AI Assisted serach for identifying missing persons

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Abstract:

The identification and recovery of missing persons is a major social challenge faced globally. Traditional methods such as manual poster distribution, police databases, and public announcements are often inefficient, slow, and yield low success rates. This project proposes an AI-assisted search system using facial recognition, machine learning, and surveillance integration to aid in rapid identification of missing persons. The system leverages facial datasets, crowd surveillance feeds, and social media images to match and track missing individuals using deep learning models like CNNs and face embedding techniques (e.g., FaceNet). The solution can also integrate with police records and real-time CCTV networks, significantly improving the accuracy and speed of locating missing individuals. This approach supports both public and government agencies by providing a scalable, intelligent, and efficient search mechanism.

I.INTRODUCTION

Missing person cases are often time-sensitive and emotionally devastating. According to global reports, thousands of people go missing every day, including children, elderly, and mentally ill individuals. Traditional search methods rely on manual tracking, which consumes valuable time and resources and lacks real-time monitoring capability.Artificial Intelligence (AI), particularly computer vision and deep learning, provides a powerful tool for automating the detection and identification process. AI models can process thousands of images and video streams to match the face of a missing individual against existing records or live footage. When integrated with police databases, public surveillance systems, and social media feeds, AI-driven systems can assist law enforcement in making faster, data-driven decisions to locate and reunite individuals with their families.

II.LITERATURE SURVEY

- Schroff et al. (2015) introduced FaceNet, a deep learning model that maps faces to a compact Euclidean space for easy

comparison, enabling real-time face matching in large datasets.

- Parkhi et al. (2015) developed VGGFace, a powerful CNN-based model trained on a large dataset of celebrity faces, showing strong performance in face identification and verification tasks.
- Taigman et al. (2014) built DeepFace, one of the earliest deep learning-based face recognition systems, achieving human-level performance on the LFW dataset.
- Zhao et al. (2019) explored real-time face recognition systems using edge computing and neural networks for public safety, emphasizing latency reduction.
- Bhattacharya & Singh (2021) implemented a face recognition-based missing children finder in India using government CCTV networks and social media datasets.
- Nguyen et al. (2022) applied facial recognition and object detection to rescue missing persons in disaster-struck areas, demonstrating the role of AI in emergency situations.
- Ahmed et al. (2021) developed a public face-matching platform using OpenCV and Dlib libraries for NGO-supported missing children recovery.
- Khan et al. (2020) proposed an AI-based alert system for missing person detection in public places using YOLO and face verification.
- Mollah et al. (2022) discussed privacy and ethics in face recognition systems used by law enforcement, pointing to the need for responsible AI practices.
- Rana et al. (2021) explored social media mining and face clustering to track and locate missing persons shared via community posts.
- Zhou et al. (2019) designed a smart city framework integrating AI with public cameras for automated incident detection and response.
- Yadav et al. (2018) developed a mobile app using facial recognition for locating missing elderly individuals in public areas.
- Saini & Kapoor (2020) tested the reliability of deep CNNs in facial recognition under various lighting and angle conditions common in surveillance videos.
- World Economic Forum (2020) emphasized the role of AI in humanitarian efforts, including search and rescue operations.
- UNICEF Report (2022) highlighted AI-

driven initiatives for tracking missing children and reuniting families in conflict and post-disaster zones

III.EXISTING SYSTEM

The current systems for finding missing persons rely heavily on **manual processes**, including circulating posters, public announcements, and checking shelters or hospitals. Some countries maintain centralized databases of missing individuals, but these are often **not integrated with surveillance footage** or public datasets. Moreover, without automated face recognition, **human matching is slow and error-prone**, especially in large cities or crowded events. Many cases go cold due to a lack of leads, delayed identification, or inefficient information sharing between authorities and citizens.

IV.PROPOSED SYSTEM

The proposed system introduces an AI-assisted search engine that uses facial recognition algorithms to identify missing individuals from real-time CCTV footage, uploaded images, and social media content. The system builds a face embeddings database using pre-trained CNN models like VGGFace, FaceNet, or ArcFace. When a missing person case is registered, the system searches public surveillance feeds and crowd-sourced media using cosine similarity or Euclidean distance on face vectors to identify potential matches. Additionally, the system can trigger alerts when a likely match is found and display results on a web-based dashboard accessible to law enforcement and NGOs. The AI continuously learns and improves accuracy as more images are collected, enabling efficient, real-time identification across vast datasets.

V.SYSTEM ARCHITECTURE

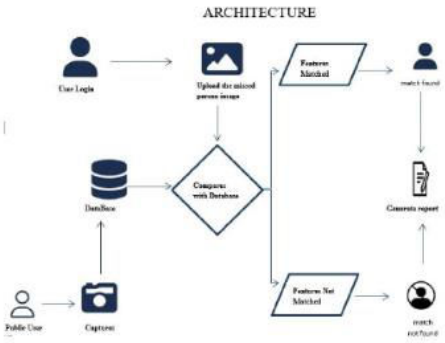

Fig 5.1 System Architecture

The given system architecture represents a missing person identification system with two types of users and clearly defined processes. The main users include police/family members who upload reference images of missing persons into the database, and another user (the public) who uploads images to identify a missing person they may have encountered.

VI.IMPLEMENTATION

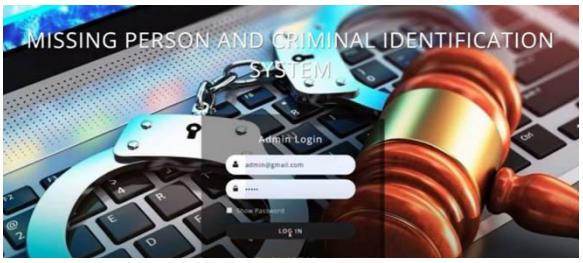

Fig 6.1 Admin Login

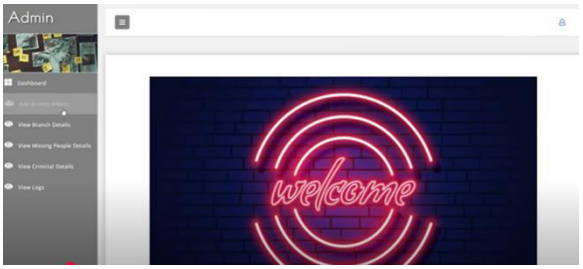

Fig6.2 :Homepage

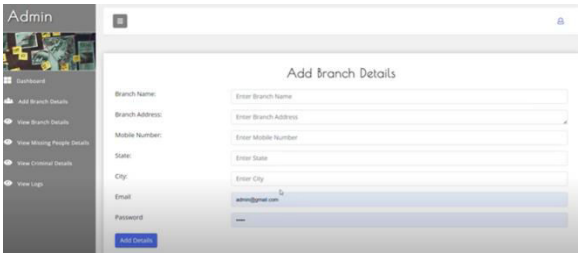

Fig 6.3 Add Details

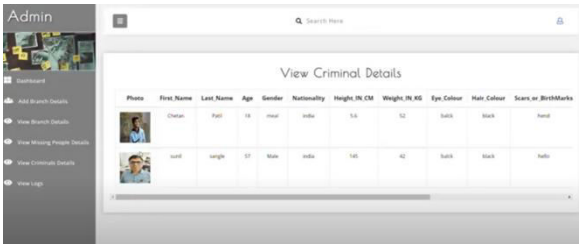

Fig 6.4 Criminal Details

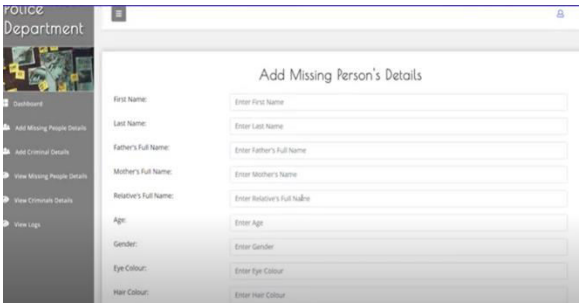

Fig 6.5 Add Missing Person Details

VII.CONCLUSION

The AI-Assisted Search for Identifying Missing Persons system represents a paradigm shift in how we approach one of society's most pressing issues. By leveraging facial recognition, deep learning, and large-scale image analysis, the system offers a fast, scalable, and intelligent solution to locating individuals who have gone missing. Unlike manual methods that depend on human observation, this system operates around the clock, improving both the speed and accuracy of detection.With the increasing availability of surveillance infrastructure and digital media, AI-powered search tools can act as a real-time guardian, drastically improving the chances of reunification and reducing emotional and legal distress for families. With ethical implementation, this system can assist law enforcement, government bodies, and NGOs in making our communities safer and more responsive to emergencies involving missing individuals.

VIII.FUTURE SCOPE

- Integration with National & International Missing Persons Databases for cross-border search operations.
- Mobile App for Public Use: Let citizens capture and upload suspected matches using their smartphones.
- Multimodal Identification: Use clothing, gait analysis, tattoos, and speech patterns

for better accuracy.

- Real-Time Crowd Monitoring at Events: Deploy on stadiums, religious festivals, or transport hubs to spot missing individuals.
- Use of Edge AI: Embed models in smart cameras to reduce server load and latency.
- Privacy & Bias Handling: Apply federated learning and fairness auditing to make the system ethical and secure

IX.REFERENCES

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