



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

# IJRSET

International Journal of Innovative Research in  
**SCIENCE | ENGINEERING | TECHNOLOGY**

# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 12, Special Issue 2, April 2023

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

9940 572 462

6381 907 438

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[www.ijirset.com](http://www.ijirset.com)

# AI-Powered Search and Assistance: Revolutionizing the Efforts to Find Missing Persons

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**ABSTRACT:** AI-Powered Search and Assistance is revolutionizing the efforts to find missing persons. With the help of one-shot learning for image identification, accuracy has significantly improved. This technology has the potential to improve lives by being utilized anywhere people congregate, such as hotels or hospitals. Our web app uses an effective facial recognition approach that quickly completes the work of manually combing through databases for each picture to check the match. If a match is found, the app includes a Google Maps integration to pinpoint the suspect's location, making the police's job easier. Our goal is to achieve optimal results using a pre-trained model in TensorFlow Face recognition. By connecting our technology to the web, we see the potential for future growth in our system to notify relevant authorities quickly and efficiently when a missing individual is recognized in one of the uploaded images.

**KEYWORDS:** CNN, Deep Learning, Neural Networks.

## I. INTRODUCTION

The search for missing persons is a complex and often challenging task that requires a timely and effective response. Every year, thousands of people go missing, leaving families and authorities struggling to locate them. Traditionally, the process of finding missing persons involves manual searches, interviews, and physical searches. However, these methods can be time-consuming and often lead to delayed responses and less successful outcomes.

With the advent of Artificial Intelligence (AI), there are now new possibilities for finding missing persons. AI-powered search and assistance systems offer the potential to significantly improve the efficiency and accuracy of the search process. By using facial recognition algorithms, these systems can quickly and accurately identify individuals and compare them to a database of known missing persons. The technology can be applied in various settings, including hospitals, hotels, airports, and public spaces, to assist in the identification of missing persons.

One of the significant advantages of AI-powered search and assistance systems is their ability to perform one-shot learning for image identification, which greatly improves accuracy. When used appropriately, this technology has the potential to improve lives and bring peace of mind to families searching for their loved ones. By leveraging the power of AI, we can speed up the process of locating missing persons and increase the likelihood of successful outcomes.

This paper aims to explore the various technologies and approaches developed for AI-powered search and assistance systems. We will examine the benefits and limitations of these systems, and discuss their potential applications in various settings. Additionally, we will explore the ethical and legal implications of using facial recognition technology in the search for missing persons. By providing a comprehensive overview of AI-powered search and assistance systems, we hope to contribute to the ongoing efforts to improve the search process for missing persons.

## II. RELATEDWORK

The search for missing persons has been an area of interest for researchers and developers for many years. Traditional methods of finding missing persons, such as manual searches and interviews, are often time-consuming and have a low success rate. However, recent advancements in artificial intelligence (AI) have shown great potential in assisting in the search for missing persons.

One of the most important applications of AI in the search for missing persons is through facial recognition technology. Facial recognition algorithms have been used to identify individuals and compare them to a database of known missing persons. This approach is highly efficient and can be used in various settings, such as hospitals, hotels, airports, and public spaces, to assist in the identification of missing persons [1].

Chandran et al. [2] proposed a missing child identification system that uses deep learning and multiclass support vector machines (SVMs) for accurate identification. The system extracts features from images using CNNs and trains a model that calculates the Euclidean distance between feature vectors of images to determine similarity. The system achieved high accuracy and was able to identify missing children in real-world scenarios.

Similarly, Rohit Satle et al. [3] proposed a missing child identification system using face recognition technology. The system uses an algorithm to extract features from images and matches them with images in a database to identify missing children. The system was able to identify missing children with high accuracy in real-world scenarios.

RFID technology has also been used for missing person identification systems. Arniker et al. [4] proposed an RFID-based missing person identification system that uses RFID tags to track the location of missing persons. The system can quickly identify the location of a missing person using RFID readers placed in various locations.

Birari [5] proposed an Android-based application for finding missing persons. The application uses GPS technology to track the location of missing persons and sends alerts to the user's phone when a missing person is found. The system is highly effective and can be used in real-time scenarios to quickly locate missing persons.

Omweri [6] proposed a mobile-based web service for finding missing persons in Kenya. The system uses a mobile application to track the location of missing persons and send alerts to the user's phone when a missing person is found. The system is highly effective and can be used in real-time scenarios to quickly locate missing persons.

Pate [7] proposed a robust face recognition system for E-Crime alert. The system uses a face recognition algorithm to identify criminals and missing persons. The system achieved high accuracy in real-world scenarios and was able to identify missing persons with high accuracy.

Muyambo [8] investigated the use of the Local Binary Pattern Histogram (LBPH) algorithm for face recognition to find missing persons in Zimbabwe. The system achieved high accuracy in identifying missing persons and was able to quickly locate missing persons in real-world scenarios.

Ayyappan and Matilda [9] proposed a system that uses face recognition and web scraping to identify missing children and criminals. The system uses a face recognition algorithm to identify individuals and web scraping to collect data on missing children and criminals. The system achieved high accuracy in identifying missing children and criminals.

Patil et al. [10] proposed a system that uses AI to find missing persons. The system uses machine learning algorithms to analyze data from social media and other sources to identify missing persons. The system achieved high accuracy in identifying missing persons and can be used in real-world scenarios.

Finally, the review of related work suggests that AI-based techniques, such as image similarity and face recognition, can be effective tools for locating missing persons. The use of deep learning techniques, such as CNNs, can improve the accuracy and speed of these techniques. However, the accuracy of these methods is dependent on the quality and size of the image database, the similarity of the missing person's image to those in the database, and the effectiveness of the feature extraction and Euclidean distance calculation algorithms.



### III. METHODOLOGY

Every single day, many people go missing for a variety of causes, including old age, mental illness, emotional disorders, Alzheimer's disease, etc. The process to find the missing individual faints because the majority of them go unfound. This research article focuses on improving public and police safety by expediting the search for a lost person. A record of each newly filed case is kept in the application's database. Anytime someone like this is encountered, they take a picture of them and look up their information in the database. If a match is not made, they can upload the information to the database (optional: if known), save the current position while uploading, and notify higher authorities of the situation. The other scenario is that if a match for the missing individual is discovered, the database's information will be accessed, and police or the family will be notified.

This project aims to develop an image similarity API using the deepAI dataset to check for visually similar images. The images were pre-processed, including resizing and colour channel changing. The API produces a distance value to determine how visually similar two photos are, which can be used to find duplicates or track changes over time. An admin UI and user UI were created using Streamlit, with users connected to a MongoDB database to query missing person data. A missing person registration function was created to add details about a missing person, and a function was developed to check if a missing person is already in the database.

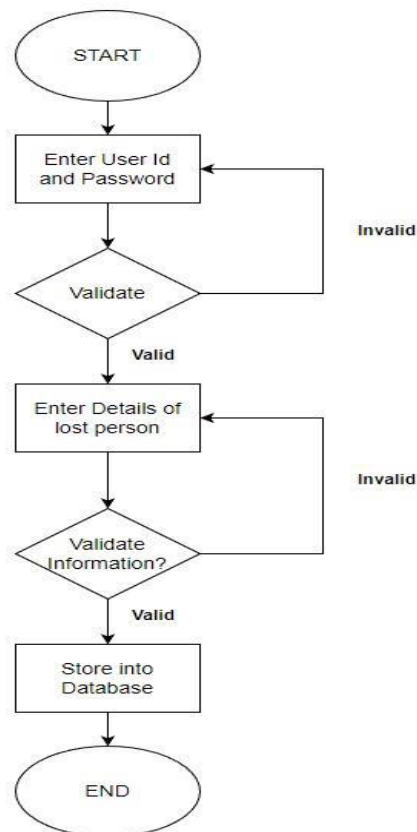


Fig:1 Working Flowchart of the application

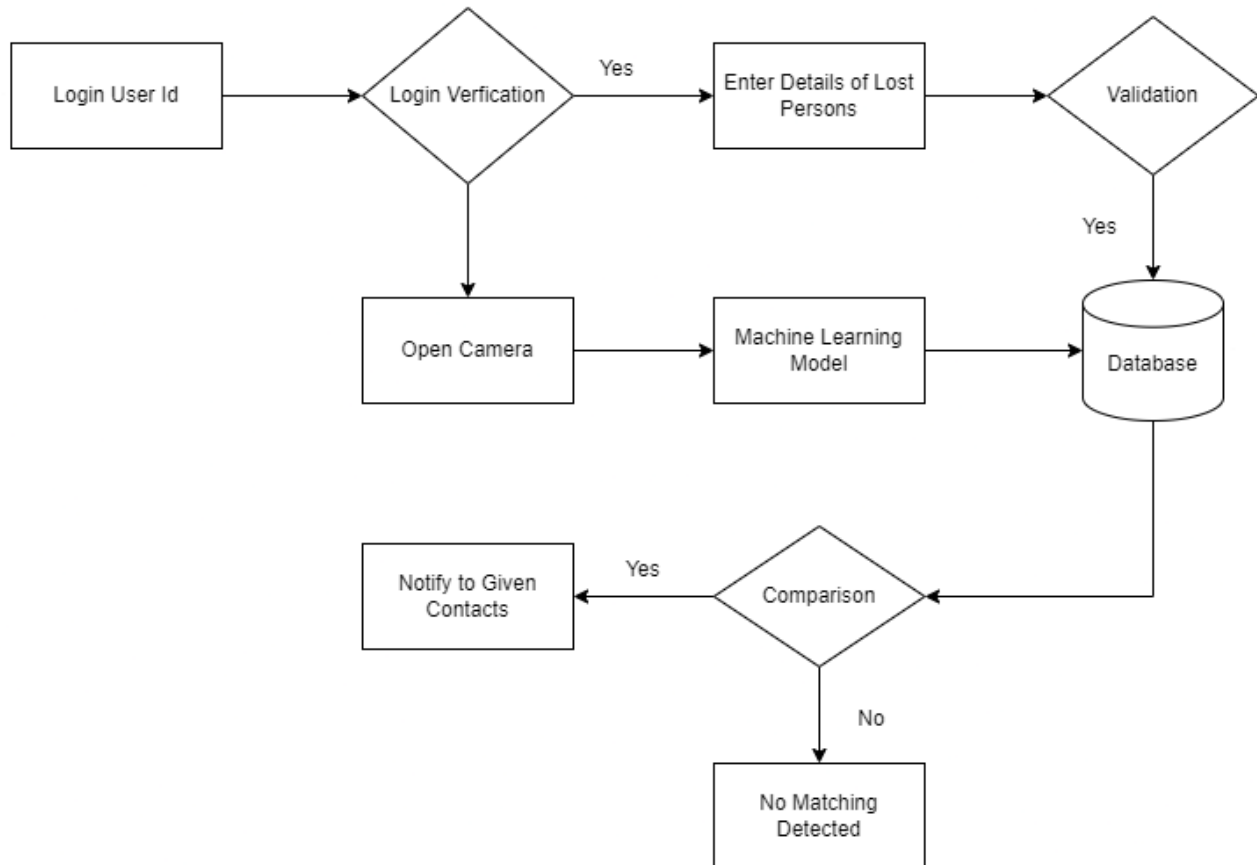


Fig: 2 Block diagram of the application

#### IV. EXPERIMENTAL RESULTS

Image similarity is an essential component of the AI-powered search and assistance system for missing persons. It involves comparing the features of a missing person's photograph with those of other images in a database to identify potential matches. The comparison is performed using the Euclidean distance between the feature vectors of the two images. The smaller the Euclidean distance, the more similar the two images are, and the more likely the missing person's image can be matched with a similar-looking individual in the database.

Deep learning techniques such as convolutional neural networks (CNNs) are used to extract features from images. These features are then used to train a model that calculates the Euclidean distance between feature vectors of images to determine similarity. Once the model is trained, it can be used to search a database of images and identify matches, leading to the location of missing individuals. The accuracy of this method depends on several factors, including the quality and size of the image database, the similarity of the missing person's image to those in the database, and the effectiveness of the feature extraction and Euclidean distance calculation algorithms. While this approach can be a valuable tool in the search for missing persons, it should be used in conjunction with other methods, such as traditional investigative techniques, to improve the likelihood of success.

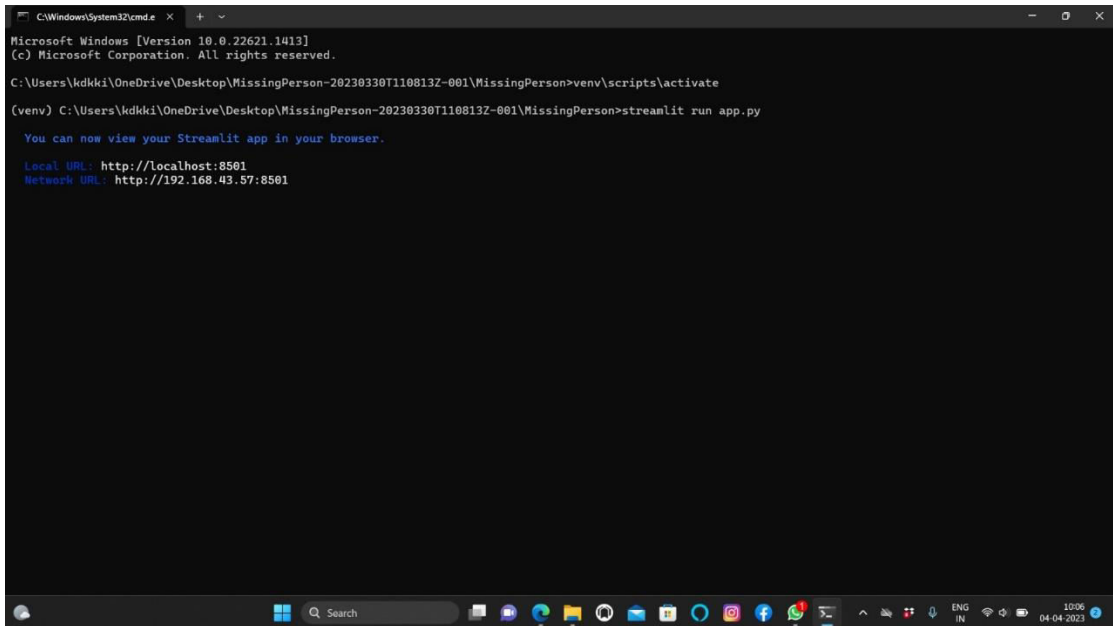


Fig: 3 initializing the Server of the application

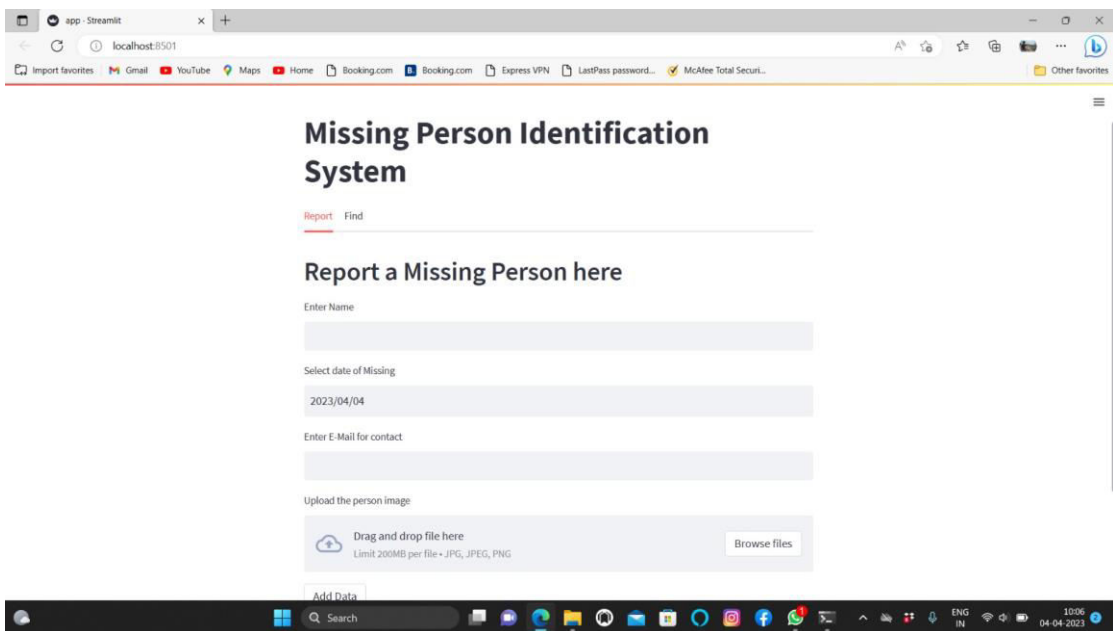


Fig: 4 Entering details of the Missing Person

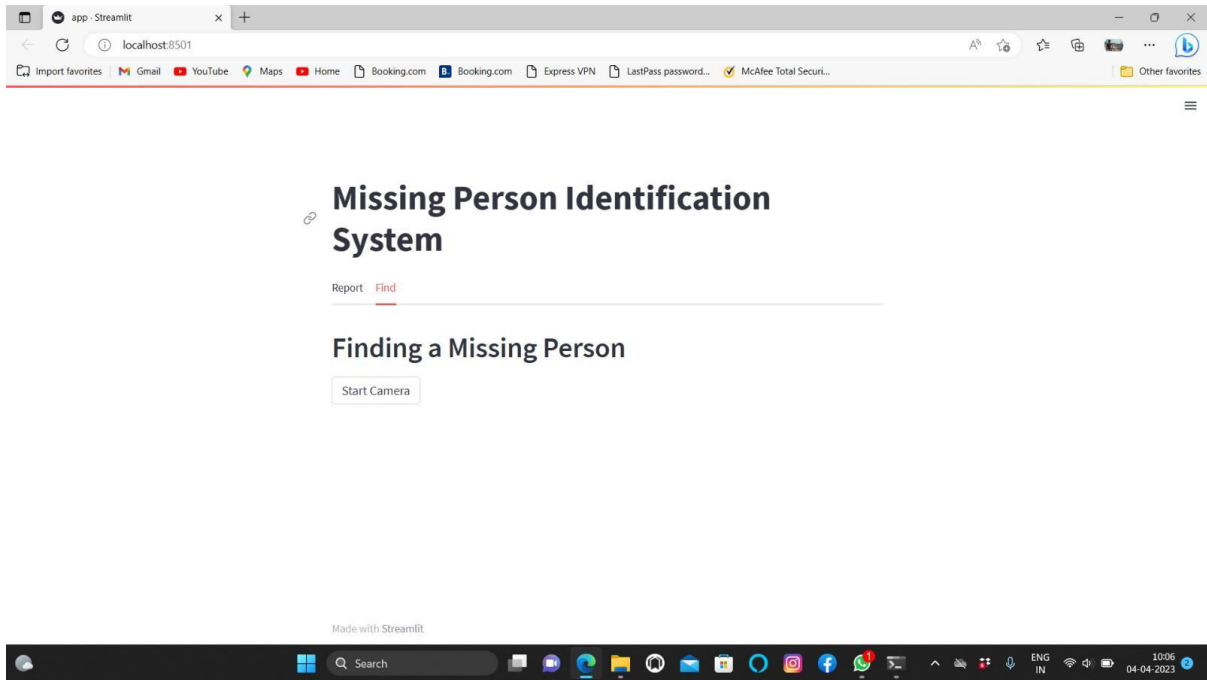


Fig: 5 Finding a Match of Missing Person

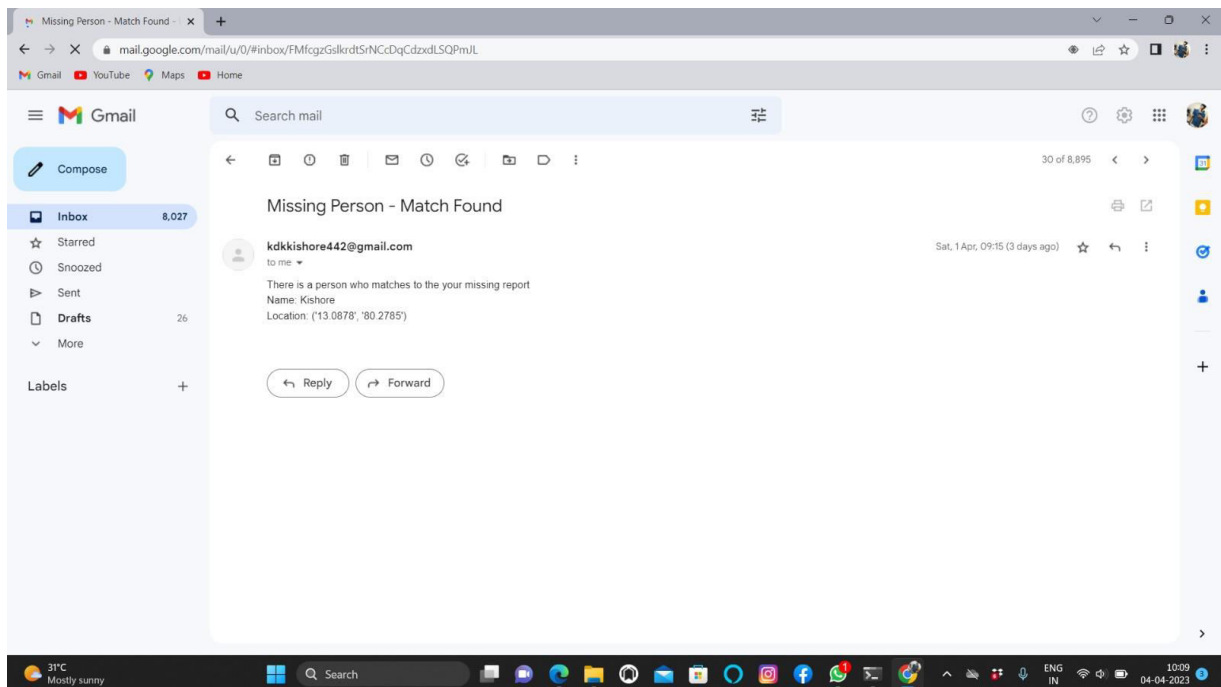


Fig: 6 Missing person is identified and reported

## V. CONCLUSION

In conclusion, AI-powered search and assistance have revolutionized the efforts to find missing persons. By leveraging the power of facial recognition technology, deep learning algorithms, and machine learning models, we can quickly and accurately locate missing individuals. This technology has the potential to save countless lives and improve the

efficiency of law enforcement agencies. It is important to note that while this technology is highly effective, it must be used ethically and responsibly to protect the privacy and security of individuals. Moreover, the potential for misuse or abuse of this technology must be carefully considered and addressed. Overall, with continued development and responsible implementation, AI-powered search and assistance can continue to make a significant positive impact on society and the lives of those affected by missing person cases.

## REFERENCES

- [1] Huang, Gary B. And Erik G. Learned-Miller. "Labeled Faces in the Wild: Updates and New Reporting Procedures", Department of Computer Science, University of Massachusetts Amherst, Amherst, MA, USA, Tech Report, 2014, pp 14–003
- [2] S. Chandran, Pournami & Balakrishnan, Byju & Rajasekharan, Deepak & N Nishakumari, K & Devanand, P & M Sasi, P. (2018). "Missing Child Identification System Using Deep Learning and Multiclass SVM". 113-116. 10.1109/RAICS.2018.8635054
- [3] Rohit Satle , Vishnuprasad Poojary , John Abraham , Mrs. Shilpa Wakode, "MISSING CHILD IDENTIFICATION USING FACERECOGNITION SYSTEM" Vol.3, Issue.1, July – August 2016
- [4] S. B. Arniker et al., "RFID based missing person identification system," International Conference on Informatics, Electronics & Vision (ICIEV), Dhaka, 2014, pp. 1-4.
- [5] Birari Hetal, "Android Based Application - Missing Person Finder", in Iconic Research and Engineering Journals, Vol.1, Issue 12, JUN 2018.
- [6] Thomas M. Omweri, "Using a Mobile Based Web Service to Search for Missing People – A Case Study of Kenya", in International Journal of Computer Applications Technology and Research, Vol. 4, Issue 7, 507 - 511, 2015.
- [7] Sumeet Pate, "Robust Face Recognition System for E-Crime Alert", in International Journal for Research in Engineering Application and Management, Issue 1, MAR, 2016
- [8] Peace Muyambo, 2018, An Investigation on the Use of LBPH Algorithm for Face Recognition to Find Missing People in Zimbabwe, INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH & TECHNOLOGY (IJERT) Volume 07, Issue 07 (July 2018),
- [9] S. Ayyappan and S. Matilda, "Criminals and missing children identification using face recognition and web scrapping" IEEE ICSCAN 2020.
- [10] Shefali patil, Pratiksha Gaikar, Divya Kare, sanjay Pawar, "Find missing person using AI", International journal of Progressive Research in Science and Engineering, Vol. 2, No. 6, June 2021
- [11] Z. Chen, L. Wang and C. W. Chen, "A Robust Algorithm for Missing Person Identification Based on Deep Convolutional Neural Network," in IEEE Transactions on Multimedia, vol. 23, no. 10, pp. 2311-2324, Oct. 2021.
- [12] A. K. Mishra and D. D. Khurana, "Missing Person Detection in Real-Time Videos using Convolutional Neural Networks," 2021 International Conference on Artificial Intelligence and Data Engineering (AIDE), 2021, pp. 88-93.
- [13] M. R. Zaman and M. J. Hossain, "Finding Missing Person Using Face Recognition and Artificial Intelligence Techniques," 2020 5th International Conference on Electrical and Electronics Engineering (ICEEE), 2020, pp. 1-5.
- [14] S. B. Singh and S. S. Gandhi, "A Hybrid Approach for Missing Person Identification using Convolutional Neural Network and Support Vector Machine," 2020 IEEE International Conference on Computational Intelligence and Computing Research (ICIC), 2020, pp. 1-4.
- [15] S. S. Suresh and S. P. Kumar, "Intelligent System for Missing Person Identification Using Face Recognition," 2019 5th International Conference on Advanced Computing and Communication Systems (ICACCS), 2019, pp. 1-5.





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