

The Study of Gesture Recognition by using Gesture Algorithm and Image Processing

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Article Info

Page Number: 01 - 04

Publication Issue:

March-April 2019

Article History

Article Received: 05 October 2018

Revised: 09 December 2018

Accepted: 18 February 2019

Publication: 30 April 2019

Abstract: The People are using mask and hand gloves for hacking security devices like smart card and information system. The face detection and image recognition by image processing technique are popular for these security threads. So the complete gesture recognition is also important to find hackers, for that hand and eyes recognition is included in this paper. So the eye moves are to recognize particular person among all people. This paper uses new gesture algorithm to solve those security moves on secure devices. The movements produce by the eyes, face and hand of person is important to understand the signing intention of person by proper communication of human computer and natural contacting of machine and human. Some people are send personal data to network this might be easily broken, so complete moves recognition is required. The security alerts are depend upon these gesture recognition.

Keywords: Gesture recognition system, Image processing, Gesture Algorithm.

1. INTRODUCTION

The field gesture recognition is meant to propose method to identify people on the basis of visual information. Basically, visual information is depend on the movements of people. It may include facial expression and the hand movements of people. The many threads are found in security devices such as ATM machine and computer system. In such places the security camera are used to fetch facial expression and moves. The eye movements are also catch for mask hacker. These computer and person communication is able to find stole during processing. For that interactivity is important. The image processing technique is used for face detection. But It is also important to recognize facial expressions of people to prevent scam.

In recent time there are multiple methods and functions to modify networks. The face recognition is firstly important to detect face and the all database is use to find person depend on face image. The network fetch and collect all information about person, these information is necessary to find hackers. The all security users like police and company are used this method for

data security. The police database is available on network, in that database images like faces and moves are capture and stored. Such database is now a days updated to store videos. Those videos have been using for hand recognition. Hand recognition introduce the measures of appearance features and poses, these combination is tested to find hackers psychology. These method is useful to prevent many security attacks and the online threads can be find using gesture recognition process. As the technology increases the need of security grows, so security and people assets safety is important for economic condition of countries.

2. RELATED WORK

The many gesture recognition method are introduce in the recent year. These method are the variation in the feature detection, for two ways of detection such as object detection and general sequence detection. For these two type image processing is required. The object processing is used for captured object. These faces captured and process by gesture algorithm.

In Gesture recognition system, firstly capture images is process by image processing technique

and then face detection algorithm is applied for further object identification. The calculation of face detection is depend upon the simple matrix operations. The face recognition will find the face image from face for matching faces with face database. It uses SUSAN (Smallest Univalve Segment Assimilating Nucleus) algorithm to find different face points. In face recognition face features are automatically found on the basis of expressions and moves. After facial expression detection it is easy to identify person intention depend upon his expression. These gesture of facial expression is recognize in this paper. The parameters is calculated by SUSAN algorithm.

2.1 Gesture Recognition System

The gesture recognition system is introduce to prevent the security attacks on the variable security system like ATM machine, company database and other important data. These gesture recognition consist of facial expression detection and hand moves detection. The facial expression of people is important to identify the intension of people. The below figure shows the facial expression recognition of person by the step by step processing of system.



Fig.1: Face Detection by Image Processing

These expression helps to solve the fetching problem in non-determination places. It goes step by step processing of database. The feature extraction is very much important in the manner of person identification. The facial feature recognition is a process of pixel by pixel value calculation using image processing method and then color matching of face, after that it converts image from black and white to color image, to show the rectangle trace on face. Facial feature recognition is used to identify facial expression of a person to fined intension of that person. These intension of person is needed to prevent the unusual actions from that person and also for the security of people in public as well as private places.

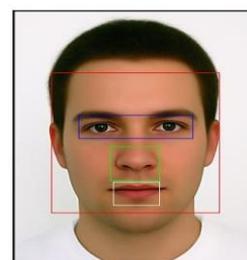


Fig.2: Facial Features in Gesture Recognition

The facial features is detected using the face detection technique and image processing algorithm. The facial feature selection is the process of selecting meaningful features such as forehead, eyes, nose, lips and leave extra features. The process algorithm select input as a face image and provide output as a key features such as eyes, forehead, nose and lips for the person identification. These process images are training images will further match to class in the database. If the face expression is match it is easy to find the hacker. Classification is done on the basis of class and authorization to the person is also given depend upon the class database. If the image is matches to the class database then that person will get permission to go and access person information. These system is used in all company profile for security purpose.

3. PROPOSED SYSTEM

3.1 System Architecture

The security of money and system data is provided by gesture recognition system. The captured image and video is process by using following flow design of system. The flow diagram of system is use to describe the process of gesture recognition with a working of methods, technology and algorithms. These is necessary to have face recognition of person to avoid the suspicious acts by terrorist in the public places as well as in private money sectors. The CCTV camera footage is used to capture moving videos and images, in this paper these footage is used to process the gesture recognition method. The video frames are obtain by from video is process by processing algorithm as a pixel by pixel calculation from RGB to gray and gray to RGB color conversion. The edge detection method is used to detect edges of images. The main edges of image matrix is traces by point to point edge matching and after that matching edges of image is detected and goes further to process. These estimation of the flow is produce a meaningful output as a desired result in the paper for valuable solution to avoid security threads in

the public sector, people must feel safe in all over places while moving.

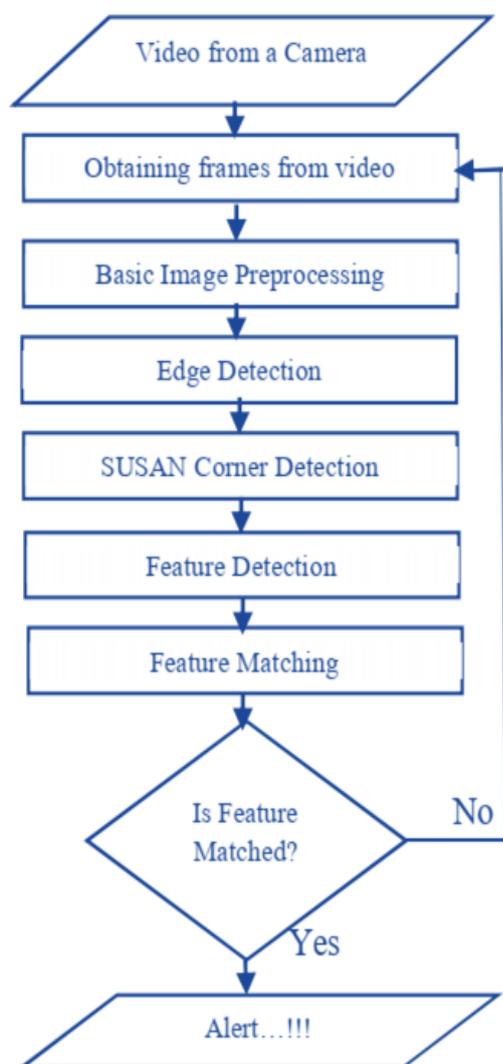


Fig3. Flow of Design

A three dimensional plot of SUSAN area given a small part of a real noisy image, showing edge and corner enhancement. The mathematical calculation is done for image processing. The process shows the proper face detection of person in images as well as from video. These system helps to find hacker by detecting facial expression.

The captured video is firstly taken from camera, then frames are obtain from the video. The basic image processing is done by matrix calculation. The image smoothing is done by these formulation. Then edge gradient detection is done by these calculation. The threshold value is calculated by gradient intensity. The area detection and basic corner detection is done by using SUSAN algorithm. As a result of these face detection the facial recognition process is obtained. Then these facial expression is matches to the class

database, if the face images matches to the database the person identification is done. These security system is automated and can be used to detect various features from video to reduce security issues at crowd places.

3.2 System Algorithm

The Gesture Recognition System is based on various gesture such as face, hands, and eyes. So in this design we have use face recognition by image and video captured. The eye detection is also introduce. For hand recognition these system is use. So complete body recognition can be done ahead. Hand movements and pose are captures to identify. These movements of hand and eye is used for extracting the image and the method mention bellow is processed to extract more features from image for gesture recognition of a anonymous person in work places.

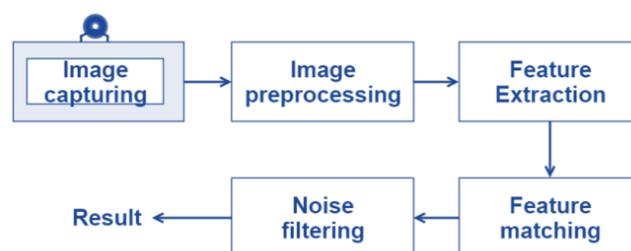


Fig. 4: Vision Based Gesture Recognition System

After Image capturing from CCTV camera the image preprocessing is done by using above image processing algorithm. From that processed image feature of person is extracted. The face detection method detect the face as shown in yellow color rectangle. Then face normalization process carried out on that face. It normalize all image and produce only feature face shown in rectangle. The feature extraction process extract the facial features of person as face, eyes, and nose. If the feature matches to the given database image then the desired output is obtained. After that noise filtering is done, these filter the unwanted pixels of feature images and gives only proper filter image. These process will gives the proper result of facial as well as hand recognition of person.

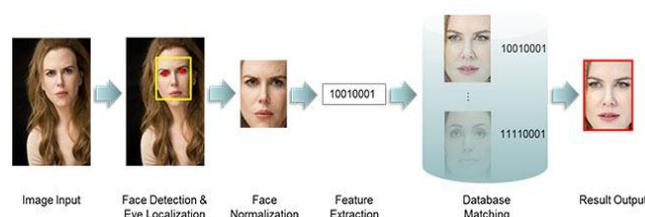


Fig. 5: Gesture Recognition Process

These is complete body gesture recognition system. The neural network can be used for face recognition, these will also produce beneficiary outcome. These figure shows the complete process of algorithm. The input image is given then face detection is done, after face normalization of algorithm, features are extracted. Then database matching process starts if match found then process completed.

4. CONCLUSION

The hacker threads in the security devices and company data as well as personal information is obtain now a days. So to resolve these hacking and security attacks these gesture recognition system is introduced. These method gives the identification of person from captured video and image. The system uses face detection technique and feature extraction and matching process for face matching and face identification. These paper further can be extend for the eye detection to produce complete body gesture recognition.

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