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Lazaridis

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(54) **BOOKMARK BEACON SYSTEM AND METHOD**

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(73) Assignee: **Research In Motion Limited**, Waterloo (CA)

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G06E 15/16 (2006.01)

(52) **U.S. Cl.** **709/217**; 709/213; 709/220

(58) **Field of Classification Search** 709/217, 709/213, 220, 206
See application file for complete search history.

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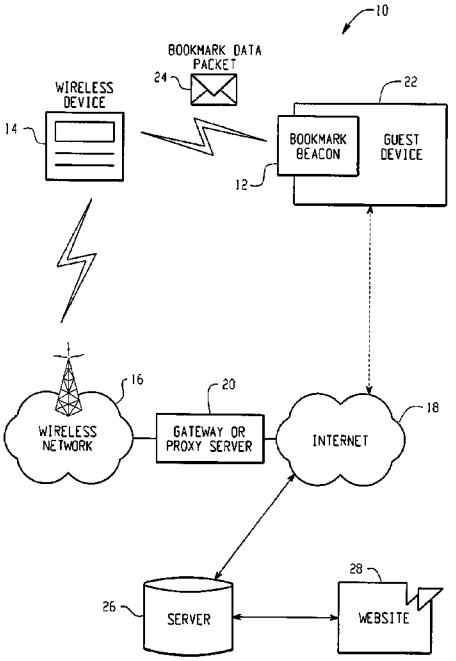
(57) **ABSTRACT**

A bookmark beacon system comprises a computer network, a wireless network configured to enable a wireless device to access the computer network, and a bookmark beacon that transmits a bookmark data packet to the wireless device. The bookmark data packet includes a resource address that enables the wireless device to retrieve information stored on the computer network.

34 Claims, 6 Drawing Sheets



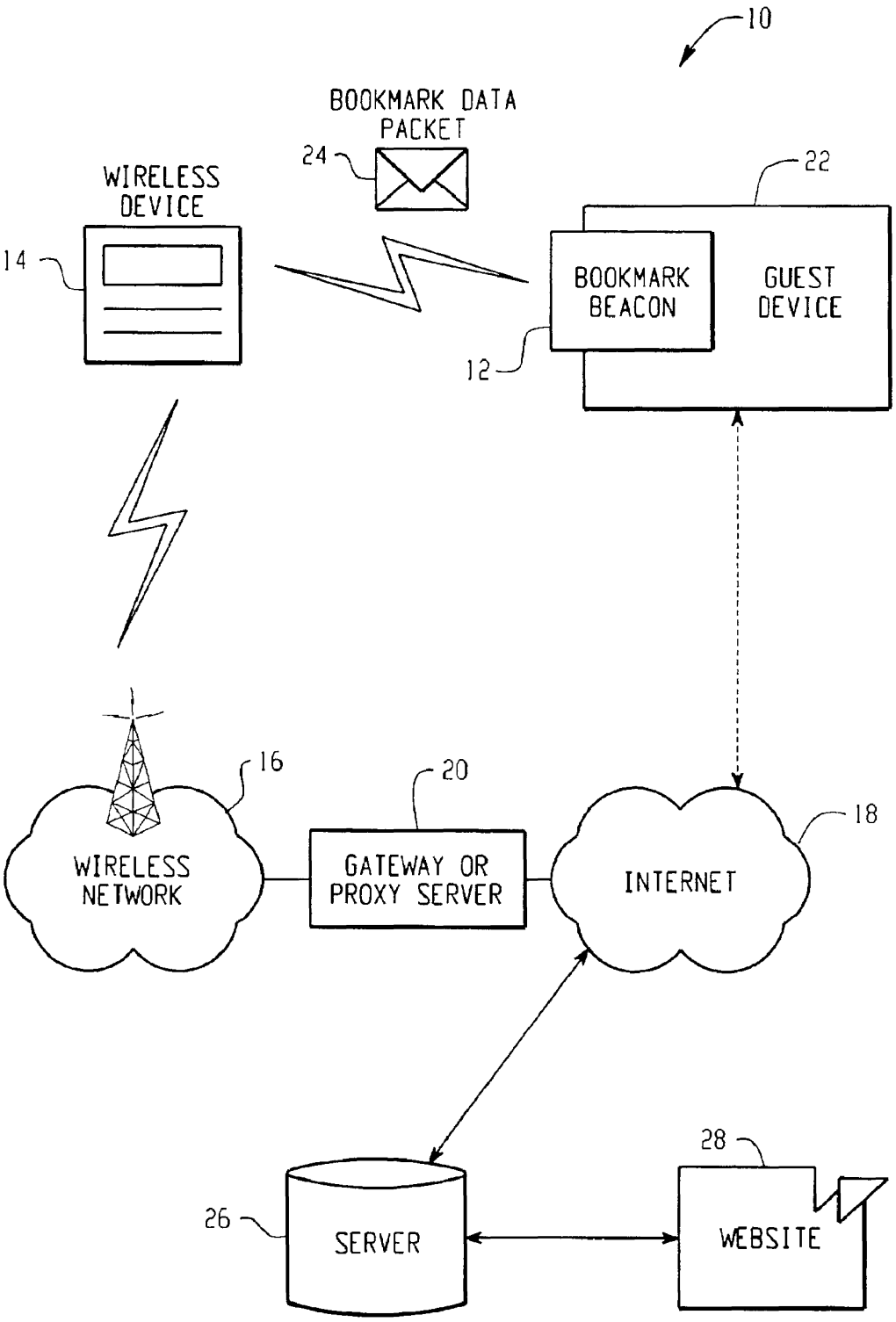

10
BOOKMARK DATA PACKET
24
WIRELESS DEVICE
14
22
BOOKMARK BEACON
GUEST DEVICE
12
16
20
18
WIRELESS NETWORK
GATEWAY OR PROXY SERVER
INTERNET
28
26
SERVER
WEBSITE

Fig. 1

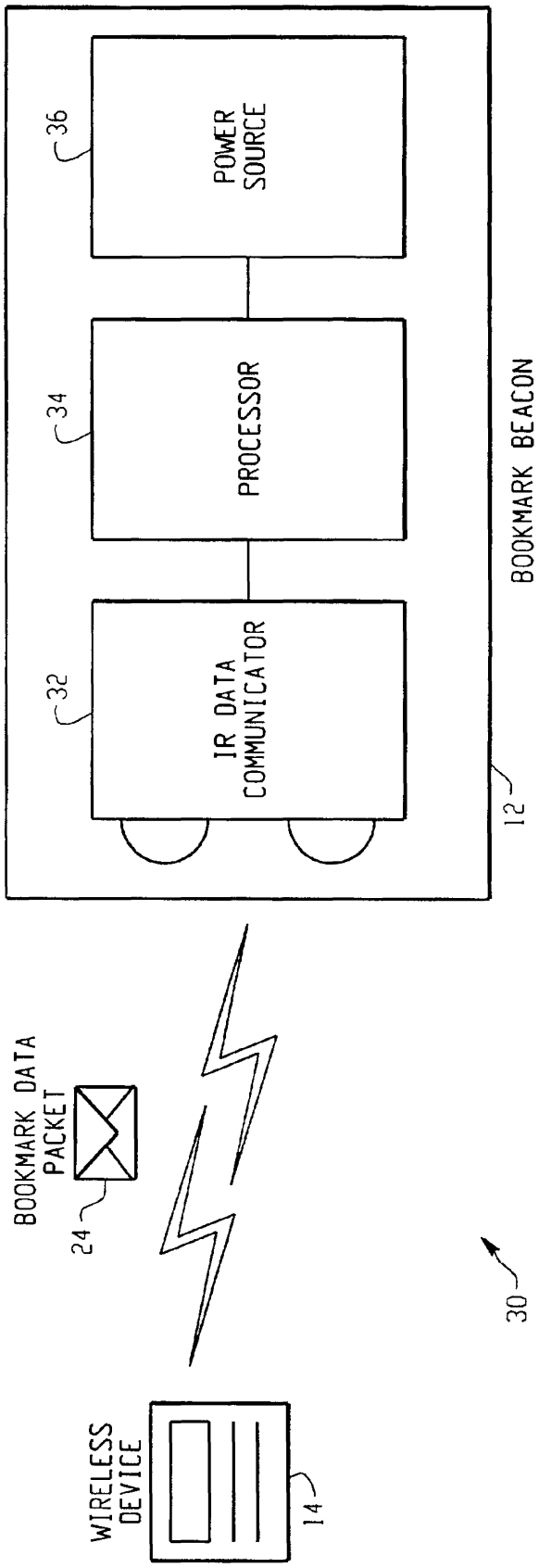

POWER SOURCE
36
PROCESSOR
34
IR DATA COMMUNICATOR
32
BOOKMARK BEACON
12
BOOKMARK DATA PACKET
24
30
WIRELESS DEVICE
14

Fig. 2

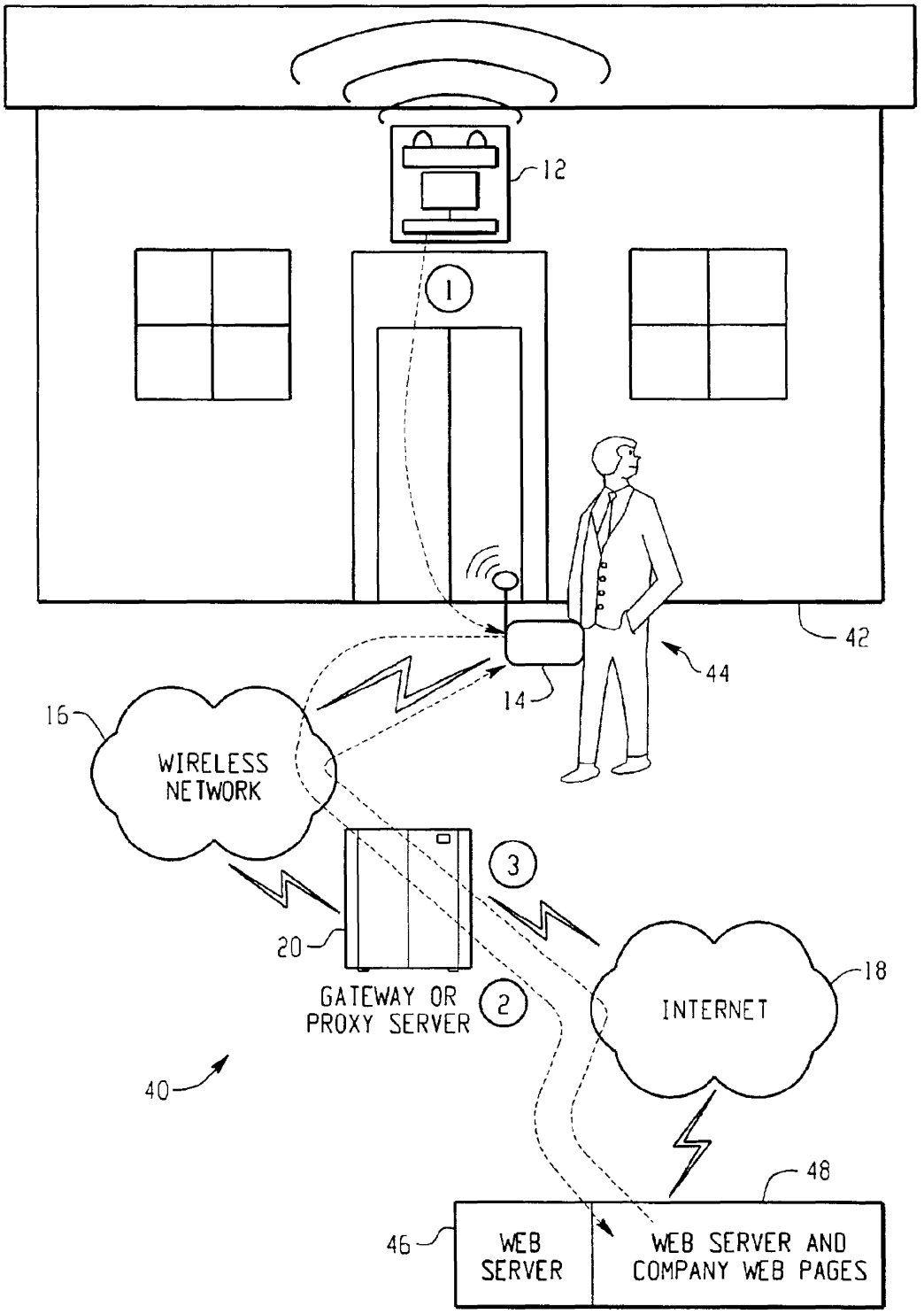

12
1
42
44
14
16
WIRELESS NETWORK
3
20
GATEWAY OR PROXY SERVER
2
INTERNET
18
40
48
46
WEB SERVER
WEB SERVER AND COMPANY WEB PAGES

Fig. 3

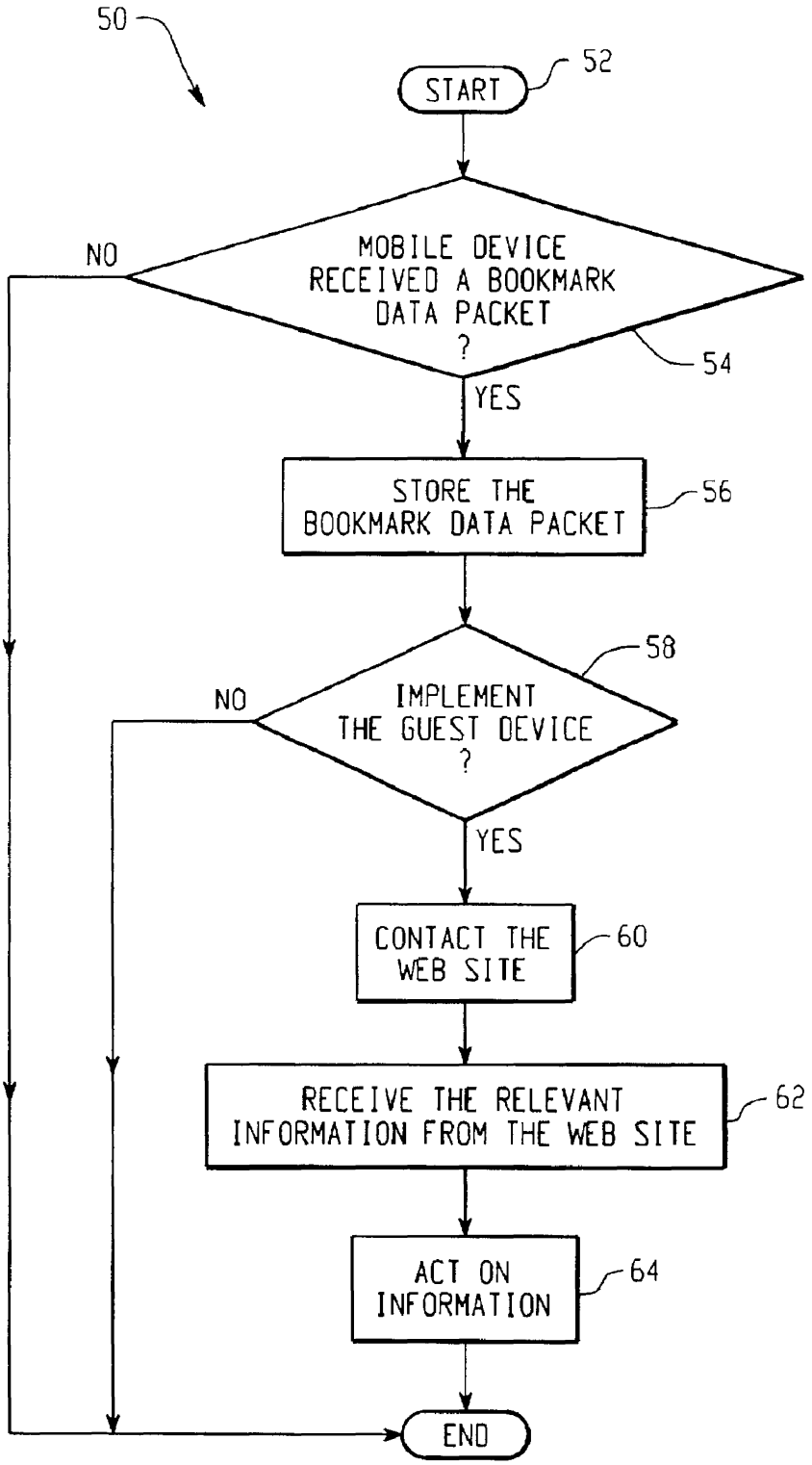

50
START
52
MOBILE DEVICE RECEIVED A BOOKMARK DATA PACKET ?
NO
54
YES
STORE THE BOOKMARK DATA PACKET
56
58
IMPLEMENT THE GUEST DEVICE ?
NO
YES
CONTACT THE WEB SITE
60
RECEIVE THE RELEVANT INFORMATION FROM THE WEB SITE
62
ACT ON INFORMATION
64
END

Fig. 4

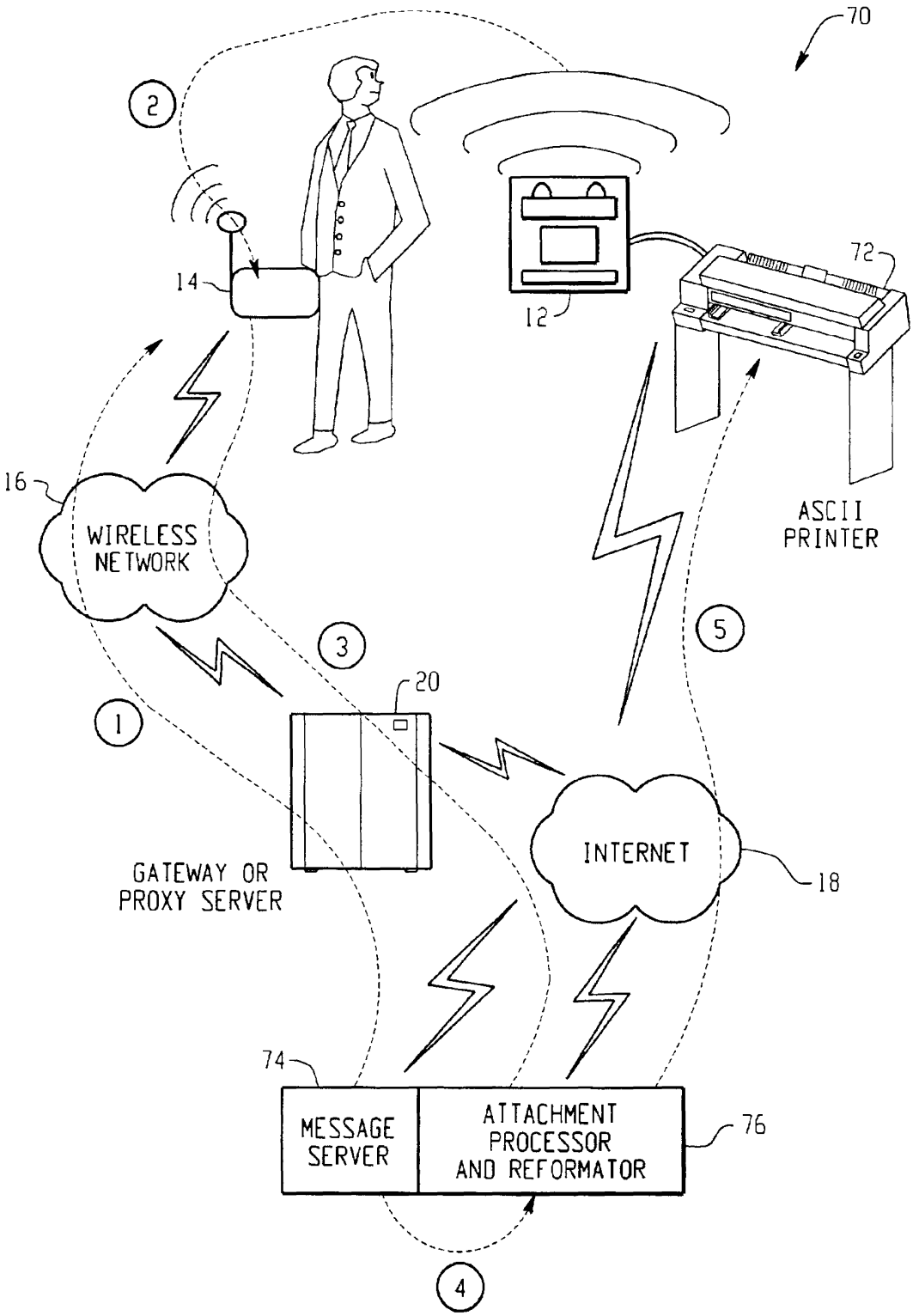

70
2
14
12
72
16
WIRELESS NETWORK
ASCII PRINTER
5
3
20
1
GATEWAY OR PROXY SERVER
INTERNET
18
74
MESSAGE SERVER
ATTACHMENT PROCESSOR AND REFORMATOR
76
4

Fig. 5

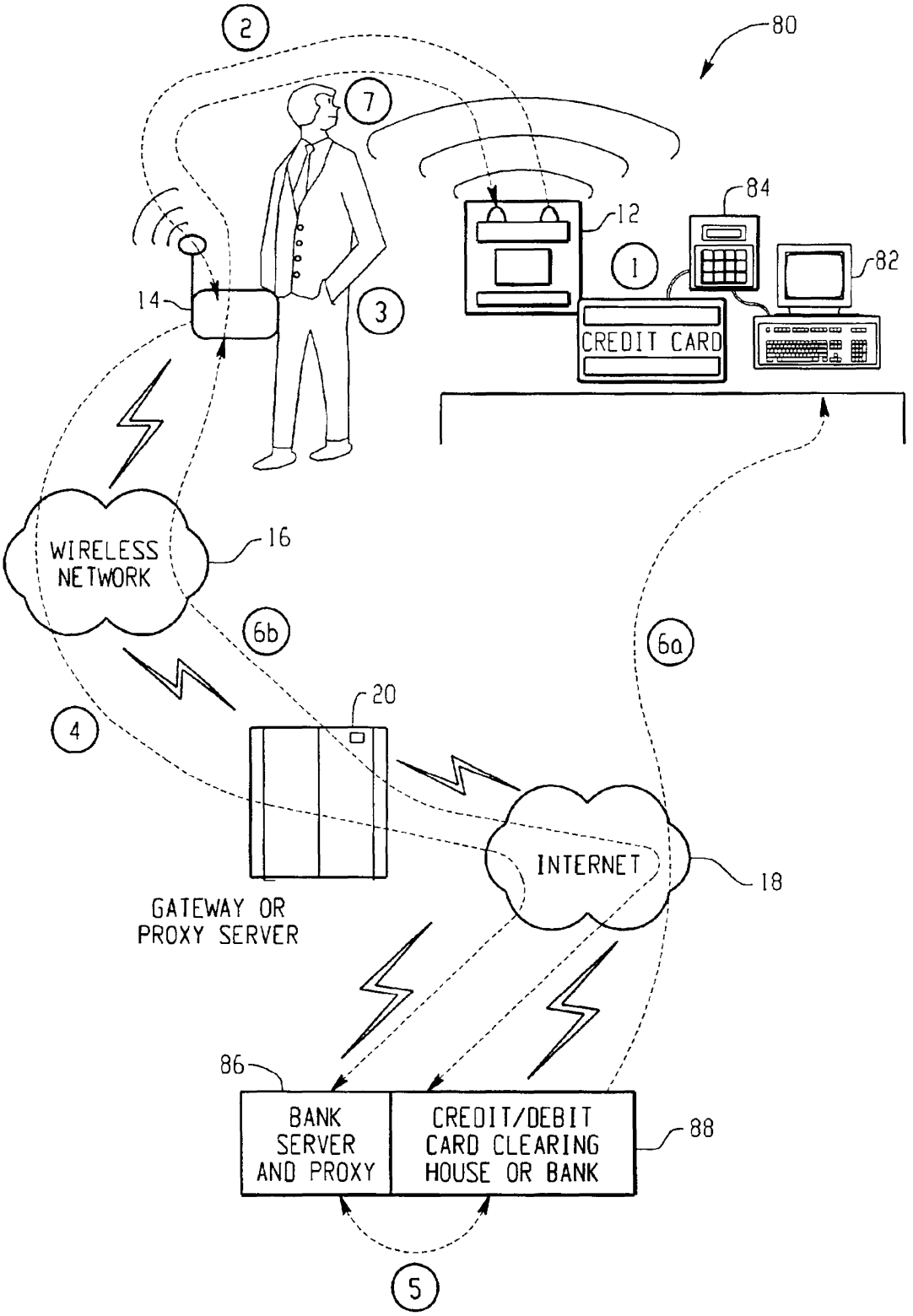

80
2
7
12
84
82
1
14
3
CREDIT CARD
WIRELESS NETWORK
16
6b
6a
20
4
INTERNET
18
GATEWAY OR PROXY SERVER
86
BANK SERVER AND PROXY
CREDIT/DEBIT CARD CLEARING HOUSE OR BANK
88
5

Fig. 6

BOOKMARK BEACON SYSTEM AND METHOD

CROSS-REFERENCE TO RELATED APPLICATION

This application claims priority from and is related to the following prior application: Bookmark Beacon Method and System, U.S. Provisional Application No. 60/232,037 filed Sep. 12, 2000. This prior application, including the entire written description and drawing figures, is hereby incorporated into the present application by reference.

BACKGROUND

1. Field of the Invention

This invention relates generally to an information beacon. More particularly, the invention provides a system and method for a bookmark beacon that enables communication with any device having access to a computer network, such as the Internet. The invention is particularly well-suited for communicating with Personal Digital Assistants, mobile communication devices, cellular telephones, and wireless two-way e-mail communication devices (collectively referred to hereinafter as "wireless devices").

2. Description of the Related Art

Communication between a wireless device and traditionally non-wireless equipment, such as printers, facsimile machines, ATMs, etc., currently requires the equipment to be specially manufactured with wireless capabilities, such as a Bluetooth® interface. Bluetooth® is a de facto standard, as well as a specification for small-form factor, low-cost, short-range radio links between wireless devices. The manufacture of wireless-enabled equipment, however, involves increased cost, additional power consumption, and relatively complex hardware.

SUMMARY

A bookmark beacon system comprises a computer network, a wireless network configured to enable a wireless device to access the computer network, and a bookmark beacon that transmits a bookmark data packet to the wireless device. The bookmark data packet includes a resource address that enables the wireless device to retrieve information stored on the computer network.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a block diagram of an exemplary bookmark beacon system according to one embodiment of the claimed invention;

FIG. **2** is a block diagram showing one exemplary embodiment of the bookmark beacon;

FIG. **3** is an illustrative diagram showing an exemplary embodiment of the bookmark beacon system in which the bookmark beacon is associated with a physical location such as a commercial establishment;

FIG. **4** is a flow diagram showing an exemplary method for retrieving information on a wireless device relating to a guest device having a bookmark beacon;

FIG. **5** is an illustrative diagram showing an exemplary electronic messaging system for wireless devices that utilizes a bookmark beacon associated with a network-enabled printer; and

FIG. **6** is an illustrative diagram showing an exemplary electronic banking system that utilizes a bookmark beacon associated with a point-of-sale (POS) device.

DETAILED DESCRIPTION

Referring now to the figures, FIG. **1** is a block diagram of an exemplary bookmark beacon system **10**. The system **10** includes a bookmark beacon **12**, a wireless device **14**, and a wireless communications network **16** through which the wireless device **14** can access the Internet **18** via a proxy server **20**. In addition, the bookmark beacon **12** may be physically coupled with, or in close proximity to, a guest device **22**.

Operationally, the bookmark beacon **12** transmits a bookmark data packet **24** to the wireless device **14**, including information that is used by the wireless device **14** to access a network server **26** having a website **28** associated with the guest device **22**. Through an Internet connection, the wireless device **14** may, for example, communicate with the guest device **22**, retrieve information relating to the guest device **22**, or interact with applications associated with the guest device **22**. Alternatively, if the guest device **22** has a network connection, the bookmark data packet **24** may provide the wireless device **14** with the information necessary to directly access the guest device **22** (such as an IP address for the guest device **22**). It should be understood, however, that the bookmark beacon system **10** is not limited to use with the Internet **18**, but may be implemented using any computer network, such as a corporate Intranet or a large network operator.

The guest device **22** may be any type of device or structure, such as a store front, a printer, a facsimile machine, an ATM, or a cash register. Various embodiments of the bookmark beacon system **10** utilizing different types of guest devices are described in detail herein. Alternatively, the bookmark beacon system **10** may be implemented without a guest device **22**. For instance, a bookmark beacon **12** could be used independently to communicate information, such as an advertisement, to a nearby wireless device **14**.

The bookmark data packet **24** transmitted by the bookmark beacon **12** preferably includes a resource address, such as an IP address or a Uniform Resource Locator (URL), that enables the wireless device **14** to locate a network server **26** and website **28** over the Internet **18**. Alternatively, the resource address may enable a network connection directly to the guest device **22**. The data packet **24** may also include a limited amount of text describing the purpose of the bookmark beacon **12**. The descriptive text preferably enables a wireless device user to determine if he or she is interested in further interaction with the system **10**. In addition, the data packet **24** may further include data relating to the wireless device user's interaction with the guest device **22**. For example, the data packet **24** might identify a cash register and the price of merchandise purchased by the wireless device user. In any case, the data packet **24** is preferably a short data stream that does not impose a heavy transmission demand on the bookmark beacon **12**.

Upon receiving the bookmark data packet **24**, the mobile device user is preferably given the option to then access the server **26** and website **28** or the guest device **22** identified by the resource address. Communication with the Internet is preferably achieved through an existing wireless network **16** and proxy server **20**. Communications across the wireless network **16** and proxy server **20** involve operations that are commonly understood by those skilled in the art of wireless communications. Communication across the wireless network connection **16** may be facilitated on the wireless device **14** using any known software that is capable of interfacing the wireless device **14** with the proxy server **20**. The proxy server **20** is then used as a gateway that allows the

wireless device **22** to indirectly communicate with the website **28** or guest device **22** over the network connection. The proxy server **20** preferably communicates with the target website **28** through a Hypertext Transfer Protocol (HTTP) fetch and cache component. The target website **28** relating to the guest device **22** may operate on a range of computers, computer systems, or networks. For example, information or software applications relating to the guest device **22** could be stored in local databases, on an Intranet, or on the Internet **18**. The fetch and cache component of the proxy server **20** stores the web pages that are returned from the website **28** in response to commands by the wireless device user. A wireless transport layer at the proxy server **20** then transmits the information through the wireless network connection **16** to the mobile device **14**.

FIG. **2** is a block diagram **30** showing one exemplary embodiment of the bookmark beacon **12**. The exemplary bookmark beacon **12** comprises a short-range serial infrared data communicator **32**, a microprocessor **34**, and a power source **36**. The bookmark beacon **12** is preferably a wireless-enabled tag that uses the short-range serial infrared data communicator **32** to transmit the bookmark data packets **24**. The data communicator **32** is preferable an IrDA (Infrared Data Association) port coupled to a microprocessor **34**. The IrDA standard has been widely accepted throughout the wireless industry as a means of realizing low-power, non-interfering, interoperable data links. As a result, many commercially-available wireless devices include IrDA ports. It should be understood, however, that the bookmark beacon **12** could be implemented using any known means for transmitting data to a wireless device, such as a radio frequency transmitter. The power source **36** is preferably a battery, but could be any type of power source capable of supplying sufficient power to the processor **34**.

Operationally, the processor **34** is programmed to contain the data to be included in the bookmark data packet **24**. The processor **34** may, for example, be programmed through a small keyboard attached to the housing of the bookmark beacon **12**, or through an external electrical interface such as a serial port, or by any means of communicating data to the bookmark beacon **12**. The processor then transmits the data packet **24** through the IrDA port **32** for reception by any mobile device within wireless communication range. This transmission may be a continuous transmission, or may be configured to transmit at a periodic interval.

In an alternative embodiment, the bookmark beacon **12** may be implemented using a standard personal computer (PC) configured with an IrDA port. The transmission of data through IrDA ports is commonly understood by those skilled in the art, and is described in the "IrDA-Compatible Data Transmission Design Guide," TELEFUNKEN Microelectronic GmbH, April 1996.

FIG. **3** is an illustrative diagram showing an exemplary embodiment **40** of the bookmark beacon system **10** in which the bookmark beacon **12** is associated with a physical location, such as a commercial establishment **42**. In this embodiment **40**, the bookmark beacon **12** is preferably mounted on or near the commercial establishment **42**. When a wireless device user **46** approaches the establishment **42**, his or her wireless device **12** receives a bookmark data packet **24** from the bookmark beacon **12**. The bookmark data packet **24** may then be used by the wireless device user **46** to retrieve information relating to the commercial establishment **42**.

Step **1**, identified in FIG. **3** by a number one (1) enclosed in a circle, illustrates the transmission of the bookmark data packet **24** from the bookmark beacon **12** to the wireless device **14**. This transmission may occur automatically as the wireless device user **44** approaches or enters the establishment **42**. Alternatively, the user may select a function on his or her wireless device **12** that instructs the device **12** to receive bookmark beacon signals. If the wireless device user **44** chooses to interact with the system **40**, then in step **2** the bookmark data packet **24** is used to access a web server **46** that includes web pages **48** containing information relating to the commercial establishment **42**. As discussed above with respect to FIG. **1**, the web server **46** and web pages **48** are preferably accessed by the wireless device **14** through a wireless network **16** that is linked to the Internet **18** by a proxy server **20**. Once the web pages **48** are accessed by the proxy server **20**, information relating to the commercial establishment **42** is collected, and the information is delivered to the wireless device **14** in step **3**. The information delivered from the web pages could include, for example, advertisements, sales, or any other information relating to the commercial establishment.

In other exemplary embodiments of the bookmark beacon system **10**, the bookmark beacon **12** may be associated with, for example, a cash register in a restaurant, a facsimile machine, a printer, a secure door, or even a tree. These exemplary embodiments are described below to illustrate the various configurations (and/or guest devices) well within the scope of the bookmark beacon system. It should be understood, however, that the bookmark beacon system is not limited to these exemplary embodiments, but may be utilized in a wide variety of applications.

1. Cash Register Example—At a restaurant, a mobile device user orders a meal (order A) and sits at table B. A waiter enters order A into a cash register with a web browser interface. The order and amounts owing are managed and maintained securely stored on a web page that is reserved for orders relating to table B. The wireless device user then completes his or her meal and initiates communication with a bookmark beacon, attached to table B, that provides the mobile device with a bookmark data packet identifying the web page associated with table B. The mobile device then accesses the web page as described above. Upon receiving the preferably secure web page, the user may, for example, be able to review his or her order, confirm the order and complete payment for such transaction. The bookmark data packet utilized in this exemplary embodiment may comprise the following information:

   www.domain.tld{ID}

   Wherein: www.domain.tld=resource address containing order information; and

   ID=table identifier

2. Facsimile Machine Example—A wireless device user approaches a facsimile machine that has an attached bookmark beacon. The user's wireless device then receives a bookmark data packet from the bookmark beacon attached to the facsimile machine that preferably includes a resource address containing the URL of a webpage associated with the facsimile machine. The webpage may contain, for example, the facsimile number, owner, physical address and possibly the IP address of the facsimile machine. Once the resource address has been obtained, the wireless device may, for example, send data wirelessly to the fax machine using the facsimile number, or send data to the facsimile machine over the network using the IP address. In an alternative embodiment, the

bookmark data packet may contain the resource address enabling the wireless device to transmit data over the network directly to the facsimile machine without first accessing a related web page. Advantageously, this example enables legacy facsimile machines (i.e., facsimile machines that are not wireless enabled) to communicate with mobile devices.

3. Printer Example—A wireless device user approaches a computer printer that has an attached bookmark beacon. The user's wireless device then receives a bookmark data packet from the bookmark beacon that preferably includes the URL of a web page that provides the wireless device with the necessary protocols to communicate with the printer. The webpage may include, for example, the owner, physical address and IP address of the printer as well as a printer driver for communication with the printer. Once the printer information has been obtained, the wireless device may, for example, transmit data to the printer over the network using the IP address. In an alternative embodiment, the bookmark data packet may contain the printer information, enabling the wireless device to communicate directly with the printer without first accessing a web page. Advantageously, this example enables legacy printers (i.e., printers that are not wireless enabled) to communicate with mobile devices such that a user may print out documents from the mobile device without first having to forward the document to the wired network on which the printer is attached.
4. Secure Door Example—A wireless device user approaches a door having an attached security-featured bookmark beacon. The wireless device user then initiates communication with the bookmark beacon, and the bookmark beacon provides the mobile device with a bookmark data packet identifying a web page. The bookmark data packet in this exemplary embodiment may, for example, comprise the following information:

www.domain.tld{ID:PS}

Wherein: www.domain.tld=resource address containing order information

ID=door identifier

PS=password

The bookmark beacon password is preferably generated in synchronization with a server-based password. Once the mobile device has accessed the preferably secure web page, the mobile device submits a secure password to the server. If the password submitted by the mobile device and the password encoded in the bookmark data packet are synchronized with the server-based password, then the door is unlocked.

5. Tree Example—To illustrate the wide array of applications of the bookmark beacon system, the system may be applied to such a simple item as a tree. In this exemplary embodiment, a bookmark beacon is embedded on a tree. The bookmark beacon then transmits a resource address pointing any mobile device to a web site describing the features and history of the tree and any other particular information about the tree's species to the user. In this example, the bookmark data packet may, for example, comprise the following information:

www.domain.tld

Wherein www.domain.tld=resource address containing tree information

FIG. **4** is a flow diagram showing an exemplary method **50** for retrieving information on a wireless device relating to a guest device having a bookmark beacon. The method begins at step **52** when a wireless device comes within proximity of a bookmark beacon. In step **54** the bookmark beacon transmits a bookmark data packet that is received by the wireless device. Once the bookmark data packet is received, the wireless device stores the bookmark data packet to enable a wireless device user to retrieve the information necessary to communicate with the guest device (step **56**). If the wireless device user chooses to interact with (or receive information concerning) the guest device (step **58**), then the mobile device contacts a web site identified by the bookmark data packet (step **60**). In step **62**, the web site preferably determines the relevant information regarding the guest device such as protocols and drivers that the user requires, and then downloads that information to the user's mobile device. The information downloaded to the wireless device may preferably be in a variety of forms such as simple text, graphics and text, applets, forms, etc. Then, in step **64**, the wireless device or wireless device user may act on the downloaded information as described herein.

FIG. **5** is an illustrative diagram showing an exemplary electronic messaging system **70** for wireless devices **14** that utilizes a bookmark beacon **12** associated with a network-enabled printer **72**. The system **70** includes a bookmark beacon **12** attached to, or in the vicinity of, a printer **72** that is coupled to the Internet **18** or some other computer network. The printer **72** is configured to receive print jobs across the Internet **18**, preferably using an Internet Printing Protocol (IPP). Operationally, the system enables a wireless device user to forward e-mail attachments that cannot be viewed on the wireless device **14** over the Internet **18** to the network-enabled printer **72**.

In step **1**, identified in FIG. **5** by a number one (1) enclosed in a circle, a wireless device user receives an e-mail message from a messaging server **74** that includes attachments that the messaging server **74** is unable to forward to the wireless device **14**. This restriction may, for example, be due to storage limitations, formatting problems or limited viewing capability on the mobile device **14**. Once the wireless device user receives the e-mail message with a notification that an attachment could not be forwarded, the system **70** then preferably gives the user the option to print the attachment on a network-enabled printer **72**. If the user chooses to print the attachment, then the wireless device **14** preferably (1) searches for a signal from a bookmark beacon **12**, and (2) if a signal is identified, then receives the addressing and capability information for the printer **72** in the form of a bookmark data packet (step **2**). Then, in step **3**, the wireless device **14** transmits a print request along with the information contained in the bookmark beacon data packet to the message server **74**. Once the print request and printer data are received, the message server **74** then preferably passes the information to an attachment processor and reformatting component **76** (step **4**). The attachment processor and reformatting component **76** then preferably extracts the attachment from the e-mail message and reformats the attachment for printing. The reformatting operation may be performed, for example, using the PostScript printer formatting language. Once reformatting is complete, the attachment processor establishes communication with the printer **72** over the Internet **18**, and transmits the attachment to the printer using the IPP method supported by the Internet network **18** (step **5**). It should be understood, however, that other printer formats could be used and other printer protocols could be employed.

FIG. **6** is an illustrative diagram showing an exemplary electronic banking system that utilizes a bookmark beacon

associated with a point-of-sale (POS) device. The system includes a bookmark beacon **12** attached to, or in the vicinity of, a POS device **84** that is coupled to the Internet **18** or some other computer network. Operationally, this system may be used, for example, to authorize a credit or debit transaction for the purchase of some items.

Step **1**, identified in FIG. **6** by a number one (1) enclosed in a circle, occurs when a wireless device user completes a sale of some form and is not paying cash. At the retail sale point there is a cash register **82** and a point-of-sale (POS) device **84**. The POS device **84** may, for example, include a debit machine, a credit machine or a combination of both. In step **1**, the POS device **84** preferably receives the amount of the sale and type of transaction from the cash register **82**, and requires the wireless device user to enter a Personal Identification Number (PIN). Then, in step **2**, the information received by the POS device **84** is transferred from the POS device **84** to the bookmark beacon **12**, and transmitted to the user's wireless device **14** in the form of a bookmark beacon data packet. In addition, the bookmark beacon data packet preferably includes the Internet address of a Bank Server and Proxy **86** associated with the POS device **84**, which is configured to process the transaction. Once the bookmark beacon data packet is received at the wireless device **14**, the wireless device user preferably reviews the information and accepts or denies the transaction at step **3**. If the wireless device user accepts the transaction, then in step **4**, the transaction request is delivered over wireless network **16** and Internet **18** to the Bank Server and Proxy **86**. The Bank Server and Proxy **86** then, in step **5**, transfers the transaction information to the network location **88** of a bank or a credit/debit clearing house that records the wireless device user's account information and verifies the PIN validity. If the transaction information is verified, then the bank or clearing house **88** accepts the transaction by transmitting the necessary information directly to the POS device **84** over the Internet **18** (step **6***a*).

In an alternative embodiment, the bookmark beacon **12** includes a bi-directional IrDA or RF interface utilized to avoid the need for a land-line link between the bank or clearing house **88** and every retail outlet. In this embodiment, the verification information from the bank or clearing house **88** is transmitted back to the wireless device **14** in the form of an encoded verification message as shown in step **6***b*. Then, in step **7**, the encoded message is transmitted by the wireless device **14** to the bi-directional interface of the bookmark beacon **12**. The verification message is then transferred to the POS device **84** where the transaction is completed.

The embodiments described herein are examples of structures, systems or methods having elements corresponding to the elements of the invention recited in the claims. This written description may enable those skilled in the art to make and use embodiments having alternative elements that likewise correspond to the elements of the invention recited in the claims. The intended scope of the invention thus includes other structures, systems or methods that do not differ from the literal language of the claims, and further includes other structures, systems or methods with insubstantial differences form the literal language of the claims.

I claim:

1. An electronic messaging system, comprising:

a plurality of wireless devices;

a computer network;

a wireless network that enables the plurality of wireless devices to access the computer network;

one or more printers coupled to the computer network, wherein each printer has a unique printer address on the computer network;

a bookmark beacon associated with each printer that transmits a bookmark data packet identifying the unique printer address of the associated printer, wherein the bookmark data packet can be received by the plurality of wireless devices; and

a message server having a unique location on the computer network that transmits and receives electronic messages to and from the plurality of wireless devices over the computer network and wireless network, and that is also configured to (a) receive one of the unique printer addresses from one of the wireless devices, and (b) transmit an electronic message identified by the one wireless device over the computer network to the printer associated with the one unique printer address;

an attachment processor and reformator operating on the message server that (a) receives electronic messages from the message server that include attachments which have been identified for printing by the one wireless device, (b) extracts the attachment from the electronic message, (c) formats the attachment for printing, and (d) transmits the attachment over the computer network to the printer associated with the one unique printer address;

wherein the message server (1) notifies a wireless device user when an one or more of said electronic messages is received that includes one or more of said an attachments that are is too long unable to be transmitted to one of the wireless devices, and (2) provides the wireless device user with an option to print the one or more attachments using the attachment processor and reformator.

2. The system of claim **1** wherein communications between the computer network and the wireless network are made through a proxy server.

3. The system of claim **1**, wherein the unique location of the message server on the computer network is an Internet website.

4. The system of claim **1**, wherein the bookmark data packet is stored on the wireless device.

5. The system of claim **1**, wherein the bookmark data packet contains information enabling the wireless device to format the attachment before transmission to the printer over the computer network such that the attachment is transmitted in a format associated printer.

6. The system of claim **1**, wherein the computer network is an Internet.

7. The system of claim **1**, wherein the bookmark beacon includes an infrared data communicator, and transmits the bookmark data packet by the infrared data communicator.

8. The system of claim **6**, wherein the infrared data communicator comprises an Infrared Data Association (IrDA) port.

9. The system of claim **1**, wherein the unique location of the message server on the computer network is an Internet Protocol (IP) address.

10. The system of claim **1**, wherein the unique location of the message server on the computer network is a Uniform Resource Locator (URL).

11. The system of claim **1**, wherein the message server provides the wireless device user with an option to transmit the attachment to a facsimile machine using the attachment processor and reformator.

12. An electronic messaging system, comprising:

a plurality of wireless devices;

a computer network;

a wireless network that enables the plurality of wireless devices to access the computer network;

one or more resources coupled to the computer network, wherein each resource has a unique resource address on the computer network;

a bookmark beacon associated with each resource that transmits a bookmark data packet identifying the unique resource address of the associated resource, wherein the bookmark data packet can be received by the plurality of wireless devices; and

a message server having a unique location on a computer network that transmits and receives electronic messages to and from a plurality of wireless devices over a computer network and wireless network, and that is also configured to (a) receive one of the unique resource addresses from one of the wireless devices, and (b) transmit an electronic message identified by the one wireless device over the computer network to the resource associated with the one unique resource address;

an attachment processor and reformator operating on the message server that (a) receives electronic message from the one wireless device that include an attachments which has been identified for transmission to the resource, (b) extracts the attachment from the electronic message, (c) formats the attachment for printing, and (d) transmits the attachment over the computer network to the resource associated with the one unique resource address;

wherein the message server (1) notifies a wireless device user when one or more of said electronic messages is received that includes one or more attachments that are unable to be transmitted to one of the wireless devices, and (2) provides the wireless device user with an option to transmit one or more attachments to the resource associated with the one unique resource address.

13. The system of claim **11**, wherein the resource is a printer.

14. The system of claim **11**, wherein the resource is a facsimile machine.

15. The system of claim **11**, wherein the resource address is an Internet Protocol (IP) address.

16. The system of claim **11**, wherein the resource address is a Uniform Resource Locator (URL).

17. The system of claim **11**, wherein communications between the computer network and the wireless network are made through a proxy server.

18. The system of claim **11**, wherein the computer network is an Internet.

19. The system of claim **11**, wherein the bookmark beacon includes an infrared data communicator, and transmits the bookmark data packet by the infrared data communicator.

20. The system of claim **18**, wherein the infrared data communicator comprises an Infrared Data Association (IrDA) port.

21. The system of claim **11**, wherein the unique location of the message server on the computer network is an Internet website.

22. The system of claim **11**, wherein the bookmark data packet is stored on the wireless device.

23. The system of claim **11**, wherein the bookmark data packet contains information enabling the wireless device to format the attachment before transmission to the resource over the computer network such that the attachment is transmitted in a format associated with the resource.

24. A method for electronic messaging, comprising the steps of:

transmitting to a wireless device a bookmark data packet from a bookmark beacon associated with a resource that identifies a unique resource address of the associated resource;

transmitting the bookmark data packet from the wireless device to a message server having a unique location on a computer network, and that is also configured to (a) receive one of the unique printer addresses from one of the wireless devices, and (b) transmit an electronic message identified by the one wireless device over the computer network to the resource associated with the unique resource address;

receiving electronic messages from the message server that include attachments which have been identified for printing by the one wireless device;

extracting the attachment from the electronic message;

formatting the attachment for the identified resource;

transmitting the attachment over the computer network to the resource associated with the one unique resource address;

notifying a wireless device user when one or more of said electronic messages are received that include one or more of said attachments that are unable to be transmitted to one of the wireless devices; and

providing the wireless device user with an option to print the one or more attachments using an attachment processor and reformator.

25. The method of claim **23**, wherein the resource is a printer.

26. The method of claim **23**, wherein the resource is a facsimile machine.

27. The method of claim **23**, wherein the resource address is an Internet Protocol (IP) address.

28. The method of claim **23**, wherein the resource address is a Uniform Resource Locator (URL).

29. The method of claim **23**, wherein computer network is an Internet.

30. The method of claim **23**, wherein the bookmark beacon includes an infrared data communicator, and transmits the bookmark data packet by the infrared data communicator.

31. The method of claim **29**, wherein the infrared data communicator comprises an Infrared Data Association (IrDA) port.

32. The method of claim **23**, wherein the unique location of the message server on the computer network is an Internet website.

33. The method of claim **23**, wherein the bookmark data packet is stored on the wireless device.

34. The method of claim **23**, further comprising the step of formatting the attachment such that the attachment is transmitted in a format associated with the resource before the step of transmitting the bookmark data packet from the wireless device to the message server.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

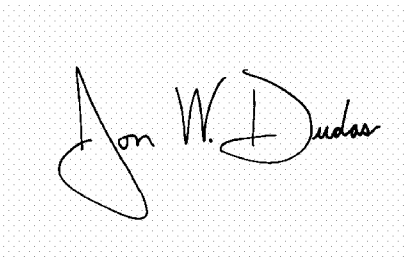
PATENT NO. : 7,000,001 B2
APPLICATION NO. : 09/929375
DATED : February 14, 2006
INVENTOR(S) : Lazaridis

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 8, line 25, please delete “an” after “user when”
Column 8, line 26, please delete “an” after “of said”
Column 8, line 27, please delete “is too long” after “that are”
Column 8, line 44, please insert “with the” before “printer”
Column 8, line 50, please replace “of claim 6” with -- of claim 7 --
Column 9, line 36, please replace “of claim 11” with -- of claim 12 --
Column 9, line 38, please replace “of claim 11” with -- of claim 12 --
Column 9, line 40, please replace “of claim 11” with -- of claim 12 --
Column 9, line 42, please replace “of claim 11” with -- of claim 12 --
Column 9, line 44, please replace “of claim 11” with -- of claim 12 --
Column 9, line 47, please replace “of claim 11” with -- of claim 12 --
Column 9, line 49, please replace “of claim 11” with -- of claim 12 --
Column 9, line 52, please replace “of claim 18” with -- of claim 19 --
Column 9, line 55, please replace “of claim 11” with -- of claim 12 --
Column 9, line 55, please replace “of claim 11” with -- of claim 12 --
Column 9, line 58, please replace “of claim 11” with -- of claim 12 --
Column 9, line 60, please replace “of claim 11” with -- of claim 12 --
Column 10, line 34, please replace “of claim 23” with -- of claim 24 --
Column 10, line 36, please replace “of claim 23” with -- of claim 24 --
Column 10, line 38, please replace “of claim 23” with -- of claim 24 --
Column 10, line 40, please replace “of claim 23” with -- of claim 24 --
Column 10, line 42, please replace “of claim 23” with -- of claim 24 --
Column 10, line 44, please replace “of claim 23” with -- of claim 24 --
Column 10, line 48, please replace “of claim 29” with -- of claim 30 --
Column 10, line 51, please replace “of claim 23” with -- of claim 24 --
Column 10, line 54, please replace “of claim 23” with -- of claim 24 --
Column 10, line 56, please replace “of claim 23” with -- of claim 24 --

Signed and Sealed this

Tenth Day of April, 2007



JON W. DUDAS
Director of the United States Patent and Trademark Office