

FACE RECOGNITION PAYMENT

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Abstract : *The threat of transaction timed-out or malicious software (malware) based attacks or illegal use of technology is significant and growing; at the same time online banking gets more and more popular. Earlier during making any online payment or making any online banking related transactions, the method used to complete a transaction was with One-Time-Passwords as well as passwords, which were sent on the end users registered mobile number or email address which were linked with his bank account. Financial loss may be one of the consequences if credentials or credentials linked devices get stolen. In many protocols, the transaction information is not secured properly. The proposed "Authentication on Payment Gateway using Face Recognition" is based on the face recognition technique on payment gateway. This system eliminates the One-Time-Password & password based transactions with Face recognition system. When face recognition authentication is used spoofing or faking; of face comes into picture. As in face recognition faking can be done by displaying photograph (hardcopy) or video in front of the authenticating device. Considering these faking or spoofing techniques this system also uses Face spoofing algorithms to overcome these issues. Using this we can complete successful transaction by verified natural person in a way that it is proven to the executing party, that the transaction, as it is received, was in fact initiated and confirmed by an identified nature.*

Key Words: *open cv , webcam , face detection, face recognition database creation, verification*

1. INTRODUCTION

The Gateway is called as Trusted Third Party or Entry point to any network. It is used in E-commerce system for more secure transaction. Online shopping allows customers to sit in their homes and buy goods from all over the world. Similarly allow Merchant to sell their products to all over the world from home. Most of the population will use online payment in near future. Most of the world's countries lagged behind in making a good Internet architecture. There is need of a secure, fast and easy online payment gateway which is more reliable. On the basis of proposed architecture of e-payment system, this system gives an brief overview of e-payment gateway using face recognition. It also mentions the requirement of an e-payment gateway from customer and merchant's point of view. And on the basis of these facts and figures a new secure e-payment gateway has been designed and developed. The payment gateway would provide secure and fast transactions. On the basis of proposed architecture of e-payment system and the requirements related to any electronic payment gateway, we design and develop a secure, reliable and efficient electronic payment gateway with face recognition. Nowadays, In India the concept of e-payment is getting.

1.1 Existing System:

Shortly after walking through the door at Face++, a Chinese startup valued at roughly a billion dollars, I see

my face, unshaven and looking a bit jet-lagged, flash up on a large screen near the entrance.

Having been added to a database, my face now provides automatic access to the building. It can also be used to monitor my movements through each room inside. As I tour the offices of Face++ (pronounced “face plus plus”), located in a suburb of Beijing, I see it appear on several more screens, automatically captured from countless angles by the company’s software. On one screen, a video shows the software tracking 83 different points on my face simultaneously. It’s a little creepy, but undeniably impressive.

Over the past few years, computers have become incredibly good at recognizing faces, and the technology is expanding quickly in China in the interest of both surveillance and convenience. Face recognition might transform everything from policing to the way people interact every day with banks, stores, and transportation services.

Technology from Face++ is already being used in several popular apps. It is possible to transfer money through Aliped, a mobile payment app used by more than 120 million people in China, using only your face as credentials. Meanwhile, China’s dominant ride-hailing company, uses the Face++ software to let passengers confirm that the person behind the wheel is a legitimate driver. (A “liveness” test, designed to prevent anyone from duping the system with a photo, requires people being scanned to move their head or speak while the app scans them.)

The technology figures to take off in China first because of the country’s attitudes toward surveillance and privacy. Unlike, say, the United States, China has a large centralized database of ID card photos. During my time at Face++, I saw how local governments are using its

software to identify suspected criminals in video from surveillance cameras, which are omnipresent in the country. This is especially impressive—albeit somewhat dystopian—because the footage analyzed is far from perfect, and because mug shots or other images on file may be several years old.

1.2 Proposed System:

In this, we have proposed a safe and secured payment of bills through face recognition. the implementation of the choice menu function that we have used. For option1 “Generate Database”. The following function takes place option1 in it will let you to store “n” number of faces. In the next step, again the camera window appears to verify the person in front it. Then the system compares the input image with the photos in the camera window appears to take snapshot for generating the database If there is no match found then the verification will be displayed unsuccessful. If it matches further processing for face recognition, which is the Face Extraction will continue.

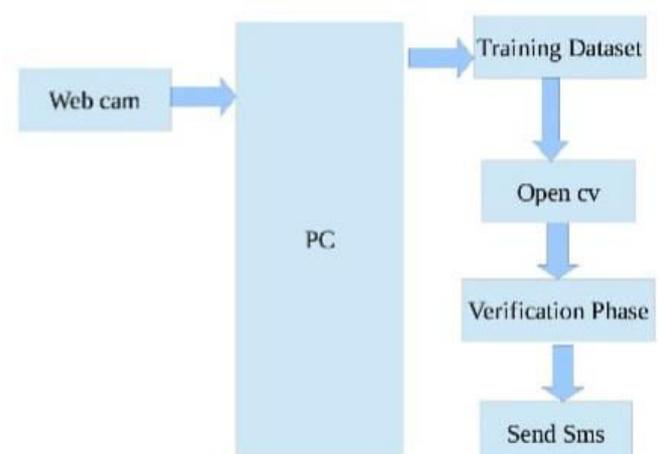


Fig.1.2 .Block Diagram

2. Block Diagram Description:

Web cam: A **webcam** is a video camera that feeds or streams its image in real time to or through a computer to a computer network. When "captured" by the computer, the video stream may be saved, viewed or sent on to other networks travelling through systems such as the internet, and e-mailed as an attachment. When sent to a remote location, the video stream may be saved, viewed or on sent there. Unlike an IP camera (which connects using Ethernet or Wi-Fi), a webcam is generally connected by a USB cable, or similar cable, or built into computer hardware, such as laptops.

The term "webcam" (a clipped compound) may also be used in its original sense of a video camera connected to the Web continuously for an indefinite time, rather than for a particular session, generally supplying a view for anyone who visits its web page over the Internet. Some of them, for example, those used as online traffic cameras, are expensive, rugged professional video cameras.

Training Dataset: The first (of many more) **face detection datasets** of human faces especially created for **face detection** (finding) instead of **recognition**.

Open cv: To perform face recognition we need to train a face recognizer, using a pre labeled dataset, In my previous post we created a labeled dataset for our face recognition system, now its time to use that dataset to train a face recognizer using open cv python,

Verification phase: The main aim of the Science Alerts Verification Phase (SAVP) is to verify the robustness of the issued alerts and confirm them with a dedicated network of follow-up telescopes operating in a Target of Opportunity (To O) mode. The verification observations should be carried out both photo

metrically (imaging) and spectroscopically in order to, e.g. confirm the presence of the detected new object, or to confirm or fine-tune the classification of the alert. The verification phase should reveal all necessary adjustments which have to be done to the detection and classification algorithms to assure the best and the most robust performance later on.

3. Face Detection

The problem of face recognition is all about face detection. This is a fact that seems quite bizarre to new researchers in this area. However, before face recognition is possible, one must be able to reliably find a face and its landmarks. This is essentially a segmentation problem and in practical systems, most of the effort goes into solving this task. In fact the actual recognition based on features extracted from these facial landmarks is only a minor last step. There are two types of face detection problems:

- 1) Face detection in images and
- 2) Real-time face detection

8.1 FACE DETECTION IN IMAGES

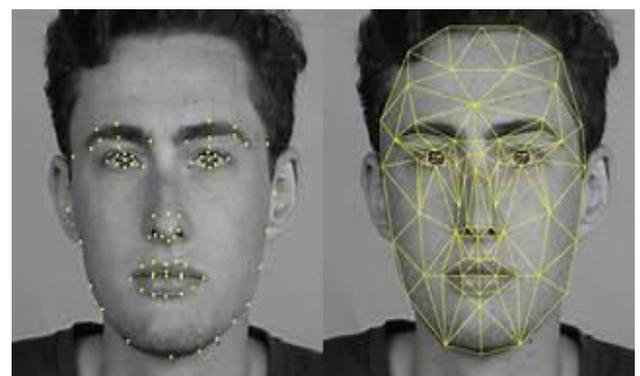


Figure 5.1 A successful face detection in an image with a frontal view of a human face.

Most face detection systems attempt to extract a fraction of the whole face, thereby eliminating most of the background and other areas of an

individual's head such as hair that are not necessary for the face recognition task. With static images, this is often done by running a across the image. The face detection system then judges if a face is present inside the window (Brunel and Poggio, 1993). Unfortunately, with static images there is a very large search space of possible locations of a face in an image.

There is another technique for determining whether there is a face inside the face detection system's window - using Template Matching. The difference between a fixed target pattern (face) and the window is computed and threshold. If the window contains a pattern which is close to the target pattern (face) then the window is judged as containing a face. An implementation of template matching called Correlation Templates uses a whole bank of fixed sized templates to detect facial features in an image (Bechtel, 1991 & Brunel and Poggio, 1993). By using several templates of different (fixed) sizes, faces of different scales (sizes) are detected. The other implementation of template matching is using a deformable template (Yulee, 1992). Instead of using several fixed size templates, we use a deformable template (which is non-rigid) and there by change the size of the template hoping to detect a face in an image.

[1] A face detection scheme that is related to template matching is image invariants. Here the fact that the local ordinal structure of brightness distribution of a face remains largely unchanged under different illumination conditions (Sinha, 1994) is used to construct a spatial template of the face which closely corresponds to facial features. In other words, the average grey-scale intensities in human faces are used as a basis for face detection. For example, almost always an individual's eye region is darker than his forehead or nose.

Therefore an image will match the template if it satisfies the 'darker than' and 'brighter than' relationships (Sung and Poggio, 1994)

Conclusion:

Finally, we have done this paper for upgradation of biometric system for the purpose of authentication. This technology is well secured than other technology we don't have to memorized our credit card no. debit card no. for all the time also it provide security against fraude users.

Future Scope:

In this paper, we detect the faces with the help of called open cv. this project have lots of application and we can use this technology in our day today's life in secured manner.

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