement agencies in locating missing persons, help organizations find potential candidates or customers, or aid individuals in reconnecting with lost friends or family members.

The use of AI in finding a person can improve accuracy and speed up the search process. It can automate the identification process by comparing facial features, analyzing patterns, or leveraging available data sources. AI algorithms can also adapt and learn from data, continually improving their performance over time.

However, it is crucial to balance the benefits of AI with privacy concerns and ethical considerations. Data privacy and security must be prioritized when using AI to find individuals, as it involves processing sensitive personal information.

Stricter regulations and guidelines should be in place to govern the use of AI in this context, ensuring transparency, consent, and proper data protection measures.

Furthermore, biases and limitations in AI algorithms should be addressed to prevent discriminatory or

unfair practices. Careful validation and testing of AI systems should be conducted to minimize false positives or negatives and ensure the accuracy and reliability of the results.

In summary, finding a person using AI holds great potential for various applications. With proper safeguards and ethical considerations, AI technologies can enhance the efficiency and effectiveness of locating individuals. As AI continues to advance, it is essential to strike a balance between technological capabilities, privacy protection, and ethical considerations to ensure responsible and beneficial use of AI in finding people.

## **7. POSSIBLE IMPROVEMENTS**

There are several possible improvements that can be considered to enhance the system for finding a person using AI. Here are some suggestions:

- a. **Enhanced Data Integration:** Improve the system's ability to integrate and analyze data from various sources. This could include expanding the range of data types considered, such as social media posts, online publications, or public records. By incorporating a wider range of data sources, the system can provide comprehensive and accurate results.
- b. **Real-time Monitoring and Alerts:** Implement real-time monitoring capabilities to track and identify individuals in near real-time. This can be particularly useful for law enforcement agencies or organizations requiring immediate information on the whereabouts of individuals. Real-time alerts can notify relevant parties when a match or potential lead is found.
- c. **Refinement of Machine Learning Algorithms:** Continuously refine the machine learning algorithms used in the system. This involves training the algorithms with more diverse and representative datasets, reducing biases, and improving accuracy. Regular updates and advancements in AI techniques can be leveraged to enhance the system's performance over time.
- d. **Privacy Protection Measures:** Strengthen privacy protection measures to ensure compliance with regulations and ethical standards. Implement robust security protocols to safeguard personal data, obtain appropriate consent for data processing, and establish transparent data handling practices. Privacy-enhancing technologies, such as differential privacy or secure data anonymization, can be explored to protect individual privacy while maintaining system functionality.
- e. **User Feedback and Iterative Improvements:** Gather user feedback on the system's usability, accuracy, and overall performance. Incorporate user suggestions and insights to make iterative improvements to the system. User feedback can provide valuable insights into potential areas of enhancement and help prioritize future development efforts.
- f. **Collaboration with Law Enforcement Agencies and Data Providers:** Collaborate with law enforcement agencies and other additional data sources and expertise.
- g. **Partnering with entities that possess specialized resources or domain knowledge** can enhance the system's effectiveness in locating individuals.
- h. **Ethical Framework and Guidelines:** Develop and adhere to an ethical framework that guides the responsible use of AI in finding a person. This framework should consider fairness, transparency, accountability, and the protection of individual rights. Establish guidelines for system usage and ensure that users and operators are well-trained in ethical considerations and best practices.
- i. **Ongoing Research and Development:** Invest in continuous research and development to stay updated with the latest advancements in AI technologies and techniques. This can involve exploring emerging technologies like natural language processing, sentiment analysis, or deep learning to further enhance the system's capabilities.

By considering these possible improvements, the system for finding a person using AI can be enhanced in terms of accuracy, efficiency, privacy protection, and ethical considerations. Regular updates, user feedback, and collaboration with relevant stakeholders are key to ensuring the system's continuous improvement and effectiveness.

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