[003] Rather than pay such a steep cost, some merchants of unattended devices have enabled consumers to make credit card payments using an application on the user's phone. Users first must download a payment application (app), typically provided by the merchant, create an account, and then provide payment account information that the app stores. Once the app has stored the payment account information, the user uses the app to begin a service with one of the devices (e.g., a scooter), and the transaction is authorized through the payment app. This process requires some technological understanding by the users, and in addition, not all consumers like to have their payment account information stored with various merchants. For example, consumers may have multiple cards from different issuers and the cards may be used anywhere the cards are accepted. In the case where a user has a banking or wallet app on their phone, there is no extra step that the user has to take, such as installing a new application, registering themselves and inputting account information. In other words, pay by phone schemes create friction on the user experience. To increase payment card adoption, particularly contactless card adoption, card processors and issuer banks would prefer simple card solutions where a user can visit any merchant that accepts the card and complete a payment transaction by taking only one action – presenting the card to a card reader.

[004] Accordingly, it is desirable to provide a low cost method and system for enabling an unattended device to accept card present transactions.

BRIEF SUMMARY

[005] The disclosed embodiments provide methods and systems for enabling an unattended device to accept contactless payment. Aspects of disclosed embodiments

CLAIMS

We Claim:

1. A computer-implemented method of enabling an unattended device to accept card present transactions, comprising:

establishing, by the unattended device, short-range wireless communication with a mobile device of a cardholder, wherein the mobile device executes an application, and the unattended device is equipped with a card reader and a short-range wireless interface;

receiving, by the unattended device over the short-range wireless communication, a transaction amount from the application for a transaction between the cardholder and the unattended device, the application determining the transaction amount through one of: a table lookup, a calculation, or via communication with a server using a network link of the mobile device;

reading, by the card reader on the unattended device, account information from a payment card of the cardholder presented to the card reader;

encrypting, by the unattended device, the account information and the transaction amount to generate encrypted transaction data;

transmitting, by the unattended device, the encrypted transaction data to the application on the mobile device using the short-range wireless communication;

forwarding, by the application, the encrypted transaction data to a payment processing network using a network link of the mobile device;

receiving, by the application, an authorization response from the payment processing network, and forwarding the authorization response to the unattended device via the short range wireless communications; and

receiving, by the unattended device, the authorization response.

2. The computer-implemented method of claim 1, wherein receiving the authorization response further comprises: receiving, by the unattended device, additional instructions.

3. The computer-implemented method of claim 1, further comprising: responsive to the authorization response indicating that the transaction is approved, delivering, enabling, or allowing access to, by the unattended device, a good or a service purchased by the cardholder.

4. The computer-implemented method of claim 1, wherein receiving, by the unattended device, the transaction amount further comprises: determining the transaction amount by performing a table lookup.

5. The computer-implemented method of claim 1, wherein receiving, by the unattended device, the transaction amount further comprises: calculating the transaction amount.

6. The computer-implemented method of claim 1, further comprising implementing the card reader as a contactless card reader and the payment card as a contactless payment card.

7. The computer-implemented method of claim 1, wherein encrypting, by the unattended device, the account information and the transaction amount to generate the encrypted transaction data further comprises: encrypting the account information and the transaction amount by a kernel using secret keys stored in a key repository.

8. A non-transitory computer readable medium having stored thereon software instructions that, when executed by a processor of a mobile device of a cardholder,

cause the processor to enable an unattended device to accept a card present transaction, by executing the steps comprising:

discovering a card reader of the unattended device, and connecting to a wireless interface of the card reader via a short-range range wireless communication protocol;

displaying on the mobile device a prompt to the cardholder to present a payment card to the card reader;

responsive to the cardholder presenting a payment card to the card reader, receiving from the unattended device encrypted transaction data, including account information from the payment card;

transmitting the encrypted transaction data to a payment processing network using a network link of the mobile device; and

responsive to receiving an authorization response from payment processing network, displaying at least a portion of the authorization response on the mobile device and forwarding the authorization response to the card reader along with any necessary codes so that the unattended device delivers, enables, or allows access to, a good or a service purchased by the cardholder.

9. The non-transitory computer readable medium of claim 8, further comprising: obtaining a transaction amount from the unattended device.

10. The non-transitory computer readable medium of claim 8, further comprising: obtaining a transaction amount by calculating the transaction amount or a table lookup.

11. The non-transitory computer readable medium of claim 8, further comprising: obtaining a transaction amount from a server over the network link of the mobile device.

12. The non-transitory computer readable medium of claim 8, wherein the card reader comprises a contactless card reader and the payment card comprises a contactless payment card.

13. The non-transitory computer readable medium of claim 8, further comprising: displaying on a user interface of the mobile device a prompt showing a transaction amount.

14. The non-transitory computer readable medium of claim 13, wherein displaying the prompt to the cardholder to present the payment card to the card reader further comprises: displaying the prompt with an instruction to the cardholder to present the payment card to the card reader where a contactless card symbol is displayed.

15. An unattended device, comprising:

a short-range wireless interface;

a contactless card reader; and

a kernel executed by the contactless card reader, the kernel configured to:

establish, by the short-range wireless interface, short-range wireless communication with a wallet application executing on a mobile device of a cardholder;

receive a transaction amount over the short-range wireless communication from the application for a transaction between the cardholder and the unattended device, the wallet application determining the transaction

amount through one of: a table lookup, a calculation, or via communication with a server using a network link of the mobile device;

read, by the contactless card reader, account information from a contactless payment card of the cardholder;

encrypt, using a secret key, the account information and the transaction amount to generate encrypted transaction data;

transmit, by the wireless interface, the encrypted transaction data to the wallet application on the mobile device using the short-range wireless communication, wherein the wallet application: i) forwards the encrypted transaction data to a payment processing network using a network link of the mobile device, i) receives an authorization response from the payment processing network, and iii) forwards the authorization response to the unattended device via the short range wireless communications of the mobile device;

receive, using the short-range wireless communication, the authorization response forwarded by the wallet application from the payment processing network; and

responsive to the authorization response indicating that the transaction is approved, causing the unattended device to deliver, enable, or allow access to, a good or a service purchased by the cardholder.

16. The unattended device of claim 15, wherein responsive to the authorization response, the kernel receives additional merchant instructions.

17. The unattended device of claim 15, wherein the unattended device receives the transaction amount by performing a table lookup.

18. The unattended device of claim 15, wherein the unattended device receives the transaction amount by calculating the transaction amount.