

METHOD FOR FACILITATING PAYMENTS AND A PAYMENT ACCEPTANCE DEVICE THEREOF

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to Indian Provisional Application No. 202341037648, filed on May 31, 2023, the disclosure of which is incorporated by reference herein in its entirety.

BACKGROUND

1. Technical Field

[0002] The present disclosure relates to methods for contactless payment transactions. More particularly, the present disclosure relates to facilitating payment transactions through Near Field Communication (NFC) chip embedded articles or devices.

2. Technical Considerations

[0003] Digital payments have gained popularity and increased significantly over the past years. People are making use of smart devices, such as smartphones, smart watches, smart jewels etc., for carrying out digital payments. Gradually, people are not using the conventional payment methods.

[0004] The development of Quick Response (QR)-code-based merchant payment acceptance networks has aided in the rapid adoption of digital contactless payment among customers. Now, the merchants can use static or dynamic QR codes for receiving contactless payments from customers. A static QR code has a fixed Universal Resource Locator (URL) embedded in the code, which cannot be changed once created and can be displayed on a standee display. On the other hand, a dynamic QR code is individually generated for each transaction and is shown to the customer directly on the display screen of a Point of Service (PoS) device. The QR codes include merchant account details. When the QR code is scanned by an application installed on the user (or customer) device, the QR code pattern is decoded into character strings and then displayed to the customer. The merchant receives the payment once the customer completes authentication and payment approval processes.

[0005] Thus, to make a QR code-based payment transaction, it is essential that the customers always carry a QR scanner or camera-equipped smartphone. The customers have to open the scanner or the smartphone camera to scan the code and

access the merchant details for making the payments. Further, when the dynamic QR codes are being used, the merchants must have at least one PoS device to generate the dynamic QR codes. The initial cost and cost of replacement or maintenance of the PoS device is very high. Also, the need to add any additional devices leads to heavy initial investments, apart from regular charges associated with the transactions. Even the upgrades to PoS devices demand extra expenses to be spent by the merchant.

[0006] Other alternatives like tap-to-pay payment options solve some of these limitations related to the QR code-based payments. For instance, with a tap-to-pay enabled device, the customer can make payments with a simple tap, rather than having to carry a QR code scanner or open the smartphone camera. However, to facilitate tap-to-pay payments, the merchants must procure expensive PoS devices, which are equipped to receive tap-to-pay payments. Also, the tap-to-pay methods often provide limited payment options other than the use of debit/credit cards.

[0007] Non-limiting embodiments or aspects of the present disclosure address the above-identified and other problems, both individually and collectively.

SUMMARY

[0008] Accordingly, provided are improved methods for facilitating payments and payment devices therefor.

[0009] According to non-limiting embodiments or aspects, provided is a method for facilitating payment transactions, the method comprising: acquiring merchant data from a payment acceptance device associated with a merchant, wherein the payment acceptance device is embedded with a Near Field Communication (NFC) chip; initiating a payment transaction based on the merchant data; transmitting a transaction request to a payment processing network upon completing a predefined authentication process; and receiving a notification, indicating status of the payment transaction, from the payment processing network.

[0010] In some non-limiting embodiments or aspects, the merchant data is acquired using an NFC enabled user device associated with a customer initiating the payment transaction.

[0011] In some non-limiting embodiments or aspects, the merchant data comprises at least one of the following: a merchant identifier, merchant account details, transaction details, or any combination thereof.

[0012] In some non-limiting embodiments or aspects, initiating the payment transaction is through a payment application configured on a user device associated with a customer.

[0013] In some non-limiting embodiments or aspects, initiating the payment transaction further comprises identifying a payment processing network to be used for carrying out the payment transaction.

[0014] In some non-limiting embodiments or aspects, the payment processing network includes at least an acquirer of the payment transaction.

[0015] In some non-limiting embodiments or aspects, the status of the payment transaction is at least one of “success” and “failure”.

[0016] According to non-limiting embodiments or aspects, provided is a payment acceptance device, comprising: a Near Field Communication (NFC) chip, wherein the NFC chip is configurable with merchant data using a Point of Sale (PoS) device associated with a merchant; and wherein the NFC chip facilitates payment transactions when merchant data configured in the NFC chip is acquired by an NFC-enabled user device associated with a customer.

[0017] In some non-limiting embodiments or aspects, the merchant data comprises at least one of the following: a merchant identifier, merchant account details, transaction details, or any combination thereof.

[0018] In some non-limiting embodiments or aspects, the merchant data stored on the NFC chip is dynamically reconfigurable for each transaction through the PoS device associated with the merchant.

[0019] In some non-limiting embodiments or aspects, the payment acceptance device is configured to function as an extension to the PoS device and facilitate the customer to initiate the payment transaction.

[0020] In some non-limiting embodiments or aspects, a Quick Response (QR) code, corresponding to the merchant data, is displayed on at least one surface of the payment acceptance device.

[0021] In some non-limiting embodiments or aspects, a payment transaction is initiated when the merchant data stored on the NFC chip is processed by a payment application configured on the NFC-enabled user device.

[0022] In some non-limiting embodiments or aspects, initiating the payment transaction further comprises identifying a payment processing network to be used for carrying out the payment transaction.

[0023] In some non-limiting embodiments or aspects, the payment processing network includes at least an acquirer of the payment transaction.

[0024] Further non-limiting embodiments or aspects are set forth in the following numbered clauses:

[0025] Clause 1: A method for facilitating payment transactions, the method comprising: acquiring merchant data from a payment acceptance device associated with a merchant, wherein the payment acceptance device is embedded with a Near Field Communication (NFC) chip; initiating a payment transaction based on the merchant data; transmitting a transaction request to a payment processing network upon completing a predefined authentication process; and receiving a notification, indicating status of the payment transaction, from the payment processing network.

[0026] Clause 2: The method of clause 1, wherein the merchant data is acquired using an NFC enabled user device associated with a customer initiating the payment transaction.

[0027] Clause 3: The method of clause 1 or 2, wherein the merchant data comprises at least one of the following: a merchant identifier, merchant account details, transaction details, or any combination thereof.

[0028] Clause 4: The method of any of clauses 1-3, wherein initiating the payment transaction is through a payment application configured on a user device associated with a customer.

[0029] Clause 5: The method of any of clauses 1-4, wherein initiating the payment transaction further comprises identifying a payment processing network to be used for carrying out the payment transaction.

[0030] Clause 6: The method of any of clauses 1-5, wherein the payment processing network includes at least an acquirer of the payment transaction.

[0031] Clause 7: The method of any of clauses 1-6, wherein the status of the payment transaction is at least one of "success" and "failure".

[0032] Clause 8: A payment acceptance device, comprising: a Near Field Communication (NFC) chip, wherein the NFC chip is configurable with merchant data using a Point of Sale (PoS) device associated with a merchant; and wherein the NFC chip facilitates payment transactions when merchant data configured in the NFC chip is acquired by an NFC-enabled user device associated with a customer.

[0033] Clause 9: The payment acceptance device of clause 8, wherein the merchant data comprises at least one of the following: a merchant identifier, merchant account details, transaction details, or any combination thereof.

[0034] Clause 10: The payment acceptance device of clause 8 or 9, wherein the merchant data stored on the NFC chip is dynamically reconfigurable for each transaction through the PoS device associated with the merchant.

[0035] Clause 11: The payment acceptance device of any of clauses 8-10, wherein the payment acceptance device is configured to function as an extension to the PoS device and facilitate the customer to initiate the payment transaction.

[0036] Clause 12: The payment acceptance device of any of clauses 8-11, wherein a Quick Response (QR) code, corresponding to the merchant data, is displayed on at least one surface of the payment acceptance device.

[0037] Clause 13: The payment acceptance device of any of clauses 8-12, wherein a payment transaction is initiated when the merchant data stored on the NFC chip is processed by a payment application configured on the NFC-enabled user device.

[0038] Clause 14: The payment acceptance device of any of clauses 8-13, wherein initiating the payment transaction further comprises identifying a payment processing network to be used for carrying out the payment transaction.

[0039] Clause 15: The payment acceptance device of any of clauses 8-14, wherein the payment processing network includes at least an acquirer of the payment transaction.

[0040] These and other features and characteristics of the present disclosure, as well as the methods of operation and functions of the related elements of structures and the combination of parts and economies of manufacture, will become more apparent upon consideration of the following description and the appended claims with reference to the accompanying drawings, all of which form a part of this specification, wherein like reference numerals designate corresponding parts in the various figures. It is to be expressly understood, however, that the drawings are for the purpose of illustration and description only and are not intended as a definition of the limits of the disclosed subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0041] The non-limiting embodiments or aspects of the disclosure itself, as well as a preferred mode of use, further objectives, and advantages thereof, will best be understood by reference to the following detailed description of an illustrative

embodiment when read in conjunction with the accompanying drawings. One or more non-limiting embodiments or aspects are now described, by way of example only, with reference to the accompanying drawings in which:

[0042] Fig. 1 shows an overview of an exemplary setup configured to facilitate payment transactions in accordance with some non-limiting embodiments or aspects of the present disclosure;

[0043] Fig. 2 shows an exemplary representation of a payment acceptance device in accordance with some non-limiting embodiments or aspects of the present disclosure;

[0044] Fig. 3 shows a flowchart illustrating a method for facilitating payment transactions in accordance with some non-limiting embodiments or aspects of the present disclosure; and

[0045] Fig. 4 illustrates an exemplary use case scenario of the present disclosure in accordance with some non-limiting embodiments or aspects of the present disclosure.

[0046] The figures depict non-limiting embodiments or aspects of the disclosure for purposes of illustration only. One skilled in the art will readily recognize from the following description that alternative non-limiting embodiments or aspects of the structures and methods illustrated herein may be employed without departing from the principles of the disclosure described herein.

DETAILED DESCRIPTION

[0047] For purposes of the description hereinafter, the terms “end,” “upper,” “lower,” “right,” “left,” “vertical,” “horizontal,” “top,” “bottom,” “lateral,” “longitudinal,” and derivatives thereof shall relate to the embodiments as they are oriented in the drawing figures. However, it is to be understood that the present disclosure may assume various alternative variations and step sequences, except where expressly specified to the contrary. It is also to be understood that the specific devices and processes illustrated in the attached drawings, and described in the following specification, are simply exemplary and non-limiting embodiments or aspects of the disclosed subject matter. Hence, specific dimensions and other physical characteristics related to the embodiments or aspects disclosed herein are not to be considered as limiting.

[0048] Some non-limiting embodiments or aspects may be described herein in connection with thresholds. As used herein, satisfying a threshold may refer to a value being greater than the threshold, more than the threshold, higher than the threshold,

greater than or equal to the threshold, less than the threshold, fewer than the threshold, lower than the threshold, less than or equal to the threshold, equal to the threshold, etc.

[0049] No aspect, component, element, structure, act, step, function, instruction, and/or the like used herein should be construed as critical or essential unless explicitly described as such. Also, as used herein, the articles “a” and “an” are intended to include one or more items and may be used interchangeably with “one or more” and “at least one.” Furthermore, as used herein, the term “set” is intended to include one or more items (e.g., related items, unrelated items, a combination of related and unrelated items, and/or the like) and may be used interchangeably with “one or more” or “at least one.” Where only one item is intended, the term “one” or similar language is used. Also, as used herein, the terms “has,” “have,” “having,” or the like are intended to be open-ended terms. Further, the phrase “based on” is intended to mean “based at least partially on” unless explicitly stated otherwise. In addition, reference to an action being “based on” a condition may refer to the action being “in response to” the condition. For example, the phrases “based on” and “in response to” may, in some non-limiting embodiments or aspects, refer to a condition for automatically triggering an action (e.g., a specific operation of an electronic device, such as a computing device, a processor, and/or the like).

[0050] As used herein, the term “computing device”, “user device”, and/or “merchant device” may refer to one or more electronic devices configured to process data. A computing device may, in some examples, include the necessary components to receive, process, and output data, such as a processor, a display, a memory, an input device, a network interface, and/or the like. A computing device may be a mobile device. As an example, a mobile device may include a cellular phone (e.g., a smartphone or standard cellular phone), a portable computer, a wearable device (e.g., watches, glasses, lenses, clothing, and/or the like), a personal digital assistant (PDA), and/or other like devices. A computing device may also be a desktop computer or other form of non-mobile computer.

[0051] As used herein, the term “system” may refer to one or more computing devices or combinations of computing devices (e.g., processors, servers, client devices, software applications, components of such, and/or the like). Reference to “a device,” “a server,” “a processor,” and/or the like, as used herein, may refer to a previously-recited device, server, or processor that is recited as performing a previous

step or function, a different device, server, or processor, and/or a combination of devices, servers, and/or processors. For example, as used in the specification and the claims, a first device, a first server, or a first processor that is recited as performing a first step or a first function may refer to the same or different device, server, or processor recited as performing a second step or a second function.

[0052] The term “configured to,” as used herein, may refer to an arrangement of software, device(s), and/or hardware for performing and/or enabling one or more functions (e.g., actions, processes, steps of a process, and/or the like). For example, “a processor configured to” may refer to a processor that executes software instructions (e.g., program code) that cause the processor to perform one or more functions.

[0053] The foregoing has broadly outlined the features and technical advantages of the present disclosure in order that the detailed description of the disclosure that follows may be better understood. It should be appreciated by those skilled in the art that the conception and specific non-limiting embodiments or aspects disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present disclosure. The novel features which are believed to be characteristic of the disclosure, both as to its organization and method of operation, together with further objects and advantages will be better understood from the following description when considered in connection with the accompanying figures. It is to be expressly understood, however, that each of the figures is provided for the purpose of illustration and description only and is not intended as a definition of the limits of the present disclosure.

[0054] In some non-limiting embodiments or aspects, the present disclosure relates to a payment acceptance device and a method for facilitating payment transactions using the payment acceptance device embedded with a Near Field Communication (NFC) chip. The NFC chip is dynamically configurable to store merchant data. The payment acceptance device, when interacting with an NFC enabled payment application installed on a user device, transmits the merchant data to the user device and initiates a payment transaction.

[0055] In some non-limiting embodiments or aspects, the payment acceptance device proposed by the present disclosure aims to combine advantageous features of both Quick Response (QR)-based payments and tap-to-pay payments. For instance, the proposed payment acceptance device is portable and inexpensive and can be

provided in the form of a QR standee display. In some non-limiting embodiments or aspects, the payment acceptance device allows customers to carry out payment transactions by simply scanning the QR code printed and displayed on the payment acceptance device using a predefined QR-enabled payment application installed on a user device. In some non-limiting embodiments or aspects, the payment acceptance device allows the customers to initiate payment transactions by tapping on the payment acceptance device from an NFC-enabled user device. In other words, the proposed payment acceptance device helps merchants to receive payments either through a QR code-based transaction or a tap-to-pay transaction without the need of an expensive PoS device. As a result, the proposed payment acceptance device also provides a wide range of payment options to the customers making the payment.

[0056] In some non-limiting embodiments or aspects, facilitating the payment transaction through the NFC chip embedded payment acceptance device includes configuring the NFC chip to store merchant data that must be used for carrying out a specific transaction and scanning of the NFC chip using an NFC-enabled user device to acquire the merchant data. The merchant data may be acquired in a predefined standard format. In some non-limiting embodiments or aspects, the merchant data may be programmed to the NFC chip by an acquirer bank associated with the merchant. The acquirer bank may use the same Europay Mastercard Visa (EMV®) specifications data that the acquirer bank uses to issue a QR code to a merchant and encode the data on the NFC chip. In an implementation, the NFC chip may be dynamically reconfigured or programmed by the acquirer to include merchant credentials corresponding to multiple payment networks/flows that may be specific to each transaction. For instance, the merchant may use a plurality of payment acceptance devices, each configured with different payment networks/flows, for receiving payment from different customers.

[0057] The NFC chip transmits (e.g., push payment flow) the merchant data to the user device when the user taps the user device on the payment acceptance device, and the payment is processed on the user device after successfully completing a predefined authentication process. As an example, the predefined authentication process may require the customer to authenticate himself/herself, for example through a One-Time Password (OTP) verification, a Two-Factor Authentication (TFA), a preset password or a security code, a security pattern, a biometric password and the like. In some non-limiting embodiments or aspects, the customer may preset an option

wherein no explicit authentication is required for proceeding with the payment transaction. Thereafter, the transaction would be processed in a manner known in the art through the payment network providers.

[0058] The proposed payment acceptance device enhances security of the payment transactions by ensuring that none of the customer-sensitive information, including Personally Identifiable Information (PII) of the customer, is made available to the merchant. From the merchant perspective, the proposed payment acceptance device allows merchants to receive payments via a wide range of payment options supported by both NFC- and QR-enabled payment modes. For the acquirers and other financial institutions involved, the proposed payment acceptance device enhances the ease and flexibility of deployment of payment acceptance arrangements at merchant locations.

[0059] Fig. 1 shows an exemplary overview for facilitating payment transactions using a payment acceptance device 102 embedded with a Near Field Communication (NFC) chip 104. In some non-limiting embodiments or aspects, the payment acceptance device 102 may be configured with a contactless element, typically implemented in the form of a semiconductor NFC chip 104. In some non-limiting embodiments or aspects, the payment acceptance device 102 may be designed in the form of a payment card similar to a debit card, credit card and the like, in which the NFC chip 104 may be embedded, as shown in Fig. 2. In some non-limiting embodiments or aspects, the payment acceptance device 102 may be designed in the form of a portable standee display that enables the customer to acquire the embedded information by simply tapping or waving at the NFC chip 104 embedded in the standee. In some non-limiting embodiments or aspects, the payment acceptance device 102 may be configured with both the NFC chip 104 and a Quick Response (QR) code (for example, the QR code 200 shown in Fig. 2). Such a payment acceptance device may allow the customers to carry out payment transactions using an NFC-enabled user device 106 (for scanning the NFC chip 104) or any other user device having a camera or a QR code scanner (for scanning the QR code 200). The above-mentioned design variations of the payment acceptance device 102 should not be construed as a limitation of the present disclosure, as the payment acceptance device 102 may be presented in any other form at a merchant's place of business, depending on preferences and feasibility of placing the payment acceptance device 102 at the merchant's place of business.

[0060] In some non-limiting embodiments or aspects, the NFC chip 104 may include, but not limited to, a controller, a memory for storing data and instructions, and a network interface to communicate with one or more NFC-enabled devices, such as the user device 106. As an example, the user device 106 may include any NFC-enabled device such as, without limiting to, smartphones, laptops, tablet phones, smart wearable devices and the like. Further, the user device 106 may be configured with one or more payment applications, which are implemented in hardware, firmware, or a combination of hardware and software. Such payment applications may be used to implement various functions desired by the user using the user device 106. Some of these functions may include, without limiting to, acquiring data from the NFC chip 104, acquiring data from the QR code 200, authenticating payment transactions, performing eCommerce transactions, rendering payment status notifications and the like. In some non-limiting embodiments or aspects, the payment applications may be authorized and facilitated by a payment processing network entity, a payment aggregator, an acquirer bank, an issuer bank, and the like.

[0061] In some non-limiting embodiments or aspects, the NFC chip 104 may be configured with merchant data. As an example, the merchant data may include, without limitation, a merchant identifier, payment account details of the merchant, an instant/real-time payment identifier (such as Unified Payment Interface (UPI)) identifier, and/or transaction-specific information or details, like the transaction amount. As used herein, the term “real-time payment (RTP)” refers to a method of electronic funds transfer, allowing for almost or near immediate transfer of money between accounts, which is in contrast to the previous transfer times of one to three business days. For example, RTP means a payment transaction is not subjected to any waiting period, with funds being transferred and/or transactions being settled as soon as the payment transactions are processed by the RTP system. Additionally, the merchant data may include a hyperlink to the merchant’s website, an advertisement related to the merchant and related products, one or more offers provided by the merchant and the like. The merchant data may be stored according to an industry-standard specification of merchant credentials. The merchant data may allow the customer to carry out transactions via one of the multiple payment processing networks 108 associated with the merchant. As an example, the payment processing network 108 may include, without limitation, a payment gateway or a payment aggregator entity.

[0062] In some non-limiting embodiments or aspects, the NFC chip 104 may be dynamically configured or programmed through a “write” action to include additional data or modify the data already stored in the NFC chip 104. For example, the NFC chip 104 may be configured to include data related to an ongoing transaction with a specific customer, such as amount payable by the customer, discount offered to the customer and the like, along with the merchant data. In some non-limiting embodiments or aspects, the NFC chip 104 may be dynamically configured using a Point of Sale (PoS) device or another NFC-enabled device associated with the merchant. In some non-limiting embodiments or aspects, the PoS device used, or the NFC-enabled device used for dynamically configuring the NFC chip 104 may be issued to the merchant by the merchant’s acquirer bank or a financial institution as per the merchant’s requirement. In some non-limiting embodiments or aspects, the “write” operation may be an open field of the NFC chip 104, which can be opted by the merchant for dynamic configuration as per the requirements. In some non-limiting embodiments or aspects, the data that is dynamically configured on the NFC chip 104 may be temporary in nature and specific to a single transaction. In other words, the data stored on the NFC chip 104 may be rewritten for each transaction.

[0063] In some non-limiting embodiments or aspects, if the merchant uses an NFC-enabled mobile device to configure the NFC chip 104, the payment acceptance device 102 may be tapped/waved against the mobile device to write and configure the NFC chip 104 dynamically. Such mobile device may include an application authorized and preconfigured for writing and configuring the NFC chip 104 dynamically by an issuer or a financial institution according to the merchant’s requirement. A skilled person would appreciate that the NFC chip 104 may be replaced with any other contactless element capable of storing and transmitting the merchant data to the user device 106.

[0064] In some non-limiting embodiments or aspects, the NFC chip 104 may be preconfigured with a fixed transaction amount, wherein the customer may directly proceed to initiate the payment transaction after scanning the NFC chip 104, without the need for entering the transaction amount. Such a preconfigured NFC chip 104 may be used for various use cases such as, for example, collection of parking charges or donations.

[0065] In some non-limiting embodiments or aspects, when the customer taps or waves his/her user device 106 at the payment acceptance device 102, the merchant data stored on the payment acceptance device 102 may be acquired and transmitted

to the user device 106. Upon acquiring the merchant data, the user device 106 may initiate the payment transaction by communicating with the payment processing network 108. In some non-limiting embodiments or aspects, the payment processing network 108 may complete the payment transaction using any of the existing transaction approval mechanisms and then notify the status of the payment transaction to the merchant and the customer. The merchant may be notified on a merchant device 110 or a PoS device associated with the merchant. The customer may be notified on the user device 106. The status of the payment transaction may be one of “successful” completion of the transaction or a “failure” of the transaction.

[0066] In some non-limiting embodiments or aspects, as illustrated in Fig. 2, the payment acceptance device 102 may be printed or affixed with a static QR code 200. The static QR code 200 may comprise the merchant data, which may be same as the data configured on the NFC chip 104. The user device 106 may acquire the merchant data by scanning the QR code 200 using a QR-code scanner, or a camera application installed on the user device 106. Thus, QR code 200 enables the customer to carry out payment transactions using an alternative payment method, other than the NFC-based payment method discussed above.

[0067] Fig. 3 illustrates a flowchart showing a method 300 for facilitating payment transactions. At step 302, a user device 106 may acquire the merchant data from the payment acceptance device 102. In some non-limiting embodiments or aspects, the customer using the user device 106 may directly tap or wave on the payment acceptance device 102 without the need for explicitly using a specific payment application. In such non-limiting embodiments or aspects, a third-party application installed on the user device 106 may read the merchant data from the NFC chip 104 and display various payment options to the customer. Thus, the customer can eliminate the need for opening the camera or a scanning application on the user device 106 for acquiring the merchant data. In some non-limiting embodiments or aspects, the user may pre-select one of the payment applications or banking applications installed on the user device 106 and a data reader configured with the selected payment/banking application may read the merchant data from the NFC chip 104. In some non-limiting embodiments or aspects, the merchant data may be acquired in a predefined standard format. In some non-limiting embodiments or aspects, the merchant data may be acquired in the form of a token to enhance security. However, this should not be construed as a limitation of the present disclosure since any other

form in which the merchant data can be received by the customer or user device 106 falls under the scope of the present disclosure.

[0068] At step 304, the user device 106 may initiate a payment transaction based on the acquired merchant data. Further, at step 306, the user device 106 may transmit a transaction request to the payment processing network 108 after the customer completes a predefined authentication process. As an example, the predefined authentication process may include, without limiting to, prompting the customer to verify an authentication code such as a password, a secret number, a security pattern, a biometric authentication, or responding to a preset questionnaire. In some non-limiting embodiments or aspects, the customer may preconfigure the payment application to avoid the need for any authentication when the transaction amount is less than a predefined threshold amount. In some non-limiting embodiments or aspects, the customer may preset an option wherein no explicit authentication is required for proceeding with the transaction.

[0069] At step 308, the user device 106 may receive a notification from the payment processing network 108 indicating a status of the payment transaction. For example, the payment processing network 108 may indicate whether the transaction is “successful” or “unsuccessful”, along with confirmation of the amount deducted from the customer’s account. In some non-limiting embodiments or aspects, a similar notification may also be transmitted to the merchant device 110 for notifying the merchant about the status of the transaction. As an example, the merchant device 110 may include, without limiting to, a smartphone associated with the merchant, a display screen associated with the PoS device of the merchant etc., which may be used for displaying the status of the transaction. Alternatively, the merchant device 110 may be associated with an audio equipment, such as a soundbox, which can render the status of the transaction as a sound-based notification.

[0070] In some non-limiting embodiments or aspects, consider a scenario where the customer is dining at a restaurant and wishes to pay the bill amount. The customer may be able to pay the bill amount by any one of the following options, as per the non-limiting embodiments or aspects disclosed in the present disclosure. For easier understanding, it is assumed that the payment acceptance device 102 is in the form of a payment card and is referred to as “NFC chip embedded card” throughout the following description.

[0071] Option 1: The merchant may present the NFC chip embedded card comprising the NFC chip 104, which is preconfigured with the merchant data. In some non-limiting embodiments or aspects, the customer may tap or wave on the NFC chip embedded card and pay the bill amount as per the method discussed in steps 302-308 of Fig. 3.

[0072] Option 2: The merchant may dynamically configure the NFC chip embedded card by re-writing the NFC chip 104 to modify or add additional details, as required by the merchant. As an example, the merchant can use a PoS device to configure or re-write the NFC chip 104 with specific desired details, such as billed amount or payable amount by tapping/waving/inserting/swiping the NFC chip embedded card through the PoS device. The merchant may also modify the NFC chip 104 to include any discount, which is applicable for the on-going transaction. Thereafter, the customer may pay the bill amount as per the method discussed in steps 302–308 of Fig. 3. The information which is dynamically written to the NFC chip 104 may be temporary in nature and applicable only for the specific transaction with the customer. Such information may be rewritten for a subsequent transaction, as desired by the merchant.

[0073] Option 3: In a scenario where the customer is unable to pay through the NFC mode, the customer may scan the static QR code affixed or printed on the NFC chip embedded card and perform the QR-code-based transaction in a traditional manner known in the art.

[0074] In some non-limiting embodiments or aspects, the customer can tap or wave on the configured NFC chip 104 using the NFC-enabled smart wearable devices. For example, the customer can tap or wave on the preconfigured NFC chip 104 using a smart watch enabled for NFC-based payments. The customer can proceed with the transaction using the smart watch itself or use a smart phone, connected with the smart watch, where one or more payment applications can be used for carrying out the payment transaction.

[0075] In some non-limiting embodiments or aspects, as illustrated in Fig. 4, the merchant 400 may own multiple payment acceptance devices 102 (for example, payment acceptance device 1 102₁, ..., payment acceptance device N 102_N, which are collectively referred to as payment acceptance devices 102) for receiving payment from a plurality of customers visiting the merchant's place of business. In some non-limiting embodiments or aspects, each payment acceptance device 102 may be preconfigured with the same merchant data and may act as parallel payment

acceptance devices. In some non-limiting embodiments or aspects, each of the payment acceptance devices 102 may be configured with different merchant data as per the requirement of the merchant 400, for instance, with different bank account details, different store details, or different type of discounts/offers and the like.

[0076] As an example, consider a scenario where a restaurant comprises 20 tables. In the existing scenario, when one customer is making a payment through the PoS device 402 of the merchant 400, other customers may have to wait due to shortage of the PoS devices 402 with the merchant 400. Whereas, according to the present disclosure, the merchant 400 may use the primary PoS device 402 to preconfigure a required number of payment acceptance devices 102, such that each payment acceptance device 102 functions as an extension to the PoS device 402 and facilitates a plurality of customers to initiate payment transactions simultaneously. In the above scenario, the merchant 400 may preconfigure 20 payment acceptance devices 102 and place each of the payment acceptance devices 102 across the 20 tables, thereby ensuring that each of the 20 payment acceptance devices 102 function as parallel payment acceptance devices.

[0077] In some non-limiting embodiments or aspects, the merchant 400 may activate/configure only a required number of the payment acceptance devices 102 in an ad-hoc manner. For example, the merchant 400 may dynamically configure one of the payment acceptance devices 102 when a customer is ready to make the payment. Also, the merchant 400 may reset or reconfigure the payment acceptance device 102 for a different customer, immediately after the payment transaction from one of the customers is successfully completed. The above arrangements eliminate the need for the merchant 400 to own multiple PoS devices 402 and thereby limit the associated expenses. Thus, the payment acceptance device 102 proposed in the present disclosure provides a low cost, convenient and economical method of accepting payments.

[0078] Any of the software components or functions described in this application, may be implemented as software code to be executed by a processor using any suitable computer language such as, for example, Java, C++ or Perl using, for example, conventional or object-oriented techniques. The software code may be stored as a series of instructions, or commands on a computer readable medium, such as a Random-Access Memory (RAM), a read only memory (ROM), a magnetic medium such as a hard-drive, or an optical medium such as a CD-ROM. Any such

computer readable medium may reside on or within a single computational apparatus and may be present on or within different computational apparatuses within a system or network. In some non-limiting embodiments, the processor may be implemented in hardware, firmware, or a combination of hardware and software.

[0079] The above description is illustrative and is not restrictive. Many variations of the disclosure will become apparent to those skilled in the art upon review of the disclosure. The scope of the disclosure should, therefore, be determined not with reference to the above description, but instead should be determined with reference to the following claims, along with their full scope or equivalents.

[0080] The methods and processes described herein are exemplary in nature, and the methods and processes in accordance with some non-limiting embodiments or aspects may perform one or more of the steps in a different order than those described herein, include one or more additional steps not specially described, omit one or more steps, combine one or more steps into a single step, split up one or more steps into multiple steps, and/or any combination thereof.

[0081] One or more features from any embodiment or aspect may be combined with one or more features of any other embodiment or aspect without departing from the scope of the disclosure.

[0082] As may be appreciated by one of skill in the art the order of steps in the foregoing non-limiting embodiments or aspects may be performed in any order. Words such as “thereafter,” “then,” “next,” etc. are not intended to limit the order of the steps; these words are simply used to guide the reader through the description of the methods. Further, any reference to claim elements in the singular, for example, using the articles “a,” “an” or “the” is not to be construed as limiting the element to the singular.

[0083] Various non-limiting embodiments or aspects of the present disclosure are described with reference to the accompanying drawings, in which some, but not all non-limiting embodiments or aspects of the disclosure are shown. Indeed, the disclosure may be embodied in many different forms and should not be construed as limited to the non-limiting embodiments or aspects set forth herein. Rather, these non-limiting embodiments or aspects are provided so that this disclosure may satisfy applicable legal requirements. The term “or” is used herein in both the alternative and conjunctive sense, unless otherwise indicated. The terms “illustrative,” “example,” and

“exemplary” are used to be examples with no indication of quality level. Like numbers refer to like elements throughout.

[0084] The word “exemplary” is used herein to mean “serving as an example, instance, or illustration.” Any implementation described herein as “exemplary” is not necessarily to be construed as preferred or advantageous over other implementations.

[0085] If the specification states a component or feature “can,” “may,” “could,” “should,” “would,” “preferably,” “possibly,” “typically,” “optionally,” “for example,” “often,” or “might” (or other such language) be included or have a characteristic, that component or feature is not required to be included or to have the characteristic. Such component or feature may be optionally included in some non-limiting embodiments or aspects, or it may be excluded.

[0086] In some example non-limiting embodiments or aspects, certain ones of the operations herein may be modified or further amplified as described. Moreover, in some non-limiting embodiments or aspects additional optional operations may also be included. It should be appreciated that each of the modifications, optional additions or amplifications described herein may be included with the operations herein either alone or in combination with any others among the features described herein.

[0087] Although embodiments have been described in detail for the purpose of illustration, it is to be understood that such detail is solely for that purpose and that the disclosure is not limited to the disclosed embodiments or aspects, but, on the contrary, is intended to cover modifications and equivalent arrangements that are within the spirit and scope of the appended claims. For example, it is to be understood that the present disclosure contemplates that, to the extent possible, one or more features of any embodiment or aspect can be combined with one or more features of any other embodiment or aspect.

WHAT IS CLAIMED IS:

1. A method for facilitating payment transactions, the method comprising:
 - acquiring merchant data from a payment acceptance device associated with a merchant, wherein the payment acceptance device is embedded with a Near Field Communication (NFC) chip;
 - initiating a payment transaction based on the merchant data;
 - transmitting a transaction request to a payment processing network upon completing a predefined authentication process; and
 - receiving a notification, indicating status of the payment transaction, from the payment processing network.
2. The method of claim 1, wherein the merchant data is acquired using an NFC enabled user device associated with a customer initiating the payment transaction.
3. The method of claim 1, wherein the merchant data comprises at least one of the following: a merchant identifier, merchant account details, transaction details, or any combination thereof.
4. The method of claim 1, wherein initiating the payment transaction is through a payment application configured on a user device associated with a customer.
5. The method of claim 1, wherein initiating the payment transaction further comprises identifying a payment processing network to be used for carrying out the payment transaction.
6. The method of claim 1, wherein the payment processing network includes at least an acquirer of the payment transaction.
7. The method of claim 1, wherein the status of the payment transaction is at least one of "success" and "failure".

8. A payment acceptance device, comprising:
a Near Field Communication (NFC) chip,
wherein the NFC chip is configurable with merchant data using a Point of Sale (PoS) device associated with a merchant; and
wherein the NFC chip facilitates payment transactions when merchant data configured in the NFC chip is acquired by an NFC-enabled user device associated with a customer.

9. The payment acceptance device of claim 8, wherein the merchant data comprises at least one of the following: a merchant identifier, merchant account details, transaction details, or any combination thereof.

10. The payment acceptance device of claim 8, wherein the merchant data stored on the NFC chip is dynamically reconfigurable for each transaction through the PoS device associated with the merchant.

11. The payment acceptance device of claim 8, wherein the payment acceptance device is configured to function as an extension to the PoS device and facilitate the customer to initiate the payment transaction.

12. The payment acceptance device of claim 8, wherein a Quick Response (QR) code, corresponding to the merchant data, is displayed on at least one surface of the payment acceptance device.

13. The payment acceptance device of claim 8, wherein a payment transaction is initiated when the merchant data stored on the NFC chip is processed by a payment application configured on the NFC-enabled user device.

14. The payment acceptance device of claim 13, wherein initiating the payment transaction further comprises identifying a payment processing network to be used for carrying out the payment transaction.

15. The payment acceptance device of claim 14, wherein the payment processing network includes at least an acquirer of the payment transaction.