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UNITED STATES PATENT APPLICATION

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For:

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**INFORMATION MANAGEMENT AND SYNCHRONOUS COMMUNICATIONS  
SYSTEM WITH MENU GENERATION**

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Inventors:

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**Keith R. McNALLY**

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**WILLIAM H. ROOF**

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**RICHARD BERGFELD**

FOR SET OFF

1 **UNITED STATES PATENT APPLICATION**

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3 **OF: KEITH R. McNALLY**  
4 **WILLIAM H. ROOF**  
5 **RICHARD BERGFELD**  
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8 **FOR: INFORMATION MANAGEMENT AND SYNCHRONOUS**  
9 **COMMUNICATIONS SYSTEM WITH MENU**  
10 **GENERATION**  
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12 The present application is a continuation of application Serial No. 09/400,413,  
13 filed September 21, 1999. The contents of application Serial No. 09/400,413 are incorporated  
14 herein by reference.

15 **FIELD OF THE INVENTION**

16 This invention relates to an information management and synchronous  
17 communications system and method for generation of computerized menus for restaurants and  
18 other applications with specialized display and synchronous communications requirements  
19 related to, for example, the use of equipment or software with non-PC-standard graphical  
20 formats, display sizes and/or applications for use in remote data entry, information management  
21 and synchronous communication between host computer, digital input device or remote pager  
22 via standard hardwired connection, the internet, a wireless link, smart phone or the like.

23 **BACKGROUND OF THE INVENTION**

24 While computers have dramatically altered many aspects of modern life, pen and  
25 paper have prevailed in the hospitality industry, e.g., for restaurant ordering, reservations and  
26 wait-list management, because of their simplicity, ease of training and operational speed. For  
27 example, ordering prepared foods has historically been done verbally, either directly to a waiter

1 or over the telephone, whereupon the placed order is recorded on paper by the recipient or  
 2 instantly filled.

3           Although not previously adapted for wide-scale use in the hospitality industry,  
 4 various forms of digital wireless communication devices are in common use, e.g., digital  
 5 wireless messengers and pagers. Also in common use are portable laptop and handheld devices.  
 6 However, user-friendly information management and communication capability not requiring  
 7 extensive computer expertise has not heretofore been available for use in everyday life such as  
 8 for restaurant ordering, reservations and wait-list management. Hundreds of millions of dollars  
 9 have been spent on personal digital assistant (“PDA”) development seeking to produce a small,  
 10 light-weight and inexpensive device that could be adapted to such uses; yet none have yielded a  
 11 satisfactory solution.

12           One of the inherent shortcomings of PDA type devices is that, as they strive for  
 13 small size, low weight and low cost, they must compromise the size and clarity of the operator  
 14 display medium interface itself, which in most cases is one of a variety of LCD (liquid crystal  
 15 display) type devices. As the size of the display shrinks, the amount of information that may be  
 16 displayed at any one point or time is commensurately decreased, typically requiring multiple  
 17 screens and displays to display information to the operator. This reduces the overall utility of the  
 18 device. Additionally, the smaller display and keyboard results in a non-optimal operator  
 19 interface, which slows down operation and is thus unacceptable for the time criticality of  
 20 ordering, reservation and wait-list management and other similar applications. This necessitates  
 21 many design compromises which in the aggregate have resulted in limited acceptance of PDA  
 22 type devices in the restaurant and hospitality fields.

1 Many of the negatives prevalent in earlier devices have been eliminated, but, to  
 2 date, there is still no integrated solution to the ordering/waitlist/reservation problem discussed  
 3 above. With the advent of the Palm<sup>®</sup> and other handheld wireless devices, however, the efforts  
 4 to make such devices ubiquitous have begun to bear fruit at least in some areas, e.g., personal  
 5 calendars. However, substantial use of such devices in the restaurant and hospitality context has  
 6 not occurred to date. As discussed above, at least one of the reasons PDAs have not been  
 7 quickly assimilated into the restaurant and hospitality industries is that their small display sizes  
 8 are not readily amenable to display of menus as they are commonly printed on paper or displayed  
 9 on, e.g., large, color desktop computer screens. Another reason is that software for fully  
 10 realizing the potential for wireless handheld computing devices has not previously been  
 11 available. Such features would include fast and automatic synchronization between a central  
 12 database and multiple handheld devices, synchronization and communication between a World  
 13 Wide Web (“Web”) server and multiple handheld devices, a well-defined application program  
 14 interface (“API”) that enables third parties such as point of sale (“POS”) companies, affinity  
 15 program companies and internet content providers to fully integrate with computerized  
 16 hospitality applications, real-time communication over the internet with direct connections or  
 17 regular modem dialup connections and support for batch processing that can be done periodically  
 18 throughout the day to keep multiple sites in synch with the central database. A single point of  
 19 entry for all hospitality applications to communicate with one another wirelessly has also  
 20 previously been unavailable. Such a single point of entry would work to keep all wireless  
 21 handheld devices and linked Web sites in synch with the backoffice server (central database) so  
 22 that the different components are in equilibrium at any given time and an overall consistency is  
 23 achieved. For example, a reservation made online would be automatically communicated to the

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1 backoffice server and then synchronized with all the wireless handheld devices wirelessly.  
2 Similarly, changes made on any of the wireless handheld devices would be reflected  
3 instantaneously on the backoffice server, Web pages and the other handheld devices.

4 For the foregoing reasons, paper-based ordering, waitlist and reservations  
5 management have persisted in the face of widespread computerization in practically all areas of  
6 commerce. At most, computerization of these functions has been largely limited to fixed  
7 computer solutions, i.e., desktop or mainframe, because of the problems heretofore faced in  
8 configuring wireless handheld devices and maintaining database synchronization for such  
9 applications. Specifically, the unavailability of any simple technique for creating restaurant  
10 menus and the like for use in a limited display area wireless handheld device or that is  
11 compatible with ordering over the internet has prevented widespread adoption of  
12 computerization in the hospitality industry. Without a viable solution for this problem,  
13 organizations have not made the efforts or investments to establish automated interfaces to  
14 handheld and Web site menus and ordering options.

15 A principal object of the present invention is to provide an improved information  
16 management and synchronous communications system and method which facilitates user-  
17 friendly and efficient generation of computerized menus for restaurants and other applications  
18 that utilize equipment with non-PC-standard graphical formats, display sizes and/or applications.

19 A further object of the present invention is to provide an improved information  
20 management and synchronous communications system and method which provides for entry,  
21 management and communication of information from the operator as well as to and from another  
22 computer, Web page menu, remote digital device using a standard hardwired connection, the  
23 internet or a wireless link.

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