[0005] Accordingly, what is needed is a system and method for transmitting payment card information that seeks to address some of the above problems. Furthermore, other desirable features and characteristics will become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and this background of the disclosure.

Summary

[0005a] In an aspect, the present disclosure refers to a system configured to transmit payment card information, the system comprising: at least one processor; and at least one memory including computer program code; the at least one memory and the computer program code configured to, with the at least one processor, cause the system at least to: receive, from a capacitive touch sensor, input signals generated in response to conductive elements, disposed on a first face of a payment card, placed on the capacitive touch sensor, the conductive elements being configured to legibly represent: a name of a payment card account holder associated with the payment card; a payment card number associated with the payment card; and, an expiration date associated with the payment card, wherein the conductive elements are electronically connected to a conductive portion disposed on a second face of the payment card, and, wherein the input signals represent a variance in the electrical properties of the capacitive touch sensor with the conductive elements being placed on the capacitive touch sensor; obtain one or more pixel images based on the input signals; identify a character within the one or more pixel images; generate a character-orientation set using the identified character, the character-orientation set comprising one or more patterns corresponding to the identified character in one or more orientations; determine an orientation of the payment card that is placed on the capacitive touch sensor by matching a pattern in the character-orientation set with the identified character within the one or more pixel images; to determine if use of the payment card can be authenticated, compare the determined orientation with a reference orientation associated with the payment card, wherein the use of the payment card is authenticated with the determined orientation corresponding to the reference orientation, and wherein the use of the payment card is not authenticated with the determined orientation not corresponding to the reference orientation; in response to the use of the payment card not being authenticated, generate a failure message; in response to the payment card being authenticated, identify a plurality of characters within the one or more pixel images, and generate computer-readable payment card information using the plurality of identified characters and the one or more pixel images; and transmit the generated computer-readable payment card information to a payment

processor module.

[0005b] In another aspect, the present disclosure refers to a method for transmitting payment card information, the method comprising: receiving, from a capacitive touch sensor, input signals generated in response to conductive elements, disposed on a first face of a payment card, placed on the capacitive touch sensor, the conductive elements being configured to legibly represent: a name of a payment card account holder associated with the payment card; a payment card number associated with the payment card; and, an expiration date associated with the payment card, wherein the conductive elements are electronically connected to a conductive portion disposed on a second face of the payment card, and, wherein the input signals represent a variance in the electrical properties of the capacitive touch sensor with the conductive elements being placed on the capacitive touch sensor information present on the payment card; obtaining one or more pixel images based on the input signals; identifying a character within the one or more pixel images; generating a character-orientation set using the identified character, the character-orientation set comprising one or more patterns corresponding to the identified character in one or more orientations; determining an orientation of the payment card that is placed on the capacitive touch sensor by matching a pattern in the character-orientation set with the identified character within the one or more pixel images; to determine if use of the payment card can be authenticated, comparing the determined orientation with a reference orientation associated with the payment card, wherein the use of the payment card is authenticated with the determined orientation corresponding to the reference orientation, and wherein the use of the payment card is not authenticated with the determined orientation not corresponding to the reference orientation; in response to the use of the payment card not being authenticated, generating a failure message; in response to the use of the payment card being authenticated, identifying a plurality of characters within the one or more pixel images, and generating computer-readable payment card information using the plurality of identified characters and the one or more pixel images; and transmitting the generated computer-readable payment card information to a payment processor module.

[0006] A first example of the present disclosure provides a system configured to transmit payment card information, the system including, at least one processor, and at least one memory including computer program code, the at least one memory and the computer program code configured to, with the at least one processor, cause the system at least to receive, from a capacitive touch sensor, input signals generated in response to conductive elements of a payment card that is placed on the capacitive touch sensor, the conductive elements disposed on the payment card information present on the payment card, determine, using the input signals, an orientation of the payment card that is placed on the

capacitive touch sensor, compare the determined orientation with a reference orientation associated with the payment card, generate computer-readable payment card information based on the input signals on a condition that the determined orientation corresponds to the reference orientation, and transmit the computer-readable payment card information to a payment processor module.

[0007] A second example of the present disclosure provides a method for transmitting payment card information. The method includes receiving, from a capacitive touch sensor, input signals generated in response to conductive elements of a payment card that is placed on the capacitive touch sensor, the conductive elements disposed on the payment card information present on the payment card, determining, using the input signals, an orientation of the payment card that is placed on the capacitive touch sensor, comparing the determined orientation with a reference orientation associated with the payment card, generating computer-readable payment card information based on the input signals on a condition that the determined orientation corresponds to the reference orientation, and transmitting the computer-readable payment card information to a payment processor module.

[0008] A third example of the present disclosure provides a non-transitory computer readable medium having stored thereon an application which when executed by a computer causes the computer to perform steps including, receiving, from a capacitive touch sensor, input signals generated in response to conductive elements of a payment card that is placed on the capacitive touch sensor, the conductive elements disposed on the payment card information present on the payment card, determining, using the input signals, an orientation

of the payment card that is placed on the capacitive touch sensor, comparing the determined orientation with a reference orientation associated with the payment card, generating computer-readable payment card information based on the input signals on the condition that the determined orientation corresponds to the reference orientation, and transmitting the computer-readable payment card information to a payment processor module.

[0009] A fourth example of the present disclosure provides a payment card including conductive elements disposed on payment card information present on a first face of the payment card, wherein the conductive elements are electrically connected to a conductive portion disposed on a second face of the payment card.

[0010] A fifth example of the present disclosure provides a method of manufacturing a payment card, the method including, providing the payment card having a first face and a second face, the payment card comprising payment card information that is printed and/or embossed on the first face of the payment card, disposing conductive elements on the payment card information, disposing a conductive portion on the second face of the payment card, and electrically connecting the conductive elements disposed on the payment card information with the conductive portion disposed on the second face of the payment card.

Brief Description of Drawings

[0011] Embodiments of the invention will be better understood and readily apparent to one of ordinary skill in the art from the following written description, by way of example only, and in conjunction with the drawings, in which:

Fig.1

[0012] Fig. 1 shows front and back views of a payment card including conductive elements disposed thereon in accordance with embodiments of the invention.

Fig.2

[0013] Fig. 2 shows a flowchart illustrating a method of manufacturing a payment card in accordance with embodiments of the invention.

Fig.3

[0014] Fig. 3 shows a flowchart illustrating a method for transmitting payment card information in accordance with embodiments of the invention.

Fig.4

Claims

1. A system configured to transmit payment card information, the system comprising:

at least one processor; and

at least one memory including computer program code;

the at least one memory and the computer program code configured to, with the at least one processor, cause the system at least to:

receive, from a capacitive touch sensor, input signals generated in response to conductive elements, disposed on a first face of a payment card, placed on the capacitive touch sensor, the conductive elements being configured to legibly represent: a name of a payment card account holder associated with the payment card; a payment card number associated with the payment card; and, an expiration date associated with the payment card, wherein the conductive elements are electronically connected to a conductive portion disposed on a second face of the payment card, and, wherein the input signals represent a variance in the electrical properties of the capacitive touch sensor with the conductive elements being placed on the capacitive touch sensor;

obtain one or more pixel images based on the input signals;

identify a character within the one or more pixel images;

generate a character-orientation set using the identified character, the character-orientation set comprising one or more patterns corresponding to the identified character in one or more orientations;

determine an orientation of the payment card that is placed on the capacitive touch sensor by matching a pattern in the character-orientation set with the identified character within the one or more pixel images;

to determine if use of the payment card can be authenticated, compare the determined orientation with a reference orientation associated with the payment card, wherein the use of the payment card is authenticated with the determined orientation corresponding to the reference orientation, and wherein the use of the payment card is not authenticated with the determined orientation not corresponding to the reference orientation;

in response to the use of the payment card not being authenticated, generate a failure message;

in response to the payment card being authenticated, identify a plurality of characters within the one or more pixel images, and generate computer-readable payment card information using the plurality of identified characters and the one or more pixel images; and

transmit the generated computer-readable payment card information to a payment processor module.

2. The system of claim 1, wherein the determined orientation corresponds to the reference orientation on a condition that the determined orientation falls within a predetermined variability threshold associated with the reference orientation.

3. The system of claim 1, wherein the conductive elements further legibly represent a card security code associated with the payment card.

4. The system of claim 1, wherein the conductive elements are printed on the first face of the payment card.

5. The system of claim 1, wherein the conductive portion disposed on the second face of the payment card comprises a conductive element configured to legibly represent a card verification code associated with the payment card on the second face of the payment card.

6. A method for transmitting payment card information, the method comprising:

receiving, from a capacitive touch sensor, input signals generated in response to conductive elements, disposed on a first face of a payment card, placed on the capacitive touch sensor, the conductive elements being configured to legibly represent: a name of a payment card account holder associated with the payment card; a payment card number associated with the payment card; and, an expiration date associated with the payment card, wherein the conductive elements are electronically connected to a conductive portion disposed on a second face of the payment card, and, wherein the input signals represent a variance in the electrical properties of the capacitive touch sensor with the conductive elements being placed on the capacitive touch sensor information present on the payment card;

obtaining one or more pixel images based on the input signals;

identifying a character within the one or more pixel images;

generating a character-orientation set using the identified character, the character-orientation set comprising one or more patterns corresponding to the identified character in one or more orientations;

determining an orientation of the payment card that is placed on the capacitive touch sensor by matching a pattern in the character-orientation set with the identified character within the one or more pixel images;

to determine if use of the payment card can be authenticated, comparing the determined orientation with a reference orientation associated with the payment card, wherein the use of the payment card is authenticated with the determined orientation corresponding to the reference orientation, and wherein the use of the payment card is not authenticated with the determined orientation not corresponding to the reference orientation;

in response to the use of the payment card not being authenticated, generating a failure message;

in response to the use of the payment card being authenticated, identifying a plurality of characters within the one or more pixel images, and generating computer-readable payment card information using the plurality of identified characters and the one or more pixel images; and

transmitting the generated computer-readable payment card information to a payment processor module.

7. The method of claim 6, wherein the determined orientation corresponds to the reference orientation on a condition that the determined orientation falls within a predetermined variability threshold associated with the reference orientation.

8. The method of claim 6, wherein identifying the character and/or identifying the plurality of characters within the one or more pixel images comprises:

transmitting the one or more pixel images associated with the payment card information to a neural network; and

receiving the identified character and/or the plurality of identified characters within the one or more pixel images.

9. The system of claim 1, wherein the conductive elements are embossed on the first face of the payment card.