

Secured Merchant Payment using Biometric Transaction

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Abstract: - This article discusses biometric authentication in relation to payment systems. Biometrics uses biological traits or behavioural characteristics to identify an individual. A Biometrics system is effective pattern recognition system that utilizes different patterns similar to retina patterns, iris patterns and biological qualities like fingerprints, voice recognition, facial geometry and hand recognition etc. Biometric payment system is protected and sheltered and incredibly trouble-free to use and even without using password or top secret codes to keep in mind as compare with previous system like credit card payment system, and mobile banking etc. In daily life the usage of credit cards and debit card for shopping, bill payment, travelling and so on. So problem is that a person has to remember their passwords or secret code and to keep secure to take with him all time. So biometric system will solve this problem. Greater implementation of biometric payment system is more reasonably priced to small business owners.

Keywords Biometrics, Biometrics Payment System, Biometrics technology.

Introduction:-

Biometrics plays a vital role for security which is well-organized in the years to come. Organizations will capitalize on the combined effect of biometrics and tokenization to strengthen security, cut payment fraud costs, while removing the inconvenience and anxiety of using and protecting payment cards and card data during biometric payments. Proposed system is accessed by 3 entities particularly, Admin, Merchant and User. Admin have to be compelled to login with their valid login credentials initial so as to access the golem application. After palmy login, admin can access all the modules and perform/manage each task accurately. Admin will login and perform task like add new users with details, manage added user like editing or deleting details if needed. Admin will add new bourgeois with details like basic, shop/office, license and bank details. All the intercalary bourgeois details are often managed by the admin. Merchant have to be compelled to login so as to access the system. Merchant will initiate new dealing and enter details like quantity and outline and for verification, merchant need to scan and verify his/her fingerprint to complete the transaction. All the finished dealing is often viewed by the bourgeois supported selected date vary. User will login into the system and perform task like read own profile details and think about dealing history.

Modules and their Description: -

The system contains of three major modules with their sub-modules as follows:

1. Admin:

- a. Login:** Admin need to login using valid login credentials.
- b. Add Users:** Admin can register new user with details such as Basic Details, Bank Details, Fingerprint, Amount Limit and Card Details.
- c. Manage User:** System allows admin to View / Edit / Delete a registered user.
- d. Merchant Account:** Admin can add new merchant details such as Basic Details, Shop / Office Details, License ID and Bank Details.
- e. Manage Merchant:** All the registered merchant details are managed by the admin itself.

2. Merchant:

- a. Login:** Merchant can login using valid login credentials in order to access the system.
- b. New Transaction:** A new transaction can be initiated by the merchant with respect to specifying amount, description and Fingerprint for verification.
- c. View Transaction:** All the transaction details can be viewed by selecting Date Range.

3. User:

- a. Login:** User need to login using valid login credentials in order to access the system.
- b. Profile:** User can view their own profile once logged into his/her account.
- c. Transaction History:** All the transaction details can be viewed by the user.

Methods: -

- 1. The User Buys the Product from Merchant and While payment the user will give the log in his/her Account and then the merchant will give the Receipt to the user and the user will pay the amount using his/her Bank details or UPI number to the merchant.
- 2. The user can pay the merchant by using his Fingerprint on the machine, after the verification of the fingerprint the user will get an One time password (OTP) on his registered mobile number, The user will give the otp to the merchant which will be entered by him on the system. After the verification of the otp, the amount will be

deducted from the bank account of the user and the merchant will be paid.

Fingerprint Recognition:

The main modules of a fingerprint verification system are: a) fingerprint sensing, in which the fingerprint of an individual is acquired by a fingerprint scanner to produce a raw digital representation; b) pre processing, in which the input fingerprint is enhanced and adapted to simplify the task of feature extraction; c) feature extraction, in which the fingerprint is further processed to generate discriminative properties, also called feature vectors; Fig. Fingerprint detection and d) matching, in which the feature vector of the input fingerprint is compared against one or more existing templates. The templates of approved users of the biometric system, also called clients, are usually stored in a database. Clients can claim an identity and their fingerprints can be checked against stored fingerprints

Software Requirements:

1) Windows 7 or higher

Windows 7 is the Microsoft Windows operating system released commercially in October 2009 as the successor to Windows Vista. Windows seven is made on the Windows prospect kernel associate degree was meant to be an update to the prospect OS. It uses a similar Aero computer program (UI) that debuted in Windows prospect.

2) SQL 2008

Microsoft SQL Server may be a on-line database management system developed by Microsoft. As a info server, it is a software product with the primary function of storing and retrieving data as requested by other software applications—which may run either on the same pc or on another pc across a network (including the Internet).

3) Visual studio 2010

It is accustomed develop pc programs for Microsoft Windows, as well as web sites, web applications and web services. Visual Studio uses Microsoft software package development platforms like Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silverlight.

Hardware Components:

1) Fingerprint sensor R305

A fingerprint scanner may be a kind of electronic security system that uses fingerprints for biometric identification to grant a user access to info or to approve transactions.



Fig. R305

2) Arduino uno

The Arduino Uno board may be a microcontroller supported the ATmega328. It has fourteen digital input/output pins within which six are often used as PWM outputs, a sixteen Mc ceramic resonator, Associate in Nursing ICSP header, a USB association, six analog inputs, an influence jack and a push. This contains all the specified support required for microcontroller.



Fig. ARDUINO UNO

3) Jumper wires (male-female)

The term "jumper wire" merely refers to a conductor that establishes Associate in Nursing electrical association between 2 points during a circuit. You can use jumper wires to change a circuit or to diagnose issues during a circuit.

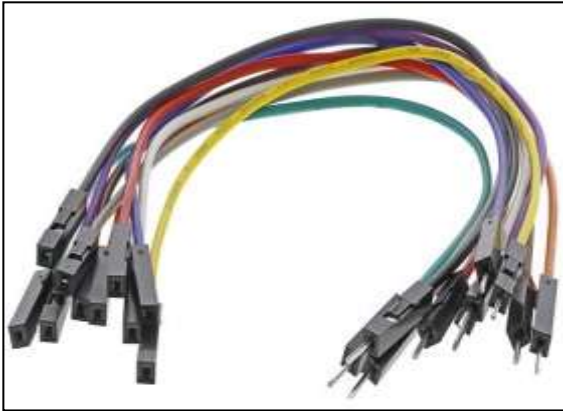


Fig. Jumper wires

Conclusion:

Biometrics is a means of verifying personal identity by measuring and analysing unique physical or behavioural characteristics like fingerprints. The conclusion of this whole paper is that the card-less payment system should be replaced and there must be easier, reliable, secure, cash free and tension free payment system, i.e. biometric payment system during which no body got to take with dozens of cards for searching, travelling, pass in workplace, university or bank as door lock. There is also one another disadvantage is that there may be stolen of cards or it will be losses at any time with none care. So to think about of these styles of issues and downsides of card payment system the fingerprints payment system is recommended to be enforced as a result of it's easier, reliable, feasible, secure and easily authorized to everyone. And there's no any worry that anyone will embezzle my finger area unit will be loosed anyplace therefore alternative body will use it. In fingerprint payment system client should place his fingers on the finger scanner so scanner can acknowledge the account that belongs to the person and charge the bill.

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