July 2023

Visa Accessible Card (VAC) for specially abled users

Saikat Dutta
VISA

Amrendra Narayan Jha
VISA

Santosh Kumar KVS
VISA

Nabadeep Haloi
VISA

Deepali Gupta
VISA

“Visa Accessible Card (VAC) for specially abled users”

VISA

INVENTOR:

Saikat Dutta

Amrendra Narayan Jha

Santosh Kumar KVS

Nabadeep Haloi

Deepali Gupta

TECHNICAL FIELD

[0001] The present subject matter is, in general, related to payment cards. Specifically, the subject matter relates to Visa Accessible Card (VAC) for specially abled users to optimize the payment process and make it easier and more secure.

BACKGROUND

[0002] A payment card enables a user to perform various tasks such as cash withdrawal, cashless purchase at a physical point of sale (POS), or online transactions for various activities. However, almost every payment card issued by service provider(s) includes a 16-digit card number for the unique identification of a card. The 16 digits present on the card help to distinguish the card from other cards. For physically impaired person, the card numbers present on the card are spaced very closely making the card cluttered and difficult to make sense of the digits. Thereby, the 16 digit cards are difficult for the physically impaired people to read.

[0003] To deal with fraudster activities, payment cards have introduced a security feature known as the card verification value (CVV). The CVV is located on the back of the card, either on the magnetic stripe or on the chips. The purpose of CVV is to provide an additional set of authentic numbers apart from the cards number. CVV is necessary for payment during online transactions or cashless purchase by card. To enhance the security of card payment, one approach is suggested which is not to store CVV on the same card's magnetic stripe or the chip, but to store it on a secondary card. However, this does not solve the issue for specially abled people as CVV is just written and not engraved on the card which makes it difficult for the physically impaired people to read.

[0004] Payment cards often share a similar design on both sides. This creates a challenging situation for the specially abled people to differentiate between the sides of the card. The physically impaired people find it difficult in differentiating cards of the same payment gateway from different issuers.

SUMMARY

[0005] According to some non-limiting embodiments the present disclosure focuses on Visa Accessible Cards (VAC), a specialized card designed in such a way that makes the card easy to use and secure for transactions during both online and on POS machines. The VAC may have limited alphabetic characters as card number which may be the only identifier for the card, and other details may not be present on the card. The identifier may be given in engraved braille

format and as usual characters, which make it readable for blind people and normal people. The other information may not be given on the card such as CVV/ expiry date on the card. The VAC cards are designed in such a way that is more spaced out, can be easily sensed with touch interaction, and the card details are easy to remember. Further, to store the important details of the card which is not present in the card, the same VAC character may be mapped to the unique set of Primary Account Number (PAN), Expiry Data, and CVV. This mapping may be stored in a secure cloud server which can only be accessed through POS terminals with the use of a card. This allows change in the card number format without changing existing standard card PANs.

[0007] To differentiate cards among the same visa cards, issuers may provide the users with an interface to choose among a fixed set of engravings on the front of the card when the card is getting issued. The user may choose different engravings for different cards they possess. Thus, allowing them to easily distinguish between cards without any visual cues. The front of the card may have the engravings in form of texture, and the card details may be printed on the backside. This allows the user to differentiate the front and back of the card.

[0008] Further, to enhance safe and secure transactions, VAC may be accompanied by a companion app, the VAC app, on the user equipment device. All authentication processes need to pass through the biometric authentication by the user on the VAC app.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The accompanying drawings, which are incorporated in and constitute a part of this disclosure, illustrate exemplary embodiments and, together with the description, explain the disclosed principles. In the figures, the reference number identifies the figure in which the reference number first appears. The same numbers are used throughout the figures to reference features and components. Some embodiments of device or system and/or methods in accordance with embodiments of the present subject matter are now described, by way of example only, and with reference to the accompanying figures, in which:

[0010] **Fig. 1** illustrates a visa accessible card, in accordance with an embodiment of the present disclosure.

[0012**] Fig. 2** illustrates an environment for payment transaction using visa accessible card in accordance with an embodiment of the present disclosure.

[0013] **Fig. 3** illustrates another environment for payment transaction using visa accessible card in accordance with an embodiment of the present disclosure.

[0014] **Fig. 4** illustrates the visa cards with different issuers in accordance with an embodiment of the present disclosure.

[0015] The figures depict embodiments of the disclosure for purposes of illustration only. One skilled in the art will readily recognize from the following description that alternative embodiments of the structures and methods illustrated herein may be employed without departing from the principles of the disclosure described herein.

DESCRIPTION OF THE DISCLOSURE

[0016] 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. Hence, specific dimensions and other physical characteristics related to the embodiments or aspects disclosed herein are not to be considered as limiting.

[0017] In the present document, the word “exemplary” is used herein to mean “serving as an example, instance, or illustration.” Any embodiment or implementation of the present subject matter described herein as “exemplary” is not necessarily to be construed as preferred or advantageous over other embodiments.

[0018] While the disclosure is susceptible to various modifications and alternative forms, specific embodiment thereof has been shown by way of example in the drawings and will be described in detail below. It should be understood, however, that it is not intended to limit the disclosure to the particular forms disclosed, but on the contrary, the disclosure is to cover all modifications, equivalents, and alternative falling within the spirit and the scope of the disclosure.

[0019] The terms “comprise”, “comprising”, or any other variations thereof, are intended to cover a non-exclusive inclusion, such that a setup, device, or method that comprises a list of

components or steps does not include only those components or steps but may include other components or steps not expressly listed or inherent to such setup or device or method. In other words, one or more elements in a device or system or apparatus proceeded by "comprises… a" does not, without more constraints, preclude the existence of other elements or additional elements in the device or system or apparatus.

[0020] The terms "an embodiment", "embodiment", "embodiments", "the embodiment", "the embodiments", "one or more embodiments", "some embodiments", and "one embodiment" mean "one or more (but not all) embodiments of the invention(s)" unless expressly specified otherwise.

[0020] The terms "including", "comprising", "having" and variations thereof mean "including but not limited to" unless expressly specified otherwise.

[0021] **Fig. 1** illustrates visa accessible cards (100) to optimize the payment process and make it easier and more secure. In this embodiment, both the front and back side of the visa accessible card (100) may feature various card information elements. These features may comprise card information which may include limited alphabetic character (102) braille character (104) and engraved texture (106). These limited characters (102) are present on the backside of the card (100) and serve as a unique identifier of the card (100). These characters act as distinguishing factors and ensure ownership of the card (100). To assist specially abled people, the same alphabetic characters (102) are engraved on the card (100) in the braille format (104). The braille representation enables specially abled people to read the characters (102). Meanwhile, the engraved texture (106) on the front side of the card (100) provides a feature that facilitates specially abled people to distinguish between cards without having any visual cues. By touching the texture, a user can easily feel it to identify the card's (100) orientation without any difficulty.

[0022] **Fig. 2** illustrates an environment for payment transaction using visa accessible card (202) in accordance with an embodiment of the present disclosure. The environmental architecture may consist of a system (200) which may comprise of a visa accessible card (VAC) (202), a point of sale device (204), a cloud store (206) an acquirer (208), a visanet (210), an authentication server (212), a user equipment (214) and an issuer (216). All the elements of the system (200) illustrated in FIG. 2 are essential elements, but the system (200) may also be

implemented by more elements than the elements illustrated in FIG. 2, however the same are not explained for the sake of brevity. All the elements of the system (200) may communicate with each other via wireless/wired communication network.

[0023] In an embodiment, the visa accessible card (202) is a special payment card designed for specially abled people as described in Figure 1.

[0024] In an embodiment, the point of sale (POS) (204) device communicates the user card's (202) details to the bank to process the transaction. The POS (204) has the ability to retrieve the information stored in the card (202).

[0025] In an embodiment, the cloud store (206) is a network that stores the additional information of the card (202) such as Primary Account Number (PAN), expiry date, and Card Verification Value (CVV).

[0026] In an embodiment, the acquirer (208) may be, but not limited to, a bank, financial institution, and so forth. The acquirer (208) authorizes the transaction by verifying funds with the issuing bank (216) and settles the funds by transferring money. The acquirer (208) may have a database (not shown in the system) in which the information related to transaction detail, account balance, etc. is stored.

[0027] In an embodiment, the Visanet (210) is a secure global network operated by visa which connects the user with the issuer bank (216) for enhancing secure and fast transactions. Visanet (210) receives transaction details from the acquirer (208), which includes the cardholder's payment information. Visanet (216) securely transmits the transaction data to the cardholder's issuing bank (216) to verify the card's (202) validity and to facilitate the transfer of the funds.

[0028] In an embodiment, the issuer (216) may issue a visa accessible card as (202) described in Figure 1 to the customers. The issuer (216) may be, but not limited to, a bank, financial institution, and so forth. The issuer (216) may have a database (not shown) in which the information related to the visa accessible card (201) of the customers may be stored. In an

exemplary embodiment, the information may be the personal details of the customers along with the transaction details, account balance details, card details, etc.

[0029] In the environment, as shown in Figure 2, when a user initiates the transaction by swiping or tapping a visa accessible card (202) at the POS terminal (204), the POS terminal (204) obtains the unique identification alphabetic characters present on the card (202). The unique identification character present on the card (202) is used to distinguish the card (202) from other cards and to ensure the ownership of the user. Further, with the help of alphabetic characters, the POS terminal (204) fetches the additional information such as PAN, expiry date and CVV of the card (202). These details are linked to the same alphabetic character and stored securely on the cloud server (206) of the system (200) during the card (202) issuance process.

[0030] The POS terminal (204) then maps the alphabetic characters present on the card with the additional information. After successful mapping of the information, the POS terminal (204) will send the transaction request to an acquirer (208). The Transaction request comprises of card details, transaction amount, etc. The acquirer (208) authorizes the transaction details and sends the transaction request to the Visanet (210). The Visanet (210) acts as an intermediary and facilitates the transaction between the acquirer (208) and the issuing bank (216). The Visanet (210) may call a service (212) to authenticate the user using the VAC application. The VAC application is installed in the user equipment (214) and it displays a prompt on the notification bar to scan the finger on the UE (214) for authentication. Simultaneously with the prompt, the user also receives voice feedback on the UE (214) which indicates to the user, the amount being debited. The user can confirm the transaction by acknowledging the deducted amount and completing the biometric scan. After the successful completion of the biometric scan, the biometric token is generated and sent back to the issuer (216) via the Visanet (210). After the validation is successful, the transaction is authenticated on the issuer side (216). This continuous behavioural authentication is used as added authentication factor capturing multiple modalities.

[0031] **Fig. 3** illustrates another environment for payment transaction using a braille keyboard (304) in accordance with an embodiment of the present disclosure. Visanet (210) will present a separate interface for VAC (202) accepting 6 digits alphabetic card numbers.

[0032] The user initiates a transaction by entering an alphabetic character using the braille keyboard (304) at the POS terminal. With the help of alphabetic characters, the POS terminal fetches the additional information such as Primary Account Number (PAN), expiry date and Card Verification Value (CVV) of the card. These details are linked to the alphabetic character entered by the user and stored securely in the cloud store (306) of the system (300) during the card issuance process.

[0033] The POS terminal (304) then maps the alphabetic characters present on the card with the additional information. After successful mapping of the information, the POS terminal (304) will send the transaction request to an acquirer (308). The Transaction request comprises of card details, transaction amount, etc. The acquirer (308) authorizes the transaction details and sends the transaction request to the Visanet (310). The Visanet (310) acts as an intermediary between the acquirer (308) and the issuing bank (316) to facilitate the transaction. The Visanet (310) calls a service (312) to authenticate the user using the VAC application. The VAC application is installed in the user equipment (314) and it displays a prompt on the notification bar for the user to scan his finger on the UE (314) for authentication. Simultaneously with the prompt, the user also receives voice feedback on the UE (314) which indicates to the user the amount being debited. The user can confirm the transaction by acknowledging the deducted amount and completing the biometric scan. After the successful completion of the biometric scan, a biometric token is generated and sent back to the issuer (316) via the Visanet (310). After the validation is successful, the transaction can be authenticated on the issuer side (316). This continuous behavioural authentication is used as added authentication factor capturing multiple modalities.

[0034] Fig. 4 illustrates the VACs (400) issued by different issuers, in accordance with an embodiment of the present disclosure. All the VACs (400) as shown in figure 4 have different engravings (402-408). When the VAC (400) is issued, the issuer provides the user with an interface for selecting the VAC (400), where the user may choose the VAC (400) from a fixed set of engravings according to their need. The selected engravings (402-408) are placed on both sides of the front of the card. These distinct engravings (402-408) are employed to differentiate the VAC from one another, thus, allowing the user to differentiate between the VACs (400) by touching the engravings and without relying on visual cues. Further, the VAC (400) details are printed on the backside of the VAC (400). The whole design of the VAC illustrated in Figure 4. The selected engraving/texture (402-408) is applied to the front of the card, while the card

details are printed on the back, enabling users to distinguish between the front and back of the card.

[0036] Finally, the language used in the specification has been principally selected for readability and instructional purposes, and it may not have been selected to delineate or circumscribe the inventive subject matter. Accordingly, the disclosure of the embodiments of the disclosure is intended to be illustrative, but not limiting, of the scope of the disclosure.

[0037] With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

"Visa Accessible Card (VAC) for specially abled users"

ABSTRACT

The present disclosure relates to a VISA Accessible Cards (VAC) (202) which are designed for easy and secure transactions. The VAC (202) has limited alphabetic characters (102) as the card number, presented in Braille (104) and regular characters for both specially abled people and normal people. The card may not have other details like CVV or expiry date. The card information, such as PAN, expiry date, and CVV may be mapped to the VAC characters and stored securely in a cloud server. Users may choose different engravings on front of the card for easy identification. The card may accompanied by the VAC app, which requires biometric authentication for all transactions.

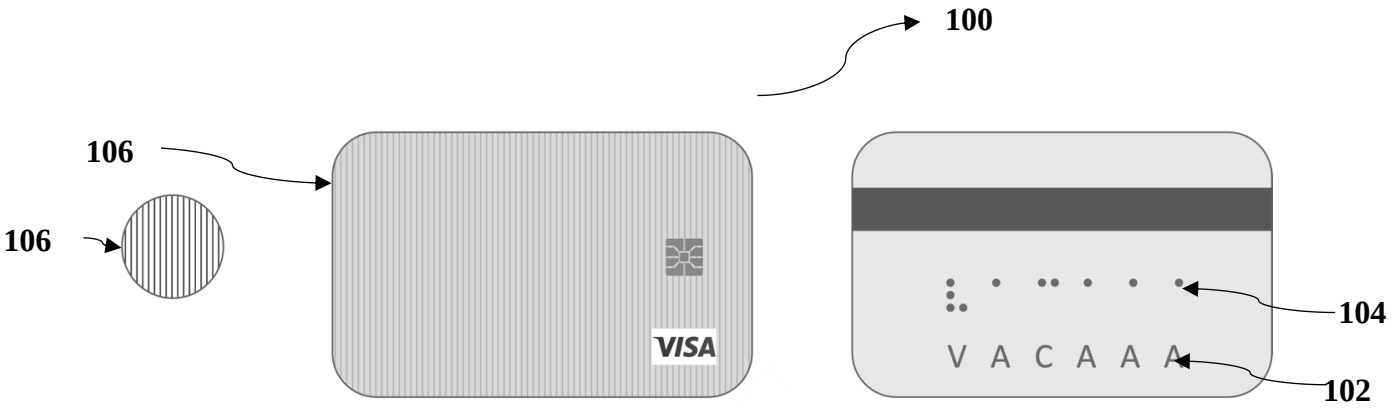

Figure 1

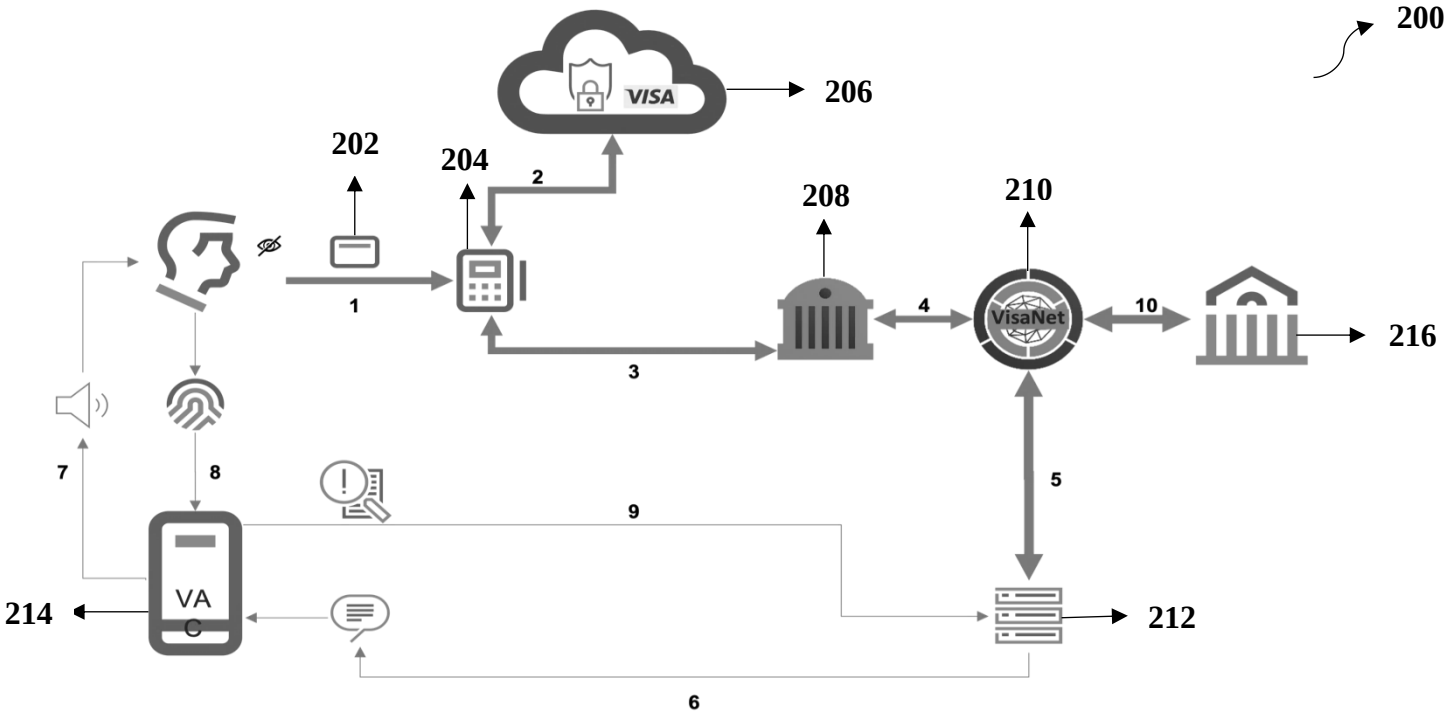

Figure 2.

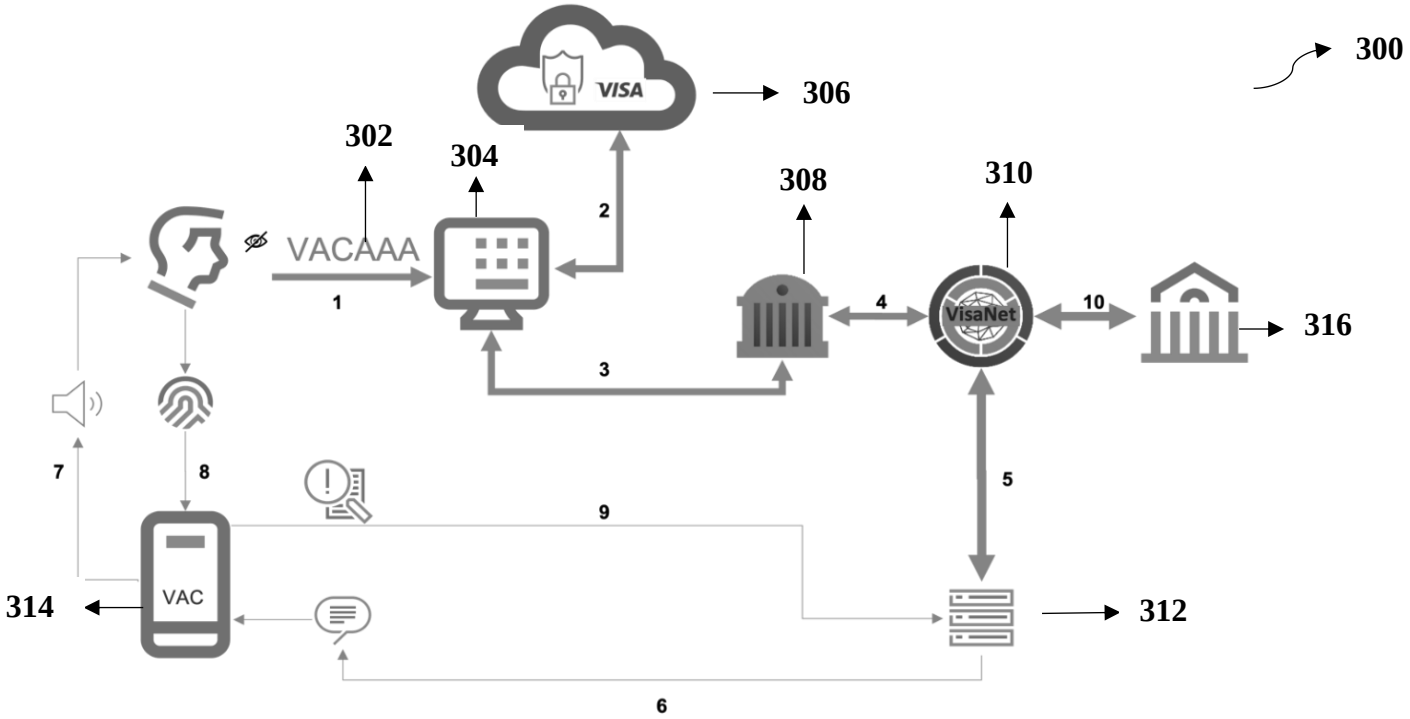
300
VISA
306
302
304
308
310
VACAAA
1
2
3
4
VisaNet
10
316
7
8
5
9
VAC
314
312
6

Figure 3

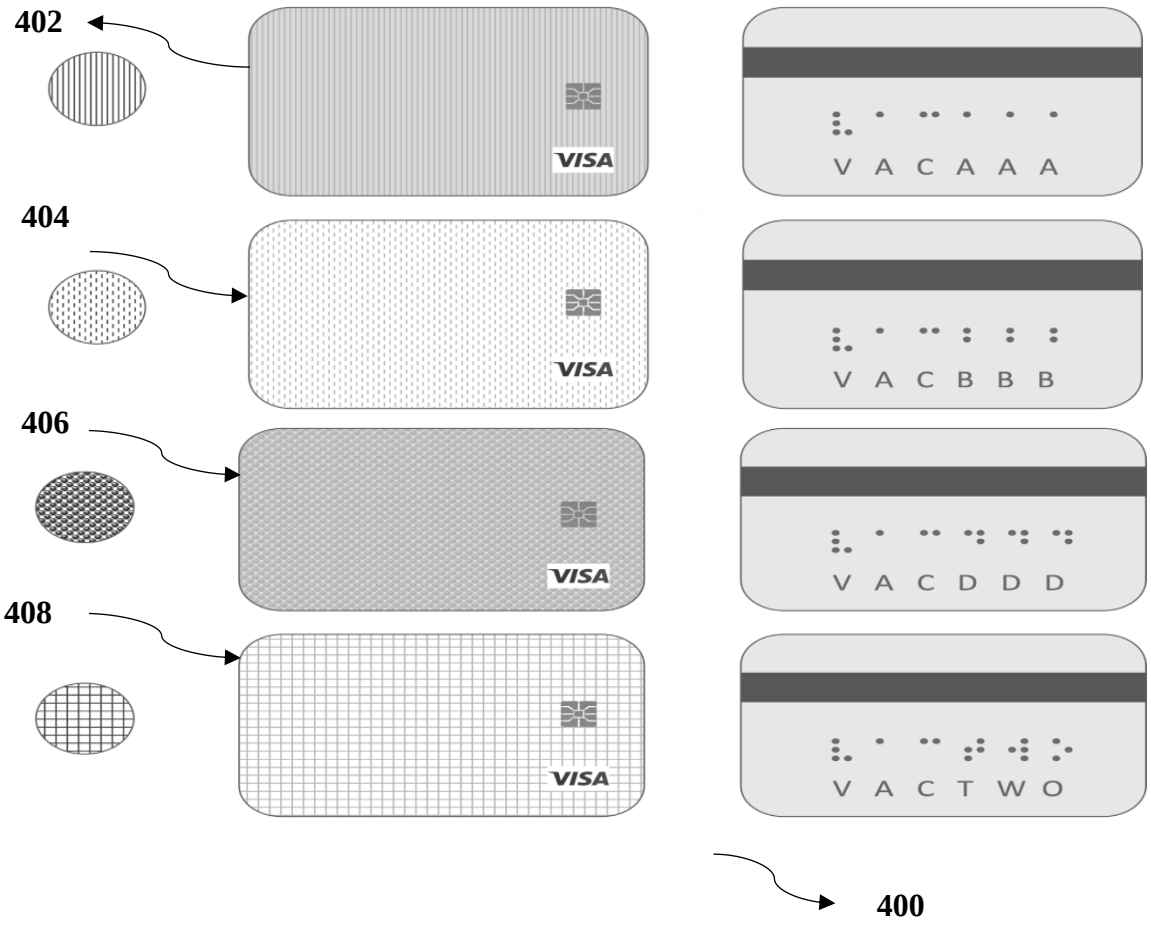

Figure 4