SYSTEM AND METHOD TO PROCESS TRANSACTIONS AT RETAIL FUELING FACILITIES

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of priority to U.S. Provisional Patent Application Serial No. 61/674,009, filed on July 20, 2012 and entitled "Mobile Payment System for Distributed Applications." This application also claims the benefit of priority to U.S. Patent Application Serial No. 13/853,387, filed on March 29, 2013 and entitled "System and Method to Process Transactions at Retail Fueling Stations Using a Mobile Device," which claims the benefit of priority to U.S. Provisional Patent Application Serial No. 61/711,093, filed on October 8, 2012 and entitled "Method and Process for Selling Items and/or Services at a Dispenser Using a Mobile Device Application." The content of these applications is incorporated by reference in its entirety herein.

BACKGROUND

[0002] The subject matter disclosed herein relates to processing of transactions and, in certain embodiments, to transactions at retail fueling facilities that occur via electronic commerce and/or via electronic systems configured to settle transactions.

[0003] Fueling facilities offer various products to end users and complete transactions at automated or semi-automated fuel dispensers. Conventional fuel dispensers can receive payment information (e.g., a swiped debit card) and dispense fuel. These fuel dispensers communicate with a point-of-sale (POS) system to process credit-card transactions by preauthorizing the card before fueling and charging the appropriate amount to the card after fueling. The fuel dispensers can also prompt the user to purchase other products, e.g., a car wash. Any additional purchases or special offers are included in the final amount charged to the card. To complete the transaction, the payment terminal in the fuel dispenser can send this final amount to the POS, which communicates with a payment network to process and complete the transaction.

[0004] An increasing number of payment options are available, such as mobile-telephone payment systems (sometimes called "electronic wallets"). Examples of such systems are those based on the EMV standard, e.g., PAYPASS® by MASTERCARD®. However, these systems generally deal with purchase transactions for a fixed amount. Therefore, even if a mobile device is used for payment, the end user must still interact with the payment terminal on the dispenser for any function other than charging the final amount.

BRIEF SUMMARY OF THE INVENTION

[0005] The discussion below describes embodiments of a component (also, "a transaction gateway" and "transaction gateway component") that integrates with a transaction system to facilitate transactions (e.g., purchases) that occur at retail fueling facilities. These embodiments address a gap that exists between the transaction system and electronic commerce systems (often recognized as "digital wallet" and "e-wallet" systems). This gap can prevent use of electronic commerce technology to complete transactions to purchase fuel, products, and services during a visit to the retail fueling facility. As set forth more below, embodiments of the transaction gateway provide the infrastructure necessary to allow the transaction system and the e-commerce system to exchange data. This exchange facilitates the financial transaction that is necessary for the end user to initiate and pay for products and services using the e-wallet technology, often through software (or "application") for use on a mobile device.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Reference is now made briefly to the accompanying figures, in which:

[0007] FIG. 1 depicts a schematic diagram of an exemplary embodiment of a transaction system for use to complete transactions at a retail fueling facilities;

[0008] FIG. 2 depicts one exemplary configuration of payment components for the transaction system of FIG. 1;

[0009] FIG. 3 depicts a flow diagram of an exemplary embodiment of a method to facilitate transaction using e-commerce systems and technology; and

[0010] FIG. 4 depicts a schematic diagram of an exemplary embodiment of a transaction system for use to complete transactions at a retail fueling facility.

[0011] Where applicable, like reference characters designate identical or corresponding components and units throughout the several views, which are not to scale unless otherwise indicated.

DETAILED DISCUSSION

[0012] FIG. 1 illustrates a schematic diagram of an exemplary embodiment of a transaction-processing system 100 (also "transaction system 100") that can process transactions, for example, that occur at retail fueling facilities. The system 100 has a forecourt system 102 and a remote system 104 that communicate with one another via a network system 106. This discussion contemplates examples of the network system 106 that use various communication protocols, e.g., wired and wireless protocols. The forecourt system 102 includes various components including, in one embodiment, a dispenser 108, a forecourt controller component 110, and a point-of-sale (POS) component 112. Together, these components operate to allow an end user to purchase fuel from the dispenser 108, as well as other products and services, (collectively, "forecourt offerings"), via interaction with the dispenser 108 and/or a retail element (e.g., a store, a kiosk, etc.) found at the retail fueling facility. In one implementation, the end user may utilize a terminal 114 that can execute a transaction application 116. Examples of the terminal 114 can include a variety of portable computing devices (e.g., computers, cellular phones, smartphones, tablets, personal digital assistants, laptops, etc.). These computing devices can execute programs for the transaction application 116 that offer the end user options to complete transactions for the forecourt offerings via alternative payment processes (e.g., mobile and e-wallet applications; collectively "e-payment applications") that fall, for example, outside of the conventional POS component 112.

[0013] The remote system 104 provides the infrastructure necessary for the end user to utilize the e-payment applications to complete transactions at the retail fueling facility. As shown in FIG. 1, the remote system 104 can include a payment processing component 118 and one or more one or more remote servers (e.g., remote server 120). The remote system 104 also has a transaction gateway component 122 with access to a memory 124 and a processor 126, both of which can perform functions useful for processing transactions that occur at the retail fueling facility.

[0014] As discussed more herein, use of the transaction gateway component 122 makes the e-payment applications available for the end user to pay for the forecourt offerings via the terminal 114. This feature allows an end user to complete transactions (e.g., to dispense fuel) at the retail fueling facility without the need to utilize traditional payment methodologies, e.g., credit cards. Use of the transaction gateway component 122 can, in one example, complete the transaction without the need for the end user to interact with the dispenser 108, other than to dispense fuel. For retail fueling facilities that employ attends and/or other systems (e.g., robotic systems) to dispense fuel, the transaction gateway component 122 allows the end user to complete transaction effectively without any interaction with the dispenser 108.

[0015] The embodiments that this disclosure contemplates facilitate mobile transactions via the terminal 114, which the end user is likely to have on their person at the retail fueling facility. More broadly, however, these embodiments can leverage the technology of terminal 114 to simplify the fueling transaction, as well as to expand the transaction to include a breadth of forecourt offerings that are available for purchase to the end user at the dispenser 108 and/or generally at the retail fueling facility. As contemplated herein, examples of the forecourt offerings can include fuel, products (e.g., food products, drink products, and consumer goods like magazines, clothing, and other apparel), and services (e.g., car washes).

[0016] One or more functions of the transaction gateway component 122 can facilitate one or more of these benefits to streamline transactions across the transaction

system 100. For example, the transaction gateway component 122 can operate as a liaison between the components at the retail fueling facility and the infrastructure necessary to provide the e-payment applications. This function can remove and/or circumvent the barriers (e.g., firewalls, networking protocols, data protocols, etc.) that often prevent appropriate communications between components of the forecourt system and the typically cloud-based e-payment applications. This communication can be essential to engage and/or to cause the dispenser 108 to operate to dispense fuel, e.g., in response to interaction by the end user with the transaction application 116. Implementing the transaction gateway component 122, for example, can exchange data with the e-payment applications to instruct the forecourt controller component 110 to activate the dispenser 108. The transaction gateway component 122 can also communicate with the e-payment application to complete the transaction and, thus, allow the e-payment application to tender payment on behalf of the end user, e.g., for fuel the end user dispenses at the dispenser 108.

[0017] FIG. 2 depicts one configuration of the payment processing component 118 with components that represent infrastructure for various e-payment applications. The transaction gateway component 122 can communicate with this infrastructure to complete a transaction. The payment processing component 118 has one or more payment components (e.g., a first payment component 130, a second payment component 132, and a third payment component 134). At a relatively high level, examples of the payment components 130, 132, 134 can include any one of the various systems and networks that relate to e-commerce transactions. For purposes of discussion, these systems may, for example, incorporate infrastructure that represent entities that provide banking, merchant, and digital wallet (also, "e-wallet") services. These types of entities may be one in the same, e.g., the banking and/or merchant may provide e-wallet services. In other implementations, the e-wallet services reflect stand-alone entities that can tender and/or cause the exchange of monetary consideration to the retail fueling facility on behalf of the end user.

[0018] FIGS. 3 and 4 are useful to describe the interactions that can occur among the a transaction gateway component and the components of a forecourt system and the remote system. These interactions complete the transaction at the retail fueling facility utilizing one or more of the e-payment applications. FIG. 3 depicts a flow diagram of an exemplary method 200 for integrating the processes of payment components and the processes of the forecourt components that can occur, e.g., to dispense fuel. FIG. 4 provides a schematic diagram of an exemplary embodiment of a transaction system 300.

[0019] In FIG. 3, the method 200 includes, at step 202, receiving a first input with data that relates to a fueling point identifier and, at step 204, generating a first output with data that relates to site information that identifies the retail fueling facility in accordance with the fueling point identifier. The method 200 also includes, at step 206, receiving a second input with data to initiate the transaction, at step 208, generating a second output with data to enable operation of a pump at the retail fueling facility and, at step 210, receiving a third input with data to complete the transaction. The method 200 further include, at step 212, generating a third output with data that reflects the transaction is complete.

[0020] Collectively, one or more of the steps of the method 200 can be coded as one or more executable instructions (e.g., hardware, firmware, software, software programs, etc.). These executable instructions can be part of a computer-implemented method and/or program, which can be executed by a processor and/or processing device. The processor may be part of the transaction gateway component, which is adapted to execute these executable instructions, as well as to process inputs and to generate outputs, as set forth herein.

[0021] The diagram of FIG. 4 shows an exemplary configuration for components of the transaction system 300 to execute a transaction. These components may, for example, generate signals (e.g., digital signals and analog signals) that transit via a network (e.g., network system 106 of FIG. 1). The signals can carry (and/or represent) data in the form of packets and similar configurations that allow for rapid exchange of information

consistent with e-commerce applications and related technology. In FIG. 4, the system 300 can exchange one or more inputs (e.g., a first input 336, a second input 338, and a third input 340) and one or more outputs (e.g., a first output 342, a second output 344, and a third output 346).

[0022] The step of receiving the first input (e.g., at step 202) can initiate the start of the transaction. As shown in FIG. 4, the first input 336 may arise from one of the payment components 330, 332, 334 in response to an initiation signal 348 from the transaction application 316 on the terminal 314. As noted above, the payment components 330, 332, 334 can include entities that provide e-wallet and digital wallet services. The end user may have an account with these entities. This account may include financial information from the end user that is sufficient to settle financial transactions. In context of retail fueling facilities, the end user may wish to leverage this account to make purchases at the retail fueling facility. Examples of the initiation signal 348 may indicate that the end user is ready to purchase fuel (and/or other forecourt offerings) at the retail fueling facility. In one example, the initiation signal 348 corresponds to entry of the fueling point identifier into the transaction application 316, e.g., by the end user using the terminal 314 to type in an alphanumeric code and/or to capture a bar code (and like symbol). The fueling point identifier can include data and information that identifies the retail fueling facility and, in one example, distinguishes the retail fueling facility of the present transaction from other retail fueling facilities. In one embodiment, the method 200 can include one or more steps that instruct the transaction gateway component 322 to poll the retail fueling facility, which in turn allows the transaction gateway component 322 to gather additional site specific data and information about the retail fueling facility.

[0023] The step of generating the first output (e.g., at step 204) can utilize the site specific information to instruct the payment component 330, 332, 334 to initiate the transaction. This step can allow for the exchange of payment between the payment component 330, 332, 334 (and/or related infrastructure of the remote system 304) to

complete the purchase by the end user. In FIG. 4, the first output 342 can provide site data 350 to the payment component 330, 332, 334. Examples of site data 350 may incorporate information about the geographic location of the retail fueling facility, as well as information about the products, services, and other aspects of the retail fueling facility. In one implementation, the payment component 330, 332, 334 can create a transaction request 352 with transaction data 354. Examples of transaction data 354 can include various pieces of general information 356 (including customer information 358, location information 360, attributes 362) and transaction specific information 364 (including transaction start time 366, product selection 368, transaction total 370, and transaction end time 372).

[0024] Embodiments of the system 300 may also tailor the information 356, 364 to suit the needs, e.g., of the forecourt system 302 and/or remote system 304. The method 200 may include, for example, one or more steps for conveying a pre-authorization amount that can be used to determine the extent of the purchase. These steps may further include information that includes price per gallon (PPG) of fuel dispensed, a fueling point number, various volume measurement for the fuel dispensed, error and failure mode indicators/strings, and like information that may be useful to complete the transaction and/or to collect for storage by one or more components of the transaction system 300. This additional information may include data about the transaction; this information can include the date/time of the purchase, type of fuel purchased (e.g., supreme, unleaded, etc.), and various totalizer data (e.g., total gallons purchased for a specific date range, total gallons purchased broken down by fuel type). For transactions that include and/or incorporate other forecourt offerings, the additional information can include data (also called "pass-through data") that defines the parameters of the forecourt offerings, e.g., to complete the transaction.

[0025] The steps of receiving the second input (e.g., at step 206) and generating the second output (e.g., at step 208) can enable operation of the dispenser 308 for use by the end user. As shown in FIG. 4, the second input 338 can exchange the transaction request

352 and/or the transaction data 354 between the payment component 330, 332, 334 and the transaction gateway component 322. In response to the second input 338, the transaction component 322 can transmit the second output 344 to the forecourt system 302. This second output 344 can include the transaction request 350 and/or the transaction data 354, which the forecourt system 302 can use to enable the dispenser 308 to dispense fuel and to monitor operation of the dispenser 308 to gather information, e.g., to calculate the cost of the purchase by the end user.

[0026] The step of receiving the third input (e.g., at step 210) can occur upon completion of the purchase. In FIG. 4, the forecourt system 302 transmits the third input 340 to the transaction gateway component 322. Examples of the third input 340 can include the transaction request 352 and/or the transaction data 354. In one example, the forecourt system 302 can update the transaction data 354 to reflect changes, e.g., in one or more of the transaction start time 366, product selection 368, transaction total 370, and transaction end time 372. These changes can indicate the various details of the purchase to allow for appropriate charges and payment to be made to the retail fueling facility.

[0027] The step of generating the third output (e.g., at step 212) can finalize the transaction. FIG. 4 shows that, in one example, the transaction gateway component 322 exchanges the third output 346 with the payment component 330, 332, 334. This exchange can transmit the updated transaction data 354, which the payment component 330, 332, 334 can process to settle payment for the purchase on behalf of the end user.

[0028] Embodiments of methods (e.g., method 200) can further comprise other steps that can bring the transaction to completion. In one example, these embodiments may include steps for generating transaction data that instructs the forecourt controller to enable the fuel dispenser, receiving transaction data from the forecourt controller that defines parameters for a purchase of fuel from the dispenser, and generating transaction data to instruct a payment processing component to complete a financial transaction that settles the purchase of fuel from the fuel dispenser with the retail fueling facility.

[0029] Embodiments of the transaction system 300 can also utilize the transaction application 316 to interact with the end user during and after fueling. This interaction may be useful to encourage the customer to continue the buying experience, e.g., inside the retail element of the retail fueling facility. The transaction system 300 may, for example, transmit coupon/discount offers to the terminal 314. These offers may be tailored to the end user, which could redeem the offers before, during, and/or after the fueling purchase.

[0030] The transaction system 300 may utilize various hardware and software configurations to further enhance interoperability of the forecourt system 302 and the remote system 304. These configuration may utilize various client/server type arrangements, e.g., an Enterprise Communication Client (ECC) and Enterprise Communication Server (ECS). In one embodiment, the forecourt controller component, may be configured to register for appropriate router messages sent by the ECC, to receive router messages from the ECC to perform pump authorization, to interface with a pump controller Add-In to perform pump control, to perform price rollbacks (fueling point discounts) sent down from the remote system 302, which may apply all fuel products at a given fueling point as well as to apply on a product-by-product basis, to monitor for fueling point timeouts and preset failures and send back appropriate router message to indicate "Zero Sale," and to monitor for sale completions and create transaction response router messages for processing by the ECC.

[0031] For embodiments of the transaction system 300 for use at commercial petroleum retail sites, security is of the utmost concern in line with PCI/PADSS compliance. These concerns often require the site to connect indirectly to the remote system 304 and adhere to strict connectivity standards. To achieve this goal, the system 300 can utilize the ECS/ECC model to act as a broker agent to communicate between the forecourt system 302 at the retail fueling site and the remote system 304 and on to ECS. Often, the Point-of-Sale (POS) may not have knowledge concerning any payment by e-commerce application and like mobile payment transactions. Embodiments of the system

300 can address this by implementing various configurations. In one configuration, the system 300 utilizes a new interface to send transaction data to the POS system. In another configuration, the system 300 may utilize a secondary POS control model (also "Dual-Auxiliary Controller"). These configurations can implement one or more protocols to allow the a secondary POS system to perform pump control (e.g. authorizing a dispenser). In yet another configuration, the system 300 is configured to work in conjunction with the primary POS system. This configuration allows the forecourt system 302 to control the dispenser 308 as the primary POS system. In one example, the forecourt system 302 authorizes the dispenser 308 as if it were the primary POS, but provides data and information denotes a different AUTHORIZER field in the transaction DB to distinguish mobile payment transactions. The primary POS has visibility to the transaction in progress and receives real-time money updates while the dispenser 308 is fueling. In one example, the operator has the capability to perform various dispenser related functions (e.g., Pump Stop, Pump Restart, etc.) and, furthermore, other components of the forecourt system 302 (e.g., outdoor terminals such as CAT, CRIND, and DPT) are updated to reflect current fueling state (Remove Nozzle, Lift Lever, etc.).

[0032] Examples of the transaction gateway component 322 can provide a robust interface for the exchange of data and information, e.g., with the payment component 330, 332, 334. These interfaces can support, for example, push and pull models. For push models, the transaction gateway component 322 can pass data and information in a finalized form to the payment components 330, 332, 334. This finalized form indicates the transaction is complete from the perspective of the transaction gateway component 322. In embodiments that implement pull models, the payment components 330, 332, 334 can initiate the exchange of data with the transaction gateway component 322. This feature can, for example, utilize a request for data that defines a specific transaction, as well as a plurality of transactions (that may occur over the course of a specified time period (e.g., minutes, hours, days, weeks, months, etc.). In one implementation of the push model, the transaction gateway component 322 can obtain site information from the forecourt system 302. This site information may be determinative of the fueling points

that are available for starting a transaction. The transaction gateway component 322 can also initiate a transaction for the specific fueling point and, then, finalize the transaction so as to pass the data in the finalized form, e.g., to the payment components 330, 332, 334.

[0033] Further, implementation of the methodologies (and systems and components) disclosed herein can utilize data objects to exchange, transmit, and/or define data and information. Examples of the data objects can include one or more of the following:

[0034] TransactionInfo, comprising, attributes, available products (and forecourt offereings), begin time, currency, customer, error, finish time, ID, location, pre-authorization limit, products, provider id, state, and total;

[0035] ErrorInfo, comprising, code and description;

[0036] TransactionState, comprising, open, cancelled, failed, and closed;

[0037] ProductInfo, comprising, attributes, code, currency, description, ID, quantity, and UnitPrice;

[0038] StateInfo, comprising, attributes, available locations, available products (and forecourt offerings), and ID;

[0039] LocationInfo, comprising, attributes, fueling point, register, and site ID;

[0040] CustomerInfo, comprising, attributes, ID, and provider ID; and

[0041] ProviderInfo, comprising, attributes, ID, and name.

[0042] Examples of attributes can define a listing of key and value pairs that can carry additional information. For example, the key and value pairs can carry loyalty data, extra product data, and like data that can be passed back to the creator of the attribute. The value portion can be user-defined, e.g., to have a vale that can represent any type of value to meet requirement of one or both the upstream and the downstream system. For

example, the payment component 330, 332, 334 may utilize a loyalty program that triggers a fuel discount. Utilizing the attribute key to include, for example, a loyalty member identifier (the key) and a value associated with the loyalty member identifier (the value) can allow data to be passed among the components of the transaction system 300. This exchange can allow the system 300 to apply the discount associated with the loyalty program to the transaction. In another example, a store coupon might be applied in the forecourt system 302. Inserting an attribute key with a coupon identifier and a coupon valve would allow local data to be passed to the payment component 330, 332, 334 to ensure that the value of coupon is applied to the transaction.

[0043] As set forth herein, embodiments of the various transaction gateway component (e.g., transaction gateway device 122, 322 of FIGS. 1, 2, and 4) can comprise computers and computing devices with processors and memory that can store and execute certain executable instructions, software programs, and the like. These devices can reside remote from the retail fueling facility as a standalone computing device, network, and like computing arrangement. The memory (e.g. memory 124 of FIG. 1) and the processor (e.g., processor 126 of FIG. 1) can include hardware that incorporates with other hardware (e.g., circuitry) to form a unitary and/or monolithic unit devised to execute computer programs and/or executable instructions (e.g., in the form of firmware and software). In other examples, these devices integrate, in whole or in part, with components of the forecourt system, e.g., as part of the hardware and/or software configured on such hardware.

[0044] Devices for use as the transaction gateway component may have constructive components that can communicate amongst themselves and/or with other circuits (and/or devices), which execute high-level logic functions, algorithms, as well as executable instructions (e.g., firmware instructions, software instructions, software programs, etc.). Exemplary circuits of this type include discrete elements such as resistors, transistors, diodes, switches, and capacitors. Examples of a processor (e.g., processor 126 of FIG. 1) include microprocessors and other logic devices such as field programmable gate arrays

("FPGAs") and application specific integrated circuits ("ASICs"). Although all of the discrete elements, circuits, and devices function individually in a manner that is generally understood by those artisans that have ordinary skill in the electrical arts, it is their combination and integration into functional electrical groups and circuits that generally provide for the concepts that are disclosed and described herein.

[0045] The structure of the transaction gateway device can permit certain determinations as to selected configuration and desired operating characteristics that an end user might convey via the graphical user interface or that are retrieved or need to be retrieved by the device. For example, the electrical circuits of these control devices can physically manifest theoretical analysis and logical operations and/or can replicate in physical form an algorithm, a comparative analysis, and/or a decisional logic tree, each of which operates to assign the output and/or a value to the output that correctly reflects one or more of the nature, content, and origin of the changes the data that are reflected by the inputs and outputs the transaction gateway generates during operation of the transaction system

[0046] In one embodiment, a processor (e.g., processor 126 of FIG. 1) can also include state machine circuitry or other suitable components capable of controlling operation of the components as described herein. Memory (e.g., memory 124 of FIG. 1) includes volatile and non-volatile memory and can store executable instructions in the form of and/or including software (or firmware) instructions and configuration settings. Examples of these devices can mount to substrates such as printed-circuit boards and semiconductors, which can accommodate various components including a processor, memory, and other related circuitry to facilitate operation, e.g., of the transaction gateway component 122, 322 of FIGS. 1, 2, and 4.

[0047] However, although processor, memory, and the components of control circuitry might include discrete circuitry and combinations of discrete components, this need not be the case. For example, one or more of these components can comprise a single integrated circuit (IC) or other component. As another example, a processor can

include internal program memory such as RAM and/or ROM. Similarly, any one or more of functions of these components can be distributed across additional components (e.g., multiple processors or other components).

[0048] Moreover, as will be appreciated by one skilled in the art, aspects of the present invention may be embodied as a system, method or computer program product. Accordingly, aspects of the present invention may take the form of an entirely hardware embodiment, an entirely software embodiment (including firmware, resident software, micro-code, etc.) or an embodiment combining software and hardware aspects that may all generally be referred to herein as a "circuit," "module" or "system." Furthermore, aspects of the present invention may take the form of a computer program product embodied in one or more computer readable medium(s) having computer readable program code embodied thereon.

[0049] Any combination of one or more computer readable medium(s) may be utilized. The computer readable medium may be a computer readable signal medium or a computer readable storage medium. Examples of a computer readable storage medium include an electronic, magnetic, electromagnetic, and/or semiconductor system, apparatus, or device, or any suitable combination of the foregoing. More specific examples (a non-exhaustive list) of the computer readable storage medium would include the following: an electrical connection having one or more wires, a portable computer diskette, a hard disk, a random access memory (RAM), a read-only memory (ROM), an erasable programmable read-only memory (EPROM or Flash memory), an optical fiber, a portable compact disc read-only memory (CD-ROM), an optical storage device, a magnetic storage device, or any suitable combination of the foregoing. In the context of this document, a computer readable storage medium may be any tangible medium that can contain, or store a program for use by or in connection with an instruction execution system, apparatus, or device.

[0050] A non-transitory computer readable signal medium may include a propagated data signal with computer readable program code embodied therein, for example, in

baseband or as part of a carrier wave. Such a propagated signal may take any of a variety of forms and any suitable combination thereof. A computer readable signal medium may be any computer readable medium that is not a computer readable storage medium and that can communicate, propagate, or transport a program for use by or in connection with an instruction execution system, apparatus, or device.

[0051] Program code embodied on a computer readable medium may be transmitted using any appropriate medium, including but not limited to wireless, wireline, optical fiber cable, RF, etc., or any suitable combination of the foregoing.

[0052] Computer program code for carrying out operations for aspects of the present invention may be written in any combination of one or more programming languages, including an object oriented programming language and conventional procedural programming languages. The program code may execute entirely on the user's computer, partly on the user's computer, as a stand-alone software package, partly on the user's computer and partly on a remote computer or entirely on the remote computer or server. In the latter scenario, the remote computer may be connected to the user's computer through any type of network, including a local area network (LAN) or a wide area network (WAN), or the connection may be made to an external computer (for example, through the Internet using an Internet Service Provider).

[0053] Aspects of the present invention are described herein with reference to flowchart illustrations and/or block diagrams of methods, apparatus (systems) and computer program products according to embodiments of the invention. It will be understood that each block of the flowchart illustrations and/or block diagrams, and combinations of blocks in the flowchart illustrations and/or block diagrams, can be implemented by computer program instructions. These computer program instructions may be provided to a processor of a general purpose computer, special purpose computer, or other programmable data processing apparatus to produce a machine, such that the instructions, which execute via the processor of the computer or other programmable data

processing apparatus, create means for implementing the functions/acts specified in the flowchart and/or block diagram block or blocks.

[0054] These computer program instructions may also be stored in a computer readable medium that can direct a computer, other programmable data processing apparatus, or other devices to function in a particular manner, such that the instructions stored in the computer readable medium produce an article of manufacture including instructions which implement the function/act specified in the flowchart and/or block diagram block or blocks.

[0055] The computer program instructions may also be loaded onto a computer, other programmable data processing apparatus, or other devices to cause a series of operational steps to be performed on the computer, other programmable apparatus or other devices to produce a computer implemented process such that the instructions which execute on the computer or other programmable apparatus provide processes for implementing the functions/acts specified in the flowchart and/or block diagram block or blocks.

[0056] Accordingly, a technical effect of embodiments of the systems, methods, and devices proposed herein is to facilitate transactions at retail fueling facilities that may occur, for example, across a variety of different processing and payment systems.

[0057] As used herein, an element or function recited in the singular and proceeded with the word "a" or "an" should be understood as not excluding plural said elements or functions, unless such exclusion is explicitly recited. Furthermore, references to "one embodiment" of the claimed invention should not be interpreted as excluding the existence of additional embodiments that also incorporate the recited features.

[0058] The invention is inclusive of combinations of the aspects described herein. References to "a particular aspect" and the like refer to features that are present in at least one aspect of the invention. Separate references to "an aspect" or "particular aspects" or the like do not necessarily refer to the same aspect or aspects; however, such aspects are not mutually exclusive, unless so indicated or as are readily apparent to one of skill in the

art. The use of singular or plural in referring to "method" or "methods" and the like is not limiting. The word "or" is used in this disclosure in a non-exclusive sense, unless otherwise explicitly noted.

[0059] The invention has been described in detail with particular reference to certain preferred aspects thereof, but it will be understood that variations, combinations, and modifications can be effected by a person of ordinary skill in the art within the spirit and scope of the invention. Examples of variations, combinations, and modifications that are intended to be within the scope of the claims are those having structural elements that do not differ from the literal language of the claims and those including equivalent structural elements with insubstantial differences from the literal language of the claims.

CLAIMS

What is claimed is:

1. A method for completing a mobile payment transaction for a purchase at a retail fueling facility, comprising:

at a transaction gateway component having access to a processor and a memory:

receiving a first input with data that relates to a fueling point identifier;

generating an first output with site data that identifies the retail fueling facility in accordance with the fueling point identifier;

receiving a second input with data to initiate the transaction;

generating a second output in response to the second input, the second output having data to enable operation of a dispenser at the retail fueling facility;

receiving a third input with data to complete the transaction; and

generating a third output with data that reflects the transaction complete.

2. The method of claim 1, wherein the first input originates from a payment processing component remote from the retail fueling facility.

3. The method of claim 1, wherein the fueling point identifier reflects data received by an electronic commerce application on a mobile device.

4. The method of claim 1, wherein the fueling point identifier distinguishes the retail fueling facility from other retail fueling facilities.

5. The method of claim 1, wherein the site data comprises a geographic location for the retail fueling facility.

6. The method of claim 5, wherein the site data comprises data that reflects the products and services offered at the retail fueling facility.

7. The method of claim 1, wherein the second input comprises transaction data that defines one or more parameters for the transaction.

8. The method of claim 7, wherein the parameters comprise one or more of a transaction start time, a product selection, a transaction total, and a transaction end time.

9. The method of claim 7, wherein the third output is adapted to convey the transaction data to a forecourt system that operates the fuel dispenser at the retail fueling system.

10. The method of claim 1, further comprising communicating the first output to a payment processing component, wherein the first output has data configured to instruct the payment processing component to initiate a transaction request.

11. The method of claim 10, further comprising communicating the second output to a forecourt controller coupled with the fuel dispenser.

12. A transaction gateway component, comprising:

a processor;

a memory coupled with the processor; and

one or more executable instructions stored on the memory and configured to be executed by the processor, the executable instruction comprising instructions for:

receiving a first input with data that relates to a fueling point identifier;

generating an first output with site data that identifies the retail fueling facility in accordance with the fueling point identifier;

receiving a second input with data to initiate the transaction;

generating a second output with data to enable operation of a dispenser at the retail fueling facility;

receiving a third input with data to complete the transaction; and

generating a third output with data that reflects the transaction complete.

13. The transaction gateway component of claim 12, wherein the second input comprises transaction data that defines one or more parameters for the transaction.

14. The transaction gateway component of claim 12, wherein the site data comprises a geographic location for the retail fueling facility.

15. A system for managing transactions at a retail fueling facility, comprising:

a forecourt system comprising a forecourt controller and a fuel dispenser; and

a remote system coupled with the forecourt system via a network, the remote system comprising a transaction gateway component coupled with and remote from the forecourt controller, the transaction gateway component accessing executable instructions for:

generating transaction data that instructs the forecourt controller to enable the fuel dispenser;

receiving transaction data from the forecourt controller that defines parameters for a purchase of fuel from the dispenser; and

generating transaction data to instruct a payment processing component to complete a financial transaction that settles the purchase of fuel from the fuel dispenser with the retail fueling facility.

16. The system of claim 15, wherein the transaction data comprises a transaction total that reflects an amount of fuel dispensed by the fuel dispenser.

17. The system of claim 15, further comprising executable instruction for receiving a fueling point identifier from the payment processing component, wherein the fueling point identifier distinguishes a first retail fueling facility from a second retail fueling facility.

18. The system of claim 15, wherein the payment processing component receives the fueling point identifier from a terminal proximate the fuel dispenser.

19. The system of claim 18, wherein the terminal comprises a transaction application that facilitates communication of data with the payment processing component.

20. The system of claim 15, wherein the transaction data comprises site data that identifies the retail fueling facility to the payment processing component.