Accordingly, there is a need for a bridge technical solution to enable consumers to use their contactless payment devices (particularly consumer mobile devices that include payment circuitry) to securely conduct magnetic stripe card transactions that does not require significant changes to legacy systems, such as the magnetic stripe readers (and/or other communications interfaces) associated with merchant point-of-sale (POS) devices and issuer processing systems.

SUMMARY

According to one aspect, there is provided a method for emulating payment via a magnetic stripe payment card comprising: transmitting, by a mobile device processor of a cardholder's mobile device to a digital enablement service computer, information to activate a simulated magnetic stripe payment wallet application stored in a memory of the mobile device; receiving, by the mobile device processor from the digital enablement service, at least one cryptographic key; generating, by the mobile device processor, an unpredictable number (UN); generating, by the mobile device processor based on the UN, dynamic CVC3 data; assembling, by the mobile device processor, emulated magnetic stripe data comprising a placeholder cardholder name, a service code indicating a chip is unavailable on the payment card, the UN, and the dynamic CVC3 data for use in a purchase transaction; and transmitting, during a purchase transaction by the mobile device processor, the emulated magnetic stripe data to one of a magnetic stripe reader or a communications interface associated with a merchant device.

According to another aspect, there is provided a payment-enabled mobile device for emulating payment via a magnetic stripe payment card, comprising: a mobile device processor; a communications device operably connected to the mobile device processor; a storage device operably connected to the mobile device processor and storing a simulated magnetic stripe payment wallet application and storing instructions configured to cause the mobile device processor to: transmit information to a digital enablement service computer to activate the simulated magnetic stripe payment wallet application; receive at least one cryptographic key from the digital enablement service computer; generate an unpredictable number (UN); generate dynamic CVC3 data based on the UN; assemble emulated magnetic stripe data

comprising a placeholder cardholder name, a service code indicating a chip is unavailable on the payment card, the UN, and the dynamic CVC3 data for use in a purchase transaction; and transmit via the communications device, during a purchase transaction, the emulated magnetic stripe data to one of a magnetic stripe reader or a communications interface associated with a merchant device.

BRIEF DESCRIPTION OF THE DRAWINGS

Features and advantages of some embodiments of the present invention, and the manner in which the same are accomplished, will become more readily apparent upon consideration of the following detailed description of the invention taken in conjunction with the accompanying drawings, which illustrate preferred and exemplary embodiments and which are not necessarily drawn to scale, wherein:

FIG. 1 is a block diagram that illustrates a transaction processing system according to some embodiments of the disclosure;

FIG. 2 is a block diagram of an embodiment of a multifunctional mobile device having communications capabilities and configured to operate in accordance with aspects of some of the embodiments of the disclosure;

FIG. 3 is a block diagram illustrating data stored in a mobile device in accordance with some embodiments of the disclosure;

FIG. 4 is a block diagram of another of a contactless mobile device and payment card account registration and transaction processing system according to some embodiments of the disclosure; and

FIG. 5 is a flowchart illustrating a simulated magnetic stripe payment data process for use by a proximity payment device in accordance with some embodiments of the disclosure.

WHAT IS CLAIMED IS:

1. A method for emulating payment via a magnetic stripe payment card comprising:

transmitting, by a mobile device processor of a cardholder's mobile device to a digital enablement service computer, information to activate a simulated magnetic stripe payment wallet application stored in a memory of the mobile device;

receiving, by the mobile device processor from the digital enablement service, at least one cryptographic key;

generating, by the mobile device processor, an unpredictable number (UN);

generating, by the mobile device processor based on the UN, dynamic CVC3 data;

assembling, by the mobile device processor, emulated magnetic stripe data comprising a placeholder cardholder name, a service code indicating a chip is unavailable on the payment card, the UN, and the dynamic CVC3 data for use in a purchase transaction; and

transmitting, during a purchase transaction by the mobile device processor, the emulated magnetic stripe data to one of a magnetic stripe reader or a communications interface associated with a merchant device.

2. The method of claim 1, wherein the emulated magnetic stripe data is transmitted to a magnetic stripe reader via an inductive chip of the cardholder's mobile device.

3. The method of claim 1, wherein the emulated magnetic stripe data is transmitted to a magnetic stripe reader via a companion device comprising a magnetic stripe associated with the cardholder's mobile device.

4. The method of claim 1, wherein the communications interface comprises one of a microphone, a camera, a quick response (QR) reader, a radio frequency (RF) receiver, or an optical sensor.

5. The method of claim 1, wherein the UN comprises a time stamp.

6. The method of claim 1, further comprising, after receiving the at least one cryptographic key:

generating, by the mobile device processor, an application transaction counter (ATC); and

generating, by the mobile device processor, the dynamic CVC3 data based on the UN and on the ATC.

7. The method of claim 6, wherein the CVC3 data comprises at least one of the UN and the ATC.

8. The method of claim 1, further comprising, prior to transmitting information to activate a mobile wallet application:

transmitting, by the mobile device processor to the digital enablement service computer, enrollment data; and

receiving, by the mobile device processor from the digital enablement service, a token and single use key for use in simulated magnetic stripe payment account transactions.

9. The method of claim 8, wherein the enrollment data comprises the cardholder's primary account number (PAN), billing address and security information.

10. A payment-enabled mobile device for emulating payment via a magnetic stripe payment card, comprising:

a mobile device processor;

a communications device operably connected to the mobile device processor;

a storage device operably connected to the mobile device processor and storing a simulated magnetic stripe payment wallet application and storing instructions configured to cause the mobile device processor to:

transmit information to a digital enablement service computer to activate the simulated magnetic stripe payment wallet application;

receive at least one cryptographic key from the digital enablement service computer;

generate an unpredictable number (UN);

generate dynamic CVC3 data based on the UN;

assemble emulated magnetic stripe data comprising a placeholder cardholder name, a service code indicating a chip is unavailable on the payment card, the UN, and the dynamic CVC3 data for use in a purchase transaction; and

transmit via the communications device, during a purchase transaction, the emulated magnetic stripe data to one of a magnetic stripe reader or a communications interface associated with a merchant device.

11. The payment-enabled mobile device of claim 10, wherein the communication device of the payment enabled mobile device comprises at least one of an inductive chip, a companion device comprising a magnetic stripe, and a companion device comprising an inductive chip.

12. The payment-enabled mobile device of claim 10, wherein the communication device of the payment enabled mobile device comprises at least one of an NFC device, a Bluetooth module, and a WiFi device.

13. The payment-enabled mobile device of claim 10, further comprising a secure element operably connected to the mobile device processor, wherein the secure element stores the simulated magnetic stripe payment wallet application.

14. The payment-enabled mobile device of claim 10, wherein the storage device stores further instructions, prior to the instructions for transmitting information to activate a mobile wallet application, configured to cause the mobile device processor to:

transmit enrollment data to the digital enablement service computer; and

receive a token and single use key from the digital enablement service for use in simulated magnetic stripe payment account transactions.