Find Missing Person Using Artificial Intelligence

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Abstract— **Face recognition is a biometric-grounded technology that mathematically charts a particular person's or individual's facial features and stores all that data as a face print. By using this fashion, the information of the face of a person is saved mathematically or in the format of graphs in the database, which is used for detecting that particular face. Face recognition model in our system will find a match of that person in the database. If a match is found, it will be notified to the police and the guardian of that person. The face recognition model in our system will try to find a match in the database with the help of Tensor Flow Face recognition algorithm. It is performed by comparing the face encodings of the uploaded image to the face encodings of the images in the database. If a match is found, it will be notified to the police and the people related to that person along with the position of where the person is found.**
Face recognition models in Deep and Machine Learning are primarily created to ensure the security of identity. There are several frameworks used in building a face recognition model and one of them is Tensor Flow. The Tensor Flow face recognition model has so far proven to be popular.
Using Tensor Flow to build face recognition and discovery models might bear trouble, but it is worth it in the end. As mentioned, Tensor Flow is the most used Deep Literacy framework and it has pre-trained models that fluently help with image bracket.

Key Words: Tensor Flow Face recognition, Face Recognition, missing person, Recognition.

I. INTRODUCTION

In the world, a countless number of people are missing every day which includes kiddies, teens, mentally challenged, old-aged people with Alzheimer's, etc. Most of them remain untraced. This paper proposes a system that would help the police and the public by accelerating the process of searching using face recognition.

Face recognition fashion can be used for many things and finding the missing person is a biggest advantage for any face recognition fashion. To make the task of finding the missing person easier we are planning to make an operation which will be accessed by some volunteers through which we can find missing person in short span of time.

This will make the work of police to find a particular person easier. Meanwhile, there is a need of robotization for automating the task of finding the particular person by recognizing particular image and comparing that image with other image in order to check whether both images has same characteristics or not. By doing this we will come to know whether the missing person in the image clicked from particular position is corrector not, and if it is correct then police can start their next steps to find the person from that area.

Here in our Android operation we have built face detection system where if match found volunteer will be redirected to the missing persons profile where user will be able to get exact Position of missing person with Google chart integration also user can chat with the person who posted that profile and get the update from him as well. Tensor Flow is an end-to-end open-source platform for machine learning. It has a comprehensive, flexible ecosystem of tools, libraries and community resources that lets researchers push the state-of-the-art in ML and developers fluently build and deploy ML powered operations.

Using Tensor Flow to build face recognition and detection models might require effort, but it is worth it in the end. As mentioned, Tensor Flow is the most used Deep Learning framework and it has pre-trained models that fluently help with image bracket. The images are classified using CNN. In most cases, to generate a model means the bracket of the images only

needs to provide a similar image which is the positive image. The image is then trained and retrained through a process known as anchoring or Transfer Learning. Years back, finding that model for training and retraining was difficult. Now, Tensor Flow has simplified the process.

In our operation there will be the feature of saving all the data of the missing person so that system can detect that image data and trace the missing person. We have created an Android Operation for finding out the missing persons more efficiently. In our operation we have implemented functionalities like login with Authentication where user will require the email-id and password for log in into our operation also we have firebase verification for email authentication.

We can report the missing person along with its particular Positions with the help of Google Chart Integration as well as the Positions of the nearby Police stations and the Position from where the missing person is reported will also get visible on the Chart. Our operation will maintain a list of the missing persons as well. Matching up of the various faces will also be done in our operation with the help of the 'Tensor library'.

II. LITERATURE REVIEW

We did lot of survey and summed up following regarding literature survey so firstly, S. AYYAPPAN and his fellow mates from IFET College of Engineering have a presented a paper which deals with a similar problem statement and objective. The system proposed by them makes use of Deep Learning based Facial Feature Extraction and matching with stacked convolutional auto encoder (SCAE). The images of missing Persons are stored in a database. Faces are detected from those images, and a Convolutional Neural Network learns features. These learned features were utilized for training a multi-class SVM classifier. They used this method to identify and label the kid correctly. The main difference between their work and ours is that we are going to create a dataset of lost persons with the help of people who want contribute to society (voluntary work).Also we are not going to disclose the details of lost person with the public. And their system involves complex algorithms which make the process of extraction and bracket slower [1].

Previously, Shefali Patil and his fellow mates from SNDT Women's University, Juhu, Mumbai have a presented a paper which deals with a similar problem statement and objective. The system proposed by them uses KNN Algorithm which makes use of 136 * 3 data points to recognize Face. The main disadvantage of using the KNN method is its accuracy 71.28% and also it does not address cross-age face recognition. The main difference between their work and ours is that here we are going to create a dataset using a mobile operation with voluntary work of people. we are going to use AWS facial reorganization which has cross-age face recognition. Also, our dataset is going to be stored in the cloud database.[2]

In 2020, Sarthak Babbar, Navroz Dewan, Kartik Shangle and his fellow mates from Jaypee Institute of Information Technology, Noida, India team gave out a paper in which gave us very clear idea about how Amazon Web Services (AWS) Recognition works and it compares AWS recognition with other algorithms and systems like CDAC-VS, CNN. So this paper helped us in identifying the algorithm that we are going to use in our project e.g. Amazon Web Services (AWS) Recognition Our faces will change with time as our age increases, while the pictures in our dataset remain the same. We intend to study the accuracy of Residual Network (ResNet) for the purpose of cross-age face recognition. The performance is compared to cross-age reference coding (CARC), Amazon Web Services (AWS) Recognition and other techniques on the various data set viz., cross-age celebrity dataset (CACD) and a verification subset CACD-VS. ResNet and AWS Recognition achieved 98.40% and 99.45% accuracy, respectively on the CACD-VS dataset. [3]

In August 2016, Rohit Satle and his team presented a paper which addresses the face recognition system built by using Principal Component Analysis (PCA) method. The two main drawbacks of applying the PCA method are that computational complexity is high, and it can only process faces with similar facial expressions. The main difference between their project and ours is that our project can identify the particular person even if different facial expressions are there in both images. Our system will also detect particular person's 2 different images, one image with moustache and another image with no moustache. We

will make use of AI for recognition of images which will definitely increases our accuracy level. [4]

In August 2014, Swarna Bai Arniker and K.Sita Rama Rao his team from Research Centre Imarat, Hyderabad presented a paper which gives use insights of RFID Based Missing Person Identification System This RFID reading equipment may be maintained at all police stations and public gatherings in the future. This has operations for recognizing lost children, physically challenged children, senior citizens and handing them over to their guardians. The prerequisite is that the person must physically put on the RFID tag. So it has limitation of carrying that RFID Chip which will track the particular person. [5]

III. PROPOSED SYSTEM

Users of the system should be able to upload the missing person details. Users should be able to access missing person information between two given police stations with the given date/time of missing person from the database. A volunteer can upload image and Position details of the missing person in the operation. The system will support two types of user privileges, Volunteer, and Police/Authority. Volunteers will have access to Volunteer functions, and the Police/ Authority will have access to both Volunteer and management functions. The user should be able to do the following functions:
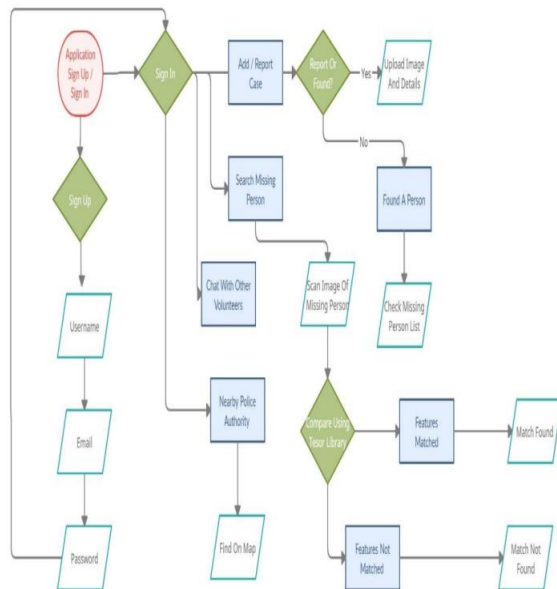

Fig.1: Block Diagram

IV. TECHNICAL PREPOSITION

TensorFlow is an end-to-end open-source platform for machine learning. It has a comprehensive, flexible ecosystem of tools, libraries and community resources that lets researchers push the state-of-the-art in ML and developers fluently build and deploy ML powered operations.

Using TensorFlow to build face recognition and detection models might require effort, but it is worth it in the end. As mentioned, Tensor Flow is the most used Deep Learning framework and it has pre-trained models that fluently help with image bracket. The images are classified using CNN. In most cases, to generate a model means the bracket of the images only needs to provide a similar image which is the positive image. The image is then trained and retrained through a process known as anchoring or Transfer Learning. Years back, finding that model for training and retraining was difficult. Now, TensorFlow has simplified the process. In our operation there will be the feature of saving all the data of the missing person so that system can detect that image data and trace the missing person. We have also created an Android Operation for finding out the missing persons more efficiently. In our operation we have tried to implement a lot of functionalities like login with Authentication where user will require the email-id and password for log in into our operation also we have firebase verification for email authentication. We can also report the missing person along with its particular Positions with the help of Google Chart Integration as well as the Positions of the nearby Police stations and the Position from where the missing person is reported will also get visible on the Chart. Our operation will maintain a list of the missing persons as well. Matching up of the various faces will also be done in our operation with the help of the 'Tensor library.[Refer fig 2]
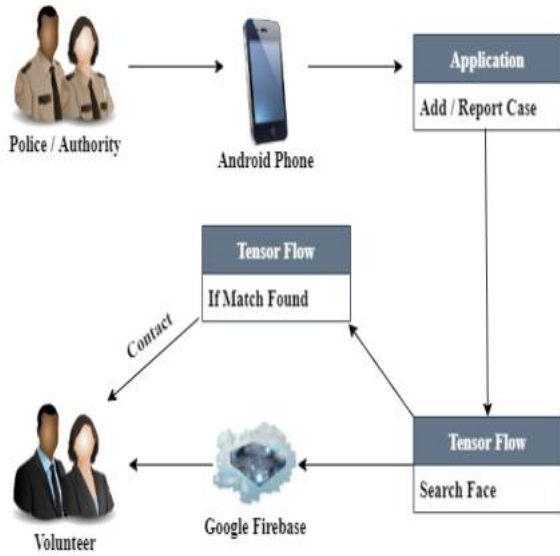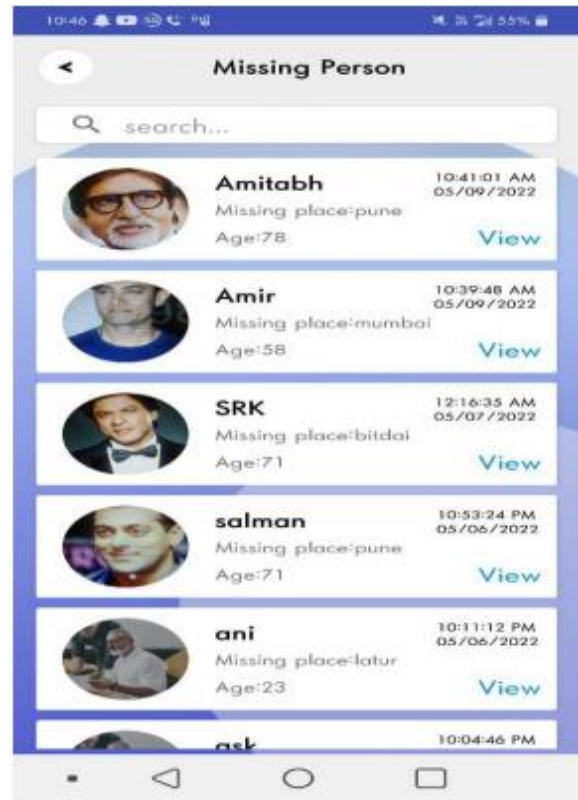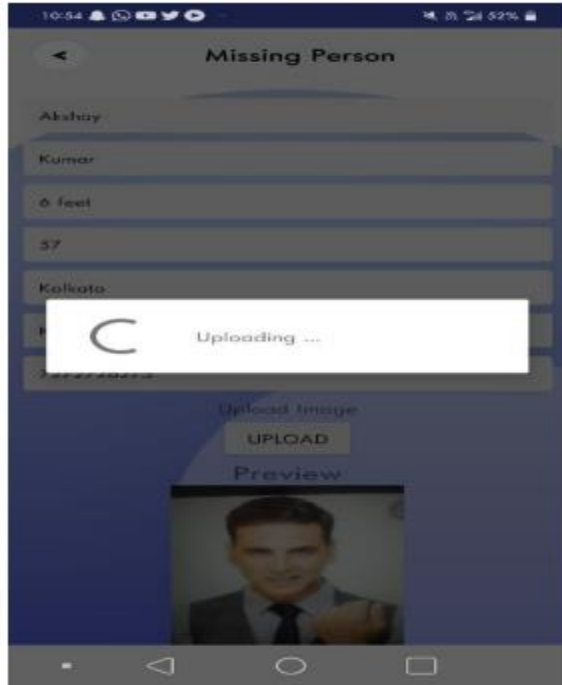
Fig.2: System Architecture

V. RESULTS

Dashboard

Sign Up

Missing Person List

Add/Report Case

Missing Person Scan

Various Actions

VI. CONCLUSION & FUTURE SCOPE

Image recognition with the use of one-shot learning has become very powerful. This technology when put into good use, can be beneficial. It can even be used in Hotels, Hospitals, etc., to find criminals instantly. Process of identifying the missing people is fastened. Our system replaces the manual scanning process through the databases for each picture to check the match, by an efficient face recognition method which finishes the work in no time. It will be useful to get exact Position of the person if match detected with the Google charts integration which also makes police job easy. it will be helpful to contact police quickly as well. By using the TensorFlow Face recognition we are trying to achieve almost 77.99% accuracy with the help of pre-trained model. In the future, there is a scope to extend this system further by connecting our system to public cameras and detect faces real-time. The frames will be continuously sent by the public cameras to our system where our system will be continually monitoring the frames. When a lost person is identified in any of the frames, It will notify the concerned authorities, the method that finishes the work in no time.

VII. REFERENCES

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