

# Digital Payment Applications: Its Security and Challenges

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**Abstract:** After the demonetization, the emphasis was led on the cashless transaction which leads to the less flow of the hard cash in the market. Now ever days the citizens of India are more tend to do digital payment on any purchase of the product whether the product is bought online or from the retailer shops or from the shopping-mall. As a result every 3<sup>rd</sup> transaction done is online by use of variety of the digital payment modes. But as the digital payment uses an application which runs by the use of the internet so there chances of the various cyber-attacks (such as phishing, Dos attack, Malware etc.) to such applications as people are more likely to install those digital payment application on their smartphones. So in this the paper the brief discussion on the various digital payment application shall be done on the basis of the security perspective. This shall help the common people to select the most reliable and the secure digital application based on their security provided during making any digital cashless transaction. Because selecting the appropriate application for the secure digital transaction is one of the important task for any person.

Keywords: Digital payment, Cyber-attacks, Security, Application

## I. INTRODUCTION

The pattern of the expansion in the installments done however online has been hugely expanding in most recent couple of years particularly after the idea of the demonetization in the India. As the slander has prompted the expansion in the online installments so there is the increment in the assortment of the application which can be utilized to make installment to the dealers by the buyers against the buy of the merchandise or things on the web or disconnected. Because of the utilization of the assortment of the applications for the online exchange the legislative offices can kept their eyes on the cash stream in the nation and this outcomes in the diminished measure of the dark cash holders and extortion. The online exchanges prompts the straightforward exchange to the cash from clients to the retailers. Be that as it may, the primary issue is that the online exchange applications works with the assistance of the web. So all things considered the cybercrimes comes into the image. The programmers utilizes assortment of the strategies to hack the progressing exchanges and move the cash into their deceitful ledger. So the perplexity is made for the purchasers which application is alright for the online exchange. So in the paper the discourse made which application is increasingly solid for making the online exchange.

## II. METHODOLOGY

The comprehension of how the online exchange is done in a genuine situations is imperative. The explanation behind understanding this idea is that the break in security amid the online exchange can be known. Fig 1 demonstrates the premise idea how the online exchange is finished. [3]

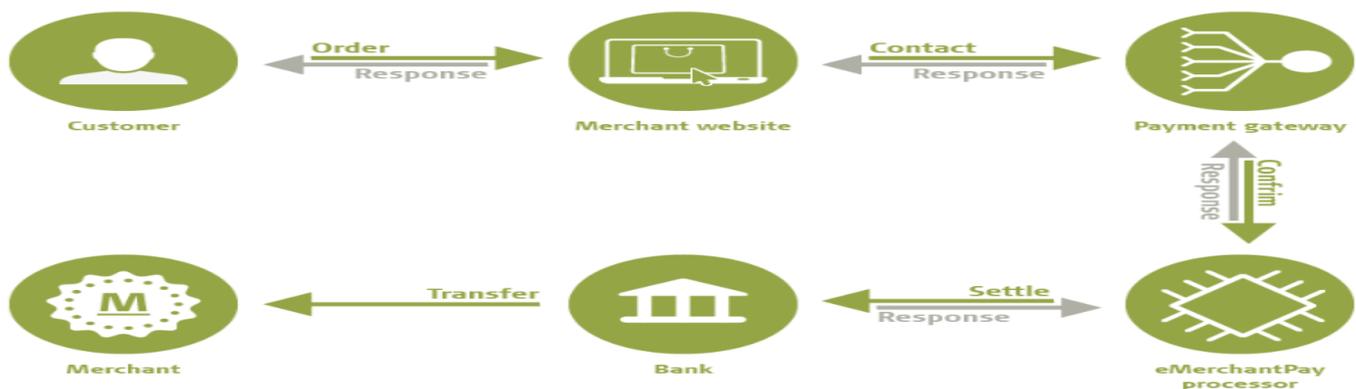


Fig 1: Process of online transaction

Source: <https://www.emerchantpay.com/wp-content/uploads/2014/07/diagram-gatewayprocess.png>

The security worries for the online exchanges are as per the following:

1. Partner with a processor who knows online installments

Continuously pick the correct installment application for making any exchanges on the web. That application ought to consent PCI DSS

2. Monitored suspicious obtaining action

On the off chance that your exchange has been bombed in the middle of reaching on the application gave. If not done as such this will prompt the vast fiscal misfortune.

3. Address check framework for all exchange

Continuously check the client who is making the installment. This should be possible by asking the OTP or PIN number accommodated that particular exchange.

4. The Encryption Approach

The installment procedure ought to be dependably be encoded as the encryption made the hacking procedure started by programmer troublesome and the exchange can be made securely. The procedure of encryption should be possible by utilizing assortment of cryptographic calculation however the use of those calculation depends the use of the application and its necessity. A portion of the well-known methods in online business are:-

- Public key encryption
- Symmetric key encryption

5. Secure Socket Layer (SSL)[1]

Secure attachment layer is the most reliable security show utilized and created for internet business, verified through its installment channel. The SSL gives the information to be transmitted in the encoded arrangement which guarantees the message trustworthiness and the unwavering quality between the customer and server. For the association of the information between the different applications safely, SSL was structured.

6. Secure Hypertext Transfer Protocol (S-HTTP)

The HTTP convention is utilized for the creation the associations for the transmission of the information between the application layers of any application; however it was not verify as it doesn't give the confirmation amid the information transmission. So S-HTTP which is a propelled form of typical HTTP was created which gives the upgraded security secure validation and transmission of the information. HTTPS gives the declaration to the encryption of the information between the customer and the server. It can flawlessly incorporate with the HTTP and guarantee an ideal end-client security with various barrier systems. For this dependably check the mark in internet browsers.

7. Secure Electronic Transaction (SET)[1]

SET is a joint coordinated effort by MasterCard and VISA which guarantees that wellbeing of all gatherings engaged with electronic installments of an online business exchange as appeared in fig 2. To deal with different unpredictable and basic capacities referenced beneath SET was planned:

- Authenticating the cardholders and traders
- Confidentiality of data and installment information
- Define conventions and electronic security administration, suppliers

8. Payment Card Industry (PCI) Compliance

In 2006, the installment card industry (PCI) security standard chamber was shaped. PCI consistence keeps up the protected condition to the shoppers to guarantee that the organizations who manage the tolerant, preparing, putting away and transmitting Mastercard are verified. Ensure that card is PCI Standard before making any installment.

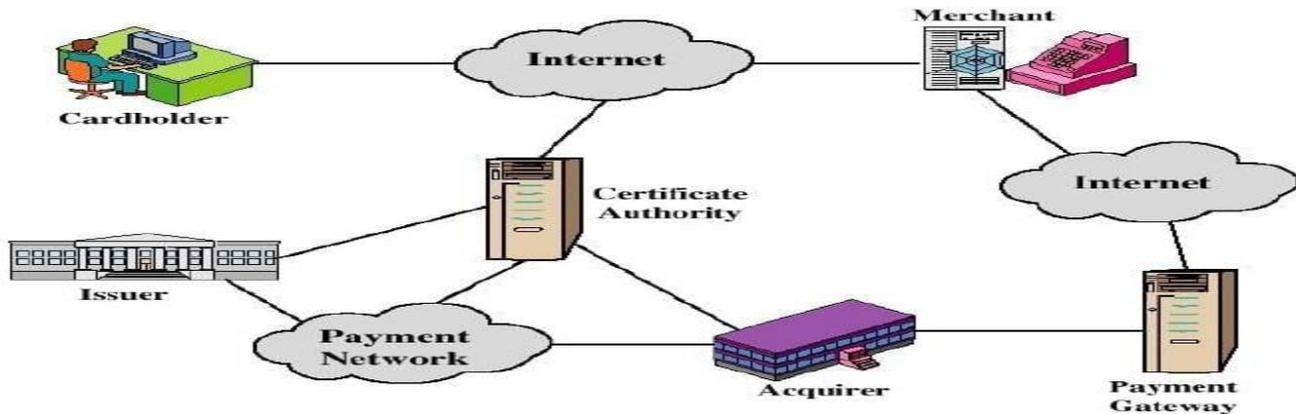


Fig 2: Process of secure electronic transaction

Source: <https://magnetoitsolutions.com/blog/ecommerce-payment-security>

9. Safe Login Screen

Improvement of Secure web based business site straight away begins from the Login Page. Half security have been accomplished in the event that you had done the login safely. In the event that you are empower to login safely, it is exceptionally simple for the assailant to enter into the framework and take the touchy information. So the usage of the conventions which gives the security to the login and gives fitting validation is particularly imperative which can keep from assault.

10. Digital Signature

A one of a kind character given to a message before transmission is known as advanced mark. The advanced mark give the expert and the classification of the information. The recipient in the wake of accepting the message can approve the message with the assistance of the advanced mark. As it gives the encryption to the information the security of the information is accomplished and it very well may be utilized for the confirmation reason too.

III. APPLICATIONS and THEIR SECURITY

These days in the market assortment of the applications are accessible for the methods for online exchanges and a large portion of the applications are the versatile based applications. This applications can be arranged into four classifications based on the security highlights:

1. Govt. and Native Mobile Payment Apps
2. Bank Owned Mobile Wallet
3. Mobile Operator Payment Apps
4. General wallet Apps

The security highlights are broke down by having the overview done by the filling the google structure getting some information about the whether they have experience any digital assault amid online exchange. The instances of these applications are pursues:

1. Govt. and Native Mobile Payment Apps: [2]

These installment applications offer a basic UPI. It works over all UPI empowered banks in India. These are straightforwardly connected to the financial balance. The administration versatile installment Apps are increasingly secure and dependable

arrangement of installment. Notwithstanding Google Pay and Apple Pay, there are couple of more India Govts App and Android App accessible.

**BHIM:**

Bharat Interface for Money (BHIM) is the online installment application planned by the legislature of India. BHIM depends on Unified Payment Interface (UPI). Subsequent to introducing this Android pay application, you can enroll and set an UPI PIN for the financial balance. The installment application utilizes an UPI PIN for all exchanges.



Fig 4: BHIM App

The BHIM application created by India permits to the clients to get to the different financial balances at the same time in one application. Installment should be possible by client by utilizing either versatile number, financial balance, IFSC code, QR code, or Aadhar number. The Aadhar mix of BHIM application makes it a safe and both free technique for exchange. Besides, the Aadhar put together installment with respect to the BHIM application won't require any pre-enrollment with the bank or UPI. The main necessity to empower this component is that the client should interface their Aadhar number with a ledger. The furthest reaches of an exchange is Rs. 40,000 every day for each ledger. BHIM application is bolstered by 13 Indian dialects and perfect with android 4.2.2 or more.

2. *Bank Owned Mobile Wallet Apps:* <sup>[2]</sup>

**SBI Buddy:**

SBI Buddy is the online application created by State Bank of India which is utilized for the online installment. SBI Buddy computerized wallet application have a great deal of highlights which offers to exchange of cash to another record and include cash from another record through net managing an account, plastic or by means of business journalists of SBI. The free e-wallet application empowers you to revive versatile or DTH records and settle service charges utilizing the Wallet. In spite of the fact that the key highlights are like ICICI pockets. One essential element of the SBI Buddy is to upgrade exchange restrains up to INR. 100,000. The administration of this application isn't free and the bank makes an extra charge of 1% in addition to support charge. SBI Buddy is supported 13 Indian dialects.



Fig 5: SBI Buddy

3. *MobileOperator Payment Apps: [2]*

The main telecom administrators claimed these sort of the mobile administrator installment applications which has a registry include. These sort of uses are not identified with the financial balances as they are the outsider applications; so they should be connected with the ledger and the cash from the ledger should be exchanged to these versatile administrator installment applications. The disadvantage of these sort of the applications is that they spares the credit or charge cards and bank.

*JioMoney:*

JioMoney is claimed by the Reliance JIO mobile administrator and it is a semi-shut computerized wallet application and is a paid ahead of time. Money free exchanges can be made by this application whenever and anyplace. The JioMoney applications offers a great deal of the component to their customers. As far as possible is INR 20,000 every month and doesn't require any verification by KYC. The top notch clients of these application can keep up to INR 100,000 in their JioMoney represent any month.



Fig 6: JioMoney app

4. *General Wallet Apps: [2]*

The engineers with the end goal of the acquiring cash builds up the general wallet applications. These wallets applications are not created under any of the legislative or non-administrative undertakings so they are not identified with any approved organizations. You can download these sorts of the application from google pay stores or the IOS play store. They are especially simple to setup and use by the shoppers. These applications plays out similar capacities however are less demanding to utilize and less secure

*PayTm:*

One97 Communications have built up the Paytm which is India's One of the main installment application. For giving the security the installment application utilizes VeriSign guaranteed 128-piece encryption. This application accompanies the wide scope of highlights; the most imperative component of this wallet is opening a sparing records with PayTm Bank. The clients of the PayTm can profit numerous administrations like no base equalization, free advanced exchange of cash, can have virtual charge card can store cash up to 1 lakhs with the enthusiasm of 4% consistently. Be that as it may, as it is an outsider application there are dependably the odds of the security break on account of the less secure source code.



Fig 7: Paytm app

CONCLUSION

In the wake of concentrate the above different applications for the online exchanges and the having the investigation done by the rounding out the google frames from the shoppers getting some information about their experience of any digital assault. The end is drawn that every one of the applications that have been created till date is created by remembering the security planned. Structure

this we can reason that the applications which are created or started by the administration are progressively secure and dependable. So the buyers ought to dependably utilize such sort of use for any money related exchange in their everyday life. The information for the online exchange for the examination depends on the predetermined number and the yields demonstrates that the most extreme number of the general population have encountered the extortion and a significant number of them are as yet ignorant of that reality.

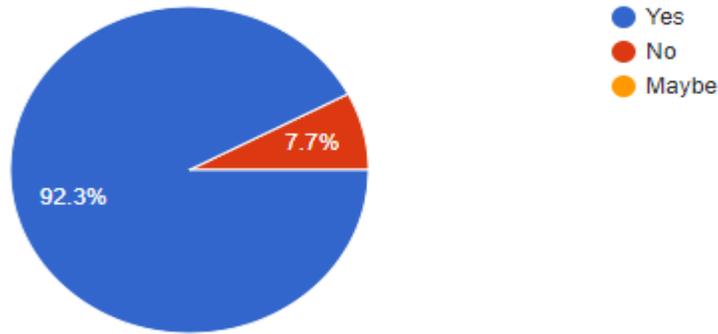


Fig 8: Have you ever used any application for making digital payment or online transaction (From the google form)

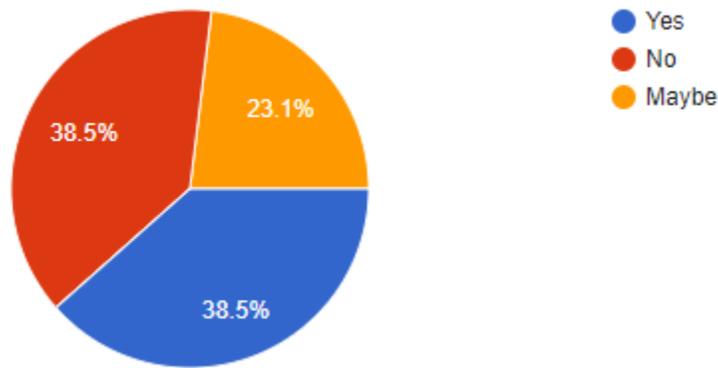


Fig 9: Have you experienced any kind of fraud during the online payment (from google form)

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