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(54) **REMINDER MESSAGES**

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G06Q 10/10 (2012.01)

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CPC ***G06Q 10/1093*** (2013.01)

(58) **Field of Classification Search**
CPC G06Q 10/10; G06Q 10/1093
See application file for complete search history.

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(57) **ABSTRACT**

In one embodiment, event data descriptive of an event to occur at an event time is received at a first computer system via a network. Reminder data, descriptive of a reminder time to occur on or before the event time, is received via the network. At a time after receipt of the event data, article data descriptive of an article to be associated with the event is receive via the network. The article data is data created during an electronic scanning operation. At the reminder time a reminder message describing the event and the article is sent via the network to a second computer system, for presentation at the second computer system.

20 Claims, 5 Drawing Sheets

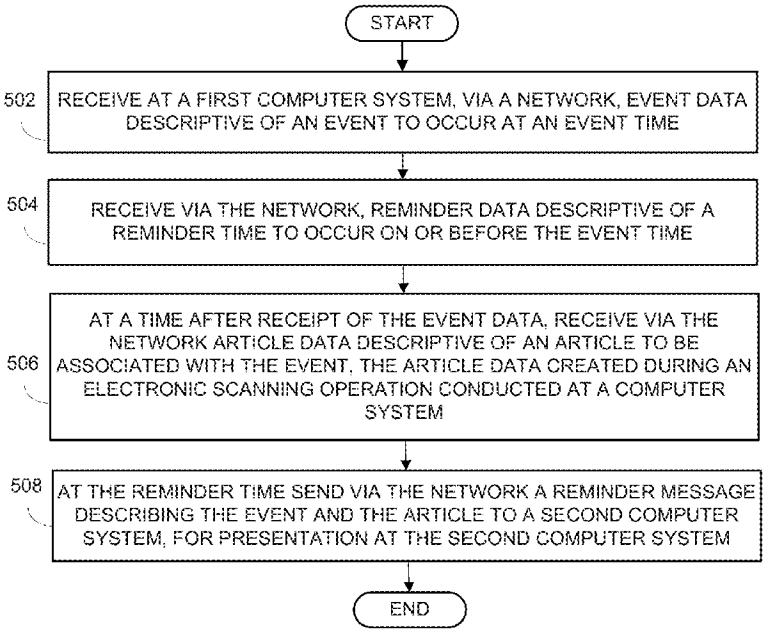


FIG. 1

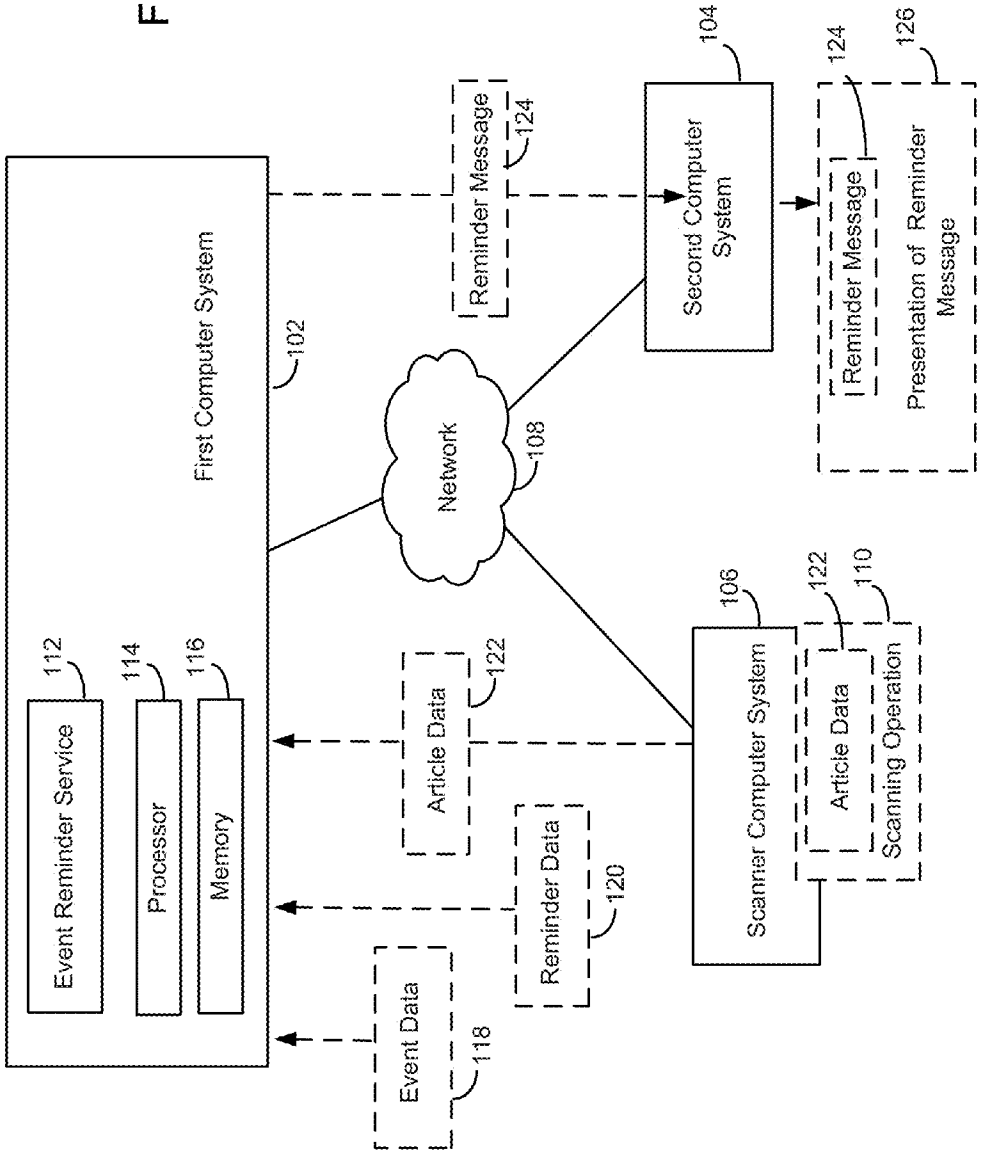
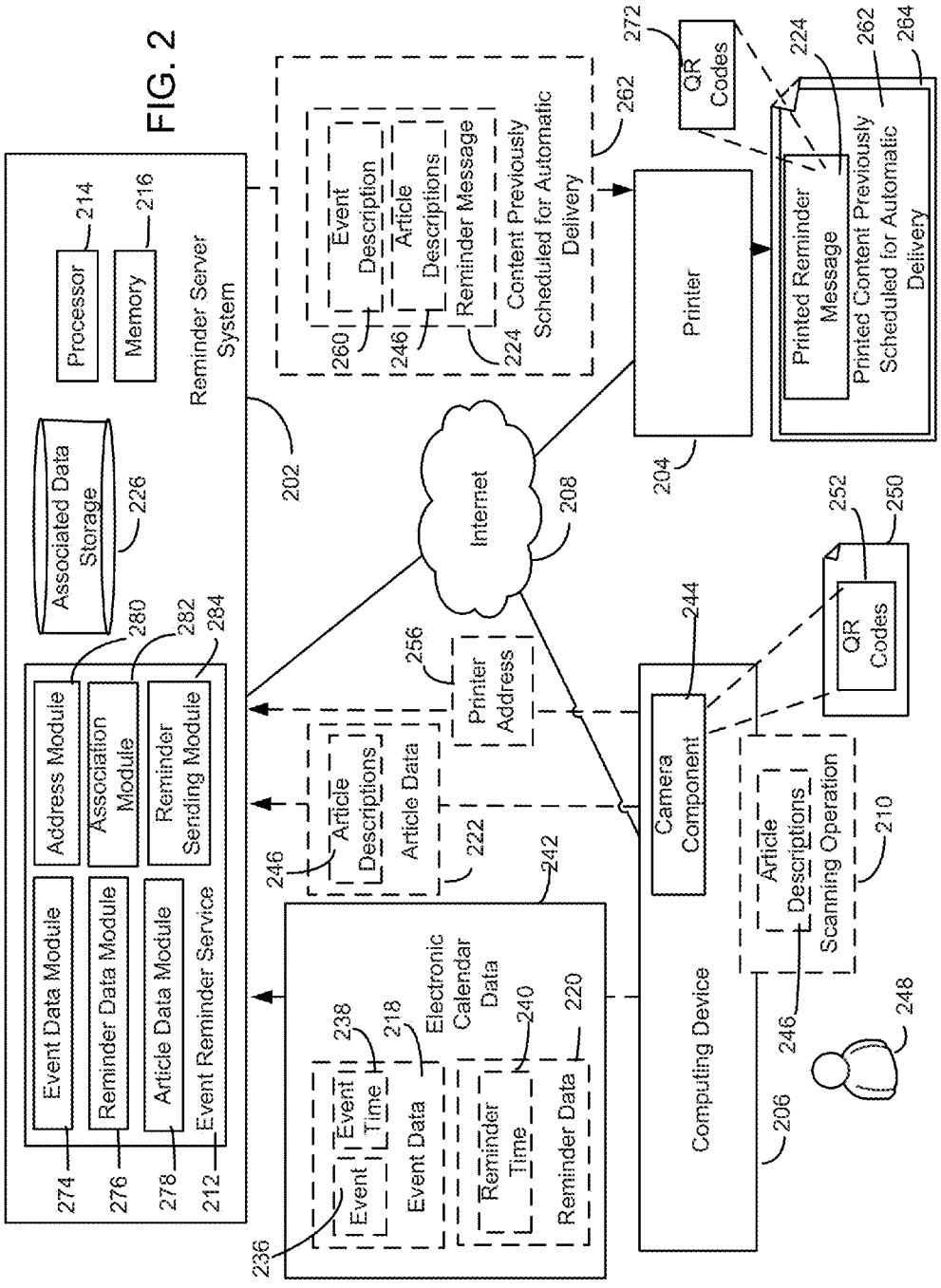
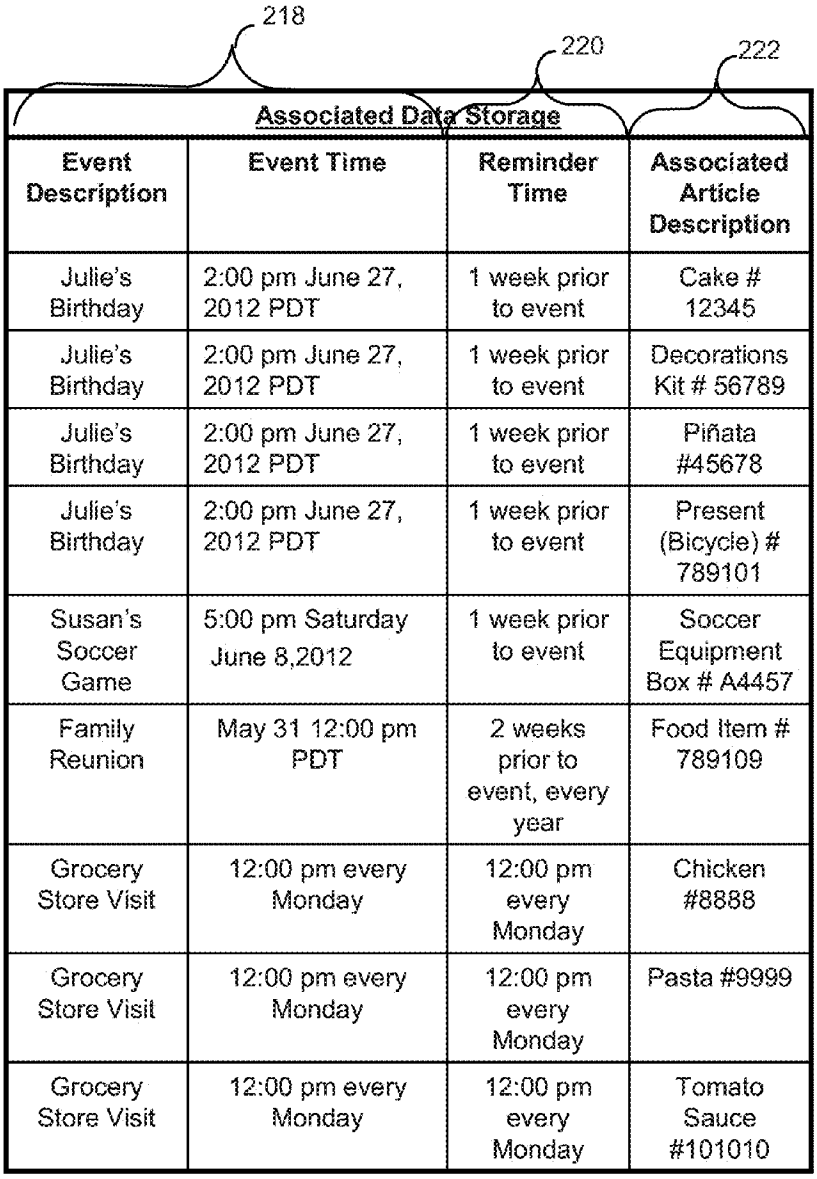

First Computer System
102
Event Reminder Service
112
Processor
114
Memory
116
Event Data
118
Reminder Data
120
Article Data
122
Reminder Message
124
Network
108
Second Computer System
104
Reminder Message
124
Presentation of Reminder Message
126
Scanner Computer System
106
Article Data
122
Scanning Operation
110

FIG. 2


Reminder Server System
202
Processor
214
Memory
216
Associated Data Storage
226
Event Reminder Service
212
Event Data Module
274
Reminder Data Module
276
Article Data Module
278
Address Module
280
Association Module
282
Reminder Sending Module
284
Internet
208
Computing Device
206
Camera Component
244
Electronic Calendar Data
242
Event Data
218
Event
238
Time
Reminder Data
220
Reminder Time
240
Article Data
222
Article Descriptions
246
Printer Address
256
Event Description
260
Article Descriptions
246
Reminder Message
Content Previously Scheduled for Automatic Delivery
224
262
Printer
204
QR Codes
272
Printed Reminder Message
224
Printed Content Previously Scheduled for Automatic Delivery
262
264
QR Codes
252
250
Article Descriptions
246
Scanning Operation
210
248
236



Event Description	Event Time	Reminder Time	Associated Article Description
Julie's Birthday	2:00 pm June 27, 2012 PDT	1 week prior to event	Cake # 12345
Julie's Birthday	2:00 pm June 27, 2012 PDT	1 week prior to event	Decorations Kit # 56789
Julie's Birthday	2:00 pm June 27, 2012 PDT	1 week prior to event	Piñata #45678
Julie's Birthday	2:00 pm June 27, 2012 PDT	1 week prior to event	Present (Bicycle) # 789101
Susan's Soccer Game	5:00 pm Saturday June 8,2012	1 week prior to event	Soccer Equipment Box # A4457
Family Reunion	May 31 12:00 pm PDT	2 weeks prior to event, every year	Food Item # 789109
Grocery Store Visit	12:00 pm every Monday	12:00 pm every Monday	Chicken #8888
Grocery Store Visit	12:00 pm every Monday	12:00 pm every Monday	Pasta #9999
Grocery Store Visit	12:00 pm every Monday	12:00 pm every Monday	Tomato Sauce #101010

FIG. 3

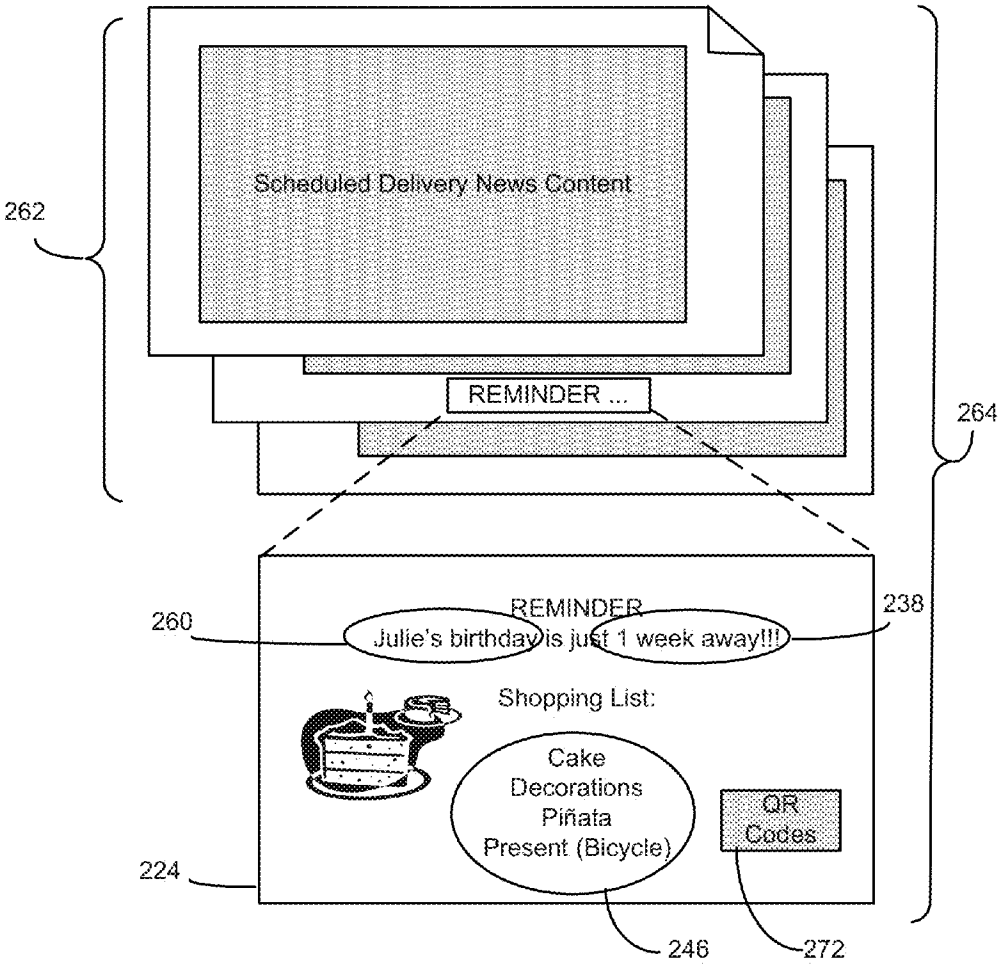

262
Scheduled Delivery News Content
REMINDER ...
264
REMINDER
260
Julie's birthday is just 1 week away!!!
238
Shopping List:
Cake
Decorations
Piñata
Present (Bicycle)
QR Codes
224
246
272

FIG. 4

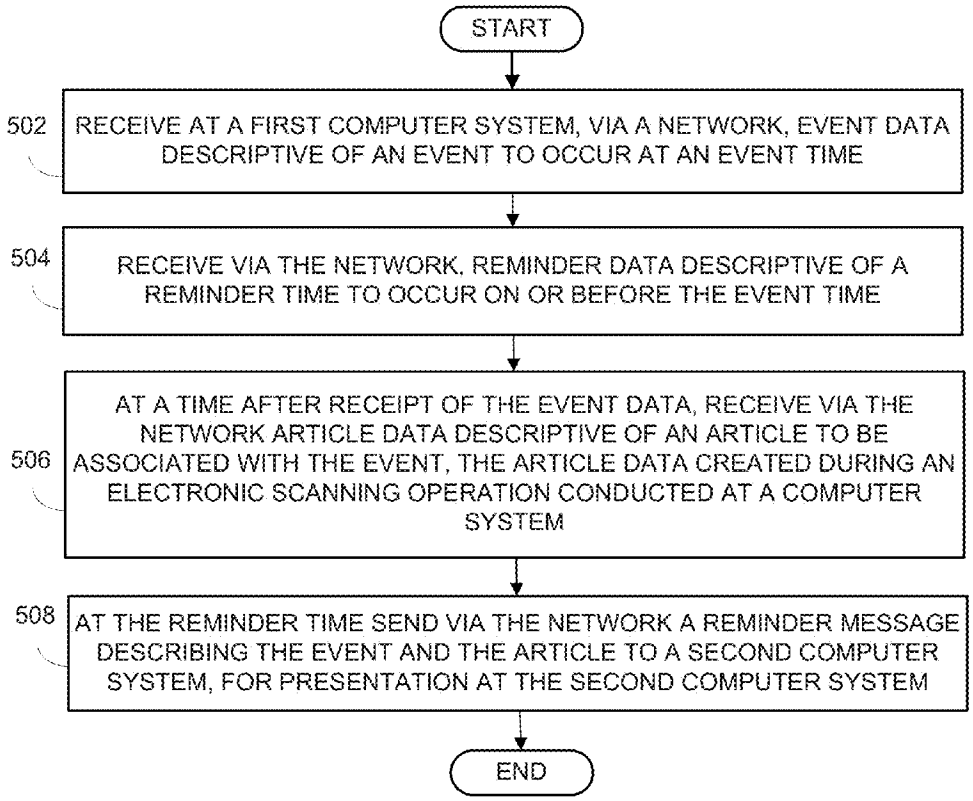

START
502
RECEIVE AT A FIRST COMPUTER SYSTEM, VIA A NETWORK, EVENT DATA DESCRIPTIVE OF AN EVENT TO OCCUR AT AN EVENT TIME
504
RECEIVE VIA THE NETWORK, REMINDER DATA DESCRIPTIVE OF A REMINDER TIME TO OCCUR ON OR BEFORE THE EVENT TIME
506
AT A TIME AFTER RECEIPT OF THE EVENT DATA, RECEIVE VIA THE NETWORK ARTICLE DATA DESCRIPTIVE OF AN ARTICLE TO BE ASSOCIATED WITH THE EVENT, THE ARTICLE DATA CREATED DURING AN ELECTRONIC SCANNING OPERATION CONDUCTED AT A COMPUTER SYSTEM
508
AT THE REMINDER TIME SEND VIA THE NETWORK A REMINDER MESSAGE DESCRIBING THE EVENT AND THE ARTICLE TO A SECOND COMPUTER SYSTEM, FOR PRESENTATION AT THE SECOND COMPUTER SYSTEM
END

FIG. 5

REMINDER MESSAGES

BACKGROUND

People commonly create and maintain a written "shopping lists" or "to do lists" (hereinafter "procurement lists") to keep track of items to purchase. Such lists are often handwritten and hastily composed, e.g., a grocery shopping written list on the back of a used envelope or other scrap of paper.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings illustrate various embodiments and are a part of the specification. The illustrated embodiments are examples and do not limit the scope of the claims. Throughout the drawings, identical reference numbers designate similar, but not necessarily identical elements.

FIG. **1** is a block diagram illustrating a system according to various embodiments.

FIG. **2** is a block diagram illustrating a system according to various embodiments.

FIG. **3** depicts an example of associated storage of event data, reminder data, and article data, according to various embodiments.

FIG. **4** depicts an example reminder message describing an event and an article, for presentation at a computer system, according to various embodiments.

FIG. **5** is a flow diagram depicting steps taken to implement various embodiments.

The same part numbers designate the same or similar parts throughout the figures.

DETAILED DESCRIPTION OF EMBODIMENTS

Handwritten procurement lists frequently have a disadvantage of being vague and/or easily misinterpreted due to one person's difficulty in reading another persons' writing or understanding the other person's intent. For example, a person may write "chicken", "pasta", and "tomato sauce" on a procurement list. Another person, or after a few days may be even the person who wrote the note, may find it difficult to discern from the list details regarding the items to be procured—e.g., what brand, what quantity, and for what meal or event the chicken, pasta, and tomato sauce are to be purchased.

In other situations, a computer user may create and store an electronic procurement list on a mobile phone or other computer, rather than utilizing a handwritten list. Some computer users will create an electronic procurement list that is standalone document in a text or word processing application format. Other computer users may include a procurement list in a cell of an electronic calendar, or record individual procurement needs utilizing a "to do" application that may or may not be associated with an electronic calendar. These methods are improvements over a handwritten paper list in that the electronic list is less likely be physically misplaced or lost, e.g., left in a shopping cart or in an automobile, than a paper list. However, these conventional electronic procurement lists still have the disadvantage of being easily misplaced or lost in other manners. The electronic procurement list is essentially misplaced or lost when a computer user has created and stored multiple lists of items to be procured, and the user cannot quickly identify and retrieve a particular desired list. Similarly, an electronic procurement list is essentially misplaced or lost in a situation

where a user, rather than maintaining a multitude of lists, decides to track many multiple categories of items and items associated with multiple events in a single procurement list. In this situation, a procurement list can become unwieldy to the point that a user finds it difficult and time consuming to find and retrieve descriptions of specific items to be procured.

Accordingly, various embodiments described herein were developed to enable a computer user to easily create, maintain, and retrieve, highly specific and easily understood procurement lists that are associated with defined events. In an example of the disclosure, event data that is descriptive of an event to occur at an event time is received at a first computer system via a network. Also received at the first computer system, via the network, is reminder data that is descriptive of a reminder time to occur on or before the event time. At a time after the receipt of the event data at the first computing system, the first computing system receives via the network article data that is descriptive of an article to be procured, and the article is associated with the event. The article data is data that was created during an electronic scanning operation conducted at a computer. At the reminder time, the first computing system sends via the network to a second computer system, for presentation at the second computer system a reminder message describing both the event and the article. An advantage of the disclosure is that it makes practical a reminder service that does not require users to manually enter articles names or descriptions to create a procurement list. Another advantage of the disclosure is that it removes the need for a user to remember or identify a particular procurement list, as the list is stored in computer memory in association with a particular event and event time. In examples, the events and event times can be user-defined events and event times, e.g., "Mom's birthday" or "Our Anniversary." Another advantage of the disclosure is that the reminder message allows for easy linking of items to be procured with web pages, web sites and other internet addresses, making possible the providing of relevant advertisements, coupons, and other related information to the users of reminder service.

As used in this application, a "network" refers to a collection of computing devices interconnected by communications channels that facilitate communications and allows sharing of resources and information among the interconnected devices. In examples, the network may be a proprietary network, a secured network, an open network, an intranet, an extranet, an internet or the Internet. An "event" refers to an occasion, occurrence, incident, or other happening. For example, a bank holiday, a parent's birthday, a trip to the grocery store, and/or a scheduled time to take a medicine might each be described as an event. A "scanning operation" refers to a computer capturing in digital form and interpreting an image (an image including, but not limited to, a barcode, encoded identifier, or any other article or visual representation of an article). Examples of computers that might perform a scanning operation include, but are not limited to, optical scanners, computers with an attached handheld optical scanner unit, or smartphones, tablet computers, notebook computers, or other computing devices with an onboard camera. "Message" refers to any communication and is not meant to be limited to text or a character string. "Presentation" of content at a computing device refers to displaying, showing, rendering or otherwise making content available for visual, auditory, tactile or other reception by a user. A "printer" or "printing device" refers to any liquid inkjet printer, solid toner-based printer, liquid toner-based printer, or any other electronic device that

prints. "Printer" or "printing device" includes any multi-functional electronic device that performs a function such as scanning and/or copying in addition to printing. A "network-connected printer" refers to a printer that is connected to a network, to be capable of obtaining content, sending and receiving messages, accessing network content, and/or accessing applications via a network. An "electronic calendar" refers to a calendaring program or software that provides a user with an electronic version of a calendar. An "address" for a web site or web page refers to an identifier for the web page or web site relative to other web pages or web sites on a network (e.g., the internet), and may include, but is not limited to, a URL or other network address. "Encoded" refers to presentation in a format that is generally not readable by a human without the aid of a machine. A "link" refers to a character string, address, button, or other interactive element included within an electronic document, web page, or other application page with a first network address that, when interacted with by a user, e.g., via a user interface device, causes the loading of an electronic document, web page, or application page with a second network address.

FIG. **1** shows a first computer system **102** electronically connected to a second computer system **104** and scanner computer system **106** via a network **108**. First computer system **102** represents generally any computing device or group of computing devices configured to send and receive network requests, send and receive data, and/or otherwise communicate with, scanner computer system **104** and second computer system **106**. In examples, first computer system **102** may be or include a server, desktop computer, notebook computer, mobile device, tablet computer, and/or any other computing device.

Second computer system **104** represents generally any computing device or group of computing devices configured to send and receive network requests, send and receive data, and/or otherwise communicate with, first computer system **102**. In examples, second computer system **104** may be or include a server, desktop computer, notebook computer, mobile device, tablet computer, and/or any other computing device. In one example, second computer system **104** is a printer operable to produce a printed print job or printed content, and additionally operable to receive network requests, instructions, reminder messages, and other data from, and to send network requests, instructions, reminder messages, and other data to, and to otherwise communicate with computer system **102** over network **108**.

Scanner computer system **106** represents generally any computing device or group of computing devices configured to perform a scanning operation **110**, send and receive network requests, send scan data and other data to, and otherwise communicate with, computer system **102**. In an example, the scanner computer system **106** may be, or include, a flatbed scanner or other optical scanner device. In another example, the scanner computer system may include a handheld optical scanner unit configured to scan and interpret one dimensional or two dimensional barcodes or other encoded identifiers. In another example, the scanner computer system **106** may be a smartphone, tablet computer, notebook computer, or other mobile computing device with an onboard camera, the camera used for scanning encoded images or other images.

Network **108** represents generally hardware components and computers interconnected by communications channels that allow sharing of resources and information. Network **108** may include a cable, wireless, fiber optic, or remote connection via a telecommunication link, an infrared link, a radio frequency link, or some combination of these, or any other connectors or systems that provide electronic communication. Network **108** may include, at least in part, an intranet, the internet, or a combination of both. Network **108** may also include intermediate proxies, routers, switches, load balancers, and the like. The paths followed by network **108** between the first computer system **102**, the second computer system **104**, and the scanner computer system **106** as depicted in FIG. **1** represent the logical communication paths between these devices, not necessarily the physical paths between the devices.

First computer system **102** is shown to include an event reminder service **112**, a processor **114**, and a memory **116**. Event reminder service **112** represents generally any combination of hardware and programming configured to enable a computer user to cause the creation of event-specific procurement reminder messages, and to cause the sending of such messages to a computer system for display to the user at an established reminder time. Processor **114** represents generally any instruction execution system, such as a computer/processor based system or an ASIC (Application Specific Integrated Circuit), a computer, or other system that can fetch or obtain instructions or logic stored in memory **116** and execute the instructions or logic contained therein. Memory **116** represents generally any memory configured to store program instructions and other data.

In the example of FIG. **1**, the event reminder service **112** executing at the first computer system **102** receives, via a network **108**, event data **118** that is descriptive of an event to occur at an event time. In examples, the event reminder service **112** may receive the event data **118** from any computer system or computing device or computing service, including but not limited to the scanner computer system, **106**, the second computer system, **104**, or from another service (e.g., a calendar service) executing at first computer system **102**. In examples, the event may be any occasion, occurrence, incident, or other happening. In example, the event may a user-defined event, such as "Mom's Birthday" or "Susan's Soccer Game." In another the example, the event may be an event that is predefined by a calendar service or other application, e.g., a national holiday applicable to a user. In yet another example, the event may be an event that is predefined by a calendar service that includes events specific to a profession, hobby, or other interest of a user, e.g., a calendar that is specific to a particular soccer team and includes game days and times for that team. In an example, the event time for the event may be expressed as, or otherwise include, a specific day of the week and/or time. For example "Susan's Soccer Game—5:00 p.m. Saturday Jun. 8, 2012." In another example, the event time for the event may be expressed as, or otherwise include, the lapse of a defined time period. For example, "Family Reunion to Occur in Two Weeks."

Continuing with the example of FIG. **1**, the event reminder service **112** receives, via the network **108**, reminder data **120** descriptive of a reminder time to occur on or before the event time. In an example, the reminder data **120** may be data descriptive of a reminder time defined or set by a user to be "two weeks prior" to the event. In another example, the reminder data **120** may be data descriptive of a reminder time that is the same as the event time. For instance, if a "Grocery Store Visit" event is defined with an event time of "12:00 p.m. Monday", the reminder time may be set to the precise time of the event ("12:00 p.m. Monday"). In yet another example, the reminder data **120** may be data descriptive of an exact reminder date and time that is prior to the event time. For instance, if a "Grocery Store

Visit" event is defined with an event time of "12:00 p.m. Monday", the reminder time may be set to the precise time of "12:00 p.m. Sunday").

At some time after the event reminder service **112** receives the event data **118**, the service **112** receives via the network **108** article data **122** that is descriptive of an article to be associated with the event. The article data **122** is data that is created by a computer during an electronic scanning operation **110**. In the example of FIG. **1**, the scanning operation is conducted by scanner computer system **106**, and after completion of the scanning operation **110** the scanner computer system **106** sends the article data **122** to the event reminder service **112** at the first computer system **112**. In examples, the scanner computer system **106** may be or include a flatbed scanner, an optical scanner device, a handheld barcode reader or other handheld optical scanner unit, or a smartphone, notebook computer, tablet computer, or other mobile computing devices with an onboard camera for scanning encoded images and other images and articles.

In an example previously presented in this application in which the user-defined event is "Mom's Birthday", the article data **122** may be data created during a scanning operation in which a hand held scanner unit is utilized to scan a barcode in a printed catalog, the barcode associated with a sweater to be purchased in connection with the birthday. In another example previously presented in this application in which the user-defined event is "Susan's Soccer Game", the article data **122** may be data created during a scanning operation in which a smartphone with a camera is utilized to scan barcodes included within tags on equipment to be brought to the game. For instance a user might create the article data by scanning barcodes on items in the user's garage or sports equipment room, the data indicative of equipment and other items to be brought to the soccer game. Similarly, in another example previously presented in this application in which the user-defined event is a "Family Reunion to Occur in Two Weeks", the article data **122** may be data created during a scanning operation in which a smartphone with a camera is utilized to scan barcodes on packaging of food items to be brought, or purchased and brought, to the family reunion. For instance, such scanning may be a scanning operation in which items are scanned that already in inventory, e.g., in the family refrigerator. In another instance, such scanning may be a scanning operation in which food items are scanned during a first grocery store visit, such that the article data can be used to in a reminder for a second grocery store visit closer to the date of the family reunion.

At the reminder time, the event reminder service **112** sends to the second computer system **104**, via the network **108**, a reminder message **124** describing the event and the associated article. The event reminder service **112** sends the reminder message **124** to the second computer system **104** in order that the second computer system **104** present **126** the reminder message **124** to a user. In one example, the second computer system **104** includes a monitor, touchscreen, or other visual display device and the presentation includes a visual display of the reminder at the display device. In another example, the second computer system **104** is a printer, and presentation of the reminder message **124** at the second computer system includes a printing of the reminder message **124** at the printer. In another example, the second computer system **104** includes a speaker or other auditory display device, and the presentation of the reminder message **124** at the second computer system **104** is an auditory display (e.g., a spoken word or musical auditory display). In another example, the second computer system **104** may present the reminder message using a combination of two or more of a visual display at a monitor or screen, a printing of the reminder message **124**, and/or an auditory display of the reminder message **124**.

The functions and operations described with respect to event reminder service **112** and first computer system **102** may be implemented as a non-transitory computer-readable storage medium containing instructions executed by a processor (e.g., processor **114**) and stored in a memory (e.g., memory **116**). In a given implementation, processor **114** may represent multiple processors, and memory **116** may represent multiple memories. Processor **114** represents generally any instruction execution system, such as a computer/processor based system or an ASIC, a computer, or other system that can fetch or obtain instructions or logic stored in memory **116** and execute the instructions or logic contained therein. Memory **116** represents generally any memory configured to store program instructions and other data.

FIG. **2** is a block diagram illustrating a system according to various embodiments. FIG. **2** includes particular components, modules, etc. according to various embodiments. However, in different embodiments, more, fewer, and/or other components, modules, arrangements of components/modules, etc. may be used according to the teachings described herein. In addition, various components, modules, etc. described herein may be implemented as one or more software modules, hardware modules, special purpose hardware (e.g., application specific hardware, application specific integrated circuits (ASICs), embedded controllers, hardwired circuitry, etc.), or some combination of these.

FIG. **2** shows a reminder server system **202** electronically connected to a printer **204** and a computing device **206** via an internet **208**. Reminder server system **202** represents generally any computing device or group of computing devices configured to send and receive network requests, send and receive content, and otherwise communicate with **204** and computing device **206**. In examples, reminder server system **202** may be or include a server, desktop computer, notebook computer, mobile device, tablet computer, and/or any other computing device.

Printer **204** represents generally a printer computing device that is operable to produce a printed print job or printed content. In this example, printer **204** is a network connected printer additionally operable to send network requests, print jobs and other content to, receive network requests, print jobs, and other content from, and otherwise communicate with reminder server system **202** over internet **208**. In another example, not shown in FIG. **2**, the printer **204** may be a printer that is indirectly connected to the internet, e.g., the printer is connected to a desktop computer, notebook computer, or other host computing device that is connected to the internet **208**. In the latter example, the host computing device may be any computing device or system configured to send and receive network requests, send and receive content (including sending print jobs), and otherwise communicate with printer **204**.

Computing device **206** represents generally a computing device, or group of computing devices, configured to send and receive network requests, send content to, and otherwise communicate with, reminder server system **202**. In examples, computing device **206** may be a smartphone, tablet computer, notebook computer, desktop computer, or any other computing device.

Internet **208** represents generally hardware components and computers interconnected by communications channels that allow sharing of resources and information over an internet or intranet network, or over a combination of both.

Internet **208** may include a cable, wireless, fiber optic, or remote connection via a telecommunication link, an infrared link, a radio frequency link, or some combination of these, or any other connectors or systems that provide electronic communication. Internet **208** may also include intermediate proxies, routers, switches, load balancers, and the like. The paths followed by internet **208** between reminder server system **202**, printer **204**, and computing device **206** as depicted in FIG. **2** represent the logical communication paths between these devices, not necessarily the physical paths between the devices.

Reminder server system **202** is shown to include an event reminder service **212**, an associated data storage database **226**, a processor **214**, and a memory **216**. Event reminder service **212** represents generally any combination of hardware and programming configured to enable creation of event-specific procurement reminder messages, and cause sending of such messages to a computer system for display to the user at an established reminder time. The service **212** includes an event data module **274**, a reminder data module **276**, an article data module **278**, an address module **280**, an association module **282**, and a reminder sending module **284**. Associated data storage database **226** represents generally a database, registry, lookup table or list that associates event data, reminder data, and article data in memory in association with one another. Processor **214** represents generally any instruction execution system, such as a computer/processor based system or an ASIC, a computer, or other system that can fetch or obtain instructions or logic stored in memory **216** and execute the instructions or logic contained therein. Memory **216** represents generally any memory configured to store program instructions and other data.

In the example of FIG. **2**, the event data module **274** included within event reminder service **212** and executing at reminder server system **202** receives, via the internet **208**, event data **218** descriptive of an event to occur at an event time. In this example, the event data **218** includes a description of a "Julie's Birthday" event **236** and a "2:00 p.m. June 27 PDT" event time **238**. In this example, the event data **218** is sent by the computing device **206** to the reminder server system **202**, over the internet **208**, and is sent in electronic calendar format. Examples of electronic calendars include, but are not limited to, Microsoft Outlook®, Lotus Notes®, and the calendar features of many PDAs and smartphones. In an example, receiving event data in electronic calendar format may include receiving an entire electronic calendar file that includes the event data. In another example, receiving event data in electronic calendar format may include receiving the event data, but less than data for an entire electronic calendar, in an electronic calendar format. Examples of electronic calendar file formats include, but are not limited to, the proprietary ".pst" or ".nsf" formats. In other examples, the event data and/or an entire electronic calendar may be received by the reminder server system **202** in a non-proprietary calendar format.

The reminder data module **276** receives, via the Internet **208**, reminder data **220** descriptive of a reminder time **240** to occur on or before the event time **238**. In the example of FIG. **2**, the reminder data **220** may be data descriptive of a reminder time **240** defined or set by a user to be "one week away" or "one week prior" to the "Julie's Birthday" event **236**. In the example of FIG. **2**, the computing device **206** sends, and the reminder server system **202** receives, the reminder data **220** in the electronic calendar format as the event data **218** was sent in. In an example, the event data **218** and the reminder data **220** are received contemporaneously by the reminder server system as electronic calendar data **242**.

At some time following the event data module's **274** receipt of the event data **218**, the computing device **206** sends, and the article data module **278** receives, article data **222** via the internet **208**. In this example, the article data **222** is data including descriptions **246** of a cake, birthday decorations, a piñata, and a present (a bicycle) articles **250** to be associated with the "Julie's Birthday" event **236**. The article data **222** is created by the computing device **206** during an electronic scanning operation **210**. In the example of FIG. **2**, the scanning operation included a user **248** at the computing device **206** taking a digital photograph of QR codes or other encoded identifiers **252** for the articles **250** utilizing a camera component **244** included within the computing device **206**. For instance, the QR code identifiers **252** may QR codes included within a sales brochure for an entity that sells children's birthday cakes, party favors, and gifts via mail order. In another instance, the QR code identifiers **252** may be QR codes displayed as part of a web page that facilitates an online retail store for children's birthday items.

In the example of FIG. **2**, an association module **282** of the event reminder service **212** causes the storage of the article data **222**, and the previously received event data **218** and reminder data **220**, in memory in association with one another. FIG. **3**, in view of FIG. **2**, provides an example of associated storage of event data **218**, reminder data **220**, and article data **222** at a database identified as "Associated Data Storage" **226** located within reminder system **202**. In other examples, article data **222**, event data **218**, and reminder data **220**, may be stored in association with one another in a database or other memory included within a computer system separate from, but electronically connectible with, reminder system **202**.

In the example of FIG. **2**, the computing device **206** sends, and the article data module **278** receives, a printer address **256** for the printer **204**. In an example the printer address **256** is an email address for a network connected printer **204**, and the printer address is **256** is supplied to the mobile computing device via user **248** input at the mobile computing device's touchscreen user interface. In another example, the printer address **256** may be an IP address for a network connected printer **204**, and may be an address that was stored at computing device **206** in connection with an already accomplished printing or scanning task involving printer **204**.

Continuing with FIG. **2**, at the reminder time **240** designated in the reminder data **220**, the reminder sending module **284** sends to the printer **204**, at the printer address **256** previously received by the address module **280** and via the internet **208**, a reminder message **224**. The reminder message **224** includes a description **260** describing the event **236** and descriptions **246** of the articles associated with the event **236**. In this example, the reminder message **224** is sent by the reminder server system **202**, via the internet **208**, to the printer **204** along with scheduled delivery content **262**. The reminder message is sent to the printer **204** for presentation at the printer **204**, in this case printing, along with the scheduled delivery content **262**. In examples, the scheduled delivery content **262** may be a scheduled delivery of a magazine article, newspaper article, children's coloring page, daily crossword puzzle, recipe, or any other type of content that can be sent for presentation to a user. In examples, the automatic scheduled delivery content **262** may be scheduled for delivery at specific times and dates. In other examples, the automatic scheduled delivery content

262 may be scheduled for delivery at a defined time at regular intervals such as "6:00 p.m. PDT daily", "6:00 p.m. PDT Wednesday weekly", or "6:00 p.m. PDT daily on the last day of each month." In other examples, the automatic scheduled delivery content **262** may be scheduled for delivery at regular date intervals, such as "daily", "weekly", and "monthly", with the delivery times at irregular times according to a formula. In the example of FIG. **2**, the automatic scheduled delivery content **262** is sent to a printer **204** for printing presentation to a user. In other examples of the disclosure, the automatic scheduled delivery content **262** may be content sent to a mobile phone, notebook computer, tablet computer, gaming computer, or any other computing device.

In the example of FIG. **2**, the reminder sending module **284** sends the reminder message **224** to the printer **204** in a manner such that, when printed, the reminder message **224** is embedded within the content **224** that was previously scheduled for automatic delivery. The printed output **264** includes the content previously scheduled for automatic delivery **224**, and also, as an item embedded with the previously scheduled delivery content **224**, the printed reminder message **224**.

FIG. **4** provides additional detail of the printed output **264** of FIG. **2**. In this example of FIG. **4**, in view of FIG. **2**, the printed output **264** produced by the printer **204** includes the printed content previously scheduled for automatic delivery **262** and the reminder message **224**. In this example the reminder message includes the event description **260** "Julie's Birthday" **260**, the event time **238** "one week away", and the articles descriptions **246** "cake, decorations, piñata, and present (bicycle)." In this example, the printed reminder message **224** also includes a QR code **272** that, when electronically scanned by a scanning device and interpreted by a computer, is a link to additional information relating to one or more of the articles. For instance, by scanning the QR code on the printed reminder with a mobile telephone with camera functionality, a user might access relevant advertisements, coupons, and other desired information relative to the articles and article descriptions **246**.

The functions and operations described with respect to event reminder service **212** and reminder server system **202** may be implemented as a non-transitory computer-readable storage medium containing instructions executed by a processor (e.g., processor **214**) and stored in a memory (e.g., memory **216**). In a given implementation, processor **214** may represent multiple processors, and memory **216** may represent multiple memories. Processor **214** represents generally any instruction execution system, such as a computer/processor based system or an ASIC, a computer, or other system that can fetch or obtain instructions or logic stored in memory **216** and execute the instructions or logic contained therein. Memory **216** represents generally any memory configured to store program instructions and other data.

FIG. **5** is a flow diagram of operation in a system according to various embodiments. In discussing FIG. **5**, reference may be made to the diagram of FIG. **2** to provide contextual examples. Implementation, however, is not limited to those examples. Starting with FIG. **5**, event data descriptive of an event to occur at an event time is received, via a network, at a first computer system (block **502**). Referring back to FIG. **2**, event data module **274** may be responsible for implementing block **502**.

Continuing with FIG. **5**, reminder data descriptive of a reminder time to occur on or before the event time is received via the network (block **504**). Referring back to FIG. **2**, reminder data module **276** may be responsible for implementing block **504**.

Continuing with FIG. **5**, at a time after receipt of the event data, receive via the network article data descriptive of an article to be associated with the event, the article data created during an electronic scanning operation (block **506**). Referring back to FIG. **2**, article data module **278** may be responsible for implementing block **506**.

Continuing with FIG. **5**, at the reminder time send via the network a reminder message describing the event and the article to a second computer system, for presentation at the second computer system (block **508**). Referring back to FIG. **2**, reminder sending module **284** may be responsible for implementing block **508**.

Various modifications may be made to the disclosed embodiments and implementations without departing from their scope. Therefore, the illustrations and examples herein should be construed in an illustrative, and not a restrictive, sense.

What is claimed is:

1. A non-transitory computer-readable storage medium containing instructions, the instructions when executed by a processor causing the processor to:

receive at a first computer system, via a network, event data descriptive of an event to occur at an event time;

receive via the network, reminder data descriptive of a reminder time to occur on or before the event time;

at a time after receipt of the event data, receive via the network article data descriptive of an article to be associated with the event, the article data created during an electronic scanning operation; and

at the reminder time send via the network a reminder message describing the event and the article to a second computer system, for presentation at the second computer system.

2. The medium of claim **1**, wherein the reminder message is sent to the second computer system for presentation with a scheduled delivery of user-requested content sent to the second computer system.

3. The medium of claim **2**, wherein the reminder message is sent to the second computer system such that, when presented, the reminder message is embedded within the content.

4. The medium of claim **1**, wherein the second computer system is a printer, and the presentation of the reminder message includes printing the reminder message at the printer.

5. The medium of claim **1**, wherein the event data is received in a format of an electronic calendar.

6. The medium of claim **1**, wherein the event is a user defined event.

7. The medium of claim **1**, wherein the instructions cause the processor to receive an address for the second computer system, and to send the reminder message to the second computer system at the address.

8. The medium of claim **1**, wherein the electronic scanning operation includes scanning of an encoded identifier associated with the article.

9. The medium of claim **1**, wherein the reminder message includes an encoded identifier that, when electronically scanned by a scanning device and interpreted by a computer, is a link to information relating to the article.

10. The medium of claim **1**, wherein the electronic scanning operation is conducted at a computing device that includes a camera, and the scanning operation includes

taking of a digital photograph of the article or an identifier of the article utilizing the camera.

11. The medium of claim **1**, wherein the instructions cause the processor to store the event data, the reminder data, and the article data in memory in association with one another.

12. The medium of claim **1**, wherein the event time includes a specific day of the week or time.

13. The medium of claim **1**, wherein the event time includes a lapse of a defined time period.

14. A first computer system, comprising:

at least one processor;

an event data module executable by the at least one processor to receive, via a network, event data descriptive of an event to occur at an event time;

a reminder data module executable by the at least one processor to receive, via the network, reminder data descriptive of a reminder time to occur on or before the event time;

an article data module executable by the at least one processor to, at a time following receipt of the event data, receive via the network article data descriptive of an article to be associated with the event, the article data created during an electronic scanning operation; and

a reminder sending module executable by the at least one processor to, at the reminder time, send a reminder message describing the event and the article to a second computer system, for presentation at the second computer system.

15. The system of claim **14**, wherein the reminder message is sent to the second computer system along with a scheduled delivery of user-requested content sent to the second computer system for printing.

16. The system of claim **15**, wherein the reminder message is sent to the second computer system such that, when printed, the reminder message is embedded within the content.

17. The system of claim **14**, wherein the event data is received in a format of an electronic calendar and the event is a user defined event.

18. The system of claim **14**, wherein the electronic scanning operation includes scanning of a barcode or other encoded identifier associated with the article.

19. The system of claim **14**, wherein the second computer system is a network connected printer, and the presentation of the reminder message includes printing the reminder message at the printer.

20. A method, comprising:

receiving, at a first computer system via a network and in a format of an electronic calendar, event data descriptive of an event to occur at an event time;

receiving, at the first computer system via the network, reminder data descriptive of a reminder time to occur on or before the event time;

receiving, at the first computer system, an address for a network connected printer;

at a time after receipt of the event data, receiving, at the first computer system via the network, article data descriptive of an article to be associated with the event, the article data created during an electronic scanning of an identifier of the article conducted at a scanner computer system; and

at the reminder time, sending, by the first computer system, a reminder message describing the event and the article to the printer at the address, for printing the reminder message at the printer, wherein the reminder message is sent to the printer along with a scheduled delivery of user-requested content to the printer.

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