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# INTERACTIVE BROADCASTING SYSTEM

## Field of the Invention

This invention relates to interactive broadcasting and particularly but not limited in its broadest aspect to broadcasting and shopping via cable or satellite broadcasting.

## Background to the Invention

With the emerging availability of a variety of competing technologies aimed at the consumer over the last decade, the rush is on to develop and implement a fast, cost-effective and reliable way for ordinary consumers to select and purchase products or services, to pay for them and get them quickly. Entire distribution systems are being configured and re-configured to eliminate delays, costs and inefficiencies almost as fast as the solutions to these problems can be devised.

Companies and even governments are being compelled by force of competition to simplify and streamline their distribution systems to accommodate increased choice and increased demand.

A key technology under development is the "information superhighway", a very high capacity fibre optic cable which has the potential to offer every consumer an enormous choice and flexibility.

Pay-TV and the free-to-air TV stations and networks are facing the daily reality of increased competition. Historical markets and market shares are about to change, but not for the better for free-to-air TV. Pay-TV will

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offer consumers more choice than ever before, but only at a price. Pay-TV will offer advertisers more choice in reaching the market, or market segment, but only at a price.

But, in spite of these advances, the consumer still has no choice - if he wants the product, he has to go to the store. And, he'll have to do that for at least the next 3 years, or more.

A number of further deficiencies of current methods of marketing may be highlighted by asking the following questions:

- How much money does an advertiser have to spend (and keep spending) to tell the customer where to buy his product?

- How much money does it cost a product vendor to maintain his product presence (and promotional tools) in <u>every store</u>, <u>all the time</u>?

- How much money does it cost a product vendor to maintain his existing distribution system and method/s?

- How often do you think a customer would use an ordering or messaging device to place orders from home, or anywhere else, if all he has to do is swipe a card, scan a bar code and press a button and the product is delivered 24 hours later?

- If such an ordering unit or messaging device were available to the customer, how do you think it's availability and use would affect his "normal" purchasing method and frequency?

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- How much money would the product vendor save if he could deliver 20% of his volume direct to his customers?

- How much extra profit would a product vendor make if he could deliver 20% of his volume direct to his customers 24 hours after it was ordered?

- How much do you think a product vendor would pay to have access to such a system?

- What would it be worth to an advertising agency, or his client, to have access to precision targeting, instantaneous results in orders and full, measurable feedback automatically from each messaging device?

- What would it be worth to an advertising agency to have access to information about the customer and location databases of such a system?

- What would it be worth to a free-to-air TV network to generate extra revenue from the 10 pm to 6 am timeslot audience 5 days a week?

- How much of a competitive edge do you think such a system would offer the free-to-air TV networks?

There have been several proposals for interactive on-line broadcast systems such as cable or satellite TV broadcasting systems. Such systems generally provide for user interaction in order to select desired programs on demand or to interact with the TV broadcasting station for particular requirements. In all known cases, involved and costly electronic processing equipment is required not only at the broadcasting TV station but also at each individual site where the TV receiving sets are located.

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Further, to date there has been no convenient way of telephone ordering required goods or services in an automated way. The only practical way of ordering goods or services is to make a dedicated telephone call and verbally place an order. In this way, full particulars relating to the order can be dispatched.

## Summary of the Invention

It is an object of the invention to overcome one or more of the above mentioned deficiencies of prior systems.

Therefore in accordance with a first broad aspect of the invention there is provided a system for interactive broadcasting to consumers of one or more broadcasting media, wherein

each participating said consumer is provided with a messaging device for transmitting an indication over a telephone network, said messaging device being capable upon activation by the consumer of automatically dialling at least one specified telephone number and transmitting a consumer identification code over the telephone network to an indication transfer means upon answering by the indication transfer means ; and

said indication transfer means being for transmitting consumer identification data to one or more providers in response to receipt of said consumer identification code; and

a broadcaster broadcasting to said consumers over said broadcasting medium to invite said consumers via said broadcasting medium to activate the messaging device in a specified manner within a specified time period if any said consumer desires to give a specified indication to a specified provider; and

if a particular consumer performs said activation, said indication transfer means will determine

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at least in part from a time of said activation which of a plurality of possible specified indications stored in a database is intended by the consumer and will then transmit corresponding consumer and indication identification data to the specified provider.

In a preferred form, there are a plurality of providers which are vendors of products or services an the indication is an order by said consumer for provision of a specified product or service provided by a specified provider and advertised by the broadcaster at the time of the invitation.

There may be only one specified indication and one corresponding specified manner, for example the pressing of a single button on the messaging device. However, preferably there are a plurality of specified manners of activation, which may be provided by a plurality of buttons on the messaging device, the messaging device transmitting an activation manner identification code in addition to said consumer identification code.

A different indication may be associated with each specified manner of activation. For example, a different purchasing method may be indicated such as "pay by credit card", "cash on delivery", "free trial" or "information only requested".

The messaging device may comprise a card reader for swiping by the consumer of an identification card before said activation to provide the consumer identification code to the messaging device. The identification card may alternatively or in addition contain qualifying information to be transmitted by the messaging device such as an identifier of the broadcaster, whereby the consumer may be issued with a number of such identification cards, and use

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the card corresponding to the broadcaster (e.g. TV channel) issuing the invitation when activating the messaging device.

The indication transfer means may comprise a computer and an associated database, together with avalanche processing equipment for handling a large number of simultaneous incoming calls.

Therefore, in accordance with a further broad aspect of the present invention there may be provided a system for ordering goods or services by consumers wherein,

each participating said consumer is provided with a messaging device for transmitting an indication over a telephone network, said messaging device being capable, upon activation by the consumer, of automatically dialling at least one specified telephone number and transmitting a consumer identification code, and goods or services to be purchased identification code, over the telephone network to an indication transfer means connected with said messaging device when the specified telephone number is answered, wherein,

said indication transfer means is adapted to transmit consumer identification data, and goods or services to be purchased identification data to one or more appropriate providers in response to receipt of said consumer identification code and said goods or services to be purchased identification code;

whereupon, said goods or services can be provided to said consumer by said one or more providers.

In such an environment, the system and method may be implemented for purchasing goods such as food items at a pizza shop. In this case, not only will the consumer identification code be transmitted, but a code to uniquely describe a particular type of order, such as a Hawaiian

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pizza, a Supreme pizza, a family size version and the like. The retailer of such goods may provide, free to the customers, magnetic swipe cards which can be processed through the messaging device to identify the particular chosen goods. Alternatively, the messaging device may have some bar-code reading device or other code reading device which can optically scan information on a printed image possessed by the consumer. In this way, advertisements can be made in the daily press related to particular goods or services to be supplied. The consumer then needs to arrange for the printed image to be processed by the messaging device, such as by passing the bar-code reading wand over the printed bar-code in the printed image, in order to uniquely define the type of goods or services required.

In addition, the above has application in the use of rendering particular services such as bank account services.

In a further broad aspect of the present invention there may be provided an interactive on-line broadcast system wherein there are a plurality of broadcast consumer sets which can be selectively activated to receive unique specified broadcast program transmissions by a transmitted control signal emanating from a transmitting broadcast station in said system,

said control signal being unique for each consumer's set, said system having a separate messaging device at each consumer set for transmitting data over a telephone network, said messaging device being capable upon activation by the consumer of automatically dialling at least one specified telephone number and transmitting a consumer identification code over a telephone network to an indication transfer means,

said indication transfer means interacting with

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said transmitting broadcast station to permit said unique control signal to be applied to a broadcast transmission, as identified by the consumer identification code, whereupon the consumer's set so identified can receive a menu broadcast transmission for that consumer set, said messaging device having user input means for permitting negotiation of menu options in said menu broadcast transmission and for relaying chosen menu options to said identification transfer means for permitting selecting further menu broadcast transmissions or a final menu option, said identification transfer means passing the chosen menu options to said transmitting broadcast station to, in turn, permit the identified consumer set to receive a user defined broadcast transmission.

It is particularly preferred that this system be implemented in a cable TV or satellite TV environment.

It is also particularly preferred that said indication transfer means comprise a telephone company. This is particularly preferred in order to cope with what might be termed "avalanche" dialling where it is possible that several hundred or indeed thousands of calls may be made substantially simultaneously with a dedicated phone number.

Other preferred or optional features of the invention may be ascertained from the description of preferred embodiments given below.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

In order that the invention can be more fully understood examples of non-limiting preferred embodiments will now be described with reference to the accompanying drawings wherein:

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Figure 1 is a schematic block diagram of a relationship between various entities in a first preferred embodiment;

Figure 2 is a schematic block diagram of a relationship of various entities in a second embodiment;

Figure 3 is a schematic block diagram of a relationship of various entities of a third embodiment;

Figure 4 is a schematic block diagram of a relationship of various entities of a fourth embodiment;

Figure 5 is a schematic block diagram of a relationship of various entities of a fifth embodiment;

Figure 6 is a plan view of a preferred message device for use in any of the embodiments above;

Figure 7 is a view similar to Figure 6 showing a different preferred message device for use in an environment similar to that outlined for Figure 2;

Figure 8 is a screen display on the messaging device of Figure 7;

Figure 9 shows several different screen displays on the messaging device of Figure 7; and

Figure 10 is a block schematic circuit diagram of the device of figures 7, 8 and 9;

Figures 11(a) and 11(b) are detailed circuit diagrams of the device of figure 10;

Figures 12(a) and 12(b) are functional flow diagrams of software for the device of figure 11(a) and 11(b)

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Figure 13 shows a further schematic block diagram of a relationship between various entities of a sixth embodiment incorporating aspects from some of the earlier embodiments.

In the embodiment of Figure 1, the relationships developed and the actions required all commence with the need by a product vendor to sell as much product as possible into the local market by advertising the product on TV such as free-

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to-air television. The parties and relationships are as described below:

*Product Vendor*

As mentioned, the product vendor may be any company which produces or represents a range of products which are sold into the local market. The product vendor wishes to maximise the amount of product sold and enters into a relationship with an advertising agency to develop a suitable TV commercial to be broadcast via one or more of the existing TV stations or networks.

The product vendor may distribute product directly to the public, through company-owned stores, through franchised stores, through a network of independently-owned stores, or via sales agents or other distributors.

The vendor operates a computerised system of some kind, to control and manage all usual business functions such as accounts, inventory, sales and distribution. This system is well-developed and is adequately staffed and maintained. The company may even have an EDI-based trading relationship in place with a number of vendors and/or account customers.

*Advertising Agency*

The agency advises the product vendor that a new Order Placement System (OPS) is available, which allows a large number of consumers to place automated orders for products advertised on any of the TV stations and networks.

The system is run by XYZ Company which has 100,000 order. placement messaging devices in the form of messaging devices 11 installed (theoretically) in 100,000 households in a given location. XYZ charges x% of the advertised

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price of the product as a fee for each order placed.

The agency further advises that each household represents at least 2 separate consumers and that the average consumer response, in the form of automated orders placed, has been 0.5-1.0%. The typical target audience response, in the form of orders placed for product, is almost instantaneous - within 8-10 seconds per order within a 10-minute period.

TV commercials for product are keyed to the target audience by an OPS "panel", which may be presented continuously in the lower left-hand corner of the screen. This panel features four buttons A, B, C and D which are the same as four buttons used on a messaging device 11 which is situated at each consumer site. Each respective panel button is preferably separately colour-coded, to the same respective colour code as the colour code on each button on the messaging device 11. In any TV commercial, the buttons can be identified for any purpose, including viewer voting, product purchase, requests for brochures, information, charitable donations etc.

Consumers are aware that orders can be placed only within a certain time period such as 10 minutes of the screening of any OPS TV commercial. This is known as a "slot". Up to 4 (or more) slots per hour may be run. Any order placed outside a slot limit will not be accepted by the system and any customer attempts to place such orders are automatically met with a 2-digit Exception Code which is returned to the messaging device 11 and displays on the display 71 non-acceptance.

A schedule of slots is established and this schedule is provided in advance to all affected OPS system parties to allow synchronised and load-balanced order processing. (Overall system capacity is configured against load-

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balanced demand.) This method allows messaging devices in any city to place orders during any slot, especially if the OPS panel is advertised on a national TV network.

The product vendor agrees to trial the new OPS system and the creative staff in the advertising agency accept the brief from the client and work to develop a suitable TV commercial for a single product. In the finished commercial, the product vendor notes the presence of the OPS "panel", located in the lower left-hand corner.

Once approved by the client, an advertising program is developed and agreed and the advertising agency schedules the commercial to be run on selected TV stations at selected times, for an agreed period.

*TV Station*

The TV station or network broadcasts the commercial at the agreed time/s on the agreed day/s, on behalf of the product vendor.

*The Customer Environment*

Each of the 100,000 households in the OPS system has a messaging device 11 as referred to earlier, which includes a card reader 126 mounted transversely across the top. Such messaging devices 11 are currently produced by the applicant of the present patent application in the context of a taxi ordering devices. A system for taxi ordering and preferred messaging devices are described in International Patent Application number PCT/AU95/00007 and particular reference should be made to the embodiment of Figure 5 therein. The whole subject matter of PCT/AU95/00007 are hereby incorporated by reference. The message confirmation and other features of the messaging devices therein are

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analogously applicable to the current invention as optional features of the current invention.

Each purchasing consumer in a household is provided with a plastic magnetic or other PIN card, programmed with a unique 7-digit PIN number. The card has an embossed Serial Number on the front.

The messaging device 11 has 4 ordering keys (see keys 41, 42, 43 & 44 of the messaging device shown in Figure 5 of PCT/AU95/00007), marked identically to the keys in the respective special OPS "panel" which is displayed in the lower left-hand corner of the TV screen during the TV commercial. The keys are labelled A, B, C and D and are uniquely colour-coded as described before. Each key is programmed with a 1-800 telephone number and an 8-digit PIN number. The 1-800 telephone number is used by the messaging device 11 to place automated orders on XYZ Company for products/services, at no cost to the customer. XYZ can be referred to as an indication transfer means.

Each ordering key PIN number is an index to a location record in the XYZ Company database for the messaging device itself, as well as to the actual key used to place the order.

The PIN number on the consumer's plastic card is an index to that person's customer record in the XYZ Company database and contains information about the customer. This can include information such as name, address, postcode, state, telephone number, date of birth, sex, income grouping, marital status, credit card type, credit card number, payment method, etc.

On average, it is expected there will be 2 consumers in each household. Each plastic PIN card is used to

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"authorise" the placement of an order for a product. If the card is not used in the messaging device 11 - that is, only 1 of the Function keys on the messaging device 11 is pressed - no order for a product will be placed. Instead, the use of a particular Function key (without the card) may simply order a taxicab, for example.

A household is only issued with a messaging device after an Application Form and Site Agreement are completed and signed by an adult member of the household.

The application form requires the member to provide all of the information shown above and when completed, is used as the authority to immediately issue and install a messaging device 11 and to provide a unique, plastic PIN card for ordering. The Site Agreement covers the provision of the messaging device 11, it's ownership, location, use, repair and maintenance, warranty and other general terms and conditions.

The messaging device 11 can be issued free, for use by all members of the household who have completed an Application form and who have been provided with a plastic PIN card. If the messaging device 11 is underused - no orders made within a specified time - a fee may be charged for rental to compensate for the underuse of the messaging device.

*Order Collection Company*

XYZ Company or the indication transfer means, is the company formed to provide the OPS system to the advertising marketplace, principally via advertising agencies. XYZ has its own premises, staff and facilities.

Under separate agreements, advertising agencies are licensed by XYZ Company to sell the OPS order placement

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system to their clients. These agencies would place a margin on OPS system use by clients, possibly also paying a royalty to XYZ Company for all commercials broadcast.

XYZ has negotiated the provision of bureau processing facilities and services from a mainframe computing bureau for the ordering system and with a large, telecommunications provider for call processing facilities in answering incoming automated orders from customers.

In order to avoid a large capital outlay on processing equipment and related ongoing infrastructure costs, XYZ Company engages a number of specialist service bureaux to provide continuous processing facilities and supplementary services on its behalf, as described below.

*Mainframe Computer Bureau*

XYZ has negotiated an arrangement with an existing mainframe computer bureau to provide continuous order processing facilities and services.

The mainframe-based ordering system contains the entire customer and location databases for all 100,000 messaging devices. Purpose-written software is installed to manage and control the purchasing orders. Processing time is provided by the bureau to XYZ Company on a transaction-fee basis, or some other method.

*Telecommunications Processing*

Under a separate agreement with XYZ, a telecommunications company provides comprehensive inbound call answering and processing facilities at a level sufficient to accommodate "call avalanche" conditions, generated by a large number of customers using their messaging devices to place automated

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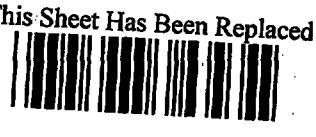

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orders for products simultaneously. These facilities include call metering to measure the rate of successful inbound calls, for charging purposes and other services.

Although the likely nature, extent and location of these facilities is unknown, the call output is connected directly to multiple serial input ports (possibly using port contention controllers and/or input buffering, given the potential volume of inbound orders) on the mainframe-based ordering system for automated order generation and subsequent supply, billing and distribution. It is possible that this call output would be transmitted to the mainframe computer bureau via a 2 Mbps link.

This service would be supported by a comprehensive range of reports on the rate of inbound calls, metered charges, system availability and performance, system capacity, management and support, problem resolution, etc.

*Credit Card Agency Support*

As explained above, each customer is issued with a plastic PIN card which, when used, delivers a multi-digit PIN number into the ordering system to index and retrieve that customer's record for use as the basis of an automated order for the product. The customer record may specify a payment preference using a particular credit card, the details of which are held on the record.

The ordering system will create an order for the product on behalf of the customer and will include details of the customer's preferred method of payment when transmitted to the product vendor for fulfilment. Thus, the product vendor's billing system must be able to cater for credit card transaction enquiry, verification and approval.

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*EDI Links with Product Vendors*

When an automated order has been placed by a customer into the ordering system and verified by returning an acknowledging authorising signal to the messaging device 11, the order must be sent as soon as possible to the product vendor or an order fulfilment house computer system for fulfilment.

Ideally, these orders would be placed automatically by the computer bureau, directly into the product vendor computer system, or a centralised distribution system, using an EDI batch transfer. The product vendor computer system would produce an Invoice and picking slip automatically, commencing the process of the physical distribution of goods to the customer immediately, as ordered.

For the product vendor, this would shorten the delivery cycle to the customer to almost 24 hours, massively increase the number of inventory turns of the product, lower the messaging device distribution costs, significantly reduce the direct costs of sales and increase the rate of orders placed by customers. The financial and operational benefits of such a system would be very great for all participants.

*Automated Order Format and Processing*

When a messaging device 11 is used to place an automated order, the messaging device 11 transmits the two multi-digit PIN numbers to a 1-800 telephone number, using DTMF tones.

In smaller configurations, the 1-800 line is connected directly to an interactive voice-response (IVR) board, such as manufactured by Dialogic, Inc. This board carries a

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configurable microprocessor which is controlled by management software, written using VOS (Voice Operating System). The output from the Dialogic board is standard ASCII data, presented at the serial port on a PC.

This software is designed to allow the Dialogic board to answer the incoming call, provide an acknowledgment as a handshake and accept the 2 PIN numbers after performing parity and integrity checks. Both PIN numbers are verified immediately in a local Lookup Table before further processing and when verified, trigger the return and display on the messaging device display 71 of either a 4-digit "authorisation code" to confirm the order, and also if needed to display the time the order was received, or a 2-digit "Exception Code" to indicate why the order was not accepted.

The return of either code ends the order process and causes line disconnection. Typical order placement, including the return of either code above, occurs in approximately 8-10 seconds.

For purchases above a specified value, the transaction is flagged and the messaging device 11 is "hung-up". Immediate arrangements are then made to telephone contact the customer to further verify the order. This could be accomplished easily by an automated telemarketing system which automatically dials the customer and requests the customer to enter an "authorisation code" which will have been displayed on the messaging device 11 display 71 at the time of transacting the order. The customer can then enter that code using the telephone keypad. This allows the customer a "cooling-off" period and further security when placing orders for high value goods and services.

If necessary during periods of high volume call processing,

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a "heartbeat" signal can be sent to the messaging device every 3 seconds to keep the messaging device 11 on-line, while the ordering system processes the order to prevent the messaging device 11 from automatically "hanging-up". These heartbeat signals are transparent to the customer. The messaging device 11 must be kept on-line long enough for the ordering system to process the order and return either an Authorisation Code or an Exception Code.

*Static and Mobile Customers*

It is expected that for most of the time, customers will place automated orders for products and services using the household messaging device where they live. For these customers, the location record and the customer record will have the same address. These are *static* customers.

However, on many occasions, many customers will either be visiting friends or relatives socially or on business either in the same State or in another State, at a place where a messaging device 11 is available. For these customers, the location record and the customer record will not have the same address. These are *mobile* customers.

With both the location and customer databases held on the same machine, the mainframe-based ordering system will be able to identify and accommodate both static and mobile customers, irrespective of the location of the messaging device.

This means that the product vendor does not have to worry about how the customer finds a local place from which the product can be purchased, thereby simplifying distribution. It also means that any customer with a PIN card can use it anywhere there is an messaging device, allowing customers to buy at any time, from almost any place.

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A wide range of products would be suitable to this interactive broadcasting concept on television and consumers would buy them, using the messaging device 11, simply because the messaging device 11 is easy and simple to use, is convenient (shop at home) and is free. It would be a simple matter for almost any advertising agency to develop a suitable TV commercial, incorporating a standardised panel and a strong emotional appeal to targeted consumers. These people respond to such commercials now, but they have to get in the car, drive to a shopping centre, park and find the shop. Measuring the direct consumption responses to these commercials (in the form of actual orders placed, or increases in net turnover) is obviously very difficult, but all that is available - until now.

Referring now to Figure 2 there is shown a further embodiment which has particular application in relation to demand ordering such as may be experienced in fast food chains at particular times of the day. Here, there are a number of individual customers. Each of the customers has a messaging device 11 installed at its premises. The system also proposes that there be a plurality of vendors 13. These may be fast food outlets, such as pizza, McDonalds and the like. The system proposes that the vendors distribute cards (optionally free of charge) which individually equate to their product range availability for home delivery. The cards (not shown) may be plastic magnetic swipe cards and one card may be, for example, for a family size Marinara pizza. A further card may be for a small size Vegetarian. A further card may be for a medium size Mexicana, etc.

The vendors may advertise on television or radio at peak periods such as when orders for their goods are likely. A customer seeing or hearing the advertisement may be

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triggered to immediately decide to purchase those goods. In this case, the customer will activate the messaging device 11 to, in turn, call a collection company, such as a national telephone company or some other company set up and dedicated to this purpose. The dialling to the collection company by the messaging device 11, in turn, transmits a unique PIN identifying the customer and its site as well as a PIN of the particular card swiped through a swipe card reader 126 of the messaging device 11. The call collection company can, in turn, process that call and dispatch a further message directly to the vendor so that the vendor can arrange for home delivery of the goods. The transaction may be COD or it may be pre-arranged when the messaging device is installed that any requests for orders be automatically billed to a particular credit service. In such case, in order to avoid fraudulent use of the messaging device 11, a further card may be retained by the customer which must be swiped through the messaging device 11 before it can be activated to dial the call collection company. Typically, all required cards are swiped into the messaging device 11 and held in memory therein prior to dialling the call collection company. In this way, telephone call time can be minimised and partly alleviate any possible avalanche dialling to the call collection company caused by separate orders for different goods such s small Marinara pizza and a large Mexican pizza. The control buttons 41, 42, 43 and 44 on the messaging device 11 (see Figure 5 of the aforementioned International application) can be used so that if any is pressed, the message is transmitted via a call to place the order. Preferably button 41 is used to initiate such call.

It should be noted that any number of swipe cards provided by the vendor may be loaded by the customer into the messaging device 11 for transmission to the call collection

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company. In this way, a plurality of goods can be ordered by a single call to the collection company. For example, three or more pizza cards may be successively swiped through the messaging device 11 and the data read therefrom held in memory therein prior to dispatch of the call to the collection company.

When the call collection company dials a vendor to relay the message, it transmits the various PIN numbers or the corresponding code which, in turn, instruct the vendor as to the person making the order and the type of goods to be ordered.

The above system is useful not only in relation to placing orders for goods but also orders for services. The messaging device 11 is the messaging device referred to in Figure 5 of the previously referred to International Patent Application No. PCT/AU95/00007.

Referring now to the embodiment of Figure 3 there is provided a system for account settlement. Here, there are a number of customers each with messaging devices 11. The messaging devices 11 may be similar to the Figure 5 embodiment of the aforementioned international patent application. Thus, a customer may receive a bill in the mail for a particular matter. The customer may then wish to pay the bill in its entirety or in part. In this case, the customer arranges to call the call collection company to, in turn, arrange for payment. The calling by the customer using the messaging device 11, transmits PIN information to the call collection company and to an account provider. The account provider will have a pre-authorised and documented authority to transfer an amount as instructed from an account in the name of the customer held at a financial institution to an account held in the name of the same customer held at the account provider.

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A series of cards can be provided to enable payment options. For example, a first card may be minimum payment required as per statement. A second card may be pay total amount as per statement. A further card may be pay $50 off account. A further card may be pay $100 of an account, etc. By using combinations of pre-set amounts of individual cards, for example $50 off account, $100 off account, etc, a series of cards may be swiped through the messaging device 11 to collectively reach a required total amount to be paid off the account.

The buttons 41, 42, 43 and 44 on the messaging device 11 (see Figure 5 of the aforementioned International application) can be used so that if any is pressed, the message is transmitted via a call to make the payment. Preferably button 41 is pressed to make the call.

Alternatively, and instead of having cards to be swiped to signify the payment amounts, buttons 42, 43 and 44 may be programmed to indicate specific payments. Thus, these may be pressed, rather than swiping particular payment cards.

Referring now to the embodiment shown in Figure 4 there is shown a system for particular use in connection with a broadcast system such as a television broadcast system. The particular embodiment is particularly suitable for cable TV use. Here, there are a number of customers each with a messaging device 11 installed at their premises. Each customer also has a television receiver connected via cable to a cable TV provider. The cable TV system uses decoder devices and technology to permit the customer to receive one of many different transmissions from the cable TV provider. For example, there may be 200 channels available to the customer. In such a system, there may be, say, 10 channel locations allocated for menu options. The cable TV provider is able, via unique codes, to dispatch a

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particular TV transmission to individual customers so that only that customer can receive the transmission. Thus, in such systems, it is possible to have near on demand viewing of particular transmissions such as feature films and the like. It is known that cable TV providers, particularly in Canada, have the ability to switch between program source materials in a transparent manner to a particular customer. This occurs through specialised use of decoding codes in the system which operate with the decoder at each customer's television set. The present embodiment utilises that system or a similar system. Here, a customer switches on his/her television set and tunes to a particular menu channel. The customer simultaneously uses the messaging device 11 to make a telephone call to a database which is connected with the cable TV provider by pushing button 41. The customer views a first menu screen and uses the control buttons 42, 43, 44 on the messaging device 11 to negotiate the menu options. For example, button 42 may be a menu "down" button, button 43 a menu "up" button, and button 44 the "select" button. The messaging device 11 is then operated to transmit a chosen menu option to the cable TV provider by operation of button 44. For example, a first menu may offer a variety of types of television programs - children's, thriller, action, etc. The customer would choose a particular menu option and would relay that information to the cable TV provider via the messaging device 11 through the telephone network. The cable TV provider would identify the particular customer by his PIN and also note the menu choice selected. Thus, the cable TV provider can then, in turn, transmit a further or following menu page to that particular customer. Further menu choices can be entered and relayed to the cable TV provider until a final option is achieved. In that way, the messaging device 11 can be used to provide on-line interaction with the cable TV provider. The cable TV provider may have a particular two hour program running,

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say, every ten minutes. In this way, feature films for example can be loaded into the cable TV provider's system so that at any given time there are a series of the same television program running but each commencing ten minutes later than the previous. Thus, near demand viewing of required programs can be achieved with this system as the customer makes the required selection and then merely awaits the actual start time which may be, for example, no more than ten minutes after making a request.

Referring now to Figure 5, there is shown a system substantially identical to that in Figure 4 except there is provided the intermediate call collection company. This may be utilised in order to take into account "avalanche" calling to the cable TV provider.

Reference will now be made to the embodiment of Figure 6 which is an embodiment substantially identical to that of Figure 5 in the aforementioned international patent application and may be utilised in any of the embodiments herein. The messaging device 11 has an LCD display panel 111 with a number of different displays 112, 113, 119 therein. The display 112 is particularly provided to provide three options for dialling. A first option may be free to air TV, a second option may be cable TV and a third option may be "direct" for billing purposes as described in the examples of Figures 2 and 3. These options are accessed through a mode button 130. Thus, by pressing the mode button 130, the display 112 may be stepped through each of the three options. The display panel 111 also has an indication 113 which identifies that the call and order has either been accepted, there is a need to re-try, or that the messaging device is on-line. The display 111 also has a further indication 119 of particular choices such as menu choices. Thus, the number displayed in display area 119 can be accessed by pressing a number select push button

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129. Each press will increment the number displayed in area 119. When a required number is shown then a select button 122 can be pressed to load that number and the particular option in display 112 - TV, cable, or direct. The messaging device 11 has a cancel button 114 whereby any particular order can be cancelled. It also has LED indicators 115, 116 and 117 which respectively show that a transmission from the messaging device 11 has been accepted or that the call needs to be tried again as a re-try or that the messaging device 11 is active and on-line.

An audible tone generator 118 may be provided within the case of the messaging device 11 to provide audible announcements of entering of information.

A security alarm may be fitted via a connection 120 and equates to the alarm or switch 61 shown in the embodiment of Figure 3 of the aforementioned international patent application. A dedicated telephone number can then be dialled if the alarm is activated so that alarm information can be relayed.

Button 121 is provided so that when all information has been loaded into the messaging device 11, the messaging device 11 can be arranged to dial the required number and transmit the loaded information.

The messaging device 11 also has three LEDs 128 to indicate the number of cards accepted as swiped through the slot 127 in the direction of the arrow 126. Thus, if one card is swiped, the first of the LEDs 128 is illuminated. If a second card is swiped then two LEDs are illuminated, etc.

If "TV", "cable" or "direct" is selected then the messaging device will most likely include dedicated telephone numbers for each of those particular services.

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The display area 119 may be arranged to indicate particular code messages at the end of a transaction. These may be, for example, that a TV transmission is about to start in ten minutes or that a pizza delivery is expected in twenty minutes. These messages may be arranged to alternate say every 2 seconds thereby providing a viewer of the display with multiple messages.

The messaging device 11 is used to automatically dial an intended telephone number so that orders for goods or services can be provided and then to automatically terminate the call once the message has been confirmed by a return call signal. As the messaging device 11 is installed at a particular site, security can be provided at least in the premises of that site by using a card to be swiped through the messaging device which will identify authorised users.

Referring now to the embodiment of Figures 7 to 9 the messaging device 11 is about the size of a man's hand. It is installed in parallel with a standard analog telephone with a double-adaptor plug and powered by a small plug power pack. Installation can be achieved by any untrained person in minutes. All accessories and operating instructions are supplied with the messaging device 11.

The messaging device 11 is deliberately designed to be simple to understand, easy to use and flexible in application.

The messaging device 11 has an Order key 150, a Call-Back key 151, 2 Clear keys 153/155, 2 Function keys 157, 159, an LCD display panel 161 for system messages and 3 LED's 163, 165 and 167 to indicate ACCEPT, ACTIVE and RETRY status. A card reader 171 is fitted, mounted across the top of the messaging device 11. A pen-shaped bar-code wand 173 is

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also fitted, attached to the messaging device 11 via a coiled cable 175.

The ORDER key 150 is pre-programmed during manufacture with a shopping network system telephone number and a unique, 7-digit PIN number. The telephone number may be changed remotely, over the telephone line via suitable software and address codes to access the memory allocation where the phone number is stored. The PIN number is fixed and is not accessible. The 7-digit PIN numbering system allows for up to 10 million PIN numbers in a network. A higher digit PIN number of, say, 9 or 11 or 13 or other characters will provide greater number of PINs if required. The Order key 150 PIN number is used to index and retrieve a location record for the messaging device 11, stored securely in a Network computer system database. Each location record contains:

- a site contact name (as shown on the Rental Agreement),
- full street and mailing address (as shown on the Rental Agreement),
- the number of the telephone with which the messaging device is installed in parallel,
- the number of the nearest fax machine (if available),
- plus any other site information.

The messaging device 11 has a Call-Retry facility, which automatically re-dials the network telephone number twice if all network telephone lines are busy on the first attempt. If the messaging device is unable to connect successfully after 3 call attempts, it gives up, sounds 3 long beeps and the red RETRY status LED 169 blinks. The ORDER key 161 must be pressed again, to place the order.

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The messaging device 11 also features an internal call counter, called the Audit function. The Audit function is pre-programmed with its own telephone number and unique PIN number. The call counter counts all successful calls, all unsuccessful calls and all dial attempts. When the total call count reaches a preset level, the Audit function automatically takes the telephone line, dials its programmed number and downloads all call-count data into a special file on the network host. The host then resets the counters to zero, or to the default setting, and both parties disconnect. This call data can be analysed, to determine inbound line capacity, etc.

Clearly, each customer must be identified in the network shopping system, to enable the system to take advantage of simplified customer enquiry and order processing. Thus, the network will issue each customer with a Network Shopper Card (NSC).

Essentially, the NSC is a private-label card similar to a credit card in appearance. Like a credit card, the NSC contains a magnetic strip on the back, as well as other information. However, the magnetic strip on the NSC is programmed with a unique 10-digit number which is an index to the full customer record in the network host database.

In practice, the NSC will be issued free by the network, valid for 12 months, to any customer who completes a simple Application form. Applications will be provided in bulk to every retail outlet of every Product Vendor represented by the network and placed conspicuously on the sales counter. An advertising campaign will advertise the new network and tell potential customers how to apply. Applications will also be available from the network, upon enquiry. The Application can capture:

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2. Home address, postcode
3. Mailing address, postcode
4. Home telephone number (for order verification)
5. Fax number, if available (for order verification)
6. Date of Birth (DDMMYY)
7. Male/female
8. Income range (in specified bands)
9. Occupation
10. Preferred payment method (credit, debit(?), charge)
11. Card Number/Charge Account Number
12. Verify every order? (Yes/No)
13. Deliver to home? (Yes/No)
14. Hold for Pick-Up? (Yes/No)
15. Order Security Option? (Yes/No); (both cards to order)
16. Apply Order-Value Limit? (Yes/No); (specify value, $$$)
17. Do you buy for others? (Yes/No)
18. Product/Group Interests (tick box from list)
19. Product Mailings? (Yes/No)
20. Network Newsletter? (Yes/No)
21. Date of Application.

When the Application form is completed, it can be either mailed to the network for processing and NSC issue, or simply given to the retail sales staff and sent to the network Customer Service operation via a mailbag for processing and NSC issue. All NSC cards will be mailed to the customer's nominated usual residence, along with a small booklet on normal use, Customer Service, Terms and Conditions, etc.

As discussed above, each customer will be given the opportunity to establish a range of personal preferences at the time of making an Application to be a registered

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customer. These preferences are designed to provide security against unauthorised use and/or access.

1. Use of Cards

One, either of two cards or both, may be required to place an order. If both, this would allow additional protection against the placement of orders without the customer's knowledge or consent (stolen NSC/credit card, teenage use, etc),

This is similar to the operation of a joint-cheque account, where both parties may be required to sign cheques. Thus, an order may be placed only by using either a nominated credit card or the Network Shopper Card, or both cards. If the customer prefers, it could be that two separate Network Shopper Cards are required to place an order and a credit card is never used. Instead of using a credit card a "stored value card" or a "smart card" could be used. In the case of a "stored value card", it could be swiped through the card reader 171. In the case of a "smart card" an appropriate smart card reader can be provided to the messaging device 11. Thus, in all embodiments described herein the use of "smart cards" or "stored value cards" is proposed as an alternative method of payment and such should be accessible directly by the messaging device 11.

2. Limit Order Value

An order-value limit can be set for all orders placed from a messaging device. A similar limit can also be set for any Network Shopper Card. Restrictions can also be placed on the types of products and services ordered.

3. Verify Every Order

Either alone, or in conjunction with one of the methods above, the customer can require that all orders are verified personally by the registered customer.

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Where such restrictions apply, any attempt to place a non-conforming order would be met with an Error-Code displayed on the ordering terminal. Repeated attempts would trigger a Customer Service enquiry telephone call from the network. These measures would ensure that the ability of others to place automated orders is, ultimately, limited to the discretion allowed by the registered owner/user of an NSC. Such actions would also have a beneficial effect upon the network generally, limiting the incidence of adverse publicity usually accorded to such experiences.

The messaging device 11 has multiple uses, as follows.

- Order from the Network Catalogue:
The messaging device 11 is developed to allow any customer to place an order for products and services at any time of the day or night, without speaking to an operator and, to have the order confirmed and verified automatically by the network. With a few simple actions, any customer can place a multi-item order in as little as 30-60 seconds! This offers every customer speed, simplicity and convenience.

- Order from a Newspaper or Magazine:
Apart from being simple and convenient, the messaging device 11 is very flexible and versatile. Any customer can place an order by scanning an item bar-code from any one of the network shopping catalogues or from other "hard copy" order displaying mediums such as letterbox drops or newspaper advertisements. Provided the product or service is accepted by the network, any customer can also place an order by scanning an item bar-code from any newspaper, or magazine.

This increases the range of choice for the customer and provides the Network (and all Product Vendors) with additional media and timing opportunities to present

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product information to selected target markets. The information from the scanned bar-code is stored in the messaging device 11 and transmitted after telephone connection is made to the required phone number of the network.

- Pay An Account:

The messaging device 11 can read and accept up to 5 different bar-code symbologies. This means that if any bill or account carries one of these 5 bar-code types, it can be scanned by the wand 173 and sent to the network, as if it was an item being ordered. If the customer's credit card is swiped at the same time, this authorises the network to arrange for the immediate payment of that account using the customer's credit card.

Thus, the messaging device 11 can also be used to pay any account accepted by the network. No cheques, no Stamp Duty, no envelopes, no stamps, no fuss!

- Request Customer Service:

If the Call-Back key 151 is pressed as part of an automated order, the network host will automatically flag and action the Request for Customer Service Call-Back. It does this by retrieving the customer telephone number from the customer record and feeding this number to a predictive dialler. The dialler dials the customer telephone number and the ringing telephone line is presented, along with all of the customer details on-screen, to an available Customer Service Operator (CSO). When the customer answers, the CSO offers whatever assistance is required.

- Placing an Order

In this sequence, the customer may order 2 items, for example, from a catalogue. Both items are held in inventory at the network NDC. The customer wants 14 of

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item 1, and 5 of item 2. He places his order using a credit card and his NSC card.

- "Enable" the device

To "enable" the device or to turn it ON, the customer swipes his credit card and his Network Shopper Card through the card reader 171 at the top of the messaging device 11. The messaging device 11 emits a single beep as each card is swiped and 2 of the Card Accepted LED's 166 and 168 light. The display then clears.

- Scan a bar-code

From either the network shopping catalogue, a newspaper, or a magazine or the like, the customer selects an item to order. He picks up the pen-wand 171 and scans the item bar-code. The messaging device 11 beeps once. The display 161 shows "1" beside the word ITEM and a blinking "0" appears beside the word QTY. This indicates that one bar-code has been read successfully and that the customer must now enter a quantity to order. Another bar-code item cannot be scanned until a QTY value is entered.

- Enter a Quantity to Order

The customer is ordering a quantity of fourteen (14). He presses the TENS key and scrolls to the digit "1". He presses the UNITS key and scrolls to the digit "4". The QTY display now shows "14" beside the word QTY.

- Order another item

The customer selects another item and scans the bar-code. As before, the messaging device 11 beeps once. Now, the display 161 shows "2" beside the word ITEM and a blinking "0" appears beside the word QTY. This indicates that the second bar-code item has been read successfully and that the customer must now enter a quantity to order for this item. The customer is ordering a quantity of five (5). This time, he presses only the UNITS key and scrolls to the digit "5". The QTY display now shows "5" beside the word QTY.

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If the customer has made an error and scanned the wrong item, he simply presses the CLEAR ENTRY key 155. This clears the last entry, including the last bar-code scanned and any QTY value or amount he may have entered. If he changes his mind about placing the order entirely, he presses the CLEAR ALL key 153. This key clears the memory of ALL items and quantities ordered - without actually placing the order!

- Customer Service CALL-BACK

The customer has now prepared his 2-item order, as planned. If he wishes, he can request a network Customer Service Operator to call him back after the order is placed, to discuss his previous order, or to discuss changed delivery requirements, or for any reason at all.

All he has to do is press the CALL BACK key 151. When he does, the messaging device 11 beeps once and the display 161 now shows the word "CALL BACK" displayed in the centre of the screen, indicating that the CALL BACK flag has been set as part of the order. When the order arrives at the network host system, this flag is read automatically, as part of the order.

- Placing the Order

Now, the customer is ready to place the order. To order, he presses the ORDER key 150. The messaging device 11 beeps once and the yellow LED 167 starts to blink.

The messaging device goes off-hook and dials the pre-programmed "13" telephone number for the network. This call may be free to the customer. The call is routed electronically to the network host system.

- Host Order Processing

At the network, the incoming call is answered by a Dialogic

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voice processing board in a front-end call processing system. After passing an ACK back to the messaging device 11, the messaging device 11 sends the complete order in a data string, using DTMF tones. The format of this data string is shown below:

| | |
|---|---|
| type identifier | 1 |
| PIN number (from ORDER key) | 7 |
| Credit card number | 40 |
| NSC card number | 10 |
| Bar-code string, Item #1 | 13 |
| Quantity, Item #1 | 2 |
| Bar-code string, Item #2 | 13 |
| Quantity, Item #2 | 2 |
| Total string count | 88 |

Additional characters will be required for separation, string identification and checksum calculations in blocks of 50 (or so) characters. At the end of the order data string, the front-end call processor initiates and sends a heartbeat signal to the messaging device 11 every 3 seconds, holding it online while the host system performs initial order processing tasks. The order data is passes to the order processing application on the host system.

The host uses an incoming device PIN to index and retrieve the location record for the messaging device 11. Unless the record advises otherwise, this is both the Order Address and the Ship-to Address. The host reads the credit card number and the NSC number (or both NSC numbers) and uses this data to index and retrieve the customer record to identify who placed the order. This record shows that BOTH the nominated credit card and the nominated NSC must be present to validate the order. The host verifies both numbers.

Now, the host begins to assemble the actual order. Each

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item number is used to index and retrieve the full item record from the inventory application, complete with Item Description, Unit of Measure, Stock On Hand, Item Price, Unit Weight, etc. The host inserts the item quantity ordered and multiplies the item price by the quantity ordered, deriving an extended price for the item. This is repeated for all items. The extended Price column is added to derive a Total Order Value.

While the messaging device 11 is being held online, the host makes a separate enquiry to a remote credit card database to pre-approve the Total Order Value of the order. If approved, the order is accepted and processed. If not, the host selects and transmits a 2-digit Exception Code message to the messaging device 11, causing it to hang up, display the message, blink the green LED 165 and sound 3 short beeps. The Exception Code is interpreted by the customer from a small printed card, indicating "Transaction not approved".

If the order is accepted, the host generates a 3-digit order Number unique to that *location address* and sends the Order Number and the Total Order Value to the messaging device 11 waiting online. The messaging device 11 in response thereto then hangs up automatically, the display 161 shows the 3-digit Order number beside the word ORDER and the Total order Value underneath, 3 short beeps are heard, the yellow LED 167 stops blinking and the green LED 165 starts flashing.

At this point, the order has been accepted and confirmed by the network and the customer now has a 3-digit Number and a total value to track the order.

The host must now verify the order with the customer. If the *customer record* shows that a fax number is available

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for verification, the host immediately creates an order Verification notice covering the order. This advises the customer what will be supplied, the unit price and extended item totals, the total order value, any delivery charges, order number, the ship-to-address, the payment method and what will be billed to the customer account for the order. The Order Verification is faxed automatically by the host and should be received within 2-3 minutes after the order was initially accepted.

If only a telephone number is available for Order verification, the host feeds this number to a predictive dialler which dials the number and presents the ringing telephone line and all order details on-screen to a Customer Service Operator. When the customer answers, the CSO verbally verifies all aspects of the order, noting any changes which may be required.

The host sends a copy of the order to the NDC, where a picking list is printed. Either that day or the next, the order is picked and packed for shipping. NDC staff enter and confirm the allocation of stock to the order and this causes an Invoice and delivery docket to be printed. The delivery docket is attached to the box containing the goods and arrangements are made to ship that day. A copy of the invoice is sent electronically to the Product Vendor, as proof of the sale of the goods.

The network will design shopping catalogues for distribution to all customers. The catalogues will be designed and produced to a set of specially-developed standards, with particular attention being paid to simplicity, ease of use and convenience - the same standards upon which the messaging device 11 is based. The catalogues will be printed and distributed under contract to registered network customers at the location address

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where a messaging device 11 is installed.

Depending upon the type of products and services involved, the catalogues can be published monthly or quarterly. All items prices remain firm until the catalogue is replaced with a new issue. With 20-30 Product Vendors offering a wide range of goods and services to the network, each vendor can have a unique catalogue, produced via the network.

Each catalogue has each product bar-coded. The network will desirably publish and mail a special catalogue brochure to every network customer regularly. This will allow any customer to order a new or different catalogue at any time, simply by adding the bar-code item to the order. It is unlikely that all customers will have and use every catalogue available.

Each catalogue item will be bar-coded, using the retail-based EAN13 symbology. This is a 13-digit code, where the first 2 digits represent the Country Code, the next 5 digits represent the unique manufacturer Number allocated by EAN Australia Pty Ltd or similar, the next 5 digits represent the Part number and the last digit is a check digit.

**System Configuration**

The key components of the shopping network system are:

- the shopping network company
- messaging devices in customer homes and offices
- telecommunications processing facilities
- a secure, mainframe-based network host system
- data link, such as Telstra to host
- data link, Host to credit card databases
- data links, Host to Product Vendors

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- Product Vendors
- National Distribution Centre

**The Shopping Network Company**

The company is organised into a number of operating groups, including Finance and Administration, Sales and Marketing, Catalogue Publication, Operations, Customer Service and Information Technology. The company is located in its own offices. Customer Service staff are supported by a network of PC's, to handle inbound and outbound service calls from customers. This PC network is linked via host terminal emulation software, to the network host system to allow data entry, enquiry, reporting, etc.

The company has successfully negotiated the provision of a range of services from a number of service providers, including those of telecommunications, mainframe computer processing and support, catalogue printing, catalogue distribution, Product Vendors, National Warehousing and Distribution Centre facilities and local delivery arrangements in each Capital city.

To join the shopping network, a Product Vendor must enter into a formal Service Agreement. Network Service Fees are established to allow partial recovery of the general network overheads attributable to all Product Vendors.

**Messaging Devices in Customer Homes and Offices**

All messaging devices 11 are owned by the network, providing full control. A messaging device 11 is supplied to a home or office customer, via a Rental Agreement. The Agreement sets out ownership, messaging device use and operation, access arrangements and rental Terms and Conditions, etc.

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Any person may become a registered Network Customer simply by completing and lodging an Application form with the network or any network service provider. All registered network customers receive a separate statement of Network Trading Terms and Conditions, sent via mail to their nominated address.

Telecommunications Processing

The Public Service Telephone Network Providers can provide telephone call processing services under a formal Service Agreement supported by automated billing for facilities used. It is very likely that such providers would be prepared to negotiate a highly-competitive rate for each call, based on a forecast of expected traffic in any given period.

For any group of messaging devices 11 installed in a region, the network telephone number programmed for the ORDER will be a dedicated telephone number series such as a Telstra "13" number. This will route all automated orders from the region via a local electronic exchange, allowing Telstra to process a very large volume of inbound orders simultaneously, without imposing potential overload conditions on any part of the electronic telephone exchange network. In turn, these calls would be routed automatically via the data link to the network host as outlined below.

If a significant number of grouped "13" services are used nationally by the Network, it is also very likely that Telstra would be prepared to negotiate a favourable annual service fee for all such services, representing a significant potential cost-saving.

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**Network host System**

In view of the potential size of the network and the daily order volume, the network host is a large computer system. All ordering processing services are billed to the network via a Facilities management agreement, covering the provision of system support, system availability, diaster recovery plans, application development, modification and performance assessment and all related activities at the system level which facilitate the provision of a continuous computing service of the highest quality, reliability and integrity.

Since credit-card based transactions are a common feature of home and office shopping, the network host system is located in a secure facility, with access to secure communications services. The network host system runs several software applications which perform all functions of the network, as follows:

- **Order Processing Application**

The order processing application is the functional key to the network, since it is the focal point for every order from every customer. Given that all orders are processed in real time, the application must perform online transaction processing.

Thus, all order processing functions are fully integrated with related applications such as Inventory and other general accounting applications. OLTP methodologies are used to ensure continuous application and system availability, database management and storage, system backup, disaster recovery plans, reporting, etc.

- **Inventory Application**

An inventory application is on the network host, to manage

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and account for the physical stock held on consignment in the National Distribution Centre and to allocate and distribute stock automatically against incoming automated orders from network customers. The application contains an accurate database which identifies all bar-coded products and services provided by the network.

Each item is identified at the smallest unit of measure and is costed in the database using an agreed method. The inventory items are also prices, consistent with current catalogue.

- **Accounting Application**

A comprehensive accounting application supports the full range of financial operations of the network. These involve General Ledger, Accounts Payable, Accounts Receivable, Purchasing, Invoicing, etc. Each of these modules is fully integrated with the order processing and Inventory applications.

- **Credit Card Enquiry Application**

For each order involving the use of a credit card, an immediate electronic enquiry must be made to a remote credit card database to pre-approve the Order. Given the volume of such transactions such access to these databases is obtained via direct online enquiry. Following established methodologies and procedures, each enquiry automatically generates a transaction number to validate the enquiry and provides an audit trial.

- **Facilities Management Application**

In order to provide full and proper accounting for the use of expensive computing resources to the network, a comprehensive Facilities Management application is used by the Service Provider. This application provides the detailed substantiation of all transaction fees charged to

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the network operator, as well as providing a wealth of detailed reports and other, related marketing information.

**Data Links, Host to Product Vendors**

Some Product Vendors, by virtue of their product and existing distribution methods and systems, require that all automated orders from network customers for their products be forwarded immediately and electronically to a centralised system for further processing and customer response.

An example of this is pizza vendors. Customer orders for pizza and other fast foods are therefore sent immediately by the network system to a centralised order processing system owned by the pizza company. From there, the orders are routed automatically to the pizza branch nearest to the customer, printed on a slip printer, made to order and delivered.

Other similar examples include a Department Store chain, a supermarket chain and, possibly, many others.

**Product Vendors**

Each vendor relationship is managed by an account Manager, dedicated to ensuring that the relationship delivers the features and benefits provided via the Service Agreement. Achievement and over-achievement goals and rewards can be a feature of these relationships, providing additional commercial incentives for the vendor to service the market and share the rewards that follow strong service.

**National Distribution Centre**

When an automated order has been approved, whether for payment by credit card or charge-account, it is accepted

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and processed by the network host for fulfilment. At this point, the network has accepted and confirmed the customer order and now owns the responsibility to fulfil the order as speedily as possible within the time of the delivery policy statement for that vendor in the network catalogue.

To produce and maintain consistent and efficient customer response service levels, considerable emphasis can be placed upon the strategic design, development, implementation and integration of scalable multi-vendor, multi-product warehousing, distribution and local delivery operations. It is therefore possible to identify and structure the disposition of EDI-based fulfilment orders.

Dedicated software will be required at each of the vendors and/or television stations to process the necessary instructions received from the messaging devices 11. Similarly, dedicated hardware may be required particularly in the case of a television station. In the case of a food vendor, for example, a standard PC may be utilised with a suitable modem connection.

Referring now to the embodiment of Figure 10 there is shown a block circuit diagram of a device 11 for use in the embodiment of Figures 7 through 9 herein. Each of the identified block circuit components and its function can be readily identified. The gyrator is provided to permit current to be drawn from the PSTN line without affecting the AC impedance of the load and is a requirement for connection devices to PSTN lines.

Referring now to the detailed circuit diagram of Figures 11(a) and 11(b) it shows a device 11 based on Figure 5 of the international patent application referred to herein and specifically modified for use in connection with the embodiment of figures 7 through 9 herein.

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Referring now to the functional flow diagram shown in Figures 12(a) and 12(b) it is seen that it is essentially the same flow diagram as referred to in the aforementioned international patent application but modified specifically for use in connection with the embodiment of Figures 7 through 9 herein.

Reference will now be made to Figure 13 which shows a further embodiment in schematic block form incorporating aspects of the embodiments shown in Figures 1, 2 and 3 where there is an indication transfer means shown identified by SHOPPING NETWORK. The shopping network is, in turn, connected with vendors numbered 1 through X which may provide goods or services. The vendors 1 through X, in turn, can provide their goods or services via a network distribution centre which is interconnected with the shopping network. The network distribution centre can receive data from the shopping network concerning customers and goods or services requested and arrange for dispatch of those goods or services to the customers 1 through X. The shopping network is also connected with a department store

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ordering hub which provides for local store direct fulfilment of either pick-up or delivery of goods. This may be, for example, a department store chain which has stores at various locations. The shopping network is also connected with a fast food company ordering hub which, in turn, connects with local store direct fulfilment which may, in turn, provide pick-up and/or delivery. This may be a company such as McDonalds or the like which has a number of local stores. The shopping network also connects with a supermarket chain ordering hub which, in turn, connects with local store direct fulfilments which provide either pick-up or delivery. This may be a supermarket chain such as Safeway.

The customers 1 through X are each provided with a messaging device 11 of the type shown in Figure 7 herein. Each messaging device 11 is able to connect with the shopping network via a public service telephone network PSTN. Thus, a customer can connect with the shopping network via a public service telephone network and relay information to particular vendors 1 through X or to vendors such as the department store, fast food company, supermarket chain or similar vendors. If credit card purchasing is required then the shopping network can make a direct call to a credit card verification and fulfilment department via a dedicated link or via a telephone network link. Goods and/or services can be ordered therefore in the same way as previously proposed. This embodiment essentially has a shopping network which acts as a provider of information to particular vendors of varying goods and/or service categories.

Whilst the messaging device 11 embodiment particularly referred to in Figure 5 of the previously referred to international application is proposed for use with the

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embodiments herein it should be appreciated that modification will be required to that embodiment to adapt it to particular use in the embodiments now proposed and as shown in relation to Figure 6 herein. The diagrams of Figures 10, 11(a), 11(b), 12(a) and 12(b) show modifications made to the embodiment of Figure 9 of the aforementioned international patent application for use in connection with Figure 7. Similar modifications can therefore be made to the embodiment of Figure 6. These modifications can be readily attended to without inventive skill by suitable addressees in the electronic circuit design and software arts. By reading the functional requirements as set out herein for each respective embodiment, the embodiment of Figure 5 in the international application referred to herein can be readily modified by such persons. Accordingly specific details of the circuitry and the software for the embodiments herein has not been provided.

Modifications may be made to the invention as would be apparent to a person skilled in the art of telemarketing systems. For example, the invention is not restricted to television broadcasters and can be readily applied to radio broadcasters also.

These and other modifications may be made without departing from the ambit of the invention, the nature of which is to be ascertained from the foregoing description.

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CLAIMS:

1. A system for interactive broadcasting to consumers of one or more broadcasting media, wherein

each participating said consumer is provided with a messaging device for transmitting an indication over a telephone network, said messaging device being capable upon activation by the consumer of automatically dialling at least one specified telephone number and transmitting a consumer identification code over the telephone network to an indication transfer means upon answering by the indication transfer means ; and

said indication transfer means being for transmitting consumer identification data to one or more providers in response to receipt of said consumer identification code; and

a broadcaster broadcasting to said consumers over said broadcasting medium to invite said consumers via said broadcasting medium to activate the messaging device in a specified manner within a specified time period if any said consumer desires to give a specified indication to a specified provider; and

if a particular consumer performs said activation, said indication transfer means will determine at least in part from a time of said activation which of a plurality of possible specified indications stored in a database is intended by the consumer and will then transmit corresponding consumer and indication identification data to the specified provider.

2. A system as claimed in claim 1 wherein there are a plurality of providers which are vendors of products or services and the specified indication is an order by said consumer for provision of a specified product or service provided by a specified provider and advertised by the broadcaster at the time of the invitation.

3. A system as claimed in claim 1 or claim 2 wherein there is one specified indication and one corresponding

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specified manner and wherein said specified manner is the operation of a single actuation means on the messaging device which causes identification code to be transmitted to said indication transfer means.

4. A system as claimed in claim 3 wherein there are a plurality of specified manners of activation and there are a corresponding plurality of activation means on the messaging device each with its own identification code so that when each is operated it will transmit its own code to said indication transfer means.

5. A system as claimed in claim 4 wherein said plurality of activation means includes an activation means identification coded to indicate "pay by credit card".

6. A system as claimed in claim 4 wherein said plurality of activation means includes an activation means identification coded to indicate "cash on delivery".

7. A system as claimed in claim 4 wherein said plurality of activation means includes an activation means identification coded to indicate "information only requested".

8. A system as claimed in claim 1 wherein each said messaging device comprises:

memory means for storing said consumer identification code;

a communication device for automatically dialling at least said one specified telephone number;

a message initiating means by which a person can activate said communication device,

confirmation means for confirming receipt by said indication transfer means of said consumer identification code and said indication identification code;

and a processing means interconnecting said memory means, said communication device, said message initiating means, and said confirmation means, whereby a consumer requiring use of the system can activate said message initiating means and said messaging device will

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automatically activate said communication device, said communication device will then call said specified telephone number, and relay said consumer identification code from said memory means, and then process an acknowledging signal provided from said indication transfer means to activate said confirmation means, and then subsequently terminate the call, all without further intervention by said consumer.

9. A system as claimed in claim 8 wherein said messaging device includes a swipe card reader for reading information from a card swiped therethrough and wherein said information is stored in said memory means and transmitted to said indication transfer means as well as said consumer identification code to permit further qualification of information to said indication transfer means.

10. A system as claimed in claim 1 wherein said indication transfer means comprises a computer for processing said consumer identification code, and a database containing particulars of the consumer which can be matched to said consumer identification code by said computer to provide particulars to said specified provider.

11. A system as claimed in claim 1 wherein said indication transfer means is connected with avalanche processing equipment for handling a large number of simultaneous incoming calls.

12. A system for ordering goods or services by consumers wherein,

each participating said consumer is provided with a messaging device for transmitting an indication over a telephone network, said messaging device being capable, upon activation by the consumer, of automatically dialling at least one specified telephone number and transmitting a consumer identification code, and goods or services to be purchased identification code, over the telephone network to an indication transfer means connected with said

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messaging device when the specified telephone number is answered, wherein,

said indication transfer means is adapted to transmit consumer identification data, and goods or services to be purchased identification data to one or more appropriate providers in response to receipt of said consumer identification code and said goods or services to be purchased identification code;

whereupon, said goods or services can be provided to said consumer by said one or more providers.

13. A system as claimed in claim 12 wherein each said messaging device comprises:

memory means for storing said consumer identification code;

a communication device for automatically dialling at least said one specified telephone number;

a message initiating means by which a person can activate said communication device,

confirmation means for confirming receipt by said indication transfer means of said consumer identification code and said goods or services to be purchased identification code;

and a processing means interconnecting said memory means, said communication device, said message initiating means, and said confirmation means, whereby a consumer requiring use of the system can activate said message initiating means and said messaging device will automatically activate said communication device, said communication device will then call said at least one specified telephone number, and relay said consumer identification code from said memory means, and after receipt of said goods or services to be purchased identification code then process an acknowledging signal provided from said indication transfer means to activate said confirmation means, and then subsequently terminate the call, all without further intervention by said consumer.

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14. A system as claimed in claim 12 or claim 13 wherein said messaging device includes a swipe card reader for reading information data from a card swiped therethrough and wherein said information data is stored in memory means and transmitted to said indication transfer means as well as said consumer identification code to specify one of a plurality of possible goods or services available for purchase by said consumer.

15. A system as claimed in claim 14 wherein a fraudulent use inhibiting card is required to be swiped through said swipe card reader and data therefrom stored in said memory and transmitted to said indication transfer means to signal non fraudulent use by said consumer.

16. A system as claimed in claim 14 or claim 15 wherein said memory means is adapted to store data from many swipe cards and to transmit data of each to said indication transfer means so that many goods or services can be ordered by said consumer by a single call to said indication transfer means.

17. A system as claimed in claim 12 or claim 13 wherein said messaging device includes a bar code reader for reading information data in a bar code and wherein said information data is stored in memory means and transmitted to said indication transfer means as well as said consumer identification code to specify one of a plurality of possible goods or services available for purchase by said consumer.

18. A system as claimed in claim 12 wherein said indication transfer means comprises a computer for processing said consumer identification code, and a database containing particulars of the consumer which can be matched to said consumer identification code by said computer to provide particulars to said specified provider.

19. A system as claimed in claim 12 wherein said indication transfer means is connected with avalanche processing equipment for handling a large number of

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simultaneous incoming calls.

20. A system as claimed in claim 16 wherein said system is for paying bills and wherein swipe cards are provided for providing data of different monetary amounts to be paid and wherein said provider is an account provider.

21. An interactive on-line broadcast system wherein there are a plurality of broadcast consumer sets which can be selectively activated to receive unique specified broadcast program transmissions by a transmitted control signal emanating from a transmitting broadcast station in said system,

said control signal being unique for each consumer's set, said system having a separate messaging device at each consumer set for transmitting data over a telephone network, said messaging device being capable upon activation by the consumer of automatically dialling at least one specified telephone number and transmitting a consumer identification code over a telephone network to an indication transfer means,

said indication transfer means interacting with said transmitting broadcast station to permit said unique control signal to be applied to a broadcast transmission, as identified by the consumer identification code, whereupon the consumer's set so identified can receive a menu broadcast transmission for that consumer set, said messaging device having user input means for permitting negotiation of menu options in said menu broadcast transmission and for relaying chosen menu options to said identification transfer means for permitting selecting further menu broadcast transmissions or a final menu option, said identification transfer means passing the chosen menu options to said transmitting broadcast station to, in turn, permit the identified consumer set to receive a user defined broadcast transmission.

22. A system as claimed in claim 21 wherein said

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broadcast system is a television system.

23. A system as claimed in claim 21 or claim 22 wherein said messaging device comprises:

memory means for storing said consumer identification code;

a communication device for automatically dialling said at least one specified telephone number;

a message initiating means by which a consumer can activate said communication device,

and processing means interconnecting said memory means, said communication device, said message initiating means, and said user input means, whereby a consumer requiring use of the system can activate said message initiating means and said messaging device will automatically activate said communication device, said communication device will then call said at least one specified telephone number, and relay said consumer identification code from said memory means, and the broadcast station will then transmit particular information to the consumer's consumer set whereupon said user input means can be operated to make a choice of options to be received by said consumer set and wherein once selected said transmitting broadcast station can relay the selected option to said consumer set.

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