Title: METHOD AND APPARATUS FOR WAP ENABLED COMMERCIAL TRANSACTIONS

Abstract: A method and apparatus that allows for devices that are capable of wireless communication while also allowing for transactions that require a minimum amount of data input on the part of the consumer.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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FIELD OF THE INVENTION

The present invention relates generally to telecommunication systems, and amongst other things to commercial transactions and devices for carrying out commercial transactions utilizing telecommunication systems.

BACKGROUND OF THE INVENTION

With the increasing popularity of the internet with consumers, there has been a growing demand for wireless internet access. A known solution is to connect a laptop computer to a modem and cell phone. This solution mirrors the in-home solution but uses the cell phone for mobility. A problem with this solution is the long response times and flawed communication paths that have degraded the effective bit rate. With many Web pages having large and numerous image files, these early experiences at wireless web surfing were time consuming and difficult for the user.

A known approach to wireless data communication, including wireless internet access is the wireless access protocol (WAP), which is an emerging industry standard whose goal is to provide wireless internet-like services and information to handheld devices that have limited display and data capabilities, such as pagers, cell phones, and personal digital assistants (PDAs).

WAP recognizes that the consumer not only values the power and usefulness of the Web but also wishes to have it available while away from home or work. The concept is very simple: someone with a cell phone, pager, or PDA should be able to do limited Web surfing, for example, to check stock quotes, get restaurant information, or access bank accounts. The goal of WAP is to extend the Web to handheld wireless devices by addressing and solving these difficulties.

WAP is designed to work with most wireless networks such as CDPD, CDMA, GSM, PDC, PHS, TDMA, FLEX, ReFLEX, iDEN, TETRA, DECT, DataTAC, Mobitex.
WAP consists of wireless equivalents of HTTP and HTML (Hyper Text Markup Language). The HTTP-like component defines the communication protocol between the handheld device through a service provider and a server or gateway through a service provider. This component addresses characteristics that are unique to wireless devices, such as data rate and round-trip response time. For example, a cell phone may have a maximum achievable data rate of 9.6 kbps as compared to 33 kbps in the home or 1.5 Mbps in the workplace. The HTML-like component defines new markup and scripting languages for displaying information to and interacting with the user. This component is highly focused on the limited display size and limited input devices available on small, handheld devices. For example, a typical cell phone may have only a 4x10-character display with 16-grey levels and only a numeric keypad plus up/down volume keys.

The basic model for WAP is that of the Web, namely a user makes a request for information using a URL. Of course, the URL may be presented to the user in the form of a hyperlink. The information is retrieved and presented to the user. Thus, at either end of the WAP system is a user and content. The user employs a WAP-compatible client device to make requests and to view the content.

Two scenarios are presently envisioned for getting the content to the user. In the first scenario, the client device is in direct communication with a "WAP Server". In this case, the client device requests content from that server, the server retrieves the content (either locally or remotely), and the content is returned to the device. In the second scenario, the client device is in communication with a "WAP Gateway". In this case, the client device requests the content from the gateway, the gateway retrieves the content, reformats it, and then the content is returned to the device. There is a subtle difference here: the WAP Server "speaks" WAP whereas the WAP Gateway translates WAP messages into another protocol, such as HTTP.

WAP provides three broad categories of functionality for content providers: content, scripting, and telephony. Since a WAP client device is expected to have a limited display size, the basic display unit of WAP content is
a "card". A card can be thought of as one screen of information or one part of a
card. In actuality, though, a card can span several client-device-screens
since the client device can have a single-line display. It is then up to the client
device to determine how to present the entire card as a single entity, e.g. using
scrolling. A card can display text, images, hyperlinks, and input fields. Input
fields can be fill-in-the-blank type, multiple-choice selections, or buttons. The
client device must decide how to render these input fields, how the user
navigates between the fields, and how the user enters data into or selects these
fields. WAP has properly left all these things to the client device manufacturers
and their human factors experts. As discussed, the basic display unit of WAP
content is the "card". Since several cards may be required for a single
application or service, WAP defines a content file as a group of cards, called a
"deck". A deck has one or more cards and each card can be labeled just like
name references within HTML files. When a deck is retrieved, the first card is
automatically displayed unless otherwise specified in a reference field of the
URL.

WAP also defines a scripting language, WML Script, which is similar in
concept and purpose to JavaScript for HTML. WML Script is created by a
content provider and is stored in its own file, separate from the WML that uses
it. With WML Script, a card can execute functions that verify input fields or that
convey limited state information between cards in a deck or even between
decks.

WML Scripts are just like functions within other high-level languages.
WML Script functions are invoked by name, can accept parameters, and can
return values. They can execute other WML Script functions, either in the same
file or in another file, and they can execute system library functions to display
input fields or to static text. WML Scripts are accessed using a URL, just like
WML content itself.

Since it is expected that WAP will be implemented within a cell phone or
other communication device, WAP has provisions for controlling the telephony
aspects of these client devices. For example, a user may wish to find a local
restaurant. Using a WAP cell phone, the user consults a "yellow pages"
directory and finds an appropriate diner. To make a reservation, the user just "clicks" a button displayed by the WML card and the phone dials the restaurant. Obviously this is much easier than writing down the phone number, ending the WAP session, and dialing the number manually.

The WAP architecture follows the OSI layering model and consists of three major layers. Wireless Application Environment (WAE) and Wireless Telephony Application (WTA) are the top-most layers in the WAP architecture. They are the main interfaces to the client devices and specify a markup language, a scripting language, and a telephony interface. WAE and WTA impose a few, simple and basic requirements on the client device. For example, the client device must maintain a "history list" of recently visited decks, so that the user may navigate "backwards". WAE consists of WML and WML Script plus the WML Script virtual machine. WTA is a separate, standalone function.

WML is the markup language for WAP-WAE. It is the WAP equivalent of HTML. WML formalizes the concept of cards and decks. Much like HTML, WML uses "tags", such as "" and "" , to identify the purpose and function of blocks of text so that the client device can properly display, or render, them to the user. WML is based on HTML and is also heavily influenced by HDML, used in the Unwired Planet product. WML is XML compliant and is specified using a full Document Type Definition (DTD). The DTD allows a WML text file to be intelligently parsed and verified for correctness. In this raw, text-based form, WML is quite verbose. To make transmission of a deck more efficient, WML defines simple compression techniques such as representing all defined tags using tokens.

WML Script is the scripting language for WAP-WAE. It is the WAP equivalent of JavaScript. WML Script is a high level language that allows a content provider to implement arbitrary functions that may be required by individual WML decks, for example, to verify form input prior to submitting it to a server.

As with WML, WML Script is quite verbose and a compression / compilation scheme is defined to make transmission on much more efficient. Compiled WML Script consists of machine-independent byte codes, much like
Java's compiled class files. WML Script obviously requires an operating
environment where the byte codes are executed in an interpreted mode. This
"virtual machine" is similar to the Java Virtual Machine (JVM). WAE specifies a
set of library and system functions that all client devices must implement and
provide by default. This provides a basis upon which content providers may
build their applications regardless of the exact client device.

The WTA, as previously stated, provides a set of functions that allow
control over the client device assuming it is a telephone device. Calls may be
placed or answered. This part of WAP is still in the early stages of the
specification process, so further information will not be provided at this time.

Wireless Session Protocol (WSP) and Wireless Transport Layer Security
(WTLS) are the session layer of the WAP architecture. They provide connection-
based services to the application layer - WAE and WTA. Basically, a session is
started, content is exchanged, and the session is later closed. Additionally, the
session can be suspended and resumed. (NOTE: Although one would think that
WTLS belongs in the transport layer, WAP places it in the session layer since the
security context is based on WAP sessions rather than WAP transmissions.)

WSP is the WAP equivalent of HTTP and is based on HTTP/1.1. Within
HTTP and WSP is the concept of a request and a reply, each consisting of a
header and body. The header is metadata - data about the data - and consists of
name-value pairs that specify information about the particular request or
response. The body is the payload for the WAE/WTA layer and typically consists
of tokenized WML, compiled WML Script, or images, but can also contain raw
WML text.

WSP, like HTTP/1.1, can convey multipart data consisting of several
header-data pairs. For example, when a specific deck is requested, the server
may respond with the deck, its images, and its WML Script in a multipart
response. This eliminates the need for subsequent requests from the client,
which delay the rendering of the deck due to the round-trip delay that would
have been imposed by additional request-response exchanges.

WSP also defines a server "push" transaction where the server sends
unrequested content to a client device. This may be used for broadcast
messages or for services, such as news headlines or stock quotes, that may be tailored to each client device.

As with other layers in WAP, WSP specifies compression techniques to provide efficient transmission of the request and response. This compression consists of one-byte tokens for "well-known" header fields plus efficient transmission of numerical data where possible, such as for date values. WSP also allows for negotiation of capabilities between the client and server, for example to determine if server "push" is supported.

WTLS is the WAP equivalent of the HTTP SSL or TLS. Security is provided using encryption of all session data using a cryptographic technique that is negotiated when the connection is established. WTLS which implements options for authentication and encryption and is optimized for use in the mobile environment

Wireless Transport Protocol (WTP) and bearer services are the protocol layer in the WAP architecture. They provide reliable transmission of WSP data packets between the client and server over a wireless link.

WTP is the WAP equivalent of TCP or UDP. Although WTP should provide reliable communication to WSP, the current specification allows for reliable (TCP-like) or unreliable (UDP-like) communication. When the connection is unreliable, WSP (unfortunately) is responsible for retransmission to make the connection reliable.

WTP is responsible for packet segmentation and reassembly and for acknowledgement of packets and retransmission of lost, unacknowledged, or corrupted packets. WTP numbers packets so that an at-most-once policy is effected. This ensures that a retransmitted packet is not mistaken for a new packet, which would cause duplication.

The "bottom end" of WTP consists of adaptation elements that match WTP functionality to the underlying bearer service, such as SMS or CDPD. In a sense, these adaptation elements "take up the slack" between what WTP needs and what the bearer service provides.

Each client device will probably have only one adaptation element since each client device will probably have only one wireless link. It is possible,
however, that a client device may have a single wireless link that it can use in different manners. For example, GSM may provide different types of data services and each would require a different adaptation element (not to mention a mechanism for the user to specify which one to use).

The bearer service is the wireless data link between the client and a server. Many different bearer services are possible: CDPD in the analog cellular system, SMS and GPRS in the GSM cellular system, and one-way (traditional) and two-way paging. Each one of these has its advantages and disadvantages in terms of maximum / typical throughput rates, round-trip delay times, and cost. Each client device must obviously have at least one bearer service and some client devices may have several, as with GSM phones.

From a technical perspective WAP is leveraging the industry's cumulative experiences with the Web (HTML and HTTP) by eliminating the difficulties and improving the strong points of existing technologies. Additionally, since WAP is targeted at handheld, wireless devices, a realm that is underserved by the existing Web world, it can start with a clean slate and has thrown out many of the old notions about Web services. The attention to transmission times and other considerations that are critical and unique to handheld devices is properly and justifiably focused. Savings in transmitted bytes should translate to savings in round-trip delay between a client's request and receipt of the response.

However, most of the new technological methods for shopping do not give the telecommunication service providers a stake or revenue to compensate for the increased traffic, use of their networks and additional service costs that must be borne by the telecommunication service provider. Further, many current methods of electronic commerce are slow and require a great deal of time to perform on the part of the consumer.

SUMMARY OF THE INVENTION

The present invention is directed toward a method and apparatus that allows for devices that are capable of wireless communication while also allowing for transactions that require a minimum amount of data input on the part of the consumer.
In one embodiment the present invention is directed toward a method of generating transactions over a wireless communication link. The method comprises transmitting a message indicative of an option to purchase an item, receiving a signal indicative of a purchase request to purchase the item, identifying the subscriber device based upon information transmitted from the subscriber device identifying the subscriber device, obtaining information from the transaction database data identifying a subscriber associated with the identified subscriber device, transmitting a request for authorization to transmit the purchase request to a merchant, receiving a signal indicative of the authorization to the purchase request to the merchant; and transmitting to the merchant a request to place the purchase and to provide the subject matter of the request to make the purchase to the subscriber.

In another embodiment the present invention is directed toward an apparatus capable of transmitting and receiving signals over a wireless link comprising a receiver, a transmitter, an input interface that includes a single input key allowing the user to make a purchase, and a microcontroller in electrical communication with the receiver, transmitter, and input interface, the microcontroller receiving a signal corresponding to activation of the single input key and instructing the transmitter to transmit a message corresponding to a request to purchase the item.

In an additional embodiment the present invention is directed toward a computer readable storage medium on which is stored instructions recognizable by a processor for generating transactions utilizing wireless communication, by determining whether a received signal is indicative of a purchase request to purchase the item and if the received signal is indicative of a purchase request, then identifying the subscriber device based upon information transmitted from the subscriber device identifying the subscriber device, obtaining information from the transaction database data identifying a subscriber associated with the identified subscriber device; and transmitting to the subscriber device data corresponding to a request for authorization to transmit the purchase request to a merchant.
It is an advantage of an aspect of the present invention to allow devices that allow for minimum input purchasing decisions on the part of a purchaser.

It is another advantage of an aspect of the present invention to allow for a method that improves electronic transactions by creating ease of use to consumers.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1A is a block diagram of a presently preferred embodiment of the communication sequence for performing transactions utilizing a wireless telephone according to the present invention;

FIG. 1B is a block diagram of a presently preferred embodiment of the communication sequence for performing transactions utilizing a wireless access protocol enabled device according to the present invention;

FIG. 1C is a block diagram of a presently preferred embodiment of the communication sequence for performing transactions utilizing a wireless access protocol device without one command technology according to the present invention;

FIG. 2 is a diagram showing operation of the purchasing system utilizing a wireless telecommunication device and a cable television system according to a preferred embodiment of the present invention;

FIG. 3 is a flow chart of the presently preferred embodiment of the application flow of the transaction system according the present invention;

FIG. 4 is a flow chart of the presently preferred embodiment of an account setup procedure for the transaction system according the present invention;

FIG. 5 is a block diagram of the presently preferred embodiment of a network utilizing the transaction system according to the present invention;

FIG. 6 is a diagram of the presently preferred embodiment of a wireless telephone according the present invention;

FIG. 7 is a diagram of the presently preferred embodiment of a remote control device according the present invention;
FIG. 8 is a diagram of the presently preferred embodiment of a personal digital assistant according the present invention; and

FIG. 9 is a block diagram of the presently preferred embodiment of a transaction system enabled device according the present invention; and

DESCRIPTION OF THE DRAWINGS

Referring to FIG. 1A, a WAP enabled device 10 transmits a request to begin a transaction. The request to begin a transaction is preferably in one of two forms, either a request to make a purchase of a product or service offered or a registration of the WAP enabled device. The request is transmitted to the service provider 15 for the WAP enabled device 10 which then routes the request to purchasing server 20. The purchasing server 20 performs the function of determining the identity of the WAP enabled device 10, the subscriber associated with the WAP enabled device 10 and the payment information for the subscriber. The purchasing server also determines the item(s) to be purchased, subscriber payment information and the merchant(s) 25 to which the item corresponds. The purchase request and subscriber payment information is then forwarded to the appropriate merchant(s) 25 along with transmission or shipping information. The merchant(s) 25 place the purchase orders and transmit confirmation information to the WAP enabled device 10.

In the embodiment of FIG. 1A, the identification of the WAP enabled device 10 is preferably performed by utilizing a predetermined identity code that can be input at the time of manufacture either as a hardware electronic serial number (ESN), a subscriber identity module (SIM) serial number, other device specific identity, format tags transmitted from the device, communications handshaking, operating system BIOS polling, service provider application code to extract the information from the service provider, or previously submitted user registration information.

Referring to FIG. 1B, a WAP enabled device 30 transmits a request to begin a transaction. The request to begin a transaction is preferably in one of two forms, either a request to make a purchase of a product or service offered, or a registration of the WAP enabled device. The request is transmitted to the
service provider 35 that performs the function of determining the identity of the WAP enabled device 30, the identity of the subscriber associated with the WAP enabled device 30 and subscriber payment information. This information is forwarded to the purchasing server 40 which determines the item(s) to be purchased and the merchant(s) 45 to which the item corresponds. The purchase request and payment information is then forwarded to the appropriate merchant(s) 45 along with transmission or shipping information. The merchant(s) 45 place the purchase orders and transmit confirmation information to the WAP enabled device 30.

In the embodiment of FIG. 1B, the identification of the WAP enabled device 10 is preferably performed by utilizing a predetermined identity code that can either be input at the time of manufacture either as a hardware electronic serial number (ESN), a subscriber identity module (SIM) serial number other device specific identity, format tags transmitted from the device, communications handshaking, operating system BIOS polling, service provider application code to extract the information from the service provider, or previously submitted user registration information. It is also possible to add the predetermined identity code at a later time by an information exchange when the subscriber logs onto a server of the service provider 25, or by insertion of a smart card at a later time having an additional identifier. The predetermined identity code is transmitted to the service provider, with the purchase request or at later or earlier time to allow processing of the transaction.

Referring to FIG. 1C, a WAP enabled device 50 transmits a request to begin a transaction. The request to begin a transaction is preferably in one of two forms, either a request to make a purchase of a product or service offered or a registration of the WAP enabled device 50. The request is transmitted to the service provider 55 for the WAP enabled device 50 which then routes the request to purchasing server 60. The purchasing server 60 performs the function of determining the identity of the WAP enabled device 50 and the subscriber associated with the WAP enabled device 10. The purchasing server also determines the item(s) to be purchased, subscriber payment information and the merchant(s) 65 to which the item corresponds. The purchase request
and subscriber payment information is then forwarded to the appropriate
merchant(s) 65 along with transmission or shipping information. The
merchant(s) 65 place the purchase orders and transmit confirmation information
to the WAP enabled device 50.

In the embodiment of FIG. 1C, the identification of the WAP enabled
device 10 is preferably performed by utilizing a predetermined identity code that
can either be input at the time of manufacture either as a hardware electronic
serial number (ESN), a subscriber identity module4 (SIM) serial number other
device specific identity, format tags transmitted from the device,
communications handshaking, operating system BIOS polling, service provider
application code to extract the information from the service provider, or
previously submitted user registration information. It is also possible to add the
predetermined identity code at a later time, either by an information exchange
when the subscriber logs onto purchasing server 60, or by insertion of a smart
card at a later time having an additional identifier. The predetermined identity
code is transmitted to the service provider, with the purchase request or at later
or earlier time.

The Wireless Access Protocol Specifications, which are produced by the
Wireless Access Protocol Forum and currently available at the URL
www.wapforum.org, are incorporated herein by reference as if set forth herein
in their entirety.

Referring to FIG. 2, a user is viewing or wants to begin viewing a
television, interactive television, or other entertainment program on a display
100, it is also possible that the user be utilizing a device that provides only
audio information, a combination of video and audio information or only video
information. The user then inputs a channel, program identifier, uniform
resource locator, or content identification information, by utilizing a WAP
enabled device 110. As depicted in FIG. 2, the WAP enabled device 110 can be
device that is not in direct communication with the network or communication
system on which the user is viewing the television, interactive television, or
other entertainment program, but can be any WAP enabled device 110 or a
device in communication with a WAP enabled device, e.g. a remote control
device which is contact with a WAP enabled set top box. The WAP enabled
device 110 then transmits a feed code to a service provider 130 that provides
the services to the WAP enabled device 110. The service provider 130
transmits the message including the feed code to a purchasing server 140. The
purchasing server 140 utilizes the feed code to determine the television,
interactive television, music, or other entertainment program to which the feed
code corresponds. The purchasing server 140 then identifies the WAP enabled
device 110 and determines whether there is a purchasing account associated
with the identified WAP enabled device. If it is determined that there is a
purchasing account associated with the identified WAP enabled device 110,
then the purchasing server 140 connects with a merchant server 150 associated
with the television, interactive television, or other entertainment program. The
purchasing account needs to include payment information for the user
associated with the WAP enabled device 110, e.g. electronic wallet information,
credit card information or the like.

Then prior to or while the user of the WAP enabled device 110 is viewing
the display 100 or listening to music in the case of a device which is currently
providing audio only information, they are prompted in any portion or the whole
of the display 100 with an advertisement, marketing message, purchase menu
or the like which contains information allowing the user to purchase one or more
products or services from the merchant. It is also possible that the user is
allowed to purchase one or more products, from one or more merchants.

Further, instead of prompting the user on the display 100, the user can
prompted with the advertisement, marketing message, purchase menu or the
like on the WAP enabled device 110. The user can the use a WAP enabled
device 110, e.g. a wireless telephone, to select which of the products or
services to purchase by utilizing buttons or other input devices. It is presently
preferred that once the user selects the products or services that they desire to
purchase, they need only press one predetermined button or input a single
command into the WAP enabled device 110 to transmit a request to purchase
the product(s) or service(s).
The request to purchase is then transmitted to a service provider 130 that provides the some or all of the telecommunication and/or information services to the WAP enabled device 110. The service provider 130 then transmits appropriate information over a wide area network 135, virtual private network, or the like, to the purchasing server 140 which then sends the necessary information regarding the user of the WAP enabled device 110, e.g. payment information, shipping information, etc. to the merchant(s) so that a purchase can be completed. It is also possible for the service provider 130 to transmit the request to purchase directly to the merchant(s) 150 which then communicates with the purchasing server 140 to obtain the necessary information regarding the user of the WAP enabled device 110 in order to complete the purchase.

The determination of the merchant server 150 associated with the television, interactive television, or other entertainment program is dependent on predetermined relationship between the provider of the television, interactive television, music or other entertainment program and the merchant. For example, if the provider of the television, interactive television, music, or other entertainment program is MTV\textsuperscript{®} then the merchant can be one or more that provide compact discs, live performance tickets, magazines, digital video discs or the like that are related to the music video or program that is currently being provided on the television or visual display 100.

Referring to FIG. 3, a user is prompted while viewing a television program, interactive program, or other display information or while listening to audio information with a reminder about using the transaction system, step 200. The user can then decide to purchase one of the one or more products or services offered, step 210. The user then inputs a command to provide an advertising, marketing message or the like to the user, step 220. The command is provided to a purchasing server that determines the specific television program, interactive program, other display information or audio information that the user is interacting with, step 230. Then the purchasing server determines whether the user has an account on the purchasing server, step 240. After determining that the user has an account, the purchasing server determines the merchant(s) associated with the specific television program, interactive program, other
display information or audio information that the user is interacting with, step 250, and provides the appropriate advertisement, marketing message or the like associated with the specific television program, interactive program, other display information or audio information, step 255. The advertisement, marketing message or the like can either provided as part or whole of the display, and allows the user the opportunity to purchase one or more products or services offered by the merchant(s). The user then can purchase the product(s) or service(s) offered by the merchant(s), step 260. After receiving the user purchase order, the identity of the product(s) or service(s) and their associated merchant(s) are determined, step 270. The purchasing server than transmits the purchase order to the merchant, which places the order, step 280. After placing the purchase order(s), the merchant(s) transmit confirmation of the placement of the purchase order(s) to the user, step 290.

Referring to FIG. 4, the user of who wants to register their device or to become a registered user of the purchasing service, will log onto a third party server, their telecommunication service provider, or other designated server, step 300. The user then enters the necessary registration information, e.g. login ID and password, creates an electronic wallet, completes the appropriate information, regarding the identity of their WAP enabled device, establishes a target homepage, and provides appropriate demographic information, step 310. It is also possible to utilize the lockout features now utilized in wireless devices to perform digital wallet set up. A personal URL which contains information that allows the user to set up their personal interests and related information for providing them with the advertisements, marketing messages and the like that are tailored to their interests, is transmitted, preferably via email to the user, step 320. After receipt of the URL, the user launches the information located at the personal URL, to further customize the purchasing options that they will receive, step 330. The user can then utilize the purchasing system to make the purchases.

Another registration procedure allows the user to access the web page directly using their WAP enabled device and receiving confirmation of the registration on the WAP enabled device.
Referring to FIG. 5, a number of subscribers 400, 402, 404, 406, 408, and 410 are all subscribers of one or more cable or interactive television service providers 420. Subscribers 412, 414 and 416 are subscribers of one or more service providers 430. Subscribers 412, 414 and 416 can be subscribers of wireless telecommunication, cable television, interactive television or other service providers that allow communication utilizing of the wireless access protocol. Each of the service providers 420 and 430 has as part of their communication network an application server 440 that allows the service providers 420 and 430 to communicate over one or more wide area networks with third parties, such as purchasing servers 440, merchants 450, credit card issuers 460 or other financial organizations, and the like.

The purchasing servers 440 allow for the types of the transactions that are depicted in FIGS. 1-3 above, in any combination depending on the arrangement between the manufacturers of the WAP enabled devices of subscribers 400, 402, 404, 406, 408, 410, 412, 414 and 416, the service providers 420 and 430 and the purchasing database 440 owners. This allows for the greatest amount of flexibility for all parties.

Referring to FIG. 6, a wireless telephone 500, which can a cellular phone, GSM phone, CDMA phone, dual mode phone, wireless communication device with or without additional capabilities, includes a purchasing input key, button, touch screen location or the like 510 which enables the user to utilize the WAP enabled wireless telephone 500 to connect to purchase server or to make purchases. The user can as described with respect to FIG. 2, while or prior to interacting with a television, interactive television, other entertainment program, or musical broadcast, inputs a request for advertisement by inputting a channel or URL information and pressing the purchasing input key, button, touch screen location or the like 510. After this event, the user then can select product(s) or service(s) that offered to them and make a purchase order by utilizing the purchasing input key, button, touch screen location or the like 510. The user will after placement of the purchase order by the merchant(s) receive confirmation of the placement of the purchaser order on the WAP enabled telephone 500. It should be noted that purchasing input key, button, touch
screen location or the like 510 can be either a separate one function key that provides the sole function of making purchase order(s) and/or initiating the receipt of advertisements, marketing messages or the like, or can be a function key that provides this function along with many others, e.g. the number one key in the depicted embodiment.

Referring to Fig. 7, a remote control device 520, which can control audio, video, or combination devices can be used by the user to make purchases. In this case, the remote control device 520 need not be a WAP enabled device, but needs to be in communication with a WAP enabled device, such a cable set top box, television, stereo or personal computer. The user of the remote control device make purchase orders and request advertisements, marketing messages or the like utilizing a purchasing input key, button or the like 530, as described with respect to FIGS. 1-3. It should be noted that in this case the user will receive confirmation information on a display or speaker associated with the cable set top box, television, stereo or personal computer or the like that is controlled by the remote control 520. It should be noted that purchasing input key, button, touch screen location or the like 530 can be either a separate one function key that provides the sole function of making purchase order(s) and/or initiating the receipt of advertisements, marketing messages or the like, or can be a function key that provides this function along with many others, e.g. the number one key in the depicted embodiment.

Referring to FIG. 8, a personal digital assistant 540 includes the purchasing input key, button, touch screen location or the like 550, which is utilized in the same manner as described with respect to FIGS. 6 and 7. The personal digital assistant 540 are preferred to be in communication with a WAP enabled device, e.g. a modem or other communication device. The communication between the personal digital assistant 540 and the WAP enabled device, e.g. the modem, utilizing an communication interface for communicating between operating system of the personal digital assistant 540 and the WAP enabled device.
In addition other devices that are WAP enabled, such as laptop computers, digital cameras or the like can be provided with a purchasing input as described with respect to FIGS. 6-8.

Referring to FIG. 9, a wireless communication device includes a microcontroller 600 which communicates with a receiver 610 and transmitter 620, which can also be combined into a transceiver, to transmit signals to and from the wireless communication device. The wireless communication device also includes an input device 630 that allows the user of the wireless communication device to provide input. The input device 630 can be a key pad, series of buttons, touch screen, a combination of any of the previous three or the like. The input device 630 includes means for utilizing a single command to make a purchase of an item as described with respect to FIGS. 6-8. The microcontroller 600 which performs the functions of running the wireless communication device, responds by instructing the transmitted 620 to transmit a purchase request if the single command to make the purchase request is provided on the input device 630. In addition, if the wireless communication device is a wireless telephone, personal digital assistant or the like it can include a display for use by the user, including to receive advertising, marketing messages or the like to the user by which they can respond with the single command to make the purchase of the item.

While the embodiments, applications and advantages of the present inventions have been depicted and described, there are many more embodiments, applications and advantages possible without deviating from the spirit of the inventive concepts described and depicted herein. The invention should only be restricted in accordance with the spirit of the claims appended hereto and is not restricted by the preferred embodiments, specification or drawings.
WHAT IS CLAIMED IS:

1. A method of generating transactions over a wireless communication links, comprising the steps of:
   transmitting to a subscriber device a message providing the option to purchase an item;
   receiving a signal from the subscriber device indicative of a purchase request to purchase the item, the signal being in response to the message providing the option to purchase the item;
   identifying the subscriber device based upon information transmitted from the subscriber device identifying the subscriber device;
   obtaining information from the transaction database data identifying a subscriber associated with the identified subscriber device;
   transmitting to the subscriber device data corresponding to a request for authorization to transmit the purchase request to a merchant;
   receiving from the subscriber device a signal indicative of the authorization to the purchase request to the merchant; and
   transmitting to the merchant a request to place the purchase and to provide the subject matter of the request to make the purchase to the subscriber.

2. The method of Claim 1 further comprising the steps of receiving a signal from the subscriber device indicative of a request to establish service, and wherein the transmission to subscriber device of the message providing the option purchase is transmitted in response to the signal from the subscriber device indicative of a request to establish service.

3. The method of Claim 1 wherein the information transmitted from the subscriber device identifying the subscriber device is transmitted as part of the signal from the subscriber device indicative of the purchase request.
4. The method of Claim 3 wherein the step of identifying the subscriber device is performed at a service provider of services to the subscriber.

5. The method of Claim 3 wherein the step of identifying the subscriber device is performed at a purchasing server.

6. The method of Claim 1 further comprising the step of transmitting to the subscriber device an acknowledgement that the merchant has placed the request to make the purchase.

7. The method of Claim 1 wherein the subscriber device is a wireless access protocol enabled device.

8. The method of Claim 7 wherein each of the transmissions from the wireless access protocol enabled device is activated by pressing a single button on the wireless access protocol enabled device.

9. The method of Claim 1 further comprising transmitting from the subscriber’s electronic wallet payment data to the merchant for payment for making the purchase.

10. The method of Claim 1 wherein the subscriber device is a wireless telecommunication device.

11. The method of Claim 1 wherein the subscriber device is a cable television access device.

12. The method of Claim 1 wherein the message providing the user the option to make a purchase comprises an option to select to make a purchase of one of a plurality of items.
13. The method of Claim 1 wherein the step of identifying the subscriber device based upon information transmitted from the subscriber device comprises identifying the subscriber device based upon a predetermined identity code.


15. The method of Claim 13 wherein the predetermined identity code comprises a code resident in a subscriber identity module of the subscriber device.

16. The method of Claim 13 wherein the predetermined identity code comprises an encrypted code resident in software of the subscriber device.

17. An apparatus capable of transmitting and receiving signals over a wireless link comprising a receiver that receives signals transmitted to the apparatus over a wireless link; a transmitter that transmits signals from the apparatus over the wireless link; an input interface that allows a user of the apparatus to initiate operation of the apparatus, wherein the input interface comprises a single input key allowing the user to make a purchase of an item; and a microcontroller in electrical communication with the receiver, transmitter, and input interface, the microcontroller receiving the a signal corresponding to activation of the single input key and instructing the transmitter to transmit a message corresponding to a request to purchase the item.
18. The apparatus of Claim 17 wherein the single input key is solely capable of allowing the user to make the purchase of the item that is displayed on the display.

19. The apparatus of Claim 17 wherein the microcontroller is instructed to operate utilizing the wireless access protocol.

20. The apparatus of Claim 17 wherein the apparatus is a wireless telephone.

21. The apparatus of Claim 17 wherein the apparatus is a personal digital assistant.

22. The apparatus of Claim 17 wherein the apparatus is a device capable of communicating over a CATV network.

23. The apparatus of Claim 17 wherein the apparatus is a remote control device.

24. The apparatus of Claim 17 further comprising a subscriber identity module, the subscriber identity module comprising a predetermined identity code.

25. The apparatus of Claim 17 further comprising a electronic serial number.

26. The apparatus of Claim 17 further comprising a software encrypted code resident.
27. The apparatus of Claim 17 wherein the single input key is solely
dedicated to allowing the user to make the purchase of the item that is
displayed on the display and of instructing the microcontroller to instruct the
transceiver to transmit a request to the merchant to transmit to the apparatus
information regarding an item that is available for purchase.

28. The apparatus of Claim 17 further comprising a display wherein the
microcontroller is in electrical communication with the display and wherein the
item is purchased in response to a display of information on the display
regarding the item.

29. A computer readable storage medium on which is stored
instructions recognizable by a processor for generating transactions utilizing
wireless communication, by:

determining whether a received signal from a subscriber device is
indicative of a purchase request to purchase the item;

if the received signal is indicative of a purchase request, then identifying
the subscriber device based upon information transmitted from the subscriber
device identifying the subscriber device;

obtaining information from the transaction database data identifying a
subscriber associated with the identified subscriber device; and

transmitting to the subscriber device data corresponding to a request for
authorization to transmit the purchase request to a merchant.

30. The computer readable storage medium of Claim 29 further
comprising the instruction for determining if a signal received from the
subscriber device is indicative of the authorization to the purchase request to the
merchant and transmitting to the merchant a request to place the purchase and
to provide the subject matter of the request to make the purchase to the
subscriber.
31. The computer readable storage medium of Claim 29 wherein the information transmitted from the subscriber device identifying the subscriber device is transmitted as part of the signal from the subscriber device indicative of the purchase request.

32. The computer readable storage medium of Claim 29 wherein signals are transmitted utilizing the wireless access protocol.

33. The computer readable storage medium of Claim 29 wherein the information transmitted from the subscriber device identifying the subscriber device is transmitted separately from the signal from the subscriber device indicative of the purchase request.
200  PROMPT CONSUMER WITH TRIGGER TO MAKE A PURCHASE

210  USER DECIDES TO MAKE PURCHASE

220  USER INPUTS COMMAND FOR PROVIDING ADVERTISING, MARKETING INFORMATION OR THE LIKE

230  DETERMINE THE SPECIFIC PROGRAM THAT THE USER IS VIEWING ON THE DISPLAY

240  DETERMINE WHETHER THE USER HAS AN ACCOUNT ON THE SERVER

250  DETERMINE MERCHANT ASSOCIATED WITH THE PROGRAM

255  TRANSMIT ADVERTISEMENT TO USER

260  RECEIVE PURCHASE ORDER FROM USER

270  DETERMINE PRODUCT OR SERVICE PURCHASED BY USER

280  TRANSMIT PURCHASE ORDER TO MERCHANT

290  MERCHANT TRANSMITS CONFIRMATION TO USER AFTER PLACING THE PURCHASE ORDER

Fig. 3
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300  User Logs Into Registration Server

310  User Enters Registration Information

320  User Receives URL With User Page Location

330  User Launches URL to Further Customize Profile

Fig. 4