

CLAIMS

What is claimed is:

1. A method, comprising:
 - providing, in response to receiving, via a smart digital device, a voice request for a purchase of a requested item, a list of items available for purchase that substantially match the requested item to an output device of the smart digital device, wherein the output device of the smart digital device is at least one of a display or a speaker;
 - outputting, via the output device, the list of items available for purchase;
 - receiving a selection of an item to purchase from the list of items available for purchase;
 - receiving encrypted data from a payment card via a near-field communication interface of the smart digital device, wherein:
 - the encrypted data is generated by a cryptographic algorithm that uses an encryption key, and
 - the encryption key is generated based on a master key and a counter value stored in a memory of the payment card;
 - forward the encrypted data in a request to an application server, wherein the request includes a request to confirm the encrypted data is associated with a payment card authorized to purchase the selected item to purchase;
 - receiving confirmation of a purchase transaction related to the selected item is authorized; and
 - outputting an indication of receipt of the purchase transaction confirmation to the output device.
2. The method of claim 1, further comprising:
 - receive the list of identified items available for purchase to the smart digital device for output to the output device of the smart digital device.

3. The method of claim 1, further comprising:
 - receiving from the payment card a payment card identifier related to an issuer of the payment card and to an account associated with the payment card;
 - forwarding, from the smart digital device, the payment card identifier to an authentication server for authentication; and
 - in response to forwarding the payment card identifier, receiving an authentication result from the authentication server.
4. The method of claim 1, further comprising:
 - prompting a user to insert the payment card into the near-field communication electrical field associated with the smart digital device.
5. The method of claim 1, further comprising:
 - accessing a smart digital device account associated with the smart digital device to retrieve an authorized payment method associated with the smart digital device account; and
 - in response to the payment card being inserted in the near-field communication electrical field associated with the smart digital device, determine whether the payment card is the authorized payment method associated with the smart digital device account.
6. The method of claim 1, wherein the selection of the item to purchase is received via at least one of: an input to a touchscreen display, an input button, or a voice command.
7. A method, comprising:
 - receiving a request for an item for purchase is received from a smart digital device;
 - generating a query to locate the item for purchase at a plurality of merchant websites;
 - sending the query to the plurality of merchant websites;

receiving, in response to the query, a merchant response from each merchant website, wherein each respective merchant website responds with a merchant response that includes a price of the item for purchase offered for sale by the respective merchant website;

consolidating merchant responses in a consolidated list of items for purchase;

sending the consolidated list of items to the smart digital device;

receiving a confirmation request from the smart digital device, wherein the confirmation request includes an item for purchase selected from the consolidated list and an authentication indication including encrypted data generated by a payment card based on a cryptographic algorithm and an encryption key, the encryption key generated based on a master key and a counter value stored in a memory of the payment card; and

upon successful confirmation of the payment card, completing a purchase transaction with the respective merchant for the item for purchase selected from the consolidated list.

8. The method of claim 7, wherein the authentication indication includes a payment card identifier, and is an indication that the payment card identifier was obtained in response to the payment card being inserted in a near-field communication electrical field associated with the smart digital device.

9. The method of claim 7, further comprising:

determining whether the payment card identifier is associated with a valid payment card and an authorized payment method associated with a user's smart digital device account.

10. The method of claim 7, further comprising:

extracting the authentication indication from the confirmation request;
forwarding the authentication indication extracted from the confirmation request to an authentication server; and

receiving from the authentication server an authorization indication that the payment card identifier is authorized to complete the purchase transaction.

11. A system, comprising:

a payment card comprising a logic circuit, a payment card near-field communication device, and a payment card memory device, wherein the payment card memory device stores a payment card identifier, a master key and a counter value; and

a purchase application stored on and executable by a smart digital device, wherein the purchase application includes programming code that when executed provides a user interface,

wherein the purchase application, upon execution, is operable to perform further functions, including functions to:

receive an item purchase request including an item available to purchase;

send the received item purchase request for confirmation;

receive a list of merchants offering the item available for purchase;

present the list of merchants in a user interface;

receive, via the user interface, a selection of at least one merchant in the list of merchants selling the item available for purchase;

present via the user interface a prompt requesting insertion of the payment card into a vicinity of a near-field communication device interface of the smart digital device;

receive a payment card signal containing encrypted data generated by the payment card using a cryptographic algorithm and an encryption key, wherein the encrypted data includes the payment card identifier and the encryption key is generated based on the master key and the counter value stored in the payment card memory device;

send a confirmation request for authentication, wherein the confirmation request includes a payment card identifier;

receive, in response to an authentication, a purchase transaction confirmation authorizing a purchase transaction; and
output, via the user interface, an indication of receipt of the purchase transaction confirmation.

12. The system of claim 11, wherein the list of merchants includes a merchant name and a price for the item available for purchase from the named merchant.
13. The system of claim 11, wherein the counter value is incremented each time the payment card is used in a transaction.
14. The system of claim 11, further comprising an application server communicatively coupled to the purchase application, wherein the application server is operable to perform functions, including functions to:
 - in response to receipt of the item purchase request from the smart digital device via the data network, generate a query to locate the item for purchase at a plurality of merchant servers;
 - send the query to the plurality of merchant servers;
 - receive, in response to the query, a merchant response to the query from a respective merchant server of the plurality of merchant servers, wherein each respective merchant website responds with a merchant response and each merchant response includes an item identifier and a price of the item for purchase offered for sale by the respective merchant server;
 - consolidate each merchant response in a consolidated list of merchants for purchase according to the payment card identifier; and
 - send the consolidated list to the smart digital device.
15. The system of claim 14, further comprising an authentication server communicatively coupled to the application server and the purchase application, wherein the application server when sending the conformation request to the authentication server is operable to:

extract the payment card identifier from the confirmation request;
forward the payment card identifier extracted from the confirmation request to the authentication server; and
receive from the authentication server the purchase transaction confirmation that the payment card is authorized to complete the purchase transaction.

16. The system of claim 14, wherein the application server is operable to perform additional functions, including functions to:

receive the confirmation request from the purchase application, wherein the confirmation request includes an item for purchase selected from the consolidated list of merchants and an authentication indication to confirm the payment card is linked with the item purchase request; and

upon successful confirmation of the payment card, completing a purchase transaction with a respective merchant for the item for purchase selected from the consolidated list of merchants.

17. The system of claim 11, wherein the payment card is operable to perform functions, including functions to:

detect an electric field output by a near-field communication device of the smart digital device;

retrieve the payment card identifier from the payment card memory device;

encrypt the payment card identifier;

generate by the logic circuit the payment card signal including the encrypted payment card identifier; and

respond to a detected electric field by emitting, via the payment card near-field communication device, the payment card signal.

18. The system of claim 11, further comprising:

an application server; and

a temporary data storage coupled to the application server,
wherein the application server is further operable to perform additional
functions, including functions to:

- aggregate the item purchase request with other item purchase
requests in a group of item purchase requests;
- store the group of item purchase requests in the temporary data
storage;
- receive a confirmation request to complete a purchase transaction
for at least one item purchase request in the group of item purchase
requests; and
- forward a list of all items in the group of item purchase requests to
the smart digital device.

19. The system of claim 18, wherein the purchase application is further operable to
perform additional functions, including functions to:

- in response to receiving the list of all items in the group of item purchase
requests, present the list of all items in the user interface provided by the purchase
application;
- in response to a selection of one or more items in the list, generate a
prompt to introduce the payment card into an electric field of a near-field
communication device of the smart digital device, wherein the prompt is output
on an output device of the smart device;
- receive via the near-field communication device of the smart device an
encrypted payment card identifier; and
- using the encrypted payment card identifier, request authorization to
complete the purchase transaction for the selected one or more items in the list.

20. The system of claim 11, wherein a near-field communication device of the smart
digital device connects to the smart digital device using a wired or wireless connection.