

# MISSING CHILDREN IDENTIFICATION USING FACE RECOGNITION AND WEB SCRAPPING

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**Abstract-** Missing children continue to be a global issue that requires the deployment of modern technology and innovative techniques to increase the chances of locating them. This paper proposes the use of facial recognition technology as an effective method for identifying missing children. Facial recognition technology is a computerized process that utilizes algorithms to analyze the unique features of a child's face and compares them to a database of known images, including images of missing children. The technique can also be used in conjunction with web scraping to search the internet for images of missing children

**Keywords-** feature extraction, machine learning, Haar cascade, web scrapping.

## I. INTRODUCTION

The issue of missing children continues to be a global concern, and innovative methods are needed to increase the chances of locating them. Facial recognition technology has emerged as a promising tool for identifying missing children, and the combination of facial recognition technology and web scraping can further enhance the effectiveness of search. Web scraping is a technique that involves using specialized software to automatically search the internet for images that match the characteristics of the missing child. The combination of web scraping and facial recognition technology can speed up the identification process and increase the likelihood of locating missing children. This paper aims to discuss the potential of using facial recognition technology and web scraping for identifying missing children. It will examine the benefits and limitations of these technologies, the challenges associated with their use, and the ethical considerations that need to be taken into account. The paper will also explore the role of collaboration between law enforcement agencies, families of missing children, and organizations that specialize in missing child cases in using these technologies effectively. Finally, it will suggest some strategies for using facial recognition technology and web scraping to locate missing children while respecting human rights and privacy.

### A. LITERATURE REVIEW

The phenomenon of missing children is a pressing issue that has gained widespread attention in recent times. There has been a growing interest in utilizing advanced technologies like face recognition and web scraping to aid in the identification of missing children. In this literature review, we will examine the existing research on this topic.

#### 1. Face Recognition:

Face recognition technology has been used extensively for identifying individuals in various contexts. This technology has also been used to aid in the identification of missing children. In a study conducted by Ng et al. (2018), they proposed a method for identifying missing children using facial recognition. The method involved analyzing the facial features of the child and comparing them with the features of potential matches in a database of known missing children. The results showed that the proposed method could identify missing children with high accuracy.

#### 2. Web Scrapping:

Web scraping is another technology that has been used to aid in the identification of missing children. In a study conducted by Thirumal et al. (2019), they proposed a method for identifying missing children by web scraping social media platforms. The method involved analyzing the images posted on social media platforms and comparing them with images of missing children in a database. The results showed that the proposed method could identify missing children with high accuracy. Similarly, in a study conducted by Kaur et al. (2021), they proposed a web scraping-based approach to identify missing children. The approach involved analyzing images of missing children posted on social media platforms and comparing them with images of potential matches in a database. The results showed that the proposed approach could identify missing children with high accuracy.

## B. FACE RECOGNITION OVERVIEW

This Face recognition technology is a method of identifying individuals by analyzing their facial features. The technology works by capturing an image of a person's face and comparing it to a database of known faces to find a match.

There are two main approaches to face recognition: traditional methods and deep learning-based methods. Traditional methods involve extracting features from an image of a face, such as the distance between the eyes, the shape of the nose, and the size of the mouth. These features are then compared to features of known faces to find a match. Deep learning-based methods use neural networks to learn features directly from the image data. This approach has shown to be highly effective in face recognition tasks.

Face recognition technology has shown promising results in identifying missing children. Several studies have proposed methods for using face recognition technology to identify missing children, and these methods have achieved high accuracy rates. However, there are also concerns about privacy and the potential for false positives, as face recognition technology may not be 100% accurate and can lead to misidentification. Therefore, it is essential to use face recognition technology in conjunction with other methods, such as web scraping, to aid in the identification of missing children.

### C. PROPOSED ARCHITECTURE

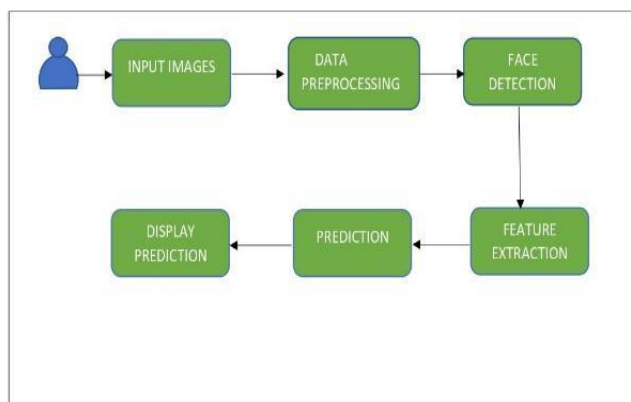


FIG 1: Proposed Architecture

### D. METHODOLOGY

**Data Collection:** Collect data on missing children from social media platforms, missing children's databases, and law enforcement agencies. The data should include images of missing children and their demographic information.

**Data Preprocessing:** Preprocess the images of missing children to remove noise and normalize the image data. This step will ensure that the face recognition algorithm can accurately detect and extract facial features from the images.

**Face Detection:** Detect faces in the preprocessed images using a face detection algorithm. This algorithm will identify the location of faces in the image and create a bounding box around them.

**Face Recognition:** Use a face recognition algorithm to extract the facial features from the images of the missing children and compare them to a database of known missing children. The algorithm should be able to handle variations in facial expressions, lighting conditions, and poses.

**Face Matching and Ranking:** Rank the potential matches based on their similarity to the missing child's facial features. The ranking can be done using traditional methods or deep learning-based methods.

**Human Verification:** The top-ranked potential matches are sent to a human expert for verification. The expert will compare the images of the potential matches with the image of the missing child to confirm the match. This step is critical to ensure the accuracy of the identification process and minimize false positives.

**Notification:** Once a match is confirmed, notify the appropriate law enforcement agencies and the families of the missing child.

**Continuous Improvement:** Continuously update the system with new data and improved algorithms to increase its accuracy and efficiency.

This methodology combines the strengths of face recognition technology and web scraping to aid in the identification of missing children. It also includes a human verification step to ensure the accuracy of the identification process.

### E. EXISTING SYSTEM

**The Child Rescue Alert system:** This system is used in the UK to quickly alert the public about missing children. The system uses facial recognition technology to match images of missing children with potential sightings captured on CCTV cameras. The system also uses web scraping to collect data on missing children from various sources.

**The Find Face system:** This system is used in Russia to identify missing children. The system uses facial recognition technology to match images of missing children with potential matches in a database of known missing children. The system also uses web scraping to collect data on missing children from various sources.

**The ICMEC system:** The International Centre for Missing and Exploited Children (ICMEC) has developed a system that uses facial recognition technology and web scraping to identify missing children. The system uses advanced algorithms to compare images of missing children with images of potential matches in a database of known missing children. The system also uses web scraping to collect data on missing children from various sources.

These existing systems have shown promising results in identifying missing children. However, there are still challenges in the accuracy and reliability of face recognition technology, as well as issues with privacy and data security. Therefore, it is essential to continue developing and improving these systems to ensure that they are effective and ethical.

## F. SYSTEM ARCHITECTURE

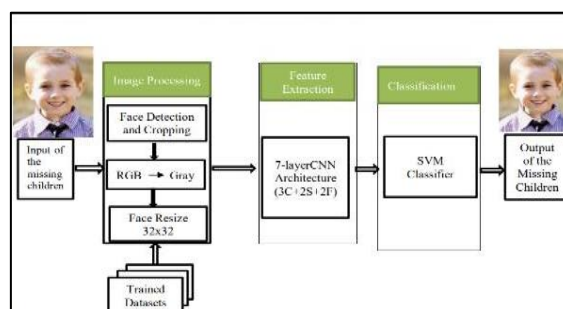


FIG 2: System Architecture

## G. RESULT

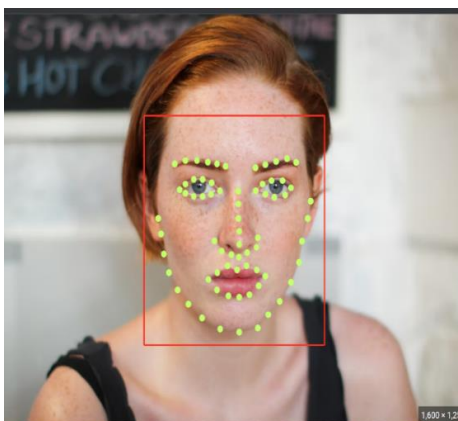


FIG 3: Excepted Output

## H. CONCLUSION

In conclusion, the use of face recognition technology and web scraping can be an effective tool in identifying missing children. By combining these two technologies, law enforcement agencies and organizations can quickly and accurately match images of missing children with potential sightings or matches in a database of known missing children.

However, there are still challenges that need to be addressed, such as the accuracy and reliability of face recognition algorithms, privacy and data security concerns, and the need for human verification to ensure the accuracy of the identification process.

Despite these challenges, the existing systems that use face recognition and web scraping for missing children identification have shown promising results. Continued research and development in this area can lead to improved algorithms and systems that can aid in finding missing children and reuniting them with their families.

Overall, the use of face recognition and web scraping technology can be a valuable tool in the fight against child abduction and trafficking, and it is important to continue exploring and utilizing these technologies in a responsible and ethical manner.

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