PERSON RE-IDENTIFICATION BASED ON VIDEO FACE FEATURES IN REAL TIME FRAME WORK

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Abstract: Video object categorization is a superficial scenario, where the real time data can be captured in cameras and matching the objects by captured images and videos is the important security features. Human faces are matched and categorized by their standard facial characteristics. By applying convolution neural network (CNN) techniques the captured images of the person is matched with the database which contains the original images. This technique could be adopted through an efficient framework which acts like an administrative person who prevents the unauthorized person or activity through the efficient framework using Grassmann Manifold learning algorithm. The activity is being recorded and gets authorized by the admin of the framework and to be given by a alert message to the respective person.

Keywords: Video Object categorization, Matching Database, CNN, Learning Algorithm

I.INTRODUCTION

Person Re-Identification is recognizing a person captured in various terms and locations over different non-overlapping camera views, reflecting a large set of candidates. This is important in the management of distributed, multitier surveillance systems, in which candidates are tracked across different places [1].It is a useful tool for noninvasive biometric validation, surveillance and human robot interaction in a wide range of applications from crowd traffic management to personalized healthcare. Nowadays, person re-identification is a difficult problem, by finding the facial features and match with the existing database by maintaining quality of the image. By using convolution Neural Algorithm (CNN), Rectified Linear Unit (ReLU), uses an element wise activation function max (0, x) thresholding at zero [1]. This produces size of the volume unchanged. Also, Fully Connected Layer (FC) computes the class scores, resulting in volume of size [1 × 1 × 10], where each of the 10 numbers corresponds to a class score [2].In ordinary Neural Networks as the name implies, each neuron in this layer is connected to all the neurons in the previous volume [4].

Face images are stored in different angle in many trails, where the ease of image matching and accuracy of the system to be increased [1]. The probe image from a dataset to be matched with the facial features, can be carried out by GRASSMANN MAINFOLD ALGORITHM [4].As a result, distance metric and effective feature representation will improve the performance of Person Re-Identification [5].

II.LITERATURE SURVEY

[1]For Example, Ayazoglu.M, have used Multi-Target Multi-Camera Tracking which tracks many people through video taken from several cameras. It can retrieves the data from a gallery images and matched with a person query image.

[2]D. Baltieri have proposed a Vision Based Human Action and Activity Recognition with applications to Visual Surveillance, Video Retrieval and Human Computer Interaction.

[3]D. Baltieri have proposed a person's instances can be captured from different points of view, different camera or distance between the camera and person to be measured which infers the same identifier. In these, Mapping Appearance Descriptors on 3D body models for Person Re-Identification.

[4]B. Barbosahave proposed a Synthetic Training data for deep CNN's in Re-Identification, which can trail multiple times the same face can be trained.

[5]A.Bedagkar-Gala and S. Shah, have proposed a Multiple Person Re-Identification using part based spatio-temporal color appearance model, which can identify the persons using a color of the face and body.

III.METHODOLOGY

OurProposedworkisdividedintofivemodulesare(i)Faceimageacquisition,(ii)Featuresextraction,(iii)Registerthefaces ,(iv)Faceclassificationand(v)Alertsystem**.**

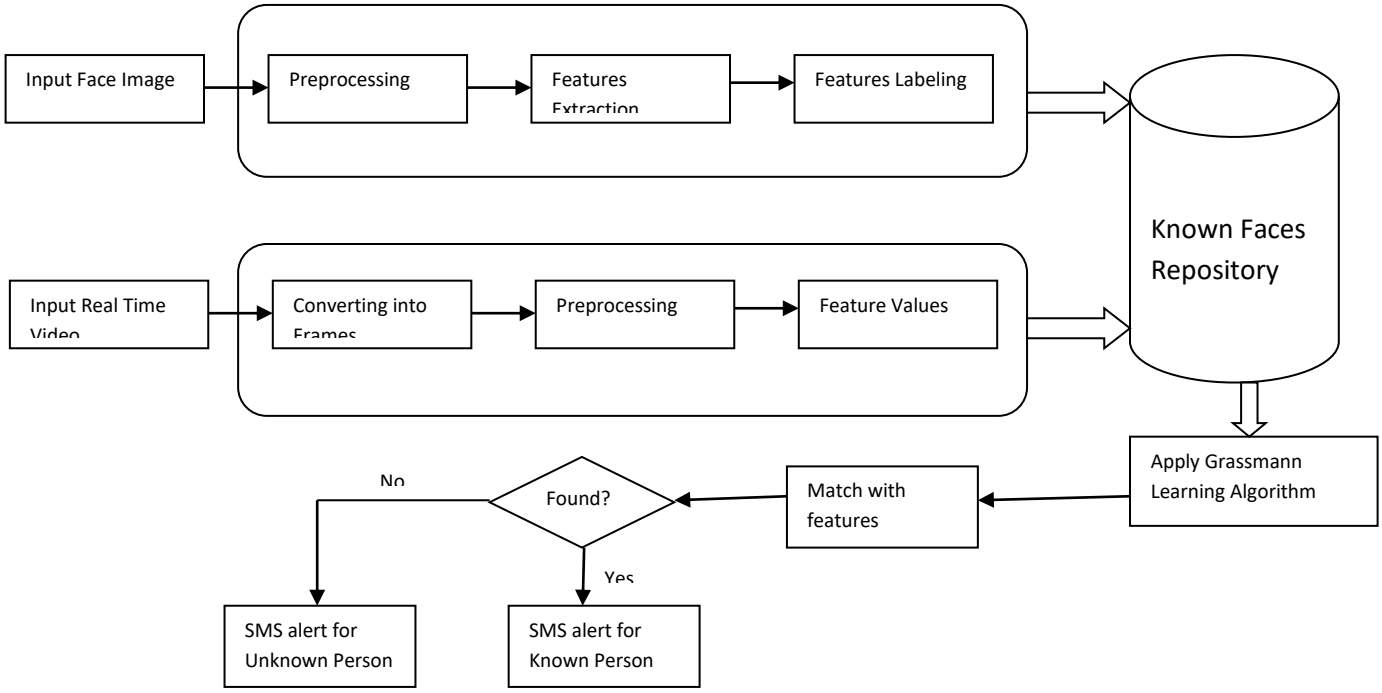


Fig. 3.1 ARCHITECTURE DIAGRAM

3.1FaceImageAcquisition: In this module, admin can captured the face images through web cameras or uploaded as pictures [1].In this image, user faces should take without occlusion, straight pose and normal light conditions.

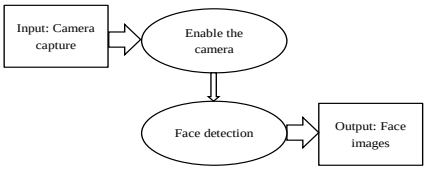


Fig. 3.2 Face Image Acquisition

3.2Features extraction: This module, facial features are extracted .And constructed as feature vectors [3].Facial features includes nose part, eye parts and lip part. These values are stored is in the form of matrix. Grassmann algorithm misused in this process.

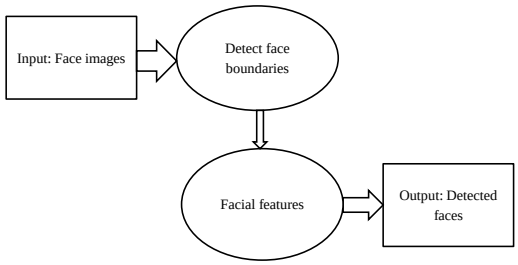
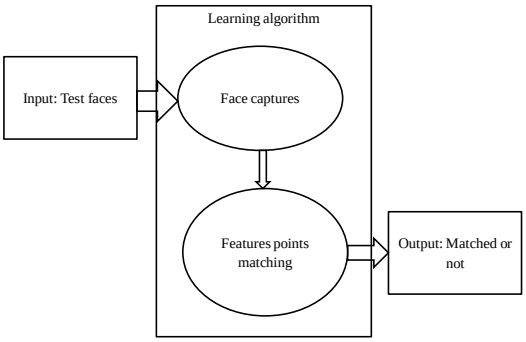


Fig. 3.3Features extraction

3.3Register the face:Face registration is the process of transforming different sets of data into one coordinate system.Facial features are stored with labels labeling the faces using the irnages [8].

3.4Face classification: This module is known as login phase or testing phase.Input is in the form of realtime video capturing.Video images are spilted into still images[5].Face detection is done in the process.Matching the features using CNN algorithm [8].

- **INPUT layer** holds the raw pixel value so the image,in this case an image of width,height.
- **CONV layer** computes the output of neurons that are connected to local regions in the input,each computing adotproduct between their weights and a small region they are connected to in the input volume.
- **RELUlayer** applies an element wise activation function, such as the max(0,x) thresholding at zero.This leaves the size of the volume unchanged.
- **POOLlayer** performs adown-sampling operational long the spatial dimensions(width,height),result in gin volume.
- **FC(Fully-Connected)layer**computestheclassscores,resultinginvolumeofsize[1×1×10],whereeachofthe10numberscorresponds toaclassscore.AswithordinaryNeuralNetworksandasthenameimplies,eachneuroninthislayerisconnectedtoallthe neuronsinthepreviousvolume.



3.4 Face classification

3.5Alertsystem: Matching the testing face with database still faces.If the feature vectors are matched means, face image is labeled as known faces and send the usersname and picture message[2].If the feature vectors are not matched means,considered as unknown faces and create alert as unknown user and send a mail alert and message alert also for the admin[1].

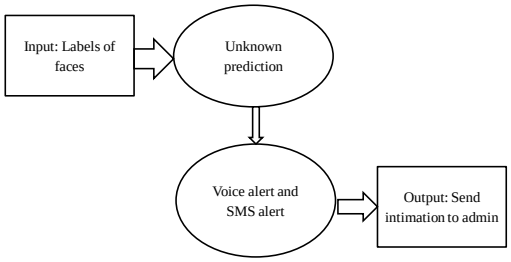


Fig 3.5 Alert System

IV.EVALUATION

- There are different measure to evaluate our proposed model in one the method is Grassmann algorithm the input should be a set of Ppoints on manifold and the output should be:Karchermeanμ_k,which set an initial estimate of karchermean of 1 point in$X_i\}_{i=1}^{P}$and compute the average tangent vector
- $\{X_i\}_{i=1}^{P} \in G(d, D)$,
- Were P is the Set of image points, Xi is the Input image points,$\mu_k$is the Mean values, A is the Average Tangent Vector, ∈ is the Threshold (Face threshold, Exp is the Exponential condition

V.EXISTING SYSTEM

Person re-identification is a fundamental task in many computer vision and image understanding systems. Due to appearance variations from different camera views, person re-identification still poses a important challenge[2].In the literature, KISS ME has already been introduced a san effective distance metric learning method using pair wise constraints to improve there-identification performance. Computationally, it only requires two inverse co variance matrix estimations. However, the linear transformation induced by KISS ME is not powerful enough form or e complex problems. We show that KISSME can be kernelized, resulting in an online transformation, which is suitable for any real-world applications[3].Moreover, the pro-posed kernel method can be used for learning distance metrics from structured objects without having a vectorial representation. The effectiveness of

our method is validated on five publicly available datasets[4].To further apply the proposed kernel method efficiently when data are collected sequentially, we introduce a fast incremental version that learns a dissimilarity function in the feature space without estimating the inverse co variance matrices. The experiments show that the latter variant can obtain competitive results in a computationally efficient manner.

DISADVANTAGE

In this KISSME method, should not be that much effective because it can identify the person using height and other characteristics of the person. So,it cannot get the reliable and effective results for the person's re-identification[3].

VI.PROPOSEDSYSTEM

The main aim is to identify the unknown person from real time video streaming into an image data and send alert with improved accuracy using convolution neural network algorithm, whichever comes the KISSME method and Kernel matrices in order to use the GRASSMANNMANIFOLDLEARNING METHOD [1]. Design the application for face recognition from Video clips to images. While it is generally possible to do recognition from video sequences, the training process is usually done over images [6].Using Grassmann Manifold learning method to construct sub spaces in between to find connections between the images and video clips [7].Implement CNN algorithm to classify the faces as known or unknown. Provide voice alert and SMS alert at the time of unknown samples prediction. And also provide alert about known input Predicts [4].

ADVANTAGES

- Overcomes heterogeneous face matching problem.
- Builds the relationship between the unbalanced distributions of images and video clips of different quality.
- Complexity is low and performance is high.
- Reduce time consumption.

VII.CONCLUSION

The proposed system designs the application for face recognition from Video clips to images. The main aim is to identify the unknown person from real-time video streaming data and send alert with improved accuracy using convolution neural network algorithm (CNN),which over comes the KISSME method and Kernel matrices in order to use the GRASSMANN LEARNING METHOD [3].To this end, while it is generally possible to do recognition from video sequences, the training process is usually done over the images using Grassmann manifold learning method to construct sub spaces in between to find connections between the images and video clips. Implement CNN algorithm to classify the faces ask now nor unknown face. Provide mail alert and SMS alert at the time of unknown samples prediction. And also capture the unknown person's image and send it to the admin email.

VIII.REFERENCES

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