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ReuniteFaces: Facial Recognition for Missing Child Identification

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A B S T R A C T

A child goes missing every eight minutes in India. Every year, many children disappear in India for various reasons such as abduction, running away from home, abduction, and disappearance. ReuniteFaces is an online decision-making platform designed to revolutionize the search and identification of missing children with the best facial recognition. This new website uses the power of artificial intelligence to identify and match faces, providing a fast and effective way to reunite missing children with their families. ReuniteFaces uses facial recognition algorithms to compare images of missing children with a wide range of information from social media, police, and public records. The platform has a user-friendly interface that makes uploading images easy and guides users smoothly. Cross-platform collaboration increases the impact and reach of incomplete child information by collaborating with media and law enforcement. Real-time updates accelerate analysis and provide timely alerts to users, law enforcement, and the public. ReuniteFaces emphasizes privacy and security, following the highest data protection procedures to increase user trust. The platform supports international cooperation in the fight against child abuse and human trafficking through international cooperation. At its core, ReuniteFaces is a compassionate force that makes a positive difference in identifying missing children.

Keywords: AI, Child abduction, Missing children, reunite faces, Facial recognition, Artificial intelligence.

1. Introduction

In a world marked by technological advances, ReuniteFaces serves as a beacon of hope and demonstrates the transformative potential of facial recognition technology in analytic missing children. In addition to traditional practices, ReuniteFaces also uses the power of innovation to solve the complex and challenging problems faced by families with missing children. The initiative represents the integration of technology and human understanding and shows that facial recognition can play an important role; It reunites families torn apart by the pain of losing their children.

In the digital age, ReuniteFaces proves that technology can influence people positively. Exploring the power of facial recognition, this initiative not only shows promise but also shows a new ability to solve emotional problems. Join us for a deep dive into the field of technology and compassionate interaction, paving the way for families to overcome the pain of separation and pave the way to a better future sooner.

2. Methodology

LoginPortal's facial recognition system is designed to provide a secure and effective authentication process. Users start the process by visiting the login portal and uploading a photo of their face. Once the image is displayed, the system uses complex techniques to extract features, capture key facial features, and create custom feature vectors. These image vectors are compared to data stored in the database using similarity measurements to determine matches.
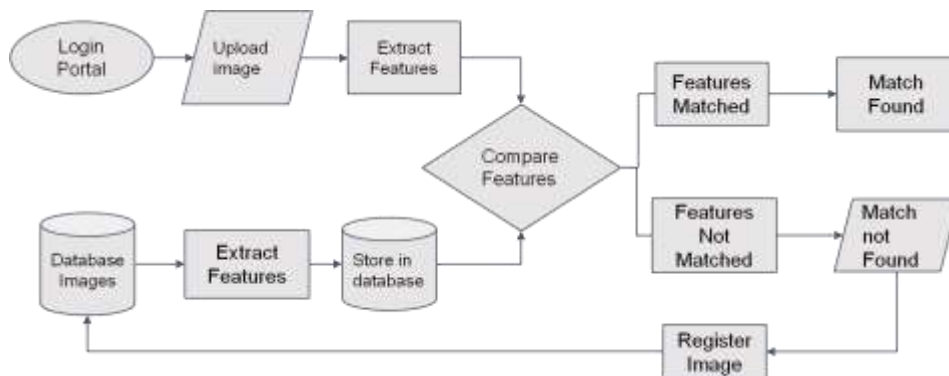

Fig. 1 – Flow Chart.

Login Portal Setup:

This method primarily creates a secure login portal as the user interface for facial recognition.

Strengthen the use of authentication tools and controls to secure and control access to the environment.

- Establish the LoginPortal as the user interface for facial image recognition.
- Develop a secure authentication mechanism to grant access to authorized users.

Upload Image:

Users can securely upload facial photos via the login portal. The system combines image quality inspection and structure to verify the structure of the uploaded image, to ensure that the subsequent process is based on accurate and reliable data.

- Enable users to upload facial images through the LoginPortal securely.
- Implement image quality checks to ensure clarity and standardization.

Extract Feature:

This method uses special face removal algorithms to identify uploaded images. Important facial features (such as regions) are carefully extracted to create unique feature vectors that capture the unique features of each person's face..

- Utilize facial feature extraction algorithms to analyze uploaded images.
- Extract key facial features, such as landmarks, to create a unique feature vector.
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Compare Features:

A complex matching algorithm is designed to match the extracted features with existing data in the system. This involves the use of similarity metrics such as Euclidean distance or cosine similarity to evaluate the similarity between extracted features and features stored in the database..

- Develop a comparison algorithm to match the extracted features with existing data.
- Implement similarity metrics, such as Euclidean distance or cosine similarity, for accurate comparison.

Store in Database:

A secure database is created and used to store facial images and their corresponding vectors. These steps include the use of encryption and access control to protect sensitive user data and ensure the confidentiality and security of stored data.

- Establish a secure database to store registered facial images and their corresponding feature vectors.
- Implement encryption and access controls to safeguard sensitive user information.

Extract Feature (Database Images):

For updates to be updated and configured correctly, the system regularly deletes the features of the facial image stored in the database. This iterative process ensures that the representation of the image is consistent and adapts to both new and existing images..

- Periodically extract features from images stored in the database to keep the feature set updated.
- Maintain consistency and accuracy in feature representation.

Features Matched:

When extracting features, the method includes logic to check whether the extracted text matches the features stored in the database and identify the user. Once paired, the login portal can be accessed, providing users with a unique and seamless experience.

- Develop logic to identify and authenticate users if the extracted features match those in the database.
- Grant access to the LoginPortal for successful matches.

Features Not Matched:

If the extracted features do not match the stored data, the system will follow the security protocol. Requiring users to re-upload the image or use other authentication methods will compromise the overall security of the facial image recognition system.

- Implement secure protocols for handling failed feature matches.
- Prompt users to re-upload images or follow alternative authentication methods.

Register Image:

Administrators are given the right to register new faces into the system. This includes the same extraction and database security before storage to ensure consistency in the recording process of new and existing images.

- Allow administrators to register new facial images into the system.
- Follow the same process of feature extraction and database storage.

3. Implementation

Create an intuitive homepage with navigation and statistics functions. The child information page provides personal information, contact information and updates. Search pages feature facial recognition, filtering, and real-time updates

3.1 Home Page

Graphical homepage with user-friendly registration and login options. Seamlessly add your child's information or find a lost child easily.

Fig. 2- Homepage.

3.2 Details Page:

Easily add your child's details: name, age, and gender. Keep contact information in Gmail and mobile phones to keep in touch while searching for missing children.

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Fig. 3 Detail page

3.3 Searching Page:

Easily add your child's details: name, age, and gender. Keep contact information in Gmail and mobile phones to keep in touch while searching for missing children.

Fig. 4 Searching Page

4. Conclusion:

In conclusion, we would say that the website ReuniteFaces provides a solution to the problem of missing children by solving the recognition of faces using a machine learning algorithm that can work on large datasets. This website generates an alert to the NGO, person, and police through email that a match is found (under which the registration is done). Using this technique provides a better alternative to the manual techniques used by the government, this website will help aid the process for a faster and more efficient search for children who are unable to communicate their addresses.

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