US008738449B1

(12) **United States Patent**
Cupps et al.

(10) **Patent No.: US 8,738,449 B1**
(45) **Date of Patent: May 27, 2014**

(54) **INTERNET ONLINE ORDER METHOD AND APPARATUS**

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(73) Assignee: **IPDEV Co.**, Chicago, IL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **13/592,199**

(22) Filed: **Aug. 22, 2012**

Related U.S. Application Data

(63) Continuation of application No. 09/282,645, filed on Mar. 31, 1999, which is a continuation of application No. 08/976,793, filed on Nov. 24, 1997, now Pat. No. 5,991,739.

(51) **Int. Cl.**
G06Q 30/00 (2012.01)

(52) **U.S. Cl.**
USPC **705/15**; 705/26.1; 705/28; 715/821; 715/823; 715/798; 715/701; 717/177; 709/203

(58) **Field of Classification Search**
USPC 705/15, 26.1, 27.1; 719/328; 345/156; 715/701, 764; 235/381, 487
See application file for complete search history.

(56) **References Cited**

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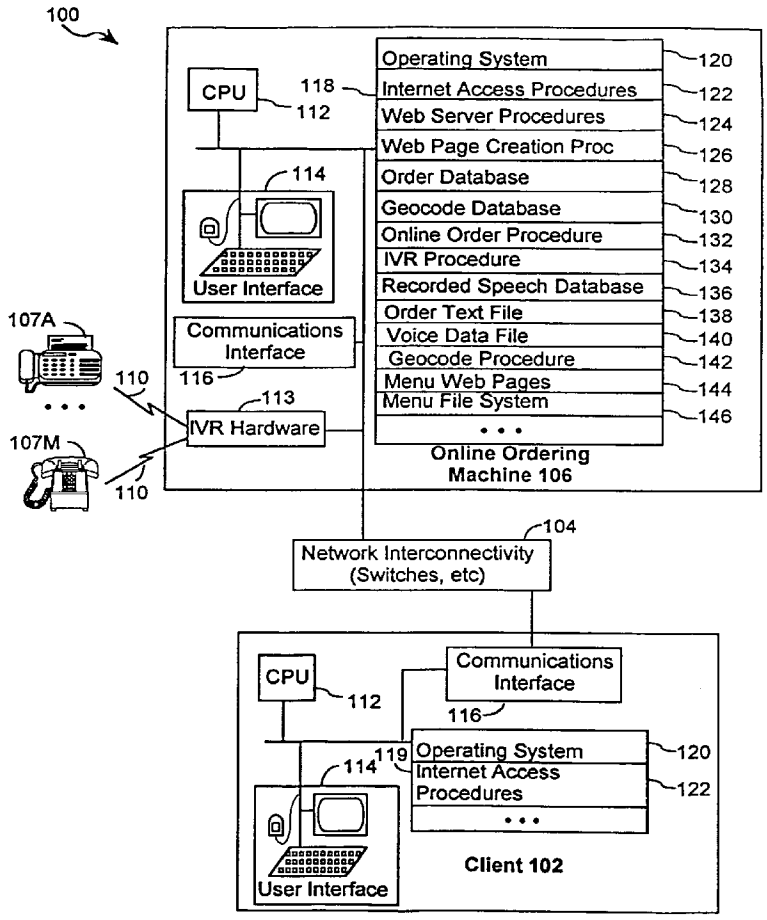
* cited by examiner

Primary Examiner — Vanel Frenel
(74) *Attorney, Agent, or Firm* — Perkins Coie LLP

(57) **ABSTRACT**

A system and method for providing an online ordering machine that manages the distribution of products over a distributed computer system is herein disclosed.

21 Claims, 20 Drawing Sheets



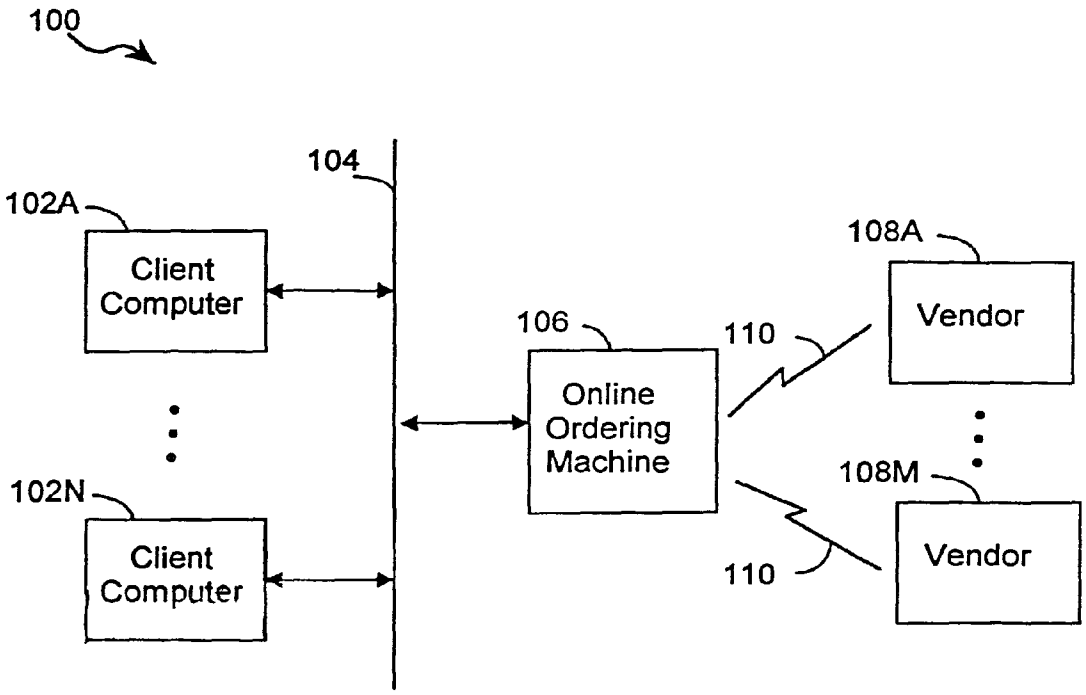

100
104
102A
Client Computer
102N
Client Computer
106
Online Ordering Machine
110
110
108A
Vendor
108M
Vendor

FIG. 1

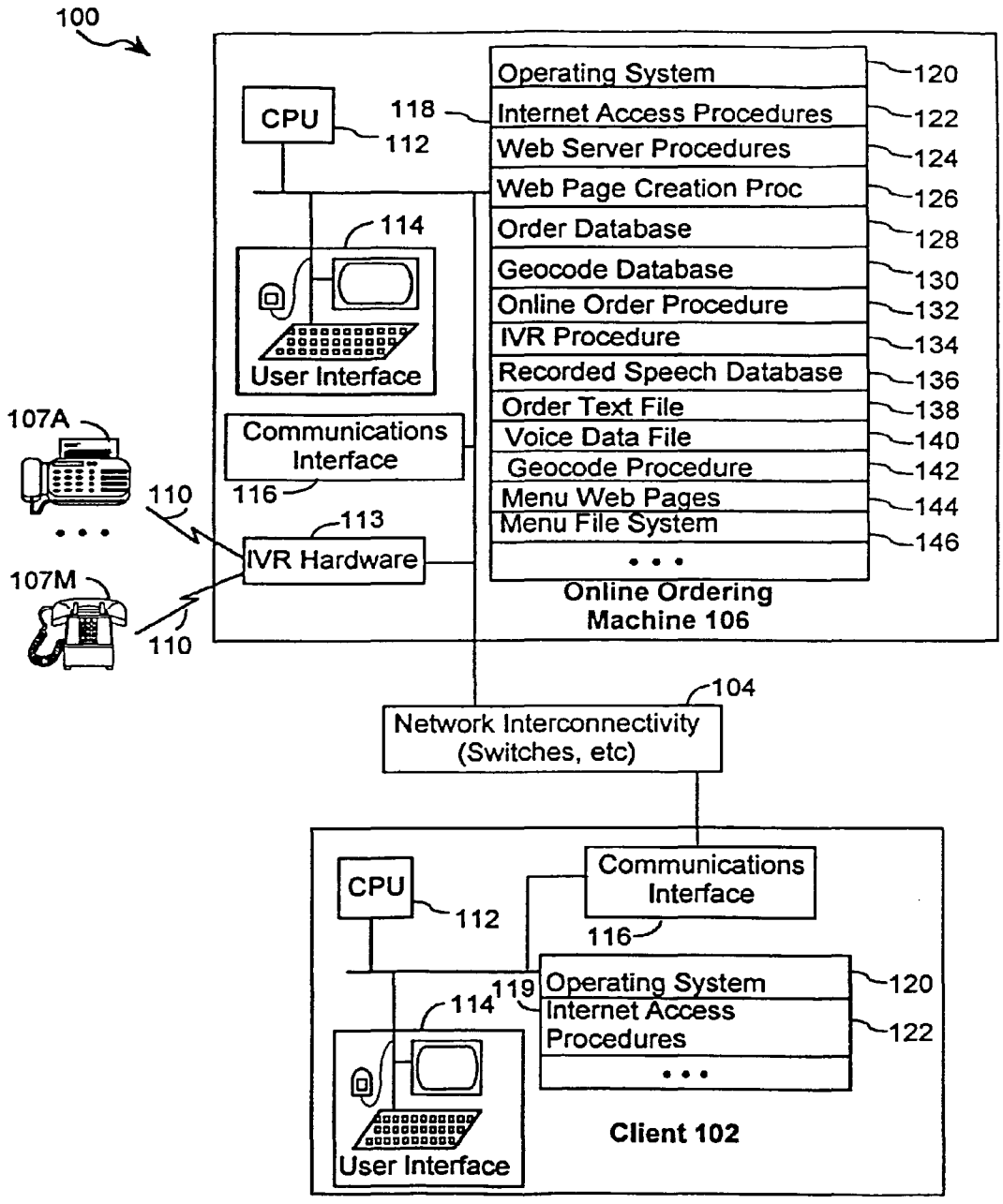

100
CPU
118
112
Operating System
Internet Access Procedures
Web Server Procedures
Web Page Creation Proc
Order Database
Geocode Database
Online Order Procedure
IVR Procedure
Recorded Speech Database
Order Text File
Voice Data File
Geocode Procedure
Menu Web Pages
Menu File System
120
122
124
126
128
130
132
134
136
138
140
142
144
146
114
User Interface
Communications Interface
116
113
IVR Hardware
107A
110
107M
110
Online Ordering Machine 106
104
Network Interconnectivity (Switches, etc)
CPU
112
Communications Interface
116
119
Operating System
Internet Access Procedures
120
122
114
User Interface
Client 102

FIG. 2

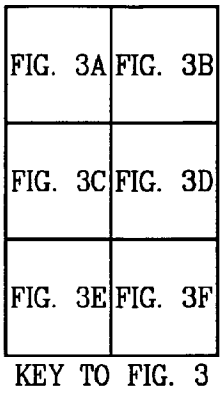
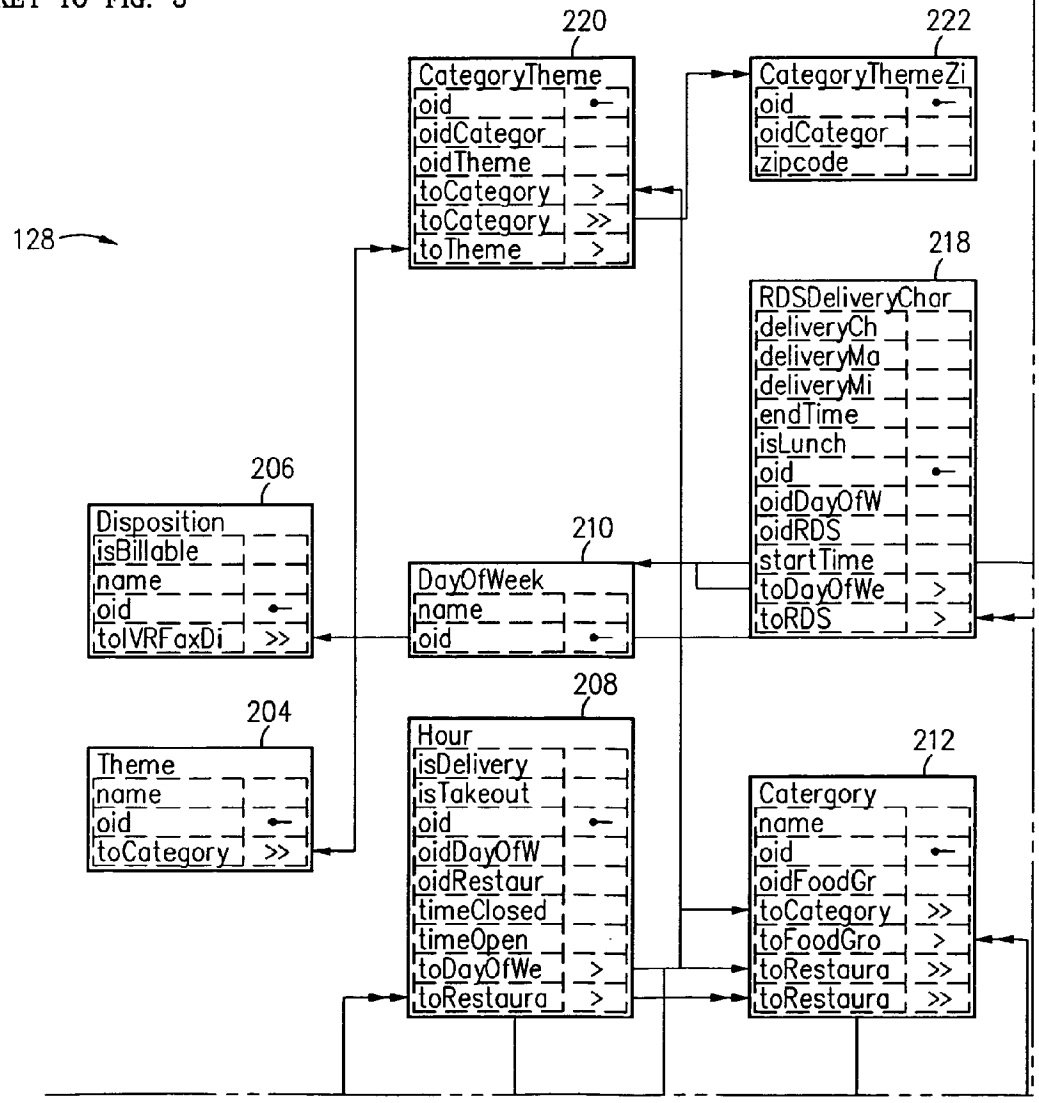


FIG. 3A
FIG. 3B
FIG. 3C
FIG. 3D
FIG. 3E
FIG. 3F
KEY TO FIG. 3


128
220
CategoryTheme
oid
oidCategor
oidTheme
toCategory >
toCategory >>
toTheme >
222
CategoryThemeZi
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oidCategor
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218
RDSDeliveryChar
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toDayOfWe >
toRDS >
206
Disposition
isBillable
name
oid
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210
DayOfWeek
name
oid
208
Hour
isDelivery
isTakeout
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oidDayOfW
oidRestaur
timeClosed
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toRestaura >
204
Theme
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212
Catergory
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FIG. 3A

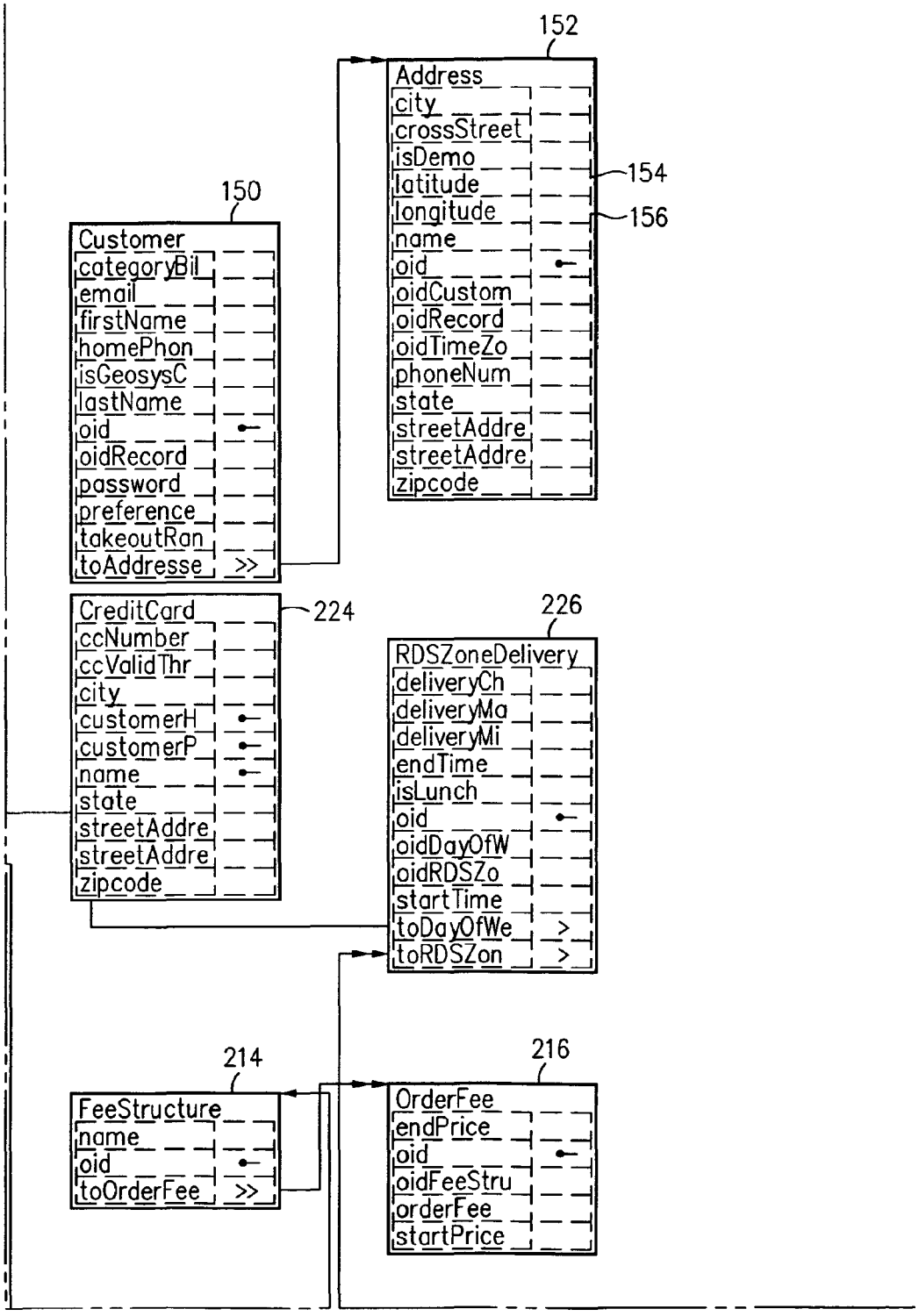
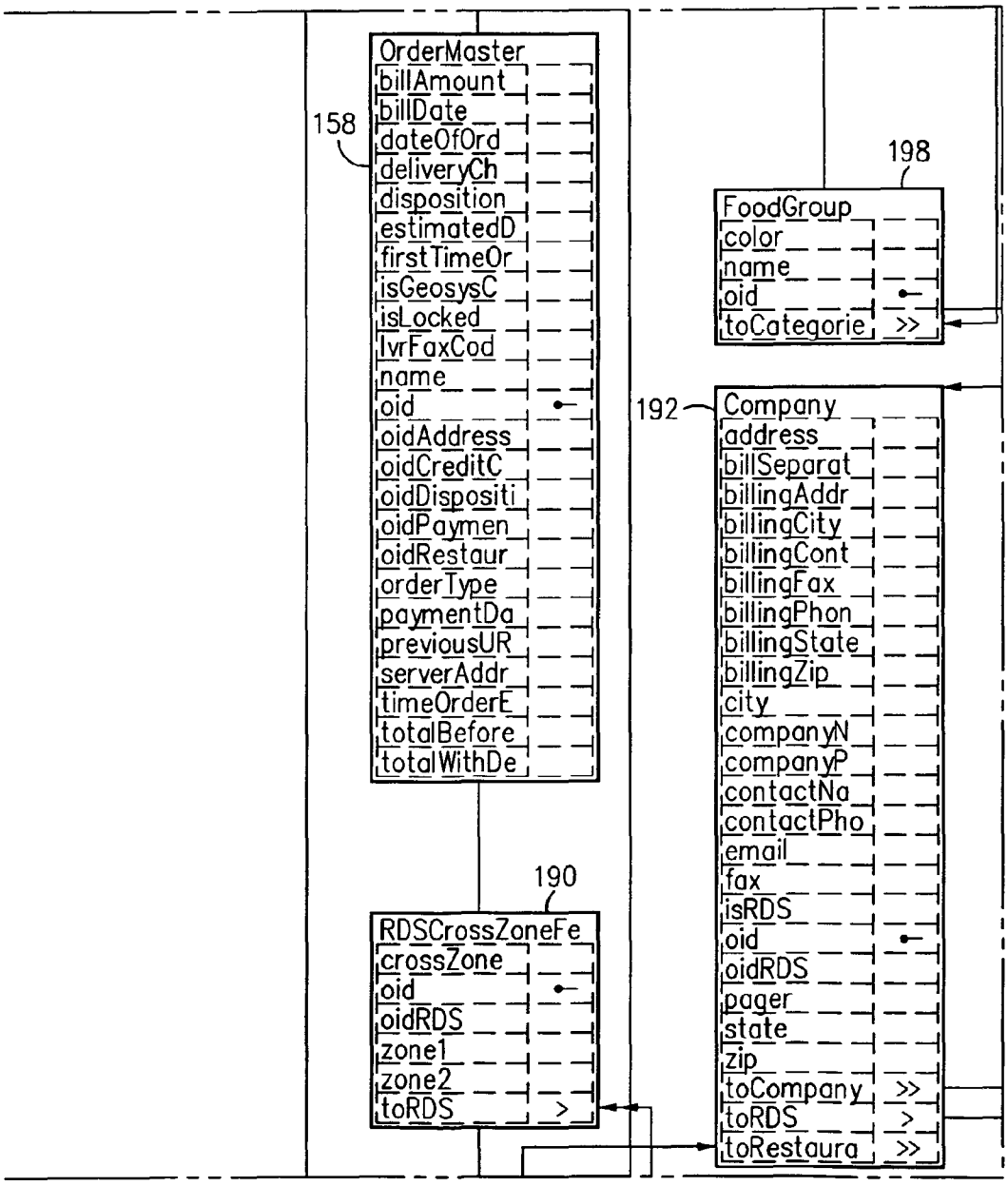

152
Address
city
crossStreet
isDemo
latitude
longitude
name
oid
oidCustom
oidRecord
oidTimeZo
phoneNum
state
streetAddre
streetAddre
zipcode
154
156
150
Customer
categoryBil
email
firstName
homePhon
isGeosysC
lastName
oid
oidRecord
password
preference
takeoutRan
toAddresse
224
CreditCard
ccNumber
ccValidThr
city
customerH
customerP
name
state
streetAddre
streetAddre
zipcode
226
RDSZoneDelivery
deliveryCh
deliveryMa
deliveryMi
endTime
isLunch
oid
oidDayOfW
oidRDSZo
startTime
toDayOfWe
toRDSZon
214
FeeStructure
name
oid
toOrderFee
216
OrderFee
endPrice
oid
oidFeeStru
orderFee
startPrice

FIG. 3B


OrderMaster
billAmount
billDate
dateOfOrd
deliveryCh
disposition
estimatedD
firstTimeOr
isGeosysC
isLocked
IvrFaxCod
name
oid
oidAddress
oidCreditC
oidDispositi
oidPaymen
oidRestaur
orderType
paymentDa
previousUR
serverAddr
timeOrderE
totalBefore
totalWithDe
158
RDSCrossZoneFe
crossZone
oid
oidRDS
zone1
zone2
toRDS
190
FoodGroup
color
name
oid
toCategorie
198
Company
address
billSeparat
billingAddr
billingCity
billingCont
billingFax
billingPhon
billingState
billingZip
city
companyN
companyP
contactNa
contactPho
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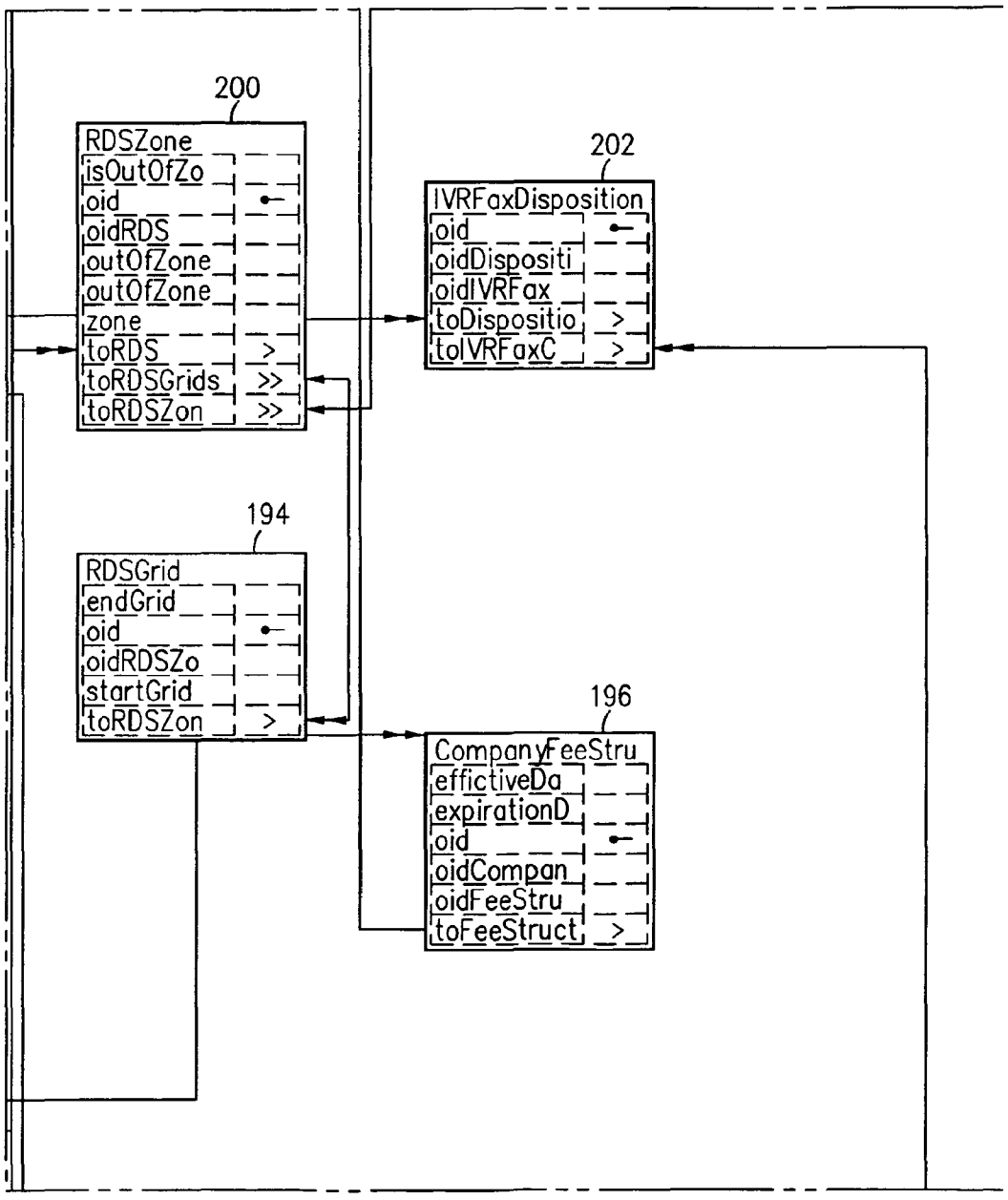
pager
state
zip
toCompany
toRDS
toRestaura
192

FIG. 3C


200
RDSZone
isOutOfZo
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toRDS
toRDSGrids
toRDSZon
202
IVRFaxDisposition
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oidDispositi
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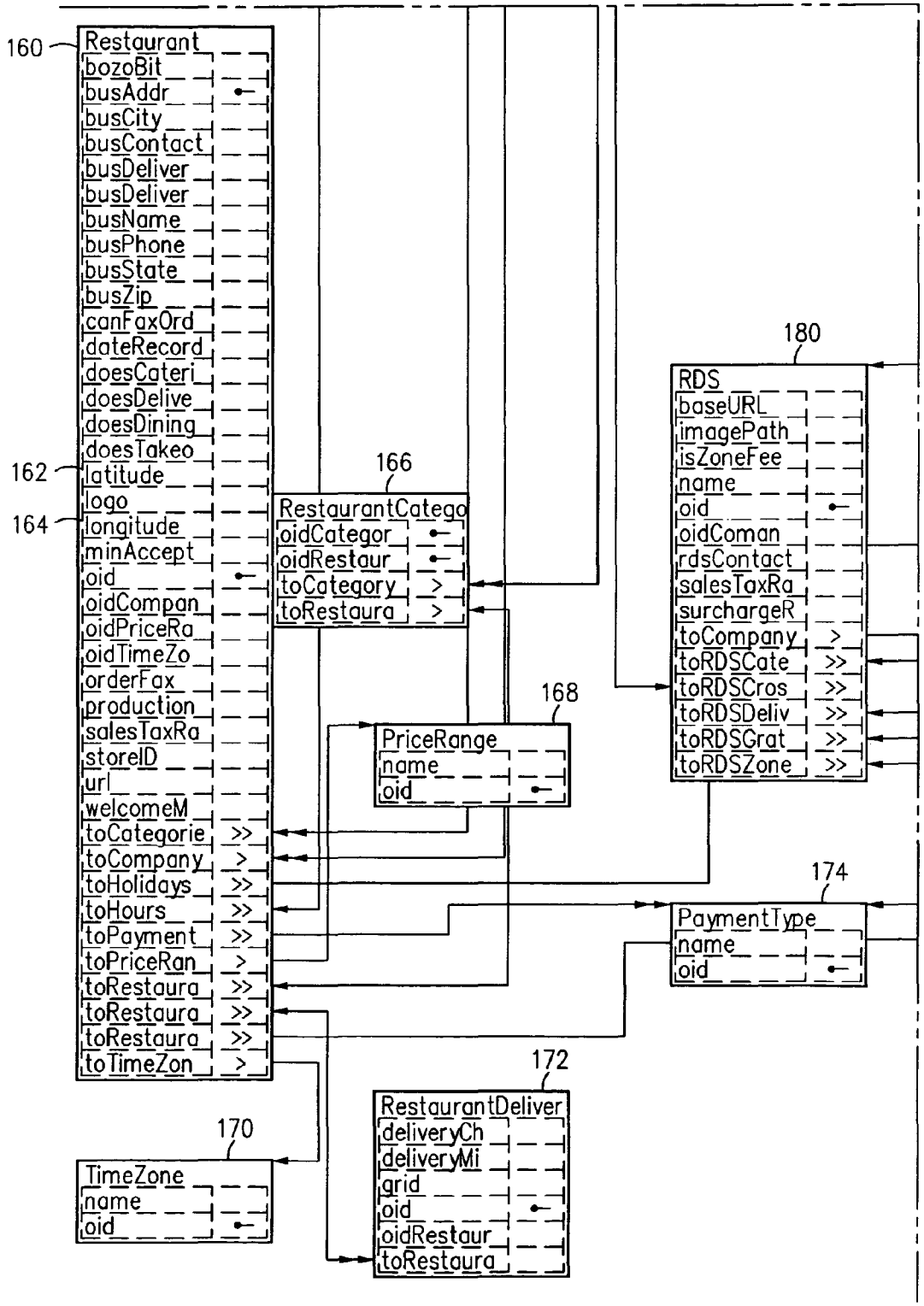
FIG. 3D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Restaurant
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busAddr
busCity
busContact
busDeliver
busDeliver
busName
busPhone
busState
busZip
canFaxOrd
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doesCateri
doesDelive
doesDining
doesTakeo
162
latitude
164
longitude
minAccept
oid
oidCompan
oidPriceRa
oidTimeZo
orderFax
production
salesTaxRa
storeID
url
welcomeM
toCategorie >>
toCompany >
toHolidays >>
toHours >>
toPayment >>
toPriceRan >
toRestaura >>
toRestaura >>
toRestaura >>
toTimeZon >
166
RestaurantCatego
oidCategor
oidRestaur
toCategory >
toRestaura >
168
PriceRange
name
oid
180
RDS
baseURL
imagePath
isZoneFee
name
oid
oidComan
rdsContact
salesTaxRa
surchargeR
toCompany >
toRDSCate >>
toRDSCros >>
toRDSDeliv >>
toRDSGrat >>
toRDSZone >>
174
PaymentType
name
oid
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RestaurantDeliver
deliveryCh
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170
TimeZone
name
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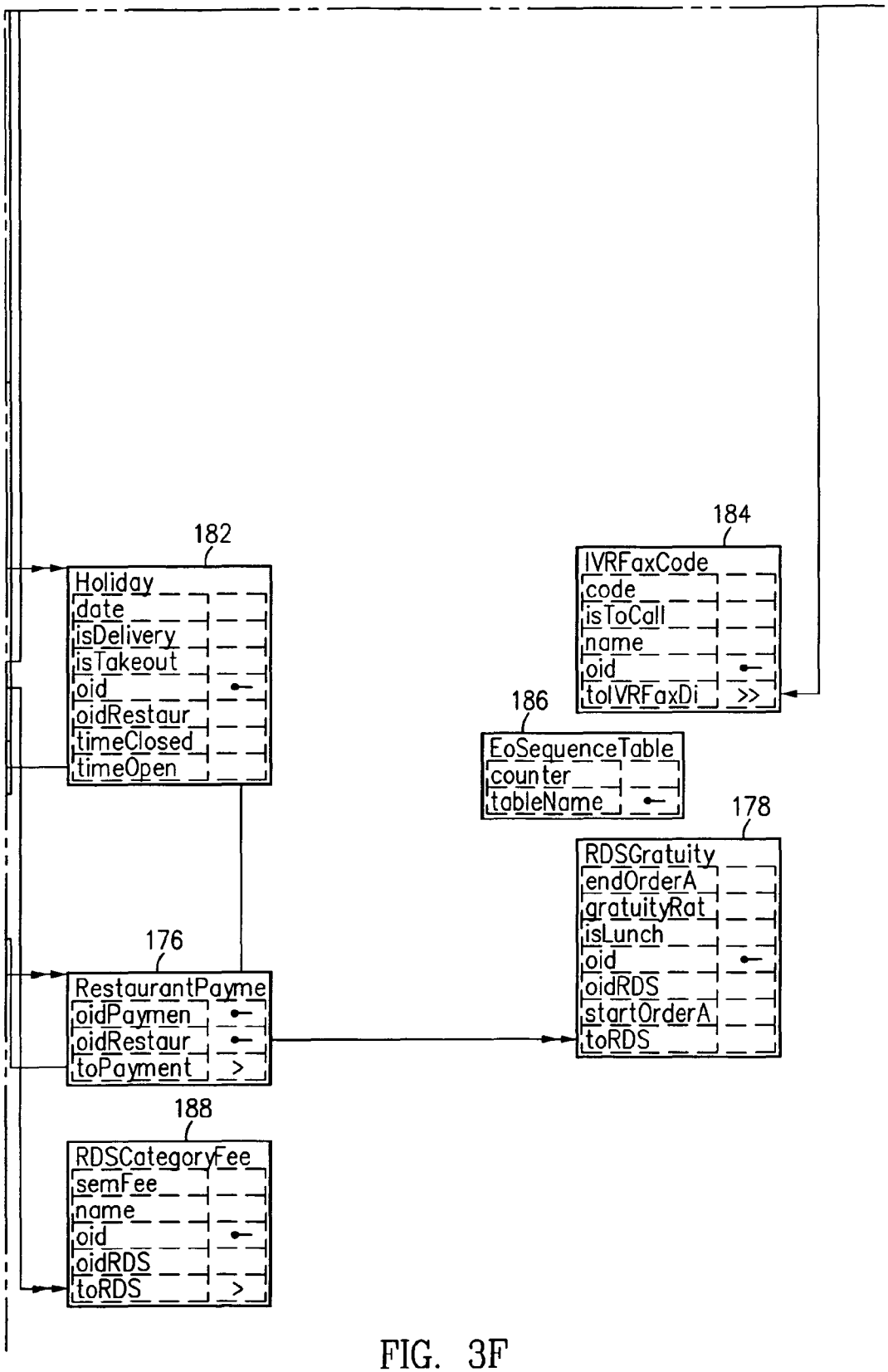
FIG. 3E


182
Holiday
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isDelivery
isTakeout
oid
oidRestaur
timeClosed
timeOpen
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IVRFaxCode
code
isToCall
name
oid
toIVRFaxDi
>>
186
EoSequenceTable
counter
tableName
178
RDSGratuity
endOrderA
gratuityRat
isLunch
oid
oidRDS
startOrderA
toRDS
176
RestaurantPayme
oidPaymen
oidRestaur
toPayment
>
188
RDSCategoryFee
semFee
name
oid
oidRDS
toRDS
>

FIG. 3F

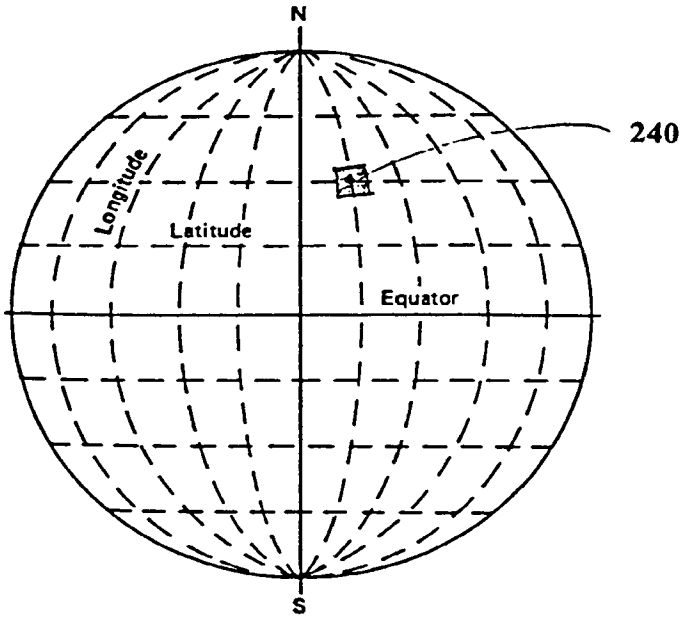


FIG. 4

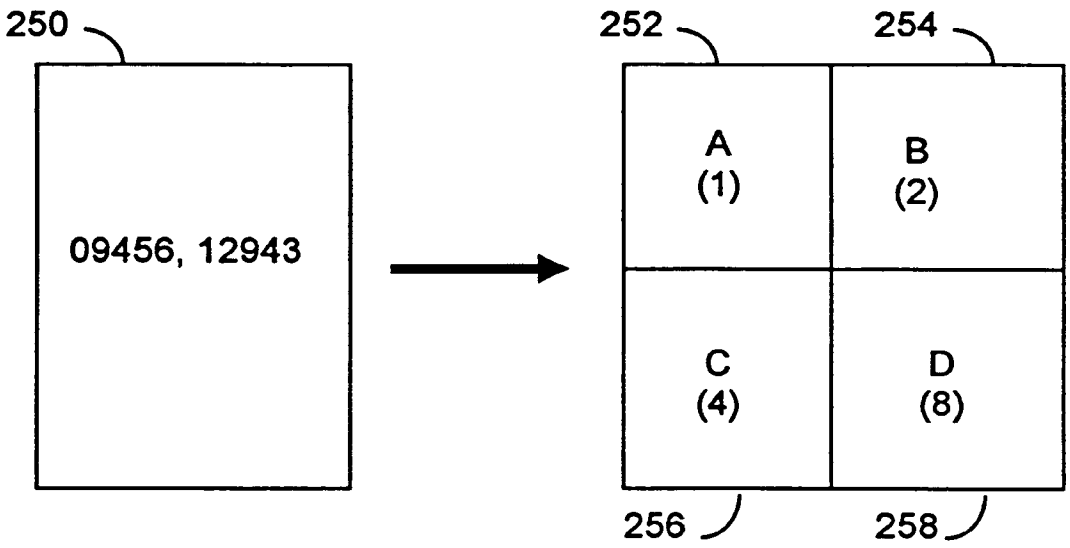


FIG. 5

Header:
- Order Number
- Order Type
- First Time Customer
- Delivery
- Special Instructions
- RDS Number
- Restaurant Name
- Restaurant Phone
- Restaurant Fax
- Customer Name
- Customer Email
- Customer Address1
- Customer Address2
- Customer Cross St.
- Customer City
- Customer Phone
- Total
- Payment Type
- Special Count
- Item Count

Special:
- ID
- Description of Item
- Price
- Item Count

Special Item:
- ID
- Description of Item
- Price
- Item Count

Item:
- ID
- Description of Item
- Quantity
- Price

Return Information:
- Return Code
- Delivery Time

FIG. 6

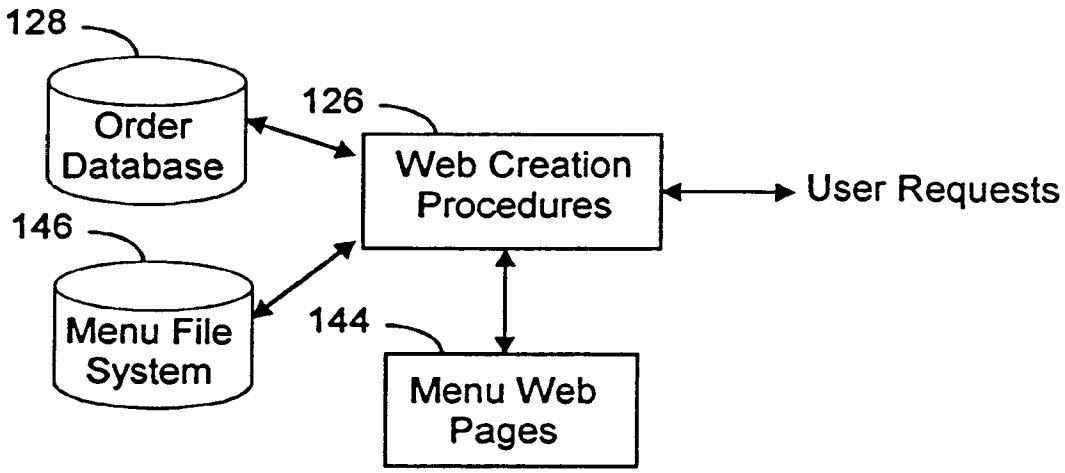

128
Order Database
126
Web Creation Procedures
User Requests
146
Menu File System
144
Menu Web Pages

FIG. 7

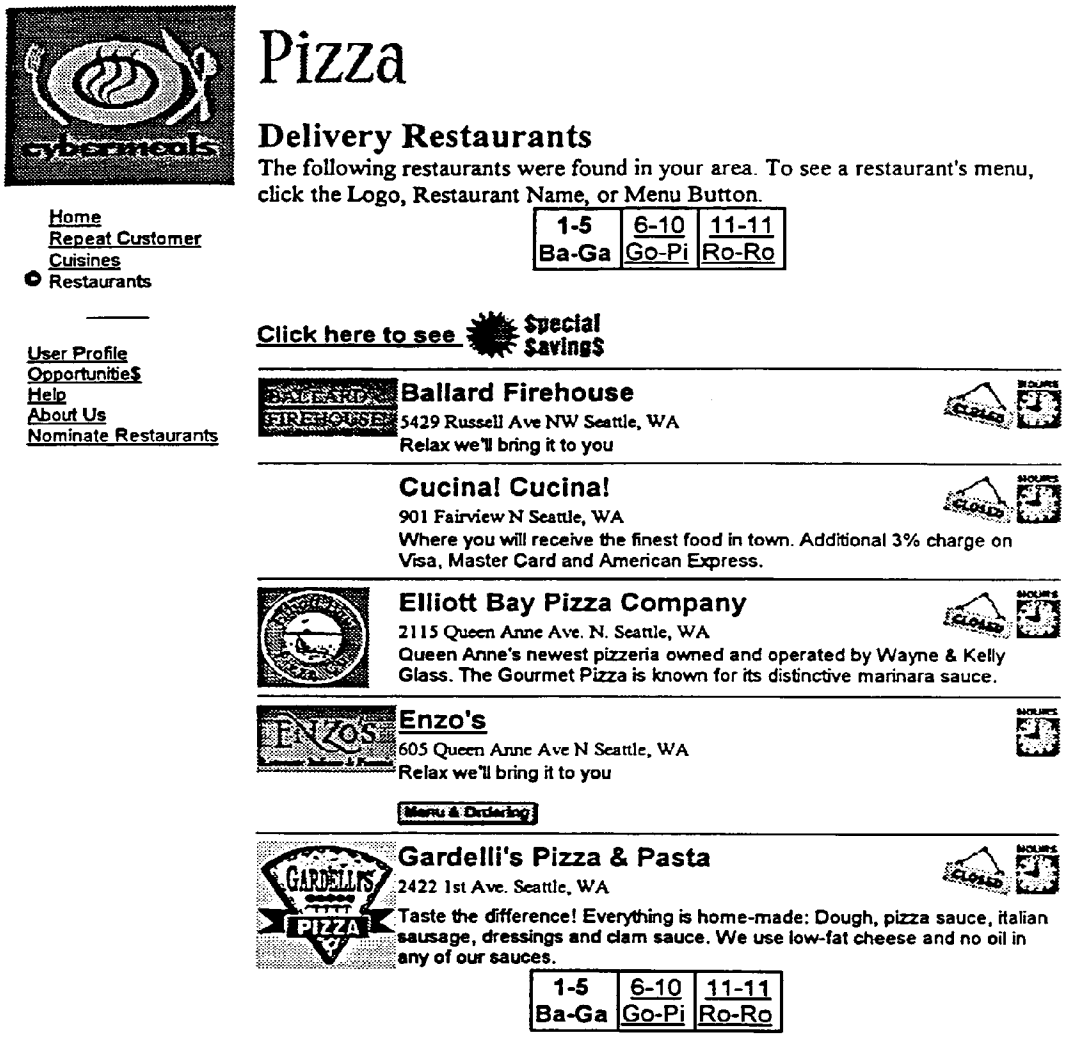

cybermeals
Home
Repeat Customer
Cuisines
Restaurants
User Profile
Opportunities
Help
About Us
Nominate Restaurants
Pizza
Delivery Restaurants
The following restaurants were found in your area. To see a restaurant's menu, click the Logo, Restaurant Name, or Menu Button.
1-5 Ba-Ga | 6-10 Go-Pi | 11-11 Ro-Ro
Click here to see Special Savings
Ballard Firehouse
5429 Russell Ave NW Seattle, WA
Relax we'll bring it to you
Cucina! Cucina!
901 Fairview N Seattle, WA
Where you will receive the finest food in town. Additional 3% charge on Visa, Master Card and American Express.
Elliott Bay Pizza Company
2115 Queen Anne Ave. N. Seattle, WA
Queen Anne's newest pizzeria owned and operated by Wayne & Kelly Glass. The Gourmet Pizza is known for its distinctive marinara sauce.
Enzo's
605 Queen Anne Ave N Seattle, WA
Relax we'll bring it to you
Menu & Ordering
Gardelli's Pizza & Pasta
2422 1st Ave. Seattle, WA
Taste the difference! Everything is home-made: Dough, pizza sauce, italian sausage, dressings and clam sauce. We use low-fat cheese and no oil in any of our sauces.
1-5 Ba-Ga | 6-10 Go-Pi | 11-11 Ro-Ro

FIG. 8

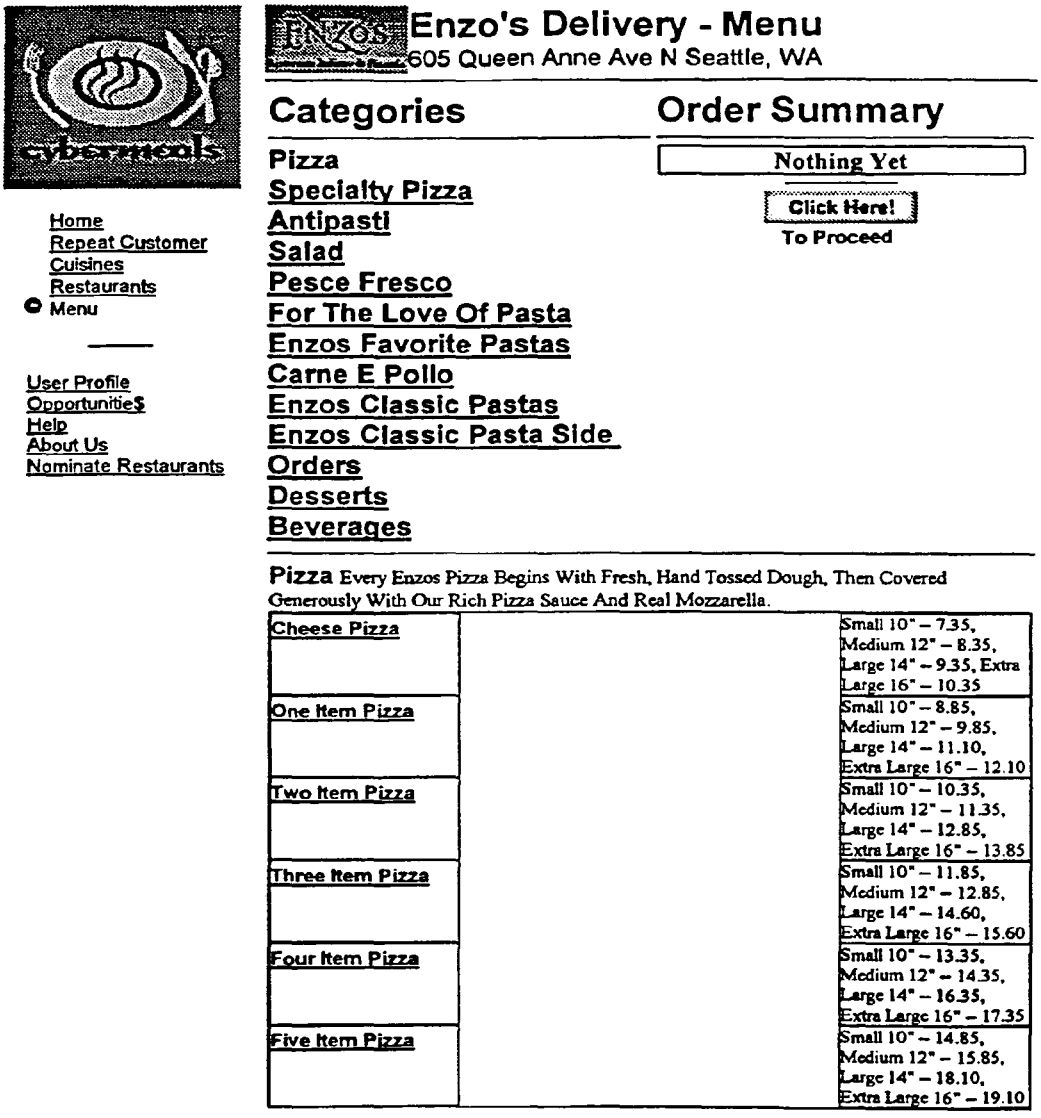

cybermeals
Home
Repeat Customer
Cuisines
Restaurants
Menu
User Profile
Opportunities
Help
About Us
Nominate Restaurants
Enzo's Delivery - Menu
605 Queen Anne Ave N Seattle, WA
Categories
Order Summary
Nothing Yet
Click Here!
To Proceed
Pizza
Specialty Pizza
Antipasti
Salad
Pesce Fresco
For The Love Of Pasta
Enzos Favorite Pastas
Carne E Pollo
Enzos Classic Pastas
Enzos Classic Pasta Side
Orders
Desserts
Beverages
Pizza Every Enzos Pizza Begins With Fresh, Hand Tossed Dough, Then Covered Generously With Our Rich Pizza Sauce And Real Mozzarella.
Cheese Pizza
Small 10" – 7.35, Medium 12" – 8.35, Large 14" – 9.35, Extra Large 16" – 10.35
One Item Pizza
Small 10" – 8.85, Medium 12" – 9.85, Large 14" – 11.10, Extra Large 16" – 12.10
Two Item Pizza
Small 10" – 10.35, Medium 12" – 11.35, Large 14" – 12.85, Extra Large 16" – 13.85
Three Item Pizza
Small 10" – 11.85, Medium 12" – 12.85, Large 14" – 14.60, Extra Large 16" – 15.60
Four Item Pizza
Small 10" – 13.35, Medium 12" – 14.35, Large 14" – 16.35, Extra Large 16" – 17.35
Five Item Pizza
Small 10" – 14.85, Medium 12" – 15.85, Large 14" – 18.10, Extra Large 16" – 19.10

FIG. 9

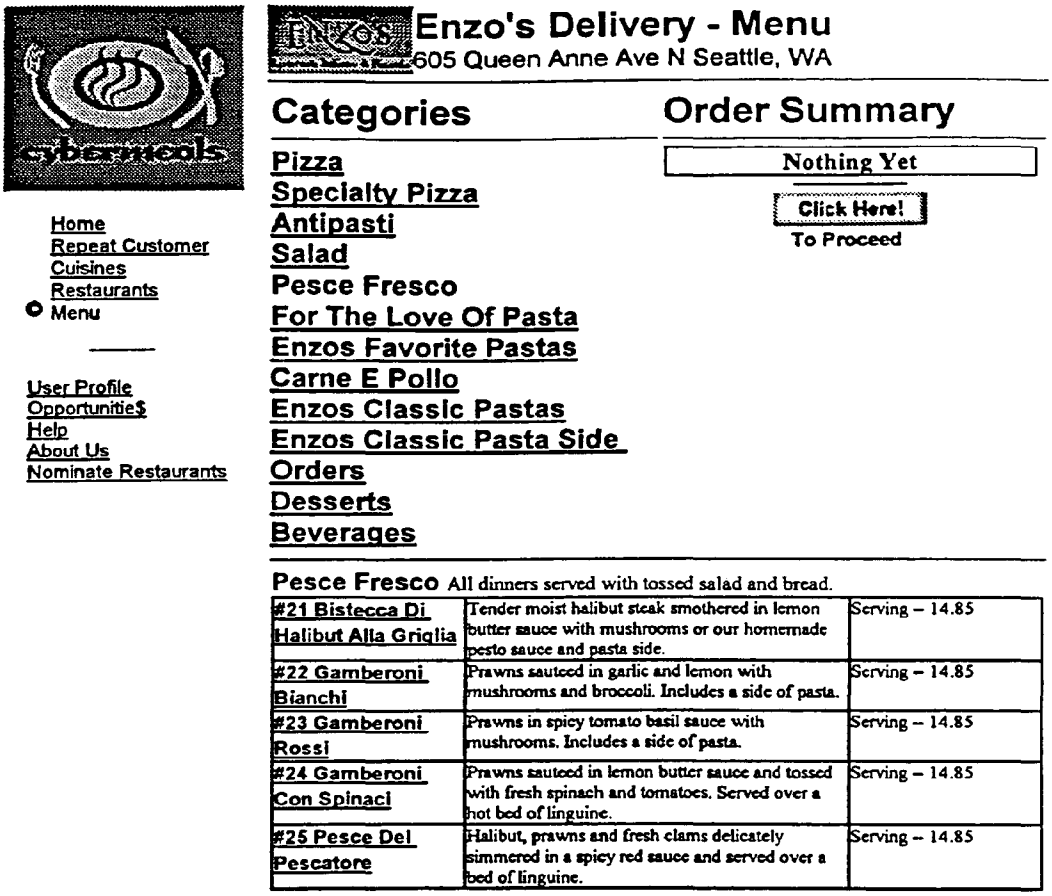

cybermeals
Home
Repeat Customer
Cuisines
Restaurants
Menu
User Profile
Opportunitie$
Help
About Us
Nominate Restaurants
ENZOS
Enzo's Delivery - Menu
605 Queen Anne Ave N Seattle, WA
Categories
Pizza
Specialty Pizza
Antipasti
Salad
Pesce Fresco
For The Love Of Pasta
Enzos Favorite Pastas
Carne E Pollo
Enzos Classic Pastas
Enzos Classic Pasta Side
Orders
Desserts
Beverages
Order Summary
Nothing Yet
Click Here!
To Proceed
Pesce Fresco All dinners served with tossed salad and bread.
#21 Bistecca Di Halibut Alla Griglia
Tender moist halibut steak smothered in lemon butter sauce with mushrooms or our homemade pesto sauce and pasta side.
Serving – 14.85
#22 Gamberoni Bianchi
Prawns sauteed in garlic and lemon with mushrooms and broccoli. Includes a side of pasta.
Serving – 14.85
#23 Gamberoni Rossi
Prawns in spicy tomato basil sauce with mushrooms. Includes a side of pasta.
Serving – 14.85
#24 Gamberoni Con Spinaci
Prawns sauteed in lemon butter sauce and tossed with fresh spinach and tomatoes. Served over a hot bed of linguine.
Serving – 14.85
#25 Pesce Del Pescatore
Halibut, prawns and fresh clams delicately simmered in a spicy red sauce and served over a bed of linguine.
Serving – 14.85

FIG. 10

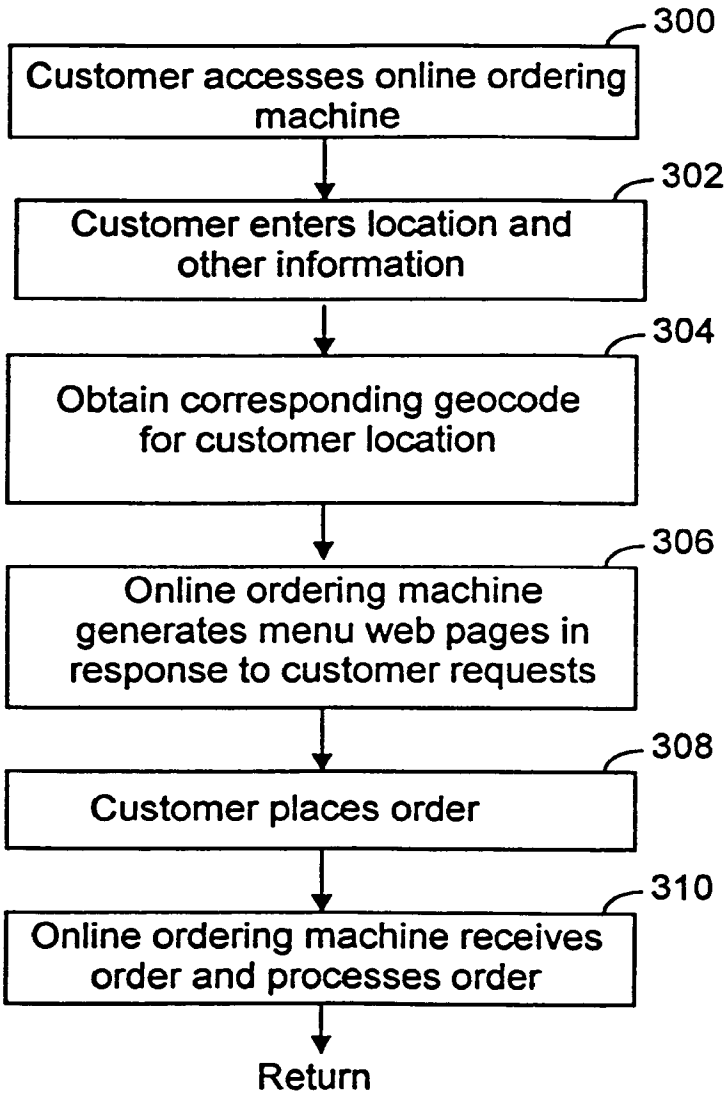

300
Customer accesses online ordering machine
302
Customer enters location and other information
304
Obtain corresponding geocode for customer location
306
Online ordering machine generates menu web pages in response to customer requests
308
Customer places order
310
Online ordering machine receives order and processes order
Return

FIG. 11

cybermeals™
The World's Largest Take-Out and Delivery Service!
Order from your local restaurants.
Demo cybermeals
Visit cybermeals
Click Here!
Repeat Customer
Enter login name and password below.
LOGIN NAME
PASSWORD
Click Here!
New Customer
Register now to begin ordering.
Click Here!
Switch to Text Version
© 1997 cybermeals

FIG. 12A

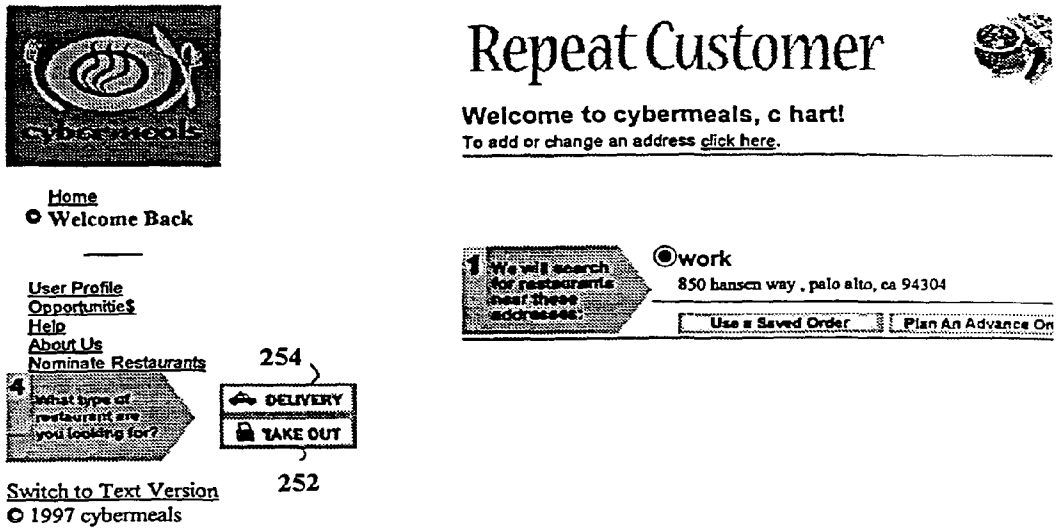
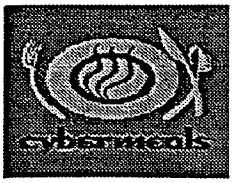

Repeat Customer
Welcome to cybermeals, c hart!
To add or change an address click here.
Home
Welcome Back
User Profile
Opportunities
Help
About Us
Nominate Restaurants
254
DELIVERY
TAKE OUT
252
Switch to Text Version
© 1997 cybermeals
work
850 hansen way , palo alto, ca 94304
Use a Saved Order
Plan An Advance Or

FIG. 12B



Cuisines

Home
Demo
Cuisines

Opportunities
Help
About Us
Nominate Restaurants

Thank you for visiting cybermeals! As if you were at:
The Seattle Space Needle - 219 Fourth Avenue North , Seattle, WA 98109

This is a DEMO - Register Now!

Click Here to see All 56 Restaurants. A restaurant may be listed in more than one cuisine.

Cravings (31)	Asian (17)	European (13)	American (16)	Exotic (1)
Pizza (11)	Chinese (8)	Italian (11)	Mexican (4)	Caribbean
Deli (3)	Thai (3)	French	Fast Food (1)	South American
Sandwiches (18)	Japanese (4)	Mediterranean	Health	Persian
Coffee Shop (3)	Indian (2)	Greek	American (7)	North African
Hamburgers (9)	Korean (2)	Bistro (2)	Bar-B-Que (4)	Lebanese (1)
Salads (19)		German	Soul Food (2)	
Breakfast (5)		English	Southwestern	
Seafood (10)			Tex-Mex (1)	
Wraps				
Chicken (8)				

FIG. 12C

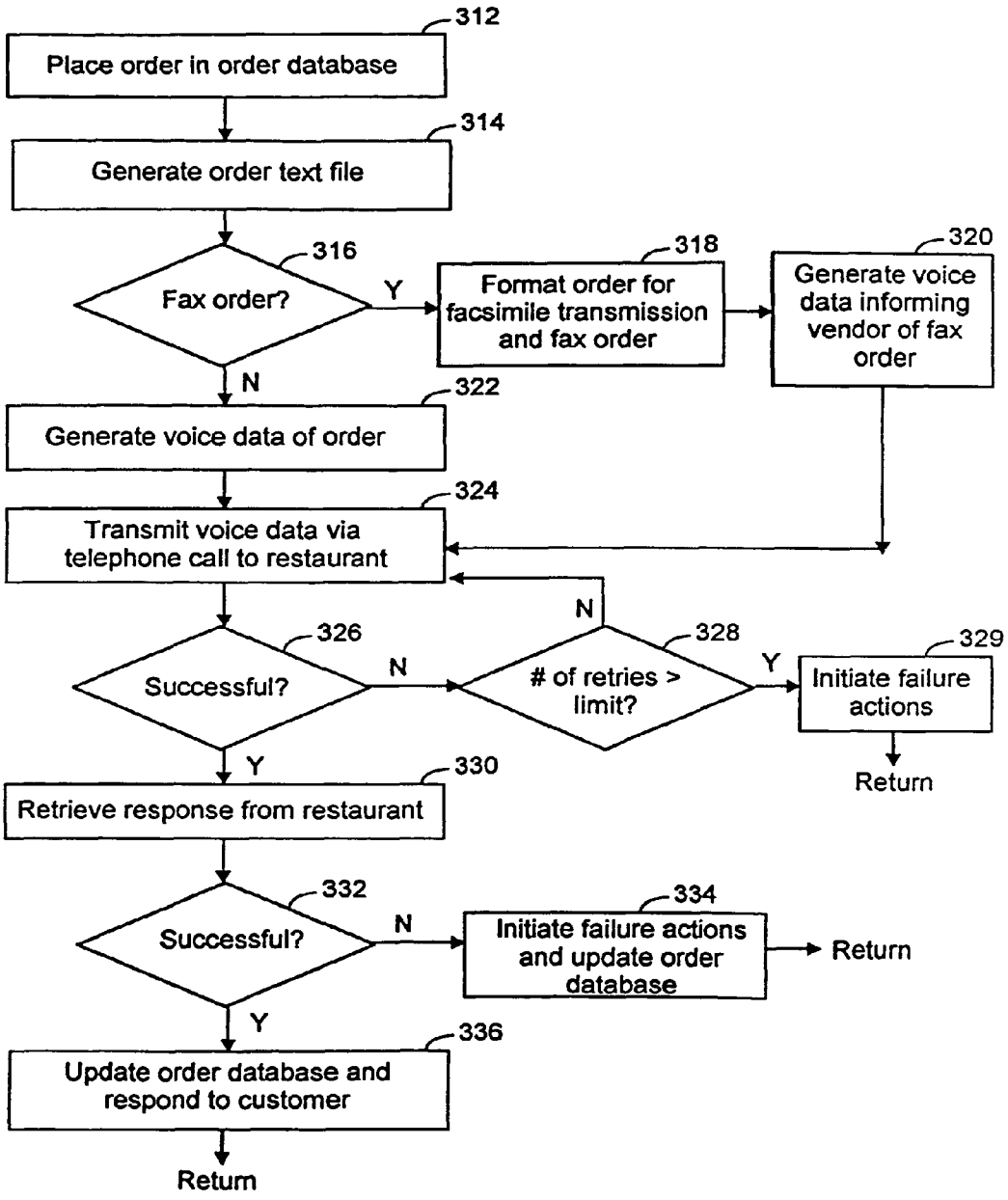

312
Place order in order database
314
Generate order text file
316
Fax order?
Y
318
Format order for facsimile transmission and fax order
320
Generate voice data informing vendor of fax order
N
322
Generate voice data of order
324
Transmit voice data via telephone call to restaurant
N
326
Successful?
N
328
# of retries > limit?
Y
329
Initiate failure actions
Return
Y
330
Retrieve response from restaurant
332
Successful?
N
334
Initiate failure actions and update order database
Return
Y
336
Update order database and respond to customer
Return

FIG. 13

INTERNET ONLINE ORDER METHOD AND APPARATUS

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 09/282,645, filed Mar. 31, 1999 and now pending, which is a continuation of U.S. patent application Ser. No. 08/976,793, filed Nov. 24, 1997 and now U.S. Pat. No. 5,991,739, both of which are incorporated herein by reference in their entirety.

The present invention relates to systems and methods for electronic commerce and particularly to an Internet self-ordering mechanism.

BACKGROUND OF THE INVENTION

The Internet has provided consumers with a new medium for electronic commerce. Currently, there exist several Internet services that provide consumers with access to menus for food products that can be ordered online.

World Wide Waiters is one such service in which each consumer and participating restaurants are linked via the Internet to the World Wide Waiter server. The World Wide Waiter server provides a web site that includes web pages having menus of several participating restaurants with home delivery and/or take-out service. The consumer can search for a menu either using a restaurant's name or a city.

The consumer can then place an order from the menu of a selected restaurant which is transferred to the World Wide Waiter server. The World Wide Waiter server then emails the order over the Internet to the restaurant. The restaurant confirms the order to the World Wide Waiter server. Upon receiving the restaurant's confirmation, the World Wide Waiter server transmits to the consumer a confirming email that the restaurant has received the order and will deliver the order.

In addition, World Wide Waiters allows a customer to fax the order directly to The World Wide Waiters office. Personnel at the World Wide Waiters office contacts the restaurant in order to process the order.

There are several shortcomings to this system. First, each participating restaurant needs to have Internet access to the World Wide Waiter server. This additional expense can deter restaurant proprietors from utilizing this type of home delivery service.

Second, the World Wide Waiter server downloads to the customer statically created HTML pages representing the menus of each participating restaurant. These menu web pages are preconfigured and stored in the server. The use of these statically configured menu web pages becomes a burden since it hampers the maintainability and scalability of the server to take on additional restaurants.

Waiters on Wheels is another Internet online ordering service that provides Internet consumers with a web site to advertise menus of participating restaurants and that accepts consumer orders. It faxes an order to a participating restaurant. It provides its own waiters which pick up the take-out order from a participating restaurant and deliver it to the consumer's location.

The menus are stored by the geographic location of a Waiters on Wheels office. A consumer searches those menus associated with the Waiters on Wheels office within their delivery location. A consumer can order online from the menu. The Waiters on Wheels server confirms receipt of the consumer's order by telephone. If the restaurant cannot deliver the order to the Internet consumer, the restaurant

telephones the Waiters on Wheels office. The office in turn calls the consumer to inform them of the problem.

PizzaNet is another prior art online ordering system that provides Internet consumers with a web site including menus of participating pizza restaurants. To place an order, consumers enter their zip code, telephone area code, and the first three digits of their phone number. A list of participating pizza restaurants within the consumer's location is provided along with their menus. The consumer can then select the restaurant of his or her choice and order from its menu. PizzaNet receives the order from the Internet and faxes to the restaurant a copy of the order. In some instances, PizzaNet verifies the order by a return phone call and in other cases the pizza restaurant verifies the order by return phone call.

A shortcoming of the Waiter on Wheels and PizzaNet systems is in its method of communicating with the restaurant through a facsimile machine. The additional expense incurred in installing a facsimile machine can deter prospective restaurants from participating in this system. Further, once an order is received, all subsequent communications between the customer and the delivery system are performed via telephone calls which requires manual intervention.

SUMMARY OF THE INVENTION

The present invention pertains to an online ordering machine that manages the distribution of home delivered products over a distributed computer system. The distributed computer system includes a group of customers connected to client computers and at least one server computer system that executes the online ordering machine. The online ordering machine provides the customers with product information from various vendors whose delivery range is within the customers location or with product information from vendors having take out service within a specified range from the customers location. The online ordering machine accepts orders from the customer for a particular product from a selected vendor. The order is converted into voice instructions which are transmitted to the vendor through a telephone call. Alternatively, the order can be transmitted via facsimile transmission with follow up voice instructions transmitted via a telephone call seeking a response. The vendor responds to the voice-prompted instructions which are then used to confirm the order.

In an embodiment of the present invention, the online ordering machine enables Internet customers to order food products from various participating restaurants. The online ordering machine is a Web server including a web creation procedure that dynamically generates menu web pages in response to a customers request. The menu web pages list the various products for delivery or takeout service. An Internet customer is provided with a menu web page listing those vendors or restaurants that service the customer's location. In addition, the online ordering machine indicates which restaurants are open at the time the customer makes the request.

The online ordering machine categorizes the location of each participating restaurant by a set of longitude and latitude coordinates. Each customer's delivery location is also categorized by a set of longitude and latitude coordinates. The online ordering machine searches for those restaurants whose delivery area lies within the customer's location based on the restaurant's and customer's longitude and latitude coordinates. Likewise, the online ordering machine searches for those restaurants having takeout service within the customer's location based on the restaurant's and customer's longitude and latitude coordinates.

Once an Internet customer places an order, the order is converted into voice data. An interactive voice recognition (IVR) procedure receives the order as an order text file and converts the order into a voice file of recorded speech segments. The IVR procedure automatically places a call to the restaurant and transmits the voice file which is played when the call is received. In addition, the IVR procedure can transmit the order as a facsimile transmission and follow up with an automated telephone call. In either case, voice prompts are used to obtain a response from the restaurant in the form of one or more DTMF tones. The online ordering machine then relays a status response to the customer.

BRIEF DESCRIPTION OF THE DRAWINGS

Additional objects and features of the invention will be more readily apparent from the following detailed description and appended claims when taken in conjunction with the drawings, in which:

FIG. **1** is a block diagram of an embodiment of a distributed computer system incorporating the present invention.

FIG. **2** is a block diagram of the client computer and online ordering machine as shown in FIG. **1**.

FIG. **3** illustrates the order database schema in a preferred embodiment of the present invention.

FIG. **4** illustrates the geocodes in a preferred embodiment of the present invention.

FIG. **5** is a block diagram illustrating the partitioning of a grid area into smaller areas in a preferred embodiment of the present invention.

FIG. **6** is an exemplary format of the order text file in a preferred embodiment of the present invention.

FIG. **7** is a block diagram illustrating the menu web page creation in a preferred embodiment of the present invention.

FIGS. **8-10** are schematic representations of exemplary menu web pages that are dynamically created in response to a customers response.

FIG. **11** is a flow chart illustrating the steps used to process an order in a preferred embodiment of the present invention.

FIGS. **12A-12C** are schematic representations of exemplary menu web pages used to receive an order in a preferred embodiment of the present invention.

FIG. **13** is a flow chart illustrating the steps used to process an order in a preferred embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Computer Architecture

FIG. **1** illustrates a system **100** representing an embodiment of the present invention including a number of client computers **102A-102N** and one or more online ordering machines **106** in communication via a communications link **104**. In a preferred embodiment, an online ordering machine **106** is a server computer. An online ordering machine **106** is in communication with one or more vendors **108A-108M** through one or more telephone links **110**.

The communication link **104** generically refers to any type of wire or wireless link between computers, such as but not limited to a local area network, a wide area network, or a combination of networks. In a preferred embodiment of the present invention, the communications link **104** can be a network such as the Internet.

A client computer **102** can be any type of computing device, such as but not limited to, desktop computers, workstations, laptops, and/or mainframe computers. One or more users (not shown) can be associated with each client computer **102**.

FIG. **2** illustrates the client computer **102** which includes a CPU **112**, a user interface **114**, a memory **119**, and a communication interface **116**. The communications interface **116** is used to communicate with the server computer **106** as well as other system resources not shown. The memory **119** of the client computer **102** may be implemented as RAM (random access memory) or a combination of RAM and non-volatile memory such as magnetic disk storage. The memory **119** can contain the following:

an operating system **120**;

Internet access procedures **122**;

as well as other procedures and files.

FIG. **2** also illustrates the online ordering machine **106** which includes a central processing unit (CPU) **112**, Interactive Voice Recognition (IVR) hardware **113**, a user interface **114**, a memory **118**, a communications interface **116**. The online ordering machine **106** can be any type of computing device, such as but not limited to, desktop computers, workstations, laptops, and/or mainframe computers. The communications interface **116** is used to communicate with the client computers **102** as well as other system resources not shown.

The IVR hardware **113** connects the online ordering machine **106** to a telephonic link **110** coupled to one or more telephonic devices, such as but not limited to a facsimile machine **107**A and/or a telephone **107**M. Each telephonic device **107** can be associated with a particular vendor **108**. The IVR hardware **113** provides interactive voice recognition capabilities including voice processing, speech recognition, and text-to-speech processing.

In a preferred embodiment of the present invention, the IVR hardware **113** consists of three types of devices: (1) one or more Dialogic™ CP/12SC™ facsimile boards that provide the online ordering machine **106** with 60 or more facsimile channels, the facsimile board enables communication between the online ordering machine **106** and a facsimile machine **107** associated with a vendor **108**; (2) one or more Dialogic™ D/240SC-T1™ boards that provide 24 digital signal processor (DSP)-based ports to an on-board T-1 telephone interface; and (3) one or more Dialogic™ D/41 ESC™ boards that provide four DSP-based voice ports to an on-board analog telephone interface. The facsimile board enables communication between the online ordering machine **106** and a facsimile machine **107**A associated with a vendor **108**. The D/240SC-T1™ board enables interactive voice recognition capabilities between the online ordering machine **106** and a vendor **108** having an analog telephonic interface, and the D/41 ESC™ board enables interactive speech recognition capabilities between the online ordering machine **106** and a vendor **108** or customer having an analog telephone interface. A more detailed description of these devices can be found in the product literature for each of these products located at http://ww.dialogic.com which is hereby incorporated by reference as background information.

It should be noted that the present invention is not constrained to the preferred IVR hardware and that other such hardware devices can be used that provide a similar capability.

The memory **118** of the online ordering machine **106** may be implemented as RAM (random access memory) or a combination of RAM and non-volatile memory such as magnetic disk storage. The memory **118** can contain the following:

an operating system **120**;

Internet access procedures **122**;

web server procedures **124**;

web page creation procedures **126** that dynamically generate menu web pages in response to a customers request;

an order database **128** that includes information on each of the customers, vendors, and received orders;

a geocode database **130** that is used to convert a geographic location such as a street address into longitude and latitude coordinates;

an online ordering procedure **132**;

an interactive voice recognition (IVR) procedure **134** that is used to deliver a voice message and obtain a response to the voice message;

a recorded speech database **136** including one or more recorded speech segments;

an order text file **138** that is an ASCII representation of the order in a preferred format;

a voice data file **140**;

a geocode procedure **142** that is used to convert a geographic location into its corresponding longitude and latitude coordinates;

one or more menu web pages **144** that are dynamically created by the web creation procedure **126**;

a menu file system **146** including one or more menu files representing menu data associated with a particular vendor, preferably, the menu files are binary files stored in a NS encoded format; and

other procedures and data structures.

FIG. **3** illustrates the schema of the order database **128**. The order database **128** can include the following tables:

a customer table **150** having an entry for each customer that tenders an order to the online ordering machine **106**, the customer entry including information that characterizes a particular customer,

an address table **152** having an entry for each customer and including the latitude **154** and longitude **156** coordinates associated with a customers address;

an order master table **158** having an entry for each order;

a restaurant table **160** having an entry for each restaurant containing information that describes the restaurant, its services and products, each entry including the latitude **162** and longitude **164** coordinates associated with a restaurant;

a restaurant category table **162** associated with the restaurant table **160** that is used to identify a category associated with a restaurant;

a price range table **168** associated with the restaurant table **160** identifying the price ranges for products offered by a restaurant;

a time zone table **170** associated with the restaurant table **160** indicating the time zone corresponding to a restaurant;

a restaurant delivery table **172**;

a payment type table **174**;

a restaurant payment table **176**;

a restaurant delivery service (RDS) gratuity table **178**;

a RDS table **180**;

a holiday table **182** associated with the restaurant table and indicating the restaurants holidays;

an IVR fax code table **184**;

an EoSequence table **186**;

a RDS Category Fee table **188**;

a RDS Cross Zone Fee table **190**;

a company table **192**;

a RDS grid table **194**;

a company fee structure table **196**;

a food group table **198**;

a RDS zone table **200**;

an IVR fax disposition table **202**;

a theme table **204**;

a disposition table **206**;

an hour table **208**;

a day of week table **210**;

a category table **212**;

a fee structure table **214**;

an order fee table **216**;

a RDS delivery table **218**;

a first category theme table **220** and a second category theme table **222**;

a credit card table **224**; and

a RDS zone delivery table **226**.

It should be noted that the present invention is not limited to the database schema shown in FIG. **3**. Other schemas can be utilized and other types of databases, other than the relational database shown in FIG. **3** can be utilized as well.

Geocodes

The present invention uses geocodes to determine whether a customer is within a specified geographic area of a restaurant's delivery area or whether a restaurant is within a specified geographic area of the customers takeout range. The use of geocodes has the advantage of producing more accurate search results. The prior art use of zip codes, cities, or telephone prefixes generally produces unsatisfactory results listing restaurants that do not deliver to the customers location. In addition, the geocodes can be used to specify a geographic location anywhere within the globe, thereby enabling the online ordering machine to accommodate international locations as well as the United States.

A geocode represents a particular geographic area or grid defined by longitude and latitude coordinates. Longitude and latitude coordinates are used to define a geographic location relative to the surface of the earth. The earth's reference system is composed of surface divisions denoted by geographic lines of latitude and longitude. A specific geographic location can be defined in this system by its respective longitude and latitude coordinates.

FIG. **4** illustrates the earth with latitude and longitude lines. The area **240** is represented by a geocode associated with a latitude and a longitude coordinate. Typically, a latitude coordinate is specified in latitude degrees and a longitude coordinate is specified in latitude degrees.

The technology of the present invention uses the geocodes to identify each customer and vendor in order to determine whether a customer is within a specified geographic area or grid of a restaurant's delivery area or whether a restaurant is within a specified geographic area or grid of the customer's takeout range. A geocode procedure **142** is used that converts the address of each customer and vendor into its respective latitude and longitude coordinates. The latitude and longitude coordinates then become the geocode which represents a particular grid. Next, the online order procedure **132** uses the geocode to search the order database **142** to make the appropriate selections.

In a preferred embodiment, the grid size for the United States was selected between 0.25 and 0.3 miles. For example, a 0.3 mile grid equates to 0.0054 longitude degrees and 0.0043 latitude degrees. Thus, in order to convert the latitude and longitude coordinates of a customer or restaurant location into a geocode, the following mathematical equations can be used:

$$\text{Latitude } Id = trunc[(\text{latitude in degrees} * 10^6)/4300] + 1,$$

Longitude *Id*=*abs*(*trunc*[−(longitude in degrees*10^6)/5400]+1),

Geocode=Latitude *Id*,Longitude *Id*

The geocodes can then be used to determine whether a customer is within a specified geographic area of a restaurant's delivery area or whether a restaurant is within a specified geographic area of the customer's take-out range. To determine whether a customer is within a specified geographic area of a restaurant's delivery area, the customer's geocode is used to search the order database **128** for those restaurants having the same geocode.

The following mathematical relation is used to select restaurants that are within a customer's takeout range:

IF the Latitude *Id* of the restaurant>Latitude *Id* of customer's location−Takeout Range and

the Latitude *Id* of the restaurant<Latitude *Id* of the customer's location+Takeout Range and

Longitude *Id* of the restaurant>Longitude *Id* of the customer's location−Takeout Range and

Longitude *Id* of the restaurant<Longitude *Id* of the customer's location+Takeout Range,

THEN

Restaurant is within the Takeout Range.

In certain geographic areas, a grid size between 0.25 and 0.3 miles may be too large for a delivery or takeout range. In such cases, the grid can be partitioned into smaller grid sizes. The larger grid is referred to as the parent grid and the smaller grids are referred to as the child grids.

FIG. **5** illustrates one such example of this partitioning. A parent grid **250** having a grid size between 0.25-0.3 miles is associated with a geocode 09456, 12943. The parent grid **250** is partitioned into four child grids **252-258** having a grid size between 0.06-0.075 miles. Each child grid **252** is associated with a subgrid identifier such as A, B, C, or D that represents an associated geographic region.

A vendor can service one or more of the child grids. For example, vendor X can service child grid A, vendor Y can service child grids A and B, and vendor Z can service child grids A and D. As such, a coding scheme was developed to identify all the possible combinations that can occur. A numeric value is associated with each child grid. For example, child grid A is associated with the value 1, child grid B with the value 2, child grid C with the value 4, and child grid D with the value 8. The sum of these values represent a particular combination of delivery areas. For example, the combination of child grid A and B is identified by a value of 3. Table 1 below shows the encoding scheme for all possible combinations in the child grid scheme shown in FIG. **5**.

TABLE I

VALUE	COMBINATION
1	A
2	B
3	A, B
4	C
5	A, C
6	B, C
7	A, B, C
8	D
9	A, D
10	B, D
11	A, B, D
12	C, D
13	A, C, D
14	B, C, D
15	A, B, C, D

When searching for a matching vendor, the geocode procedure **142** determines the appropriate subgrid identifier associated with the customer's location. For example, customer X can be associated with the geocode 09456, 12943A. The online order procedure **132** then searches for those vendors servicing child grid A associated with parent grid 09456, 12943. In the above example, that would encompass searching for all the odd values: 1, 3, 5, 7, 9, 11, 13, and 15.

It should be noted that the technology of the present invention can be practiced with other partitioning or encoding schemes. One skilled in the art can asily modify the present invention to accommodate other subgrid sizes and to even partition the subgrids further. Other encoding schemes can be used to identify the various possible delivery combinations associated with a particular parent grid. In addition, one can combine one or more adjacent grids to formulate a larger delivery or takeout range for a particular geographic area.

Interactive Voice Recognition (IVR) System

The Interactive Voice Recognition (IVR) procedure **134** is used to convert a customer's text order into voice data that is transmitted to the vendor **108**. Alternatively, the IVR procedure **134** can convert a customers order into a format suitable for facsimile transmission.

When a customer's order is received by the online order machine **106**, it is converted into an order text file **138** having a prescribed format as shown in FIG. **6**. The order text file **138** is then transmitted to the IVR procedure **134**. If the order is to be transmitted to the vendor by facsimile transmission, then the IVR procedure **134** formats the order text file **138** into a format that is suitable for facsimile transmission (e.g., postscript format) and transmits the order to the IVR hardware **113**. The IVR hardware **113** is used to transmit the order to the vendor **108**.

When the order is to be transmitted to the vendor **108** by telephone transmission, the IVR procedure **134** then translates the order text file **138** into a voice data file **140** using the recorded speech database **136**. The voice data file **140** is then transmitted to the IVR hardware **113** which transmits the voice data to the vendor **108**.

Dynamically Created Menu Web Pages

The online ordering machine **106** generates menu web pages **144** that are specific to a particular customer's request. The creation of the menu web pages **144** is done dynamically at runtime in order to provide data that accommodates a customer's request. The creation of the menu web pages **144** in this manner differs from the prior art online order systems. In the prior art online order systems, the menu web pages are preconfigured and displayed upon request. This becomes a burden to maintain and limits scalability. In the present technology, each menu web page **144** is configured at runtime and customized for a particular customer's request. Thus, each menu web page **144** differs since each customer's request is different as is the customer's location.

FIG. **7** illustrates the components used to dynamically generate a menu web page **144**. A web page creation proce-

dure **126** is provided that receives as input one or more customer requests and is linked to the order database **128** and the menu file system **146**. The web page creation procedure **126** generates a menu web page **144** based on the input received from the user. The data included in the menu web page **144** is retrieved from the order database **128** and the menu file system **146**. The order database **128** contains information such as the operational time of a vendor, the restaurant's logo, the categories of the food products served, and the like. The menu file system **146** includes menu data associated with each vendor. The menu file system **146** includes a number of menu files stored in an encoded binary format for faster retrieval purposes. The web page creation procedure **126** uses the data in the order database **128** and the menu file system **146** to dynamically generate one or more menu web pages **144** that are customized to a customer's request.

In a preferred embodiment, the web page creation procedure **126** utilizes the WebObjects technology provided by Apple Software. WebObjects is a server technology that links the order database **128** directly to the web server procedures **124** and generates HTML web menu pages **144** based on a customer's request. More detailed information on WebObjects can be found at http://software.apple.com/webobjects which is hereby incorporated by reference as background information.

FIGS. **8**-**10** are exemplary menu web pages **144**. FIG. **8** is a menu web page **144** showing the first five pizza restaurants that deliver within a particular customer's location. The restaurants shown are selected based on the customer's location and the restaurant's delivery area. As such, this menu web page **144** is dynamically created for this particular customer.

Likewise, FIG. **9** is a menu web page **144** showing the various types of food items that a particular restaurant offers for delivery service within a particular customer's location. This menu web page **144** was created in response to the customer's request for pizza selections. FIG. **10** is a menu web page **144** showing the various types of "pesce fresco" items that a particular restaurant offers for delivery service within a particular customer's location. This menu web page **144** was created in response to the customer's request for "pesce fresco" selections.

Ordering Process

FIG. **11** illustrates the steps used by the online ordering machine **106** to process an online order. A customer accesses the online ordering machine **106** through a client computer **102** that is connected to the Internet **104**. The customer enters the appropriate web address or universal resource locator (URL) for the online ordering machine **106** (step **300**). The online order procedure **132** interacts with the client computer **102** by providing access to a series of web pages that can be downloaded to the client computer **102** for the customer's use (step **300**). Initially, a home web page is provided to the client computer **102** which is shown in FIG. **12**A.

The customer can register with the online ordering machine **106** which is accomplished by filling out information requested through one or more web pages. The customer is then provided with a web page that prompts the customer for his location as shown in the exemplary web page illustrated in FIG. **12**B (step **302**). This web page can also obtain the current time at the customer's location which is returned to the online order procedure **132** (step **302**). The current time is used to determine which restaurants meeting the customer's criteria are currently open. In addition, the web page obtains the type of service that the customer seeks, such as but not limited to take-out service **252** or delivery service **254**. If takeout service is requested, the web page requests the range of miles that the customer is willing to drive. If none is indicated, a default value is provided.

Once the customer's location is provided, the online order procedure **132** converts the customer's location into the appropriate geocode as described above (step **304**).

The online order procedure **132** then searches the order database **128** for those restaurants that deliver to the customer's location or are within the customer's desired takeout range (step **306**). This search is performed as described above with respect to the geocode procedure **142**. A menu web page **144** including a list of these restaurants is dynamically created by the web creation procedure **126** and provided to the customer as shown in FIG. **12**C.

The customer can then select a particular vendor or restaurant and one or more menu web pages **144** including the selected information that is dynamically created by the web creation procedure **126** and provided to the customer's client computer **102**. The customer can then browse through the menu web pages **144** and select items of interest. The user's selection or requests are used by the web creation procedure **126** to generate one or more menu web pages **144** that are displayed to the customer (step **306**). FIGS. **8**-**10** illustrate such exemplary menu web pages **144**.

The customer places an order by selecting the appropriate items from the menu web pages **144** (step **308**) which are then transmitted to the online ordering machine **106** (step **310**). The online ordering machine **106** receives the order and processes it as shown in FIG. **13** (step **310**).

Referring to FIG. **13**, an entry is generated for the order in the order database **128** (step **312**). An order text file **138** is generated representing the order in accordance with a prescribed format as shown in FIG. **6** (step **314**).

In the case where the order is transmitted by facsimile transmission to the vendor (step **316**-Y), the order text file **138** is then formatted for facsimile transmission and transmitted to the vendor as described above (step **318**). A voice data file **140** is then generated that informs the vendor **108** of the transmitted fax order (step **320**).

In the case where the order is transmitted by a telephone call, the IVR procedure **134** is used to convert the order text file **138** into voice data (step **322**). The IVR procedure **134** performs the conversion by finding prerecorded speech segments stored in the recorded speech database **136** that match the words contained in the order text file **138**. The speech segments are then concatenated into a voice data file **140** that is then transmitted to the IVR hardware **113** (step **324**). The IVR hardware **113** then establishes telephonic communication with the vendor **108** and transmits the voice data to the vendor **108** (step **324**).

In some instances, one or more calls may be made to the vendor **108** before communication is established (step **326**-N). After a predetermined number of unsuccessful attempts have been made that have failed to establish communication to the vendor **108** (step **328**-Y), the online ordering procedure **132** may initiate failure actions. These failure actions can include calling the vendor directly to place the order or to determine the nature of the problem (step **329**). Based on the nature of the problem, in some cases, the customer can be notified of the failed communication and asked to select another vendor **108** (step **329**). In addition, the online order procedure **132** updates the order database **128** to reflect the status of the order (step **329**).

In the case where the online ordering procedure **132** is successful in communicating with the vendor **108** (step **326**-Y), the vendor **108** hears a recorded message including voice

prompts for responses from the vendor **108**. An exemplary transcript of such a recorded message can be as follows:

This is cybermeals with (an/a repeat) order for (delivery/carry out). Press 1 when you are ready to take this order.

When the employee presses 1, the voice continues with the following: The customer's phone number is _____. The customer's name is _____. The address is _____ (only if the order is for delivery). The order is _____. Total prices excluding tax and coupons is _____.

The employee is then given the option of pressing further keys: 5 to accept the order, 6 to decline the order, 2 to pause the order, 3 to repeat the order, 4 to hear only the address repeated, 7 to repeat the food items, total price, and payment method, 8 to repeat the phone number, and * to just repeat the last segment you were listening to.

Finally, the voice requests that the vendor press keys to indicate how long the order will take to deliver.

If the IVR procedure **134** encounters any failures in retrieving the vendor's response (step **332**-N), the online order procedure **132** initiates one or more failure recovery actions to rectify the failure. For example, if the vendor **108** does not respond to a telephonic order, a manual telephone call can be made to the vendor **108** in order to ascertain the nature of the problem or to obtain the response.

If the IVR procedure **134** receives a response from the vendor **108** (step **332**-Y), the online order procedure **132** transmits a notification to the customer indicating the status of an order and updates the order database **128** with the status thereby completing the order (step **336**). Notification to the customer can be by an mail message, or other communication medium, and can include an expected delivery time.

In addition to the aforementioned steps, the online order procedure **132** can also transmit to the vendor **108** directions to the customer's location either as a facsimile transmission, as a telephone call, mail message, and the like. Likewise, the online order procedure **132** can transmit through any medium directions to a vendor's location to a customer requesting takeout service.

Alternate Embodiments

The foregoing description, for purposes of explanation, used specific nomenclature to provide a thorough understanding of the invention. However, it will be apparent to one skilled in the art that the specific details are not required in order to practice the invention. In other instances, well known circuits and devices are shown in block diagram form in order to avoid unnecessary distraction from the underlying invention. Thus, the foregoing descriptions of specific embodiments of the present invention are presented for purposes of illustration and description. They are not intended to be exhaustive or to limit the invention to the precise forms disclosed, obviously many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its practical applications, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the following Claims and their equivalents.

Further, the method and system described hereinabove is amenable for execution on various types of executable mediums other than a memory device such as a random access memory. Other types of executable mediums can be used, such as but not limited to, a computer readable storage medium which can be any memory device, compact disc, or floppy disk.

Although the present invention has been described with reference to ordering food products from restaurants, it is not limited to this particular product or vendor. The present invention can be used for other electronic commerce purposes, other commodities, other types of vendors, and other types of services other than delivery or takeout.

In addition, the present invention is not constrained to transmitting a customers order to the vendor through the interactive voice recognition system as described above. A modem connection can be established which will enable communication between the online ordering machine and the vendor through the Internet thereby allowing email communication, web communication, and the like.

What is claimed is:

1. An information management and real time synchronous communications system for configuring and transmitting hospitality menus comprising:

a. a central processing unit,

b. a data storage device connected to said central processing unit,

c. an operating system including a first graphical user interface,

d. a master menu including at least menu categories, menu items and modifiers, wherein said master menu is capable of being stored on said data storage device pursuant to a master menu file structure and said master menu is capable of being configured for display to facilitate user operations in at least one window of said first graphical user interface as cascaded sets of linked graphical user interface screens, and

e. menu configuration software enabled to generate a programmed handheld menu configuration from said master menu for wireless transmission to and programmed for display on a wireless handheld computing device, said programmed handheld menu configuration comprising at least menu categories, menu items and modifiers and wherein the menu configuration software is enabled to generate said programmed handheld menu configuration by utilizing parameters from the master menu file structure defining at least the menu categories, menu items and modifiers of the master menu such that at least the menu categories, menu items and modifiers comprising the programmed handheld menu configuration are synchronized in real time with analogous information comprising the master menu,

wherein the menu configuration software is further enabled to generate the programmed handheld menu configuration in conformity with a customized display layout unique to the wireless handheld computing device to facilitate user operations with and display of the programmed handheld menu configuration on the display screen of a handheld graphical user interface integral with the wireless handheld computing device, wherein said customized display layout is compatible with the displayable size of the handheld graphical user interface wherein the programmed handheld menu configuration is configured by the menu configuration software for display as programmed cascaded sets of linked graphical user interface screens appropriate for the customized display layout of the wireless handheld computing device, wherein said programmed cascaded sets of linked graphical user interface screens for display of the handheld menu configuration are configured differently from the cascaded sets of linked graphical user interface

screens for display of the master menu on said first graphical user interface, and

wherein the system is enabled for real time synchronous communications to and from the wireless handheld computing device utilizing the programmed handheld menu configuration including the capability of real time synchronous transmission of the programmed handheld menu configuration to the wireless handheld computing device and real time synchronous transmissions of selections made from the handheld menu configuration on the wireless handheld computing device, and

wherein the system is further enabled to automatically format the programmed handheld menu configuration for display as cascaded sets of linked graphical user interface screens appropriate for a customized display layout of at least two different wireless handheld computing device display sizes connected to the system, and

wherein a cascaded set of linked graphical user interface screens for a wireless handheld computing device in the system includes a different number of user interface screens from at least one other wireless handheld computing device in the system.

2. The information management and synchronous communications system in accordance with claim **1**, wherein the system is further enabled by a communications systemic relationship providing a common, linked system comprising:

a) A Wireless Hub Application;

b) A Web Hub Application;

c) Linked Databases between two or more different Hospitality Applications; and

d) A Communications Setup Application.

3. The information management and real time synchronous communications system in accordance with claim **1** wherein the information from the POS database is automatically imported into the system.

4. The information management and real time synchronous communications system in accordance with claim **1**, wherein the said Hospitality Applications include at least reservations applications.

5. The information management and real time synchronous communications system in accordance with claim **1**, wherein the said Hospitality Applications include at least a Ticketing applications.

6. The information management and real time synchronous communications system in accordance with claim **1** in which the wireless handheld computing device is a smart phone.

7. The information management and real time synchronous communications system in accordance with claim **1**, further enabled to facilitate and complete payment processing directly from the wireless handheld computing device including: a) Billing; b) Status and c) Payment Information.

8. The information management and real time synchronous communications system in accordance with claim **1**, wherein one or more of the layout, views or fonts of the programmed handheld menu configuration are created in conformity with the display screen parameters of the wireless handheld computing device and wherein the system is enabled to generate a view of the programmed handheld menu configuration for user preview from the central computing unit and which facilitates a further user manual modification prior to the transmissions of the programmed handheld menu configuration to the wireless handheld computing device.

9. An information management and real time synchronous communications system for configuring and transmitting hospitality menus comprising:

a) a central processing unit;

b) a data storage device connected to said central processing unit;

c) an operating system including a first graphical user interface, said operating system configured to interoperate with the central processing unit, the data storage device and application software;

d) a master menu including menu categories and menu items, wherein said master menu is capable of being stored on said data storage device pursuant to a master menu file structure and said master menu is capable of being configured for display to facilitate user operations in at least one window of said first graphical user interface as cascaded sets of linked graphical user interface screens; and

e) a modifier menu capable of being stored on said data storage device, and menu configuration software enabled to automatically generate a programmed handheld menu configuration from said master menu for display on a wireless handheld computing device, said programmed handheld menu configuration comprising at least menu categories, menu items and modifiers and wherein the menu configuration software is enabled to generate said programmed handheld menu configuration by utilizing parameters from the master menu file structure defining at least the categories and items of the master menu and modifiers from the modifier menu at least the menu categories, menu items and modifiers comprising the programmed handheld menu configuration are synchronized in real time with analogous information comprising the master and modifier menus wherein the menu configuration software is further enabled to generate the programmed handheld menu configuration in conformity with a customized display layout unique to the wireless handheld computing device to facilitate user operations with and display of the programmed handheld menu configuration on the display screen of a handheld graphical user interface integral with the wireless handheld computing device, wherein said customized display layout is compatible with the displayable size of the handheld graphical user interface,

wherein the programmed handheld menu configuration is configured by the menu configuration software for display as cascaded sets of linked graphical user interface screens appropriate for the customized display layout of the wireless handheld computing device, wherein said cascaded sets of linked graphical user interface screens for display of the programmed handheld menu configuration are configured differently from the cascaded sets of related graphical user interface screens for display of the master menu on said first graphical user interface, and

wherein the system is enabled for real time synchronous communications to and from the wireless handheld computing device utilizing the programmed handheld menu configuration including the capability of real time synchronous transmission of at least the menu categories, menu items and modifiers comprising the programmed handheld menu configuration to the wireless handheld computing device and real time synchronous transmissions of selections made from the handheld menu configuration on the wireless handheld computing device, and

wherein the system is further enabled to automatically format the programmed handheld menu configuration for display as cascaded sets of linked graphical user interface screens appropriate for a customized display

layout of at least two different wireless handheld computing device display sizes connected to the system, and

wherein a cascaded set of linked graphical user interface screens for a wireless handheld computing device in the system includes a different number of user interface screens from at least one other wireless handheld computing device in the system.

10. The information management and real time synchronous communications system in accordance with claim **9**, further including a communications systemic relationship comprising:

a) A Wireless Hub Application;

b) A Web Hub Application;

c) Linked Databases Between two or more different Hospitality Applications; and

d) A Communications Setup Application.

11. The information management and real time synchronous communications system in accordance with claim **9**, wherein at least two different hospitality software applications are integrated between and with one another.

12. The information management and real time synchronous communications system in accordance with claim **9**, wherein the system enables automatic importation of the POS database information into the system.

13. An information management and real time synchronous communications system for use with wireless handheld computing devices and the internet comprising:

a) a master database connected in said system and configured to store hospitality application information pursuant to a master database file structure;

b) at least one wireless handheld computing device connected in said system and configured to display said hospitality application information;

c) at least one web server connected in said system;

d) at least one web page connected in said system and configured to display said hospitality application information; and

e) real time communications control software enabled to link and synchronize hospitality application information simultaneously between the master database, wireless handheld computing device, web server and web page,

wherein the communications control software is enabled to utilize parameters from the master database file structure to synchronize the hospitality application information in real time between the master database, at least one wireless handheld computing device, at least one web server and at least one web page such that substantially the same information comprising the hospitality application information is capable of being displayed on the wireless handheld computing device, at least one web page and other display screens of the synchronized system, such that the hospitality application information is synchronized between any connected users,

wherein the communications control software is enabled to act as a real time interface between the elements of the system and any applicable communications protocol,

wherein the communications control software is enabled to automatically and simultaneously configure the hospitality application information for display on both the wireless handheld computing device and the web page in conformity with a customized display layout unique to the wireless handheld computing device or the web page, wherein said customized display layout is compatible with the displayable size of the handheld computing device display screen or the web page, and

wherein the communications control software is further enabled to automatically format a programmed handheld configuration for display as cascaded sets of linked graphical user interface screens appropriate for a customized display layout of at least two different wireless handheld computing device display sizes connected to the system, and

wherein a cascaded set of linked graphical user interface screens for a wireless handheld computing device in the system includes a different number of user interface screens from at least one other wireless handheld computing device in the system, and

wherein the system is enabled for real time synchronous transmission of the configured hospitality application information to the wireless handheld computing device, the web server and the web page and real time synchronous transmissions of inputs responding to the configured hospitality application information from the wireless handheld computing device, or the web server or the web page.

14. The information management and real time synchronous communications system in accordance with claim **13**, further including a communications systemic relationship comprising:

a) A Wireless Hub Application;

b) A Web Hub Application;

c) Linked Databases Between two or more different Hospitality Applications; and

d) A Communications Setup Application.

15. The information management and real time synchronous communications system of claim **13**, wherein the system is enabled to automatically import the information from the POS (point of sale) database into the system.

16. The information management and real time synchronous communications system of claim **13**, wherein at least two different hospitality applications are integrated between and with one another.

17. The information management and real time synchronous communications system in accordance with claim **13**, wherein the hospitality application information also includes the completion of payment processing.

18. The information management and real time synchronous communications system in accordance claim **13**, wherein the configured wireless handheld computing device is a smart phone.

19. An information management and real time synchronous communications system for configuring and transmitting hospitality menus comprising:

a. a central processing unit,

b. a data storage device connected to said central processing unit,

c. an operating system including a first graphical user interface,

d. a master menu including at least menu categories, menu items and modifiers, wherein said master menu is capable of being stored on said data storage device pursuant to a master menu file structure and said master menu is capable of being configured for display to facilitate user operations in at least one window of said first graphical user interface as cascaded sets of linked graphical user interface screens, and

e. menu configuration software enabled to generate a programmed portable menu configuration from said master menu for wireless transmission to and programmed for display on a wireless portable computing device, said programmed portable menu configuration comprising at least menu categories, menu items and modifiers and wherein the menu configuration software is enabled to generate said programmed portable menu configuration

by utilizing parameters from the master menu file structure defining at least the menu categories, menu items and modifiers of the master menu such that at least the menu categories, menu items and modifiers comprising the programmed portable menu configuration are synchronized in real time with analogous information comprising the master menu, wherein the menu configuration software is further enabled to generate the programmed portable menu configuration in conformity with a customized display layout unique to the wireless portable computing device to facilitate user operations with and display of the programmed portable menu configuration on the display screen of a portable graphical user interface integral with the wireless portable computing device, wherein said customized display layout is compatible with the displayable size of the portable graphical user interface wherein the programmed portable menu configuration is configured by the menu configuration software for display as programmed cascaded sets of linked graphical user interface screens appropriate for the customized display layout of the wireless portable computing device, wherein said programmed cascaded sets of linked graphical user interface screens for display of the portable menu configuration are configured differently from the cascaded sets of linked graphical user interface screens for display of the master menu on said first graphical user interface, and wherein the system is enabled for real time synchronous communications to and from the wireless portable computing device utilizing the programmed portable menu configuration including the capability of real time synchronous transmission of the programmed portable menu configuration to the wireless portable computing device and real time synchronous transmissions of selections made from the portable menu configuration on the wireless portable computing device, and wherein the system is further enabled to automatically format the programmed portable menu configuration for display as cascaded sets of linked graphical user interface screens appropriate for a customized display layout of at least two different wireless portable computing device display sizes connected to the system, and wherein a cascaded set of linked graphical user interface screens for a wireless portable computing device in the system includes a different number of user interface screens from at least one other wireless portable computing device in the system.

20. An information management and real time synchronous communications system for configuring and transmitting hospitality menus comprising:

a) a central processing unit;

b) a data storage device connected to said central processing unit;

c) an operating system including a first graphical user interface, said operating system configured to interoperate with the central processing unit, the data storage device and application software;

d) a master menu including menu categories and menu items, wherein said master menu is capable of being stored on said data storage device pursuant to a master menu file structure and said master menu is capable of being configured for display to facilitate user operations in at least one window of said first graphical user interface as cascaded sets of linked graphical user interface screens; and

e) a modifier menu capable of being stored on said data storage device, and menu configuration software enabled to automatically generate a programmed portable menu configuration from said master menu for display on a wireless portable computing device, said programmed portable menu configuration comprising at least menu categories, menu items and modifiers and wherein the menu configuration software is enabled to generate said programmed portable menu configuration by utilizing parameters from the master menu file structure defining at least the categories and items of the master menu and modifiers from the modifier menu at least the menu categories, menu items and modifiers comprising the programmed portable menu configuration are synchronized in real time with analogous information comprising the master and modifier menus wherein the menu configuration software is further enabled to generate the programmed portable menu configuration in conformity with a customized display layout unique to the wireless portable computing device to facilitate user operations with and display of the programmed portable menu configuration on the display screen of a portable graphical user interface integral with the wireless portable computing device, wherein said customized display layout is compatible with the displayable size of the portable graphical user interface, wherein the programmed portable menu configuration is configured by the menu configuration software for display as cascaded sets of linked graphical user interface screens appropriate for the customized display layout of the wireless portable computing device, wherein said cascaded sets of linked graphical user interface screens for display of the programmed portable menu configuration are configured differently from the cascaded sets of related graphical user interface screens for display of the master menu on said first graphical user interface, and wherein the system is enabled for real time synchronous communications to and from the wireless portable computing device utilizing the programmed portable menu configuration including the capability of real time synchronous transmission of at least the menu categories, menu items and modifiers comprising the programmed portable menu configuration to the wireless portable computing device and real time synchronous transmissions of selections made from the portable menu configuration on the wireless portable computing device, and wherein the system is further enabled to automatically format the programmed portable menu configuration for display as cascaded sets of linked graphical user interface screens appropriate for a customized display layout of at least two different wireless portable computing device display sizes connected to the system, and wherein a cascaded set of linked graphical user interface screens for a wireless portable computing device in the system includes a different number of user interface screens from at least one other wireless portable computing device in the system.

21. An information management and real time synchronous communications system for use with wireless portable computing devices and the internet comprising:

a) a master database connected in said system and configured to store hospitality application information pursuant to a master database file structure;

b) at least one wireless portable computing device connected in said system and configured to display said hospitality application information;

c) at least one web server connected in said system;

d) at least one web page connected in said system and configured to display said hospitality application information; and

e) real time communications control software enabled to link and synchronize hospitality application information simultaneously between the master database, wireless portable computing device, web server and web page, wherein the communications control software is enabled to utilize parameters from the master database file structure to synchronize the hospitality application information in real time between the master database, at least one wireless portable computing device, at least one web server and at least one web page such that substantially the same information comprising the hospitality application information is capable of being displayed on the wireless portable computing device, at least one web page and other display screens of the synchronized system, such that the hospitality application information is synchronized between any connected users, wherein the communications control software is enabled to act as a real time interface between the elements of the system and any applicable communications protocol, wherein the communications control software is enabled to automatically and simultaneously configure the hospitality application information for display on both the wireless portable computing device and the web page in conformity with a customized display layout unique to the wireless portable computing device or the web page, wherein said customized display layout is compatible with the displayable size of the portable computing device display screen or the web page, and wherein the communications control software is further enabled to automatically format a programmed portable configuration for display as cascaded sets of linked graphical user interface screens appropriate for a customized display layout of at least two different wireless portable computing device display sizes connected to the system, and wherein a cascaded set of linked graphical user interface screens for a wireless portable computing device in the system includes a different number of user interface screens from at least one other wireless portable computing device in the system, and wherein the system is enabled for real time synchronous transmission of the configured hospitality application information to the wireless portable computing device, the web server and the web page and real time synchronous transmissions of inputs responding to the configured hospitality application information from the wireless portable computing device, or the web server or the web page.

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