For purposes of enhanced transaction security, payment-enabled mobile devices have been equipped with user verification functionality to control the user's access to the payment app. The user verification functionality, in some payment-enabled mobile devices, includes a fingerprint sensor. The user may be required to present his or her finger-tip to the sensor to verify himself/herself, to open the payment app, and to approve a payment transaction with a single gesture. In this way, for payment transactions, biometric-based security and a high degree of convenience may be combined in a payment-enabled mobile device.

In other types of payment-enabled mobile devices, the user may enter a PIN or password to verify himself/herself in order to gain access to the payment app for enabling a payment transaction.

Dedicated contactless IC cards or general-purpose contactless payment IC cards are also in use to allow the holders thereof to gain entrance to mass transit systems. In these applications, the dedicated or general purpose contactless card may very rapidly identify the holder to a transit system terminal that controls an entry gate for the transit system.

Payment-enabled mobile devices may also emulate contactless cards in permitting the user of the device to gain entrance to the transit system via radio communications between the payment app on the mobile device and the transit system terminal. However, it is desirable that the interaction between the card or mobile device—on the one hand—and the transit terminal on the other, should be quite rapid so as to allow a smooth flow of users through the entry gate. With at least some current examples of payment apps in mobile devices, the user verification required for accessing the payment app may result in delay and inconvenience in bringing about communication between the payment app and the transit terminal. Consequently, there may be a decrease in usability of at least some payment-enabled mobile devices for gaining entrance to mass transit systems.

SUMMARY

In an aspect, the present disclosure refers to a method of operating a payment-enabled mobile device, the method comprising: detecting, by the mobile device, that the mobile device is in proximity to a non-retail contactless transaction terminal; in response to

the detected proximity of the non-retail contactless transaction terminal, permitting operation of an application program in the mobile device to engage in a transaction with the non-retail contactless transaction terminal while bypassing a user verification feature of the application program, in response to a determination that the mobile device is not in proximity to the non-retail contactless transaction terminal, setting the application program in a normal mode of operations including requirements for the user verification feature, wherein the non-retail contactless transaction terminal is a transit system contactless transaction terminal, wherein the detecting step includes detecting polling signals emitted by the non-retail contactless transaction terminal, wherein the detected polling signals include standard EMV proximity coupling device (PCD) polling signals, and wherein the detecting step includes detecting two EMV type B PCD polling signals within a single polling cycle of the non-retail contactless transaction terminal.

In another aspect, the present disclosure refers to a method of operating a transaction terminal, the method comprising: initiating a polling cycle with an EMV Type A polling signal; immediately following the EMV Type A polling signal with a first Type B polling signal; and immediately following the first Type B polling signal with a second Type B polling signal.

In another aspect, the present disclosure refers to a payment-enabled mobile device, comprising: a processor; and a memory in communication with the processor, the memory storing program instructions, the processor operative with the program instructions to perform functions as follows: detecting that the mobile device is in proximity to a non-retail contactless transaction terminal; in response to the detected proximity of the non-retail contactless transaction terminal, permitting operation of an application program in the mobile device to engage in a transaction with the non-retail contactless transaction terminal while bypassing a user verification feature of the application program, in response to a determination that the mobile device is not in proximity to the non-retail contactless transaction terminal, setting the application program in a normal mode of operations including requirements for the user verification feature, wherein the non-retail contactless transaction terminal is a transit system contactless transaction terminal, wherein the detecting step includes detecting polling signals emitted by the non-retail contactless transaction terminal, wherein the detected polling signals include standard EMV proximity coupling device (PCD) polling signals, and wherein the detecting step includes detecting two Type B

PCD polling signals within a single polling cycle of the non-retail contactless transaction terminal.

BRIEF DESCRIPTION OF THE DRAWINGS

Features and advantages of some embodiments of the present disclosure, 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

CLAIMS

1. A method of operating a payment-enabled mobile device, the method comprising:

detecting, by the mobile device, that the mobile device is in proximity to a non-retail contactless transaction terminal;

in response to the detected proximity of the non-retail contactless transaction terminal, permitting operation of an application program in the mobile device to engage in a transaction with the non-retail contactless transaction terminal while bypassing a user verification feature of the application program,

in response to a determination that the mobile device is not in proximity to the non-retail contactless transaction terminal, setting the application program in a normal mode of operations including requirements for the user verification feature,

wherein the non-retail contactless transaction terminal is a transit system contactless transaction terminal,

wherein the detecting step includes detecting polling signals emitted by the non-retail contactless transaction terminal,

wherein the detected polling signals include standard EMV proximity coupling device (PCD) polling signals, and

wherein the detecting step includes detecting two EMV type B PCD polling signals within a single polling cycle of the non-retail contactless transaction terminal.

2. The method of claim 1, wherein one of the Type B polling signals has an AFI (Application Family Identifier) value that is not "00" and another of the Type B polling signals is an EMV Type B polling signal which has an AFI value of "00".

3. The method of claim 2, wherein the Type B polling signal having the AFI value that is not "00" immediately precedes the EMV Type B polling signal having the AFI value "00" in a polling cycle of the non-retail contactless transaction terminal.

4. The method of claim 1, wherein the transaction results in a user of the payment-enabled mobile device being admitted into a transit system that operates the transit system contactless transaction terminal.

5. The method of claim 4, wherein admission of the user into the transit system occurs via interaction between the transit system contactless transaction terminal and an entrance gate of the transit system.

6. The method of claim 1, wherein the bypassed user verification feature is a fingerprint verification feature.

7. The method of claim 1, wherein the bypassed user verification feature includes entry and verification of a PIN (personal identification number).

8. The method of claim 1, wherein the detecting step includes detecting polling signals emitted by the non-retail contactless transaction terminal.

9. A method of operating a transaction terminal, the method comprising:

initiating a polling cycle with an EMV Type A polling signal;

immediately following the EMV Type A polling signal with a first Type B polling signal; and

immediately following the first Type B polling signal with a second Type B polling signal.

10. The method of claim 9, wherein the second Type B polling signal is different from the first Type B polling signal.

11. The method of claim 10, wherein the first Type B polling signal includes a first AFI (Application Family Indicator) value and the second Type B polling signal includes a second AFI value different from the first AFI value.

12. The method of claim 11, wherein the first AFI value is not "00" and the second AFI value is "00".

13. A payment-enabled mobile device, comprising:

a processor; and

a memory in communication with the processor, the memory storing program instructions, the processor operative with the program instructions to perform functions as follows:

detecting that the mobile device is in proximity to a non-retail contactless transaction terminal;

in response to the detected proximity of the non-retail contactless transaction terminal, permitting operation of an application program in the mobile device to engage in a transaction with the non-retail contactless transaction terminal while bypassing a user verification feature of the application program,

in response to a determination that the mobile device is not in proximity to the non-retail contactless transaction terminal, setting the application program in a normal mode of operations including requirements for the user verification feature,

wherein the non-retail contactless transaction terminal is a transit system contactless transaction terminal,

wherein the detecting step includes detecting polling signals emitted by the non-retail contactless transaction terminal,

wherein the detected polling signals include standard EMV proximity coupling device (PCD) polling signals, and

wherein the detecting step includes detecting two Type B PCD polling signals within a single polling cycle of the non-retail contactless transaction terminal.

14. The apparatus of claim 13, wherein the detecting step includes detecting polling signals emitted by the non-retail contactless transaction terminal.