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# ENHANCING MISSING PERSONS INVESTIGATIONS

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## ABSTRACT

Every day, huge numbers of people around the world go missing. These missing people include children, teenagers, mentally challenged individuals, elderly individuals with Alzheimer's disease, etc.. Most of them remain untraced. This study offers a method that would help the police and the public by speeding the process of searching using face recognition. Face recognition technology may be utilized for various reasons and finding the missing individual is a biggest advantage for any face recognition approach. To make the work of discovering the missing person easier we are intending to build an application which will be accessed by certain volunteers via which we can find missing person in short span of time. The police will have an easier time finding a specific person as a result of this. However, in order to locate a certain person, it is necessary to automate the process by identifying a specific image and comparing it to other images. to check whether both photos having same qualities or not. By doing this we will come to know whether the missing person in the image clicked from certain location is correct or not, and if it is correct then police can start their following steps to find the individual from that region.

**Keywords**- Missing people, facial points, kidnap, lost kid, trace, face recognition.

## I. INTRODUCTION

Every day, enormous numbers of people around the world go missing, including children, teenagers, mentally challenged individuals, elderly individuals with Alzheimer's disease, etc. Most of them remain untraced. This study offers a method that would help the police and the public by speeding the process of searching using face recognition. Face recognition technology may be utilized for various reasons and finding the missing individual is a biggest advantage for any face recognition approach. To make the work of finding the missing person easier we are intending to. missing person is a biggest benefit for any facial recognition technique. To make the work of discovering the missing person easier we are intending to build an application which will be accessed by certain volunteers via which we may find missing person in short span of time. This will make the work of police to discover a particular person simpler. However, in order to locate the person, it is necessary to automate the process by identifying a certain image and comparing it to other images.check whether both images have same characteristics or not. By doing this, we will be able to determine whether the missing person depicted in a picture taken from a certain region is accurate or not, and if it is, authorities can begin their following measures to locate the person from that area.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 most of them go unfound. We propose

 

a solution for the same. The database of the application maintains a record of each freshly filed case. Every time they come across someone like this, they take a picture of them and search them up in the database. In the event that no matches are found, they can upload the data to the database (optional: if known), save the current location while uploading, and alert higher authorities to the problem. The information in the database will be accessible if a match is found for the missing person, in which case police or the family will be informed.

## II. LITERATURE SURVEY

The first title is "Finding Missing Persons: A Review of Challenges and Opportunities."

WEEKEND CONFERENCE ON APPLICATIONS OF COMPUTER VISION (IEEE WACV) 2019

Anh-Dzung Doan, Alex A.T. Bui, David St. Clair, and Julia Hirschberg are the authors.

LIMITATIONS: The review excludes other sorts of data, such as text or social media, and focuses primarily on visual and audio data for locating missing people. Additionally, it focuses more on technical opportunities and difficulties than social or ethical issues.

2.TITLE: "A Review of Missing Persons Missing Persons Detection Technologies in Disaster Response"

Fourth International Conference on Serious Games and Applications for Health (SeGAH), 2016 IEEE

Shehroz S. Khan, Eric P. S., and Noora Al Mutawa are the authors. Bauch

LIMITATIONS: The review excludes other contexts and is solely concerned with methods for locating the missing in disaster response scenarios. YEAR: 20

"Missing Person Detection: A Comprehensive Review and Comparative Study" is the third title.

2020 CONFERENCE 13th International Human System Interaction (HSI) Conference

AUTHOR: Prabir Kumar Biswas, Santanu Chaudhury, and Priti Yadav

LIMITATIONS: The review primarily examines optical data; it does not discuss auditory or olfactory data. YEAR: 2020

4. TITLE: "Missing Persons Investigation in Forested Environments: A Review of Methods and Technologies"

The third International Conference on Computing and Communications Technologies (ICCCT), which is scheduled for 2019, will be held..

 

AUTHOR: Dhrubajyoti Bhowmik, Ayush Datta, and SuvadipBatabyal

LIMITATIONS: The review excludes other situations and is specifically concerned with locating missing people in wooded areas.

Shashank AgraUsing GIS to Find Missing Persons" 6.

5th International Conference on Cartography and Geographic Information Systems

Cristina Catita is the author.

LIMITATIONS: Only applicable in situations where the missing person's most recent known loc ation is known. YEAR: 2014

7.TITLE: "A Comprehensive Social Media Data Analysis for Missing Persons Recovery"

Global Conference on Digital Information Processing and Communications

By Shashank Agrawal

LIMITATIONS: Depends on the activity of the missing individual on social media, which may not always be available. YEAR: 2019

"A Drone-Based and Wireless Sensor Network-Based System for Detecting and Locating Missing Persons in Disaster-Affected Areas" is the topic of this week's theme.

CONFERENCE: Future Networks and Distributed Systems International Conference

"A Review of Automatic Person Detection in Search and Rescue Operations" is the title of the fifth paragraph.

Hamid Ali Abed, Faizan Farooq, and Zahid Mehmood are the authors of the 2017 International Conference on Intelligent Systems and Computer Vision (ISCV).

LIMITATIONS: The review primarily examines optical data; it does not discuss auditory or olfactory data.

Armin Djamshidpour, author

LIMITATIONS: Requires the use of wireless sensor networks and drones in the disaster-affected area. YEAR: 2019

"An Improved Approach to Missing Persons' Retrieval Using Machine Learning Techniques"

CONFERENCE: Intelligent Computing and Communication International Conference

Written by Ankit Jaiswal

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LIMITATIONS: Depends on information being available about the missing person's routines and behaviour patterns. YEAR: 2020

"A Wireless Sensor Network System for Finding Missing Persons in Large Areas," is the title of the tenth section.

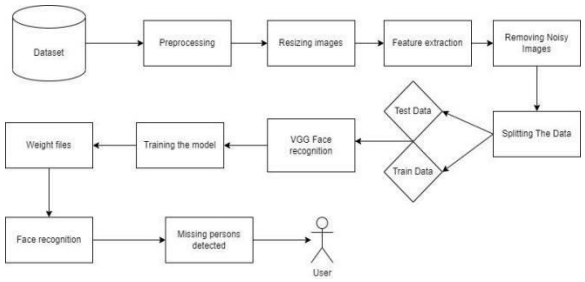
International Conference on Computer and Applications (ICCA) for 2019

Zeinab Borji, Gholamhossein EkbataniFard, and Ali Mirzaei are the authors.

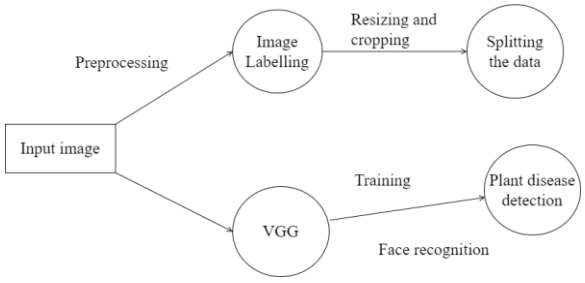
LIMITATIONS: In regions with a lot of interference or with poor network connectivity, the suggested approach might not function well.

## III.DESIGN

This diagram offers a clear and accessible explanation of all the elements that are already incorporated into the system. The figure demonstrates the relationships between the various activities and decisions. The entire procedure and how it was handled might be described as a picture. The functional relationships between various entities are depicted in the image below.




System Architecture




Data Flow Diagram

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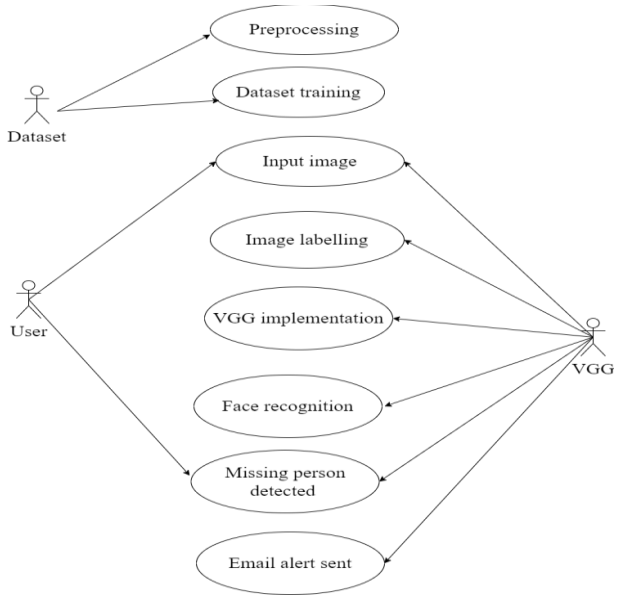
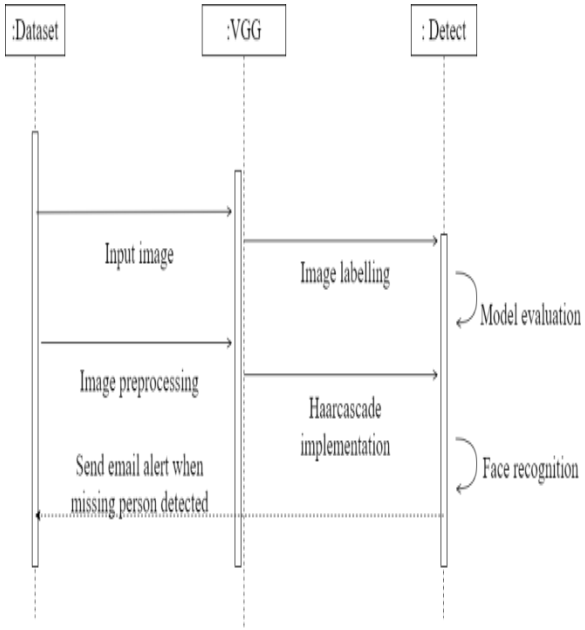



Use-Case Diagram




Sequence Diagram

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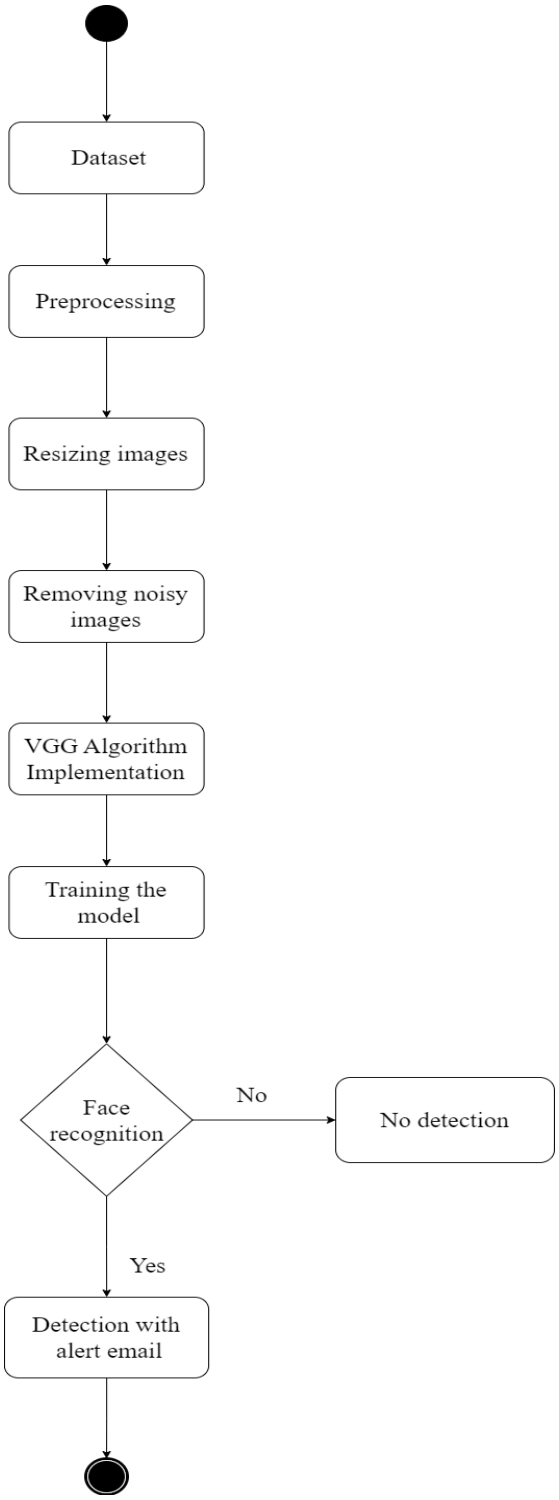


Activity Diagram

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## IV.MODULES

### 5.1 IMAGE PROCESSING MODULE IN MODULE 1

Importing Libraries: Bringing in the required libraries for image processing is the initial step in the image processing module. NumPy can be used for numerical operations, and OpenCV can be used for image processing. Image Preprocessing: After receiving the input image, the module preprocesses it to make it ready for the Haar cascade classifiers to identify it. The preprocessing could involve the following steps: a. Grayscale conversion: The module would change the RGB input image to grayscale. Because grayscale images employ fewer processing resources than colour images, Haar cascade classifiers perform better on them. Normalise Pixel Intensities: The module would average out the grayscale image's pixel intensities. Resize the Image: The module would scale the produced image to a resolution that would allow the Haar cascade classifiers to detect objects. To balance processing speed and detection accuracy, the resolution needs to be optimised. Pass picture to Haar Cascades Classifier: Following preprocessing, the module would send the picture to the classifiers in the Haar Cascades for detection. The classifiers would give back the coordinates of any faces, eyes, or other objects they had found in the image.

### MODULE 2: DETECTION MODULE

(5.2) Preprocessing of the input image:After the module receives the input image, it preprocesses it to make it ready for the Haar cascade classifiers to identify it. The subsequent actions could be incorporated into the preprocessing: a. Convert to Grayscale: This function would change the RGB input image to grayscale. This is because grayscale images, which demand less processing power than colour images, are preferable for usage with Haar cascade classifiers. b. Normalise Pixel Intensities: To increase the detection's accuracy, the module would normalise the pixel intensities of the grayscale image. To do this, multiply the pixel intensities by 255, which scales them to the [0, 1] range. Pass picture to Haar Cascades Classifier: Following preprocessing, the module would send the picture to the classifiers in the Haar Cascades for detection. The classifiers would give back the coordinates of any faces, eyes, or other objects they had found in the image. Return discovered object coordinates: Sending the coordinates of the discovered objects back to the main programme is the last step in the image processing module. Drawing bounding boxes around the image's recognised items using these coordinates will activate the email alert system.

### 3.0 MODULE: EMAIL ALERT MODULE

Section 5.3 Setting up email settings: Before sending alert emails, the module needs to be set up using the user's email credentials and the email server settings. To receive the notifications, the user would have to enter the recipient's email address, the login information, and the name of the email server and port. The user may enter these options during runtime or store them in a configuration file. 26 Formatting the Alert Email: After the missing individual has been located,

 

the module formats an email with the pertinent location, date, and time of the discovery. An image of the detected individual with a bounding box drawn around it may be included in the email. Using HTML tags, the email body can be styled to add visual appeal and useful content. Sending the Alert Email: Using the smtplib package, the module formats the email before sending it to the user's email address. Either plain text or an HTML message with embedded images can be used to send the email. The email may also contain a link to a web page where the user can examine information and a map of the discovered person. Settings for Email Alert Configuration: The user may choose to change other options, such as the frequency of alert emails. The module can offer a GUI interface or a configuration file so that the user interface that enables users to adjust email alert settings. Email issue handling: If there are problems sending the email, such as a network connection problem or invalid email credentials, the module can record the issue and attempt sending the email after a predetermined amount of time. The module may alert the user with an error message or a log file if the error continues.

## V.CONCLUSION

In conclusion, the "Finding the Missing Person Using Face Match Making Algorithm with User and Admin Dashboard" project is a useful resource for finding missing people and boosting public safety. The initiative uses cutting-edge technologies to boost search efficiency and speed, including facial recognition and machine learning algorithms. The technology can compare pictures of missing people with probable matches thanks to a database of known individuals that is constantly updated. This increases the likelihood that the missing person will be found. Users can easily upload pictures of missing people thanks to the system's user-friendly interface, and administrators can easily manage them thanks to the admin dashboard. The project's success will be determined by its capacity to find missing people bring them back to their relatives. The project is a huge advancement in the use of technology for public safety and has the potential to completely change how missing people are found. The "Finding the Missing Person Using Face Match Making Algorithm with User and Admin Dashboard" project is a significant social contribution that could potentially save lives and provide comfort to families who are dealing with lost loved ones.

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