turn electrooptically graphic clues into electrical signals that are decoded into alphanumeric characters that are meant to be descriptive of the article or a characteristic of the latter. Such characters are typically represented in digital form and used as an input to a data processing system for applications

processing outlets, inventory control or the like.

known scanning systems include a light source for generating an incident light beam on a barcode symbol and a light receiver for receiving light reflected and decoding

the information contained in the symbol manner consistent barcode.

Players may comprise a flying spot scanning system wherein the light beam is browse quickly through the bar code symbol to be read or a fixed field of view scanning system wherein the code to symbol bar intended to be read is illuminated as a whole and a CCD array (charge coupled semiconductor) is

provided for detecting light reflected from the barcode symbol.

Known scanners that can be handheld are

often in the form of a pistol having a grip portion and a barrel portion.

Reading window through which the light beam passes is generally located at the end face of the barrel portion, and the player is pointing the index to be read by the operator holding the grip part. A trigger is located in the junction region between the grip portion and the barrel portion

for implementation by the user to actuate the optical drive.

In addition, there are laptops handheld known to collect data and download the data to a central or peripheral device. The downloaded data may be raw data

or data that have been processed within the computer handheld.

Data collection can be done by entering information into the computer handheld via a keyboard or incorporating into a computer, for example optical drive for reading symbols codes

bars, or incorporating a reader to read a magnetic card strip.

For example, when information about various products required for the establishment of an inventory, these products may bear symbols barcode or magnetic tape, or present cards associated magnetic tape read by the PC handheld. The collected data can be transferred from the handheld computer to a central or peripheral device by known means such as radio frequency to radio connections, wired connections, infrared communications, or other known transmission arrangements. Often, more than one data entry system is needed for a given application. The manufacture of a customized system for a specific application is expensive and difficult to change if it is desired later to incorporate other data input options as those provided for

Originally in the custom device.

In addition, distribution of messages or traditional electronic mail services offered in the usual operating environments (eg BSD Unix, SCO Unix) used a simple mailbox scheme in which each user receives messages in a box in letters or specific directory. Each machine or host runs its own copy of the mail delivery service and each user therefore receives messages on a particular machine. whereby each machine is requested to provide local storage and data duplication occur frequently. To mitigate this problem, a solution proposed within the computer network with a static configuration has been to provide network file systems providing unified access mechanism to storage spaces throughout the network regardless of a particular machine. Because the relevant files are kept in one place, this system provides users with unified access to mailboxes and prevent duplication of

User data on individual machines.

With the advent of portable computing devices handheld that communicate with a central computer, or host by wireless communication, a problem arose. In general, the apparatus communicates with an access point, which is in direct communication with the host. As the device is physically moved, it must re-associate with the access points to the host as it moves outside the coverage area of an access point and enters the coverage area of 'another. The problem is particularly exacerbated when the device is moved from a basic service area to another which case a permanent network mail system

can be assured neither physically nor logically.

e-mail distribution services currently known include at most two "tasks" independent: user agent mail and mail transfer agent. The mail user agent provides the user interface to the service and the mail transfer agent handles the receiving and storing or storing messages in user mailboxes. The tasks usually run independently, the Agent mail user ignoring the status of the mail transfer agent or simply having access to information concerning the details of mailboxes for each user. As mentioned above, although the scheme is appropriate when mailboxes are placed or permanently mounted in a file system accessible by all machines in a network, when a portable wireless system held in the hand randomly traverses the local area and moves from one basic service area (file system) to another basic service area, the

scheme no longer works reliably.

Typical examples of known mail delivery systems are disclosed in, for example, SunExpert magazine in April 1994 in an article entitled "Sendmail" by Peter Collinson. A message came

In the mail user agent and processed by the mail transfer agent.

On large networks the various tasks are performed by a machine concentratrice mail to which all mail of a network is sent for processing. The system can be improved by introducing the possibility of expanding distribution lists, run by the mail program and automatically transfer mail from certain users. A system becomes progressively more complex as soon as he passes to the local mail

mail on the Internet worldwide network, mail between networks.

Other limitations are imposed due to reduced storage capacity of handheld computers (often known as PDAs) whereby the electronic messaging systems easy-record-and-send multi- users are

generally unrealistic.

To operate on a wireless network, mobile units (MU) must have a domain in order to associate with the access point (AP) in an access point group (GPA). A GPA is a group of one or more access points connected to the same router on the same network. All

Petitioner Samsung Ex-1004, 1177

2798749

access points in the same GPA are identified by the same domain. This enables the access point in a GPA of communicating on the network without

conflict with other GPA on the same network.

The disadvantage of domain allocation protocol of the prior art lies in the fact that some UM can be used on multiple GPA or multiple networks. The use of a mobile unit on multiple GPA would require changing the field of the mobile unit for him

allow to communicate via the appropriate GPA at the appropriate time.

The use of a mobile unit on multiple networks may also need to change the field, since the GPA on the new

network could be in a different domain.

Moreover, when a TCP / IP stack is used (transmission / internet protocol control protocol), each network node must have an IP address for the network. All the TCP / IP protocols typically covers the media access, packet transport, communications session, file transfers, email, and terminal emulation. IP addresses to different networks need not be unique. If multiple networks are connected and if the nodes communicate through all networks, then the nodes require

IP addresses are unique across the WAN.

In summary, each access point on a network must have a unique IP address for this network. Each mobile unit on a network, regardless of the field it uses, must have a unique IP address for

this network. The mobile units can be used on multiple networks.

The use of multiple networks typically requires changing the IP address of the mobile unit as the IP address in use by the mobile unit could be in use by another mobile unit on the new network or may not be consistent with IP conventions

used by the new network.

Therefore, a system is required to assign domains and IP addresses to mobile units to cover a variety of configurations and many different types of mobile units. Specifically, a system is required to authorize the award of domains and IP addresses to mobile units with sufficient flexibility to support installations in which the mobile units are attached to specific GPA on specific networks and where . mobile units move between different GPA even among different networks, such as networks and Spectrum Spectrum One 24 (trademarks of the Company

Symbol Technologies Inc.).

According to another aspect, it has previously been proposed to implement a barcode scanner reside on a machine controller running a COMPONENT OBJECT MODEL object (COM). It is hoped to increase the scope of such applications to make them compatible with a wide range of models and in particular to introduce a remote bar code scanner of the machine and controlled by a

wireless interface.

The European patent application being N 485 996 discloses, inter alia, a system for replacing our stock using a system in which the articles of replacement stock are labeled with an ultimate destination information encoded with bar codes, and packaged in a container for shipment to a receiving / distribution center. It is generally known to make use of a symbol in two-dimensional bar codes, on the outside of a container, to indicate what is to l'intérieur see the journal Material Handling Engineering, October 1992 article

entitled "New Dense Code Symbology Transport Data File."

The Internet computer network acquires increasing importance in the world of science, technology, information and commerce among many others. The Internet is well known experienced player in this field, but to summarize briefly, comprises a computer network to virtually global reach and accessible from any properly connected access point to find information in the Internet . Other subnets exist within the Internet which one

the best known is "worldwide web" or "WWW".

The information is commonly stored on the Internet in the form of "pages" often including a "home page" relating to a general site and providing guidance and access to the contents of this website, the content is stale in "sub-pages". One site included a unique Internet Protocol address or a uniform resource address (URL). It can be well accessed the site from any access point in the Internet

entering the relevant address and displaying the website maintained to this address.

The user accesses the Internet via a client computer, such as a personal computer (PC) connected to the Internet. The connection is typically done via a modem and a telephone line and a service provider or server acts as an intermediary, the client accessing the Internet through the server. In addition, the server allows the user to set up a website. Note that the server generally includes a fixed station. Such an arrangement can lead to a level of unnecessary stiffness. In particular, it is often expensive and unnecessarily complex time having to access the server station

Fixed to install or access a website.

Various developments to report in the Internet systems have been described in patents of the United States of America. For example U.S. Patent 5,550,984 relates to a security system for connecting computer networks, U.S. Patent 5,544,162 relates to a bridge for connecting parallel processors to the external environment, U.S. Patent N 5517494 relates to a routing protocol for partial broadcast messages through the Internet, U.S. patent 5,416,842 relates to a message transmission between firewall servers, U.S. patent 5 410 754 refers to an interface between a carrier and a cable line on a remote host Enterprise Local Area Network (LAN), US patent No. 5,400,335 refers to a connection terminal Services Digital Network ISDN (integrated) - LAN, U.S. patent No. 5,353,283 relates to a packet transmission through a series of modes in a network, U.S. patent 5,351,237 relates to a LAN network connected to an ISDN having a plurality of routers / sub -routeurs. U.S. Patent 5,309,437 relates to a bridge-type device for coupling segments of an extended LAN, U.S. Patent No. 5,289,468 relates to a terminal adapter for connecting a LAN and a wide area network (WAN) using a standard Internet protocol, U.S. patent 5,276,789 relates to the graphic display of a computer network topology, U.S. patent 5,229,988 relates to a system for classification of responses of duplicate source address, U.S. patent 5,185,860 relates to a system for determining the nodes connected to a computer network and US patent 5,166,931 relates to a system for an inter-network arranged for simplify the network addressing system. U.S. Patent 5,442,633 relates to a method for routing a data packet between a mobile host and a destination host through a wireless link between the mobile host and the base station. The base station acts as a physical position of the mobile host is connected and

Petitioner Samsung Ex-1004, 1178

the network via a LAN subnet.

The translation mechanism filenames across a distributed network is known, for example, from US Patent 5,483,652, incorporated

herein by reference.

A range of products has been developed by Spyglass Inc. Corporate improving internet connectivity to existing devices. In particular, these products are designed to connect electronic products to the worldwide web, such as cellular phones, devices to connect on cable TV, personal electronic organizers and pagers called messengers, providing the infrastructure, applications and services to equip these devices with navigation capability through internet. A product of this type is available under the trademark REMOTE MOSAIC which converts navigation in a customer service operation in which the "viewers" low weight are integrated on control in devices which establish the connection to a "proximity browser "on a remote server. The proximity browser handles applications requiring excessive process or memory capabilities such as caching or technical cache and connects the device to

other servers.

According to another aspect, there are many situations where a snapshot of a scene or object is to use and a considerable importance, for example in the insurance claim documentation in which it is vital to document as accurately and thoroughly as possible the circumstances against which the claim for damages is made. Usually the details are documented in writing or taking photographs using a camera device. This information is then input subsequently with all the other information about the claim. Such a system is time consuming and is prone to error, especially because of the subsequent re-entry of information and the transfer of physical photographs to the relevant file. Similar problems occur, for example, in the press coverage of an accident, in the police accident reports or other authorities, etc. US patent 5,583,994 relates to a multimedia information delivery system network. A long range transmitter transmits the multimedia programs that are received by a plurality of network servers to todays to network servers or downstream to a user. The programs are treated separately (cached) on network servers as determined by a programmer for distribution

effective multimedia program to each user.

In another aspect, the data terminals connected to the Internet are conventionally subjected to the requirement to download "applets" (programmatic components) in an agent of implementation language

appropriate from a host, which is a complex and slow process.

There are several different types of bar code readers. A first type, a wand (drive) 8 contains a transmitter 10 and a detector 12, and the user manually moves the wand across the bar code. The detector 12 detects the reflected light from a spot scanned by the wand 8 through the bar code 2, and produces an electrical signal representing the encoded information to a processor device 14. The wands have been described, by example in U.S. patents 4,654,482, 4,907,264 and 4

937,853.

A document of particular relevance is U.S. Patent 4,471,218 which describes a wand (drive) of data and a data well, and is

incorporated herein by reference. According to the description an input terminal

the wand type data is fully self contained and cordless, and includes a read circuit and memory. The terminal allows for more download the interface using an optical coupling link. Preferably, the stored data is output using a pulsed beam from a light source to the reading beam. The output beam is detected by

an optical detector and decoded appropriately.

The descriptions of the references mentioned above are incorporated herein by reference. The general construction and operation of a wand type reader will be obvious to the reader

experienced in the field.

In another system described in the patent application of the United

States of America No. 08/691 263 filed on 2 August 1996, a reading terminal

optic that fits in the hand is offered in an ergonomic design.

According to this system, it is proposed, inter alia, an optical reader that fits in the hand arranged to fit the hand of the user and including a reader component and a downloading component. The device may include a display screen and a display screen for displaying control messages or video images, a keypad for entering data or other control and a wireless communication link to download the read data by the reader component to an external device. The system may further include a plurality of interchangeable data collection modules connectable to the main body of the device, each module fulfilling a different function such as image capture / video, audio capture, etc. The result is a module

simple media is proposed.

It is hoped, however, to reach a data drive that fits in the hand lightweight with an even greater range of possibilities. Given the simplicity, availability and adaptability related information systems with the capacity data storage barcode symbols, it is desirable to develop systems particularly suitable for applications for the consumer. An optical reader wand type which offers many consumer applications is shown in Figure 21. The device, indicated generally by reference numeral 680 includes a main body 681 shaped stylet having at its writing end a Scanner optical transmitter element and light sensor 682 to read a bar code symbol as shown schematically at 683. the stylus can also present a real writing ability, for example by having the writing pen near the optical element 682 or, in fact, with the writing element and the optical element 682 at opposite ends. It is hoped to increase the range of applications for such a product. data processing capabilities of such a system 680 is limited by its physical size and its power supply potential which accordingly restrict the range of applications of the device. Moreover, various problems arise in the effective operation of such a system, especially in regulating variable speeds which consumers

12 2798749

12 I / 4

scan a given bar code symbol 683.

conventional portable data terminal comprises a data display device, data input means such as a keyboard and means for storing and processing data. A wide range of applications is now available on such terminals namely word processing, spreadsheet, database and other application. An important part of the development work in the

Petitioner Samsung Ex-1004, 1179

known portable data terminals is centered on increasing memory capacity and data processing. This has led to increases in terms of cost and size / weight (and the corresponding need to miniaturize the components later) together with increased complexity

resulting in a greater potential failures or outages.

According to another aspect, the Patent of the United States of America N US 5,410,326 relates to a programmable remote control device for interacting with a plurality of devices controlled remotely. The remote controller is configured to control a variety of devices and carries symbols representing different functions to be selected by the user. The device is further configured to receive and display advertising messages, and perform various other functions such as email and delivery of meals at home. The system

is, however, complex and bulky and limited adaptability.

U.S. Patent 5,521,370 relates to a portable data acquisition device that fits in the hand for example for storage, which can be mounted on a terminal for communication base

data with a host computer and / or battery charging. The description

relates to a data interface between the terminal and the terminal base comprising electrical contact pads in the stop position. The terminal is arranged to communicate with the terminal base that when docked thereto. The terminal includes a processor and a memory system using communication controller and may be

13; 2798749

arranged to act as a network controller when moored. One difficulty with such a system lies in the fact that a considerable processing capacity and memory is included in the device that fits in the hand and the data are downloaded when the device is docked in the terminal base. US patent 5,280,621 relates to a control system for a personal computer. In conventional personal computers, a system control processor providing an interface between the host processor and peripherals such as a keyboard input. System performance was limited due to the low speed of communication between the system control processor and keyboard, and was more degraded when the system control processor managing other additional control loads such as management battery supply, the management of the extension of the external bus and others. According to US patent 5,280,621, it is proposed to introduce microcontroller for communication between the respective peripheral devices and system control processor, freeing the control processor desautres tasks system, improving the overall performance of system. The issue of management of the power supply portable devices was visually addressed in various ways. U.S. Patent 5,027,294 relates to the control of the discharge voltage of a power supply by battery wherein the user receives warnings at different depletion levels for a backup of the memory, to prevent over-exhaustion and others. U.S. Patent 5,504,413 discloses a battery charging system having an inlet jet to minimize overload voltage levels and connecting a charging device to a peripheral device via a port provided on the recharger. US patent 5,487,181 refers to the minimization Eating for providing a main processor and a processor

14 2798749

lowest power consumption that allows the main processor to "sleep" except in cases of necessity. The low power processor performs various minor features to the main processor to sleep as much as possible while being awakened as soon as necessary. US patent 5,511,205 relates to the management of the power supply of a portable notebook computer with stylus. The system includes multiple power planes that can be controlled independently of each other and can be fed selectively to ensure that a particular task is executed with a minimum power consumption. In addition, CPU (central processing unit) separated operate synchronously with respect to each other reducing the amount of processing time the main CPU must

devote to the power management function.

SUMMARY OF THE INVENTION

Objects of the invention An object of the present invention to provide a device

is an additional improvement over the prior art.

Features of the invention In one aspect, there is provided a reader having a housing on the face

top which an information display may be located.

A keyboard may be provided on the upper face of the housing for entering information about the operator's identity, mode of operation and other information. An acoustic modem may be provided for sending and / or download the information read by the reader, and / or an interface connector may be provided to connect the reader to a central computer to send or download information, and / or a transmitter radio may be provided to transmit information to a remote receiver and / or a radio receiver may be provided for receiving information from a remote transmitter. In all cases, l'information can be transferred to a central storage device for reductions space

2798749

on the drive itself.

The reading device may be an optical scanner "flying spot" or

an optical drive to "field of view".

The reader can be configured to connect to the Internet. In particular, the reader may be configured to read and decode a bar code symbol of the network site address, such as a URL

(Uniform resource address) of the worldwide web or WWW.

Access to such sites is simplified for the user.

According to the invention there is further provided a portable computing device comprising a main body and at least one data collection module / communications connectable to the main body, the main body having an interface for connection to the module, processor for processing the information received from the module and a communication link to exchange information with a host. Due to the modular arrangement, the device can be easily adapted to different applications without the need to manufacture custom systems to high price or modify such systems which would prove

expensive and complex.

Petitioner Samsung Ex-1004, 1180

The main body may include a visual display such as a liquid crystal display or LCD. The main body may also include a keyboard. The modules may include an image capture module, a laser scanner module and / or a multimedia module. The module preferably includes digital signal processing sub-systems which can be a single, soft design as appropriate. The modules may include pre-processors to pre-process the information before its transfer to the main body in order to reduce the load on the processor located in the main body. The module can be detachably mounted on or relative to the main body, and in particular with respect to the screen located on the main body - for example it may

be hinged or pivotally mounted rotatably.

16 2798749

The device may be configured for connection to the internet.

According to the invention there is further provided an electronic mail delivery system comprising a server part and a client part, the client part comprising at least one user interface device wherein the client side is arranged at the receiving a request by a specific user, to query the server part about messages stored by the user part addressed to the specific user. The system is so even for use in systems where the client part is physically moved between zones

basic service.

The client side and the server side can communicate via wireless communication. The client portion may comprise one or more than one

portable computing device.

The client part may be arranged to receive input messages from a specific user and to communicate these messages to the part

server for storage in the server part.

The client part can be arranged to reproduce a message and whether the message is a visual message or an audio message and to reproduce the message accordingly. The system can be part

the internet or be configured to be connected to the latter.

Preferably, the server part and the client part are provided on a local area network arranged to communicate with other local networks having a server portion and a client portion via a server-server communication, the message distribution system being divided between

local networks.

According to the invention there is further provided a method of operating an electronic mail delivery system comprising a server part and a client part, the client side and the server side being in communication, wherein a user enters a request to the client side, the client queries the server part portion, the server portion transmits

17 2798749

the client side all messages stored in the specific server part

the user and the client side reproduces the message.

The user can enter a message to the client part at the end of storage by the server side, the client side can communicate the message to the server side and the server side can store the message. The client side can see the options for the user to end user selection, ie storing a message options, search for a message, select the display mode options and selection reproduction mode. The options can be searched

from the server side by the client part to the initialization of the client part.

According to the invention there is provided a communication system for a bar code scanner comprising a host control, a scanning control object operating in the latter and a remote client associated with the bar code scanner in which scanning control object communicates with the remote client to control the barcode scanner and the scanning control object is implemented as an OLE control (connection and nesting objects). Accordingly, it is proposed a system to establish communication "seamless" between the control

scanning and remote client.

The host and the scanning object control can communicate and be integrated via interfaces. The scan control object can create separate execution units to control communication with the remote client. The execution units may include separate scanner transaction orders bar codes send, receive and

synchronize.

The scan control object can be configured to communicate with the remote client to an Internet connection or intranet and / or communication

wireless.

According to the invention, it is further proposed: 1. A method for reading a symbol to high density bar codes containing information comprising data information and interpretation of data, comprising the steps of receiving of a signal representative of the information contained in the bar code symbol identification data and the information data interpretation, processing information data interpretation and interpreting

data according to the interpretation of processed information.

2. A method as defined in 1 wherein the information for interpreting data comprises a program script, wherein the method comprises the processing steps of the programmed script to create

an interface to interpret the data.

3. An information retrieval system comprising a symbol to high density bar codes and a bar code symbol reader, wherein the barcode symbol contains information including data and an evaluation information data and the reader comprises means for reading the bar code symbol, means for identifying information for interpreting the data, means to treat information data interpretation and means for interpreting

data according to the interpretation of processed information.

Petitioner Samsung Ex-1004, 1181

4. A communication system for a bar code scanner comprising a host control, a scanning control object operating in the latter and a remote client associated with the bar code scanner in which the object of control scanning communicates with the remote client to control the barcode scanner and the scanning control object is set as an OLE control (connection and nesting

objects).

5. A system as defined in 4, wherein the host and object control

scanning communicate and be integrated via interfaces.

6. A system as defined in 4, wherein the scanning control object creates separate threads to control the

communication with the remote client.

7. A system as defined in 6 wherein the execution units include separate code scanner transaction commands

bar send, receive and synchronize.

8. A system as defined in 4, wherein the scanning control object is configured to communicate with the remote client via a link

Internet or Intranet and / or wireless communication.

According to the present invention, there is provided a data terminal which can be remotely connected to the Internet network, comprising a data input and an internal server to create an Internet site representing the input data and having an Internet Protocol address, the terminal comprising over a network link cooperating with the server to allow access to the site by users located elsewhere on the Internet. The system thus offers substantial benefits in terms of speed,

efficiency and accessibility.

The website can be a website (hypertext presentation of multimedia network). The input data may comprise one or more means among the image recording means group of recording sound, or text recording. The network connection can be a wireless link comprising a link from the group of radio frequency link, an infrared link to the IRDA standard or microwave link on a local private wireless network business, or

a cell phone network.

According to the present invention, there is provided a data terminal connectable to a data network, and remote from the latter, which comprises a data input, means for creating a data site accessible by the data representing user inputs and having a site address and a network link arranged to receive access requests from users located elsewhere on the network address to the site,

and to ensure access to the addressed site.

The network may include a network group of the Internet a

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Corporate Intranet or Local Area Network (LAN), for example, the network including the Internet and website address including a Protocol address

Internet. The site may be a website.

The data input may comprise means from the group of picture recording means, recording his or recording texts or even a "sniffer" chemical which detects the presence of certain chemicals in the air (e.g. natural gas or other combustible or hazardous emissions). The creation of the data site and access means may comprise an internal server to the terminal. The network link may be a wireless link comprising a linkage selected from the group consisting of a radio frequency bond,

infrared link to the IRDA standard and a microwave link.

According to the invention there is provided a moving image recording unit connectable to the Internet via a wireless link comprising an image recording means, a server to create a web site having an address internet protocol and representing the recorded image and a wireless link configured to provide access to the site to requests

directed to the website address.

The server may create respective sub-pages for respective recorded images and comprise a specifying subpages menu

a home page in the website address.

According to the invention there is provided a website creation system and access to the latter comprising a mobile unit having a server configured to record images at a given geographical location and create an internal image representing site terminal wherein the mobile unit communicates with the Internet via a wireless link and the users

access the site to the mobile unit via the Internet.

According to the invention, there is provided a method for creating a website in which a mobile unit records data on its immediate environment, a server inside the mobile unit creates a

21 2798749

website page representing data and having an Internet Protocol address, and users of Internet access the website address

Internet Protocol over a wireless link between the mobile unit and the Internet.

According to the invention there is provided a system for capturing and image relay comprising a remote still image capture device comprising an encoder for encoding the captured image as an image data signal and a transmitter for transmitting the image data signal, the system comprising a base station for receiving the image data signal and providing access to image data. Consequently,

quick access to the image is allowed to the base station.

Petitioner Samsung Ex-1004, 1182

The image capture device may include a digital camera and may further include a barcode reader and / or a microphone and / or a user data input device and / or include a printer, preferably configured to print symbols codes

bars or version release paper of the captured image.

The image capture device may include a visual display and, advantageously means for altering an image displayed on

the visual display.

The invention further relates to, in its preferred forms 9. A system comprising a system capacity

global positioning.

10. A system wherein the image capture device comprises

a body portion and a handle portion projecting from the body portion.

11. A system as defined in 10 wherein a trigger is

provided associated with the handle portion and arranged to activate the image capture.

12. A system as defined in 10 wherein variable control is provided associated with the handle portion to control the zoom or image magnification. 13. A system as defined in 12 wherein the variable control

comprises a wheel.

22 2798749

14. A system wherein the image capture device further comprises hazard detecting means for location within a danger area. 15. A system as defined in 14 wherein said hazard detection means comprises a detector selected from the group of a smoke detector, a heat detector, an emanation detector, a motion detector. 16. A system as defined in 14, in which on detection of danger, a picture of the risk zone is captured and sent to the authority

competent hazard control for examination.

17. A system wherein the image data signal is transmitted

along a transmission route optimized cost.

18. A system as defined in 17 wherein the communication route is determined by selecting the communication links

the least expensive.

19. A data network comprising a first transmitting point, a second reception point, a plurality of intermediate transfer points, a communication link having a cost factor associated connecting respective pairs of points, wherein the transmission is routed from the first point to the second point via one or more than one selected transfer point

to minimize the cost associated communication links.

20. A data terminal comprising a reader to read visible indicia by machine, wherein the reader is arranged to read indicia encoding machine-executable instructions and a data processor

arranged to decode and execute the instructions.

21. A terminal as defined in 20 connectable to a network

computer via a network interface.

22. A terminal as defined in 20 wherein the readable indicia

machine includes a bar code symbol.

23. A terminal as defined in 20 wherein the readable instructions

23 2798749

machine are expressed in an agent of implementation language.

24. A terminal as defined in 20 wherein the terminal comprises a terminal housing and an Internet interface, the data processor and

reader are provided within the terminal closure.

25. A data terminal as defined in 20 wherein the reader

is connected to the terminal via a physical link.

26. A terminal as defined in 25 wherein the reader comprises a reader chosen from the group of an optical scanner "flying spot" or

optical drive "field of view".

27. A terminal as defined in 20 wherein the terminal comprises a remote terminal arranged to be connected to a computer network via a

wireless link.

According to the invention there is further proposed a still image capturing device comprising a digital camera, an encoder to encode the still image as an image data signal, and a transmitter for transmitting the image data signal via a wireless transmission to

a remote base station.

Petitioner Samsung Ex-1004, 1183

According to the invention there is further provided a method of capture and retransmission of an image comprising the steps of capturing the image using a remote image capturing device, encoding of the captured image in the form of an image data signal and for transmitting the image data signal, the coder and the transmitter being provided in the remote image capture device, and receiving the image data signal transmitted in a base station to distribute the image. The captured image can relate to a given incident and the base station may transfer the received image

to an insurance database for the incident.

The captured image can be related to the condition of goods before delivery and the received image can be transferred from the base station to a

delivery point for comparison with the received goods.

The captured image can relate to the status of goods to be delivered, the image data signal may be encoded in the form of a bar code symbol applied to the goods to be delivered and the bar code symbol can be decoded at the delivery point for comparison of the captured image

with the condition of goods as received.

According to the invention, there is provided a product information retrieval system to be used in conjunction with the internet computer network in which the product information on a chosen product is accessible to a website with Protocol site address Internet, in which the address of the site is directly or indirectly represented by printed machine-readable indicia, and in which a player that fits in the hand is expected to read the clues, remember website address represented by these and download website address to a client processor to access the product information at the site. The product may include a commercial product. The commercial product can be displayed on printed, the machine readable indicia are printed together with these. Alternatively, the commercial product can be displayed in a retail center and machine readable indicia

can be printed on the product or product packaging.

The printed machine-readable indicia may include a bar code symbol. The player that fits in the hand may include a bar code reader, for example a field of view with optical drive

such as an optical drive such as "wand".

The bar code symbol may be printed in one of the group of formats including formats UPC (Universal Product Code), EAN

(Numbering of European products).

The data in the bar code symbol can be a website address, or simply be a product code that can be used to view a corresponding site address in a table, and the site address may be converted to a URL (uniform resource address) to

l'emplacement client processor.

2798749

* According to the invention there is further provided an optical reader that fits in the hand of the type "wand" comprising reading means for reading a printed index and data storage means for storing data represented by the index printed, arranged to read the printed index associated with a selected product, the reader further comprising a charging port for downloading the stored data to a processor

client to seek additional information about the product.

Under these preferred embodiments, the invention comprises:

28. A reader includes a bar code reader.

29. A player wherein the player downloads the stored data

to an access point to the client processor.

30. A reader wherein the data represented by printed index refers to a selected product and the reconstructed data comprises

Further information about the product.

31. A reader wherein the access point comprises an interface to

a personal computer.

32. A reader as defined in 31, wherein the access point

includes a dedicated download port.

33. A reader wherein the stored data is transferred via

a touch interface memory.

34. A drive in which the identification information is transferred via

an optical interface via a link to the IRDA standard.

35. A reader wherein the reader of the memory means stores data concerning the user of the reader, and the information about the user of the reader is transferred with the stored data

to a client processor.

36. A reader wherein the printed index accompanies

representation of a commercial product.

The client processor can be connected to the internet computer network and printed indicia may contain a site address in the internet Protocol

Petitioner Samsung Ex-1004, 1184

26 2798749

corresponding to a site containing additional information relating to the product. Therefore, the system does not require anything other than standard address protocols. The reader may include a code reader

bar.

According to the invention, there is further proposed an information product research method in which the product information is stored in a computer network Internet site with a site address in the Internet Protocol, and the website address is shown in the form of an index printed machine-readable, comprising the steps of reading the index print using a reader that fits in the hand, the storing site of address data represented by the index in the medium memory mounted within the reader that fits in the hand, to download the site address data from the reader that fits in the hand to a client processor connected to the Internet

and to access the Internet site identified by the site address.

The product can be a commercial product. The printed index may accompany a representation of the product on a printed form or the product can be displayed in a retail center, the index being

printed on the product or its packaging.

According to the invention there is further proposed an information retrieval system product for use in conjunction with an enclosed computer network in which information concerning a product produitchoisi is accessible to a network site having a site address, in which the website address is represented by a printed index, a drive that fits in the hand is expected to read the index, store the address data represented by it and download the address data to a client processor on the network to access the product information at the website address. The network may include a LAN (local area network). The network may include an Intranet system. The client processor can

include a network computer.

According to the invention, it is further proposed a search system

27 2798749

information product for use in conjunction with a computer network, wherein the product information for a selected product is accessible to a network site having a site address, wherein the site address is represented as d a printed index, a reader that fits in the hand is intended to read the index storing the site address data represented by the latter and the download site address data to a terminal connected to the network, wherein the terminal comprises input means, output and display of data and copy the site address data to a host computer, and the host computer accesses the network site for

introducing and displaying data on the terminal.

The terminal may include a network computer. The network can be Internet or the network may be an Intranet or the network can be a

LAN (local area network).

According to the invention there is further proposed an information search method stored product to a site on a computer network having a site address, that the site address is represented as an index print, the index print is read by a reader that fits in the hand, the site address data represented by the latter are stored in the reader that fits in the hand and loaded to a terminal connected to the computer network, the terminal comprising input means, output and display of data and that the site address data is sent from the terminal to a host computer, and the host computer accesses the terminal and introduced into the latter the site matching network, the

terminal displaying the product information contained in the website address.

The data terminal may include a display means, the input / output data and data transfer means. The network may include an Intranet. The network can

include a local area network.

According to the invention there is further proposed a data search method comprising reading identification information stored in

28 2798749

the form of printed indicia using a standalone drive, storing the identification information in a data storage device provided in the drive, the transfer of the identification information stored from the data storage device to a access point to a storage system and data search, and the search of the stored data from the system identified by the identification information. In preferred embodiments, l'information identification is used to access a website related to the product. In this case, for example, a product in a magazine carries an associated bar code symbol, the bar code symbol containing the site address in the Internet Protocol to which additional product information can be found. The website can be a website. The user stores the address du.site and then downloaded to a personal computer or PC, which allows calls to the home page or sub-page of the website and access additional product information . In addition, as described in more detail below, the product can be purchased or

the user may be directed to related products.

Accordingly, l'information can be stored when the user

does not have access to the storage and retrieval system data itself

even. The stored data can act as a reminder or prompt to the user. A particular application relates to the case in which the identification information relates to a printed product shown in which case additional details can be searched and subsequently in many cases a direct transaction can be completed only by interaction with the system storage and

data search.

The standalone player can be a player that fits in the hand. The index may include a printed bar code symbol and the standalone player may include a bar code reader wand type. information

29 2798749

identification can relate to a selected product and the returned data may include additional product information. The access point may include an interface to a personal computer or a dedicated download port. This allows the use of the invention even when the user does not have access to a PC. The identification information can be

Petitioner Samsung Ex-1004, 1185

transferred via a touch memory interface. The storage and retrieval system can be Internet, identification l'information may include a website address and restored data can be maintained at the site. Alternatively, the data storage and retrieval system may include a closed computer network such as an intranet or a LAN (local area network). In this case, l'information identification may include an address location database or website appropriately conforming to the protocol adopted by the intranet or LAN. The player data storage device may store data about the user of the reader, and information regarding the user of the player can be transferred together with the stored identification information to a storage and retrieval system of data. This contributes to additional transactions such as buying and allows a profile

consumer to be constituted.

According to the first aspect, the invention relates to a data processing system comprising a portable terminal and a terminal support wherein the support comprises a terminal interface and a processor capacity for processing data received from the terminal and the terminal has a user interface, a media interface and a sufficient processor capacity only to relay user input to the carrier

for processing and the data from the media to the user interface.

Thus, an "ultra-thin" client is provided to the terminal, the running support the

Most of calculation functions.

In another aspect, the invention relates to a system processor

2798749

data comprising a self-contained data terminal, mooring means to moor the host terminal and a network, the terminal comprising a user input and a securing means arranged to interface to relay user input to the support and the support comprises a terminal interface and a host interface arranged to relay user input to the host for processing and a method for retransmission of data between a portable terminal and a base station comprising the steps of inputting data to the terminal, to relay the data to the base station with a

minimal processing and process the data to the base station.

Optionally, therefore, most of the processing power can be maintained at the host, allowing mooring medium or light cradle. Preferred features comprise more 37. A method in which the terminal and the base station

communicate via a wireless communication.

38. A method wherein the information input into the terminal

includes inventory information.

39. A method wherein the information input into the terminal

includes information relating to retail.

40. A method wherein the information input into the terminal

includes information relating to the exchange of stock.

41. A method further comprising the step of physically connecting the terminal to the base station at intervals to download

data and / or recharge the batteries.

According to another aspect, the invention provides a product information search system comprising a mobile terminal arranged to receive data from one or more data output point in a product access zone wherein the terminal is arranged to display an image of a product to be achieved in response to data received from the point of output data and an information retrieval method in product

3 1 2798749

a portable terminal which is provided in a product access area and receives data from one or more than one data output point, and wherein the terminal displays an image of the product to be achieved in response to data received from a data output point, and a portable data terminal to operate in an operating zone having one or more of a physical section located at predetermined positions in the area, wherein the data terminal comprises a receiver and / or communication from a transmitter and arranged for displaying icons representative of the physical item and / or its position in the area of operation. This system based on the icons used to implement a

Highly user-friendly file system, efficient and free of human error.

Further preferred features further comprise: 42. A system wherein the terminal receives data from the

point data output via wireless communication.

43. A system wherein the product image corresponds to a product

in the vicinity of the terminal.

44. A system wherein a plurality of output data points is provided and the product image is selected from products in the vicinity of the data output point at which the terminal receives

data.

45. A system wherein the terminal comprises a positioning system and the product image corresponds to a product in the vicinity of

the detected position of the terminal.

46. A system wherein the terminal is arranged to display a

map the access area to the product.

47. A system wherein the terminal is further arranged to indicate

Petitioner Samsung Ex-1004, 1186

the terminal position on the map.

48. A system wherein the access to the product area includes a

retail center.

49. A system wherein the terminal is arranged to display a

32 2798749

image of a product on sale.

50. A system in which a terminal user inputs

the identification information to the system.

51. A system wherein the terminal is arranged to display an image of a product corresponding to the user preferences derived

From the user's identification information.

52. A system wherein the terminal comprises one or more than one device selected from the group of an optical reader or a data stylus.

53. A system wherein the terminal further comprises a speaker

audio speaker.

54. A system wherein the terminal further comprises

voice synthesizer to relay the product or other information.

55. A system wherein the terminal further comprises a zone alarm arranged to be activated if the terminal is leaving the access area

product or an area defined relative to the access area to the product.

56. A product information retrieval system further comprising a terminal arranged mooring point for receiving the terminal to load

batteries and / or relay data.

57. A system wherein the terminal is arranged to display an image of a product to be relocated together with relocation information. 58. A system wherein the access to the product area comprises a storage area and a terminal is arranged to display an image of an

product to be relocated together with relocation information.

59. An information retrieval method produces wherein a portable terminal is provided in an access area to the product and receives data from one or more than one data output point, and wherein the terminal displays an image of a product to achieve in response to

data received from a data output point.

33 2798749

60. A portable data terminal to operate in an operating zone having one or more of a physical section located in prédéterminées positions in the area in which the data terminal includes a communication receiver and a display for displaying arranged icons representative of the physical item and / or its position in the area of operation. 61. A data transfer apparatus comprising a portable data terminal and a base arranged to receive the terminal, the base and the terminal comprising means for mutual wireless communication, the terminal including input and display means data and minimal front end processing capacity and the base having a capacity of

background processing for processing data from the terminal.

62. An apparatus wherein the terminal further comprises a device selected from the group of a radio broadcast receiver or a receiver

television.

63. An apparatus wherein said terminal further comprises an optical reader portion, the optical reader portion being removably connected

to the terminal.

64. An apparatus wherein said terminal further includes a movement / orientation detector, and means for controlling the operation of the terminal

based on the movement / orientation detected.

According to another aspect, there is provided a terminal support for mounting a portable data terminal, the support being adapted for wireless communication with the data terminal, wherein the carrier is arranged to receive or derive information display format for a terminal for mounting on the support and to configure the data to

displayed on the terminal according to the display format.

Further preferred features include 65. A support wherein the support configures data for display according to a selected item among a predetermined set of options of

34 2798749

format. 66. A support arranged to adapt the data for display based on the number of characters per horizontal line in the display format

of data.

67. A support arranged for scaling the display size of

data to fit the available display format.

Petitioner Samsung Ex-1004, 1187

According to another aspect, there is provided a data communication system comprising a portable data communications device and a device arranged to accommodate support detachably the device, wherein the device carrier comprises an information input of identification of the user and a device arranged to release the lock device to the input of an approved user identification information and a method of controlling access to a mobile data communication device wherein the mobile data communication device is detachably accommodated in a holder device, a user inputs the user identification information on the carrier, the carrier releases the device if the identification information is approved and simultaneously , starts the timer, the timer is stopped when the terminal is reintroduced into the holder and the C ilisation identified is billed for the period recorded between release and the reintroduction of the device. This arrangement is particularly suitable for rental in a public place

such as an airport or a deposit of retail (free service).

Further preferred features include: 68. A system wherein the data communication device

laptop includes a cell phone.

69. A system wherein, upon discharge of the device, a timer is started, and reintroduction of the device for counter stops

allow to charge the identified user.

70. A system wherein the support is configured to perform a

condition test on the device inserted into the holder.

2798749

71. A method wherein the device holder performs a

status check of the device when it is reintroduced.

The invention further relates to a data communication apparatus comprising wireless communication means for communicating with one or more than one access point to a local computer network, the device further comprising means for cellular telephone a traditional telephone call when the device is out of range of the access points to the local computer network, a freight tracking system comprising a communication device for a transport vehicle arranged to record the receipt and / or delivery of goods and having means for wireless communication with a communication network and means for creating a data file accessible via the communication network for providing reception information / delivery freight tracking network including a physical network transfer point comprising veh icules transport and intermediate stations and a communication network, wherein an interface to the communication network is supplied to each transfer point and wherein the passage of the goods is registered at each transfer point for accessing the conveying information to the communication network, a rechargeable battery pack for an electrically arranged powered device to be housed in a battery charger for charging, wherein the battery pack has predetermined specification refill and comprises a control circuit reloading for controlling the charging operation in order to meet predetermined specifications and a battery recharger for receiving and charging a rechargeable battery pack having predetermined charging specifications and responsive to charging control device on the battery pack to control op charging ration so as to meet the

predetermined charging specifications.

36 2798749

Further preferred features include: 72. A system wherein the communication device comprises a communication base being disposed on a vehicle and a portable data device arranged for wireless communication with the base and comprising means for acknowledging and record

delivery of goods.

73. A system wherein the receiving / delivering information comprises one or more than one data type "Incoming Goods"

"Delivered goods", "attempted delivery of goods."

74. A system in which the data file further provides

location information of the current carrier.

75. A system in which the data file creating means

includes a server configured to create a network file.

76. A network in which a routing table is developed

communication network for goods to be tracked.

77. A network wherein each interface includes a station

base and a portable data terminal in communication without mutual thread.

78. A rechargeable battery pack wherein a specification of

charging comprises charging speed.

79. A battery recharger comprising a plurality of points

reception and battery pack recharging.

The invention further provides a data arranged device for communicating with a communication network comprising an adapter module and an interface module adapter wherein the adapter module door network communication capability and an adapter module for communicating data device with a communication network wherein the network adapter module door in the communication capacity for the device. This results in achieving a transparent access to network files. Other preferred features include:

37 2798749

80. A device wherein the adapter module comprises an adapter card. 81. A device wherein the ability of a communication network comprises at least one protocol stack and at least one of the network file system client. 82. A device wherein the protocol stack and the client system

Petitioner Samsung Ex-1004, 1188

network file running on a processor in the adapter module.

83. A portable data communication device comprising a data input device, an interface adapter module and an adapter module, wherein the adapter module comprises an internal server to create a web site and communication means for

communicate with an access point to the internet.

84. A terminal wherein the adapter module comprises an adapter card. 85. An adapter card for a portable communication device, the adapter card includes a device interface, an internal server to create a network for file data captured by the device and a

network interface.

86. A power supply for cooperating with a device for electrically powering the device, the power supply including rechargeable batteries, a charging circuit and a connector for connection to

a power supply for recharging the batteries.

87. A power supply wherein the load circuit comprises one or more means selected from the group comprising a coil AC / DC (AC / DC), an electronic load system,

gas charging system.

88. A power supply in which the rechargeable batteries are replaceable. 89. An adapter for a battery charging system comprising a battery pack and a recharger wherein the adapter has a

38! 2798749

battery pack interface, a reloader interface and a circuit

load control.

90. An adapter comprising a power input for a

direct charging.

91. An adapter comprising one or more than one indicator for

indicate charging status.

92. A rechargeable power supply for a device, the power supply unit being replaceable by a recharger and having a load circuit and power batteries in which the batteries

supply are replaceable.

BRIEF DESCRIPTION OF DRAWINGS

The objects and advantages of the present invention mentioned above can be more easily understood by those skilled in the art by reference

to the detailed description of several preferred embodiments

the invention taken together with the drawings in which like elements are designated by like reference numerals through several views, and in which: - Figure 1 is a perspective view of an optical drive from above and from the rear; - Figure 2a shows a terminal according to the present invention arranged for connection to the Internet; - Figure 2b shows a block diagram of the connection system shown in Figure 2a; - figure 2c shows an alternative configuration according to the present invention; - Figure 2d is a flowchart showing the operation of the present invention; - Figure 3a is a perspective view of a data terminal according to the present invention;

39 2798749

- Figure 3b shows an implementation of the data terminal according to the present invention; - Figure 4 is a block diagram showing the components of the data terminal of Fig 3a; - Figure 5 shows a data terminal that fits in the hand - Figure 6 is a detail of a data terminal according to the present invention comprising tagging capabilities or development; - Figure 7 shows a data terminal according to another aspect of the invention; - Figure 8 shows a terminal configuration of a variant of the figure; - Figure 9 shows a portable computing device according to another aspect of the invention; - Figure 10 is a block diagram of an image capture module for the device of Figure 9; - Figure 11 is a block diagram of a multimedia unit for the device of Figure 9; - Figure 12 is a perspective view of a variant of the device of Figure 9; - Figure 13 is a block diagram showing the components of a distributed messaging service according to another aspect of the invention; - Figure 14 is a flowchart showing the operation of a client of the service of Figure 13; - Figure 15 is a flowchart showing the operation of a server of the service of Figure 13; - Figure 16 is a block diagram of a non-conventional wireless communication system with a terminal emulation program installed on the mobile units; - Figure 17 is a flowchart illustrating an action of a receiver on the access point of a packet from a mobile unit according to art

2798749

prior; - Figure 18 is a block diagram of an application of universal reader interface according to another aspect of the invention; - Figure 19 shows the interface between a scanning control and a container controls according to still another aspect of the invention; and - Figure 20 shows the multiple execution units maintained by

control of Figure 18.

- Figure 21 shows an optical reader pen type that fits in the hand; - Figure 22 shows the main components of an optical drive of the stylus type; - Figure 23a illustrates use of the optical reader pen type according to one embodiment of the invention; - Figure 23b illustrates use of optiquedu pen-type drive according to one of the invention embodiment; - Figure 24a shows an alternative version of the scanner pen-like; FIG 24b shows in more detail the main components of the scanner pen type shown in Figure 24a; Figure 25a shows another variant of the optical reader of the pen-type - Figure 25b shows in more detail the main components of the optical drive of the type stylus of Figure 25a; - Figure 25c is a view of the optical reader of the pen-type Figure 25a from a different angle; - Figure 26a is a sectional view of a variant of the optical drive of the stylus type; - Figure 26b is a perspective view of the optical reader of the type stylus of Figure 26a; - Figure 27a shows a method for downloading information to

41 2798749

from an optical reader pen type according to the present invention Figure 27b shows a variant of a method for downloading information from the optical reader pen type according to the present invention; - Figure 28 shows a download dedicated port from the optical reader pen type according to the present invention; - Figure 29 is a

Petitioner Samsung Ex-1004, 1189

sectional view of the download port shown in Figure 28; - Figure 30a shows an alternative configuration of an optical drive of the stylus type; - figure 30b shows the player of Figure 30a in operation; - Figure 30c is a partial cross section of a pen-type reader of the type shown in Figures 30a and 30b; - Figure 31 shows a terminal and a cradle or docking station according to the present invention; - Figure 32a is a block diagram of a terminal arrangement / cradle; - Figure 32b is a schematic diagram of a terminal arrangement / cradle; - Figure 33 is a schematic diagram of a terminal arrangement "thin client" / cradle; - Figure 34a is a view of another embodiment of a terminal; - Figure 34b is a plan view of a variant of a terminal; - Figure 34c is a side view of the terminal of Figure 34b; - Figure 34d is a rear view of the terminal of Figure 34b; - Figure 34 is another side view of the terminal of Figure 34b; - Figure 34f is yet another side view of the terminal of Figure 34b; - Figure 35 is a schematic representation of a possible use of a terminal according to the present invention;

42 2798749

- Figure 36 shows a first icon on the terminal display; - Figure 37 represents a variant icon display on the terminal; Figure 38a shows another variant icon display on the terminal; - figure 38b shows a flowchart showing the operation of the terminal; - Figure 39 shows a battery pack and a battery charger for the terminal; - Figure 40 is a block diagram of an alternative configuration of the terminal; - Figure 41 is a schematic view of an alternative configuration of the terminal; - Figure 42 is a schematic representation of another application of the terminal of the present invention; - Figure 43a is a schematic representation of yet another application of the terminal of the present invention; - figure 43b shows a terminal of the pendant type; - Figure 44 shows a wireless network configuration; Figure 45 shows a detail of a wireless network configuration; - Figure 46 shows another detail of a wireless network configuration; Figure 47 is a block diagram of a terminal configuration modification; - Figure 48 is a block diagram of a cradle configuration variant; - Figure 49 is a block diagram of yet another variant of a cradle configuration; - Figure 50 shows software data and control flow in the terminal; Figure 51 shows software data and the control flow

43 2798749

in a cradle; - Figure 52 is a block diagram showing the components of an integrated storage device; - Figure 53 is a block diagram showing a configuration of a storage device of a variant; - Figure 54 is a block diagram showing the configuration of yet another variant of a storage device; - Figure 55 is a block diagram showing the operation of a conventional system and Client Device File Access Card; - Figure 56 is a hardware block diagram of an alternative system and Client Device File Access Card; - Figure 57 is a block diagram of a software system variant to File Access Card; - Figure 58 shows a hardware model for a validated pourleWeb terminal; - Figure 59 shows a structure of tasks for the arrangement of Figure 58; - Figure 60a shows a transparent web server: - Figure 60b shows a transparent web server card; - Figure 61a shows the navigation with respect to the transparent web server; - figure 61b shows another navigation aspect relative to the transparent web server; - Figure 62 shows an inventive battery pack variant; - Figure 63a shows an arrangement for improved battery pack; and - Figure 63b shows a battery pack with improved variant

from that shown in Figure 63a, in cutaway form.

Detailed Description of Preferred Embodiments

44 2798749

Throughout the description of the optical drive the terms "front"

"Rear", "upper", "top", "lower" and "below" are used consistently. Referring, for example, in Figure 1, an optical scanner has a rear end 4 and a front end 5 generally planar, an upper surface 2a and opposite thereto a lower face 2b. Referring to Figure 1, in more detail, the optical reader comprises an elongate housing having generally the form of a bar and designated generally by the reference numeral 1, having two upper faces and lower 2a, 2b, long and wide generally opposite, two long side faces 3, hollow generally opposed,

a rear end 4 and a front end 5.

A reading device is mounted within the housing. The reading device can be any known conventional device, such as a

optical scanner "flying spot" or an optical reader to "field of view".

Generally, the device will include a generating source of light such as a laser diode, an arrangement of focusing or beam guidance and the light receiving device. When the reading device is an optical scanner a scanning component may oscillate rapidly, such as a mirror is provided to cover the light beam through a

index to be read. Alternatively, the laser diode itself can be oscillated.

When the reader is an optical reader field of view, a network of semi-

charge coupled conductors (CCD), or a combination of

photodetectors is provided for detecting the reflected light beam.

In order to activate the reading device a scanning shutter is provided on the upper surface 2a of the housing 1. The trigger is activated by depressing and is positioned along the housing 1 so as to be easily actuated by the operator when the reader is held in the hand of the operator. The trigger mechanism itself can be of any known configuration; for example the shutter can be spring-loaded and include contacts that form a circuit with

2798749

contacts within the housing when pressing the shutter button to

actuating the reading device.

A scanning window is positioned on the front face 5 of the reader.

The light generated by the scanning device passes through the window and is reflected and scattered back through the window by a bar code symbol. Accordingly, the reader can be easily and precisely directed

a bar code symbol to be read.

On the upper face of the reader are also provided a keyboard 14 and a display 15. The keyboard 14 may be used to initialize the reading device so that the identification information about the user is entered into the system. Alternatively, the keyboard 14 may be used for inputting information or predetermined codes concerning the reader operating modes or to perform cancellation operations or handling of the information provided by the reader. The display 15 can display information about the operating mode of the reader, or displaying verification information concerning article bearing the bar code symbol that is being read in conjunction with background information such as time, date, and confirmation of the operator's identity. Preferably, the display 15 is a liquid crystal display

Petitioner Samsung Ex-1004, 1190

(LCD).

The reading device can process information derived from the bar code symbol directly or can send raw data to an external processing device which can then process the information accordingly. In addition, l'information derived by the reader from the bar code symbol can be transferred to a so that an information database memory device can be constituted. For example, when the player is used in a store, purchasing profiles can be stored and analyzed. Alternatively, if the drive is used for inventory, inventory information can then be stored. The optical drive can transmit information in different ways. In the embodiments

46 2798749

embodiments shown, various different transmission devices are provided; in practice, only one or more of the devices need to be provided depending on the particular use to which the reader is intended. For example, l'information can be transmitted by acoustic modem 16. in this case, information may be stored in a buffer memory within the player and then uploaded by acoustic modem 16 at predetermined intervals. The display 15 may indicate when the information must be downloaded. Alternatively, an interface connector, for example a RS41 type connector provided at the rear of the drive. A suitable wiring can be introduced into the connector for downloading information or alternatively to load data into the drive on for exampie the operating mode. Once again, the display 15 may provide an indication of how the connector. The cable may be permanently connected to the reader since the connector is provided to the player l'arrière and therefore would not be hidden by the hand of the user. Alternatively, the connector may be connected to a cable for sending or uploading information when needed and, for exampie, when indicated by the display 15. In addition, radio or other transmission device can be provided within the housing 1 to allow real-time data communication. An advantage of this device is that the operator can operate the player in a configuration "cordless" or "wireless" for increased mobility. Once again, the radio may include a transmitter and a receiver so that information can be sent to a remote processor and from the latter. The radio link could be replaced by an infrared communication link or other connection without known type of wire. Because the reader is an ergonomic design, the transfer of information is easily

executed while the player is actually in use, if necessary.

As an additional option, the reader can be configured for

47 2798749

connecting to a telecommunication network or a computer network,

example the "Internet".

An example of a case in which the reader can be of particular use is related to the "worldwide web" or "global spider's web". When one wishes to access a website, it is necessary to enter the site address, known by the term "uniform resource address (URL)." Often these URLs are long and complex and take time to be entered and verified manually. Furthermore, URL can, despite many checks, lead to mistakes. The problem is exacerbated in the case of novice users about computer. The way to overcome this problem that is proposed is to code the URL in a bar code symbol and read the bar code symbol with the drive for automatic access to the corresponding website, which will be fast and accurate resulting in a much smaller margin of error. The player can be used for interfacing with a terminal for the input

the URL or could be used independently.

According to another aspect, there is shown in Figure 9 a data collecting device comprising an improvement over the known embodiments. The device comprises a laptop that fits in the hand to collect data and download the raw processed data to a central or peripheral device. The device, indicated generally by reference numeral 20 includes a main body

21 and interchangeable data collection modules 22a, 22b, 22c.

The main body 21 is provided in internal data processing means (not shown) and also includes a display screen 23, for example a LCD display capable of displaying video images, a collection module interface data 24, a keyboard 25 optional information input and a communication link 26 which may include means of infrared or radio frequency or an interface to download the information to a central or peripheral device via a

48; 2798749

physical cable. Note that the LCD 23 and the keyboard 25 entry are optional features. Advantageously, however, they allow the user to configure the operation of the whole device quickly and easily and to control the operation. The main body is illustrated schematically in Figure 9; in practice, it could take an ergonomic shape such as that shown in Figure 1, interfaces and other appropriate being positioned

suitable, for example, the respective ends of the module.

It should be noted that the device can transfer information to a host via any electronic data transfer scheme - for example, the system could also use voice channels to cell basis. Alternatively, the device could be configured for connection to a telecommunications network

* Or computer network, eg "Internet".

The data collection modules are interchangeable with each other and may be, for example, image data capture modules based CCD (charge-coupled semiconductor device), video data and code symbol data bar, audio transducers to collect and receive sound information, scanners of lasers images

or multimedia data collection modules combined.

An image capture module using a CCD can be used to capture images of objects for storage or use by a processor application executed by the main body or from a host, such images including, for example people, landscapes, homes and vehicles for reference applications. Moreover, l'imageur can be used for bar code symbols in one or two dimensions to decode data capture. A scanning module of the laser scanner and a decoder would be generally used for capture and

barcode data decoding.

49 2798749

A multimedia module 22 is shown in Figure 11 and is described in more detail with reference to said figure below. Such a module may contain circuitry for capturing images / video, audio capture and reproduction and a cellular subsystem. Such a module would be of particular use for conferencing and video communication

Live on the cellular networks from the portable unit.

The data collection module desired 22a, b, c is connected to the main body 21 through the interface 24 corresponds to an interface 27 on the module. All appropriate known interface components can be used but the components must be relatively rigid strong, durable and

Petitioner Samsung Ex-1004, 1191

suitable for disconnections and reconnections frequent.

The modules are powered from a power supply located inside the main body of the portable computing device and may be partially or fully controlled by software drivers located within the main body. To reduce the load on the central processing unit of the main body, a dedicated signal processing electronics located within the modules can be arranged to execute processing of data in the foreground whereby an architecture common bus to the main body is shared by all modules. In

therefore interchangeability is improved.

A suitable architecture for a module 28 of optical media capture (e.g. containing a CCD imager or a laser scanner) is shown in Figure 10. Each module can contain only media capture electronics without any prior processing capacity or as mentioned above, preferably contains 32 analog dedicated or programmable devices and components 33 of digital signal processing (DSP) to lighten the processing load placed on the central processing unit of the main body 21. the sub -system 32, 33 for processing digital signals provided in the module may be a single common electronic design modules, and is either factory programmed or customized to purchase or programmable by the user to perform functions in processors if the particular media module requires. It is intended that this programmability of the functions is performed primarily by software, since the processing electronics modules is flexible, and these software components may be loaded once or dynamically to the module via the central processing unit of the body main. Accordingly, the range of components that need to be manufactured is reduced, appropriate dedicated portions of components that can be selected for a desired use or a part of the operation mode being the responsibility of the software. In operation, the module 28 gathers information through the CCD imager and the laser scanner in analog form which is converted either in series or by conversion in a parallel format. The analog signal is then processed by the subsystem 32, 33 for processing digital signals and directed to an interface bus 34 from which the information is transferred

to the main body of the portable computing device. As mentioned

above, the electronic processing of signals preferably executes a processing of foreground data, so that a common bus architecture

can be imparted to the portable computing device 21.

Referring now to Figure 11, the multimedia module 22 includes a circuit for capturing images / video, audio capture and

reproduction and a cellular subsystem.

The module is arranged to receive and transmit video information independently of the main body of the portable computing device (although the main body of the portable computing device can also access to the video information to monitor or revise the information). Accordingly, a radio frequency antenna 41 is provided in the module for receiving and transmitting radio frequency information. A radio frequency front-end processor 42 and an encoder / decoder 43 cooperate to perform conversions of digital formats to radio frequency / radio frequency to digital. The video information received by radio frequency is loosened by a subsystem 44 for processing digital signals optional for the presentation, when appropriate, to the CPU (central processing unit) of the main body 21 of the portable computing device. Another sub-system 45 of digital signal processing is provided for other purposes (described in greater detail below) and preferably executes a partial video processing, the CPU of the personal computing device completing the process for displaying results. The second subsystem 44 for digital signal processing may also be required to interface with the encoder / decoder 43 of the radio frequency cellular subsystem; it

depends on the amount of treatment needs for each function.

The video information transferred to the main body 21 of the portable computing device is displayed on the LCD display device 23. The device

of receiving, transmitting and processing radio frequency 41, 42, 43, 44 described

it may reside optionally in a separate component such as a PCMCIA card (international architecture for personal computers, memory cards) or other card plug-in type, for example of the type manufactured by Symbol Technologies Company, Inc. Preferably however, the circuit is an integral part of the multimedia module to provide a complete multimedia solution for wireless computer system that fits in the hand. As will be appreciated, the wireless link may conform to any desired cellular standard (e.g., CDMA, GSM, AMPS) which is

preferably selected to allow the widest application of the invention.

The multimedia module 22 further includes a microphone component / speaker 50 which receives and transfers the analog information input to an analog / digital converter 51, 45 comprising a converter 51 foreground voice band which transfers the information to be in series or in parallel to the subsystem 45 for processing digital signals. Similarly, l'information can be transmitted in the other

52 2798749

direction, for example digital information from the main body of the portable computing device is converted into an analog audio signal to the converter 45, 51 and converted into sound by the loudspeaker component 50. The

digital audio tape base are processed by the sub-

system 45 for processing digital signals which can be reprogrammed to perform adequately a suitable audio codec processing. The signals to the telephone band (VB) are converted by the converter 45, 51

as described above.

The video data is captured by an imager 52 to CCD, compressed by a subsystem 53 for processing digital signals and directed to the codec (coder / decoder) radio frequency 43. Once again, the main body of the portable computing device not need to be involved in the transfer of data unless the user decides to supervise the transfer. In this case, a software-controlled processing may be initiated so that the video data is sent to the CPU of the main body 21 of the portable computing device to display that prior to compression of same to the codec 43 radio frequency for transmission, which allows in the captured image to be displayed during or before transmission. The multimedia module 22 is preferably mounted so as to be pivotable through at least 180 when connected to the main body of the portable computing device. This can be achieved by linking or by pivoting or arranging another way a part of the main body or by arranging similarly to a portion of the module. This positioning allows the capture of the image of the user while the user can simultaneously view the display of the LCD screen for video or images received. Rotation of the module of the image capture part enables the capture of image objects lying in front of the user while

the user looks at the screen.

The combination microphone / speakers can be arranged

53 2798749

Petitioner Samsung Ex-1004, 1192

to face the user in a preferred configuration, the conventional device as a whole. The microphone may further be configured to pivot or move away from the main body of the portable computing device and the user holding the device if the desired audio data to be captured come from another direction. A suitable arrangement having a steerable head module 22 and a pivotally microphone boom 30 is shown in Figure 12. In the embodiment shown, an upper portion 21a of the main body 21 is hinged to the rest of the main body and is pivotable around an axis a as shown by the arrow a '. The multimedia module 22 is connected to the upper part and the upper part was inclined so that an image pickup device CCD 29 is facing the user. The pivotally microphone boom 30 also protrudes from the multimedia module 22. It may be noted that a number of pivotal orientation arrangements may be provided, for example a hinge or a pivot may be provided within the module structure 22, and the module may also be arranged to rotate 180 about an axis transverse to the axis A. similarly the microphone boom 30 may be pivotally mounted

the module 22 in any known way.

Consequently, it will be understood that the invention can be used to provide modular programmable multimedia possibilities in the "form factor that fits in the hand" by portable computing devices such

as hand-held terminals or "portable digital assistants."

The invention can be used for decoding of CCD-based barcode (in one or two dimensions at least) by industrial and commercial users, for example in the treatment of outlets or inventory work; video conferences cellulairesportables by users "business" itinerant; and captures digital photographs / images for experts in insurance, sales professionals among many other applications that will be apparent to those skilled in the art. It may be noted that the portable modules described above can be used in scanning configurations cordless eg in POS applications. Problems are raised here o such portable devices are not attached in any way as it is possible that they can be misplaced,

removed from store or otherwise misappropriated.

To overcome this, it is possible to introduce monitoring tag of a type known in the scanner so that if the scanner is accidentally taken by a consumer, an alarm will sound in front of the store as it would sound if another product with such a beacon

Monitoring was out of the store.

Alternatively, the scanner may comprise some form of internal alarm to sound when the scanner is taken over a distance greater than a predetermined distance from the base. When the scanner communicates with the base via wireless communication such as radio communication, manage the radio session protocol software can control the locator scope

and alarm.

In order to locate the portable scanners that have been lost, an alarm or a sound signal emitter called "beeper" can be placed in the scanner and triggered by a signal from the controlled basis by, for example, a button provided on the based on which the user presses. Consequently, when the user presses a button, the scanner could

be located following the noise sound.

Another use for portable computing devices is the application of courier or electronic mailbox. Referring to figures 13 to 15, the invention provides an improved architecture for box systems to electronic letters with portable computing devices. The advanced system uses a distributed messaging service architecture based on cooperative treatments. A l'intérieur a network, a particular machine is designated as

2798749

server and its address becomes public on the local network. The server is responsible for message delivery and receipt of messages and also provides other machines on the local network with information about the state of the user message, eg if a message has been received for an identified user, in which case the message can be directed to the user. The remaining machines are known as "client" and perform corresponding processing, in particular provide a user interface to the messaging service distributed. For example, the client part can have various options to the user, for example, audio listening options messages or viewing text or still images. The options will, of course, based on the resources available on a particular machine, such as it has

a sound card and / or graphics features.

With particular reference to Figure 13, there is provided a server 100 and a plurality (two in number in the figure) 101a clients 101b. The server 100 comprises an antenna 102 for communicating with remote clients 101a, 101b (e.g., portable computing devices), a module 103 for transmitting and receiving, an encoder and decoder 104 message (protocol stack) and a modulus of treatment 105 (search engine) to process requests from clients 101, for example regarding the state of a particular user message, access to any of these messages, etc. it accesses information from a memory 106 which may be a database storage module. The processor 105 also communicates with a mail user agent module (AMU) 107 providing the user interface with the server 100. The server 100 is further in communication via the mail user agent 107 with an local area network and / or a wide area network designated a

generally by reference numeral 108.

The service can be part of a telecommunications network or a computer network, eg "Internet" or be configured to be

56 2798749

connected thereto.

Each client 101a, 101b includes various common server modules together with additional modules specific to customer needs. The client 101 comprises an antenna 109 for communication with the server and a transmission / reception module 110 communicating with an encoder and decoder messages 11.1. The module 110 include the hardware necessary to carry out the steps of transmitting / receiving but it must be said that at least some of the functions provided by the module should be able to be provided by software. In fact, in general, the reference modules need not be constituted by dedicated hardware but extends to the programmed or programmable software configured to emulate hardware performance. The encoder and decoder 111 for message interacts with the mail user agent 112 providing the user interface. In addition, the mail user agent 112 communicates with a local data storage device 113 and with optional modules such as a display manager 114 and / or a sound manager 115 (see 101a client). The operation of distributed messaging system can be understood better with reference to Figures 14 and 15. Figure 14 shows the steps performed by the user in a "customer treatment" typical. At the start of operations, the customer configures itself based on resources (eg sound or graphics) available on the machine [step 120]. The user starts a session and a password between [121] and a connection is established between the client and the server [122], at which stage the information entered during the session start process and word input password is sent to the server for verification. [123] However, if the server is not ready for communication, the procedure is then interrupted [124] and must be restarted at step 120 or step 121. After the state of the user has been the object of the query [123], if the user or the password is unknown to the server, the processing returns to step [121] and the session start procedure and password input is rebooted. Otherwise, the

Petitioner Samsung Ex-1004, 1193

options available to the user are searched [125] in steps discussed in more detail in reference to Figure 15 and displayed as headings for the benefit of the user. [126] The user then enters his selection [127] and the selection type is

determined [128].

The client judges whether the user wishes to view a message [129] and in this case the search message from the selected server [130] in a series of steps described in greater detail below with reference to Figure 15. the client then determines the type of message, such as audio or visual [131] and depending on the message type or display text [132] or reproduces sound. [133] The client then returns to step [127] and waits

another user selection.

If in step [129] l'utilisateur says it is not desired to display a message when a message is created, [134] recorded [135], the message data is formatted appropriately for transport [136], for example by the protocol stack 111 shown in Figure 13 and are sent to the [137] server by the transmitter 110 and the antenna 109. the

client then returns to step [127] and waits for another user selection.

The client machine has the appropriate input means such as a keyboard and an LCD display, for example display for the entry of the user selection of choices, information on the messages and for display messages. In addition, a speaker and a microphone may be provided for recording and reproducing audio messages. A portable computing device such as that shown in Figure 9 may, for example, be used as a client 101. In this case, self-configuration of the client is performed partly based on the module type 22 inserted into the body main 21 of the computing device

mobile 20.

Referring now to Figure 15, the steps of a "server process" typically are represented. The server operates as a continuous process but in order to save system resources, mainly in a standby mode when simply listening to the local network. S Accordingly, in step [140], launching, an open connection is established and the server monitors the connection. [141] If requests are received [142] the server continues the subsequent steps but otherwise continues to oversee the connection. [141] Upon receiving a request, the server "wakes up", interprets the request to determine which server is designated internal modules [143] (e.g., database storage device 106 or the user agent messaging 107) and if the request is valid, [144] the type of request is determined. [145] The application may be a header that is sent to the client to present in- user message headers (corresponding to steps [125] and [126] shown in Figure 14); accordingly, the demand for a head en- [146], the appropriate information is sought, [147] is shaped for transport [148], for example the modules 104, 103 of the server and is sent to the client [149]. The server then returns to the monitoring mode [141] to

listening to the connection with the rest of the network.

If in step [146] request does not relate to information EN-

HEAD, then the server searches for all user messages [147] that were stored on the identified user (eg on the basis of the start of the session or password information entered at the client) and the data are being form and sent as described above with regard to steps [148, 149]. The system then returns to the mode

monitoring [141].

It will be noted that the steps [142-147] are executed by the search engine server 105, the user message data being

searched from the memory device 106 of server.

When, in step [144] the request is invalid, the user and the

59 2798749

application are then recorded and an error message is returned to the

customer. [151] The system then returns to the monitoring mode. [141]

The system described above requires much less data storage on the terminal / client computer and thus is particularly (although not exclusively) suitable for handheld computers with opportunities backbone. The system solves the problem of locating even mailboxes that discharge host of hand held responsible for the storage and retrieval of data by processing the mail service as both cooperative and independent processors which communicate with each other using protocols

based networks.

Indeed, unlike the usual courier systems, distributed messaging service uses the underlying network to actively present the questions to the server for the status of messages related to a specific user, rather than using a directory structure and rely on a file system. Because all queries are directed to a server, multiple connections for a single user can be identified and denied, the server is the single point of connection to external entities, providing a more secure distribution system and the server offers visualization of messaging service

the end user who is independent of the actual material stored by the server.

In addition, customers are relieved of responsibility for storing or direct research any real data. Messages are delivered via the network on demand, ie when required by the user and the client portion of the distributed messaging service simply translates user requests into a series of commands that are sent to the server in the form of queries. If queries are validated the server returns the data to a client in response to requests. Under the separation of duties, the system acquires the designer the freedom to modify the components of the system independently t 12,798,749. For example, it may be decided behind the server stores the messages using a simple mailbox scheme, but if the ability or speed or efficiency of the system requires the following be improved following the increased load placed on the system by a growing number of users and messages, the server may return to the use of a comprehensive system of database management. data. Any such change will, however, hidden from the client portion and the portion customer can actually remain ignorant of structures

underlying server indefinitely.

Similarly, the client portion may be modified, for example, to switch a user interface based on the character mode to a graphic interface of the type in which case the server may remain ignorant changes since the query database and the exchange mechanism will remain unchanged, the remaining indifferent server mode

presentation of data to the client portion.

Therefore, a voice mail system is implemented. The client portion can run on a compatible platform PC (personal computer) although it can be worn very simple way to other platforms. The server can run on UNIX platforms or

Petitioner Samsung Ex-1004, 1194

BACK. The client requires less than 256 KB of local storage.

therefore it will be seen that offers multiple proposed distribution system benefits from the current mailbox scheme, providing flexible and independent modules that are easier to maintain and modify and offer a generic mechanism by which

data transfer can be implemented on data networks.

Since the system is distributed, it does not require the presence of a

Network file system and simply relies on local storage.

in particular, the fact that a server is provided on each LAN to treat clients within a local network and also to communicate with other servers on other LANs, mobile capabilities of the system are improved. The distribution processing messages between different LANs stands out the centralized concentrator system common messaging systems and allows treatment and a simplified and accelerated transfer of messages in combination with mobile laptop. Other aspects of the present invention will be described in conjunction with the networks without spread spectrum wireless Company Symbol Technologies Inc .: Spectrum One (operating at 902 to 928 MHz frequency range) and Spectrum24 (operating at a beach frequency 2.4 to 2.5 GHz). However, the disclosed embodiments are applicable to other

wireless communication systems.

Part 1: Emulation Program Terminal "Symbol" (STEP) and units

mobile / stylus-based terminals.

The "Symbol" terminal emulation program (STEP) is a tool used to format applications for mobile units stylus-based

such that the mobile unit 21 shown in Figure 9.

An example of the Spectrum24 system is shown in Figure 16. STEP resides in the mobile units 21 and works with a validation development system 160 of a host computer 162 to perform a predefined set of commands sent from the host computer 162. the validation development system 160 includes a validation server 164, a validation application program interface 166 and a counter 168. the validation development system 160 receives an input from the unit Spectrum24 access point at 170. the host computer

162 is controlled by a terminal 172 to run host applications 174.

STEP provides mobile units 21 l'interface and logic functions required to communicate over the wireless network, and all input functions control, output and display at the mobile unit, including management keyboards, display screens,

scanners and devices and the printer.

STEP provides commands that allow the administrator to create a selection of data entry fields from the operator of the mobile unit. For example, these commands should allow the operator to: (a) inputting data from a keyboard and barcode scanner; (B) send multiple messages to the host in the same transaction; and (c) control the type of input data and validate the input data. In addition, for purposes of display, STEP allows the administrator to (a) display data at any location on the screen of the mobile unit; (B) clear the entire screen of the mobile unit or erase a single line; (C) save and restore the screen of the mobile unit; and (d) monitor the effects of

against the light to see the display in the dark.

The STEP acts as a manager of energy consumption to reduce demands on batteries in mobile units 21, allowing them to run longer between charges and

extending their overall life.

By installing STEP on mobile units 21, forms can be created and displayed on the display screen 23 (shown in Figure 9). Forms can include messages, prompts and data entry fields. This allows an operator to recall a stored form for execution on the mobile unit 21; repeat the execution of a stored form for an online batch processing; and erase all stored forms and

determine the date and time of the last definition of the form.

The mobile units 21 with the STEP program enables the host computer 162 to read the data files stored in the unit 21; to the alarm of the mobile unit 21; to interrupt the input activity

the mobile unit 21; and disconnecting the mobile unit 21 of the host computer 162.

This allows the operator to use the mobile unit 21 to collect data without being connected to the host computer 162; to adjust and save system parameters; to download files from the host computer

63 2798749

162 to the memory of the mobile unit 21; and perform other maintenance tasks. Figure 17 illustrates a typical conventional flow chart of the actions taken by the access point 170 when it receives a data packet from the mobile unit 21 over the wireless network. If the packet is a packet of registration, as determined at step 200, then the access point 170 processes the information carried by the packet in step 214. The type of association is determined by examining the IP address of the host access point from the mobile unit 21 and performs control message exchange accordingly to steps 216 and 226. If the packet is a packet of registration, as determined by step 200, then the packet is decapsulated in step 202. If the short-term address conversion tables (ST-TN) of the access point 170 have an entry for the MAC address (Medium access Control or controlling physical access) source of the packet, as determined in step 204, then the packet was issued from the mobile unit 21 which is remote from its stationary given link network (SDL) source and the processing proceeds to step 218. at step 218, the access point 170 encapsulates the packet within a UDP packet with the destination IP address set

to that of the original access point the mobile unit 21.

If the tables for converting addresses long-term (LT-TN) of the access point 170 have an entry for the destination MAC address of the packet, as determined in step 206, then the packet is intended for mobile unit that is currently outside of the group of original access point (GPA) and the processing progresses to step 220. at step 220, the access point 170 encapsulates the packet with inside a UDP packet with the set of IP destination addresses to the local access point of the destination mobile unit. If the MAC destination address of the packet is complete broadcast address, as determined in step 208, then the packet is retransmitted in step 222 on its wired and wireless interfaces. If the destination MAC address in the packet appears in the table of the mobile host (MHT) from the access point, as determined at step 210, then the packet

Petitioner Samsung Ex-1004, 1195

is encapsulated within a package wireless link layer and transmitted over the wireless interface at step 224. Otherwise, the packet is retransmitted on the wired interface to

step 212.

Part 2: Allocation of domains and IP addresses to said units

mobile 21 to pen base.

The embodiments of the present invention following address assigning domains and IP addresses to mobile units 21 for operation in a LAN technology (Local Area Network) wireless, such

the Spectrum One and Spectrum24 systems described above.

According to one embodiment of the present invention domains and IP addresses are encoded in ROM. The embodiment coded ROM involves the definition of the domain and the IP address of the mobile unit 21 in the configuration files associated with drivers and Spectrum24

the protocol stacks.

The embodiment coded ROM provides a relatively simple implementation of the allocation of the domain and the IP address for network facilities Spectrum24 when only some 21 mobile units that still use the same GPA (AP group) on the same network are used. In addition, a high degree of safety is ensured and as the ability to detect and assign domains and IP addresses is only available in the configuration area and not in

the operational area.

The encoded in ROM configuration of each mobile unit 21 ensures that the domain information and IP address are non-volatile. This ensures that even the cold start of the mobile unit 21 does not require reconfiguration. All access points 170 in the GPA target can be configured to use the domain encoded in ROM. The server can be configured to reserve permanently (no delay) IP addresses encoded in ROM for use by each unit

21 movable coded ROM.

Another embodiment of the present invention involves the selection by the application domains and IP addresses. This embodiment is suitable for situations where a system administrator manually configures the mobile units 21 before use by operators in defining the domain and IP address. Especially when mobile units 21 are the only network nodes or when the system administrator-defined domains and IP addresses, referring to a master list maintained on a network server, the system

selection by the application is advantageous.

In situations where the operator must identify the selection as it moves between GPA (access point groups) or networks, a more sophisticated application is proposed to allow the system administrator to establish logical names for domains and IP addresses so that operators can extract the appropriate definitions choosing a meaningful name such as truck, warehouse, storage, etc. The method of selection by the application allows dynamic adjustment domains and IP addresses under the control of the application through the

GPA and networks.

Another embodiment of the present invention involves l'attribution domain by the access points and IP address assignment by the server. This method is suitable when manually assigning domains and IP addresses is impractical because of many

mobile units 21 or because of network complexity.

The allocation of areas for the access points need to configure the access points 170 to enable automatic configuration. By using the features from the list of access controls (ACLs) access points 170, security can be improved by giving the access point 170 a list of MAC addresses of all mobile units 21 allowed. This list may be larger than the number of mobile units 21 actually run at a time, allowing time shared capacity of the access point 170 from a broad set of mobile units 21

intermittent use.

The allocation of IP addresses by the server requires the existence of a mechanism within the protocol stack, supported services and utilities to both the server and the mobile unit 21, to allow dynamic allocation of IP addresses. BOOTP and DHCP are two

common mechanisms for dynamic allocation.

BOOTP works by having a file on the server for each mobile unit 21 can be chosen by the unique MAC-layer address of the unit

Mobile 21, which provides the IP address for this mobile unit 21.

DHCP works with a database on the server that stores the IP addresses that are in use (MAC address) and IP addresses that are available for dynamic assignment. When a mobile unit 21 requests an IP address, the database is interrogéepour the MAC layer address. If an IP address is already allocated to the mobile unit 21, then they simply returned. If no IP address is allocated to the mobile unit 21, and an address is available for dynamic allocation, it is allocated to the mobile unit 21, stored in the database and assigned to the MAC layer address the mobile unit, and returned to the mobile unit 21. the DHCP server can be set to mark a timeout when a dynamically assigned IP address has not been used for a while and return to the list available or to keep them permanently assigned IP addresses a

Once allocated to a mobile unit 21.

Domains and IP addresses can be stored in

67 2798749

volatile storage devices, but would need to be re-entered after a reboot. However, l'information of necessary addresses can be stored on board the mobile unit Flash 21, or a Spectrum24 the adapter card, or RAM Disk (RAM disc) or memory PCMCIA cards (international architecture cards-

memory of personal computers).

The allocation methods by access point / server provide the ability to program the ACL information (access control list) via a personal computer associated with the same wired router as access point 170. In addition, methods allocation per access point / server allows automatic assignment of domains and compliance as required IP addresses, and allows mobility through the GPA (groups

Petitioner Samsung Ex-1004, 1196

an access point) and networks.

In another aspect, the invention addresses the problem of the need for a specialized program for the analysis and interpretation of registration

high density data embedded in barcodes to labels.

According to the invention, it is proposed to distribute not only the barcode data on a high-density label, but also information describing how to create an interface capable of reading data from

the data recording label.

The implementation of the invention will be familiar to experienced players in the operation of internet web browsers appropriate reading such files written in language

description of hypertext documents (HTML). These files are used

to describe an interface to build the Web browser. In the present invention, mobile l'unité includes a reader or browser scanner label to high density bar codes containing a program script as a script in HTML, VB (Visual Basic) or a compressed version specializing in one or the other. The script is analyzed and interpreted by the browser user interface that builds upon execution and present to the user. The user interacts with the interface by scanning data labels and interacting with any of the controls

program presented to the user to process the data correctly.

In one aspect, a level of new data or interface can be printed by the user, which is applied to the object being processed. It will be noted that, since the bar code label densities increase, the storage capacity of the actual interface and recording

data in a single bar code label is obvious.

18 shows the system of the invention in more detail.

This system includes a browser or browser 300 in which barcode information 301 are inputs. An interface 302 is built at run time and interface control 303 is provided. The browser 300 comprises a motor acquisition of barcodes 304, an analysis engine 305, a print engine 306 with a data interface 307 and a printed communications engine 308 with an interface 309 input / output communication. The user interacts with

the interface via another interface 310.

It will be noted that the way in which information is encoded in the bar code label will be familiar to those skilled in the art, and the software

and the required hardware equipment will be familiar to those skilled in the art.

This system is particularly advantageous in regard to transport and identification of goods. The sender of the goods can distribute a label with a program script with the goods which is read by the receiver of the browser. The program script label shipped with the goods contains the information required to allow the browser to create an interface to the run time for

read and process the data for the container of goods shipped.

Logistics systems benefit greatly from a system such as this one, that unidentified matter in the field can be

quickly identified and treated by any unit containing the browser.

The administration of the hardware and the software in these systems is greatly reduced, because the browser content in the mobile unit (MU) remains static. it is only when new browser features need to be distributed that UM should be updated. All interfaces are distributed on high density bar code labels. This application program distribution system actually makes the universal computer system. An infinite number of different interfaces can be read in the browser and executed by him. Users are no longer limited by the secondary storage devices on their mobile unit for storing

application programs.

Using this new system, any computer system equipped with a universal interface playback application (browser) can create "on the fly" interface that is capable of reading information on treatment

Accompanying data recording labels.

Systems deployed in the area no longer require their application program is updated when changes to the program file is needed. Only the label with the program script needs to be replaced. The number of different data formats that can be processed by a particular computer system is limited only by the

number of program script tags available to the user.

Different users of such a system can freely exchange information that the interface information necessary to process the data file is distributed on a label with the actual data files. Each user does not need a copy of the specialized application program that was previously required to

read the data label.

According to another aspect of the invention, there is provided a COM object (component object model) OLE (object linking and embedding) for scanning of bar codes to communicate commands and data

2798749

bar codes on a wireless link. As described in more detail below, the objects use OLE Automation to build an OLE Control Extension Development "adjuvant". It becomes an OLE automation object process. The OLE automation object control process a barcode scanning device over a wireless link to a remote client. The remote device enables a bar code reader and collects the barcode information, returning the data on the

wireless link to the OLE Automation object.

The general principles of the OLE architecture are well known to those skilled in the art. In the present embodiment, an object of scanning is implemented as an OLE control. OLE Controls are reusable software components designed to work in containers that support OLE 2.0. OLE controls are more powerful and more flexible than previous systems such as VBX custom controls in particular the fact that, unlike the VBX custom control it replaces, OLE controls support the 32-bit environment and are

Petitioner Samsung Ex-1004, 1197

not limited to Microsoft Visual Basic (trademark).

OLE controls are designed to work in any container that supports OLE 2.0 including not only Visual Basic 4.0 and beyond but also container applications that support OLE, such as Microsoft Office (trademark). In addition, OLE controls work in applications that support OLE other companies in the field of development tools. OLE The architecture allows different software objects to communicate with each other using a binary interface mechanism. This allows software objects to be developed separately from each other and be very late related to the run time. The software interface is a contract between the container and the control as regards the manner

including two software objects will interact and exchange information.

Under the OLE architecture, the object scanning can be placed and activated

71 2798749

in any of a variety of containers that support OLE interface container. Figure 19 shows the general mechanism 401 between a control and its container 402. As can be seen, the mechanism includes standard composite document interfaces 403 and additional control interfaces 404, each comprising multiple interfaces. In such a system, scanning control appears as a party "seamless" the environment of the container. Through the interfaces

exposed both objects communicate and fit into one another.

In addition, as shown in Figure 20, the scan control 401 communicates over a wireless link 410 with a remote client computing 411 for controlling the bar code reading device 412. The scanning control 401 sends commands on the wireless link 410 by creating threads or execution son separated 413a to 413D that send, receive and synchronize transactions barcode reader on the wireless link. As shown in Figure 20, the container 402 and the OLE control 401 communicate via lines 414a to 414F. The OLE control comprises a primary control execution thread 415 that communicates with the OLE container 401 via lines 414a, 414b and with a first wire of transaction 413a via a line 416. Each of the transaction 413a to son 413D communicates long

a respective line 414c to 414F with the OLE container 402.

Each son also led by a respective first line 417a to 417d to a function 418 broadcast beginning of transaction and receives input via a respective second line 419a to 419d from a function 420 complete transaction broadcast. 418 based on broadcasting start transaction communicates with a layer 421 of transport within the remote client 411 via a line 422 and a function 420 complete transaction broadcast receives an input from the transport layer 421 via a line 423. the remote client 411 has a corresponding transport layer 424 which leads via a line 425 to a data arrival manager 426 and receives an input via line 427 from an order manager 428 of

72 2798749

complete. The manager 426 of arrival of data leads via a line 429 to a driver 430 of bar code device and the complete command handler 431 receives an input from the bar code device driver 430. The driver 430 device communicates with the bar code scanning equipment 412 equipment such as a barcode reader via

a line 432.

As a result, users can develop applications

using development tools that support OLE, such as Visual Basic 4.0.

The user simply inserts a new object scanning in the project, defines the required properties, wrote the code needed for event notification and control scanning converse "seamless" with

Barcode scanning device remote client on the wireless link.

In the application program, things happen as if the scanning device was resident in the local hardware. The invention is an important development over previous architectures including the implementation of a local barcode scanner resides on a machine running a COM object. In particular, the architecture

of the invention allows the control of the scanner through the wireless interface.

Under the present invention, there is more capacity to support future versions to be distributed via object-component model of distributed architecture (DCOM). The interfaces between the container and controls the control itself are binary and may be implemented by the operating system as calls for remote procedure call (RPC). Therefore, the OLE control can be implemented as an Active-X control to control devices on an Internet or Intranet connection. This technology allows web authors and developers to create a new generation of managers pages and Web applications

interactive, such as Microsoft Internet Explorer 3.0 (trademark).

This implementation is particularly beneficial in systems from which users want to integrate the capabilities of

73 2798749

barcode scanning into their applications supporting Intranet / Internet. The Intranet has emerged from the application of Internet technology to deliver critical applications in industrial power mission to users within an organization on a LAN (Local Area Network

Corporate) isolated rather than for external connection to the global Internet.

of calculating terminal held in the single-function hand can then be constructed which connect to the LAN and perform predetermined applications to substantially reduce the cost per customer when installing a network system. In an Intranet system for mission critical applications reside on the server, eliminating the cost of application deployment and lowering the cost of the terminal configuration. The collected data is transmitted and stored on the server, and little or no local data storage is required on the handheld terminal. We shall, therefore, that such a system provides an ideal forum for

the scanning control OLE object described above.

A typical Internet connection is shown with reference to the schematic diagram of Figure 2a, and to the flowchart of Figure 2b and includes a remote data terminal device 501 including, for example, a laptop, a PC (personal computer) or a mobile unit as described in more detail below, connected to a server 502 via an appropriate link 503 which may be a telephone connection incorporating a suitable modem, a wireless link or a cellular telephone link among other possibilities that are obvious to the skilled person. The server 502 is in turn interconnected via a line 504 to the Internet as shown schematically at 505. When the user wants to access a website, the website address is input to the terminal 501 and the server 502 introduced 506 website at the address from the Internet 505. similarly, when the user wants to create a website relevant l'information joined

Petitioner Samsung Ex-1004, 1198

501 terminal and the site is established through the server 502.

74 2798749

Although the system shown in Figure 2a allows centralized access to sites and centralized creation of sites, note that in certain circumstances the system is impractical, for example when it is desired to create a website very quickly. In addition, while in some circumstances a user simply know what information is sought and "flânera" through the internet to find a site containing this information in certain circumstances the user may be fully aware of the exact site where it wants access regardless of the information contained in this site. In this case, the centralized system

shown in Fig 2a may give rise to unnecessary delays.

An improved system according to the present invention is shown as a block diagram in Figure 2c. Briefly, within the

client terminal 501 itself, an appropriate server program 502 is retained.

As a result, the customer is able to create a website directly, the website 506 is stored in server once again directly to the terminal 501. The client / server then accesses the internet 505 via a line or wireless link 504 . As is well known, it can be accessed

Internet generally by AP1 access points APN.

Consequently, the invention allows a website such as a website to be configured to the terminal without the need to access a dedicated server, being

given an appropriate server program is incorporated in the client terminal.

Where a third party wishes to access the site, it must have or be able to obtain details about the server address client and can access the client

server via internet.

A particular implementation of the invention occurs with respect to the client / server provided in real mobile, remote communicating

with the internet via an access point with which it is in wireless communication.

In this case, data is input to the mobile unit, generally related to the physical environment in which the mobile unit is currently located such that an image of the surrounding scene. The

2798749

users wishing to access the data only need the address of the client server. The address came at the appropriate point of access to the Internet and the site is extracted directly from the client server. We will see that the server client can have a home page that is actually extracted by the user, the specific sub-pages to the site being accessed via the page

Home, once the homepage has been reached.

The system can use a data terminal of the type designated generally at 510 in Figure 3a. The central elements of the data terminal 510 comprises a digital camera comprising an objective 512

and a wireless Internet connection 518.

Digital cameras are well known and the detailed structure will be

obvious to the skilled person so that a detailed description is not required

right here. Briefly, however, the digital camera includes a system

lens 512 to develop an image on a CCD array (semi-

CCD driver). The image is thus pixelated and encoded, for example in the form of a bitstream. The encoded signal is decoded and displayed on a visual display 514 or output as output paper. A "fixed" image is obtained in the same manner but by saving a snapshot. The majority of the components of the digital camera is not shown in Figure 3a for clarity. A CCD camera is preferable to a laser camera as the images can be

recorded at a greater distance.

* The data terminal 510 further comprises a keypad 516. In order to record an image, l'objectif 512 the data terminal 510 is directed at the scene to be recorded. This is preferably displayed on the visual display 514. When a desired image is isolated, button, located by

example on the keyboard 516 is pressed and a stored still image.

In the embodiment shown, the data terminal 510 further comprises various optional and required components. The main component necessary is a wireless signal transmitter 518, which, as

76 2798749

described in more detail below, relays the image saved to a remote access point to broadcast from this point. Optionally, the data terminal 510 further comprises a microphone 520 for recording, by

example, a verbal description of the scene recorded, a code reader

bar 522 to an alternative or supplementary operation of the data terminal 510, a physical interface 524 pou.r download information stored in the data terminal 510 to a terminal to which it is connected by cable or other link and an outlet housing of printer for providing a printout of the image, additional information, or as further described below, a bar code symbol representative of the stored image. Moreover, as explained above, the terminal further comprises a server software for creating a website at the terminal. The website may contain, for example, recorded images or sounds from the terminal together with the environment

typed text and / or verbal comments recorded for the user.

Petitioner Samsung Ex-1004, 1199

An additional feature that can be incorporated into the terminal lies in a global positioning system (GPS) of a known type. The GPS communicates with GPS satellites via a suitable antenna (not shown). Accordingly, the specific geographic location of the mobile device can be immediately ensured. This can be provided as diffusion of additional information by the device and may also be used by a central tracking system to ascertain the location o

find all devices at one time.

Once more specific details of the various individual components will be obvious to the experienced player and, for reasons of

clarity, will not be repeated here.

To minimize costs, the architecture of the network is designed to minimize the amount of data traffic on the most expensive communication links. This can be achieved for example by selecting a communication route that uses the least expensive lines available. here o

77 2798749

this can lead to a delay, a prioritization system may be introduced to ensure that the calls for which a delay is not important can be sent on an optimized cost basis while the signals for which the speed of transmission is important to be sent on an emergency basis. For example, when the wireless communication translates into high costs compared to physical interfaces communication, low priority information can be physically downloaded from the terminal to a cradle to reduce energy and

processing load and the overall financial burden.

A terminal alternative configuration may be based on the embodiment described in the patent application US N 081691 263 filed on 2 August 1996. This paper describes a modular terminal comprising interchangeable data collection modules,

together with a detailed description of communications between

mobile units and the Internet.

The system can be used to cover current events. A reporter holding the terminal can store images of a current event, and save a report on the event. A website can be instantly set to the terminal via the internal server holding the report and other data. Accordingly, a user wishing to search for the current event simply needs to access the site via the network. The address may be known to the user or may be available from a central site on the Internet o describing the various mobile units are located and providing site address. It will be appreciated that the technology could further incorporate a system of the type PPV wherein the user is automatically charged for access to the site. We will see that many other applications are possible. For example, you can actually access a police report on the scene of an accident, or a factual finding insurance on the place of accident rather than rely on a transfer to

78 2798749

standalone server to create a website at this level.

According to the embodiment, any form suitable wireless communication between client / server is the Internet can be used. Such systems are well known for mobile units, for which the access points to the Internet willing to receive communications from mobile units are located at different geographical points. Known algorithms can be used to select which access point is most appropriate. The communication may itself be by radio waves or an optical link such as a Protocol to the IRDA standard. It will be noted that another advantage of the system lies in the fact that the site is stored in the terminal and only needs to be downloaded on demand via the wireless link thus reducing the costs that would be incurred by a data transfer continuously. The data that are never requested can be transferred to a cheaper connection to a

later time.

Referring to Figure 2d, a flowchart of the operation of the terminal 501 is shown. At step 5110 the desired data, for example a picture or an audio recording is captured. The data are then coded in the step 5112 into an appropriate format for presentation as a web page, for example by creating a bitmap image. At step 5114, the coded data is processed to create a suitable web page according to the desired format as determined by the server software and any user input. The treatment can then skip to step 5116 at which the page is stored on the terminal. When a request to access a page is received in 5118 by a remote user calling known address for the terminal, the terminal affichéeau page of the website. According to an improved system, the process branch 5114 also allows a specific page address to be created for specific data stored in the treatment given to step 5120. The address and details of the

page stored at the address are displayed on a home page on the 5122 stage.

79 2798749

This allows the creation of a menu to the terminal so that more than one page are available. Accordingly, when the site is accessed in

5124 by a remote user, the user has the option to select the sub

relevant page displayed on the home page in step 5126, to authorize the posting of any desired page, go back to step 5120. The system allows quick and easy operation without requiring

programming and in particular without HTML requirement (description language

hypertext documents). An instant web page can be defined using the server software, the image to be displayed being stored simply by pointing the device on it and by "clicking". Once again, the system can be designed with cost optimization in mind to ensure

a minimum amount of data traffic occupies the high cost links.

Referring to Figure 3b, a possible implementation of a variant of an embodiment of the present invention is shown. O Here, for example, police or other authority, or an insurance inspector wants to record the details of a scene represented generally by 530, the image is captured as a digital camera image frozen by the data terminal 510 as described above. The stored image is coded, such as a bit stream and the bit stream

is transmitted or relayed via the transmitter 518 to a remote point.

In the embodiment shown, the image information is relayed from the transmitter 518 to a transmitter 532 via booster. The latter may be either one of a deployed network zone or may, for example, be transported in the vehicle of the user data terminal or a carrying case. Using a booster transmitter 532 reduces requirements for data terminal broadcast power from 510 to reserve more space for accessories means or storage / data processing, and increased duration of battery life. It will be noted that the auxiliary transmitter is, however, optional and in many cases proves unnecessary. The transmission

Petitioner Samsung Ex-1004, 1200

2798749

may be via a wireless link by radio link or other communication method appropriate wireless. When the vehicle is part of a tracking system controlled broader GPS, the device of the present

invention may be a module built into the system.

Either the transmitter 518 in the data terminal 510 or the auxiliary transmitter 532 relays the image information to an access point 534 with a receiver for receiving the relayed information signal. The received signal is input into a device 536 processor / data storage / decoder. The image can then be transferred to any desired device, such as a central data storage device for access by the user upon his return to its local (e.g., an intranet or a LAN), or an information network or topical (such as Internet) on which it is desired to spread the image, or to a police database or other authorities to which it is desired to record and document image . The signal transmitted from the data terminal 510 can also include information such as the desired destination of the image, additional information concerning the circumstances, the encoded information representative recordings of all verbal messages or audible message records explaining more the such circumstances recorded by the microphone 520. the information regarding the circumstances or the destination of the image can be input via

the keyboard 516.

When the web page is created on site terminal using an internal server, the transmission system described above may also

be used for third party access to the web page.

A block diagram showing components of the data terminal 510 is illustrated in Figure 4. The data terminal has various inputs including suitable transducers for converting the input signals into electronic signals. The inputs include input 544 of digital camera having a CCD array transducer, a

81 2798749

input audio signal 546 having a microphone transducer and an input of bar code symbol signal comprising for example a CCD array. Each of the signals is input to a coding sub-processor or scan respectively 550, 552, 554, and the processed signal from each sub-processor is transferred to a storage device and data processing 556. The data is stored, processed and appropriately transmitted to different outputs. The data relating to the image captured by the digital camera 544 and, appropriately, all audio data or bar code data is transferred to a transmitter module 558 and transmitted as described above at the exit 560. A paper exit the frozen image, or as described below, a bar code symbol representative of the latter is delivered via the printer control unit 562 and the exit 564. When it is desired to download information stored via a physical interface that is achieved at the output 566. in addition, the storage device 556 and data processing receives information input keyboard 516 via a line 568 and sends the image from the camera input 544 digital to the 514 visual display via line 570. the entire system is powered by a power source 572, for example a battery. When the terminal is configured to create a web page on the site, a server can be embedded in the hardware (or software or

combination of hardware and software) as shown in 557.

Consequently, it will be found that in one aspect the image data can be automatically captured and transmitted to a common database accessible to authorized users. The images could be transported and / or be access via video servers, software, collaborative workgroups and distributed multimedia and implemented by desktop video conferencing. The image processing can be performed on the raw data once they have been transmitted to the main network, enabling a reduction

82 2798749

Additional processing requirements and therefore demands

on energy and space to the data terminal itself.

A particular advantage of the use of a digital camera is that the image can be stored in a medium to high resolution and transmitted electronically with a minimum of intermediate processing. It will be found that a wide range of applications available, particularly as regards the industries in which generally

Photographic images (digital) are regularly taken in the field.

An alternative to the reporting application documentation insurance described above, when tenders / quotations are involved, article for which the offer / quote is provided, documentation example of the work required on the basis of which the offer or quote has been established can be recorded. Similarly, when repair work or work of improvement was considered, an assessment can be done by taking into account the stored images. The system can be used as general aid to the documentation of articles or circumstances. As discussed above, the system could be implemented in law enforcement. For example, the scene of a crime or accident can be stored and re-transmitted or accessed. In fact, criminals could be photographed and the image compared to an appropriate database for identification purposes using known image comparison techniques. This system can also be used as an aid to preliminary documentation more

exhaustive circumstances such as tests and / or test ends.

The data is preferably transmitted as determined by a network architecture designed to reduce the cost of transmission

minimizing transmission over communication links to high cost.

As can be seen for all possible applications mentioned above and all other applications, the system offers specific and important advantages, particularly by providing access

83 2798749

immediate images to third party contractors of the image distribution system, providing access to all users simultaneously as desired, by shipping the processing time (consecutively immediate access), improving accuracy EVT / or efficiency, with the most accurate information available particularly in high-resolution implementations, and associated financial savings in particular

reduced processing time and improved accuracy.

Yet another possible implementation of the device could be in the form of a fire alarm or a remote smoke detector. A terminal having the basic components of a digital camera or other image recording medium and having a network connectivity can be mounted permanently or removably in a zone in which it is desired to control fire, smoke, toxic gases and other hazards of this type. The terminal comprises a danger detector all appropriate types such as a smoke detector, a heat detector, a detector or other harmful substances. All these sensors are well known to the skilled person and do not require a

Additional description here. In the case, for example, a terminal

Petitioner Samsung Ex-1004, 1201

fire alarm, when a heat sensor detects that the ambient temperature has risen above a preset limit, the terminal is enabled to capture a still or moving image of the scene. At the same time, the terminal informs the competent authorities such as the fire department and the image is transmitted in a manner described above to an access point to the fire station. Accordingly, the scene can be examined and it can be said that a real fire hazard exists or another activity in which the temperature increase is attributable can be detected such as a cooking activity. As a result, false alarms can be avoided to a large extent. We shall see that a similar approach can be adopted for other detectors of danger, when an image of the scene is transmitted to the appropriate authorities when a potential risk is first

84 2798749

detected for further confirmation before a full mobilization.

Another implementation for which the system of the present invention in another aspect is particularly suitable and which would benefit from the above mentioned advantages lies in the area of transfer of goods, such as package delivery. When a damaged package is received there is no way to know immediately the status of the package when it was shipped. The system of the present invention would, however, be able to acquire the image and transmit it to a remote location where to create an appropriate web page on the site. The image could then be consulted deposit receiver and compared with the actual package received to determine if the state has changed in some way. An alternative option would be to print the image information in a bar code format the bar code itself is attached to the package itself. The bar code symbol may be decoded at the receiver deposit, once again to compare the image with the received package. Obviously, a symbol of high-resolution bar codes will be necessary, for example PDF 417. The protocol shown in Figure 3a reader includes the ability for such a device

comprising a printer and a printer 526 location or housing.

It may be noted that the embodiments described above relate to a possible specific implementation of the invention, and the invention encompasses a large number of variants. For example, as shown in Figure 5, the data terminal 510 is configured with ergonomic considerations in mind, fitting comfortably in the palm of the hand of the user. Accordingly, the data terminal 510 can be quickly and accurately directed to an image to be recorded, using the visual display to ensure that the image is as desired. Meanwhile, the keyboard can be handled comfortably using the other hand of the user to capture the image, enter additional information, etc. Alternatively, the terminal may be in the form of a conventional camera or a video camera, or any other

2798749

suitable configuration for the image capture, and preferably,

data entry.

The digital camera preferably includes autofocus and features manual zoom features with a button / trigger for separate zooming or enlargement, which button / trigger can be part of the keyboard, or may be provided separately. The manual zoom feature will aid in taking close ups of the subject to be represented. As mentioned above, a printer, such as a low-end printer with low density can be incorporated in the data terminal, or supplied as an adjuvant so that a hard copy of the image is available in the field. As also described above, the image could be printed in PDF format 417 for a

subsequent decoding.

8 shows an alternative configuration for a data terminal. The terminal 510 generally contains all the components mentioned in connection with other embodiments herein. However, the terminal 510 is configured in a pattern "pointed and fired" and comprises a grip portion 5120 and a barrel portion 5122. The grip portion is configured to rest comfortably and easily, with the optimum balance in the hand of the user and a door 5124 more trigger or trigger and a rotary selector 5126. a display screen 5128 and a keyboard 5130 are optional provided on the upper surface 5122 of the barrel portion to permit easy viewing and access to an input the user. The lens of the camera or other image recording medium is provided on the front face of the barrel portion 5122 (not shown) allowing the user to simply point the terminal 510 in the direction it is desired to 'save. When the desired scene is displayed on the screen 5128, the catch is effected by actuation of the trigger 5124. The zooming can be controlled by the knob 5126 which is preferably localized for optimum ease of use

the thumb of the user when the stick portion 5120 held by the user.

86 2798749

The processing speed and storage capacity data terminal components can of course be determined according to the final cost of the system, for example a slower microprocessor and therefore cheaper can be incorporated. For higher-end applications, the data terminal may further include an SRAM card (SRAM) for storing still images. In addition, the visual display 514 may, as shown in Figure 6, comprise LCD capacity (liquid crystal display). Accordingly, using a suitable pen 100, the image can be modified for example by surrounding or otherwise highlight areas with an interest, the changes being shown on the LCD screen 5102 in Figure 6. The changes can be deleted or revised further by using the keyboard

appropriately.

The range of implementations, and the speed and efficiency of the system can be further improved by also incorporating barcode reader capacity in, or in conjunction with, the data terminal. The construction and the barcode reader applications

will be well known to those skilled in the art and do not require a description

detailed here. Briefly, however, a bar code symbol comprises one or more than one row of light and dark regions, typically in the form of rectangles or, in the case of two-dimensional codes, in the form of a two-dimensional matrix 'light and dark areas. The dimensions of the dark and bright regions indicate the coded information to be read. A bar code symbol reader illuminates the symbol using the reading beam generating means and detects the reflected light on regions encoded using reading beam detecting means for detecting the size of the encoded regions. A decoder decodes the detected encoded information. Known symbols will include, for example, codes UPC (universal product code) / EAN (European numbering of articles), Coder 128, and Codabar

87 2798749

Interleaved 2 of 5.

A known type of bar code reader consists of a reader wand data as described in the patent of the United States of America N 4

471,218 incorporated herein by reference.

7 shows a data terminal 510 of the kind described above incorporating a further optical reader 5110 integrated into the data terminal 510. The reader 5110 comprises means for generating and reading beam detecting and the data terminal 510 comprises processing means for decoding the sensed coded information. The reader 5110

Petitioner Samsung Ex-1004, 1202

may comprise either a laser scanner to "flying spot" scanner having means for the reading beam or an optical reader "field of view" incorporating a CCD array as the detector. Both types of readers

are well known to the skilled reader and a full description of

components and operation is not provided here.

Note that a wide variety of implementations may be considered for the data terminal 510 shown in Figure 7. In particular, it can be useful in many circumstances to read the information encoded in the form of barcodes provide additional information to those recovered by the data terminal from the environment

external.

A particularly advantageous embodiment is shown in Figure 7. In particular, a book or other printed material 5114 is provided which can be worn by the user and includes codes printed bar 5116 that are read by the reader 5110 and the contained information is used by the data terminal 510. as described in more detail below, the data terminal 510 actually includes a web server capable of creating a website in the related data terminal, for example, information about the external environment around the located data terminal for access by users located at other locations on the Internet. In such circumstances, the terminal could conventionally wish for

88 2798749

download executable code from a host machine using an agent implementation of language such as Java (trademark). This system can be cumbersome and time consuming because of the level of communication required between the client and the host. The present invention solves this problem by storing the executable code (applets or applets) in the form of high density barcodes 5116 two dimensions in the book 5114. Each symbol 5116 barcode is identified by an appropriate short title or other identifying information in the book. When it is necessary to access an applet, the user is simply asked to read the bar code on two dimensions using the 5110 bar code reader, and the executable code is immediately downloaded to the terminal

data 510 so that the latter is used as appropriate.

The invention allows the user to wear a conventional book - for example, having 500 pages of applets two-dimensional codes. Such a book would be cumbersome and would actually be attractive to many users. The system allows a considerably accelerated download applets in as short a time as fifteen seconds. download systems would still be waiting for the

connection to the host in this time scale range.

It will be appreciated that any suitable executable code may be stored in a desired language in the bar codes two-dimensional 5116. A wide range of different applets can be clearly stored in accordance with this system and indexed appropriately. In fact, the system could be used for fixed or dedicated customers as well as for the terminal data remote mobile customers

shown in Figure 7.

It will be seen that the data terminal can communicate with any suitable data network, for example an access point to the Internet, or a dedicated closed system about the user or which the user subscribes with other users. Communication can be established by a

89 2798749

radio frequency communication or, if appropriate, an infrared communication or by radio, or any other method

appropriate wireless communication.

It will be appreciated that any of the features described in connection with one embodiment may lorsqu'appropriée, be incorporated into any other embodiment without departing from the teaching of this

specification.

As used herein and the appended claims, the

term "evidence" broadly includes not only the bars of compounds symbol patterns and alternate spaces of various widths commonly referred to as bar code symbols, but also other graphic patterns in one or two dimensions, that even alphanumeric characters. In general, the term "indicia" may apply to all types of patterns or information which may be recognized or identified by scanning with a light beam and detecting the light reflected or scattered in the form of a representation of variations in light reflectivity at various points of the pattern or information. A code symbol

bar is an example of an "index" that the present invention can scanner.

An embodiment of an optical reader for use in conjunction with the present invention is shown in Figure 22. Although an optical drive of the pen type (often known by the name "Data wand") are shown, it will be appreciated that any other configuration that fits in the hand might be appropriate for use in conjunction with the present invention. Although specific details of construction are also described in more detail below, note that the storage elements / data processing and known type of optical scanning elements can replace specific components described, a

way that will be well known to the skilled artisan. A description of readers

pen type can be found in the patent of the United States of America N0 5506392 of which the Applicant holds and which is incorporated herein by

2798749

reference. The optical drive type of pen (which we now refer under the name "wand reader") is designated generally by reference 690 in Figure 22. Note that the exact shape of the wand reader as shown in 690 may be exaggerated, such as width, to show more clearly each of the major components and how they interact. In the embodiment shown, the wand reader 690 includes a pen 691, 692, as well as the optical drive 693 itself. The wand reader does not really need to own a writing ability, or may be in the form of any appropriate writing instrument such as a pencil, an ink pen, marker pen, etc. In fact, the sub optical drive system described in more detail below, may be in a modular form can be inserted into an envelope

of writing instrument configured appropriately to any desired type.

The wand 690 drive write element is shown schematically in the form of a cartridge 691 of ballpoint pen in conjunction with a mechanism of projection / retraction designated generally by the numeral 692 and belonging to all types appropriate known. Obviously, it is desirable to minimize the size of these elements 691,

Petitioner Samsung Ex-1004, 1203

692 to reserve a maximum space to the reader module.

The drive module is designated generally by 693. The components and construction of the module 693 will be a well-known general of the man of the art and are described briefly hereinafter for purposes of completeness . The reader unit 693 includes a light source 694, e.g., a laser or an LED (light emitting diode) and a reflector 695. A reading beam generated by the light source 694 is reflected by the reflector 695 out of a reading window 696. the read beam is reflected by a bar code symbol generally indicated by 697 passes again through the reading window 696 and is received by a detector 698. preferably, the drive module 693 is a

91 2798749

field of view reader in which case the mirror 695 is a fixed mirror and the detector 698 comprises a CCD array (charge coupled semiconductor). Of course, in some implementations a scannagepeut system be used in which case the reflector 695 is driven by a motor shown schematically at 699 to a moving scan. The light source 694, the detector 695 and, if appropriate, the motor 699 are connected to a processor element 6100, control and

storage of data in connection with a power source 6101.

The element processor 6100 controls the operation of the various components and also acts as a storage device and processing

data for the bar code information read by the module 693.

As described in more detail below, it is desired to download information stored in the processor element 6100 at a later stage to an external device. Accordingly, a 6103 data output port is provided fed by the line 6102, preferably adjacent to or in association with the reading window 696. The wand reader 690 can also be used as a laser pointer in one embodiment, in wherein the read-out beam is used to highlight the desired elements

during a presentation.

A particular implementation proposed in accordance with the present invention, for the reader wand 690 applies about access to information by the consumer as shown in Figure 23a. For example, when a consumer 6120 carries a wand reader 690 and it is in a point of sale retail offering 6121 products, each product can carry a 6122 bar code symbol eg in the UPC format (universal product code). The 6120 consumer may be interested in purchasing the product 6121 but may not be ready to take action until additional information is available. There is therefore a risk that consumers forget the product or, as above, it may be necessary to rely on a

92 2798749

6120 consumer coming across the product or additional product information, and the fact that his memory is refreshed accordingly. According to the present invention, however, the consumer 6120 can read 6122 barcode symbol using the wand reader 690. The bar code information is stored in the 6100 and processor element, to the desired extent, processed. in particular, the information contained in the 6122 bar code symbol on the product 6121 is stored. As a result, the consumer receives a product ringback

he wishes to purchase as well as information about the product.

Obviously, when the consumer sees 6120 more than one product offering interest relevant l'information can also be stored, the storage capacity of the reader wand 690 is limited only by the space

storage in the processor element 6100.

A particular implementation of the present invention allows the consumer to subsequently download the information stored in the reader wand 690 in a manner described in more detail below. In particular, the information can be downloaded to a personal computer or other point of access to a computer or a data network. The downloaded information can then be used in several different ways. For example, the product can be ordered or additional product information can be accessed. A particular implementation proposed in the present invention lies in the fact that the bar code symbol accompanying the product contains enough information for the personal computer or the access point to the computer network to access a site on the advertisement (or similar data storage system). This website may contain additional product information, information about related products, price information, cross-references to other related sites, and the ability to order and pay for the product. This greatly simplifies the

93 2798749

purchasing process, allowing for example a price control and also ensuring that the consumer does not forget a product that caught his attention. Furthermore, additional information can be derived according to the present invention. For example, the popularity of a product can be evaluated for future market research. Preferably, the reader wand 690 has a dedicated user and carries user identification information such as a credit card number or other identification worn by an authorized system. Accordingly, during the purchase of the product details of the transaction can be based on that information. In addition, a consumer profile can be established on the basis of consumer purchasing patterns. The access point can be located inside the retail point for the 6120 consumer access to information on the site and make a purchase decision before leaving the retail point. Appropriate access points are described in more detail below. It will be seen that the bar code symbol may be printed on the product, or as shown in 6123 on the shelf near the product. Alternatively, the products could be displayed graphically on a table and bar code symbols

represented on or near the product on the table.

We will see that the system can be extended to other applications. For example, when a short text is printed together with the bar code symbol, the bar code symbol may contain information which, when downloaded, can provide access to additional or related text. Subject to a high enough resolution, the bar code symbol can be read even through a VDU (video display unit) or other visual display system in a closed system in order to access additional information on the Internet. The bar code symbol can conform to any suitable protocol, for UPC (Universal Product Code) or EAN (Europan Article Numbering numbering or European items) and

94 2798749

translatable into standardized address of internet resource (URL).

Another application of the system is described with reference to Figure 23b. A 6278 catalog that shows a 6294 product and also contains various data about the item number 6282, the amount 6284, the 6286 color, size and other information 6288 6290. In addition, shipping information encoded with codes bars are stored in 6292 and the method of payment in 6293. such a catalog is intended for use, for example, teleshopping applications. The catalog can also carry a bar code identifying the caller by 6280, information

which can be used for identification of the consumer at point of purchase.

Petitioner Samsung Ex-1004, 1204

The particular implementation of the present invention requires that the information appropriate downloadable product is stored in the bar code symbols. In particular, the number of section 6282 may actually be in the form of a network site address appropriate information. Alternatively, information network site of the address can be stored in the other information field 6290. remaining bar code symbols can not be required, because the information can be stored at the site, but the illustrated embodiment allows variants

implementation based on the hardware available to the user.

The user runs the wand reader the site address field, and if necessary the 6280 user identity field and downloads information

stored to an access point to the Internet (or other computer network).

The remaining information available to the website and options such as quantity, color, size, shipping method and the method of payment can be introduced at this stage. Therefore, a home shopping system based on single catalog can be set up. It will be appreciated that such a system can be introduced in various environments, such as when a passenger in an airplane, an appropriate catalog can be provided. Once again, the system allows consumers to carefully consider which products they wish to buy on the basis of all

2798749

available information, and also provides a prompt or a useful reminder about the products that caught the eye of the consumer and on which the

consumer is not yet decided.

When the bar code symbol is intended to be used in conjunction with the system or parallel system, the information contained in the bar code symbol does include an address. When this information is downloaded to a personal computer, individual l'ordinateur communicates with a dedicated server that captures the address and a user identification information and re-directed to the website information suitable product, for example a website for finding information of the latter on the consumer's personal computer. As a result, could allow l'information downloaded to the PC (personal computer) to go directly to an appropriate home page or appropriate subpage. A resolution server on the system could be used to collect information from all users, not only for information purposes but also for purposes

billing and routing.

We recognize that the systems constituting alternatives to the Internet, and alternative access methods are considered. For example, Internet could be replaced by an intranet or a local area network (LAN), accessed by a limited number of users with a geographical restriction is either some form of access authorization. Instead of being downloaded to a PC that processes the site address information, the site opens

authorized and displays product information, other access points are considered.

For example, in a system such as the Citrix System (trademark), the download might just be an access point or terminal with minimal processing capability itself. The terminal transfers the site address information to a host computer that performs the primary conversion to a URL, accesses the web site and returns l'information to the terminal for display. In this case the terminal acts

96 2798749

slightly more than a display and input / output device. It is considered, therefore, that the system could include the new generation of "network computers" (network computers) also called "network terminals" working on this principle. The effect of such a system is a significant change in the system architecture enabling lower costs to the consumer who needs to buy the low-end terminal to connect to the main network connected host computer . Consequently, the proposed invention is even more desirable and accessible to the consumer. Various configurations of the wand reader variants are shown in Figures 24 to 26. With reference initially to Figures 24a and 24b, a wand reader 6130 comprises a stylet assembly 6132 comprising a cartridge ballpoint pens, for example of the type sold under the trade name Zebra Refill 6134 and operating mechanism of a type

pivotable known for extending and retracting the ballpoint pen cartridge.

The wand reader 6130 comprises a shutter 6136 manually operable to allow scanning with a 6138 cooperation internal switch in, for example, the ITT KSC 421. The code reader wand

6130 includes a wand tip 6140 to read a bar code symbol.

A data output point is also provided at 6137. The system is

powered by a battery 6142 of any suitable compact type.

Also included in the system, there is a "beeper" or 6144 alarm or other audible device that may sound to indicate to the user that a bar code symbol has been successfully read, the power is low, that 'there is little memory space, etc. Different audible tones or audible tone sequences can represent different warning signals. In addition, the reader wand 6130 may include a display (not shown) carrying the information about the state of the reader wand and all

instructions for using it.

Figures 25a to 25c show a slight variation in which,

97 2798749

where appropriate, have been used the same reference numerals as those of Figure 24. It will be seen that the exit window for the player (here shown as a laser scanner in 6131) is in a face inclined with respect to the longitudinal axis of the wand reader 6130, for improved ergonomics for reading a barcode symbol. The reader further includes a tape 6133 taken, made for example of leather, around a portion of its length to a decision by the user and improved comfort. Figures 26a and 26b schematically show another use once again alternative configuration where appropriate the same reference numerals as in Figures 24 and 25. Various information download methods are contemplated. Two approaches are shown in Figures 27a and 27b. In a preferred configuration shown in Figure 27a, there is shown a personal computer in 6150

portable type although a fixed-type PC is obviously also enough.

The 6150 personal computer includes a keyboard 6152 and a 6154 screen and can generally be of conventional type. The personal computer 6150 comprises a 6156 data input port arranged to communicate with the data output port of the wand reader 6103. In the embodiment shown, the output port 6103 of the wand reader 690 is brought into contact

Petitioner Samsung Ex-1004, 1205

touch against the 6158 data input port of the 6150 personal computer.

Touching the 6156 input port triggers first the download sequence and second enables fast and precise communication between the reader wand 690 and the personal computer 6150. The interface between the point of exit of 6103 wand reader 690 and 6156 data input port can, for example, be of the "memory" button or "memory key"

like for example sold by the Company Dallas Semiconductors.

The actual interface type is well known and makes the information stored in the reader wand 690 is communicated to a 6103 memory button provided at a suitable point of the wand 690. The information drive is converted into a form

98 2798749

suitable for transmission at the memory button 6103 and, on contact with the 6156 data input port of the personal computer 6150, the transmission is enabled. The 6156 data input port is configured to receive information transferred from the memory button 103 and convert the latter into a suitable form. In particular, information can be transferred as a series of bits representing electronic pulses. Such a system leads to a simple and virtually error-free interface allowing a user to download the information stored in a wand 690 drive to a personal computer

6160 quickly and accurately.

As can be appreciated, various other download methods are contemplated within the scope of the present invention. For example, as shown in Figure 27b, a personal computer 6160 of the fixed type comprising a keyboard 6162, a display 6163 and a mouse 6164 includes a microphone 6166 which receives an audio signal from a data output of corresponding speaker 6168 on a wand reader 690. a button (not shown) or other switch can

be incorporated in the reader wand 690 to activate the transition by the speaker

speaker 6168. The information stored in the wand reader 690 is converted into a high frequency audio signal at the speaker 6168, which signal is received by the microphone 6166 and is decoded. Of course, the transmitter may transmit other forms of radiation, for example, it may be an optical transmitter or radio beam, an appropriate receiver

being provided on the personal computer.

When the transmitter is optically based, it can use a communications implementation to the standard IrDA (infrared) as is well known to the skilled person and commonly available on many laptops. The optical transmission can be at a frequency of

blinks (repetitions) of the stylus of the illumination source.

Yet another download system shown in

99 2798749

Figure 28. A port 6170 dedicated data download includes a 6172 opening for receiving a wand reader 690. The 6170 port communicates information downloaded from the wand reader 690 via a line 6174. Referring to the sectional view shown Figure 29, one can see that the 6170 port 6174 includes a data receiving interface of any of the types described above, which communicates with the wand reader 690 for downloading information. The download may be activated by contact by contacting the wand reader 690 and interface 6174 or activated by pushing a button or other switch (not shown) on the wand reader. The interface 6174 communicates with a 6176 processor for converting the downloaded information if necessary in an appropriate format for a computer network, and the information is communicated to the computer network

via 6173 line.

It will be appreciated that the line 6173 may comprise a wireless link or a telephone connection, in which case an appropriate modem can be

integrated 6170 port.

We can see that all of these methods include a user-friendly system to download the scanned information from a wand reader. The use of a data pit-type port of the type shown in Figures 28 and 29 is particularly appropriate when it is not desired to rely on the consumer with a PC or other domestic access to an appropriate computer network . The port can for example be provided in a deposition or other retail outlet. Note that the wand reader can also be writable via the data port,

individual il'ordinateur or other medium (the same bar code symbol itself

even) to enter user information of the type described above. This may facilitate short-term use of a wand reader enables an individual user to enter information temporarily during the

duration of its use of the wand reader.

In an ergonomic alternative embodiment, the reader comprises the

2798749

components described generally above, but is a slightly different configuration. Referring to Figures 30a and 30b, the drive 6200 about the size of a conventional pen, but in section transverse to its longitudinal axis, has a substantially rectangular shape. In addition, a scanning window 6202 is planned at about

the upper end of one of the side faces opposed to the tip itself

even. Referring to Figure 30b, one can see a variation of configurations reading is thus performed so that the reader 6200 is kept substantially parallel, rather than substantially perpendicular to a page 6204 to be read. Preferably, in this embodiment, a display window 6206 and a power trigger / stop 6208 are provided approximately at the upper end of the opposite side face. Consequently, the 6206 release can be controlled, for example, by the thumb of the user with optimum comfort for ergonomic reading. Similarly, the 6206 display can be easily read by the user. Obviously, a keyboard layout and / or more display

complex may be incorporated as appropriate.

Figure 30c shows a partial section of the internal details of a drive as shown in Figure 30a and 30b. One can see that il'agencement shown in Figure 31 has a front end rounded. In practice, this arrangement can in fact be circular or rectangular in cross section as shown in Figures 30a and b. Note that the arrangement shown is not necessarily to scale. At the rear end 6210 of the reader 6200, one or more power cells 6212 are provided and held in place by suitable means such as a screw cap 6214.

Petitioner Samsung Ex-1004, 1206

Mounted on a 6216 card for ease of assembly, are the main components which drives a laser diode 6218 and a reading mirror 6220. the reading mirror can be driven in movement by scanning a 6222 scanner driver controlled by a suitable circuit 6224 also mounted on the board. Alternatively,

101 2798749

Obviously, the system may be arranged as a static reading device to field of view. Mounted above the window of the scanner 6202, there is preferably a transparent sheet of material 6226 of any suitable types. Also provided in the window of the scanner 6202, 6226 there is a photodetector that receives the light beam reflected from the printed indicia. The reflector 6228 is connected to an appropriate processing circuit

into 6224 suitable for decoding information.

In a still different embodiment, a reader wand or pen-type of the type described generally above may be used to detect counterfeit money. Devices are known for counterfeit currency detection based on various parameters such as color, print quality, etc. It is proposed to incorporate such a device in the arrangements shown to offer yet another option for the operation. There are currently proposals for the incorporation of bar codes on large denomination notes, in which case the reader could be used both to read the bar code and scanned to detect whether the ticket is a fake. In countries where there is an exchange control, tickets can be scanned at the time of distribution and information retained in the player. When downloading the player using, for example, a data sink, information about outstanding bills

can be maintained, allowing again to prevent counterfeiting.

The range of applications of the system as a whole is obviously very large. For example, a consumer could use the wand reader while lying in an airplane or other location from which to access the internet or an appropriate computer network is not immediately available. In addition to the applications described above, the system could be used to store and access information for items in many other applications, for example in

Warehouse storage systems.

We can see that the above teachings regarding any type of

102 2798749

appropriate scanner for scanning "by hand" and that is essentially portable, able to read a bar code symbol or a symbol with similar information. The information can be downloaded from the memory found in the hand-held scanner using any suitable interface to a personal computer or other access point or computer network, and the corresponding information called from ' a website

web or a corresponding main memory location.

Figures 31, 32a and 32b represent the basic components of a system according to the present invention. A portable terminal 710, such as a computer that fits in the hand of the PDA type also called personal "organizer", which can be optionally equipped with capabilities for scanning / barcode reading, is designed to be interfaced with a base or cradle 712, also called mount via a physical connection. For example, the terminal 710 is inserted in an appropriate housing 714 provided in the cradle 712. The cradle 712 is itself connected via a host system 715 which may be a standalone computer, or be part of a

Intranet network / LAN or Internet / WAN (wide area network).

The terminal base components 710 of the cradle 712 and the host 715 are standard and interconnected in conventional manner using interfaces and communication protocols known except where otherwise noted below. As a result, full details of the hardware components of equipment are not being described here

as they will be well known to the skilled reader. A brief description

the various components and their use and interconnection is nevertheless

given below.

As shown in Figure 32a, the terminal typically includes a user input 716, an "other input" 718, a display driver 720, a remote link 722, a processor 724, a memory

726, and a cradle interface 728.

The user input 716 may include, for example, a keyboard

103 2798749

which the user can enter information into the terminal. The user input is transferred to the processor and subsequently treated as

described below.

The "other input" 718 may comprise, for example, a scanner or other barcode reader, an input of video camera, an audio input or other appropriate data input. Figure 31 shows a terminal 710 having a reader head 718 of pivot mounted barcodes. The entered information is transferred to the processor 724 for a

further processing as described below.

The terminal 710 preferably includes a display 719 to display information to the attention of the user. For example, the screen can represent input data for verification purposes, or carrying instructions or error messages for the user, or even communication messages transmitted from remote depoints. The control display driver displaying and receiving display instructions from

processor.

The terminal can be a television screen of the CRT type (cathode ray tube), a screen of the LCD (liquid crystal display) flat or any other suitable display panel. The advantage of FPDs obviously lies in their low volume in addition to the compact nature of the terminal

in general.

* A remote link 722 is provided to allow communication between the terminal 710 and the cradle 712 (or indeed any other access point as defined by the operational parameters of the system) such as an infrared method IRDA, in microwave link , radio frequency or any other suitable method. The data directed to or from the remote link are

processed by the processor 724.

Petitioner Samsung Ex-1004, 1207

The processor 724 may include any conventional processing system such as a CPU (central processing unit). The processor enables centralized control of the other components as described above and hereinafter,

104 2798749

as well as general conditions operating the terminal, data and controls the power status, compatibility checks, etc.

as appropriate.

A memory 726 is shown separately from the processor 724 although it may be incorporated into the same unit as the processor 724. The memory 726 allows storage of long or short-term data such as data received at the user input or other entry 716, 718, via the remote connection 722 or as described in more detail below, via the cradle interface. The contrôl61e, management and transfer of the memory can be controlled

by the processor 724.

The cradle interface 728 allows downloading data stored in the terminal 710 to the cradle 712 as well as the transfer of control or other data from the cradle 712 to the terminal 710. The information for the cradle interface 728 and from the latter is processed by the processor 724 as appropriate. As described in more detail below, the cradle interface / terminal is a physical interface that operates during, and can be activated by, l'introduction the terminal 710 in the housing 714 of

cradle 712.

The cradle 712 also includes various components shown in block in Figure 32a, while being arranged to process control and communication with the terminal 710 as well as the

Communication with the host and other peripheral functions.

The cradle 712 includes a processor 730 to control the remaining components as described below, as well as the operating conditions of the cradle 712 and general communication needs between the cradle 712 and the terminal 710, 710 between the cradle and host 715 and when

the cradle is transparently between the terminal 710 and the host 715.

The cradle further comprises an internal memory 732 and a memory 734. External Both are used to store information received from the host 715 and / or the terminal 710 for the transfer between the two, such

2798749

that managed by the processor 730. The internal memory may, for example, be an integral part of the processor unit 730. The external memory 734 makes use preferably of external storage devices such as disks, etc. The cradle 712 communicates with the terminal 710 through a terminal interface 736 communicating with the interface cradle 728. The cradle terminal and interfaces are preferably physical interfaces as described above. The information intended for the terminal 710 and from the latter can be managed via a processor 730. The cradle 712 further includes a host interface 738 for communicating with the host 715. The interface can be a wired interface or interface without known type of wire as appropriate. A communication controller 740 may also be provided in addition to manage various communications protocols between the terminal 710, the

cradle 712 and the host 715.

A remote link 742 is provided in the cradle 712 for communication with the remote link 722 of the terminal 710. The communication may, as described above, be any means of wireless communication such

a wireless infrared communication, radio or microwave link.

The cradle 712 may also include various conventional devices found generally with computers such as a printer 744 or other component such as an enlarged screen, a modem connection to a remote host, capacity of storage or further processing, etc.

The cradle 712 communicates via the host interface 738 with the host 715.

The host 715 can be a stand-alone computer or be part of a local area network such as the Intranet. The Intranet can itself be part of the Internet to other wide area networks, and if appropriate safety measures

appropriate such as a "firewall" can be implemented.

Many applications and advantages are provided by the system shown in Figures 31, 32a and 32b. In particular, the benefits

106 2798749

own a terminal that fits in the hand are available, such as portability, ease of use, and suitability to mobile or mobile use. Specific applications include inventory work, monitoring of transported goods, the use at point of sale, formulations for stock exchange, auctions, etc. The fact that the cradle comprises a data interface, the information input to the terminal, e.g., a keyboard input or a bar code input can be stored in the short term in the terminal and transferred at regular intervals to the cradle when it is introduced in the cradle. Once downloaded the information, the device memory can be erased. At the same time, control or application data can be transferred from the cradle to the terminal so that the terminal application may be modified or updated as required. The terminal preferably further comprises a battery charging module that connects to the terminal when the latter is introduced into the cradle to allow simultaneous battery charging. This option is described in more

detail below.

The cradle then communicates the information downloaded to the host, and allows the disclosure update / application from

l'hôte to the terminal.

As a result, the system enables rapid updating of the host database with information from the terminal while requiring reduced memory capacity at the terminal. The same

time, the cradle provides significant benefits in terms of time-

efficiency, both by reducing user involvement in the transfer of data to a minimum and allowing the use of timeouts users to download information. The remote link allows more immediate upgrade capacity when needed, allowing the same time for this ability to be kept to a minimum (through regular download sessions), leading to a

Petitioner Samsung Ex-1004, 1208

reduction

107 2798749

corresponding energy consumption.

As described in more detail below, particular advantages of the invention based on a system wherein the basic system described with reference to Figures 31, 32a and 32b is improved, and memory tasks / distributed computation so as to allow maximum flexibility and minimal demand on the terminal 710. the held computers known hand are continuously updated and re-modeled to allow a memory capacity, data storage and maximum availability of applications. Generally, this involves an increase in cost and complexity of the system and leads to an increase in weight and volume which is obviously undesirable for a portable system. In addition, overhead costs related to the system are very high - the computer upgrade is costly and must be made on an individual basis, and based on devices or added software that can represent a considerable financial burden. This trend towards internal capacity and increased opportunities leads to a greater risk of defects or errors and disadvantages that result. Such systems are currently

known under the name of "fat clients".

The present invention on the other hand, allows a "lightweight client". In principle, this is achieved by reducing the computational load and memory of the terminal in the greatest extent possible and incorporating this load against inside the cradle or, if possible, in the host itself. This also allows the cradle 712 to function as a "thin client". Accordingly, the terminal has the minimum capacity for the user interface, namely the display capability, the user input capability or other, memory capacity and minimal processing and communication capability described above. The cradle / host does so as a real computer, providing much of the processing power and memory, including disk drives, communications l'interface etc. As the cradle acts as a thin client, its simplicity and

108 2798749

adaptability can be maintained by ensuring that the maximum

treatment can be performed at the host level.

A basic architecture allowing a lightweight client is shown in Figure 33. Similar reference numerals are used to describe similar features throughout the specification and explanation of the various features will not be repeated

detail except where appropriate.

It can be seen that the terminal 710 still supports various basic capacity in the same as the version shown in Figure 31, particularly user input and "other" 716, 718 and the cradle interface and the remote link 728, 722 must keep many of their features so that the terminal 710 can perform its frontal functions adequately basis. However, the processor, the memory and the display driver are consolidated into a single lower specification unit, once again sufficient to control the frontal functions adequately. The management of the transferred functions and therefore managed by the home and / or host. For example, treatment of data input to the terminal can be performed by the cradle after the information has been downloaded so that the terminal requires to carry and store only raw data, which requires less memory and processing power. The cradle also functions as a client in terms of external data storage device and application such as printing and display. The cradle 712 then communicates with the host

714. What is more important, however, is the fact that the host himself

even provides support for applications as described in more detail below.

In addition, the host can support more functions cradle as appropriate if desired to reduce the specifications of the cradle, as long as the birthplace maintains its basic functions

download and intermediary.

Referring once again to the "fat clients" classic, applications to be executed by the terminal such as commercial applications for the objects to be evaluated, database services, file, mail, of printing and directory and other

dedicated functions are provided internally with respect to the terminal itself.

This requires memory requirements and considerable treatment, added to the complexity and volume and the need for an update

regular maintenance and is made entirely likely.

The invention, however, operates according to a different system, the applications described above, such as databases, messaging or other alternatives such que.des inventory systems, charging systems / coding, applications spreadsheet and word processing are stored either on the terminal or on the cradle but on the host to which the cradle has access. These applications are provided and maintained by a central server or distributed servers on the host network as appropriate authorizing an update and a central control maintenance. in addition, multiple copies of the application software is not required for permanent storage of a large number of independent terminals, which would lead to even more expenses in terms of cost of license and maintenance difficulties

and update.

When it is desired to use specific applications, this application can be called at the cradle and caching

for active use, and removed when no longer needed.

Accordingly, the amount of memory required is significantly reduced.

For example, when it is desired to process data input to the terminal according to a specified application, the application can be called from the host treated and the cradle 712, and the results stored in the internal or external memory, printed matter, displayed on an appropriate screen or downloaded to the host for further processing. In another alternative, data from the terminal may be transferred from the cradle to the host in the form of raw data with the instructions to the processing means and the processing performed at the host, further reducing memory and processing load on the terminal and the cradle. As described above, there are many applications for the system of the present invention, for example in the field of transport and logistics, warehousing, public safety, retail and other business based on a stream of fast and efficient data

involving the collection and transmission of data in portable form.

Petitioner Samsung Ex-1004, 1209

As described in more detail below, a possible implementation of the cradle includes a wireless cradle based on a vehicle communicating with access points via wireless communication. This allows a vehicle based on use, more suitable for transport in racing companies or courier, utilities, public safety organizations, sales and maintenance in the field and other traveling operation. A possible embodiment of the terminal according to the present invention is shown in more detail in Figure 34a. The terminal 710 is preferably shaped bearing in mind ergonomic considerations

allowing use, transport and easy storage by the user.

An important feature of the device lies in the display screen 750.

This can be for example an LCD or video display. It is preferably high-definition, sufficient to detailed icons and

preferably, detailed video images as described in more detail below.

The terminal 710 supports suitable positions on the laser scanning and / or collection of stylus-based data. For example, the terminal 710 may include a drive component 752 which may be integrated as depicted or modular. The reader 752 is arranged to the laser scanning graphical indicia such as bar codes and comprises the base component of characteristics of a player, namely beam emitting means such as a reading lt ll2798749 diode laser, a detection means of the reflected read beam and a beam scanning means if desired, for instance an oscillating mirror (in the case of an optical scanner "flying spot"). If the scanner is a scanner "field of view", on the other hand, no scanning means is required, and the detector comprises a CCD array (charge coupled semi-conductor). The data collected by the reader 752 are treated as "other input" shown in the block 718 of Figures 32a

and 33 in connection with the terminal, and the data is processed accordingly.

In addition, the terminal 710 may include a data stylus 754. Such features are known in the art. In particular, the data stylus 754 may be used to write directly on the screen 750 of the terminal 710, or for data entry, for the capture and verification of signatures or other appropriate purposes of collecting and data verification. The terminal 710 also includes an audio speaker 756 allows alarm signals and / or other audio message such as a speech after speech or human process of being issued by the terminal to the attention of user as well as an audio input such as a microphone

eg for two-way voice communication.

Figures 34b to 34f represent a terminal implementing variant 745. The terminal 745 includes a display screen 746, the command 747A, 747b and a speaker 748. The terminal is arranged for wireless communication with, for example, a local intranet. The

Messages sent by the terminal 745 are displayed on the display screen 746.

Simple messages can be relayed from the terminal 745, alternatively the terminal 745 may connect basic information concerning the location or identification of the user. Preferably, the screen 746 is a screen icon-based on which, for example, the user can select messages to be relayed to the network by scrolling between appropriate icons using the control buttons 747A, 747b. The terminal 745 may also include

112 2798749

audio capabilities or to emit a short signal such as "beep" when a message is received or, in more sophisticated versions, incorporate a voice synthesizer that notifies the user that a message has been received or actually say the message. The terminal 745 may also include a microphone (not shown) allowing to be audio messages relayed to the network via the terminal 745. For ease of use, the terminal also preferably includes a clamp 749 allowing it to be set

removably to a garment of the user.

The system preferably incorporates a management energy conservation / management of distributed energy savings to ensure that components for portable at less power is used as efficiently as possible to obtain a full life of food. In particular, when the terminal is capable of performing various tasks by using various components, the use of l'alimentation for each component is preferably distributed by individually controlled based on each component in order to optimize the application

energy to meet the energy requirements needed.

A retail application of the invention is shown in Figure 35. 760 A consumer enters a deposit of retail such as supermarket (not shown) or other suitable store selling goods or products. The retail deposit automatically provides a plurality of portable terminals 710 stored in a convenient location in their respective cradles 760 712. The consumer chooses a terminal 710 from a cradle 712. As shown, the retail deposit offers a variety of products such as 762 on shelves or counters 764. also provided in the deposition retail, a plurality of transmitters or radio access points 66 or

other means without proper wire, suitable locations.

Gradually, as the consumer 760 moves in the deposit retail access points 766 broadcast to the terminal 710. The terminal 710 uses known priority systems and / or algorithms to only accept the signals from the closest access point 766. The access point 766 transmits information about the products available in the vicinity of the terminal 710 for display on the screen 750. The terminal 710 receives the signals via the remote link 722 shown in Figure 32a. The information transmitted by the access point 766 to the terminal 710 can take many forms, and in a preferred embodiment the terminal displays graphical icons representing the products available in the locality, as shown in Figure 36. For example when the consumer is in the vicinity of the laundry radius and the terminal 710 selects a broadcast signal from the nearest access point 766, the products available in the washing beam may appear on the screen 750 of the terminal such as dishwashing detergent or normal wash liquid 770, 772, respectively. Actual pictorial representations of the products may appear to offer an easy reference to the consumer. Additional information such as price, l'emplacement and any promotional offers may also be provided in 774. As a result, the retail environment can be tailored for a

optimum efficiency.

A dedicated access point 766 or each of the plurality of access points 766 can also provide, for example, a map of the retail deposit and products found as shown in Figure 37. Optionally, map could include a marker 776 indicating the current position of the user-this may be estimated by determining which of the access points is located during communication with the terminal, or a simple geometric positioning system could be used. In fact, such a positioning system would further broadcast message to the terminal to be dependent on the position of such consumer established by the positioning system rather than determined by the location of

the nearest access point.

d114Y2798749 The terminal may include a preliminary options screen, as shown in Figure 38a is displayed on the consumer's attention when it accesses the first time at the terminal. Various icons are represented by the functions that the consumer wishes to use. The icons can be reached and treated by consumers in various known ways, for example using an integrated reading roller type "mouse" mounted on the scanner, providing a touch screen, having a "digital pen" arranged to interact with the

Petitioner Samsung Ex-1004, 1210

screen or by using a keypad on the terminal. The icons may include the following: entry of personal identification information 780, card 782, product information 784, current offer 786 products in the vicinity of the user

788, parameters of the terminal 790, description of a local radius 792 and support 794.

Note that many other icons and functions can be incorporated

as highlighted by the following description.

The exploitation of the initial screen and the following screens is represented by the flow chart shown in Figure 38b. In stage 7100, the terminal is removed from the cradle that automatically initiates the presentation of the option screen. The terminal then waits for a selection of a particular option in 7102. The system

then moves to the submenu required by the icons 780-794.

If the 780 input icon with personal identifying information is selected, then the terminal expects the entry of relevant information. This can be, e.g., carried out by entering a credit card or other identification number, by sliding a suitable magnetic card into a terminal slot or by using the bar code reading capability of the terminal to read the personal identification information encoded with bar codes. This is shown in general in 7104. Once the information entered, the credit or debit automatic articles scanned and purchased by the consumer may be initiated, or additional information about buying patterns and preferences consumer can be used to target the consumer with

2798749

advertisements on selected products. The information can be relayed from the terminal to the access point via wireless communication. Alternatively, user identification information can be entered while the terminal is in the cradle, for example via a magnetic stripe card to said card slot "swipe" provided on the cradle. In fact, this can be used to release and initialize the terminal as an additional security measure. Once the information has been entered and treated as

suitable for step 7106, the system returns to the menu screen in 7102.

If the card option is chosen then, optionally, the user's current position is identified in 7110 and the map is displayed showing this information in 7112. The consumer then has the option to return to the

initial menu in step 7108.

When the product information is required 784, the required product can either be entered or be selected using a series of menus to reach 7114 down to 7116. Once the product is identified the consumer can then be presented with various options as to the required information - price brands available, available offers, location, etc. in 7118. Users

can also return to the main screen 7102 at step 108.

If the consumer wants to view current offers, in 786, then offering interesting type can be selected in 7118. For example all the current offers can be scrolled to the user, the offers related to procurement that the user has already made can be displayed, the tenders for a particular class of goods can be represented or offers in the vicinity can be shown as selected by an icon or a suitable data entry. The user can then

return to the main screen 7102 to 7120. Step If the user wants to look for what products are available

neighborhood, then the user's position is established in 7122 and broadcast signals from the appropriate access points 766 are received and displayed in 7124. This option can be maintained by failing to present

116 2798749

appropriate information to the consumer when it evolves around the retail point. Again, the consumer has the option to return to

the main screen 7102 to the step 7126.

If the consumer wishes to choose the parameters of the terminal in step 790, the various parameters available are displayed in step 7128. These parameters may be, for example, the display brightness, the size of the display, language, volume (when voice synthesizer is included) etc. The parameter is adjusted as appropriate at step 7130 and the user can

Then return to the main 7102 to 7126 step.

When the icon 792 "local radius" is chosen, the nearest radius can be selected depending on the consumer's position, and the radius displayed pictorial way. For example, when the consumer is trying to find a specific product, the product can be developed. This option can be used with the card system to identify a given radius as shown by the flashing sign 7134 on Figure 37. Alternatively, the representation of the beam could showcase of promotional products or

any other information relevant to step 7132.

If using icon 794 is selected, then the consumer is asked to choose which icons requires further explanation in step

7138 7136. The appropriate help message is displayed accordingly.

For each option, the consumer has the opportunity to return to

the main screen 7102.

We can see that the system offers a very user-friendly layout enabling consumers to identify products, to find where are the products for the consumer to be informed of special offers, etc. When the consumer identification information is stored the consumer can then be targeted with information marketing / custom advertising into account its specific preferences stored. The system can be further improved by incorporating a speech synthesizer or other means of audio broadcast message in the terminal so that the

117 2798749

terminal can "talk" to the consumer for passing information about various products with interest and any other relevant information. The system may also have applications in inventory work and stock management of the filing of sale (or in fact the work of

warehouse management, etc. although the following description is limited to the deposit

Petitioner Samsung Ex-1004, 1211

Retail described above). For example, when it is desired to rearrange the shelves, a radius in its current form can be shown on the screen and rearranging could first be performed virtually by dragging and dropping the appropriate images to show the movement of real goods on the shelves. The physical movements could follow. This would have both a guide as to the appearance of re-stacked shelves and also a useful control to ensure that attendants radius are able to compare the measures taken with those needed . Alternatively, for a given product or brand name or a product class, highlighting the representation of the product on the screen, relevant data such as inventory, delivery, sales l'historique, etc. can be presented to the user. A similar system of icons and steps can be used with those described with reference to Figures 38a and 38b. Dedicated terminals could be provided

for such purposes in the retail deposit described above.

Alternatively, the attendant fill radius, the manager of the stock or other qualified personnel may enter their user credentials in the cradle before removing the terminal so that the terminal is set appropriately. It will be appreciated that the same system can be used for inventory work in warehouses or general monitoring work product, using graphic icons to represent

products and provide quick and easy access to information back-

plan, control or destination.

We will see a variety of other peripheral features can be

1 182798749

envisaged for the system. For example, the system may include an alarm range so that if a terminal is out of the store, or outside the area designated within the store, an alarm is triggered. For example, if the consumer bearing the terminal strays into an area where no access point is available or where access is generally reserved for staff then the alarm may sound. The alarm is provided inside the terminal and can operate, for example, based on range signals from the closest access point to determine whether it has exceeded

this scope in which case the alarm will sound.

The terminal can be used in conjunction with a system "self

scanning "by the user so that the user scans the products purchased individually, eliminating the need for control staff and generally faster-shopping process. In this case, the terminal can store the purchase details against the user's identification information - where appropriate -. to update the databases of the marketing profile of individual consumers the scanner can also be used to read codes directly from products so that

Additional information may be known to the terminal.

The system described above is particularly useful for "ultralight" customers in the form of portable terminals. The core capabilities must include the terminal itself is the display driver, the minimum level needed for memory and processing and communication capabilities and protocols to communicate with both access points and the cradle. Information regarding products, maps and other relevant aspects can be accessed on demand via the access from a host points. The data stored on the buying patterns of a given consumer and, as appropriate, requests and other transactions can be downloaded to the cradle after each use, which significantly reduces memory requirements required. Similarly, the exact functions required for the terminal eg

119 2798749

the use by the consumer, the use for inventory purposes, the use for filling purposes, etc. can be loaded from the cradle after use has been identified as the terminal is still stored in the cradle. Accordingly, the memory and processing load on the terminal itself can be kept to a minimum, allowing a simplicity and a reduction in terms of cost as well as ease of updating applications, etc. In an alternative arrangement, each terminal can communicate with its respective cradle if the store is of a suitable size. As a result, customer l'implémentation ultralight / light cradle can be achieved.

The system can be further improved in various ways.

For example, the device could incorporate a detachable scanner portion, so that the scanner and / or each terminal are independent and accessible independently. In some circumstances, the capabilities of the terminal itself or the scanner itself are only required and the additional load of the other components is not desired. This would be the case

for example when a portable digital assistant is required.

Another possibility would be to adapt the terminal display format.

This would preferably be incorporated as a software option in the cradle, rather than loading the terminal with this capability. The format

display - that is to say the number of characters in the horizontal direction -

could be adapted to the horizontal length of the terminal screen. To make the system as user friendly as possible, it is preferable that the terminal communicates the display size to the cradle so that the server / cradle can automatically format the display page for

adjust to the screen without the need for a return to the automatic line, that is,

that a line of text originally scheduled to be single or divided into two or more lines. As an alternative to automatic formatting, a predetermined selection of available predefined format options could be accessed, and the appropriate option adopted. A variant of the method to avoid the return to the automatic line for lines of text would be to reduce the scale of the text to create a smaller font size which allows a

single line to be seated without a return to the automatic line.

In addition to its download capacity / load / initialization, security and storage, another important function of the cradle is recharging function of the batteries. Whenever the cradle receiving terminal, battery level check is performed and if the batteries are below the level of full power or a predetermined power threshold level, then charging will take place automatically during off-time terminal service. The terminal includes appropriate contacts arranged to cooperate with the charging contacts on the cradle itself in a known manner. battery charging technology is

well known to those skilled in the art and not described in detail here.

Petitioner Samsung Ex-1004, 1212

A charge pattern is shown in Figure 39. According to this configuration, the terminal 710 includes a block 7010 rechargeable batteries which can be inserted removably into the terminal and is provided with appropriate power contact 7012, 7014 adapted to cooperate with corresponding contacts mounted in the terminal block 710. the battery 7010 includes a plurality of battery cells 7016 that are either kept permanently in the block 7010 or replaceable batteries to extend the life of the battery pack as a whole. The block 7010 is housed in a battery charger 7020 that includes one or preferably a plurality of housing blocks 7022 battery, 7024, 7026. The charger 7020 is supplied from

an appropriate power source shown schematically in 7028.

This system allows multiple battery packs to be charged simultaneously, so that a plurality of terminals can operate on a fully charged battery pack while a block replacement battery is being charged. This reduces the time off-duty portable terminals to a degree that is limited only by the availability of battery packs and

121 2798749

chargers. The 7020 Charger can be incorporated into a cradle or be

provided separately as appropriate.

It is necessary in any arrangement such as to introduce an adapter circuit which determines the feed rate and other parameters dependent on the nature of both the battery pack and the charger. Conventionally, such an adapter circuit is provided in the charger itself, which

reduces weight and complexity of the supply laptop batteries accordingly.

According to one aspect of the present invention, however, the adapter circuit is provided on the battery pack itself, for example on a lower side as shown schematically at 7030. According to this system, the operation of

load and design of the charger 7020 are substantially simplified.

In particular, the 7010 battery pack can be inserted into the charger configured appropriately and the 7030 adapter circuit provided on the block 7010 battery fits operations accordingly. The user therefore does not have to spend time to ensure that the correct charger 7020 was chosen. further improvements are described other terminal

in the following paragraphs.

In a further revised variant shown in Figure 62, each block 7600 is provided with a battery adapter 7602 that receives in a suitable housing such as shown in 7604, all or a portion of the block 7600. batteries in the embodiment shown the block 7600 includes a battery 7606 of connection projection which is received in the housing 7604 of the adapter 7602. the connection portion 7606 and the housing 7604 have complementary contacts shown generally at 7608 to the food, etc. The adapter 7602 is housed in a base unit 7610 and provides a suitable interface between the block 7600 battery and the base unit 7610. Further contacts shown generally at 7612 are provided on the adapter 7602 and a housing cavity 7614 of adapter

122 2798749

the base unit 7610 for the transmission of energy, etc. The 7602 adapter has all the electronics charge except for power lines themselves. Consequently, control of

Charging is carried out as described in more detail above.

The 7602 adapter may include indicators such as LED (light emitting diode) shown generally in 7616 to indicate "complete charge", "error", "ongoing support", etc. It can be seen that the base unit 7610 is a unit multiple unit for charging a plurality of battery blocks via respective adapters simultaneously. The base unit 7610 can be dispensed with an internal power supply 618 or an external power supply 7620 as appropriate. If it is desired to load only one battery pack while the adapter may further include a power connector for direct connection to a power source. Consequently, in these

circumstances, the basic unit 7610 is not required.

According to yet another variant, it is known to provide "smart" battery with complex electronics such as EEPROM (programmable read only memories, and electrically erasable), an input / output etc. These intelligent battery charger or communicate with the other host to predict various parameters including the gas gauge, the state of charge, the number of cycles, etc. Smart batteries, however, significantly increase the cost of a block and end the limited life cycle of batteries (typically a few hundred cycles) we must

rid of Block intelligent battery completely.

This can be overcome by using a 7010 battery pack of the type shown in Figure 39. In this case, the 7016 batteries are replaceable, intelligent electronics being maintained in block 7010. For example batteries, batteries can be accessed through a door or lid as appropriate. Accordingly, the expensive electronics and the block housing

123 2798749

expensive batteries can be saved and used repeatedly.

Figures 63a and 63b illustrate yet other variations of the battery pack / charger arrangements. In known systems, the battery packs are loaded by means of miniature chargers which are either incorporated within the broad outlet of the type taken from a box or in a plastic module which is externally attached to the battery pack. Both solutions require, outside the battery pack or a cord or module parts. In the arrangements shown in Figures 63a, 63b, any external charging device of this type for charging the batteries is eliminated by providing a block 7630 having batteries as shown generally at 7632 in Figure 63b, component charger such as an AC / DC converter, an electronic

charge, a gas gauge, all incorporated as permanent components.

Two variants of 7630 types of battery packs are proposed. In Figure 63a, the block is disposable after individual batteries (not shown) have reached their limit of life. In Figure 63b, it is seen that the battery pack 7630 includes, for example, a hinged lid 7634 (on which the retractable plug 7636 is mounted optionally) 7638 which allows cells to be replaced after they have reached their life limit. It can be seen that the batteries block 7630 as shown in Figure 63b comprises appropriate contacts 7640 against which the battery 7638 can

be mounted for operation of block 7630 batteries.

Petitioner Samsung Ex-1004, 1213

In one embodiment, it may be desired to allow the "location" of the terminal - for example when the use of terminals is extra and optional. The cradle has a physical lock on the terminal and / or some form of power lock / access so that unauthorized users can not clear the terminal of the cradle, or can not use terminal. The authorization may be obtained by identification of the appropriate user, for example by introducing a credit card or other user identification means in the cradle. If the authorization is

124 2798749

Data, the lock is released and the user can remove and use the terminal. At the same time, the release time is timed so that the user is charged for the rental time until the terminal is returned to the cradle which time the timer stops l'incrémenter. Billing can be performed automatically when appropriate, on the user's credit card. A possibility that the terminal could incorporate would be a mobile phone or cell phone which case the terminal / barrel would be a marketing tool for rent cell phones in a given period of time. Whatever l'utilisation desired, operational controls could be carried by the cradle when the terminal returns to him to make sure it is in working order and has not been damaged during the rental period. If degradation has taken place, then the user will be identified by the identification information and can be charged appropriately. Moreover, l'information can be stored so that in the future, the user will not be allowed

to use the terminal or only at a premium rate.

In cases where the terminal is in a cell phone or incorporates a cell phone, an automatic option may be provided by which the terminal / phone works on a wireless LAN as the default preferred option, but if the device is out of range access point (as defined by a predetermined level of reliability in communications) the system uses the possibility cellular phone. Accordingly, the user can connect to the desired even if it moves outside destination of the wireless LAN area, which makes the calling network transparent to the user whose sole concern is to be sure

that communications exist.

It is further desired to allow individual portable terminals to interconnect with each other. This interconnection can be performed using any suitable protocol, for example the system described in the article "Routing in Adhoc Networks of Mobile Hosts" (routing in ad networks

2798749

hoc mobile hosts), by David B. Johnson, 1995, IEEE pages 158-163. In particular, a specific protocol for mobile hosts network is required taking into account the mobility of guests and limited transmission range. A source host seeks a route to a target host via intermediate hosts by broadcasting a request packet which records its route to the target host. The request packet includes an identifier requests so that the intermediate hosts ignore all but the first copy of the request packet. The total number of steps is limited. Accordingly, the shortest path can usually be found with a minimum of communication overhead. Although the roads are discovered this way, the road can also be maintained and problems can arise when intermediate hosts in the chosen route moves out of the transmission range. To overcome this, road maintenance is performed using a payment system "hop-by-hop" (hop by hop), so that if there is a transmission problem, it is reflected in

the sender of the original and the route discovery system cycled.

It is also desirable in a mobile computer network, to ensure that the current location of the mobile terminal is known, at least for the reasons mentioned above regarding the routing of messages. One method to achieve this is to ensure that the current location of each mobile terminal is periodically communicated to a network center. As a result, a map dynamically update the location of all mobile terminals can be maintained, which can be further used to determine the routing of messages. Similar systems are known, for example, about cell phone networks and systems. A suitable system is described, for example, in Patent USA N 5612703 which relates to a cellular communication system wherein the position of a selected user unit may be determined by outputting a synchronization signal from a node, analyzing a synchronization response signal from the unit

126 2798749

user and determining the user unit based on the position

transmission in return and the reception time.

The patent application of the United States of America N 08/614 068 also assigned to the assignee and incorporated herein by reference relates to a portable terminal having a data input and a data display and a motion sensor. When movement is detected, a controller activates an appropriate circuit. For example, when the device is detected as being in a first orientation position, a first function can be executed while when it is detected as being in a second orientation position, a second function is executed. It will be seen that this possibility may be incorporated in the terminal according to the present invention. For example, it can be used to enable and disable the when removed from the cradle and reintroduced

in this last.

Yet another preferred embodiment of the invention is shown in Figure 40. In this case, the terminal 710 is a lightweight client based on the cradle for the majority of the computational load and treatment. In fact, the terminal 710 may be represented by two basic components, means 7140 notepad and a wireless communication component 7142. The exact details of these components are not shown because they are well known to man of art. Indeed, the mean notebook allows the entry of data in the terminal and displaying the relevant information to the terminal. The processing load at the terminal is largely reduced in this basic capacity input / output together with the wireless communication control component 7142. The wireless communication component 7144 communicates with a corresponding component provided in the cradle 712 . accordingly, the raw data input to the terminal 710 is transmitted directly to the cradle 712 without needing treatment (other than for reasons of communication) in the terminal, which leads to a concomitant reduction in processing capabilities and memory and and the

127 2798749

energy consumption by the terminal 710. Instead, the volume of computational capacity is kept in the cradle, namely a 7146 data processor incorporating an appropriate memory space, additional memory space in the form of e.g. , records, a printer device 7150, and 7152 Ethernet communication capabilities allow the cradle to be part of a larger wireless network connected, for example, a party making itself host an intranet or having access the Internet. In effect, therefore, the portable terminal 710 is nothing more than a computer screen kept in the cradle, communications being provided via wireless communication link using, for example,

radiofrequency or infrared link or any other suitable protocols.

Rather than communicating directly with the cradle, the terminal can communicate with one or more of the one or more nearby access point (s), each of which is itself in communication with the cradle, which allows

greater scope for the terminal.

Such a system is particularly useful, for example, to brokers on stock exchanges or in similar implementations. Brokers can conduct transactions using the displays that fit in the hand, such buy / sell values, keep current their current equity portfolio and other relevant transaction without the need for much of the processing conditions

Petitioner Samsung Ex-1004, 1214

required memory or power in the terminal. When the terminal is not required it can be returned to the cradle to download any necessary additional information for the update of its internal applications and the cradle for recharging the batteries. In consequence, a terminal

useful, lightweight and highly mobile is available with applications for back-

Plan would expect from a full scale or equivalent personal computer.

Additional implementations still planned for the terminal are to provide an emissions AM / FM radio receiver and / or TV programs in the terminal. As a result, the user can

128 2798749

use the unit for entertainment purposes as well as to perform

IT tasks character. Such a device is shown in Figure 41.

The terminal includes a display screen 7154 that is not only conçupour the presentation of text and icons but also video. The terminal then additionally incorporates a keyboard, such as a fully alphanumeric keypad for 7156 terminal operating either as the personal digital assistant or together with a wireless link as individual low-end qu'ordinateur. The terminal 710 further includes additional controls 7158 for selecting and / or control of a TV functionality or radio for exampie volume / brightness / channel, etc. Accordingly, a portable computer is provided which is an additional use of its display functions allowing a receiver

TV to be incorporated as well as optional radio option.

In an alternative configuration that can be used as an improvement or adaptation of the embodiments mentioned above, or as a stand-alone product, the portable terminal may comprise a "browser" or "snooper" Internet. This allows for operation in conjunction with the client the possibility "lightweight". Indeed, the customer, apart from its display and communication processing bases, has a browser software that allows the user via the wireless link to the cradle of

browse the Internet research applications and relevant information.

Using this basic ability, applications and / or data can be called up on demand and stored in a short-term memory low end as long as necessary. As software and dedicated applications are not required on the terminal itself, the storage and processing requirements are reduced accordingly. A display based on icons can be incorporated in the terminal to allow user-friendly access to the Internet or an Internet connection among the various options of a selection menu. Such a system can, for example, be implanted using as a base language

129 2798749

Java computing (trade mark) and the available support software

with Sun Microsystems Company (trademark).

These points are of particular importance now that the "managers" of Web pages nternet migrated to a viewable state static entity using a browser to real applications or "applets" or applets (programmatic components Java). Systems have been developed on existing local networks in which a browser function is introduced into the existing hardware equipment, forming a "Web summit". In many applications, this includes the first step towards a migration to a true "thin client" - it is envisaged that the "fat clients" classics are generally really

necessary for large processing applications volume dedicated use.

The introduction of such browsers allow the user to access the Internet via the Intranet to download applications and information together with the corresponding information dissemination. In addition to navigation services system can withstand courier services, services

administration etc., as is well known.

As described to some extent also the advantages of this system include control of security, update the runtime and virus / falsification. Applications are developed more quickly because of the level of use to which they are exposed and therefore testing. Because the applications are stored on the server, the administration can be centralized and users can get the latest updated consistently throughout the system. The system can support multimedia applications largely independent of the client platform, for example a system of telephone type with a display screen, PDAs, televisions devices ("boxes to put on the job") , the POS / kiosk devices, entertainment capabilities, etc.

2798749

Systems incorporating the terminal capacity / cradle described above are advantageous, for example in moblie operations such as packaging systems, tracking systems, and race or messaging systems. Such a system is shown schematically in Figure 42. The user 7160 carries a portable terminal 710 having preferably laser scanning capabilities and stylus-based data as described above. The terminal is rechargeable at a cradle 712 mounted on the vehicle 7162 of the user and may also download

informations.

In the embodiment shown the cradle is installed on the dashboard although it may be installed on the seat or floor. The cradle 712 is connected to the vehicle battery 7164 or, if necessary, an auxiliary source of electrical power. This connection provides the base power from the vehicle to the terminal for the battery charging and communication functions. The battery charge begins automatically when the terminal is inserted into the cradle. The cradle preferably includes a display screen indicating the battery is being charged and when the battery is fully charged, and breaking capacity is included so that energy is not drawn vehicle once the battery is fully charged. The terminal can of course use modular battery blocks enabling a first battery block to be in use while a second battery pack is being charged. The cradle incorporates or cooperates with a wireless WAN modem mounted on a vehicle for transmission from an access point 7166 and from the latter, which in turn communicates with a host 7168. Accordingly, via the host, a bidirectional wireless data transmission is established between the remote operation of sensors and the roaming outside personnel. For example, hours of collection and distribution, mission orders, activity reports, records

131 2798749

transaction and any other relevant information can be communicated between the user and the host 7160 7168 quickly and effectively. In particular, the 7160 user may enter information into the terminal 710 via the keyboard or via a scanner or a pen reader or other suitable input interface and wait for downloading information whenever the terminal 710 is placed on the cradle 712. Alternatively, terminal 710 may communicate via a wireless link 712 with the cradle

for instant data transmission to an appropriate level.

Petitioner Samsung Ex-1004, 1215

Preferably, the system incorporates a function "return receipt requested" automatic when the terminal 710 is an intranet server terminal. One such terminal server is described in more detail in the patent application US 08/827 263 N filed March 28, 1997 also assigned to the Applicant and incorporated herein by reference. Basically, the server terminal includes the server software within the terminal itself to the direct creation of internet files / "websites" without requiring complex communications with a remote server. In such an implementation, the cradle 712 is provided on the vehicle 7162 as shown in Figure 42 and 7160 carries the user terminal 710 to the recipient of the parcel to sign the package by selecting the time of delivery. As the terminal / cradle is a server (in an alternative implementation the server software may be incorporated in the cradle without loss of efficiency and a reduction in the processing burden on the terminal), and the server can communicate on WAN to the host or deposit, an interface can be provided to the Internet allows the sender of the parcel to determine at any time if the package was already delivered or delivery was attempted but the package n has not been received. As a result, the delivery company may define additional capacity to attract and satisfy consumers, giving instant information via the Internet on the state

of any delivery.

The detailed implementation of the above can be carried out of

132 2798749

various ways. For example, the consignor of the package can access the website of the firm delivery and then track the progress of individual packages offering interest using, for example, a code number assigned at time of order delivery. At the same time, the progress of the package can be saved by the user or the delivery agent by entering the hours of delivery or attempted delivery compared to the code. The code may, for example, be read by a scanner provided in the terminal from

bar codes provided on the package, if appropriate.

The recording or logging the progress of the package can be improved still further by transferring the registration package at intermediate stages between the sender and the addressee, for example, at each stage of the deposition system. The development of a list or routing table is of particular importance in the general case where the exact route to be taken by the package via the filing system is not decided at the time the delivery is controlled. This can facilitate a double-checking the progress of the package. It is preferable that the routing list specifies the details of the final delivery truck as it is easier to track than individual packages. Preferably the sender pays a premium for this system of "acknowledgment of receipt snapshot" so that the transmission load status of each package is reduced and does not need to be

available on a real time basis except when you pay for it.

Referring to Figures 43a 43b, a particularly useful implementation of the portable terminal is shown for use with the implementation of delivery described above. In such implementations, it is desirable for the user to have both hands free for parcel delivery. Accordingly, a 7170 Scanner type "pendant" is used, hung around the neck of the user. The terminal 7172 comprises a scanner window oriented so as to point in the direction of a package maintained at waist height by the user. Such a package is shown at 7174. The terminal 7172 is thus capable of scanner the package and all codes

* 133 2798749

bars kept on it with optimum ease. For easy handling the terminal further includes controls 7176 and 7178 a display screen provided on a surface facing upward, so that the user can manipulate the controls and read the display without moving the scanner pendant . The terminal 7170 may further communicate with, or be

interfaced with the cradle 712 in the manner described above.

As mentioned above, all applications can be considered for the terminals of the type described above, including solutions like warehouse management and logistics generally. The system "thin client" described above is particularly suitable for incorporation into existing infrastructures including matérielsystèmes equipment PCs, networks and data tools, and database software equipment, etc. that are already in place. This applies to all relevant areas of the market such as retail, distribution and manufacturing. Such a system should preferably comprise a central server hosting an appropriate database together with suitable customers - eg wireless terminals of the type described above including a graphical user interface for the user. The system brings the benefits of real-time operation that shortens the delivery time instructions and provides optimal implementation of both personnel and equipment, which simultaneously allows verification to take place on a basis instantly and continuously. The inventory information may be dated and processed in real time. Levels can be adjusted accordingly and optimized / minimized. The user will automatically o the articles are stored and will locate them quickly. At the same time the administrative burden is reduced. All this is achieved without costly modification

generalized to the existing hardware infrastructure.

Using a user terminal icon-based means that the system can be introduced quickly and with only a simple training, but the system can also be extended to more complex systems

134 2798749

including "floating" planning, resource scheduling, measurement

productivity and estimation and control in real time of the work.

Since inventory is continually updated, there is no downtime for physical inventory work. Management states, data, inventory, stock and other relevant statements can be obtained at any

time again by reducing the administrative burden.

A central server can run two types of customers instantly.

In addition to wireless terminals executed via some form of radio network controller, PC or other fixed terminals may also be connected by wiring to the system or at the base station, or remotely. standard interface communication protocols may be incorporated with standard network architectures to achieve a reliable, interchangeable and adaptable preferably connected to other systems

Business as needed.

The terminal solutions / cradle of the type described above provide compact base stations for high-speed data networking and simultaneously charging the batteries for the terminals. The systems are suitable for transportation and logistics companies, through warehouse management, public safety, retail and other appropriate organizations. Preferably, at boot time, the cradle turns on and performs a self-diagnosis to ensure proper system operation. Charging batteries preferably starts automatically when the terminal is placed in the cradle and indicators such as LEDs (light emitting diodes) may be provided on the cradle to indicate when power is on and when the load takes place. Data transmission can be performed quickly and efficiently with a host using for example a modem using standard communication protocols. Master cradles

Petitioner Samsung Ex-1004, 1216

can be connected for example to a host PC or other cradle chain.

preferably standard interfaces such as RS232 and RS485 are

2798749

intended for use with a variety of printers and devices

portable.

The system can also be mounted on a vehicle where appropriate, for transport and race or courier companies, utilities, public safety organizations, sales and maintenance operations on site and other appropriate operations. The cradle includes the ability for a battery charge "in the vehicle" in a two-way wireless communication. It can be installed for example on the dashboard, the seat or the vehicle floor and may extract energy from the vehicle battery. The system can allow data transmission between two-way wireless remote operating centers and outdoor mobile workers, allowing rapid transmission of samples and deliveries, work orders, activity reports and

transaction records.

In any case we can see that the supply of a lightweight client reduces the requirements on the weight and energy of the handheld terminal, which makes it even more appropriate to use

Portable considered.

Many of the components forming the detailed embodiments described above, are known individually skilled in the art and

not require a detailed description here.

We will see that it is highly desirable to create customers who are "validated web", that is to say, that are configured to provide a capacity of internet connection. In many cases it is desirable to remove the terminals based on an earlier operating system using, for example DOS and to migrate more towards, for example, HTML (hypertext mark-up

language or description language of hypertext documents). By

Referring to Figure 58, the hardware and software design for an optimized web terminal is shown. The material model shows the major subsystems. The software model describes how radio and HTML software

136 2798749

coexist. The digital portion of the design is quite simple. The primary CPU 7400 (processor) can be, for example, a National 486 SXF or SXL (trade mark). This is a highly integrated CPU that includes a variety of devices including an LCD controller (LCD) 7402, a DRAM controller (DRAM) 7404, clocks, serial ports, etc. It also has a cache (cache) encoded on a chip and expanded capabilities for low power exploitation. It performs 32-bit instructions in protected mode 386 but still can not run DOS or Windows (trademark). There is a single flash memory chip 128 KB 7406 containing compressed object code. When the unit starts, the code is decompressed in the DRAM 7404 and executed from there. The 128 kilobytes contain about 256 kilobytes of object code 86. This code contains the radio firmware, configuration routines and enough codes for Web clients

download the actual execution code from a server.

There shall be provided a single DRAM 1M x 16 7404 on the unit, providing 2 megabytes of DRAM. This allows for low energy operation and

auto-refresh.

The scanner interface 7408 is, for example, the 8052 pre-programmed on the card currently used decoder SE1222 available. It will not be made use of the decoder card itself but just components from the latter. The 486 will communicate with it via its integrated serial port. A

7412 scanner, e.g., SE1200, is also incorporated.

The interface to the 7414 radio will preferably be a simple parallel port 8

although a bit port to the PCMCIA standard (international architecture cards-

memory of personal computers) can be used. The radio module is a pure radio capability or only one unit "kappa" passive or low level that does not have its own CPU, flash memory, RAM, etc.

137 2798749

There are two options for the LCD support. The 486SXF processor 7400 supports a display of up to 320 x 200. Using the LCD unit 486SXF allows low level without integrated controller. If the version is SXL

In use, the LCD controller may have its own controller.

The keypad 7416 comprises only basic switches. The anti-

rebound is performed by the processor 486 7400.

The entire system operates on a single power supply of 5 volts.

The 7414 Radio requires 5 volts as well as 486 7400.

This costs some electricity consumption but eliminates the need

a power supply 3.3 volts separated, thereby reducing the associated cost.

The most optimal model material cost is a configuration

two cards, the motherboard and the radio module "Kappa". On one side of card-

Petitioner Samsung Ex-1004, 1217

mother are provided the "keys" 7416, 7402 LCD and parts of any kind can be assembled on this face. On the other side are the 7414 radio module (connected directly to the motherboard) and the remaining parts. The entire object may be 1/2 to 3/4 inch in height (1.27 cm to 1.905 cm), approximately 2 1/4 inches in width (5, 715 cm) and 4 to 6 inches in length (10.16 cm to 15.24 cm). The scanner 7402 is also mounted on this face. The goal is to eliminate all the flexible cables, which further reduces costs. The software on the model shown in Figure 58 is built around a small non-preemptive multitasking kernel that is currently running on known radio cards such as the Spectrum 24 card (trademark) (available from radio cards produced by the Applicant). There are tasks to manage the user interface, or Crux Cetus 418, l'envoi and reception, and the traveling movement. They communicate through shared variables and message passing. There is a pending task is the lower priority task can be preempted. This work forms the basis of a single loop structure in which scrutinized the protocol stack and the HTML code execution

exist.

138 2798749

In this model, there is a task that operates at the "task". It runs a series of tests that may result in the occurrence of some treatments. Interruptions are usually allowed at any

moment. The structure is shown in Figure 59.

Note that tasks can be entirely made complex. For example, the test may be whether a packet was received on the RF interface. If a packet is received, it is passed to a stack

network protocol that treats.

This software model has been used successfully on systems known to pagers and modems, eg Pager Modem and Symbol Technologies Spectrum 24. Accordingly, further details are not necessary here. The version of the radio pager includes firmware, battery UDP (User Datagram Protocol) / IP paging protocol l'interpréteur, and the user interface of the pager turning all on a single CPU 80188. The code HTML execution was

designed to fit the query model single task.

Known home or cradles stations include various basic requirements: * A complete hardware compatibility to the signal level at the connection between the cradle and the host so that the host requires no modification, and compatibility Total material at the signal with a serial port

present on the terminal.

* A low insertion force connection between the terminal and the cradle for withdrawals and frequent réinsertions and preferably

unlimited.

* A total hardware compatibility at the registers within the terminal with the existing communications software, e.g., a software

IBM PC compatible communication.

* Support of "chaining" multiple cradles to a single host serial port. In one embodiment a "master" cradle is designed to be

139 2798749

connected to the host, and supports a large number of cradles "slaves". Two access modes are supported, a single access mode and a multiple access mode. In the single access mode, a terminal receives both exclusive control and the host serial port and all terminals are subjected results equivalent to "cable not connected." In the multiple access mode, all terminals are granted a receiving access to the host serial port but the right to transmit is granted to only one terminal at a time. Both modes must support standard application software without

flow change in the case of multiplexing.

* The terminal / cradle must be installed in a configuration

vehicle as described above.

It is proposed to use an optical IrDA compatible Infrared Data Association (or infrared data association) for ZIF interface to allow the use of the terminal with devices and IrDA host computers (not dedicated) readily available.

Solutions to the various points are outlined below.

Solution 1 Each terminal includes two optical pairs (two transmitters and two receivers) as well as each cradle. Accordingly, two full duplex data paths are provided. Each cradle contains a microprocessor plus two optical pairs by location (for accommodating a terminal). In this four-slot, one microprocessor controls entirely the four locations. The primary optical channel between the cradle and a terminal includes the data part of a serial interface fully compatible IBM PC 9-pin, for example TXD (Transmit Data) RXD (Receive Data) and SG (Signaling Earth). The auxiliary optical channel between the cradle and a terminal includes control information (DTR (data terminal ready) and RTS (Request

2798749

to send), status information (DSR (Data Set Ready), DCD (data carrier detected), CTS (clear to send), RI (reading)) of a serial interface 9 fully compatible pins IBM-PC and information

bus (BREQ (bus request) and BACK (bus detection)).

The data interface is directed between the optical and the RS-232 port by the cradle. Control and status information are communicated on the auxiliary optical channel. Inside the terminal itself, control information, and status busses are used to produce the effects of mode

single or multiple access as required.

Multiple cradles at 4 locations can be chained together (up to 4 physical cradles to 16 slots). Bus signals (BREQ and BACK) are passed as "tokens" from a cradle

to the next to ensure inter-cradles multiplexing.

The BIOS (basic system input / output) of the computer hand-held implements the protocol and the cradle provides both the BIOS services

Petitioner Samsung Ex-1004, 1218

IBM PC compatible serial and serial BIOS set of services extended owner.

Since few, if any, for IBM PC-compatible serial communications programs use both BIOS service games (instead of going directly to the hardware), communications via berceaune can not support standard communications applications. Since this is also true in terms of the physical serial port, this is not a particular problem. A unique location of these cribs version has all the same functionality versions at four locations with the exception that it does not support chaining. Since only one location is present and that the chaining logic is not required, the hardware design is somewhat simpler. The two optical channels are however managed identically, and the BIOS code

the terminal is the same.

A unique location in alternative configuration is simplified and does not include the possibility of chaining or optical interface. A modular

141 2798749

connector (phone jack) can be used to either provide wired serial communication (via an adapter cable) or can be used as a connector of "docking" of the cradle, which provides a wired path

for the two data channels which are normally optics.

To improve compatibility IBM PC, an alternative approach may be used to emulate the serial communication interface IBM PC. This involves "bridging" of the control and status information (conditioned as appropriate based on the information bus) between the auxiliary optical channel and

UART registers (transmitter / universal asynchronous receiver circuit) "emulated".

This bypass is done using a special mode "Super-State" of

F8680 microprocessor of Chips and Technologies Company in the terminal.

Since all software in this device are running in real mode, most serial communication programs compatible IBM PC "

having good "may be used.

One solution for reducing the cost of multiple cradles installations lies in the elimination of the microprocessor of all cradles except one (the "master") in each of the chains having for example up to 60 places. To meet all common requirements of the cradles (especially chaining), a method to synchronize access to the cradles of buses from multiple computers handheld without a processor present in each cradle is needed. The mechanism may be a variant of CSMA / CD (Carrier Sense Multiple Access / Collision Detection or multiple access by carrier sense and collision detection). In this area, the processors found in computers handheld themselves, with the cooperation of single processor

lying in the cradle "master", manage the entire order required the bus.

Unlike the above variants a single data channel is used, thereby freeing a UART on the device and reducing the number of optical terminal pairs in a combination + cradle 4 pairs of 3 pairs (2

142 2798749

transmitters and receivers in the cradle and one transmitter and a receiver in the terminal). The third pair (a transmitter in the cradle and a receiver in the terminal) is required to allow access

multiple carrier sense and collision detection.

To allow interchainage different cradles, switch on the cradle "master" is used to select the type of emulation to bear. This feature allows a chain of cradles to be placed at the end (the farthest from the host) to a different free cradle chain. For compatibility IBM PC, an approach similar to that described above is used to emulate the serial communication interface for the IBM PC. Since no direct data channel is available (since there is only one data channel), data information, control, and status must transit on the same channel . This requires that

Emulation is more complete.

The emulation is carried out using the mounting hardware in the ASIC interface (application specific integrated circuit applications) and the control terminal. This involves using traps I / O registers (input / output) to generate NMI (non-maskable interrupts) to enable the support software from cradle to emulate the results of access by the application to the UART registers. Using an open system based on the processor 486, for executing protected mode software such as DOS and Windows extensions (trademark), the number potential

interactions with the cradle of the support software is effectively infinite.

In an additional approach to cradle a modular type connector (phone jack) is used to connect a serial adapter cable to fix the cradle. The cradle, however, simply passes the signals to the serial port of the cradle connector. Since the serial port

IBM compatible PC, the home is just as important.

When the device cradle and do not support the internal load

143 2798749

batteries, the cradle is actually reduced to a "port replicator" or

"Extended cable" and a base or carrier.

As a further development, it is proposed to make full use of the IrDA functionality, especially using IrDA for wireless communication using the same optical IrDA interface cradle that to avoid unnecessary duplication of hardware. The use of IrDA emulation 9-pin (called IrCOMM) applied to standard protocol stacks designed for this type of application enables the cradle to be an IrDA converter + IrCOMM to RS-232 with multiplexing. Multiplexing can be relatively simple (that is to say the transition diagram of "tokens" described above), therefore it can be implemented on the hardware like ASIC (specific integrated circuit applications). Alternatively, the multiplexing could be done by the processor required to run the IrDA protocol stack and IrCOMM layer. The addition of a processor to each cradle can be even more effective than the

Petitioner Samsung Ex-1004, 1219

introduction of different optical games on each computer handheld. Since the optical IrDA are half-duplex, they can not be used easily in central constant cradles models. The use of standard IrDA protocol stack layers IrCOMM + is the logical method of use of these optics. in the cradle, as these protocol layers to be converted to

RS-232, a processor is mandatory.

Inside the terminal, emulating a compatible IBM PC serial port is still required. A similar approach to that described above might be to "dress up" the IrDA and IrCOMM interfaces and ensure that they look like a standard COM port. Alternatively, to avoid interactions that software emulation approach suffers, it is possible to add another microprocessor (such as 8031) to the computer handheld itself. This

144 2798749

processor would emulate then the "physical" interface l'UART and execute the IrDA layers IrCOMM +. This approach would eliminate any incompatibility

possible software.

It is further desired to develop a subsystem for use in a terminal that conforms to both the external standard such as IrDA and all standard dedicated determined internally. The subsystem must be able to communicate with another internal standard or IrDA equipped computing devices, with an internal standard and / or irDA, and must be suitable for use in the implementation of non-physical connection cradles. These cradles must be able to ensure a complete emulation of serial port RS-232 (with and without cradle chain). An appropriate system covers the functionality of the subsystem, the hardware and software necessary to implement the subsystem (both at the terminal and cradle parts) and design, l'implémentation, and l'interface the subsystem characteristics to identify the requirements in

terms of hardware and software for functional regarding sub

complete internal standard / IrDA system (both the terminal and the cradle parts). Referring to figures 44 to 51, the wireless communications strategy in the system is based on two fundamental physical communication technologies IrDA (Infrared Data Association) and an internal standard dedicated owner arranged to remove peripheral cables. IrDA is a standard for open systems. For both, the same communications protocol (IrLAP, IrLMP, TinyTP and IrCOMM) will be used to enable "inter-operation" among transparent

two interfaces in a system with both.

Both technologies can be used in any or all of the following three operating modes: "air network", point-to-multipoint "serial port emulation" mode, point-to-point mode and "cradle chainable "point to multipoint. The system provides one or more of the

2798749

Configuration Name Technology used mode used vehicle cradle Standard internal and / or IrDA serial port emulation Cradle filing Internal Standard Cradle chainable IrDA IrDA device Air Network

TABLE 1

The fact of supporting the combination of technologies provides connectivity and maximum flexibility. IrDA provides relatively high bandwidth communications (115.2 K Baud), direct view, short (below the meter), low power consumption, more compatibility with industry devices to IrDA standard. The internal standard provides communications over low bandwidth (19.2 K Baud), omnidirectional, medium distance (3 to 6 meters), to higher power consumption. By providing a single integrated solution that supports both technologies and allows them to be used so

interchangeably, the system maximizes the potential of wireless connectivity.

FIG 44 is an IrDA network "air" allowing IrDA wireless communication between a terminal 7180 and each one equipped IrDA server 7182 and a printer compatible IrDA 7184, an IrDA communication between a portable type "lap-top" or 7186 each other and a server 7182 and a printer 7184, as well as an IrDA communication between the terminal 7180 and the portable computer 7186. In Figure 45 the serial port emulation is shown for an IrDA and / or internal standard. A terminal 180 communicates with a cradle 7188 by IrLAP (Infrared link protocol access), IrLMP (Management Protocol to infrared), TinyTP (transport protocol simplified by infrared) and IrCOMM l'une and either IrDA or internal standard technologies. When

146 2798749

IrDA is used 7188 cradle communicates with a gateway 190 host / server via a RS-232 interface C. When the system uses the internal standard technology, 7188 cradle communicates with a printer 7192 via a RS-232 interface C. cradle chained through the IrDA and / or internal standard technology shown in FIG 46 includes a communication between a plurality of terminals 7180 and 7188 of the respective cradles by communicating one or other of irDA or internal standard technologies in conjunction with IrLAP, IrLMP, TinyTP and IrCOMM. Cradles communicate with each other via a bus and a master cradle cradle communicates with a

host / server 7190 via an RS-232C interface.

In the hardware model "in-the-terminal" with IrDA and internal standard shown in figure 47, a CPU (central processing unit) 7194 is connected to a multiplexer 7196 directly and via a UART 7198. The multiplexer 7196 communicates via IrDA driver 7200 with the optical IrDA 7202 and via a specific unit 7204 internal standard with a terminal 7206. the antenna as a whole is designated by reference 208. referring to Figure 48, a cradle 7210 incorporates the hardware model serial port emulation with IrDA and the internal standard 7212 cooperates with a microprocessor having a RAM storage RAM 7214 and a ROM storage ROM 7216 as a core or central portion. The microprocessor 7212 communicates with the host (shown schematically in 7218) via a UART 7220, an RS-232 driver 7222 and an RS-232 connector 7224. The microprocessor 7212 communicates with a multiplexer 7226 directly and via a UART 7228. The multiplexer 7226 communicates with 7230 IrDA optical via irDA drivers 7232. The multiplexer 7234 also communicates with an antenna via a unit

7236 internal standard.

Referring now to Figure 49, a chainable cradle model

147 2798749

IrDA and internal standard technologies includes a microprocessor having a storage RAM 7240 and a ROM memory storage 7242. The microprocessor 7238 communicates with an arbitration unit 7244 directly and via a UART 7246. The match between arbitration unit the communication to the remote following cradle of the host and the communication to the host or to the next cradle towards the host. The arbitration unit 7244 communicates in all cases with an RS-232C connector dedicated 7248a, 7248b via a RS-232 dedicated driver 7250a, 7250b. The microprocessor also communicates with a multiplexer 7252 directly or via a UART 7254. The multiplexer

Petitioner Samsung Ex-1004, 1220

allows communication with an antenna 7256 via an internal standard unit 7258. The multiplexer 7252 also communicates with optical IrDA 7260 via a driver 7262. The cradle IrDA

is shown generally in 7264.

The data flow software / control within the device is shown schematically in Figure 50. 7264 IrDA applications circulating via TinyTP, IrLMP, IrLAP 7266; real UART 7268 and optical or IrDA drivers and internal standard units in the antenna 7270. The so-called legacy applications "legacy applications" 7272 circulate via a UART emulated; and a IrCOMM 7276

then follow the same path as IrDA applications.

51 shows the software data flow control

within the cradle. Traffic from LRDA to RS232 bridge 7278 -

the RS-232C connector 7280 is via the UART 7282 and pilot RS-

232C 7284. The IrDA data stream to the bridge 7278 RS-232 - Pilot and optical IrDA / internal standard 7286 and antenna unit is via IrCOMM

7288, TinyTP, IrLMP, IrLAP 7290 and 7292 UART.

Many client devices are configured to receive an adapter card allowing them to run a network access. The components of such devices and adapter cards are well known to the skilled person and will not be described in detail here. An example of a network adapter is the system sold under the trade name SPECTRUM 24 by

148 2798749

Applicant. In known systems such as that shown in Figure 55, it is often desirable for a client device to execute access to network files using client network file system (NFS) via network protocol stacks or network adapters. To accomplish this, the 7350 client device must generally use a PCMCIA slot to hold the adapter card 7352. In addition, various software components, such as a PCMCIA 7354 card driver, a stack of protocols 7356, and a client the 7358 network file system must

all be present and running on the client device.

For small client devices at reduced cost, the secondary mass storage necessitated to maintain these software components can be significant compared to the total secondary mass storage capacity of the device. In addition, the RAM required to run these software components can be significant compared to the total RAM capacity of the device. Finally, the processing power required to run these software components can be significant compared to the power of

Total processing device.

Since many of these software components may need to be customer-specific device configuration and Network File Access program deployment and access to network files on various client devices can be difficult. In addition, the secondary mass storage required to maintain the software components may require the use of a second PCMCIA slot, which can not

be practical or desirable depending on the client device capabilities.

Finally, configuration and maintenance of a network can be very

difficult and time consuming.

The client device and the network adapter card are joined via a PCMCIA interface 7362. in the case of the existing 7352 adapter card, the software is a 7360 independent radio control program

149 2798749

an interface 7352 to the ODI driver (Open Datalink Interface or link interface has multiple transport protocols) or NDIS (Network Device Interface Specification specification or network element interface) 7355 provided in

the client device.

The invention as shown in Figures 56 and 57 incorporate the functionality of the network adapter card 7370 in a system which also includes the one or more cell (s) 7372 or the network protocol and the client (s) 7374. The NFS entire system is then packaged in batches on a PCMCIA card that emulates a card to the PCMCIA standard ATA (aT attachment to aT or environment). This allows any client device 7376 that is capable of addressing a PCMCIA ATA card, seamless access to files from a file server. Since the only interface between the client device and the system 7378 is the ATA / IDE (integrated electronics device driver), the client device needs to have only a 7380 driver ATA / IDE, not an adapter driver network, one or more stack (s) of network protocol, and one or more

client (s) NFS.

The 7370 file access card comprises a processor, a RAM, a flash and a classic 7388 radio example of the type sold under the trade name SPECTRUM 24 by the Applicant. This card is basically the same model as the map

existing adapter.

The fundamental difference in the proposed solution lies in the software running on the processor 7382. The interface to the driver ODI or NDIS client device is replaced by a direct interface to an ODI driver 7390, one or more cell (s) protocol 7372 and one or more client (s)

NFS 7374, all located within the 7370 access card file itself

even. All these software components then run on the 7382 processor in 7370. The access card file necessary software emulation of a

IDE disk drive is provided for interfacing with the client device.

2798749

The software comprises a 7394 radio control program unchanged from the standard radio control programs except that instead of an interface with the ODI driver in the client system via the PCMCIA interface 7378, it directly interface the ODI driver 7390 running within the same processor inside the 7370. the file access card or cell (s)

Petitioner Samsung Ex-1004, 1221

7372 and the protocol or client (s) 7374 NFS load on top of the ODI driver 7390 a similar manner as he would on a client device. The ATA / IDE controller 7396 software must emulate the ATA / IDE interface 7378 and uses the services or client (s) 7374 NFS to access files on the NFS server in response to client requests via the interface

ATA / IDE 7378 to access the emulated disk.

To support battery of protocols 7372 and 7374 multiple NFS clients, 7370 file access card must either include protocol stacks and multiple NSF customers with a mechanism to select one to use or possess a means load the protocol stack and

NFS client desired.

The 7370 file access card comprises an appropriate 7395 radio equipment. Conventional adapters card drivers require that certain parameters (such as net ID or network identifier) are specified. A mechanism must be provided to specify these parameters. In addition, the battery 7372 and NFS protocols 7374 customers typically require configuration settings (such as IP address, login name, the word

password, etc.). A mechanism is provided to specify that information.

Many solutions to problems loading / update stacks of 7372 protocols and NFS clients 7374, and defining parameter information can be developed. Since the hardware implementation contains a flash memory 7386, it is the obvious place to store this data variable types. One method is to use a portion of flash memory 7386 for emulating a disk

151 2798749

(in the same way as that used by normal ATA flash card). This disc contains the stack of protocols 7372 and 7374 standard NFS client files, as well as configuration files (NET CFG pctcp. INI, etc.) used to configure the protocol stacks and NFS clients. All these files are located in the root directory or subdirectories of the ATA unit, and all are physically stored in the flash memory 7386 of the file access card 7370. To reconfigure or reload the 7372 protocol stacks and / 7374 or NFS client, the client device only needs to edit or copy files within the flash memory via the driver

ATA.

To allow access to both the local flash memory 7386 7370 file access card and the files on the file server using the same interface, the 7396 ATA controller card must file access merge files from the file server on the disc that is currently emulating. The simplest way to achieve this is to treat each file system mounted via NFS client 7374 as a subdirectory of the emulated device. By limiting the names of 8 characters in file system, the file name system can also be the subdirectory name (not the root of the emulated ATA device) that is used to access the system

file.

When access is performed on the areas containing the directory information for a file system, the ATA 7396 must obtain current directory information from the file system via the NFS client 7374 corresponding bulid directory sectors accordingly and make them available to the client device (via 7378 ATA interface). When access is performed on a directory sectors referenced data sectors, the 7396 ATA controller must obtain the data for the files accessed via the NFS client 7374, creating

data sectors and make them available to the client device.

If the Access 7370 file card has sufficient flash memory 7386, it

152 2798749

can perform a reading on directories or data caches sectors so that frequent access by the client device runs faster. This must be carefully balanced to exchange quick access to accurate data. Since the files in the mounted file system can be accessed by other customers, there is no guarantee that they remain valid once they have been cached in the 7370 file access card. adjustments for allowing the client device to control the behavior of the cache logic may be required. This information can be stored in a configuration file together

with the other setting information.

Security issues may arise due to the need to store login names, passwords, etc., within the flash memory 7386 files of access card information 7370. As this trip now with the card and, being portable, can be a security breach, it is possible to use various techniques to secure encryption configuration files against unauthorized exploration. The 7370 card requires access files to a temporary copy, unencrypted, in this file to the use of or cell (s) 7372 and the protocols or customer (s) NFS 7374 while it is starting up. Once it is running, the temporary copy can be deleted. As long as this temporary copy is not accessible to the client device, it

not a security breach.

data integrity problems can arise because of the need to submit the file access card 7370 to a power-cycle when used in portable consumer devices. Furthermore,

each time the card is removed from the client device, it loses its energy.

The design of the 7396 ATA controller must ensure that writing is completely finished or not. This is a standard design constraint ATA controllers based on flash memory. The 7370 file access card should take this precaution one step further. A handwriting

153 2798749

can be considered complete until it has been successfully propagated to the file server. Any local caching performed within the 7370 file access card must be synchronized with this

Writing behavior all or nothing.

The 7370 file access card must establish / re-establish connections and go / back file systems automatically each time the voltage is applied to the card. This may take a significant period of time and access to the card may need to be delayed until the treatment is completed. This is already possible with ATA cards, when the

time required to rotate a hard disk can be significant.

The 7378 ATA / IDE interface provides the mechanism to delay access to the card until it is ready. in addition, when access to the data of the card require NFS activity to get the data, individual access may be entirely made slow. The same mechanisms described above can be applied to disable the client device until the data is available.

Petitioner Samsung Ex-1004, 1222

Since the 7370 file access card should contain essentially the same hardware equipment and even firmware in ROM as standard adapter card, it could also be designed to operate as an adapter card of this type. This would require, of course, that the adapter card driver and protocol stacks to be present in the client device. This would allow the card to be used either as a file access card is like a map

standard adapter interchangeably (though not simultaneously).

It is also possible to create a customized communication layer between the client device and the access card 7370 file which replaces the standard network layers that would normally be present on the client device. Since the 7370 file access card contains the 7390 ODI driver and or cell (s) 7372 protocol, it is not necessary to duplicate these components in the client device. The application interface

154 2798749

to the network can be re-implemented to use this layer of personalized communication, instead of talking directly to the battery or (s) protocols 7372. The end result is that applications of the client device can use network services without 7372 actual protocol stacks running on the client device. With an appropriate implementation interfaces

will be well known to the skilled person and will not be described further here.

For example, the interfaces available under the trademarks

BERKELEY SOCKETS or WINSOCK be appropriate.

Using the above approach, it is possible to enable direct access to network services (eg via application interfaces) concurrently with file access server files. This would require, of course, that the 7370 file access card has sufficient computing capacity to support emulation of ATA / IDE 7378 and supports personalized communication layer

same time.

The arrangement described above results in many benefits in applications. For example, the invention provides support for wireless access to files on file servers from any client device such as a PCMCIA slot and supports access to ATA cards. The batteries of specific protocols to the client device or NFS clients are not necessary. At the same time, a simplified configuration for access to NFS file system is allowed. Once the card has been configured for use with protocol stacks of a given game, NFS clients and file systems, it can be moved freely from client device to client device without requiring any change in the requirements . Since neither protocol stack or NFS client does need to be present on the client device, reduced requirements for memory and secondary storage for client devices are affected, allowing even more thin clients. NFS protocols and clients of the batteries are running in the processor of the file access card rather than

2798749

the client device, which ensures consistent performance across multiple client devices. There is also a potential reduction in the number of PCMCIA slots required to support a given application. Since all the software components required to support l'accès the file server are present on the same card, many client devices can avoid using additional PCMCIA memory cards. This allows customers devices with only a single available slot to access file server files

with success.

According to another aspect, there is provided an integrated memory device for use in a PC-based integrated system allowing a single standard storage solution directly supporting an executable memory (e.g., BIOS) and a secondary memory (e.g. a disk) with an option to upgrade on site, suitable for use on all computing systems Integrated PC-based. Hereinafter the integrated memory device will be referred to simply as the device and the computing system

integrated PC-based system will simply be called.

An implementation of the present invention relates to a "mobile server" that is to say, a mobile terminal with a server capacity as described in more detail in the N United States patent application filed March 28, 1997 and also sold to the applicant, which is incorporated herein by reference. As shown in Figures 60a, 60b, 61a and 61b, a web server capability can be implemented in a plug-in card, eg a PCMCIA card. A mobile device 7500 that can be any suitable device such as a mobile terminal of the type described above, a personal digital assistant, a digital camera, etc., comprising a 7502 port card interface, for example a PCMCIA slot or CF houses a 7504 card to the interface. The 7504 card has server capabilities for example Internet or the world wide web (worldwide web) and the system thus acts as a

156 2798749

transparent web server. Referring in more detail to Figure 60b, the 7504 card comprises a PCMCIA interface or other suitable interface for communication with the mobile device 7500, flash memory 7508 and an ATA controller 7510 (AT attachment or AT environment) used to implement the hard drive. The memory 7508 is for storing the data generated by the mobile device 7504 and the card further comprises a CPU (central processing unit) 7512 which accesses data and executes a routine of the web server software. The CPU 7512 is configured to execute a communications module suitable radio 7514, for example of the type available from the Applicant under the trade name "RADIO SPECTRUM 24". The CPU 7512 is also configured to handle the TCP / IP protocols. The mobile device 7500 on the map 7504 is thus able to communicate with a nearby access point and then appropriate

to a client PC by air or an antenna 7516.

As a result, the client PC can display a representative webpage

data stored in the memory of the mobile device as desired.

The 7504 card can thus convert any device, as described above, a server for the web. This is shown in detail on Figs 61a and 61b. The mobile device 7500 to a data collection 7518 data collection point which may, for example, a digital camera in still image or video, a bar code reader, a microphone or a data entry point such that 'a keyboard. Data are stored, for example in the card 7504 using the ATA controller 7510. The card 7504 cooperates with the device 7500 to act as transparent web server and transmits the data from the card 7504 via the antenna 7516. The transmission is received by an antenna 7520 to a 7522 access point connected to the main frame or Ethernet wiring 7524. connected to the main wiring 7524, is a client PC 7526. As a result, when, for example, a browser or "snooper "the worldwide web of any appropriate type is executed on the client PC 7526 and called" web "to the mobile device sending an HTTP request

157 2798749

(Hyper Text Transfer Protocol or Hypertext Transfer Protocol document) for the uniform resource location (URL) the request is routed via the main wiring 7524 and acts as point 7522 to the transparent web server formed by the device 7500 and the card 7504. data collected are returned to the mobile device to the access point in

Petitioner Samsung Ex-1004, 1223

response to the

request and the web page is sent to the PC 7526 client.

Regarding the physical requirements of the device: The device is implemented in one or both of the embodiments

Physical: Modular and Component.

The embodiment of the modular device comprises an autonomous single circuit card (or equivalent) which can be mounted on a circuit card (or equivalent) within the system. The sub-system implemented by the embodiment component will be interfaced with the rest of the system

via the interface signal set described below.

Modular embodiments of the apparatus are interfaced with the system via an appropriate type of standard connector. This connector provides the interface signal set described below. in addition, this connector is of low cost, low profile and highly protected against shocks and vibrations. This connector is not intended to be used for introductions and frequent withdrawals since this refers irremovable embedded applications. All the device embodiments are interfaced with the system via the same interface signals game. These signals represent a subset of ISA bus signals (Industry Standard Architecture or architecture Industrial Standards), or the signal (to) additional (s) required for interface with an EPROM (electrically programmable ROM) standard BIOS more signals used to control the options of the device. The required set of signals is listed below power signals, for example, 3.3 Vcc,

158 2798749

5 VDC, 12 VDC,

Land for various applications.

control signals, e.g. clock, data transfers, valid address, valid data, zero wait state for current bus cycle, oscillating clock signal, reset-back to the default state and prepare operations XIP (PCMCIA protocol) and disc. If necessary, the device can control the line to maintain the system in a reset state until

its own reset is complete.

* Read strobe on the I / O device (I / O) write strobe on the I / O device, read strobe on the memory write strobe on the memory to indicate that the current cycle or I / O EPROM memory must be extended. The signal must be used in accordance with the performance requirements described below, to signal to the system that a 16-bit EPROM cycle is required. This signal should not be used by the device unless the USEMEM 16 signal is present indicating that the system is able to and wishes to

participate in the 16-bit EPROM memory cycles.

to indicate to the system an I / O 16-bit cycle is required. This signal should not be used by the device unless the USEIO16 signal is present indicating that the system is able to participate in its cycles

I / O 16 bits.

* EPROM control signals, for example to indicate that the system is trying to access the XIP section of the device. This signal is generated by the logical address decoding in the system and is presented after the appropriate address lines are validated. to tell the system that access to the XIP section is completed and

159 2798749

data from the XIP section are available on the data lines. If this does not occur within a single cycle, the device must use the

IOCHRDY signal for start of extended wait cycles.

to tell the system that the XIP section is ready for access by the system. This signal will be activated after the initialization process established by the RESET signal has been completed. The system will not access the XIP section

RESETjusqu'à following that this signal is activated by the device.

ndiquer for the system grants permission to the device to update the contents of the sub-section of the IPL XIP section. When this signal is not present, the content of the subsection IPL should not be changed (even if the appropriate commands are sent to the device by

the system).

The option device control signals comprising: a signal to indicate that the system wants the device enters its lowest power state as soon as possible. the requirements

in terms of energy consumption and synchronization are described

after. Once in the standby state, the device does not require supporting XIP access or disc until the signal is off and the device has resumed operations (indicated by the deactivation of the signal

SUSPSTATE).

a signal to indicate to the system the standby state current of the device.

If the device is currently in the standby state, this signal is active, otherwise it

will be inactive.

a signal to indicate that the system grants permission to the device to use the full power at will. at full power operations executed at the discretion of the device (e.g., background operations) are allowed only when this signal is active. Using the full power of the device is always allowed during an update operation XIP or write disk explicitly requested,

regardless of the state of this signal.

2798749

Petitioner Samsung Ex-1004, 1224

a signal to indicate to the system that the device is using full power. This signal does not need to be positioned when the previous signal indicates that the device is authorized to use the full power in the background and when the device is actually doing it. This signal can also, but not necessarily, be used to signal the use of the full power for an update operation

XIP update or write disk explicitly requested.

a chip select signal for FDI recipient.

a current drive signal / slave now used by an IDE slave device

in respect of the IDE master device during initialization.

a signal used by the system or assembly of the outer configuration to indicate that the device can be reconfigured and that the power supplies 5 and 12 volts is available. The configuration of the device will not be changed (even if the appropriate commands are sent to

Device by the system) unless the signal is present.

a signal to indicate that the system is capable of performing

cycles / O 16-bit and wants to interact with the device using such cycles.

The apparatus decides whether to use the 8 and 16-bit cycles and indicates the choice

System via the appropriate signal.

a signal to indicate that the system is capable of executing memory cycles EPROM 16 bits and wants to interact with the device using such cycles. The apparatus decides whether to use the 8 and 16-bit cycles and

indicates the choice to the system via the MEMCS16 signal.

Address signals, e.g.

to address [up to 256 K] XIP the section of the device, the system.

If an implementation of the device chooses to extend the size of the XIP section beyond 256 Kilo-bytes, of additional address bits may be used for addressing the additional memory. The device can assume that all the address bits are valid when the appropriate signal is present. The design of a system using the device can

161 2798749

therefore ensure that the generation of the appropriate signal take account of the bits of higher addresses. If a system was to generate this signal whenever the address bits contained in the lower right values, regardless bits senior addresses, then the device could

S access a memory other than the XIP section referred.

* Data signals, for example so that when the appropriate signal indicates the need for an 8-bit memory cycle, then only a first range is used. If the signals indicate the need for a 16-bit memory cycle, then the first track is used, but the last track can not be used until the signals

indicated the availability of higher data lines.

* The interrupt signals, e.g. IRQ signal supported by the device. It is only used for an IDE emulation. This signal can be connected to any available IRQ line system, but for compatibility reasons, it is suggested that

is attached to the standard interrupted hard drive.

All programming voltages required to access the memory within the device are generated inside the device from either of a single supply voltage of 3.3V or a supply voltage a single 5-V system only needs to provide only one of these supply voltages but can optionally provide both. The device must be able to get its power from normal operation from one or the other power supplies. These supply voltages are provided via

standard interface device described above.

The device will force its operation to conform to one of three power states as determined by the two radio control signals of the device described above. For example, the signal may indicate that the device should enter its reduced power mode and do not meet the access to the XIP section or disk or the device is free

to use the full power at its own discretion.

162 2798749

In the absence of both signals, the device bear all access operations, but will run higher power operations (such as delete) only during the duration of an operation explicitly requested by the system (e.g. XIP update or a disk write). If the device supports of background operations (block move, delete, etc.) can not use the full power that for background operations when the appropriate signal is present and needs to complete

Such background operations if the signal is disabled.

The device must be capable of changing conditions within milliseconds from the instant when the signal changes. The device must notify whether or not it is in a standby state through the appropriate signal. The device must inform any background using the full power via the appropriate signal. Table 2 describes the relationship between the power control and status signals and power limitations for each state:

163 2798749

State name Enter Status signal Full power to the device Charging waking signal zero signal using the current full current maximum authorized power reduced signal puisance Active Active Standby (Do not hold in Idle <lmA 1ms) account busy Off Off Active. An operation not 50 mA XIP update or keep disk writing former account

plicitement disman-

being supplied is being Background inactive Inactive Active. No Idle 20mA

Petitioner Samsung Ex-1004, 1225

Waiting for back- operation.

high power plan is currently Background Inactive Inactive Active. An operation Active 50 mA Busy high power background is in Normal Inactive Inactive Inactive. No Idle 20mA Waiting up operation (in XIP update or write 1ms) disk explicitly requested is ongoing Normal OFF OFF OFF. No Idle 50mA Busy setting operation (in XIP update or write 1ms) explicitly requested disk is in progress

TABLE 2

If the device supports a formatted section IDE, then it will bear the Idle commands (at rest) and Sleep (standby) standard specification

ATA to control the IDE disk controller power states.

Since the device is intended for embedded applications and particularly for applications integrated nomadic, size is of aspect

164 2798749

important. A system model incorporating the device must balance the capacity relative to the available space. For example, several discrete sizes are standardized in both embodiments

(Modular and Component).

The functional requirements of the device are as follows: Referring to Figure 52, a block diagram showing the logical structure of a typical implementation of the device, the device 7300 provides support for two memory sections: a section XIP (eXecute in

Place) 7302 and 7304 Disk section.

The XIP section of the device 7304 supports a size setting from

0 kilobytes to 256 kilobytes in increments of 64 kilobytes.

Larger sections XIP (over 256 kilobytes) and / or smaller adjustment granularity (less than 64 kilobytes) can be optionally supported but should not prevent compatibility

with the above requirements.

The device contains two logic controllers 7306, 7306b and two zones of logical memory 7308a, 7308b. While specific implementations of the device can combine the functions of two controllers or two memory areas, these terms are used herein to describe the

required functionality.

XIP section 7302 of the device 7300 can be divided into two sub

sections: subsection IPL (Initial Program Loader or loading of the initial program) and the BIOS sub-section (Basic Input / Output System or basic input / output system). For use in a system

each specific device is configured for the use of or sub

sections required (s).

Subdivision of the IPL XIP section of the device, whether configured for use by the system, has a size of 64 kilobytes and is sent as the first 64 Kbytes of a linear addressable area of the XIP section. If the model of a system requires that the IPL is Subsection

2798749

interchanged with the BIOS sub-section, then the system must ensure the logic to adjust the address lines provided to the device. No logical remapping the XIP section only needs to be implemented to

Inside the device.

Sub-section sizes IPL larger or smaller than 64 kilobytes can be optionally supported, but should not prevent

compatibility with the above requirements.

The BIOS sub-section of the XIP section of the device, whether configured for use by the system is adjustable in size in a range from 64 kilobytes to 256 kilobytes in increments of 64 kilobytes. Size of a BIOS

256 kilobytes is authorized by a device with an XIP section 256 kilo

Only bytes if subsection IPL is not configured for use. If the model of a system requires a remapping BIOS zones, then the system must provide the logic to adjust the address lines provided to the device. No logical remapping the XIP section only needs to be

implemented in the device.

Sub-section sizes larger BIOS and / or smaller grain sizes can be optionally supported but should not

prevent compatibility with the above requirements.

Modular for embodiments of the apparatus, partitioning the apparatus in a XIP section and a drive section is possible via a separate external configuration of mounting to which the device is

connected via the standard connector described above.

For embodiments of the component device, the partitioning device in a XIP section and a drive section can either be circuit via an external mounting configuration (if the card

System itself is equipped with the standard device connector).

Petitioner Samsung Ex-1004, 1226

The actual configuration of the XIP section of the device is carried out via

standard configuration interface described above.

It is permissible to require supply voltages of 5 V (for

166 2798749

radio) or 12 V (in addition to the standard operating voltage of 3.3V or 5 V) for the purpose of configuration only. These power supplies must not be used except when the appropriate signal is present. This signal identifies that the supply of the voltages are valid configuration and the configuration of the device is permitted. At a minimum, the supply voltages of the configuration and the signal would be provided by the external configuration of mounting device via the standard connector. The tensions

power configuration and the signal described above.

The configuration of the device once executed, can be stored in the l'intérieur A nonvolatile manner. This may require the use of a separate configuration memory area. Although it is possible to reconfigure the device in case of incorrect configuration, this is considered a rare event. it is therefore admissible to limit the number of reconfigurations (to allow the use of a restricted overwrite configuration memory area). In any case, a

minimum of, for example, 100 reconfigurations is supported.

It is possible to detect the capabilities and configuration of the device.

The capabilities and configuration of the XIP section are determined via

the interface described below.

The disc section of the device is in conformity with one of the two formats IDE (Integrated Drive Electronics or management of integrated electronics devices) or FTL (Fast Transient Loader or fast transient load). A standard mechanism exists to determine which of the two formats is supported by an implementation of the device. It is acknowledged to have an implementation of the device which supports both formats. In such a case, an additional configuration options must be provided to select the format to be used as device "primary" or "priming". The selection and detection of configuring the drive section is not required to permit read access to the XIP section interleaved with access to the I / O controller interface XIP. As a result, the system

167 2798749

can not run from the XIP section while updating or

configuring the XIP XIP section via the controller.

A drive section that supports the IDE format ensures full emulation of an IDE hard disk and is configurable to operate in unquelconque the following modes: primary IDE master, primary IDE slave, secondary IDE master, secondary IDE slave. Mode selection is

determined by the positioning of appropriate signals described above.

HDD management logic within the memory area

disc is performed by the disk controller inside the device.

Access to the logical drive is via commands sent to the IDE

Disk controller through the IDE driver within the BIOS.

A disk supporting section IDE format is configurable to operate in one or other of the modes to 8 or 16 bits wide. The data width is selected by the system through the appropriate signal. Although this signal can be dynamically controlled by the system, it should

normally be tied up or down depending on the capabilities of the system.

When the signal is present, the corresponding signal is used by the device

to tell the system that accesses 16 bits are required.

A block diagram showing one possible implementation of the device with an IDE disk format section is shown in Figure 53. The implementation of the device 7310 shown contains XIP controllers 7312 and 7314 separated disc and XIP memory areas 7316 and 7318 separated Drive . The XIP 7312 controller manages the configuration and updating of the XIP memory area and the disk controller handles the emulation

FDI unit using the disk memory area.

A disk supporting section FTL format is shown in Figure 54 in a block diagram and provides a standard mechanism for accessing blocks for storage within the XIIP memory area. This standard mechanism is the same regardless of the

168 2798749

technology used to implement within the disc memory area

of device and is described below.

The implementation of the device shown contains a single controller 7320 for both XIP and disk controllers (FTL) and a single memory region 7322 for both memory areas XIP and Drive. No IDE support is provided, and functions XIP controller and disk

share a common logic.

The BIOS on each system that uses the device must include both IDE and FTL drivers to ensure that all implementations of

Device can be used on all systems.

Petitioner Samsung Ex-1004, 1227

The XIP section of the apparatus emulates a linear addressabie read only memory by 8-bit words (e.g., equivalent to an EPROM of similar size). bits sufficient addresses for addressing up to 256 kilobytes are provided by the system to the device and are decoded if necessary l'intérieur the device. The appropriate signal is provided by the system to the device to identify that the XIP area is being addressed. The address decoding required to produce the signal from a range more

off address bits is under the responsibility of the system.

EPROM 16 bit emulation may be optionally supported, but should not prevent compatibility with the above requirements. If supported, the user emulation EPROM 16 bits will be validated by the system via the appropriate signal. Although the signal can be dynamically controlled by the system, it should normally be tied up or down depending on system capability. When the signal is present and that the device supports the 16-bit mode, then the corresponding signal is used to indicate

the system that accesses 16 bits are required.

The content of the XIP section of the device, if it is configured for use by the system, may be updated, on the circuit, via a standard programming interface. The device supports the programming interface of the standard XIP section described below, regardless of

169 2798749

specific technology used in the implementation of the area

XIP memory device.

Subdivision of the IPL XIP section of the device, if it is configured to be used by the system is independently protectable the update via a signal that "protect" or "deprotecting" subsection IPL. The drive section will be updated on the circuit, via the standard DOS disk driver and BIOS IDE or FTL standard drivers, regardless of the specific technologies used in the implementation

the memory area of the Drive Apparatus.

The nominal capacity of the memory device is set to be the size of the drive section supported by the device when XIP section 256 kilobytes has been configured. This should provide a measure of the worst

case for all implementations.

Although it is recognized for an implementation to extend the size of the

XIP area beyond the requirements of the present description, this space

additional will not be considered to increase the nominal capacity of the memory device unless it is incorporated into the drive section

when the XIP section is configured to a size of 256 kilobytes.

The XIP section of the device provides sufficient performance for

permit direct execution of the code from the emulated linear memory.

Since the device is interfaced by the ISA bus, the maximum speed

Access may be limited by lorsqu'appropriée speed ISA bus 8 MHz.

The wasch prolonged wait states the ISA bus (by using the appropriate signal) is permitted in the event of a delayed access to data XIP, but the maximum number of wait states will not greater than 10 and

average number of wait states is not greater than 2.

Although the system can optionally support the ability to "duplicate" the BIOS or other system code from the XIP area to RAM (random access memory) system for improved performance, this should not

be required to meet the performance requirements mentioned above

2798749

above.

device programming requirements are.

A special I / O interface is provided by the XIP controller inside the device for determining the capabilities of the device. This includes, without limitation, the following: * Granularity of adjusting the XIP section (granule size) Specified as an integer number of kilobytes * Maximum size of XIP section Specified as an integer granules must be greater than or equal to 256 kilobytes * presence flag of a section to the IDE disk format * presence flag of a section format disc FTL * Size of erase blocks FTL (if the FTL format is used) specified as an integer from granules the device does not require to permit read access to the XIP section interleaved with access to the I / O controller interface XIP. Consequently, the system can not run from the XIP section while making

day or by configuring the XIP XIP section via the controller.

A special interface is provided by the XIP controller within the device to determine the current configuration of the device. This includes but not limited to, the following: * Size of the current subsection IPL Specified as an integer granules * Size of the current BIOS subsection Specified as an integer granules * Choosing a formatted disk IDE or FTL as device "boot" When both are present the device does not require to allow read access to the XIP section interleaved with access to the I / O controller interface XIP. In

171 2798749

Consequently, the system can not run from the XIP section while

by updating or setting the XIP XIP section via the controller.

A special I / O interface is provided by the XIP controller inside the device to select the desired configuration of the device. This includes but not limited to, the following: * Size of subsection current IPL Specified as an integer granules * Size subsection current BIOS Specified as an integer granules * Choosing a formatted disk IDE or FTL as

Petitioner Samsung Ex-1004, 1228

device "boot" When both are present the device does not require any permit read access to the XIP section interleaved with access to the I / O controller interface XIP. Consequently, the system can not run from the XIP section while

by updating or setting the XIP XIP section via the controller.

A special I / O interface is provided by the XIP controller inside the device to update the contents of the XIP section. This includes but not limited to the following functions * Clear IPL IPL * * Write * Write Clear BIOS BIOS The device does not require to enable read access to the XIP section nested with access to the interface I / O controller XIP . Consequently, the system can not run from the XIP section while

by updating or setting the XIP XIP section via the controller.

When the drive section supports IDE format, then the standard IDE command set is supported. The BIOS IDE Driver System is

used to update the IDE format of the disk section.

172 2798749

When the drive section supports FTL format, then a special interface is provided by the disk controller inside the device to update the contents of the disc section. This includes without limitation the following functions block * Clear * Mapper block * block Write The device allows read access to the XIP section interleaved with access to the I / O controller FTL interface. Consequently, the driver can execute FTL BIOS from the XIP section while setting the day zone

Disc memory controller via the FTL.

Without further analysis, the foregoing will reveal fully the essential point of the invention that others can readily adapt to various applications without omitting features that individuals, from the holding point of the prior art, are precisely the essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations are made and intended to be within the meaning and range of equivalents of

following claims.

173 2798749

DIGITAL REFERENCES

21 - mobile unit (from the Figure (9)) 160 - validation development system 162 - host computer 164 - validation server 166 validates application program interface 168 - counter 170 access point 172 - terminal 162 174 - registration host applications 202 - decapsulating 204 - source MAC 206 - destination MAC 208 - diffusion 210 - destination MAC 212 - ship 214 - original access point 216 - 218 create entry - encapsulate 220 - 222 encapsulated ship 224 - ship 226 - send

Patent Citations (57)

Publication number	Priority date	Publication date	Assignee	Title
Family To Family Citations				
US4471216B1 *	1982-05-19	1989-08-01		
DE3428104C2 *	1984-07-30	1987-03-26	Heinz Georg Huenibach Thun Ch Baus	
US4654482A	1984-10-15	1987-03-31	Deangelis Lawrence J	Home merchandise ordering telecommunications terminal
JPS61217863A	1985-03-23	1986-09-27	Brother Ind Ltd	Electronic dictionary
US5468947A *	1986-08-08	1995-11-21	Norand Corporation	Pocket size data capture unit with processor and shell modules
DE3878653D1	1987-09-14	1993-04-01	Autophon Ascom Ag	Telephone station with a subscriber directory.
US4973952A *	1987-09-21	1990-11-27	Information Resources, Inc.	Shopping cart display system
US4864501A	1987-10-07	1989-09-05	Houghton Mifflin Company	Word annotation system
US5027294A	1989-01-27	1991-06-25	Zenith Data Systems Corporation	Method and apparatus for battery-power management using load-compensation monitoring of battery discharge
US5521370A	1989-01-31	1996-05-28	Norand Corporation	Pistol grip hand-held data terminal cooperable with communicating and recharging dock
US5790536A *	1989-01-31	1998-08-04	Norand Corporation	Hierarchical communication system providing intelligent data, program and processing migration
JPH0546113Y2 *	1989-03-20	1993-12-01		

Petitioner Samsung Ex-1004, 1229

US4937853A	1989-05-03	1990-06-26	Agt International, Inc.	Lottery agent data communication/telephone line interface
US5410141A *	1989-06-07	1995-04-25	Norand	Hand-held data capture system with interchangable modules
JPH0332251A *	1989-06-29	1991-02-12	Nec Corp	Mail equipment
US5280498A *	1989-06-29	1994-01-18	Symbol Technologies, Inc.	Packet data communication system
US5218188A *	1989-10-24	1993-06-08	Norand Corporation	Compact hand-held RF data terminal
US5280621A	1989-12-29	1994-01-18	Zenith Data Systems Corporation	Personal computer having dedicated processors for peripheral devices interconnected to the CPU by way of a system control processor
US5446756A	1990-03-19	1995-08-29	Celsat America, Inc.	Integrated cellular communications system
US5185860A	1990-05-03	1993-02-09	Hewlett-Packard Company	Automatic discovery of network elements
US5276789A	1990-05-14	1994-01-04	Hewlett-Packard Co.	Graphic display of network topology
US5309437A	1990-06-29	1994-05-03	Digital Equipment Corporation	Bridge-like internet protocol router
US5166931A	1990-09-04	1992-11-24	At&T Bell Laboratories	Communications network dynamic addressing arrangement
DE69118485T2	1990-11-13	1996-11-07	Symbol Technologies Inc	Flexible Warenauszahl- and inventory management system
US5506394A *	1990-11-15	1996-04-09	Gap Technologies, Inc.	Light beam scanning pen, scan module for the device and method of utilization
CA2084768A1 *	1991-04-16	1992-10-17	John Barrus	Method of and apparatus for the ordering from remote locations, such as a home or office or the like, of merchandise and/or services from a central location such as a store or warehouse and the like
JPH04326226A	1991-04-25	1992-11-16	Ricoh Co Ltd	System for connecting isdn and lan
US5278397A	1991-07-25	1994-01-11	Symbol Technologies, Inc.	Multi-resolution bar code reader
JPH05327712A	1991-08-09	1993-12-10	Nec Corp	Terminal adaptor
US5208449A *	1991-09-09	1993-05-04	Psc, Inc.	Portable transaction terminal
US5229988A	1992-01-21	1993-07-20	Hewlett-Packard Company	System and method for distinguishing proxy replies of interconnecting devices from duplicate source address replies of non-interconnecting devices on a network
US5313051A *	1992-04-06	1994-05-17	International Business Machines Corp.	Paperless parcel tracking system
US5305244B2 *	1992-04-06	1997-09-23	Computer Products & Services I	Hands-free user-supported portable computer
US5423045A	1992-04-15	1995-06-06	International Business Machines Corporation	System for distributed power management in portable computers
US5536930A	1992-06-03	1996-07-16	Symbol Technologies, Inc.	Apparatus and method for sensing positional orientations of a portable terminal
JP2826416B2	1992-06-05	1998-11-18	日本電気株式会社	Connection router between the local area network
US5442633A	1992-07-08	1995-08-15	International Business Machines Corporation	Shortcut network layer routing for mobile hosts
US5487181A	1992-10-28	1996-01-23	Ericsson Ge Mobile Communications Inc.	Low power architecture for portable and mobile two-way radios

Petitioner Samsung Ex-1004, 1230

US5410326A	1992-12-04	1995-04-25	Goldstein; Steven W.	Programmable remote control device for interacting with a plurality of remotely controlled devices
US5331547A *	1993-01-29	1994-07-19	Clinical Multiphase Research, Inc.	Process and computer system for control of interface software and data files
CA2157039A1 *	1993-02-26	1994-09-01	Arvin D. Danielson	Portable work station and data collection terminal including switchable multi-purpose touch screen display
US5353283A	1993-05-28	1994-10-04	Bell Communications Research, Inc.	General internet method for routing packets in a communications network
US5424524A *	1993-06-24	1995-06-13	Ruppert; Jonathan P.	Personal scanner/computer for displaying shopping lists and scanning barcodes to aid shoppers
US5410754A	1993-07-22	1995-04-25	Minute Makers, Inc.	Bi-directional wire-line to local area network interface and method
GB2282906B *	1993-10-13	1996-11-06	Dataquill Ltd	Data enty systems
US5483652A	1994-01-24	1996-01-09	Digital Equipment Corporation	Mechanism for locating without search discrete application resources known by common name only in a distributed network computing environment
US5583994A	1994-02-07	1996-12-10	Regents Of The University Of California	System for efficient delivery of multimedia information using hierarchical network of servers selectively caching program for a selected time period
US5664231A *	1994-04-29	1997-09-02	Tps Electronics	PCMCIA interface card for coupling input devices such as barcode scanning engines to personal digital assistants and palmtop computers
FI115739B *	1994-05-19	2005-06-30	Nokia Corp	The device for personal communications, data collection and handling and for PCB
US5416842A	1994-06-10	1995-05-16	Sun Microsystems, Inc.	Method and apparatus for key-management scheme for use with internet protocols at site firewalls
JPH0832732A *	1994-07-20	1996-02-02	Ricoh Co Ltd	Facsimile equipment
US5517494A	1994-09-30	1996-05-14	Apple Computer, Inc.	Method and system of multicast routing for groups with a single transmitter
US5550984A	1994-12-07	1996-08-27	Matsushita Electric Corporation Of America	Security system for preventing unauthorized communications between networks by translating communications received in ip protocol to non-ip protocol to remove address and routing services information
US5544152A	1995-01-10	1996-08-06	International Business Machines Corporation	IP bridge for parallel machines
US5504413A	1995-07-25	1996-04-02	Motorola, Inc.	Battery charging system with power management of plural peripheral devices
WO1998006055A1 *	1996-08-08	1998-02-12	Rapaport Jeffrey Alan	Apparatus and method for obtaining information from a computer network using a scanner and browser
WO1998040823A1 *	1997-03-12	1998-09-17	Elonex Plc	METHOD FOR COLLECTING URLs FROM PRINTED MEDIA

* Cited by examiner, † Cited by third party

Cited By (103)

Publication number	Priority date	Publication date	Assignee	Title
Family To Family Citations				
US6152369A *	1990-09-11	2000-11-28	Metrologic Instruments, Inc.	System for storing, accessing and displaying html encoded
US6068188A *	1993-11-24	2000-05-30	Metrologic Instruments, Inc.	System and method for composing menus of URL-encoded bar code symbols while using internet browser program
US6658595B1	1994-08-17	2003-05-27	Metrologic Instruments, Inc.	System and method for carrying out electronic-commerce transactions using web documents embodying electronic-commerce enabling applets automatically launched and executed in response to reading url-encoded symbols pointing thereto
US5905251A	1993-11-24	1999-05-18	Metrologic Instruments, Inc.	Hand-held portable WWW access terminal with visual display panel and GUI-based WWW browser program integrated with bar code symbol reader in a hand-supportable housing

Petitioner Samsung Ex-1004, 1231

US6076733A	1993-11-24	2000-06-20	Metrologic Instruments, Inc.	Web-based system and method for enabling a viewer to access and display HTML-encoded documents located on the world wide web (WWW) by reading URL-encoded bar code symbols printed on a web-based information resource guide
US5992752A	1993-11-24	1999-11-30	Metrologic Instruments, Inc.	Internet-based system for enabling information-related transactions over the internet using Java-enabled internet terminals provided with bar code symbol readers for reading Java-Applet encoded bar code symbols
US6942150B2	1993-11-24	2005-09-13	Metrologic Instruments, Inc.	Web-based mobile information access terminal
US6027024A *	1994-08-17	2000-02-22	Metrologic Instruments, Inc.	Hand-held portable WWW access terminal with visual display panel and GUI-based WWW browser program integrated with bar code symbol reader
DE69735505T2	1996-11-25	2006-12-14	Metrologic Instruments Inc.	System and method for accessing internet-based information sources by oversampling of java-applet coded bar code-symbols
US6386453B1	1996-11-25	2002-05-14	Metrologic Instruments, Inc.	System and method for carrying out information-related transactions
US6505776B1	1995-06-07	2003-01-14	Metrologic Instruments, Inc.	System for storing, accessing and displaying html-encoded documents relating to an object being worked upon in a work environment by a human operator wearing a wireless http-enabled client system equipped with a code symbol reader programmed to read a url-encoded symbol on the object, access said html-encoded documents from http-enabled information servers connected to an information network, and display same for review while working said object
US6321992B1	1997-03-19	2001-11-27	Metrologic Instruments, Inc.	Internet-based system and method for tracking objects bearing URL-encoded bar code symbols
US7711598B2	1996-10-25	2010-05-04	Ipf, Inc.	Web-based consumer product marketing communication network for managing and delivering consumer product marketing communications to consumers along e-commerce (EC) enabled web sites on the world wide web (WWW), using multi-mode virtual kiosks (MMVKS) driven by server=side components embodying consumer product identifiers and driven by consumer product information (CPI) links managed by product manufacturer team members and/or their agents
US7844492B2	1999-11-17	2010-11-30	Ipf, Inc.	Internet-based E-commerce network for enabling commission-based E-commerce transactions along the fabric of the world wide web (WWW) using server-side driven multi-mode virtual kiosks (MMVKS) and transaction and commission tracking servers
US7848948B2	1996-10-25	2010-12-07	Ipf, Inc.	Internet-based product brand marketing communication network configured to allow members of a product brand management team to communicate directly with consumers browsing HTML-encoded pages at an electronic commerce (EC) enabled web-site along the fabric of the world wide web (WWW), using programable multi-mode virtual kiosks (MMVKS) driven by server-side components and managed by product brand management team members
US6625581B1	1994-04-22	2003-09-23	Ipf, Inc.	Method of and system for enabling the access of consumer product related information and the purchase of consumer products at points of consumer presence on the world wide web (www) at which consumer product information request (cpir) enabling servlet tags are embedded within html-encoded documents
US7904333B1	1996-10-25	2011-03-08	Ipf, Inc.	Web-based electronic commerce (EC) enabled shopping network configured to allow members of a consumer product management team and authorized parties to communicate directly with consumers shopping at EC-enabled websites along the world wide web (WWW), using multi-mode virtual kiosks (MMVKS) driven by server-side components and managed by product team members
US5978773A *	1995-06-20	1999-11-02	Neomedia Technologies, Inc.	System and method for using an ordinary article of commerce to access a remote computer
US6314406B1	1996-06-26	2001-11-06	Telxon Corporation	Customer information network
US5821513A	1996-06-26	1998-10-13	Telxon Corporation	Shopping cart mounted portable data collection device with tethered dataform reader
US6084979A *	1996-10-25	2000-05-16	Ipf, Inc.	Method of and system for finding and serving consumer product related information over the internet using manufacturer identification numbers
US7143055B1	1996-10-25	2006-11-28	Ipf, Inc.	Internet-based system for collecting, managing and serving consumer product-related information over the internet using trademarks and universal resource locators (urls) symbolically-linked by manufacturers of consumer products and/or their agents
US6961712B1	1996-10-25	2005-11-01	Ipf, Inc.	Consumer product information request (CPIR) enabling servlets and web-based consumer product information catalogs employing the same
US5764224A *	1997-03-25	1998-06-09	Ericsson Inc.	Cordless mouse-stylus-pointer
US7185820B1	1997-06-26	2007-03-06	Symbol Technologies, Inc.	Data acquisition apparatus
US5955719A	1997-12-19	1999-09-21	A. T. Cross Company	Data/pen well

Petitioner Samsung Ex-1004, 1232

US6330976B1	1998-04-01	2001-12-18	Xerox Corporation	Marking medium area with encoded identifier for producing action through network
US6675203B1	1998-10-05	2004-01-06	Symbol Technologies, Inc.	Collecting data in a batch mode in a wireless communications network with impeded communication
US7206849B1	1998-10-05	2007-04-17	Symbol Technologies, Inc.	Communication in a wireless communications network when a mobile computer terminal may be unreachable
US6694366B1	1998-04-29	2004-02-17	Symbol Technologies, Inc.	Data reconciliation between a computer and a mobile data collection terminal
GB9908554D0 *	1998-06-03	1999-06-09	Kaplan Robert	Method and apparatus for addressing a computer network
US6237053B1	1998-06-30	2001-05-22	Symbol Technologies, Inc.	Configurable operating system having multiple data conversion applications for I/O connectivity
US6826756B1	1998-06-30	2004-11-30	Symbol Technologies, Inc.	Automatic transfer of data from an input device to a software application
WO2001015020A2 *	1999-08-24	2001-03-01	Digitalconvergence.:Com Inc.	A combined product code and insignia for signifying an internal interactive code
US7440993B1	1998-09-11	2008-10-21	Lv Partners, L.P.	Method and apparatus for launching a web browser in response to scanning of product information
US6745234B1	1998-09-11	2004-06-01	Digital:Convergence Corporation	Method and apparatus for accessing a remote location by scanning an optical code
US7386600B1	1998-09-11	2008-06-10	Lv Partners, L.P.	Launching a web site using a personal device
US7191247B1	1998-09-11	2007-03-13	Lv Partners, Lp	Method for connecting a wireless device to a remote location on a network
US6823388B1	1998-09-11	2004-11-23	L.V. Parners, L.P.	Method and apparatus for accessing a remote location with an optical reader having a programmable memory system
US6704864B1 *	1999-08-19	2004-03-09	L.V. Partners, L.P.	Automatic configuration of equipment software
US7392945B1	1998-09-11	2008-07-01	Lv Partners, L.P.	Portable scanner for enabling automatic commerce transactions
US6636896B1	1998-09-11	2003-10-21	Lv Partners, L.P.	Method and apparatus for utilizing an audibly coded signal to conduct commerce over the internet
WO2001015018A2 *	1999-08-19	2001-03-01	Digitalconvergence.:Com Inc.	Method for controlling a computer using an embedded unique code in the content of recording media
US8028036B1	1998-09-11	2011-09-27	Rpx-Lv Acquisition Llc	Launching a web site using a passive transponder
US6868433B1	1998-09-11	2005-03-15	L.V. Partners, L.P.	Input device having positional and scanning capabilities
US6845370B2	1998-11-12	2005-01-18	Accenture Llp	Advanced information gathering for targeted activities
US6202062B1 *	1999-02-26	2001-03-13	Ac Properties B.V.	System, method and article of manufacture for creating a filtered information summary based on multiple profiles of each single user
US7173722B1	1999-05-25	2007-02-06	Silverbrook Research Pty Ltd	Method and system for printing a photograph
GB9922214D0 *	1999-09-20	1999-11-17	Ncr Int Inc	Creation transmission and retrieval of information
EP1085432B1	1999-09-20	2008-12-03	NCR International, Inc.	Information retrieval and display
JP2001160105A *	1999-09-22	2001-06-12	Sony Corp	Information processing system, portable telephone set, and information processing method
AU7710600A *	1999-09-24	2001-04-24	Peter Kassan	Device enabling rapid reading and accessing of web pages
EP1103931A1 *	1999-11-29	2001-05-30	Ascom AG	Apparatus for banknote recognition
WO2001040914A2 *	1999-11-30	2001-06-07	Vercel Development Corporation	Hand held internet browser with folding keyboard
AUPQ439299A0 *	1999-12-01	1999-12-23	Silverbrook Research Pty Ltd	Interface system
AU2057801A *	2000-01-04	2001-07-16	Chippo Technologies, Inc.	Methods and systems for accessing information and services on a computer network
WO2001067326A1 *	2000-03-09	2001-09-13	Kitagawa, Yoshiko	Information processing apparatus with optical data reader, servers, and electronic commerce method
CA2342095A1 *	2000-03-27	2001-09-27	Symagery Microsystems Inc.	Image capture and processing accessory

Petitioner Samsung Ex-1004, 1233

FR2809851A1 *	2000-05-30	2001-12-07	Gkn Automotive Sa	Product tracking system between departure and arrival points using global positioning system; uses cellular telephone to transmit positional, timing and product code data to goods tracing server
JP4568963B2 *	2000-06-08	2010-10-27	ソニー株式会社	The information processing apparatus, an information communication system
CA2412866C *	2000-06-16	2008-12-30	Vulcan Northwest, Inc.	Display facility supplementing experience of a visitor
US6658596B1	2000-10-02	2003-05-27	Symbol Technologies, Inc.	XML-based barcode scanner
US6848014B2	2001-01-23	2005-01-25	Symbol Technologies, Inc.	Adapter unit for a personal digital assistant having automatically configurable application buttons
US7072974B2	2001-03-27	2006-07-04	The Code Corporation	Extensible application interface using machine-readable graphical codes
US6869016B2	2001-04-04	2005-03-22	Symbol Technologies, Inc.	Bar code data driven communications by mobile computer terminals operable in wireless networks
FR2823337B1 *	2001-04-05	2004-10-15	Netseniors	Reading Method, processing, transmission and operation of a bar code
US6895776B2	2001-04-13	2005-10-25	The Code Corporation	System and method for encoding and decoding data and references to data in machine-readable graphical codes
US6978038B2	2001-04-13	2005-12-20	The Code Corporation	Systems and methods for pixel gain compensation in machine-readable graphical codes
US7188824B2	2001-04-13	2007-03-06	The Code Corporation	System and method for associating pre-printed machine-readable graphical codes with electronically-accessible data
US7970648B2	2001-04-27	2011-06-28	Accenture Global Services Limited	Advertising campaign and business listing management for a location-based services system
US6848542B2	2001-04-27	2005-02-01	Accenture Llp	Method for passive mining of usage information in a location-based services system
US6944447B2	2001-04-27	2005-09-13	Accenture Llp	Location-based services
US7698228B2	2001-04-27	2010-04-13	Accenture Llp	Tracking purchases in a location-based services system
US7437295B2	2001-04-27	2008-10-14	Accenture Llp	Natural language processing for a location-based services system
US6811085B2	2001-10-26	2004-11-02	Symbol Technologies, Inc.	Miniature imager
FR2832238A1 *	2001-11-14	2003-05-16	Jean Louis Menard	Method for accessing information, especially for accessing information stored under a URL, whereby the URL is input using a reader device and transmitted to a PC or similar so that the information can be searched for and located
US7200567B2 *	2002-01-04	2007-04-03	Lockheed Martin Corporation	Purchasing aid logistics appliance and method for use
JP4149199B2 *	2002-06-05	2008-09-10	富士通株式会社	Mobile terminal assist device, the data synchronization method and a portable terminal device
US6978930B2	2002-06-21	2005-12-27	A.T.X. International, inc.	Optical bar code scanner and system for retrieving bar code data
US7621453B2	2002-07-29	2009-11-24	The Code Corporation	System and method for controlling the distribution of data translation components to portable data collection devices
US7097099B2	2002-07-29	2006-08-29	The Code Corporation	Data collection device with integrated data translation
US7070091B2	2002-07-29	2006-07-04	The Code Corporation	Systems and methods for interfacing object identifier readers to multiple types of applications
US7392933B2	2002-07-29	2008-07-01	The Code Corporation	Systems and methods for interfacing multiple types of object identifiers and object identifier readers to multiple types of applications
JP2006527544A *	2003-06-06	2006-11-30	ネオメディアテクノロジーズ，インク．	Automatic access of Internet content using the camera function with cell phone
GB2403038B *	2003-06-20	2005-08-10	Trek 2000 Int Ltd	Data input device, systems using the device, and methods for operating such systems
FR2858077B1 *	2003-07-25	2006-01-20	Eastman Kodak Co	Method for selective image distribution
ITMI20032240A1 *	2003-11-18	2005-05-19	Kallideas S R L	A communication device of encrypted codes.
GB2408614A	2003-11-27	2005-06-01	Sharp Kk	Remote access system
US7353999B2	2004-01-16	2008-04-08	The Code Corporation	Graphical code reader configured for data collection and decoding
US7240831B2	2004-01-21	2007-07-10	The Code Corporation	Systems and methods for establishing communication between an identification tag reader and a computing device

Petitioner Samsung Ex-1004, 1234

				tag reader and a computing device
EP1569140A3 *	2004-01-30	2006-10-25	Hewlett-Packard Development Company, L.P.	Apparatus, methods and software for associating electronic and physical documents
GB0402022D0	2004-01-30	2004-03-03	Hewlett Packard Development Co	Method of obtaining at least a portion of a document
US7519239B2	2004-02-11	2009-04-14	The Code Corporation	Systems and methods for concurrent image capture and decoding of graphical codes
US20050267964A1 *	2004-04-28	2005-12-01	Guenter Kech	Method for providing apparatus specific information and corresponding system
US7204417B2	2004-11-03	2007-04-17	The Code Corporation	Graphical code reader that is configured for efficient decoder management
GB0601528D0 *	2006-01-25	2006-03-08	Avantone Oy	Methods and systems for delivering digital content
GB0617379D0 *	2006-09-04	2006-10-11	Het Nl Kanker I	Digital polling system and method
MX2009009333A *	2007-04-26	2009-09-11	Ericsson Telefon Ab L M	Method and arrangement for processing mobile station history information in a wireless communication system.
EP2269142A4	2008-03-14	2015-04-22	Neomedia Tech Inc	Messaging interchange system
WO2010120555A2 *	2009-03-31	2010-10-21	The U.S.A, As Represented By The Secretary,Dpt. Of Health & Human Services	Device and method for detection of counterfeit pharmaceuticals and/or drug packaging
CN101577901B	2009-06-19	2012-05-23	中兴通讯股份有限公司	Wireless access platform and equipment upgrading management system and method thereof
GB2505867A *	2012-07-11	2014-03-19	Digipos Store Solutions Internat Ltd	Modular point-of-sale terminal
WO2014089406A1	2012-12-07	2014-06-12	The United States Of America, As Represented By The Secretary,Department Of Health & Human Services	Device and method for detection of counterfeit pharmaceuticals and/or drug packaging

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title
Coskun et al.	2011	Near field communication (NFC): From theory to practice
US7536034B2	2009-05-19	Gestural use of wireless mobile phone devices to signal to remote systems
US7013290B2	2006-03-14	Personalized interactive digital catalog profiling
US8634796B2	2014-01-21	System and method for location based exchanges of data facilitating distributed location applications
US20110208418A1	2011-08-25	Completing Obligations Associated With Transactions Performed Via Mobile User Platforms Based on Digital Interactive Tickets
US20020112172A1	2002-08-15	System and method for secure distribution of digital products
US20050005102A1	2005-01-06	Memory data copying system for devices
US7712670B2	2010-05-11	Data collection device and network having radio signal responsive mode switching
US7711598B2	2010-05-04	Web-based consumer product marketing communication network for managing and delivering consumer product marketing communications to consumers along e-commerce (EC) enabled web sites on the world wide web (WWW), using multi-mode virtual kiosks (MMVKS) driven by server-side components embodying consumer product identifiers and driven by consumer product information (CPI) links managed by product manufacturer team members and/or their agents
US20120029691A1	2012-02-02	Mobile device assisted retail system and process in a vending unit, retail display or automated retail store
US20040012613A1	2004-01-22	Video cloaking and content augmentation
US20130339498A1	2013-12-19	System and Method for Application Context Location Based Configuration Suggestions
US8635309B2	2014-01-21	Methods and apparatus to change a feature set on data collection devices
US6714969B1	2004-03-30	Mobile terminal with integrated host application software
US6405049B2	2002-06-11	Portable data terminal and cradle
US20040210479A1	2004-10-21	Internet-based brand marketing communication instrumentation network for deploying, installing and remotely programming brand-building server-side driven multi-mode virtual kiosks on the World Wide Web (WWW), and methods of brand marketing

Petitioner Samsung Ex-1004, 1235

		communication between brand marketers and consumers using the same
US7904338B1	2011-03-08	Web-based electronic commerce (EC) enabled shopping network configured to allow members of a consumer product management team and authorized parties to communicate directly with consumers shopping at EC-enabled websites along the world wide web (WWW), using multi-mode virtual kiosks (MMVKS) driven by server-side components and managed by product team members
US20060028398A1	2006-02-09	Wireless interactive multi-user display system and method
US20030088781A1	2003-05-08	Systems and methods for ensuring security and convenience
US20010003177A1	2001-06-07	Printed medium activated interactive communication
US20030097350A1	2003-05-22	Handheld computer systems and methods
US20120190386A1	2012-07-26	Wireless location establishing device
US20130067035A1	2013-03-14	System and method for cloud based delivery and display of content on mobile devices
US20150163345A1	2015-06-11	Smartphone-based methods and systems
US20140244488A1	2014-08-28	Apparatus and method for processing a multimedia commerce service

Priority And Related Applications

Priority Applications (3)

Application	Priority date	Filing date	Title
US69126396A	1996-08-02	1996-08-02	*US Provisional Application*
US08/794,782	1997-02-03	1997-02-03	Down-loadable hand-held optical reader
US08/827,263	1997-03-28	1997-03-28	Portable multipurpose recording terminal and portable network server

Legal Events

Date	Code	Title	Description
2002-05-24	ST	Notification of lapse	
2002-12-27	RN	Application for restoration	
2003-02-21	IC	Decision of the director general to declare irreceivable or to reject an appeal	

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Petitioner Samsung Ex-1004, 1236

Patents

Virtual wireless local area networks

Abstract

translated from Chinese

A method of operating a plurality (12) The method of virtual wireless networks using a common distribution system. A plurality of radio network side through a single access point (24) attached to a plurality of wired networks. In this way a message may be a mobile device (22) and a transmission between a LAN (10). LAN and mobile device associated with the identifier, the identifier is used for routing a message to be transmitted. Message transmitted from the mobile device to the corresponding access point, an access point identifier in its memory of the mobile device identifier is compared and assigned label message according to the destination LAN. Message has been allocated the label thereupon transmitted from the access point to the distributed system, the system routes the message to a respective inlet and a local area network.

Classifications

H04W48/18 Selecting a network or a communication service

View 2 more classifications

CN1759620A

China

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Other languages: Chinese

Inventor: G·D·梅尔维勒, R·蒙哥马利, 小R·马尔蒂诺

Worldwide applications

2004 WO CN EP JP US

Application CN 200480006549 events

2003-02-06 Priority to US44538103P

2003-02-06 Priority to US60/445,381

2004-02-05 Application filed by 讯宝科技公司

2006-04-12 Publication of CN1759620A

2010-01-20 Application granted

2010-01-20 Publication of CN100584086C

Info: Patent citations (14), Cited by (20), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Claims (8)

translated from Chinese

A distributed system using a common method for a plurality of virtual wireless networks in operation, comprising: providing an inlet to a plurality of distributed system from the LAN server, each entry associated with a local area network for recognizing a message tag is associated; providing at least one access point coupled to the distributed system, the access point comprising a memory; a wireless service group identifier to each of said local area network associated with the inlet; providing the mobile device service group identifier of the mobile device and one of said inlet associated with; providing the service group identifier and the tag associated with the inlet of the access point associated memory data; operating the moving means so that said at least one access point associated with the associated service group identifier comprises transmitting from the mobile device to the access point; operating the moving means so as to transmit data to the access point associated with the transmission of the service group identifier comprises the mobile device; and operating the access point so that the number of Message from a mobile device associated with said forwarded to the distributed system through the inlet, the inlet of the local area corresponding to the service group identifier associated with said transfer group comprises a verification of the identification whether the service local message tag of said message to said access point associated memory.

2. The method according to claim 1, characterized in that, further comprising operating the access point transmits a beacon so that it has a single primary service group identifier, the access point and operating it with one having primary service group identifier and the mobile device one or more secondary service group identifier associated with the primary service group identifier and the one or more service group identifier to each of the local access point a message memory associated with the tag.

3. The method according to claim 1, characterized in that, by the access point comprises the forwarding made so that each of the transfer label message corresponding to the access point associated with the memory the tag contains a service group identified in the message from the mobile device included with.

4. A method of using a plurality of common operating system virtual distributed wireless network comprising: providing a distributed system from the inlet to the plurality of local area network server, LAN tag associated with the message associated with a respective inlet for identifying ; providing at least one access point coupled to the distributed system, the access point comprising a memory; a domain identifier to each of said, said inlet is associated with a local area network; providing a mobile device having and a domain identifier of the mobile device associated inlet; providing the domain identifier and data associated with the tag associated with the inlet of the access point stored in said memory; operating the mobile reacted with at least one device associated with the access point, the association comprises a domain identifier from the mobile device to transmit to the access point; associated with operating the mobile device to the access point it, and one of said mobile device and the access point in the memory associated with the entry associated with the label; and operating the access point so that the message data Mobile device via the associated distributed system transferred to the inlet that corresponds to the service group associated with the identification of the local area network, comprising the transfer inlet and the associated mobile device the message in a local area network tag.

5. A method for providing a plurality of virtual wireless network system comprising: a distributed system; an inlet coupled to a plurality of distributed systems, each corresponding to at least one network, each associated with an inlet for identifying at least one network message associated with the label; a plurality of mobile devices, each having a said mobile device and a service group identifier associated with the network; access distributed to the at least one coupling system point, the access point comprises a data memory with the service group identifier and the label associated with; wherein said moving means is arranged so that the associated service group identifier comprises at least one access point associated with transmitting from the mobile device to the access point, and to transmit data to the access point associated with the transfer of the

Petitioner Samsung Ex-1004, 1237

service group identifier comprises the mobile device; and wherein said access point is arranged tag it with a local message, the associated data message from the mobile device via the distributed system transferred to the service group corresponding to the identification phase An inlet associated with LAN, and is arranged to check whether the service group identifier and the message of the access point in the local memory associated with the tag message.

6. The system of claim 5, wherein said access point is arranged so that it transmits a beacon having a single primary service group identifier, wherein the access point is arranged so that the primary service having a the mobile device group identifier and one or more secondary service group identifier associated with the primary service group identifier and the one or more service group identifier associated with each of the access points in a local memory associated message tag .

7. The method according to claim 5, wherein said access point is arranged so that in each of the memory from the mobile device corresponding to said access point forwarding the message comprises a tag associated with the label of the service group identifier contained in the message.

8. A method for providing a plurality of virtual wireless network system comprising: a distributed system; an inlet coupled to a plurality of distributed systems, each corresponding to at least one network, each associated with an inlet for identifying network message to the at least one associated label; a plurality of mobile devices, each having a field identifying the mobile device and the network associated with one of: at least one access point coupled to the distributed system the access point comprises a data memory with the domain identifier tag associated with; wherein said moving means is arranged so that the association of at least one access point is associated with a domain identifier comprises from the said mobile device transmits to the access point, and transmitting data to the associated access point; and wherein said access point is arranged so that with a local message tag, the data from the associated the mobile device corresponding to the memory access entry point of the local area network domain identifier associated with a distributed system transferred to.

Description

translated from Chinese

Virtual wireless local area network

(1) Technical Field The present invention relates to wireless local area networks. More specifically, the present invention relates to a wireless local area network, wherein on a common hardware to be compatible with the system to provide a plurality of virtual wireless LAN.

(2) Background follow IEEE Standard 802.11 wireless data communication protocol communication systems have well known. in these systems, a mobile device and a central computer or other data processing device in data communication through the access point. Access point may communicate with a computer on Ethernet (Ethernet) wired network. Each mobile device and the access point is associated.

In some cases, the system may require the use of a plurality of local area networks and wireless local area networks on the same physical space. Such demand may occur in the airport environment, where multiple users may include airport operations, police or security and airline. Such demand may also occur in the case of cooperation reorganization, when the two companies to temporarily occupy the same physical space. In these cases, for mounting a plurality of systems in order to avoid repetition of the access point, the communication data needs to be routed through the same access point.

Known virtual local area networks (VLANs) can serve multiple users using the same hardware. IEEE 802.1Q standard defines an internal frame recorded in a data packet to identify the VLAN membership.

It is therefore an object of the present invention is to provide a public access points by a mobile communication device and a plurality of service systems methods and apparatus.

(3) According to the present invention, there is provided a distributed system using a common method for operating a plurality of virtual wireless networks. The distributed system is coupled to a plurality of local area network server through the inlet. Each entry is associated with a tag that is associated with a local area network identification message. Each entry is associated with a local area network associated with a wireless service group identifier. At least one access point, which includes a memory coupled to the distributed system, and can be used for communication with the mobile device. Mobile device system has a service group identifier, each mobile device will be associated with a respective inlet that a LAN. Providing data to the access point memory, the service group identifier associated with the tag corresponding to the inlet. The mobile device by the service group identifier transferred from the mobile device to the access point to connect the at least one access point. Once associated with an access point, the mobile device can transmit data to the access point associated with a data service includes a group identifier of the mobile device. Then the data access point by the mobile device to the inlet of a distributed system-area network services forwarding group identifier associated. Transfer of such data would include checking whether the service group identifier and the label information of the local access point in the corresponding memory.

In the preferred distribution, the operation of the access point transmits a beacon so that it has a single primary service group identifier. There is a primary access point service group identifier and one or more secondary service group identifier, each of the access points in a local memory with information associated with the tag. The access point identifier or service group containing a primary or a secondary device comprising a mobile communication service group identifier. In the preferred arrangement, the access point transferring data according to each transponder tag information, the service group identifier associated with the information from the mobile device comprising the tag.

In another embodiment of the present invention, a plurality of common operating a distributed system comprising a virtual wireless network to provide access to a distributed system from a plurality of local area network server. Each entry corresponds to a local area network identification tag message for associating. At least one access point having a memory coupled to the distributed system. Each entry is associated with a local area network identifier associated with one domain. The mobile device also has a field identifying the mobile device and the inlet associated with one. Data access point identifier domain memory tag entry corresponding to the relevant contact. Operation of the mobile device and associate it with a domain identifier transmitted from the access point to the access point the mobile device. In association, the mobile device associated with the access point to a memory corresponding to the inlet of Tags. Then the access point the mobile device the message data associated with a distributed system transferred to the associated service group identifier and the LAN corresponding to the inlet. Forwarding data corresponding to the inlet comprises a mobile device associated with a local area network tag message.

According to the present invention, there is provided a system for providing a plurality of virtual wireless networks. The system comprises a distributed system inlet and a plurality of coupling to the distributed system, each entry corresponding to at least one network. Each entry with a message identifying the respective network associated with the label used. Each mobile device having a mobile device and a service group identifier associated with a network. The at least one access point coupled to the distributed system, and includes a memory containing the data service group identifier associated with the tag. The mobile device is arranged so as to associate at least one access point. This association comprises transmitting the service group identifier from the mobile device to the access point. The access point arranged so that data messages from the mobile device and transferred to the associated service group identifier inlet LAN associated with a local message distribution system through the tag, and checks whether the group identification of the message service bureau associated with the tag field of the message.

In the preferred embodiment, it is arranged so that the access point transmits a beacon having a single service group identifier. And the access point so that the mobile device having a group identifier of the primary service and one or more secondary service group identifier associated with the arrangement. Primary and secondary

Petitioner Samsung Ex-1004, 1238

service group identifier and the access point in a local memory associated with the tag message. Each access point may be arranged so that the transfer message service group identifier corresponding to the tag associated with the message from the mobile device included in a tag contains.

According to the present invention, there is provided a plurality of virtual wireless networks may be provided in the system, the system comprising a distributed system to the inlet system and distributed to a plurality of coupled, each entry corresponding to at least one network. Each tag entry associated with a network message associated with the identification of at least one. The system provides a plurality of mobile devices, each mobile device has a domain identifier in the network device associated with one of the moved. The at least one access point coupled to the distribution system and including a memory and the data field identification tag associated with. The mobile device is arranged so that it transmits the domain identifier and associated with an access point to the access point. it is arranged by a local access point label message, the data message from a mobile device associated to the LAN and transferred to a corresponding domain identifier associated with the mobile device through the inlet of a distributed system.

For a better understanding of the present invention together with other and further objects, reference will be made in conjunction with some reference to the following description, while the scope of the invention will be pointed out that the appended claims.

(4) FIG. 1 is a block diagram of a virtual wireless network in public distribution system of the present invention is used.

FIG 2 is a flowchart illustrating a service group identifier using the message transmitted from the mobile device to process the respective inlet.

FIG 3 is a flowchart illustrating the use of the domain identity message from the mobile set to the corresponding inlet flow.

(5) DETAILED DESCRIPTION Referring to Figure 1, shows a virtual wireless network according to embodiments of the present invention, which provides data communication between a local area network, e.g., a computer 20, telephone interface 18 or the server 16 and the mobile device 22. System uses access points 24 to provide radio packet data with the mobile communication device 22 using a communication protocol, such as IEEE Standard 802.11, whereby the radio modules to monitor the polling signal in the access point 22 the mobile device 24 and sent to a purpose of data communication with the access point 24 is associated. For example, radio module and an access point for those mobile devices 24 using system developed by the assignee of the spectrum may be the same.

In the system of FIG. 1, each local area network, such as the computer 20, telephone interface 18 and the server 16 or a service group identifier assigned to a particular network or a mobile device and an identifier associated with the domain. Each of these local area networks, respectively through the inlet 14 is coupled to the distributed system 12. 12, the mobile device issued by a distributed system data message routing label contained in the message to the appropriate entry by, for example, specified by the standard 802.IQ label. An inlet disposed so that the reception message issued distributed system, while the inlet will have an associated label message transferred to the inlet coupled to the LAN.

Each mobile device 22 having a group identifier or a service identifier field, the identifier corresponding to the domain identifier or mobile device intends to communicate with the LAN. In one such arrangement described in standard 802.11, the service group identifier (SSID) as an identifier of a wireless communication environment. A different SSID associated with each virtual LAN, wireless in the art such that, on a data message identified by the SSID identifies a wired distribution system by the 802.IQ label.

According to an alternative arrangement may be associated with a virtual LAN each associated with an identifier, such as a draft specification 802.11i provided. Note that the term "domain" as used herein is not limited to the corresponding domain 802.11i standard, but will include other similar properties can be used with a virtual network tag and uniquely identify a mobile device or a data packet identifier. The initial packet switching means comprising a field identifying the mobile. Domain identifier associated with the organization. Access point may accordingly be determined in the domain of the mobile device associated with the process, and then by the message received by the mobile device to provide the appropriate VLAN tag. In this way, each mobile device 22 transmits an identifier to the access point 24, the identifier associated with the mobile device provides a virtual LAN. A memory in the access point identifier corresponding to the mobile device is verified, while the local virtual LAN identifier associated with that message. Then the access point 24 can transfer data to the inlet 14 and the LAN identifier associated with the mobile device corresponding to a distributed system.

In the example shown in FIG. 2, each set of the mobile device gave a service group identifier, which many LAN device using a common distribution system 12 and a common access point 24 associated with one of the mobile . When a mobile device is initialized and the operation need to be associated with an access point, the mobile device monitors the access point beacon messages 24, while a selection is to be an access point associated with the request. The mobile device 30 transmits a request together with the associated service group identifier of the mobile device to the access point 30. in step 32, the access point receives the association request while the service group identifier identifying the service group with the access point in the memory of the mobile device is compared. If one of the service group identifier identifying the service group with the access point in the memory of the mobile device corresponds to the association in step 34 the mobile device is allowed. After the mobile device transmits a data message with a corresponding service group identifier 36 to the access point. Then the access point identifier for the service group and its memory is compared to a service group identifier, while assigning a label for the message in step 38. Tag has been assigned in step 40 to the message is then transmitted through the respective inlets distributed system.

Using the example of Figure 3 domain characteristics similar to the standard 802.11i provided, which sends a domain identifier in the initialization packet exchange between the mobile device and the step 50 of the access point. Domain may advantageously be a tissue or a virtual network associated with a distributed system and therefore the associated inlet. Receiving access point in the domain in step 52 the association request, and the request for the domain associated with the access point in the memory corresponding to the inlet 14 and routing messages in a distributed system to the inlet 14 by tag compare . Optionally, the association request by the access point may be transferred to an authentication server as shown in FIG. 53, the authentication server to verify whether the other safety features corresponding to the mobile device and the virtual network domain or carried. If the memory of the access point and the mobile device domain identifier associated with the inlet corresponds to the label, the correlation step 54 is allowed, the device will identify the tag associated with the domain identifier while moving. In step 56 the mobile device then transmits data messages with the mobile device identifier to the access point. Comparing the mobile device identifier with the mobile device identifier of the access point the access point in step 58, and then sends messages to tag message distributed system. Receiving a message with the label distributed system in step 60 and it is routed to the respective inlet.

The system of the present invention may provide different security configuration message for each virtual LAN. Associated with the mobile device uses the SSID of the VLAN can be mapped as a SSID inlet / / security. Access point by checking the valid key index usage message and decrypting effective to enhance security scheme selected. Security program may be open (Open), shared key (Shared Key) WEP, Kerberos, radial (Radius) and EAP / TLS.

The term access point used herein refers to a composition comprising a cell controller and radio frequency (RF), as in copending Serial No. 09 / 528,697, filed on March 17, 2000, filed as described, which application is assigned the same assignee as the present application, incorporated herein by reference. In such a system, the access point function may be implemented in monolithic form or in the form of assembly by the cell controller.

While have been described herein what are considered preferred embodiments of the present invention, those skilled in the art will find without departing from the spirit of the present invention may be made of other and further changes and modifications, all hereby declare such changes and modifications are within the true scope of the invention.

Petitioner Samsung Ex-1004, 1239

Patent Citations (14)

Publication number	Priority date	Publication date	Assignee	Title
Family To Family Citations				
JP3009876B2 *	1997-08-12	2000-02-14	日本電信電話株式会社	Base stations using the packet transfer method and the method
US20020022483A1 *	2000-04-18	2002-02-21	Wayport, Inc.	Distributed network communication system which allows multiple wireless service providers to share a common network infrastructure
US6618763B1 *	2000-02-04	2003-09-09	Inphonic Inc.	Virtual private wireless network implementing message delivery preferences of the user
US7173922B2 *	2000-03-17	2007-02-06	Symbol Technologies, Inc.	Multiple wireless local area networks occupying overlapping physical spaces
JP4126856B2	2000-07-07	2008-07-30	沖電気工業株式会社	Tag-vlan of id automatic identification method
AU7197701A *	2000-07-14	2002-01-30	At And T Corp	Frame classification for qos-driven wireless lans
US7301946B2 *	2000-11-22	2007-11-27	Cisco Technology, Inc.	System and method for grouping multiple VLANs into a single 802.11 IP multicast domain
CN1129272C	2000-12-15	2003-11-26	华为技术有限公司	Virtual local area network access method in ethernet access network
US20040003060A1 *	2001-07-13	2004-01-01	International Business Machines Corporation	Method and apparatus for network connection registration and selection
CN1125545C	2001-12-31	2003-10-22	刘军民	Data formarding method for implementing virtual channel transmission in LAN
CN100440846C	2002-02-28	2008-12-03	威盛电子股份有限公司	Data package transmitting method and network exchanger adopting said method
US6658259B2 *	2002-03-07	2003-12-02	Interwave Communications International, Ltd.	Wireless network having a virtual HLR and method of operating the same
US7688295B2 *	2002-12-19	2010-03-23	Chantry Networks Inc.	Wireless local area communication network system and method
US7492744B2 *	2004-02-06	2009-02-17	Symbol Technologies, Inc.	Method and system for multiple basic and extended service set identifiers in wireless local area networks

* Cited by examiner, † Cited by third party

Cited By (20)

Publication number	Priority date	Publication date	Assignee	Title
WO2010020074A1 *	2008-08-20	2010-02-25	上海贝尔股份有限公司	A method and device for assisting the terminal device operation within the network in access network
CN101959196A *	2010-10-20	2011-01-26	中国电信股份有限公司	WLAN (Wireless Local Area Network) resource sharing method and WLAN network system
WO2016119633A1 *	2015-01-28	2016-08-04	中兴通讯股份有限公司	Access method and device for virtual mobile tenant network
CN103595602B *	2005-07-14	2016-09-07	吉野电气株式会社	And network management
Family To Family Citations				
WO2004077724A2	2003-02-24	2004-09-10	Autocell Laboratories, Inc.	System and method for channel selection in a wireless network
US7869822B2	2003-02-24	2011-01-11	Autocell Laboratories, Inc.	Wireless network apparatus and system field of the invention
US8682279B2	2004-05-07	2014-03-25	Interdigital Technology Corporation	Supporting emergency calls on a wireless local area network
KR101122359B1	2004-05-07	2012-03-23	인터디지탈 테크날러지 코포레이션	Supporting emergency calls on a wireless local area network
US8145182B2 *	2004-05-07	2012-03-27	Interdigital Technology Corporation	Supporting emergency calls on a wireless local area network
US8838963B2 *	2005-02-04	2014-09-16	Apple Inc.	Security enhancement arrangement
FI20055238A *	2005-05-19	2006-11-20	Teliasonera Ab	A system and a base station for wireless networks
WO2007036940A2 *	2005-09-30	2007-04-05	Sandlinks Systems Ltd.	A wide area dynamic rfid system using uwb

Petitioner Samsung Ex-1004, 1240

GB0521269D0 *	2005-10-19	2005-11-30	Vodafone Plc	Identifying communications between telecommunications networks
US8411616B2	2005-11-03	2013-04-02	Piccata Fund Limited Liability Company	Pre-scan for wireless channel selection
US8818322B2 *	2006-06-09	2014-08-26	Trapeze Networks, Inc.	Untethered access point mesh system and method
US20080009307A1 *	2006-07-06	2008-01-10	Ramesh Sekhar	System and method for optimized wireless client communication
US9240898B1 *	2008-02-28	2016-01-19	Marvell Israel (M.I.S.L.) Ltd.	Integrating VLAN-unaware devices into VLAN-enabled networks
US8711751B2 *	2009-09-25	2014-04-29	Apple Inc.	Methods and apparatus for dynamic identification (ID) assignment in wireless networks
US9326144B2 *	2013-02-21	2016-04-26	Fortinet, Inc.	Restricting broadcast and multicast traffic in a wireless network to a VLAN
CN106231605A *	2015-06-02	2016-12-14	上海贝尔股份有限公司	Method for dynamically creating and deleting vWLAN in shared fixed access network

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title
Gruteser et al.	2005	Enhancing location privacy in wireless LAN through disposable interface identifiers: a quantitative analysis
US7130904B2	2006-10-31	Multiple link layer wireless access point
US20050074122A1	2005-04-07	Mass subscriber management
US20030063593A1	2003-04-03	Wireless communication system and wireless LAN access point
US20040014422A1	2004-01-22	Method and system for handovers using service description data
US6801941B1	2004-10-05	Dynamic wireless internet address assignment scheme with authorization
US20120317619A1	2012-12-13	Automated seamless reconnection of client devices to a wireless network
US20040141617A1	2004-07-22	Public access point
US7934005B2	2011-04-26	Subnet box
US20040103278A1	2004-05-27	Native wi-fi architecture for 802.11 networks
EP1081895A1	2001-03-07	Secure wireless local area network
US20100265845A1	2010-10-21	Wireless Local Area Network, Adapter Unit and Equipment
US20060200678A1	2006-09-07	Wireless access point apparatus and method of establishing secure wireless links
US20090119760A1	2009-05-07	Method for reconfiguring security mechanism of a wireless network and the mobile node and network node thereof
US20020022483A1	2002-02-21	Distributed network communication system which allows multiple wireless service providers to share a common network infrastructure
US20050117537A1	2005-06-02	Wireless communication system, wireless base station accommodating apparatus, and data packet transfer method
US20110055928A1	2011-03-03	Method and system for detecting unauthorized wireless devices
US20110078443A1	2011-03-31	Method and system for secure communications on a managed network
US7760701B2	2009-10-20	Shared network access using different access keys
US7269260B2	2007-09-11	Communication system, wireless communication apparatus, and communication method
US20060153375A1	2006-07-13	Data security in wireless network system
US7039021B1	2006-05-02	Authentication method and apparatus for a wireless LAN system
US7127234B2	2006-10-24	Radio LAN access authentication system
US7339915B2	2008-03-04	Virtual LAN override in a multiple BSSID mode of operation
US20090088133A1	2009-04-02	Method and System for Distributing Data within a Group of Mobile Units

Priority And Related Applications

Petitioner Samsung Ex-1004, 1241

Priority Applications (2)

Application	Priority date	Filing date	Title
US44538103P	2003-02-06	2003-02-06	*US Provisional Application*
US60/445,381		2003-02-06	

Legal Events

Date	Code	Title	Description
2006-04-12	C06	Publication	
2006-06-07	C10	Entry into substantive examination	
2010-01-20	C14	Grant of patent or utility model	
2016-12-07	C56	Change in the name or address of the patentee	
2017-02-01	C41	Transfer of patent application or patent right or utility model	

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Petitioner Samsung Ex-1004, 1242

Patents

System and method for battery conservation in wireless stations

Abstract

Described are a system and method for battery conservation in a wireless station. Initially, a wireless station switches, according to a predetermined time schedule, from a first communications mode into a second communications mode. The station is capable of at least one of receiving and transmitting data packets only when the station is in the second communications mode. The first mode is a power conservation mode. When the station is in the second mode, a wireless access point obtains a priority access to a radio channel. Then, the access point reserves the radio channel for wireless communications between the access point and the station. Wireless communications are conducted between the access point and the station over the radio channel. Upon a termination condition, the station switches into the first mode.

CN101036061A

China

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Other languages: Chinese

Inventor: 曾光, 林A·王

Worldwide applications

2005 CN

Application CN 200580030126 events

2004-08-05 Priority to US5914204P

2005-07-07 Application filed by 讯宝科技公司

2007-09-12 Publication of CN101036061A

Info: Cited by (6), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Claims (19)

translated from Chinese

A method for wireless communication, the method comprising: (a) in accordance with a predetermined schedule, the wireless station switches from the first communication mode to the second communication mode, in which only the station in the first when the second mode to perform packet reception and transmission of at least one of the first mode to the power saving mode; (b) when the station is in the second mode, obtain the radio channel through the wireless access point priority access; (c) after step (b), the radio channel reserved by the access point for wireless communication between the access point and the station; (d) through the radio channel performing wireless communication between the access point and the station; and (e) upon termination condition is satisfied, the station will be switched to the first mode.

2. The method according to claim 1, wherein said termination condition is one of the following: (a) with the end of service period (EOSP) packet indicator, (b) with indicator EOSP null packet, (c) confirm the package with an empty data field, (d) a predetermined time expires, and transmitting a predetermined number of data packets (e) between the station and the access point.

The method according to claim 1, characterized in that, to obtain priority access to the radio channel at the access point using the PIFS.

4. The method according to claim 1, wherein said step comprises the substeps of retention: a transmission opportunity granted to the access point and the one of the station.

5. The method according to claim 4, wherein the transmission opportunity includes a time period during which the access point and the station transmits one of a group of data packets through the radio channel.

6. The method according to claim 5, wherein the time period is determined according to the number of the set of data packets in the packet.

7. The method according to claim 5, wherein the period of time represented by the duration field of the data packet transmitted by the access point.

8. The method according to claim 1, wherein said step (a) to (e) is performed during the contention.

9. A method for wireless communication, the method comprising: (a) when addressed to the radio station has a wireless access point of the first data packet, the communication station switches from the first mode to the second communication mode, the station only when it is in said second mode to receive and transmit data packets to at least one of the first mode to the power saving mode; (b) when the station has available radio channel, by the station by using the radio channel to the access point transmits the first data packet; (c) by the access point receives the first data packet; (c) by the access point station sends an acknowledgment to the packet, the acknowledgment packet indicating that the access point receives the first packet and one of the following: (1) addressed to the present station and the second packet (2) a second packet addressed to the station is not present; (d) if (1) indicating the presence of said acknowledgment packet and the second packet (2) of the station to the access point has addressed other establishment of a data packet, performing the following sub-steps: (i) obtaining priority access to the radio channel by the access point; (i i) after sub-step (i), by the access point of the radio channel reserved for wireless communication between the access point and the station; and (iii) the radio channel through the wireless communication between the access point and the station; and (e) upon termination condition is satisfied, the station will be switched to the first mode.

10. The method according to claim 9, wherein, when said acknowledgment packet indicating the absence of the second data packet, the acknowledgment packet includes null data field.

11. The method according to claim 10, wherein said termination condition is one of the following: (a) the service period ends with the packet indicator, (b) acknowledgment packet with an empty data field , (c) a predetermined time expires, and transmitting a predetermined number of data packets (d) between the station

Petitioner Samsung Ex-1004, 1243

and the access point.

12. The method according to claim 9, wherein the priority radio channel access is obtained when using PIFS the access point.

13. The method according to claim 9, wherein said sub-step comprises the sub-steps Reserved: a transmission opportunity granted to (1) the access point and (2) a station.

14. The method according to claim 13, wherein the transmission opportunity includes a time period during which the access point and the station transmits one of a group of data packets through the radio channel.

15. The method according to claim 14, wherein the time period is determined according to the number of the set of data packets in the packet.

16. The method according to claim 14, wherein the period of time represented by the duration field of the data packet transmitted by the access point.

17. The method according to claim 9, wherein said step (a) to (e) is performed during the contention.

18. A system, the system comprising: a wireless station; and the station in communication with the wireless access point; wherein the schedule table in accordance with a predetermined communication mode switching from a first to a second communication mode, the table only when it is in said second mode to receive and transmit data packets to at least one of said first mode is a power saving mode when the station is in the second mode, the access point given priority access to the radio channel of the access point of the radio channel reserved for wireless communication between the access point and the station, the radio communication through the radio channel in the access carried out between the point and the station, and upon termination condition is met, i.e., the station switches to the first mode.

19. A system, comprising: a wireless station; and a wireless access point of the communication station, wherein said radio station having a first communication mode from a first data packet addressed to the access point switching to the second communication mode, the station can be performed only when it is in said second mode and transmitting the received packet data in at least one of said first mode is a power saving mode when the station has available radio channel when the station using the radio channel transmits the first packet to the access point, the access point receives the first data packet acknowledgment to the transmitting station, the acknowledgment packet indicating said access point receives the first packet and one of the following, namely (1) the presence of a second station addressed to the packet and (2) the absence of a second station addressed to said data packet , if one of the following is satisfied, i.e., (1) indicates the presence of said acknowledgment packet and the second packet (2) of the station has further data packet addressed to the access point, then (i) the said access point to obtain access to the priority radio channel and (ii) retaining the radio Channels for wireless communication between the access point and the station and for wireless communication, and upon termination condition is satisfied, the station switches between the access point and the station via the radio channel to the first mode.

Description

translated from Chinese

For battery saving system and method in a wireless station

US provisional patent application claims priority to the requirements of the August 5, 2004, filed, entitled "(Automatic Power Save Delivery 802.11e network) Automatic Power-Save Deliveryin 802.11e Networks" Application Serial No. 60 / 599,142 of priority. The entire disclosure of this application is regarded as the front part of the disclosure of the accompanying application, and expressly incorporated herein by reference.

Background Many wireless station ("STA") (eg, a cellular phone, PDA, scanner, laptop computers, handheld PC, etc.) to wirelessly connect to the Internet, such as a LAN, intranet and other computer networks. Thus, the STA without any wired connection can achieve its function. Typically use batteries to power the STA to herein, as they can provide absolute freedom of movement to its users. Alternatively, the power adapter may be used with the STA power electrical outlet. However, this method requires the use of cord fixed to STA tethered to a power supply, which reduces the mobility and practicality. Thus, to maintain the mobility of the user and reduce power consumption of the STA and the manufacturer's primary concern.

When the STA is connected to a network access point ("AP") generally to wireless communications using known communication protocols (e.g., IEEE 802.11 standard). Recognizing the power consumption and battery life is very important for users and manufacturers of the STA, the 802.11 standard includes a power saving mechanism. To be transmitted to STA packets are buffered at the AP According to these mechanisms, the STA is in sleep mode (i.e., power saving mode). Once the wake-up from sleep mode, AP will send the buffered data packet to the STA. Thus, the STA need not be in a permanent awake mode (i.e., battery power consumption) can receive data packets.

For real-time applications is expected to have a quality of service ("QoS") requirements (eg, VoIP, video streaming, etc.), the development of the 802.11e standard to support these applications. The reaction requires the ability QoS STA and the AP providing a consistent packet delivery to ensure a certain degree. 802.11e standard is also provided by an automatic power save delivery mechanism for saving ("APSD"). Using APSD, two types of service time period is possible: non-scheduled (unscheduled) and schedule (scheduled) a. Non-scheduled service period is only using the enhanced dispersion channel access ("EDCA") access channel QoS- enhanced wireless station ("QSTA") defined. The scheduled service period is defined using EDCA QSTA or hybrid coordination function ("HCF") channel access ("HCCA") controlled. However, the 802.11e standard for the two service time period and the scheduling and non-scheduling, the QSTA is awake for a longer time, because it must contention access as a medium for transmission of wireless radio channel. Although standard 802.11e APSD intended to reduce power consumption, but the requirements of the AP and QSTA contention access channel may have side effects such as increased battery power consumption, resulting in a delay jitter, and / or increasing the system overhead.

Battery saving in a wireless station used in the system and method according to the present invention Summary of the invention. First, the radio station according to a predetermined schedule, switching from the first communication mode to the second communication mode. The station only data packets transmitted and received at least when it is in a second communication mode. The first mode is a power-saving mode. When the station is in the second mode, the wireless access point to obtain access to the priority radio channel. Then, the access point of the radio channel reserved for wireless communication between the access point and the station. Wireless communication between the access point and the station via the radio channel. A termination condition is satisfied, i.e., the station switches to the first mode.

In another exemplary embodiment, when the wireless station has a first data packet addressed to the wireless access point, the station switches from the first communication mode to the second communication mode. The station only data packets transmitted and received at least when it is in a second communication mode. The first mode is a power-saving mode. When the station has available radio channel, the station by using the radio channel data packet to the first access point. The access point receives the first data packet. The access point transmitting the acknowledgment packet to the station. Acknowledgment packet indicating that the access point receives the first packet and one of the two, i.e., (1) presence and (2) the absence of a second packet addressed to the station. If both of the following one, i.e., (1) a second acknowledgment packet indicating the presence of packet data and (2) also sets the packet addressed to another access point, the access point is given priority access to the radio channel into. Then, the access point of the radio channel reserved for wireless communication between the access point and the station. Wireless communication between the access point and the station via the radio channel. Upon termination condition is satisfied, the station switches to the first mode.

Petitioner Samsung Ex-1004, 1244

BRIEF DESCRIPTION Figure 1 illustrates an exemplary wireless network according to one embodiment of the present invention; Figure 2 shows a conventional automatic power save delivery schedule ("APSD") a schematic representation of the mechanism; Figure 3 shows a a schematic representation of an exemplary embodiment of the present invention is enhanced APSD scheduling mechanism; FIG. 4 shows a scheduling an enhanced APSD method of the present invention to an exemplary embodiment;

FIG. 5 shows a schematic of the conventional non-scheduled APSD mechanism is represented; FIG. 6 shows a schematic representation of an exemplary embodiment of the reinforced invention Unscheduled APSD mechanism; FIG. 7 shows a further exemplary scheduling mechanism of a conventional non-APSD representation; FIG. 8 shows a schematic representation of a further exemplary embodiment of the present invention is enhanced Unscheduled APSD mechanism; FIG. 9 shows an enhancement according to the present invention exemplary type Unscheduled APSD embodiment of the method.

DETAILED DESCRIPTION The present invention, in the drawings by the same reference numerals represent the same elements by reference to the following description and drawings may be further understood. Embodiments of the invention relate to the STA (e.g., a cellular phone, PDA, a bar code scanner, a laptop computer, a handheld PC, etc.) with improved energy-saving mechanism, in particular, to the 802.11 standard (e.g., 802.11e) in automatic power save delivery ("APSD") mechanism used. Improved herein STA may reduce battery power consumption, reducing the jitter, and scheduling services to reduce the particular application with the specified characteristics (e.g., VoIP, video streaming, etc.) of the protocol overhead.

FIG 1 shows an exemplary embodiment of a system according to the present invention is 5. The system 5 may include a connection to an access point ("AP") 15 of the communication network 10. Communication network 10 may be connected to the server 12. AP 15 may communicate wirelessly with the wireless switch architecture may use any of a plurality of radio stations (e.g., a cellular phone, a laptop computer, a handheld PC, printer, headphones, etc.). The 15, a wireless station ("STA") 20 and another STA 25 with reference to the present invention will be described with AP. As will be known to those in the art will appreciate, the system 5 may comprise any of a plurality of AP and STA.

AP 15 and STA 20,25 may operate in accordance with conventional standards, such as IEEE 802.11 wireless communication protocol. In a preferred embodiment, the 802.11 standard 802.11e standard 802.11 network (i.e., a wireless local area network ("WLAN")) to achieve quality of service ("QoS") of the. As those skilled in the art will appreciate, QoS data by allowing a higher priority given priority access to the radio channel 10 used by the network to modify the access rules 802.11. Thus, high priority data may be granted (e.g., VoIP, streaming video, etc.) in preference to lower priority data (e.g., e-mail, web pages, etc.) access channel.

According to the invention, STA 20 may have a STA 20 wherein saving data (i.e., does not transmit / receive data) in a first communication mode (i.e., "sleep" mode), and where it is, or may be ready to send or receive the a second communication mode (i.e., "wake up" mode). STA 20 according to the protocol scheduling and non-scheduling service period to switch between the sleep mode and the awake mode. 20 is when the STA is awake, it can AP 15 and / or another STA 25 packets transmitted from the AP 15 and / or another STA 25 and to receive packets. However, in the sleep mode, the STA 20 originally is in the awake mode in case of transmitting data from STA 20 to the AP 15 packets are buffered in the AP 15. Thus, when the service period begins, STA 20 is switched into the awake mode and receives the packet that is buffered. However, the conventional 802.11 access rules require longer held STA 20 can send and receive data packets in the awake mode, resulting in increased efficiency and reduced the STA 20 used in the battery system traffic.

To save battery, 802.11e standard defines a conventional automatic power save delivery ("APSD") mechanism, wherein if another STA 25 packets being sent over a channel, the AP 15 must wait for data packets to the transmitting STA 20. Accordingly, AP 15 must wait a random amount of time (e.g., "retracted (backoff)") and until the channel is idle before transmitting to the STA 20 packets. The STA 20 leading to the waiting time for a longer time in the awake mode, thereby increasing its power consumption and potentially increases system overhead (e.g., traffic channel).

Conventional scheduling APSD mechanism FIG. 2 illustrates the use of an enhanced dispersion channel access ("EDCA") mode 200. As is well known in the art, 802.11e standard defines a new coordination function, i.e., for use in an enhanced QoS basic service set ("QBSS") in the hybrid coordination function ("HCF"). HCF has two operating modes, EDCA mode and HCF Controlled Channel Access ("HCCA") mode. EDCA mode of operation is based on the contention channel access contention function. Portion of the time period is contention between the beacon transmitted by the AP (or all). In the contention period, the wireless station (e.g., STA, and AP) using a channel access mechanism (e.g., the EDCA mode dispersion coordination function ("DCF"), the point coordination function ("PCF"), with collision avoidance carrier sense multiple access ("CSMA / CA")) to contention channel access.

When all of the contention between the time of the beacon is not, the remainder of the time between beacons is contention-free period. In the contention free period, the STA by the coordinator at the access point (e.g., point coordinator, hybrid coordinator) polling. When polled, STA can communicate with the AP without contention channel access. Thus, the EDCA and HCCA mode may run mode (e.g., between the same beacon period). As is well known in the art, EDCA and HCCA mode and enhanced mode extends the original access methods --DCF and PCF functions.

As shown, in the contention period, the conventional scheduling APSD mechanism 200 uses AP 205, STA 210 and another STA 215 2. Although the use of in operation will contention (e.g., using EDCA mode) of the present invention will be described, those skilled in the art will appreciate that various aspects of the invention may be applied to a contention-free period in operation (e.g., using HCCA mode).

As those skilled in the art will appreciate, AP 205 and STA 210 may be enhanced QoS, and hereinafter referred to as QAP 205 and the QSTA 210. STA 215 may be further enhanced QoS. Although the composition of the mechanism 200 will be described in accordance with standard 802.11e QoS, those skilled in the art will appreciate that the present invention may also be used for the other versions of the 802.11 standard (e.g., 802.11a, 802.11b, 802.11g, etc.) network used.

200, start the service time in the service start time ("SST") 220 according to the conventional schedule APSD mechanism. In the conventional scheduling APSD mechanism 200, SST 220 a predetermined agreement between the QAP 205 and the QSTA 210 based. SST 220 represents QSTA 210 should switch from the sleep mode 225 to the awake mode 230. SST 220 may be present on, for example, intervals of 30 ms. As those skilled in the art will appreciate, QSTA 210 may be predetermined prior time SST 220 SST 220 or 230 into the awake mode.

However, as shown in FIG. 2, the SST 220, since the other QSTA 215 or any other STA packet is being transmitted on the channel 235, so that the channel is busy. Since the channel is busy, the QAP 205 will wait until the channel is idle. As those skilled in the art will appreciate, if the SST has been idle the channel 220 (i.e., on which no transmission), the QAP 205 without waiting to send. However, after detecting the channel is busy, a backoff start 240 QAP 205, the QAP 205 therebetween random value from the timer countdown. When the countdown, QAP 205 continually reassess the channel and, when idle, QAP 205 corresponding to each idle channel decreasing slot timer. 2, the backoff duration 240 may be a random value that is decremented to zero before another QSTA 215 or any other STA 245 may transmit a second data packet on the channel, since the QSTA 215 or any other timing STA reaches zero before the end 240 retracted. When the QAP 205 in the limp-240, QSTA 210 230 remain in the awake mode. If the channel is busy, the QSTA 210 may be held longer in the awake mode 230, and always consumes battery power.

As long as the channel remains busy, QAP 205 may undergo further retracted, so that each time both increase the random backoff value. When the channel is idle, QAP 205 the buffered data packets 250 sent to the QSTA 210. Those skilled in the art will appreciate that the buffered data packet 250 may comprise one or a plurality of buffered data packets and a packet service time period should have arrived.

As those skilled in the art will appreciate, QSTA 210 may, after receiving the data packet 250 after waiting for a short inter-frame space ("SIFS") sends an

Petitioner Samsung Ex-1004, 1245

acknowledgment ("ACK") 260 to the QAP 205. If the QSTA 210 265 To a packet is transmitted QAP 205 and the channel is busy again, the QSTA 210 in the transmission data packet 265 must be performed before a retracted 270.

After QSTA 210 transmits the packet 265 to the QAP 205, QSTA 210 waits for ACK QAP 205 275. Response similar to the response from the QAP 205 QSTA 210 performs. After the QAP 205 transmits ACK 275, QAP 205 may not transmit other packets To QSTA 210, or may intend QAP205 terminate the service period. In either case, QAP 205 transmits a null data packet 190 to the QSTA 210 indicates the end of service period ("EOSP"). Packet may include null data EOSP indicator 290, which may be null data packet control field 290 (e.g., QoS packet) (e.g., QoS Control field) in the bit values. If the QAP 205 attempts to transmit null data packet 290 when the channel is busy, the QAP 205 may perform 285 a second retraction. QSTA 210 responds with ACK 295 290 null packets. After receiving the ACK 295 and an indicator EOSP to a QAP 205, QSTA 210 return to the sleep mode 225.

In an embodiment of a conventional APSD mechanism 200 shown in FIG. 2, since the retraction 240,270,285 QAP 205 and the QSTA 210 to access channel that must be performed, so that a relatively long time QSTA 210 in the awake mode 230. Awake mode 230 in a substantial portion, QSTA 210 are waiting for transmission from the QAP 205 or waiting to be sent to the QAP 205. Thus, QSTA 210 waiting in inefficient transmission / reception of packets while more and more energy consumed. In addition, send an empty packet to terminate the service of the 290 system may increase overhead and reduce bandwidth utilization.

As shown in FIG. 3, the present invention provides an enhanced scheduled APSD mechanism 300. Enhanced APSD mechanism 300 may schedule the system shown in FIG. 1 assembly 5 used in the contention period. That is, the enhanced APSD mechanism 300 may QAP 305, QSTA 310 use and / or other QSTA 315. Accordingly, the present invention can be protocols such as 802.11 (e.g., 802.11a, 802.11b, 802.11g, 802.11e), the other for multimedia applications (e.g., the VoIP) and / or asset tag low power applications (e.g., low power 802.11 RFID tag implementation on) to provide QoS and / or saving protocols supported wireless network. As will be known to those in the art will appreciate, the present invention may be EDCA mode Unscheduled APSD, and EDCA and / or HCCA mode using APSD schedule.

In one exemplary embodiment of a reinforced scheduled APSD mechanism 300, QAP 305 and the QSTA 310 agree (e.g., SST 330) to start the service in accordance with a predetermined time schedule. Or before the SST 330, QSTA 310 320 switched from the sleep mode to the awake mode 325. As shown in FIG. 3, since the other QSTA 315 packet 335 is transmitted on the channel, so that the channel is busy. As will be transmitted, subject to any activity known to those in the art will appreciate, the data packet 335, or the channel is not enhanced APSD mechanism 300 scheduling work. That is, regardless of whether the channel is busy you can use the enhanced scheduling APSD mechanism 300.

According to the present invention, QAP 305 by using the point coordination function ("PCF") inter-frame space ("PIFS") 340 to obtain priority access to the channel. PIFS 340 QAP 305 may be used to gain access to the channel before any other QSTA, because the duration is shorter than PIFS 340 any any QSTA retracted performed. That is, PIFS 340 QAP 305 allows the channel priority over other QSTA. PIFS 340 provided with Priority, QAP 305 may be the only device that can be transmitted on the channel. Thus, QAP 305 the buffered data packets 345 sent to the QSTA 310. As described above, the data packet buffer 345 may include a plurality of buffer packets and / or for a data packet to the QSTA 310.

QSTA 310 may gain access to the channel using SIFS 350 before sending the data packet and / or ACK to the QAP 305. SIFS 350 QSTA 310 may allow access to any other channel before the QSTA, as SIFS 350 duration than any other of the latency (e.g., retracted) is shorter. As described above with respect to the conventional scheduling APSD mechanism 200, QSTA 310 will have to perform transmission backoff before to get access to the channel, thereby extending the time in the awake mode 325.

According to the present invention, QAP 305 may reserve the channel is only used for communication between the 310 and its QSTA. QAP305 example transmit opportunity ("TXOP") assigned to a reserved channel. TXOP may be reserved transmission QAP and / or the QSTA 310 communicating with an amount of 305 times or for a certain number of times. As will be known to those in the art will appreciate, QAP 305 may begin at the service period (e.g., SST 330) time, and / or in the case of ACK from the QSTA 310 show QSTA 310 is waiting to send a packet TXOP . If the QSTA 310 is not waiting to send a data packet, as discussed below, a termination condition is met it will return to the sleep mode 320. In another embodiment, shown in Figure 3, it may be bundled ACK packet and 255. That is, data packets may be piggybacked on the ACK, which is in the awake mode 325 can reduce time and reduce system overhead. Those skilled in the art will appreciate that, for each data packet -ACK composition with respect to the present invention can be burdened.

Termination condition may be indicative of the service or to end the period has ended, and the QSTA 310 should switch the sleep mode 320 events and / or conditions. Termination condition may have a plurality of exemplary embodiments. In a first exemplary embodiment, the termination condition may be a predetermined agreement between the QAP 305 and the QSTA 310 on the end of the service period. The agreement may reflect, for example a predetermined duration (eg, 50ms) service expiration of the time period. In another exemplary embodiment, the termination condition may be received ACK (e.g., ACK 360) having a null data field. That is, the ACK frame 360 in the "More Data" field may include an indication wireless station (e.g., QAP 305) is not a bit value of other data packets to be transmitted (e.g., 0). Thus, upon receiving the ACK 360, QSTA 310 to send any data packets and / or having 320 to switch to the sleep mode. In yet another exemplary embodiment, the termination condition may be EOSP indicator is set to the bit value (e.g., EOSP = 1) packet. As those skilled in the art will appreciate, EOSP indicator may be included in the data packet or an empty data packet. In another exemplary embodiment, the termination condition may represent a predetermined number of times of transmission (e.g., a predetermined protocol). For example, QAP 305 may be a first data packet to the QSTA 310, and the QSTA 310 may transmit a second data packet to the QAP 305. After this exchange, QSTA 310 320 can be switched to the sleep mode. Those skilled in the art will appreciate that the transmission comprises a predetermined number of times of transmission from the QAP 305 any number of times and / or the QSTA 310.

A further exemplary embodiment of the termination condition is that the data packet has a special meaning. For example, a user may perform transactions using a particular application (e.g., inventory detection). Once the transaction is terminated, the application can generate the "Transaction end" packets. Upon receiving the "End Transaction" packet, QSTA 310 to switch 320 to the sleep mode. In another embodiment, for a web browsing application, QSTA to indicate that the receiver 310 can be switched to the sleep mode QSTA 320. "& lt; / body & gt; & lt; / html & gt;" end of packet. in the exemplary embodiment, for example, if the QAP 305 and 310 formed QSTA dedicated communication protocol, the data packets generated by the QAP 305 or 310 is being generated by the QSTA 310 to the QSTA another QSTA communication therewith.

As shown in the exemplary embodiment of a reinforced scheduled APSD mechanism 300 in response to a data packet from the QSTA 310 and ACK 355, QAP 305 may include a frame control field of the transmit ACK 360. As described above, the frame control field includes a "More Data" field. Thus, ACK 360 in the "More Data" field includes information indicating whether there QAP 305 (e.g., termination condition) data packets to be transmitted to other bit values of the QSTA 310. In this manner, QSTA 310 receives ACK 360 as long without having to receive a packet with EOSP null indicator 320 can return to the sleep mode. As described above for the exemplary embodiment of the termination condition, for example, if termination of the service based on a predetermined period of time and / or after a predetermined number of times transmission data packets (e.g., a predetermined protocol), the QAP 305 may not transmit null data package. According to a predetermined protocol (e.g., VoIP), QSTA 310 can know each service period QAP 305 transmits a predetermined number of data packets. Upon receiving a predetermined number of data packets, QSTA 310 receives the null data packets without the need to return to the sleep mode 320. Without having to empty packet service time period from 3 to packets (FIG. 2) is reduced to two data packets (FIG. 3). Packets can be optimized to reduce power consumption, bandwidth utilization, and reduce jitter (i.e., a signal caused due to poor synchronization / image distortion).

FIG 4 illustrates an enhanced 400 according to an exemplary scheduled APSD method of the present invention, and below with reference to FIG. 3 to its composition will be described. In step 405, QSTA 310 according to a predetermined schedule (e.g., 330 or prior to the time agreed SST) wakeup.

Petitioner Samsung Ex-1004, 1246

In step 410, QAP 305 obtains a channel access. As described above, QAP 305 may be, for example, as described above PIFS 340 to obtain priority access to the channel by using. In this manner, the limp QAP 305 may not be required prior to obtaining channel access. By obtaining priority access, QAP 305 may start to send the QSTA 310. Thus, in a preferred embodiment, the service period starts (e.g., in the SST 330), QAP 305 will get access to the channel QSTA 310 transmits the packet.

In step 415, QAP 305 transmits a packet to the QSTA 310. If the QAP 305 has buffered data packet 345, the packet buffer 345 is transmitted to the QSTA 310. If the QAP 305 is not buffered packet 345, the QAP 305 may QSTA 310 will send a null packet. Those skilled in the art will appreciate that, QSTA 310 receives the null packet may indicate to the QSTA 310: QAP 305 has no buffered data packets to be sent to the QSTA310. Using TXOP, as shown, QAP 305 to step 428 to send another packet QSTA310.

In step 420, the QAP 310 determines whether a packet to be transmitted to another QSTA 310. If the QAP 310 is no more data packet, the method proceeds to step 430. If the QAP 305 has further data packets to be sent to QSTA 310, then as shown in step 425, QAP 305 itself may be granted TXOP. As those skilled in the art will appreciate, TXOP may be reserved channel for transmitting the QAP 305. Thus, TXOP duration may have, for example, with the number of other packets varies.

In step 430, it is determined whether the QSTA 310 has a packet to send. If no packets QSTA 310, the method proceeds to step 445. If the QSTA 310 has a data packet, as shown in step 435, QAP 305 may grant QSTA 310 TXOP. As described above, the TXOP granted QSTA 310 may have a duration of over 310, for example, the number of packets at the QSTA varies. As those skilled in the art will appreciate, it may be sent in response to a packet transmitted in step 415 to the QAP ACK 305 in the notification indication QAP 305: QSTA 310 data packets. For example, after receiving a packet from the QAP 305, the ACK from QSTA310 may indicate (e.g., by a bit value of the ACK field) QSTA 310 whether there is data packet. Thus, QAP 305 may grant ACK from the QSTA 310 TXOP according to the QSTA 310.

In step 440, QSTA 310 sends the data packet to the QAP 305. Transmitting the transmission one exemplary embodiment, a separate ACK packet transmitted to the QSTA 310. In another exemplary embodiment, the packets are piggybacked ACK 355 and send bundled form. In this embodiment, ACK, and / or data packet may comprise other QSTA 310 whether the packet to be transmitted to indicate the QAP 310. Thus, the TXOP granted QSTA 310 may transmit the results of ACK and / or data packet to the QAP 305. As will be known to those in the art will appreciate, the step in which the QAP 305 and the QSTA 310 and 415 are each transmitted packet 440 allow all data packets are transmitted before the next appropriate step in the method 400 continues.

In step 445, it is determined whether a termination condition is reached. It has been discussed above exemplary embodiments termination condition. Thus, for example, transmission termination condition when a predetermined number of times, QAP 305 may have sent a first packet in step 415, and the QSTA 310 may have sent a second data packet in step 440. In this example, the predetermined number of times of transmission may be transmitted (e.g., QAP 305 and vice versa to QSTA 310) each to the primary. QSTA 310 after transmitting a second data packet (received from the QAP 305 and the ACK 360), as shown in step 450, QSTA 310 may enter a sleep mode switch 320. As will be known to those in the art will appreciate, the method 400 may comprise any one of these exemplary embodiments in the termination condition.

FIG 5 shows a conventional non-scheduled APSD mechanism 400. As those skilled in the art will appreciate, conventional non-scheduled APSD mechanism 400 in the QSTA 410 420 a packet is to be sent to the QAP 405 startup. Therefore, QAP 405 and the QSTA 410 is not like that on the service start time in the schedule APSD in agreement.

5, 500, the service time period in accordance with the conventional handover QSTA 510 Unscheduled APSD mechanism 540 to the awake mode is started, the data packet 520 because it has to be transmitted to QAP 505. However, at the beginning of the service channel of another QSTA 515 is transmitting data packet 525. Thus, QSTA 510 530 necessary to perform a backoff. 530 during retraction, the other QSTA 515, other QSTA or QAP 505 may have sent a packet on the channel 555.

After the backoff 530 and the channel has been idle, QSTA 510 transmits data packets 520 to the QAP 505. Upon receiving the data packet 520, QAP 505 that is waiting SIFS 560 and QSTA 510 transmits ACK 565. If the QAP 505 going to the QSTA 510 transmits buffered data packet 570, the QAP 505 must perform backoff in the channel 535 is busy. Those skilled in the art will appreciate that, QAP channel is busy at the QSTA 510 and 505 may attempt to send each data packet (or a retransmission) performs backoff. As described above, the large retraction will extend the service period, and thus extend the time QSTA 510 in the awake mode 540. Upon receiving the data packet buffer 570, QSTA 510 ie QAP 505 transmits ACK 575.

After sending the packet buffer 570, QAP 505 may want to end the service period. However, according to conventional Unscheduled APSD mechanism, QAP 505 must send data packets with EOSP indicator 550 (or empty packet) to inform the QSTA 510 the service period is terminated. Thus, QAP 505 will re-acquire the access channel, which may include performing another 580 retracted. After the QAP 505 to re-access channel data packet 550 is transmitted to the QSTA 510. EOSP indicator data packet 550 indicates that the service period ends, and the QSTA 510 after sending ACK 565 to the QAP 505 545 should be switched to the sleep mode.

FIG 6 illustrates an exemplary embodiment of Unscheduled APSD mechanism 600 according to the present invention is enhanced. Service time period QSTA 610 635 a packet is to be sent to the QAP 605 and 620 is switched from the sleep mode to the awake mode 625 starts. However, as shown in FIG. 6, when 625 QSTA 610 enters the

awake mode, since the other QSTA 615 (or QAP 605) the data packet is sent over the channel 630, so that the channel is busy. Thus, QSTA 610 before sending the data packet to the QAP 605 635 640 retracted performed. As those skilled in the art will appreciate, if the QSTA 610 enters into the awake mode 625 when the channel is idle, then the QSTA 610 may need to perform 640 retracted.

When the channel is idle, QSTA 610 sends the packet 635 to the QAP 605. Upon receiving the data packet 635, QAP 605 that is waiting SIFS 645 and thereafter transmits ACK 650. PIFS 655 QAP 605 is then used to obtain priority access channel. As shown in FIG 6, QAP 605 has buffered data to transmit to the QSTA 610. As described above, in the use of PIFS 655 obtains a channel access, QAP 605 may be granted TXOP for itself the communication channel reserved for the QAP 605. In this manner, QAP 605 the buffered data packets 660 sent to the QSTA 610, and 660 receives each of the buffer the received data packet to the QSTA 610 corresponding to the ACK 665. As will be known to those in the art will appreciate, QAP 605 may grant QSTA 610 TXOP, because the packet 635 QSTA 610 may indicate other data packet 635 to be sent to the QAP 605. May be granted a TXOP QSTA 610 before sending a reserved channel buffered in the QAP 610 or after the data packet.

After receiving the ACK 665, QAP 605 may wait a SIFS 670 before sending another packet 675. If another packet 675 that is sent to the last packet 610 QSTA, the QAP 605 may include EOSP therewith an indicator (e.g., a termination condition). Thus, after receiving this packet 675 with EOSP another indicator, QSTA 610 transmits ACK 680 and switch 620 enters the sleep mode.

FIG 7 shows a case where another conventional Unscheduled APSD mechanism QAP 705 is not buffered packet 700. QSTA 710 720 switched from the sleep mode to the awake mode 725 and backoff 730 (e.g., since the other QSTA 715 is transmitting data packet 735) the access channel. In the limp-730, and after detecting the channel is idle, QSTA 710 transmits a data packet 740. Upon receiving the data packet 740, QAP 705 that is waiting SIFS 745 and QSTA 710 transmits ACK 750. In Figure 7, QAP 705 does not have any buffering packets to be sent to QSTA 710, and an empty packet 755 this case communicated to QSTA 710. However, if the channel is busy, the QAP 705 before sending the null data packet 755 must perform a backoff 760. EOSP QAP 705 can be provided in an empty packet indicator 755 to indicate that the service period should be terminated. Upon reception of the null packet 755, QSTA 710 transmits i.e. ACK 765 and 720 switch back to the sleep mode.

8, according to the present invention, the enhanced APSD mechanism Unscheduled another exemplary embodiment 800 of the exemplary embodiment significantly reduces the QSTA 810 remain in the awake mode 825 and reduces the time a conventional Unscheduled APSD mechanism 700 since introducing an empty data packet 715 system overhead. In the enhanced mechanism 800, the QSTA 810 840 a packet is to be sent to the QAP 805 begins when the service period, QSTA 810 and 820 is switched from the sleep mode to the awake mode 825. QSTA 810 tries to send data packet 840 to the QAP 805, but the channel is busy (e.g., another QSTA 815 is

Petitioner Samsung Ex-1004, 1247

transmitting data packet 835). And after performing the backoff 830 detects the channel is idle, QSTA 810 sends the packet 840 to the QAP 805. As shown in FIG 8, QAP805 QSTA 810 not to send to the packet buffer. If the QSTA 810 indicates (e.g., by a bit value of the frame field) which has a further data packet to be sent to the QAP 805, the QAP 805 may grant QSTA 810TXOP, whereby the channel is reserved for the QSTA 810.

If the packet 840 is the only transmission (e.g., the QSTA 810 packets only) 810 from the QSTA, the QAP 805 may wait a SIFS 845 and the QSTA 810 transmits ACK 850. Exemplary embodiment described above with reference to terminating the condition, ACK 850 (as well as packet 840) may include a frame control field, a frame control field can include a "more data" field. According to an exemplary embodiment of the present invention, a "More Data" field may be set to represent QAP 805 (or QSTA 810) no data packets (with or without other packets) to be transmitted value (e.g., 0). Thus, upon receiving the ACK 850, QSTA 810 may switch 825 from the awake mode 820 to the sleep mode. Accordingly, in one exemplary embodiment, for example, and the indicator value EOSP null packets available ACK 850 "More Data" field instead. Those skilled in the art will understood that with any one of exemplary embodiments using the above-described termination conditions.

Figure 9 shows an enhanced according to the present invention Unscheduled APSD exemplary method 900, and illustrated below with reference to the enhanced APSD mechanism 6 Unscheduled 600 of FIG its composition will be described. In step 905, the service period due to the QSTA 610 data packet 635 to be sent to the QAP 605 and into the awake mode 625 starts. In step 910, QSTA 610 access channels. As described above, if the channel is busy, the QSTA 610 must perform a backoff 640 and waits until the channel is idle before transmitting. In step 915, QSTA 610 transmits data packets 635 to QAP605.

In step 920, the QAP 605 determines whether the packet buffer 660 to be transmitted to QSTA 610. If the QAP 605 is not buffered data packet 660, then the method proceeds to step 940. If the QAP 605 packet buffer 660, the QAP 605 may be used PIFS 655 to obtain priority access channel, as shown in step 925. In step 930, QAP 605 itself granted TXOP, and at step 935, QAP 605 packet data transmit buffer 660 to the QSTA 610. When the QAP 605 reserved channel, it may send another data packet 675 to the QSTA 610.

In step 940, it is determined whether the QSTA 610 to send other packets. If no other data packets QSTA 610, the method proceeds to step 955. If the QSTA 610 other packets to send, then as shown in step 945, QAP 605 may grant QSTA 610 TXOP ,. As described above, packets 635 and / or the ACK 665 may indicate to the QAP 605 QSTA 610 comprise other packets to send. In step 950, QSTA 610 transmitting these other data packets.

In step 955, termination condition is reached. As those skilled in the art will appreciate, QAP 605 and QSTA610 send packets back and forth until a termination condition is reached. As described herein, the termination condition may be the above-described exemplary embodiments, any one or combination. After the termination condition has been reached, as shown in step 960, QSTA610 625 is switched from the awake mode 620 to the sleep mode. As those skilled in the art will appreciate, before switching to the sleep mode 620, QSTA 610 may send ACK 680 to the QAP 605.

The present invention has been described with reference to the QAP, QSTA and termination conditions. Accordingly, various modifications and changes may be made to these embodiments without departing from the broadest spirit and scope of the invention as set forth in the appended claims. Accordingly, the description and drawings to be considered in an illustrative rather than a restrictive sense.

Cited By (6)

Publication number	Priority date	Publication date	Assignee	Title
WO2012058996A1 *	2010-11-02	2012-05-10	中兴通讯股份有限公司	Method and system for switching operation modes in a backward compatible large bandwidth wireless network
CN102474820A *	2009-08-07	2012-05-23	Nec欧洲有限公司	Method for operating a mobile terminal as access point and corresponding mobile terminal
CN103229562A *	2011-01-25	2013-07-31	三星电子株式会社	Transmission apparatus, reception apparatus, and communication method
CN104186002A *	2011-12-27	2014-12-03	高通股份有限公司	Methods and apparatus for improving nfc llcp partitioning
TWI478550B *	2011-06-07	2015-03-21	Htc Corp	Method of back-off procedure setup in a wireless communication system
CN104735757A *	2015-03-27	2015-06-24	珠海全志科技股份有限公司	Method for improving frame extraction efficiency of STA equipment

Family To Family Citations

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title
US7110783B2	2006-09-19	Power efficient channel scheduling in a wireless network
US7085599B2	2006-08-01	Power saving in a wireless local area network
US20130235720A1	2013-09-12	Supporting a large number of devices in wireless communications
US7551948B2	2009-06-23	Uniform power save method for 802.11e stations
US7710939B2	2010-05-04	Method and system for power saving in wireless local area communication networks
US20050136914A1	2005-06-23	Power management method for creating deliver opportunities in a wireless communication system
US20100008274A1	2010-01-14	Power save enhancements for wireless communication devices
US20090279464A1	2009-11-12	Power save mechanism for wireless communication devices

Petitioner Samsung Ex-1004, 1248

US20090232042A1	2009-09-17	Wireless network including post groupcast time
US20100271995A1	2010-10-28	Procedure for a power save mode in a direct link setup wireless network
US20070238438A1	2007-10-11	Learning mechanism to configure power save parameters for automatic power save delivery
US7324468B2	2008-01-29	System and method for medium access control in a power-save network
US20070161364A1	2007-07-12	Method and apparatus for scheduling in a wireless communication network
US7412266B2	2008-08-12	Method and system for power-saving in a wireless local area network
US20050237984A1	2005-10-27	Organization of automatic power save delivery buffers at an access point
US20110122780A1	2011-05-26	Graceful Wakeup Of Power Saving Communication Apparatuses
US20070293218A1	2007-12-20	Collision avoidance for traffic in a wireless network
US20080130603A1	2008-06-05	Systems and methods for coexistence of wlan and bluetooth networks
US20060252449A1	2006-11-09	Methods and apparatus to provide adaptive power save delivery modes in wireless local area networks (LANs)
US7668128B1	2010-02-23	Features of power save in 802.11e wireless local area networks (WLANs)
US7733838B2	2010-06-08	Method and system for reducing power consumption of a wireless transmit/receive unit
US20120263086A1	2012-10-18	Reducing power consumption in a wireless communication system
Tsao et al.	2011	A survey of energy efficient MAC protocols for IEEE 802.11 WLAN
US20110158142A1	2011-06-30	Method and system for power management in an ad hoc network
US20080101320A1	2008-05-01	Method for actively synchronizing U-APSD service periods

Priority And Related Applications

Priority Applications (1)

Application	Priority date	Filing date	Title
US59914204P	2004-08-05	2004-08-05	*US Provisional Application*

Legal Events

Date	Code	Title	Description
2007-09-12	C06	Publication	
2007-11-07	C10	Request of examination as to substance	
2011-03-23	C02	Deemed withdrawal of patent application after publication (patent law 2001)	

Petitioner Samsung Ex-1004, 1249

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(54) Apparatus and methods for adapting mobile unit to wireless lan

Verfahren und Vorrichtung zur Anpassung einer mobilen Einheit zu einem drahtlosen lokalen Netzwerk

Appareil et procédé pour adapter une unité mobile à un réseau local sans fil

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(56) References cited:
EP-A- 0 779 752
EP-A- 0 893 930
EP-A- 0 939 566
GB-A- 2 308 946
US-A- 5 579 373
US-A- 5 613 204
US-A- 5 900 838
US-A- 5 930 710

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EP 1 098 477 B1

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The invention relates to data communication systems, and more particularly to a wireless local area network (LAN) communication system in which mobile units associate with stationary access points having communications characteristics defined by the particular country in which the LAN is installed.

2. The Background Art

[0002] A wireless LAN may be implemented by remote mobile units (mobile units) that send messages to and receive messages from base stations or Stationary Access Points (Stationary Access Points) using wireless infrared or radio communication links. Each Stationary Access Point covers a limited area, so a typical network may have several Stationary Access Points.

[0003] One protocol that may be used is the IEEE 802.11 Standard which is a standard that defines physical and data link layers for wireless local networks. The standard defines, among other things, the wireless LAN medium access control (MAC) and physical (PHY) layer specifications.

[0004] For a message to be transmitted, a mobile unit first becomes associated with an Stationary Access Point. Association refers to the process of synchronizing a mobile unit with an Stationary Access Point for communication, and is initiated by the mobile unit. The mobile unit first listens to the broadcasts over the airwaves and determines which Stationary Access Points are within range of the mobile unit, and then requests association with a particular Stationary Access Point according to certain criteria. At any point in time, a mobile unit is typically associated with only one Stationary Access Point. A single Stationary Access Point can be associated with multiple mobile units.

[0005] GB 2308946 A discloses a mobile unit for use in a cellular radio network which includes apparatus for registering the mobile unit with a radio channel. The mobile unit includes means for storing data relating to the frequencies of radio channels operated by base sites in the network and to the geographical areas in which the mobile units are capable of using each radio channel. A location system is used to determine the current position of the mobile unit in the network. A comparing means compares the current position of the mobile unit with the stored geographical data and a selecting means selects a radio channel frequency for registration in dependence on the comparison.

[0006] US 5613204 A discloses a cellular telephone system which is upgraded by modifying subscriber units for selective service provider acquisition-during roaming. Priority of acquisition is given to those service providers associated with the home service provider. These preferred service providers are identified by System identification (SIDs) numbers. A roaming subscriber unit will tune to a single broadcast frequency to identify available system providers operating in a physical area to which the subscriber has roamed.

[0007] US 5701328 A discloses a chirped spread spectrum positioning system for locating a mobile body comprising a plurality of earth based spread spectrum (SS) broadcasting stations arranged geographically in a cellular pattern. Each SS broadcasting station include a modulator providing a channel signal structure which is substantially orthogonal with respect to adjacent stations in the cellular pattern, each channel signal including navigation beacon data including a unique beacon identification, station latitude and longitude, time slot and phase stations. In one embodiment, each modulator provides a chirped SS signal in which the navigation beacon is a frequency tone that is repeatedly swept over a selected frequency band for each station. A receiver on the mobile body receives the SS signals from at least three of the SS broadcasting stations and determines the location thereof. A fourth SS broadcasting station provides altitude. GPS satellite signals can be used for timing control.

[0008] Attention is also drawn to US 5901358 A and WO 97/17623 A.

[0009] US 5924034 A discloses a cellular mobile radio system which selects the best cell to be accessed for a given position of a mobile station by determining the distance of the mobile station relative to the base transceiver station of a cell with which it is communicating by measuring the propagation time between the mobile station and the base transceiver station, resolving the indeterminacy associated with the direction in which said mobile station is located relative to said base transceiver station, and then determining which cell the mobile station is situated in the coverage area of, this cell constituting the best cell. The resolving of the indeterminacy is rendered independent of the synchronized or non-synchronized state of the system.

[0010] US 5787354 A discloses a cellular telecommunication system (CTS) that supports the operation of a radiotelephone (RT) in cellular and cordless modes. The CTS includes operating features that are dependent upon the intrasystem location of the RT. The CTS includes a mobile telephone switching office, a plurality of land stations, a plurality of cells, a plurality of zones defined by one or more cells, a plurality of local regions defined by one or more cells, and a cordless base station located within one of the cells. The land stations transmit zone identification (ZNID) signals and local region identification (LRID) signals, which the RT receives and compares to one or more ZNID codes and one or more LRID codes, respectively. The RT displays its intrasystem billing zone location and initiates communication with the cordless base station in response to the received ZNID and LRID signals, respectively.

[0011] With the ever-growing global market, it is com-

Petitioner Samsung Ex-1004, 1251

mon for users to travel from country to country. A problem therefore occurs, in that one country may allocate a different portion of the frequency spectrum to wireless communications than another country. Additionally, different countries may have different regulations regarding power output of wireless communications. These allocations and regulations may prevent a mobile unit which is designed for use in one country from working (or being allowed to work) in another country.

[0012] What is needed, then, is a system and method for allowing a mobile unit to meet regulatory requirements and adapt to and communicate with Stationary Access Points having different communication characteristics.

BRIEF DESCRIPTION OF THE INVENTION

[0013] The present invention relates to an apparatus and method for automatically adapting a mobile unit to communication requirements of a particular country or geographic region. To achieve this capability, the invention comprises a method as set forth in claim 1. Also provided is a mobile unit as set forth in claim 10. Preferred embodiments of the present invention may be gathered from the dependent claims.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0014]

FIG. 1 is a block diagram showing a wireless network architecture.

FIG. 2 is a flow diagram illustrating a method for operating a wireless data communications network according to a presently preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0015] Those of ordinary skill in the art will realize that the following description of the present invention is illustrative only and not in any way limiting. Other embodiments of the invention will readily suggest themselves to such skilled persons.

[0016] FIG. 1 is a block diagram showing a wireless network architecture. Host 10 is connected to Stationary Access Point 12 and Stationary Access Point 14. Stationary Access Point 12 handles wireless communications within area 16, and Stationary Access Point 14 handles communications within area 18. As shown in FIG. 1, therefore, Stationary Access Point 12 is in communication range of mobile unit 20 and mobile unit 22, and Stationary Access Point 14 is in communication range of mobile unit 20 and mobile unit 24. Mobile unit 20 is in communication range of either Stationary Access Point 12 or Stationary Access Point 14, although mobile unit 20 preferably only communicates with one of them at a time.

[0017] In one scenario, mobile unit 20 associates with an Stationary Access Point, for example Stationary Access Point 12, and thereafter communicates with Stationary Access Point 12 to transmit messages to the host or to other mobile units. If mobile unit 20 is associated with Stationary Access Point 12, mobile unit 20 could transmit a message to mobile unit 22 via Stationary Access Point 12, or to mobile unit 24 via Stationary Access Point 12, host 10, and Stationary Access Point 14.

[0018] In a preferred embodiment of the invention, a grouping of hosts and/or mobile units make up a wireless local area network (LAN).

[0019] Systems similar to the one depicted in FIG. 1 are found throughout the world. Each system, however, typically has different operating parameters in each country. According to a preferred embodiment of the present invention, a mobile unit is designed which may operate at a variety of different frequencies. The range of frequencies should be large enough to encompass some of the frequencies available for wireless communications in each country or geographic region in which the mobile unit may operate. Additionally, the mobile unit is designed to operate at a variety of different power settings, again with the range of power settings large enough to encompass at least some allowable power settings in each country in which the mobile unit may operate. These features allow the mobile unit to operate in a variety of different countries or geographic regions.

[0020] Furthermore, the mobile unit is designed to automatically configure itself for use in individual countries or geographic regions. This may be accomplished by running a program or method contained in either software or hardware within the mobile unit. FIG. 2 is a flow diagram illustrating the method according to a preferred embodiment of the present invention. At step 50, the mobile unit scans the frequency spectrum, listening for announcement messages broadcast by access points. This may encompass tuning to each available frequency an announcement message from a nearby access point is received. The announcement message will have a frequency characteristic that is unique to a particular geographic region or country.

[0021] At step 52, the frequency characteristics of the received announcement message are compared with a table or equivalent data structure contained in memory. The table may contain a listing of the breakdown of the frequency spectrum for all the different available countries or geographic regions. It also may list regulations on power output or other regulations important to the functioning of the mobile unit. At step 54, a matching country or geographic region is found. At this point, the mobile unit has determined what country or geographic region in which it is operating. At step 56, the mobile unit adjusts its operating frequency range to correspond to the country or geographic region in which it is operating. It may also alter other operating characteristics, such as power output and modulation type, in accordance with the regulations listed in the table or other data structure corresponding to the country in which the unit is located.

Petitioner Samsung Ex-1004, 1252

[0022] After the geographic region frequency and power settings (and any other operating characteristics) have been adapted for use in the country or geographic region in which the unit is located, the mobile unit operates similarly to a conventional mobile unit. '

[0023] Some regulations require that the regulations themselves be displayed to the user. Normally, these regulations would be placed on the outer surface of a unit capable of transmitting in the country. However, since the unit of the present invention may be capable of transmission in many different countries, this may not be feasible. Therefore, the unit may be configured such that, after the unit has determined the country in which it is located, the proper regulatory information is displayed to the user.

[0024] Referring back to FIG. 1, Stationary Access Point 12, Stationary Access Point 14, and host 10 may be implemented in hardware or software or a combination of hardware and software. Mobile unit 22, mobile unit 20 and mobile unit 24 may be implemented as programmable processor-based units executing software modules. An embodiment of the process performed by the software modules is described below. In one embodiment, mobile units 20, 22 and 24 are hand-held data-gathering units.

[0025] The contents of U.S. Patent No. 5,029,183 to Tymes, and U.S. Patent No. 5,668,803 to Tymes et al. show systems in which methods and apparatus consistent with the principles of the present invention may be practiced. Each patent describes a system in which hand-held data-gathering mobile units communicate via wireless link with Stationary Access Points, similar to the system shown in FIG. 1.

[0026] In another embodiment of the present invention, the mobile unit may be configured so that the user must verify the country in which they are located. For example, if the mobile unit determines through looking at the table that it is currently located in Switzerland, a message may appear on a display screen on the mobile unit saying "You are in Switzerland. Is this correct? (Y/N)". The user may then be required to confirm that they are indeed in Switzerland before the mobile unit reconfigures its settings to comply with Swiss standards. This reduces the chance of the unit mistakenly configuring itself to specific characteristics which may violate certain regulations.

[0027] In another embodiment of the present invention, a Global Positioning System (GPS) locator may be built into the mobile unit, allowing the unit to verify its location instead of or in addition to requiring confirmation from the user. This feature also reduces the chance of the unit mistakenly configuring itself to specific characteristics which may violate certain regulations.

[0028] In another embodiment of the present invention, the multiple geographic region feature (the feature embodied by the above methods) may be enabled or disabled by a user. When the feature is disabled, the mobile unit merely attempts to establish communication using a communication setting for a particular geographic region. This setting may be, for example, a default setting or the setting in use at the time the mobile unit was last turned off.

Claims

1. A method for operating a wireless data communications network including a mobile unit (20, 22, 24) and one or more access points (12, 14), wherein the method includes the steps of:

   receiving in the mobile unit (20, 22, 24) announcement messages broadcast by one or more of the access points (12, 14), each of said messages having a unique frequency characteristic associated with the geographic location of the access point (12, 14) from which it was sent; determining, in said mobile unit (20, 22, 24), an allowable frequency set in the geographic region associated with the access point (12, 14) from which each of said messages was sent; and adjusting the frequency set of the mobile unit (20, 22, 24) to send messages on said allowable frequency set,

   wherein said determining step includes the steps of:

   comparing said unique frequency characteristics of said messages to a table stored in memory of the mobile unit, said table containing a listing of various allowable frequency sets for corresponding to different geographic regions; matching said unique frequency characteristics to a single geographic region in the table; and referring to said allowable frequency set corresponding to said single geographic region,
   characterized in that
   said table further includes a listing of various allowable power output levels corresponding to different geographic regions, and

   said determining step further includes the steps of:

   referring to said allowable power output levels corresponding to said single geographic region; and
   adjusting the power output level of the mobile unit (20, 22, 24) to operate within said allowable power output levels.

2. The method of claim 1, wherein said table further includes a listing of various regulations corresponding to different geographic regions.

3. The method of claim 2, further including the step of:

   displaying said regulations corresponding to the

Petitioner Samsung Ex-1004, 1253

geographic region in which the mobile unit (20, 22, 24) is located to a user.

4. The method of claim 3, further including the steps of:

referring to said regulations corresponding to said single geographic region; and
adjusting the operating characteristics of the mobile unit (20, 22, 24) to comply with said regulations.

5. The method of any of the preceding claims, further comprising the steps of:

scanning the frequency spectrum until an announcement message from an access point (12, 14) is detected;
examining the frequency characteristics of said announcement message; comparing said frequency characteristics with a table in a memory in the mobile unit (20, 22, 24);
determining the geographic region by matching said frequency characteristics with a geographic region listed in said table, said table also listing a frequency range for each geographic region; and
adjusting the operating frequency range of the mobile unit (20, 22, 24) to correspond with said frequency range corresponding to the geographic region.

6. The method of any of the preceding claims, further including the steps of:

sending a message to a user to verify that the geographic region determined by the mobile unit (20, 22, 24) is correct; and
transmitting only if said user verifies that the geographic region determined by the mobile unit (20, 22, 24) is correct.

7. The method of any of the preceding claims, further including the steps of:

utilizing a Global Positioning System locator to verify the geographic region in which the mobile unit (20, 22, 24) is located;
transmitting only if said Global Positioning Sensor locator verifies that the geographic region determined by the mobile unit (20, 22, 24) is equivalent to the geographic region in which the mobile unit (20, 22, 24) is located.

8. The method of any of the preceding claims, wherein a user may disable the feature which executes the method.

9. A mobile unit (20, 22, 24) for use in a wireless data communications network including one or more access points (12, 14), wherein the frequency set of the mobile unit (20, 22, 24) may be modified and the mobile unit (20, 22, 24) includes:

a receiver for receiving in the mobile unit (20, 22, 24) announcement messages broadcast by one or more of the access points (12, 14), each of said messages having a unique frequency characteristic associated with the geographic location of the access point (12, 14) from which it was sent;
a processing unit for determining, an allowable frequency set in the geographic region associated with the access point (12, 14) from which each of said messages was sent; and
a frequency set adjuster for adjusting, the frequency set to send messages on said allowable frequency set,

wherein said processing unit includes:

a comparator for comparing, said unique frequency characteristics of said messages to a table stored in a memory of the mobile unit (20, 22, 24), said table containing a listing of various allowable frequency sets for corresponding to different geographic regions;
a matcher for matching, said unique frequency characteristics to a single geographic region in the table; and
a first reader for referring, to said allowable frequency set corresponding to said single geographic region,
characterized in
said table further including a listing of various allowable power output levels corresponding to different geographic regions, and
the power output level of the mobile unit (20, 22, 24) being adjustable and the mobile unit (20, 22, 24) including
a second reader for referring to said allowable power output levels corresponding to said single geographic region; and
a power output level adjuster for adjusting the power output level of the mobile unit (20, 22, 24) to operate within said allowable power output levels.

10. The mobile unit (20, 22, 24) of claim 9, wherein said table further includes a listing of various regulations corresponding to different geographic regions.

11. The mobile unit (20, 22, 24) of claim 10, further including a display, which displays said regulations corresponding to the geographic region in which the mobile unit (20, 22, 24) is located to a user.

Petitioner Samsung Ex-1004, 1254

12. The mobile unit (20, 22, 24) of claim 11, wherein the operating characteristics of the mobile unit (20, 22, 24) may be adjusted and the mobile unit (20, 22, 24) includes:

a third reader, which refers to said regulations corresponding to said single geographic region; and
an operating characteristics adjuster, which adjusts the operating characteristics of the mobile unit (20, 22, 24) to comply with said regulations.

13. The mobile unit (20, 22, 24) of any of claims 9-12, further comprising:

a frequency scanner, which scans the frequency spectrum until an announcement message from an access point (12, 14) is detected;
a frequency characteristics detector, which examines the frequency characteristics of said announcement message;
a comparator, which compares said frequency characteristics with a table in a memory of said mobile unit (20, 22, 24);
a determiner, which determines the geographic region by matching said frequency characteristics with a geographic region listed in said table, said table also listing a frequency range for each geographic region; and
a frequency adjuster, which adjusts the operating frequency range of the mobile unit (20, 22, 24) to correspond with said frequency range corresponding to the geographic region.

14. The mobile unit (20, 22, 24) of any of claims 9-13 wherein the mobile unit (20, 22, 24) is a hand-held data gathering unit.

15. The mobile unit (20, 22, 24) of any of claims 9-14, further including:

a display;
a display transmitter, which sends a message to said display so that a user may verify that the geographic region determined by the mobile unit (20, 22, 24) is correct; and
a wireless transmitter, which transmits only if said user verifies that the geographic region determined by the mobile unit (20, 22, 24) is correct.

16. The mobile unit (20, 22, 24) of any of claims 9-15, further including:

a Global Positioning System locator, which verifies the geographic region in which the mobile unit (20, 22, 24) is located; and
a wireless transmitter, which transmits only if said Global Positioning Sensor locator verifies that the geographic region determined by the mobile unit (20, 22, 24) is equivalent to the geographic region in which the mobile unit (20, 22, 24) is located.

17. The mobile unit (20, 22, 24) of any of claims 9-16, further including means for disabling the multiple geographic region feature by a user.

Patentansprüche

1. Verfahren zum Betreiben eines drahtlosen Daten Kommunikations-Netzwerks, das eine Mobileinheit (20, 22, 24) und einen oder mehrere Zugangspunkte (12, 14) aufweist, wobei das Verfahren die folgenden Schritte aufweist:

Empfangen von Benachrichtigungen in der Mobileinheit (20, 22, 24), die verbreitet werden durch einen oder mehrere der Zugangspunkte (12, 14), wobei jede dieser Nachrichten eine eindeutige Frequenzcharakteristik aufweist, die assoziiert ist mit der geographischen Position des Zugangspunktes (12, 14) von dem sie gesendet wurde;
Bestimmen eines erlaubten Frequenzsatzes in der Mobileinheit (20, 22, 24) innerhalb der geographischen Region, die assoziiert ist mit dem Zugangspunkt (12, 14) von dem jede der Nachrichten gesendet wurde; und
Abstimmen des Frequenzsatzes der Mobileinheit (20, 22, 24), um Nachrichten auf dem erlaubten Frequenzsatz zu senden, wobei der genannte Schritt des Bestimmens die folgenden Schritte aufweist:

Vergleichen der eindeutigen Frequenzcharakteristik der Nachrichten mit einer Tabelle, die gespeichert ist in einem Speicher der Mobileinheit (20, 22, 24), wobei die Tabelle eine Liste von verschiedenen Frequenzsätzen enthält entsprechend verschiedener geographischer Regionen;
Anpassen der eindeutigen Frequenzcharakteristik an eine einzige geographische Region in der Tabelle; und
Zugreifen auf den erlaubten Frequenzsatz, der der einzigen geographischen Region entspricht,
dadurch gekennzeichnet, dass
die Tabelle des weiteren eine Liste von verschiedenen erlaubten Ausgangsleistungspegeln aufweist, die verschiedenen geographischen Regionen entsprechen, und
der Schritt des Bestimmens ferner die folgenden Schritte aufweist:

Petitioner Samsung Ex-1004, 1255

Zugreifen auf die erlaubten Ausgangsleistungspegel, die der einzigen geographischen Region entsprechen, und Abstimmen des Ausgangsleistungspegels der Mobileinheit (20, 22, 24) zum Betreiben dieser innerhalb der erlaubten Ausgangsleistungspegel.

2. Verfahren nach Anspruch 1, wobei die Tabelle ferner eine Liste von verschiedenen Regeln aufweist, die verschiedenen geographischen Regionen entsprechen.

3. Verfahren nach Anspruch 2, das ferner den folgenden Schritt aufweist:

Anzeigen der Regeln, und zwar einem Benutzer, die einer geographischen Region entsprechen in der sich die Mobileinheit (20, 22, 24) befindet.

4. Verfahren nach Anspruch 3, das ferner die folgenden Schritte aufweist:

Zugreifen auf die Regeln, die der einzigen geographischen Region entsprechen, und
Abstimmen der Betriebscharakteristik der Mobileinheit (20, 22, 24), um diesen Regeln zu genügen.

5. Verfahren nach einem der vorhergehenden Ansprüche, das ferner die folgenden Schritte aufweist:

Scannen des Frequenzspektrums bis eine Benachrichtigung eines Zugangspunktes (12, 14) detektiert wird;
Prüfen der Frequenzcharakteristik der Benachrichtigung;
Vergleichen der Frequenzcharakteristik mit einer Tabelle in einem Speicher in der Mobileinheit (20, 22, 24);
Bestimmen der geographischen Region durch Abgleichen der Frequenzcharakteristik mit einer geographischen Region, die in der Tabelle aufgelistet ist, wobei die Tabelle außerdem einen Frequenzbereich für jede geographische Region auflistet; und
Abstimmen des Betriebsfrequenzbereichs der Mobileinheit (20, 22, 24), um dem Frequenzbereich entsprechend der geographischen Region zu entsprechen.

6. Verfahren nach einem der vorhergehenden Ansprüche, das ferner die folgenden Schritte aufweist:

Senden einer Nachricht an einen Benutzer zum Verifizieren, dass die geographische Region, die von der Mobileinheit (20, 22, 24) bestimmt wurde, korrekt ist; und
Übertragen, nur dann, wenn der Benutzer bestätigt, dass die geographische Region, die von der Mobileinheit (20, 22, 24) bestimmt wurde, korrekt ist.

7. Verfahren nach einem der vorhergehenden Ansprüche, das ferner die folgenden Schritte aufweist:

Benutzen eines globalen Positionsbestimmungssystems zum Verifizieren der geographischen Region in der sich die Mobileinheit (20, 22, 24) befindet;
Übertragen, nur dann, wenn das globale Positionsbestimmungssystem bestätigt, dass die geographische Region, die von der Mobileinheit (20, 22, 24) bestimmt wurde äquivalent ist zu der geographischen Region in der sich die Mobileinheit (20, 22, 24) befindet.

8. Verfahren nach einem der vorhergehenden Ansprüche, wobei ein Benutzer die Funktion, welche das Verfahren ausführt abschalten kann.

9. Mobileinheit (20, 22, 24) zum Benutzen in einem drahtlosen Daten Kommunikations-Netzwerk, das einen oder mehrere Zugangspunkte (12, 14) aufweist, wobei der Frequenzsatz der Mobileinheit (20, 22, 24) abgeändert werden kann und die Mobileinheit (20, 22, 24) folgendes aufweist:

einen Empfänger zum Empfangen von Benachrichtigungen in der Mobileinheit (20, 22, 24), die verbreitet werden durch einen oder mehrere der Zugangspunkte (12, 14), wobei jede dieser Nachrichten eine eindeutige Frequenzcharakteristik aufweist, die assoziiert ist mit der geographischen Position des Zugangspunktes (12, 14) von dem sie gesendet wurde;
eine Verarbeitungseinheit zum Bestimmen eines erlaubten Frequenzsatzes innerhalb der geographischen Region, die assoziiert ist mit dem Zugangspunkt (12, 14) von dem jede der Nachrichten gesendet wurde; und
einen Frequenzsatzabstimmer zum Abstimmen des Frequenzsatzes, um Nachrichten auf dem erlaubten Frequenzsatz zu senden,

wobei die Verarbeitungseinheit folgendes aufweist:

einen Vergleicher zum Vergleichen der eindeutigen Frequenzcharakteristiken der Nachrichten mit einer Tabelle, die gespeichert ist in einem Speicher der Mobileinheit (20, 22, 24), wobei die Tabelle eine Liste von verschiedenen, erlaubten Frequenzsätzen enthält entsprechend verschiedener geographischer Regionen;
einen Anpasser zum Anpassen der eindeutigen

Petitioner Samsung Ex-1004, 1256

Frequenzcharakteristik an eine einzige geographische Region in der Tabelle; und
einen ersten Leser zum Zugreifen auf den erlaubten Frequenzsatz, der der einzelnen geographischen Region entspricht, **dadurch gekennzeichnet, dass**
die Tabelle, ferner eine Liste verschiedener erlaubter Ausgangsleistungspegel aufweist, die verschiedenen geographischen Regionen entsprechen, und wobei der Ausgangsleistungspegel der Mobileinheit (20, 22, 24) abstimmbar ist und die Mobileinheit (20, 22, 24) ferner folgendes aufweist:

einen zweiten Leser zum Zugreifen auf die erlaubten Ausgangsleistungspegel, die der einzigen geographischen Region entsprechen; und
einen Ausgangsleistungspegel-Abstimmer, zum Abstimmen des Ausgangsleistungspegels der Mobileinheit (20, 22, 24) zum Betreiben dieser innerhalb der erlaubten Ausgangsleistungspegel.

10. Mobileinheit (20, 22, 24) nach Anspruch 9, wobei die Tabelle ferner eine Auflistung aufweist von verschiedenen Regeln, die verschiedenen geographischen Regionen entsprechen.

11. Mobileinheit (20, 22, 24) nach Anspruch 10, die ferner ein Display aufweist, das einem Benutzer die Regeln entsprechend der verschiedenen geographischen Regionen in denen sich die Mobileinheit (20, 22, 24) befindet, anzeigt.

12. Mobileinheit (20, 22, 24) nach Anspruch 11, wobei die Betriebscharakteristik der Mobileinheit (20, 22, 24) abgestimmt werden kann und die Mobileinheit (20, 22, 24) ferner folgendes aufweist:

einen dritten Leser, der auf die Regeln verweist, die der einzelnen geographischen Region entsprechen; und
einen Betriebscharakteristik-Abstimmer, der die Betriebscharakteristik der Mobileinheit (20, 22, 24) so abstimmt, dass sie den Regeln genügt.

13. Mobileinheit (20, 22, 24) nach einem der Ansprüche 9-12, die ferner folgendes aufweist:

einen Frequenzabtaster, der das Frequenzspektrum abtastet bis eine Benachrichtigung von einem Zugangspunkt (12, 14) detektiert wird; einen Frequenzcharakteristik-Detektor, der die Frequenzcharakteristik der Benachrichtigung prüft;
einen Vergleicher, der die Frequenzcharakteristik mit einer Tabelle in einem Speicher der Mobileinheit (20, 22, 24) vergleicht;
einen Bestimmer, der die geographische Region durch Anpassen der Frequenzcharakteristik mit der geographischen Region, die in der Tabelle aufgelistet ist bestimmt, wobei die Tabelle außerdem einen Frequenzbereich für jede geographische Region auflistet; und
einen Frequenzabstimmer, der den Betriebsfrequenzbereich der Mobileinheit (20, 22, 24) so abstimmt, damit diese dem Frequenzbereich entspricht, der der geographischen Region entspricht.

14. Mobileinheit (20, 22, 24) nach einem der Ansprüche 9-13, wobei die Mobileinheit (20, 22, 24) eine handgehaltene Datenerfassungseinheit ist.

15. Mobileinheit (20, 22, 24) nach einem der Ansprüche 9-14, die ferner folgendes aufweist:

ein Display;
einen Display-Sender, der eine Nachricht an das Display sendet, damit ein Benutzer verifizieren kann, dass die geographische Region, die von der Mobileinheit (20, 22, 24) bestimmt wurde, korrekt ist; und
einen drahtlosen Sender, der nur dann sendet, wenn der Benutzer bestätigt, dass die geographische Region, die von der Mobileinheit (20, 22, 24) bestimmt wurde, korrekt ist.

16. Mobileinheit (20, 22, 24) nach einem der Ansprüche 9-15, die ferner folgendes aufweist:

ein globales Positionsbestimmungssystem, das die geographische Region verifiziert, in der sich die Mobileinheit (20, 22, 24) befindet; und
einen drahtlosen Sender, der nur dann sendet, wenn das globale Positionsbestimmungssystem bestätigt, dass die geographische Region, die von der Mobileinheit (20, 22, 24) bestimmt wurde, äquivalent ist mit der geographischen Region, in der sich die Mobileinheit (20, 22, 24) befindet.

17. Mobileinheit (20, 22, 24) nach einem der Ansprüche 9-16, die ferner Mittel aufweist zum Abschalten der Funktion mehrfacher geographischer Regionen durch den Benutzer.

Revendications

1. Procédé pour actionner un réseau de communication de données sans fil comprenant un poste mobile (20, 22, 24) et un ou plusieurs points d'accès (12, 14), le procédé comprenant les étapes suivantes :

Petitioner Samsung Ex-1004, 1257

recevoir dans le poste mobile (20, 22, 24) des messages d'annonce diffusés par un ou plusieurs des points d'accès (12, 14), chacun des messages ayant une caractéristique de fréquence spécifique associée à l'emplacement géographique du point d'accès (12, 14) à partir duquel il a été envoyé ;
déterminer, dans le poste mobile (20, 22, 24), un ensemble de fréquences autorisé dans la région géographique associée au point d'accès (12, 14) à partir duquel chacun des messages a été envoyé ; et régler l'ensemble de fréquences du poste mobile (20, 22, 24) pour envoyer des messages sur l'ensemble de fréquences autorisé,

dans lequel l'étape de détermination comprend les étapes suivantes :

comparer les caractéristiques de fréquence spécifiques des messages à une table mémorisée dans une mémoire du poste mobile, la table contenant une liste de divers ensembles de fréquences autorisés pour correspondre à différentes régions géographiques ;
faire concorder les caractéristiques de fréquence spécifiques avec une unique région géographique de la table ; et
faire référence à l'ensemble de fréquences autorisé correspondant à la région géographique unique,
caractérisé en ce que
la table comprend en outre une liste de divers niveaux de puissance de sortie autorisés correspondant aux différentes régions géographiques, et

l'étape de détermination comprend en outre les étapes suivantes :

faire référence aux niveaux de puissance de sortie autorisés correspondant à la région géographique unique ; et
régler le niveau de puissance de sortie du poste mobile (20, 22, 24) pour fonctionner dans les niveaux de puissance de sortie autorisés.

2. Procédé selon la revendication 1, dans lequel la table comprend en outre une liste de diverses réglementations correspondant aux différentes régions géographiques.

3. Procédé selon la revendication 2, comprenant en outre l'étape suivante :

afficher pour un utilisateur les réglementations correspondant à la région géographique dans laquelle le poste mobile (20, 22, 24) est situé.

4. Procédé selon la revendication 3, comprenant en outre les étapes suivantes :

faire référence aux réglementations correspondant à la région géographique unique ; et
régler les caractéristiques fonctionnelles du poste mobile (20, 22, 24) pour respecter lesdites réglementations.

5. Procédé selon l'une quelconque des revendications précédentes, comprenant en outre les étapes suivantes :

balayer le spectre de fréquences jusqu'à ce qu'un message d'annonce en provenance d'un point d'accès (12, 14) soit détecté ;
examiner les caractéristiques de fréquence du message d'annonce ;
comparer les caractéristiques de fréquence à une table en mémoire dans le poste mobile (20, 22, 24) ;
déterminer la région géographique en faisant concorder les caractéristiques de fréquence avec une région géographique listée dans la table, la table listant aussi une plage de fréquence pour chaque région géographique ; et
régler la plage de fréquence de fonctionnement du poste mobile (20, 22, 24) pour correspondre à la plage de fréquence correspondant à la région géographique.

6. Procédé selon l'une quelconque des revendications précédentes, comprenant en outre les étapes suivantes :

envoyer un message à un utilisateur pour vérifier que la région géographique déterminée par le poste mobile (20, 22, 24) est correcte ; et
émettre seulement si l'utilisateur vérifie que la région géographique déterminée par le poste mobile (20, 22, 24) est correcte.

7. Procédé selon l'une quelconque des revendications précédentes, comprenant en outre les étapes suivantes :

utiliser un dispositif de localisation du Système de Positionnement Global pour vérifier dans quelle région géographique est situé le poste mobile (20, 22, 24) ;
émettre seulement si le dispositif de localisation du Système de Positionnement Global vérifie que la région géographique déterminée par le poste mobile (20, 22, 24) est équivalente à la région géographique dans laquelle le poste mobile (20, 22, 24) est situé.

8. Procédé selon l'une quelconque des revendications

Petitioner Samsung Ex-1004, 1258

précédentes, dans lequel un utilisateur peut désactiver la fonctionnalité qui exécute le procédé.

9. Poste mobile (20, 22, 24) pour utilisation dans un réseau de communications de données sans fil comprenant un ou plusieurs points d'accès (12, 14), dans lequel l'ensemble de fréquences du poste mobile (20, 22, 24) peut être modifié et dans lequel le poste mobile (20, 22, 24) comprend :

un récepteur pour recevoir dans le poste mobile (20, 22, 24) des messages d'annonce diffusés par un ou plusieurs des points d'accès (12, 14), chacun des messages ayant une caractéristique de fréquence spécifique associée à la position géographique du point d'accès (12, 14) à partir duquel il a été envoyé ;
un module de traitement pour déterminer un ensemble de fréquences autorisé dans la région géographique associée au point d'accès (12, 14) à partir duquel chacun des messages a été envoyé ; et
un dispositif de réglage d'ensemble de fréquences pour régler l'ensemble de fréquences pour envoyer des messages sur l'ensemble de fréquences autorisé,

dans lequel le module de traitement comprend :

un comparateur pour comparer les caractéristiques de fréquence spécifiques des messages à une table mémorisée dans une mémoire du poste mobile (20, 22, 24), la table contenant une liste de divers ensembles de fréquences autorisés pour correspondre à différentes régions géographiques ;
un dispositif de recherche de concordance pour rechercher une concordance entre les caractéristiques de fréquence spécifiques et une seule région géographique de la table ; et
un premier lecteur pour faire référence à l'ensemble de fréquences autorisé correspondant à ladite région géographique spécifique,

caractérisé en ce que la table comprend en outre une liste de divers niveaux de puissance de sortie autorisés correspondant à différentes régions géographiques, et
le niveau de puissance de sortie du poste mobile (20, 22, 24) étant réglable et le poste mobile (20, 22, 24) comprenant :

un deuxième lecteur pour faire référence aux niveaux de puissance de sortie autorisés correspondant à la région géographique unique ; et
un dispositif de réglage de niveau de puissance de sortie pour régler le niveau de puissance de sortie du poste mobile (20, 22, 24) pour fonctionner dans les niveaux de puissance de sortie autorisés.

10. Poste mobile (20, 22, 24) selon la revendication 9, dans lequel la table comprend en outre une liste de diverses réglementations correspondant à différentes régions géographiques.

11. Poste mobile (20, 22, 24) selon la revendication 10, comprenant en outre un afficheur, qui affiche pour un utilisateur les réglementations correspondant à la région géographique dans laquelle le poste mobile (20, 22, 24) est situé.

12. Poste mobile (20, 22, 24) selon la revendication 11, dans lequel les caractéristiques de fonctionnement du poste mobile (20, 22, 24) peuvent être réglées et le poste mobile (20, 22, 24) comprend :

un troisième lecteur, qui fait référence aux réglementations correspondant à la région géographique unique ; et
un dispositif de réglage de caractéristiques de fonctionnement, qui règle les caractéristiques de fonctionnement du poste mobile (20, 22, 24) pour respecter les réglementations.

13. Poste mobile (20, 22, 24) selon l'une quelconque des revendications 9 à 12, comprenant en outre :

un analyseur de fréquences, qui balaye le spectre de fréquences jusqu'à ce qu'un message d'annonce provenant d'un point d'accès (12, 14) soit détecté ;
un détecteur de caractéristiques de fréquence, qui examine les caractéristiques de fréquence du message d'annonce ;
un comparateur, qui compare les caractéristiques de fréquence à une table dans une mémoire du poste mobile (20, 22, 24) ;
un dispositif de détermination, qui détermine la région géographique en faisant concorder les caractéristiques de fréquence avec une région géographique listée dans la table, la table listant aussi une plage de fréquences pour chaque région géographique ; et
un dispositif de réglage de fréquence, qui règle la plage de fréquences de fonctionnement du poste mobile (20, 22, 24) pour correspondre à la plage de fréquences correspondant à la région géographique.

14. Poste mobile (20, 22, 24) selon l'une quelconque des revendications 9 à 13, dans lequel le poste mobile (20, 22, 24) est un poste de collecte de données tenu à la main.

15. Poste mobile (20, 22, 24) selon l'une quelconque

Petitioner Samsung Ex-1004, 1259

des revendications 9 à 14, comprenant en outre :

un afficheur ;
un transmetteur d'affichage, qui envoie un message vers l'afficheur afin qu'un utilisateur puisse vérifier que la région géographique déterminée par le poste mobile (20, 22, 24) est correcte ; et
un émetteur sans fil, qui émet uniquement si l'utilisateur vérifie que la région géographique déterminée par le poste mobile (20, 22, 24) est correcte.

16. Poste mobile (20, 22, 24) selon l'une quelconque des revendications 9 à 15, comprenant en outre :

un dispositif de localisation du Système de Positionnement Global, qui vérifie la région géographique dans laquelle le poste mobile (20, 22, 24) est situé ; et
un émetteur sans fil, qui émet uniquement si le dispositif de localisation du Système de Positionnement Global vérifie que la région géographique déterminée par le poste mobile (20, 22, 24) est équivalente à la région géographique dans laquelle le poste mobile (20, 22, 24) est situé.

17. Poste mobile (20, 22, 24) selon l'une quelconque des revendications 9 à 16, comprenant en outre des moyens de désactivation par un utilisateur de la fonctionnalité de région géographique multiple.

Petitioner Samsung Ex-1004, 1260

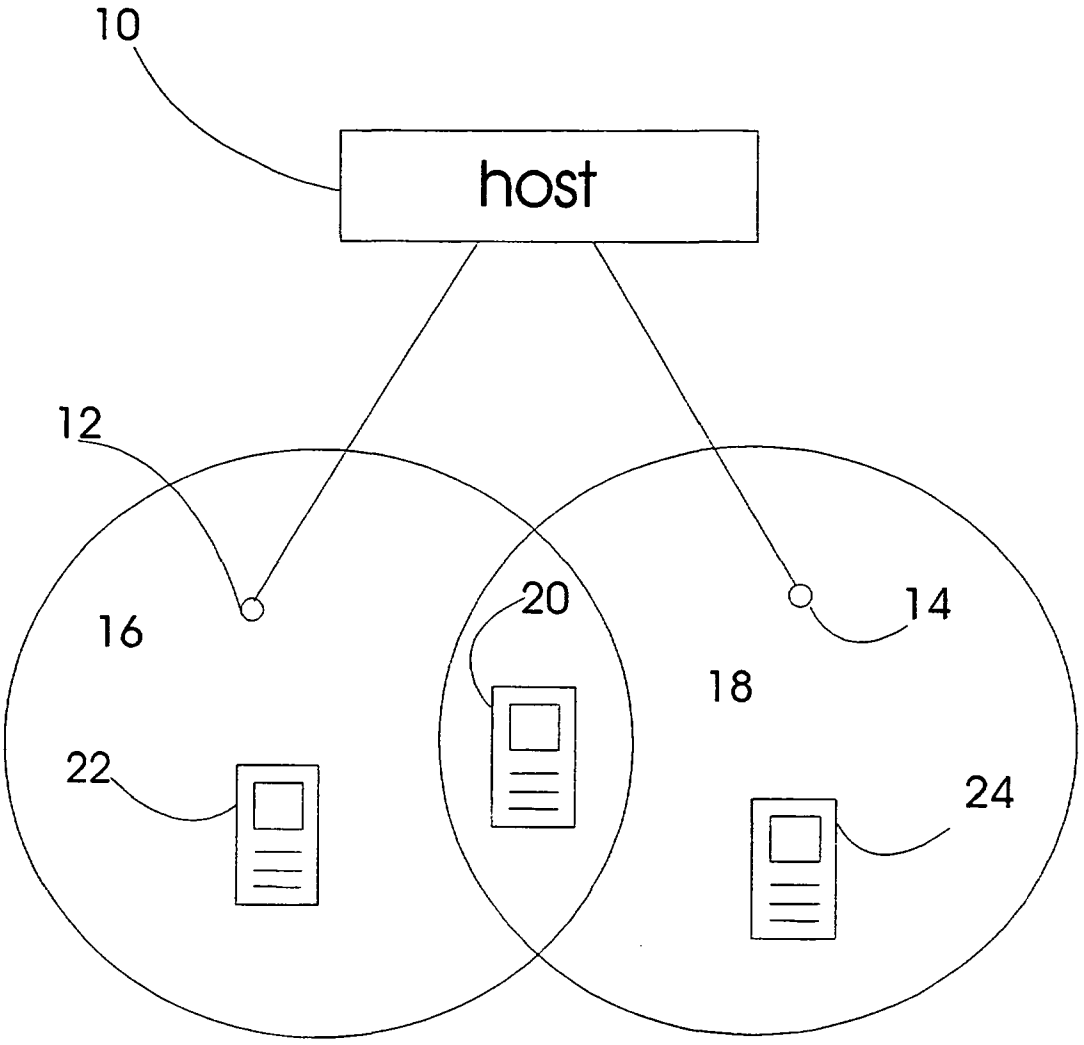


Fig. 1

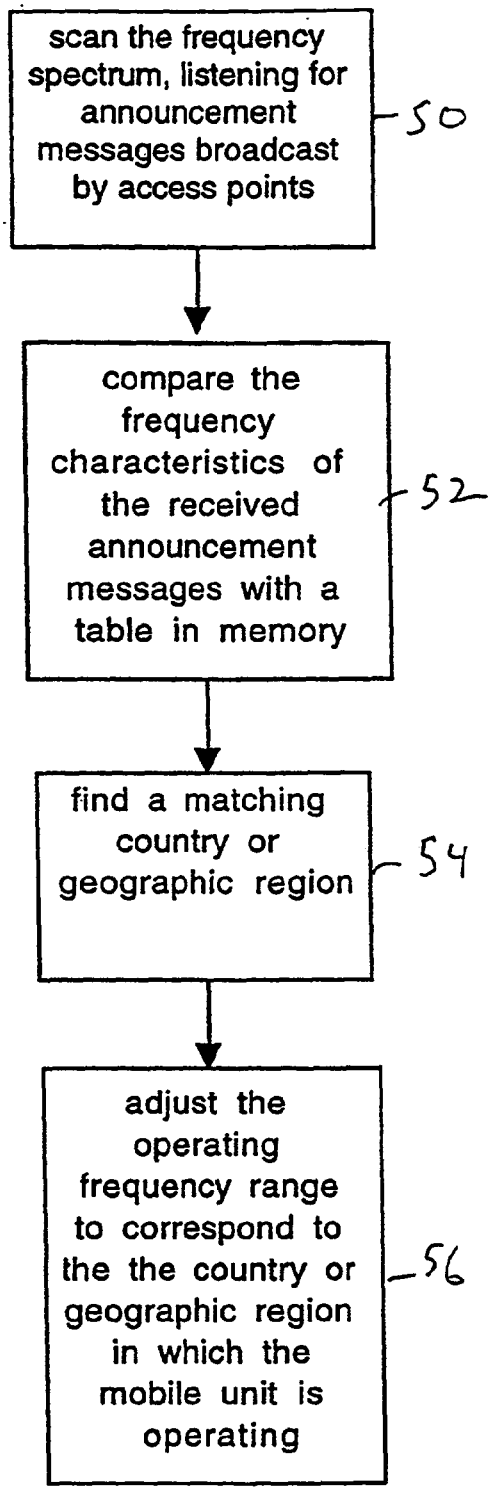

scan the frequency spectrum, listening for announcement messages broadcast by access points
50
compare the frequency characteristics of the received announcement messages with a table in memory
52
find a matching country or geographic region
54
adjust the operating frequency range to correspond to the the country or geographic region in which the mobile unit is operating
56

Fig. 2

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- GB 2308946 A **[0005]**
- US 5613204 A **[0006]**
- US 5701328 A **[0007]**
- US 5901358 A **[0008]**
- WO 9717623 A **[0008]**
- US 5924034 A **[0009]**
- US 5787354 A **[0010]**
- US 5029183 A, Tymes **[0025]**
- US 5668803 A, Tymes **[0025]**

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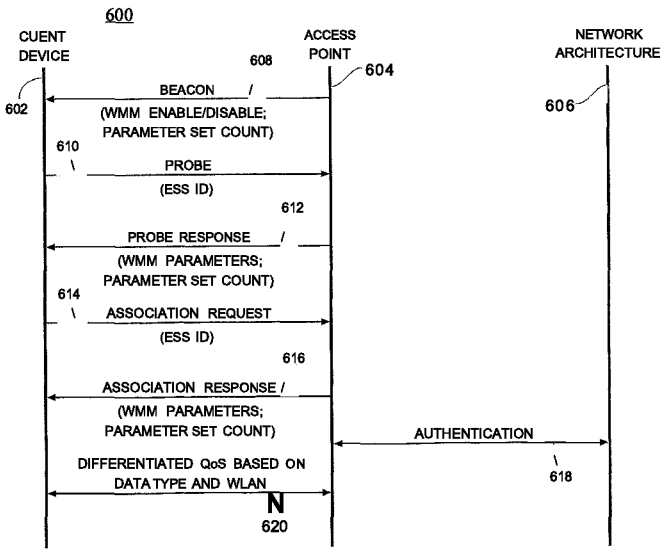
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(54) Title: QUALITY OF SERVICE DIFFERENTIATION FOR MULTIMEDIA DATA TRANSFER IN A MULTI-WLAN ENVIRONMENT



(57) Abstract: A wireless local area network configured in accordance with the invention includes at least one wireless access point that can support a plurality of different virtual extended service sets ("ESSs") to provide a plurality of different service levels for mobile clients in the network. A wireless access point can deliver QoS parameters to the mobile client devices, where the QoS parameters dictate a transmission prioritization scheme for data transfer between the mobile client devices and the wireless access ports. For example, one ESS may have preferred QoS parameters to generate consistent voice or video experience while another ESS may have non-preferred parameters that do not guarantee that same level of experience.

WO 2007/047181 A2

Petitioner Samsung Ex-1004, 1264

QUALITY OF SERVICE DIFFERENTIATION FOR MULTIMEDIA DATA TRANSFER IN A MULTI-WLAN ENVIRONMENT

TECHNICAL FIELD

[0001] The present invention relates generally to wireless local area network ("WLAN") architectures. More particularly, the present invention relates to the provision of differentiated quality of service ("QoS") for mobile client devices users in a multi-WLAN environment.

BACKGROUND

[0002] WLANs rely on WLAN infrastructure components that establish data communication links with mobile client devices. A mobile client device communicates, via a wireless data communication channel, with an access point or access port device, which in turn communicates with other network components via traditional wired interfaces. A WLAN may also include wireless switches as needed. A WLAN infrastructure may be configured to support a plurality of "virtual" or "logical" WLANs using a single access point device. hi other words, one access point device can support a plurality of logical WLANs, which may be accessed by different groups or categories of client devices. In this regard, administrators of wireless infrastructure systems may want to provide differentiation between virtual WLANs that are supported by the same WLAN infrastructure equipment. For example, it may be desirable to utilize the WLAN infrastructure equipment associated with a particular wireless "hot spot" to provide enhanced service (e.g., for better delivery of multimedia files and/or for higher quality voice over IP sessions) to some wireless client devices, and standard service (e.g., non-prioritized handling of data traffic) to other wireless client devices. Furthermore, other desirable features and characteristics of the present invention will become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and the foregoing technical field and background.

BRIEF SUMMARY

[0003] A system as described herein allows WLAN administrators to provide differentiated QoS for "virtual" WLANs supported by a common WLAN infrastructure

Petitioner Samsung Ex-1004, 1265

through the assignment of different parameters (e.g., Wi-Fi Multimedia ("WMM") QoS parameters, IEEE 802.11(e) QoS parameters, or the like) to each virtual WLAN individually. In this way, the mobile users of one logical WLAN can be given better access to the wireless medium than the users of another logical WLAN, at the discretion of the network administrators. For example, this feature can be used to configure one logical WLAN with public "best effort" QoS and another logical WLAN with an enhanced QoS, which may be desirable for voice and/or video data transmission.

[0004] The above and other aspects of the invention may be carried out in one form by a method for establishing QoS differentiation in a WLAN environment having a wireless access point configured to support a plurality of logical WLANs. The method involves: identifying an approved logical WLAN for a mobile client device, where the approved logical WLAN is one of the plurality of logical WLANs supported by the wireless access point, and providing the mobile client device with a specified QoS for the approved logical WLAN. The specified QoS influences data type prioritization for data transmission between the mobile client device and the wireless access point.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] A more complete understanding of the present invention may be derived by referring to the detailed description and claims when considered in conjunction with the following figures, wherein like reference numbers refer to similar elements throughout the figures.

[0006] FIG. 1 is a simplified schematic representation of a typical WLAN infrastructure suitable for use in connection with an example embodiment of the invention;

[0007] FIG. 2 is a schematic representation of an access point device configured in accordance with an example embodiment of the invention;

[0008] FIG. 3 is a schematic representation of a logical structure that may be employed in the access point device shown in FIG. 2;

[0009] FIG. 4 is a schematic representation of a WLAN environment having three access points connected in a common WLAN infrastructure;

[0010] FIG. 5 is a flow chart of a QoS differentiation process that may be performed by an access point device configured in accordance with an example embodiment of the invention; and

[0011] FIG. 6 is a sequence diagram depicting communication, between a client device and an access point device, for establishing differentiated QoS in a WLAN environment.

DETAILED DESCRIPTION

[0012] The following detailed description is merely illustrative in nature and is not intended to limit the invention or the application and uses of the invention. Furthermore, there is no intention to be bound by any expressed or implied theory presented in the preceding technical field, background, brief summary or the following detailed description.

[0013] The invention may be described herein in terms of functional and/or logical block components and various processing steps. It should be appreciated that such block components may be realized by any number of hardware, software, and/or firmware components configured to perform the specified functions. For example, an embodiment of the invention may employ various integrated circuit components, e.g., memory elements, digital signal processing elements, logic elements, look-up tables, or the like, which may carry out a variety of functions under the control of one or more microprocessors or other control devices. In addition, those skilled in the art will appreciate that the present invention may be practiced in conjunction with any number of data transmission protocols and that the system described herein is merely one exemplary application for the invention.

[0014] For the sake of brevity, conventional techniques related to wireless signal processing, wireless data transmission, WLANs, signaling, network control, and other functional aspects of the systems (and the individual operating components of the systems) may not be described in detail herein. Furthermore, the connecting lines shown in the various figures contained herein are intended to represent example functional relationships and/or physical couplings between the various elements. It should be noted that many alternative or additional functional relationships or physical connections may be present in a practical embodiment.

[0015] The following description may refer to elements or features being "connected" or "coupled" together. As used herein, unless expressly stated otherwise, "connected" means that one element/feature is directly joined to (or directly communicates with) another element/feature, and not necessarily mechanically. Likewise, unless expressly stated otherwise, "coupled" means that one element/feature is directly or indirectly joined

Petitioner Samsung Ex-1004, 1267

to (or directly or indirectly communicates with) another element/feature, and not necessarily mechanically. Thus, although the figures may depict example arrangements of elements, additional intervening elements, devices, features, or components may be present in an actual embodiment (assuming that the functionality of the system is not adversely affected).

[0016] As used herein, the term "access point" means any component, device, feature, element, or function that is configured to receive/transmit wireless traffic from a wireless client device in a WLAN environment. Traditionally, an access point or an access point device refers to a hardware component that includes a radio module, memory, processing logic, and a network communication module that enables it to communicate with other network architecture components. Moreover, an access port or an access port device typically refers to a hardware component that includes a radio module, memory, a network communication module that enables it to communicate with other network architecture components, but only a subset of the processing logic needed to provide the wireless infrastructure. In this regard, an access port device is deployed in conjunction with a wireless switch, which includes the additional processing logic and memory that would otherwise be included in an equivalent access point device. For convenience, the term "access point" as used herein contemplates an access point device in the traditional sense, in addition to a subsystem that includes an access port device and a wireless switch. Moreover, the term "access point" contemplates any individual component, device, hardware, or system, and any combination thereof, that is configured to function in the manner described herein. For example, the QoS differentiation features described herein may be implemented in an untraditional architecture that combines the necessary radio module, processing power, memory, and the like with additional features not typically found in conventional stand-alone access point devices.

[0017] The WMM Specification (by Wi-Fi Alliance; www.wi-fi.org) provides for the distribution of WMM Parameters to mobile users in 802.1 1 beacons, probe responses, and association responses. Any WMM documentation publicly available from Wi-Fi Alliance, either online or otherwise, and IEEE Standard 802.11 (all variants) are incorporated by reference herein. In particular, "Wi-Fi CERTIFIED™ for WMM™ - Support for Multimedia Applications with Quality of Service in Wi-Fi® Networks," Wi-Fi Alliance (September 1, 2004) is incorporated by reference herein. The inclusion of the WMM Parameters in probe responses and association responses is mandatory for WMM enabled networks. The inclusion of the WMM Parameters in beacons, however, is

optional. If WMM Parameters are not included in beacons, then a beacon in a WMM enabled network must include a WMM Info Element, which indicates that WMM is enabled in that network. The WMM Info Element also includes a "parameter set count" which uniquely identifies the current WMM Parameter set.

[0018] In accordance with 802.1 1, wireless access points are typically associated with a basic service set ("BSS") and an extended service set ("ESS"). The general concept of having multiple ESSs (also known as multi-WLAN or virtual WLAN) is known. In a multi-ESS system, a beacon provides information for a "primary" WLAN only, while probe responses and/or association responses can provide information for the primary WLAN as well as other "secondary" WLANs that are assigned to the same BSS identifier ("BSSID") for the given access point device.

[0019] A network configured in accordance with an example embodiment of the invention extends the multi-ESS feature. In this example, in order to indicate that WMM is enabled on such a network, the WMM Info Element is included in the beacon. This Info Element contains a parameter set count, which is defined to be the same for all logical WLANs assigned to the corresponding BSSID (note that the parameter set count for all of these logical WLANs may change over time). The WMM Parameters, however, are delivered in the probe response and/or association response from the access point device, which allows the delivery of different QoS parameters to clients associated with different ESSs (i.e., different logical WLANs).

[0020] Thus, on the one hand, mobile users can identify that WMM is enabled on the network by observing the beacons and adopting the WMM Parameters from their respective probe responses and/or association responses; while on the other hand, the administrator can deliver different WMM Parameters to clients on different logical WLANs (again, this is because the clients only receive the QoS parameters in their respective probe responses and/or association responses). Since it is through differentiation of the WMM Parameters that the clients gain preferred (or non-preferred) access to the wireless transmission medium, this feature allows the administrator to differentiate between the access granted to the clients without requiring any special implementation on the client side (for example, through 802.1 Ie TSPECS).

[0021] Note that it is even possible to disable WMM on one logical WLAN while having it enabled on another logical WLAN provisioned through the same access point device. In the case of the former logical WLAN, the probe response or association response would not contain any WMM Parameters, while in the latter logical WLAN, the

Petitioner Samsung Ex-1004, 1269

responses would contain the WMM Parameters. In the manner described herein, network administrators can provide differentiated wireless quality of service to different parts of a wireless network without requiring any special implementation on a client (aside from the base WMM certification).

[0022] FIG. 1 is a simplified schematic representation of a typical WLAN infrastructure 100, including mobile client devices 102/104, an access point 106, and a network architecture 108. As explained above, access point 106 may be realized as a subsystem that includes an access port device and a wireless switch coupled between the access port device and network architecture 108. A practical WLAN infrastructure 100 may include any number of mobile client devices and any number of access points dispersed throughout the area of coverage. A mobile client can be any computing device having the wireless transceiver and interface capabilities necessary to communicate with access point 106 via wireless links 110/112. Although not shown in FIG. 1, WLAN infrastructure 100 may include one or more wireless switches coupled between access points and network architecture 108. Access point 106 can communicate with the remaining network architecture 108 via any suitable data communication link 114, such as an Ethernet data cable. Network architecture 108 may include any number of traditional computer network components, including, but not limited to: switches, routers, servers, interfaces, data storage devices, or the like.

[0023] FIG. 2 is a schematic representation of an access point device 200 configured in accordance with an example embodiment of the invention. A practical embodiment of wireless access device 200 will include additional components and elements configured to support known or conventional operating features that need not be described in detail herein. In the example embodiment, wireless access device 200 is a wireless access point that transmits and receives data. An access point connects users to other users within the network and can also serve as the point of interconnection between a WLAN and a fixed wire network. Each access point can serve multiple users within a defined network area. As a wireless client moves beyond the range of one access point, the wireless client can be automatically handed over to another access device, e.g., a different access point or a wireless access port supported by a wireless switch. In practice, the number of wireless access devices in a given network generally increases with the number of network users and the physical size of the network.

[0024] Wireless access device 200 generally includes a physical housing (not shown), a radio module 202, a network communication module 204, a processor architecture 206,

Petitioner Samsung Ex-1004, 1270

and an appropriate amount of memory 208. A practical wireless access device 200 may of course include any number of radio modules, any number of network communication modules, any number of processor devices, and any number of memory elements; the illustrated device depicts a simple embodiment for ease of description. These and other elements of wireless access device 200 may be interconnected together using a bus 210 or any suitable interconnection arrangement. Such interconnection facilitates communication between the various elements of wireless access device 200. Those of skill in the art will understand that the various illustrative blocks, modules, circuits, and processing logic described in connection with the embodiments disclosed herein may be implemented in hardware, computer-readable software, firmware, or any practical combination thereof. To clearly illustrate this interchangeability and compatibility of hardware, firmware, and software, various illustrative components, blocks, modules, circuits, and steps are described generally in terms of their functionality. Whether such functionality is implemented as hardware, firmware, or software depends upon the particular application and design constraints imposed on the overall system. Those familiar with the concepts described herein may implement such functionality in a suitable manner for each particular application, but such implementation decisions should not be interpreted as causing a departure from the scope of the present invention.

[0025] Radio module 202, which includes a receiver and a transmitter (or a transceiver), is configured to communicate with wireless clients via a wireless data communication link 212. Radio module 202 may cooperate with a suitably configured RF antenna arrangement (not shown) that supports the particular wireless communication protocol. In the example embodiment, radio module 202 is configured to support WLAN connectivity in compliance with established IEEE Standards, such as 802.11, 802.11a, 802.11b, and 802.11g. Of course, radio module 202 may be configured to support alternate or additional wireless data communication protocols, including future variations of 802.11 such as 802.Hn.

[0026] Network communication module 204 generally represents the hardware, software, firmware, processing logic, and/or other components of wireless access device 200 that enable bi-directional communication between wireless access device 200 and network components to which wireless access device 200 is connected. For example, network communication module 204 may be configured to support 10/100 Mbps Ethernet LAN traffic. Referring to FIG. 1 as an example, network communication module 204 is suitably configured to transmit data to components in network architecture 108, and to

Petitioner Samsung Ex-1004, 1271

receive data from components in network architecture 108. In a typical deployment, network communication module 204 provides an Ethernet interface such that wireless access device 200 can communicate with a conventional Ethernet-based computer network. In this regard, network communication module 204 may include a physical interface, such as 10/100/1000 Mbps, for connection to the computer network, and network communication module 204 (and/or processor 206) may handle Ethernet addressing for data packets sent from wireless access device 200.

[0027] Processor architecture 206 may be implemented or realized with a general purpose processor, a content addressable memory, a digital signal processor, an application specific integrated circuit, a field programmable gate array, any suitable programmable logic device, discrete gate or transistor logic, discrete hardware components, or any combination thereof, designed to perform the functions described herein. In this regard, a processor may be realized as a microprocessor, a controller, a microcontroller, a state machine, or the like. A processor may also be implemented as a combination of computing devices, e.g., a combination of a digital signal processor and a microprocessor, a plurality of microprocessors, one or more microprocessors in conjunction with a digital signal processor core, or any other such configuration. In practice, processor architecture 206 includes processing logic that is configured to carry out the functions, techniques, and processing tasks associated with the operation of wireless access device 200. In particular, the processing logic is configured to support the QoS differentiation techniques described herein. As mentioned above, in practical embodiments the processing logic may be resident in an access point device that includes radio module 202, or in a wireless switch (which may be considered to be part of network architecture 108) that communicates with an access port device that includes radio module 202.

[0028] Furthermore, the steps of a method or algorithm described in connection with the embodiments disclosed herein may be embodied directly in hardware, in firmware, in a software module executed by processor architecture 206, or in any practical combination thereof. A software module may reside in memory 208, which may be realized as RAM memory, flash memory, ROM memory, EPROM memory, EEPROM memory, registers, a hard disk, a removable disk, a CD-ROM, or any other form of storage medium known in the art. In this regard, memory 208 can be coupled to processor architecture 206 such that processor architecture 206 can read information from, and write information to, memory 208. In the alternative, memory 208 may be

Petitioner Samsung Ex-1004, 1272

integral to processor architecture 206. As an example, processor architecture 206 and memory 208 may reside in an ASIC.

[0029] The concept of a BSS is defined in IEEE Standard 802.11. In practice, a given mobile client is associated with a single BSS. Therefore, from a hardware perspective, a BSS is unique to a given access point, since a mobile client at any given time communicates with one access point. Thus, under 802.11, there is a one-to-one correspondence between an access point and a BSS. For example, a conventional 802.11 WLAN having five access points would utilize five BSSs. A BSS is an abstraction of an access point; the BSS defines or identifies the communication channel for the access point, the access point is configured to utilize certain data rates, the access point provides access to the network architecture, etc. In other words, a BSS defines or indicates operating parameters, characteristics, and qualities of its corresponding access point. The concept of an ESS is also defined in IEEE Standard 802.11. Conceptually, an ESS is a superset of BSSs. An ESS represents those properties that are common to a set of BSSs. The ESS allows a single mobile client to move from one BSS to another BSS within the WLAN environment, while still maintaining connectivity to the network. An ESS has a name or identifier ("ESS ID") and a mobile client is configured for that named ESS, and the ESS will typically include some form of security measure, e.g., authentication, encryption, etc. In accordance with the present invention, the ESS may also have a corresponding set of QoS parameters.

[0030] Under 802.11, a single BSS usually corresponds to a single access point, and a single ESS is configured on multiple access points to constitute a single WLAN. As an extension to this general methodology, some networks provision multiple ESSs for a single BSS. Thus, for a given access point, there can be any number of different ESSs that can be used to create multiple virtual WLANs supported by the same WLAN infrastructure equipment. Thus, the equipment can service different types or categories of clients. For example, one category of clients may be associated with a premium level of service that provides higher quality multimedia transmission, while another category of clients may be associated with a lower level of service that may not provide consistently high quality multimedia transmission. Such an arrangement may be desirable to justify premium access charges for customers in the first category. This allows a single access point to support communication with a plurality of different logical WLAN types. For example, the access point may use one ESS ID to provide restricted access to network data for some users, and another, different ESS ID to provide unrestricted access to the

Petitioner Samsung Ex-1004, 1273

network data for authorized users. These multiple ESSs can virtualize the WLAN to provide isolation for certain resources and/or data.

[0031] The WMM specification, from Wi-Fi Alliance, is a subset of the IEEE 802.11e specification. WMM relates to the handling of multimedia over a WLAN. WMM generally specifies a technique for prioritizing data depending upon the type of data being transmitted. For example, voice data and video data, which is typically sensitive to transmission delay, may be prioritized higher than other data, such as web browser traffic, that is not as time sensitive. Thus, the transmitter (for either the mobile device or the access point) will use different parameters depending upon the type of data. In the example embodiment, there are four WMM priority levels, and four WMM parameters that control the QoS for each priority level. The WMM priority levels (in increasing order) are: background; best effort; video; and voice. The priority levels are mapped to the eight priority levels set forth in IEEE Standard 802.1(d), the content of which is incorporated by reference herein. Two of the 802.1(d) levels are mapped to each WMM priority level. In the practical embodiment, the WMM parameters are: contention window minimum; contention window maximum; arbitration interframe spacing; and the transmit opportunity time.

[0032] More aggressive parameters can be used for voice and video, thus increasing the likelihood that such data will be transmitted quickly. Two sets of parameters are utilized for WMM: mobile client device parameters and access point parameters. Under the WMM specification, the access point delivers the client parameters to the client device when the client device attaches to the network. The client then assumes those client parameters for communication with the access point. The WMM specification, like 802.11, assumes that only one set of client parameters are used per ESS, and assumes that there is a one-to-one relationship between an ESS and a BSS. In other words, WMM assumes that only one set of parameters will be delivered by any given access point.

[0033] The WMM parameters are delivered using 802.11 beacons, probe responses, and association responses, which are management frames. A beacon is broadcast from an access point on a periodic basis. According to 802.11, a beacon is transmitted for a BSS, and a beacon provides parameters for that particular BSS. It includes information about the BSS, and possibly some information about the associated ESS. In a multi-ESS implementation, a primary ESS is identified in the beacon, and other related ESSs are provided elsewhere. When a client is searching for a network, it transmits a probe frame. An access point within range of the client device will respond with a probe response. If

Petitioner Samsung Ex-1004, 1274

the client device is seeking a network connection, then it sends an association request to the access point. An association response, which is sent by the access point in response to an association request, is utilized to establish the communication channel between the mobile device and the access point.

[0034] In accordance with the example embodiment of the invention, a WMM Info Element is placed into the beacon; the WMM Info Element includes a parameter set count for all of the ESSs that are tied to the particular BSS. The parameter set count is an identifier, such as a number, that identifies the current WMM parameter set. Over time, the parameter set count may change to indicate an updated WMM parameter set for the ESSs for the given BSS. Thus, the parameter set count is initialized to the same value for all of the multiple ESSs. Then, the actual WMM parameters are delivered in the probe responses and association responses. Since the probe responses and association responses are uniquely tied to a given ESS, the administrator can deliver different WMM parameters on an ESS-by-ESS basis.

[0035] In accordance with the invention, a single access point can be configured to deliver a plurality of WMM client parameter sets to client devices, depending upon which ESS the client devices are linked to within a multi-ESS system. This is significant because it allows the network administrator to permit preferred access (i.e., QoS) to certain client devices connected to certain ESSs, and non-preferred access to other client devices connected to other ESSs. If a user of a given client device is a "preferred" customer, then that client device will be able to connect to the particular ESS that is associated with the preferred level of service. The network, via the access point, can grant access to that ESS in response to an authentication/association process. As part of the process of connecting to that ESS, the client receives the WMM client parameters from the access point.

[0036] FIG. 3 is a schematic representation of a logical structure 300 that may be employed in the access point device shown in FIG. 2. In this regard, the access point 302 is suitably configured to support any number of different ESSs (i.e., different virtual WLANs): ESS-I, ESS-2, and so on, up to ESS-JV, within the practical limitations of the network architecture and operating environment. The techniques of the present invention can be implemented to control whether WMM is enabled on a given virtual ESS, and the specific parameters a mobile client device will use to gain access to the medium. For example, the network administrator can configure a given ESS such that WMM is enabled or disabled. In this example, ESS-I and ESS-2 are WMM enabled, while ESS-TV

Petitioner Samsung Ex-1004, 1275

is WMM disabled. Thus, mobile client devices on ESS-I or ESS-2 would be able to send and receive prioritized data in the manner described herein. Moreover, the network administrator can configure the WMM parameters for the WMM-enabled ESSs to provide differentiated QoS. For example, the WMM Parameter Set 1 (for ESS-I) may be less aggressive than the WMM Parameter Set 2 (for ESS-2). As a result, although mobile client devices on both ESS-I and ESS-2 can send and receive data in a prioritized manner, the user on ESS-2 will obtain a better QoS (QoS_2 in this example) than the user on ESS-I (QoS_1 in this example). For example, QoS_2 may correspond to a level of quality needed to support streaming video multimedia applications, while QoS_1 may correspond to a level of quality that only supports applications that are less sensitive to transmission latency, such as web browsing. Referring again to FIG. 2, memory 208 may be configured to store the different QoS parameter sets (e.g., the WMM Parameter Sets) and the corresponding ESS IDs depicted in logical structure 300.

[0037] In practice, the quality of service provided by QoS_2 may result in a more consistent video experience and/or clearer voice-over-IP sound for the user on ESS-2. In contrast, the mobile client device on ESS-*N* would still be able to send and receive voice or video data, but the client device transceiver and the transceiver of access point 302 would not treat this data traffic in any prioritized way relative to other types of traffic. In other words, the QoS for a device on ESS-*N* (QoS_*N* in this example) is not controlled by WMM parameters as described above for devices on ESS-I or ESS-2. Thus, access point 302 can be suitably configured and controlled to handle data traffic in a differentiated manner (i.e., whether the data is prioritized and, if so, how the data is prioritized). In the example embodiment, a WLAN architecture configured in accordance with the invention need not limit or restrict the type of data that is handled by a particular virtual ESS; rather, the manner in which the data is handled can be specified for each virtual ESS supported by the WLAN architecture.

[0038] FIG. 4 is a schematic representation of a WLAN environment 400 having three access points 402/404/406, each connected in a common WLAN infrastructure. Each access point can support a plurality of different ESSs, in this example, ESSl, ESS2, and ESS3, where each ESS represents a different logical WLAN having different QoS parameters for data access and transmission. FIG. 4 also depicts a number of mobile devices communicating with the access points. For example, a first mobile device 408 is communicating with access point 402 in the ESSl domain. A second mobile device 410 is communicating with access point 404 in the ESS2 domain. A third mobile device 412

Petitioner Samsung Ex-1004, 1276

is communicating with access point 406 in the ESS3 domain. A fourth mobile device 414 is communicating with access point 406 in the ESS2 domain. These mobile devices use the QoS or WMM parameters received from the respective access points in the manner described above. Notably, as the mobile devices move around the environment 400, different access points may support communication using the same (or different) ESS domain as needed.

[0039] Assuming that a client device supports the WMM specification such that it could achieve the basic Wi-Fi WMM certification, no modification to the client device is needed to deploy the techniques described herein. The access points (or wireless switches), however, may need to be modified to support the WMM parameter delivery techniques.

[0040] FIG. 5 is a flow chart of a QoS differentiation process 500 that may be performed by an access point device configured in accordance with an example embodiment of the invention. The various tasks performed in connection with process 500 may be performed by software, hardware, firmware, or any combination thereof. For illustrative purposes, the following description of process 500 may refer to elements mentioned above in connection with FIGS. 1-4. hi practical embodiments, portions of process 500 may be performed by different elements of the described system. It should be appreciated that process 500 may include any number of additional or alternative tasks, the tasks shown in FIG. 5 need not be performed in the illustrated order, and process 500 may be incorporated into a more comprehensive procedure or process having additional functionality not described in detail herein.

[0041] QoS differentiation process 500 presumes that the client device and access point support the multiple virtual/logical WLAN arrangement described above. Moreover, process 500 presumes that the client device and access point support a compatible QoS parameter exchange scheme as described above. For example, a practical embodiment of process 500 may be deployed in a WLAN environment that supports 802.1 Ie, the WMM Specification, or any similar standard, protocol, or operating scheme that can provide QoS differentiation in the manner described herein.

[0042] In practice, the process of QoS differentiation is initiated when the access point device advertises the available logical WLANs and their different respective QoS settings/parameters in the beacons and probe responses as described above. QoS differentiation process 500 may begin when a mobile client device attempts to establish an association with an identified logical WLAN. In this regard, the access point device

Petitioner Samsung Ex-1004, 1277

receives the association request from the client device (task 502). In practice, the identified logical WLAN is one of a plurality of logical WLAN configurations supported by the wireless access point under consideration. Briefly, task 502 may include an exchange of packets or frames between the client device and the access point, where the exchange enables the client device to request a connection with a particular logical WLAN.

[0043] In addition, QoS differentiation process 500 may identify the ESS properties corresponding to a logical WLAN (task 504). In practical embodiments, the ESS ID and other parameters corresponding to the ESS may be identified and/or processed during the negotiation described above for task 502. For example, the access point or wireless switch may identify or correlate the ESS corresponding to the received ESS ID so that the access point or wireless switch can obtain or access the appropriate QoS parameter set for that ESS. As mentioned above in connection with FIG. 3, the access point device may maintain a table or other logical structure that links each ESS ID with its respective QoS and/or QoS parameter set. Thus, process 500 can obtain the ESS ID for the approved logical WLAN and identify the QoS parameters corresponding to that ESS ID. Thereafter, process 500 sends the appropriate QoS parameters to the client device (task 506). In practice, the access point transmits the QoS parameters to the client device via the wireless communication link.

[0044] In practical embodiments, process 500 may perform an authentication procedure to authenticate the client device for an approved logical WLAN (task 508). For example, before granting access to a requested logical WLAN, process 500 may require the user of the client device to enter a username and password for processing by the access device and/or by other components in the attached network architecture. In this manner, process 500 can identify an approved logical WLAN for the client device.

[0045] In the example embodiment, the delivered QoS parameters are a set of parameters, where each member of the set corresponds to one of the priority levels available. Therefore, each complete set of QoS parameters specifies the parameters for all available priority levels. In the example embodiment, the priority levels include a voice priority level (highest relative priority), a video priority level (next highest relative priority), a best effort priority level (a default priority), and a background priority level (lowest relative priority). The specified QoS parameters for the client device influence data type prioritization for data transmission between the mobile client device and the wireless access point. The relative advantage of one parameter set over another

parameter set is determined by the relationship between the parameters. In the above example, if the QoS parameters for QoS_2 have a contention window minimum of 1 for voice priority, and the QoS parameters for QoS_1 have a contention window minimum of 3 for voice priority, then voice traffic in ESS-2 will generally get better access to the wireless medium than voice traffic in ESS-I (all other factors being equal). Assuming the client device has received the parameters from the access point, QoS differentiation process 500 can then provide the client device with the specified QoS for data traffic between that client device and the associated access point (task 510). In practice, task 510 will schedule data traffic between the client device and the access point in accordance with the specified QoS. For the example situation where the client device has the best QoS parameters, task 510 enhances the user's voice and video experience by giving that client device prioritized access to the wireless transmission medium.

[0046] FIG. 6 is an example sequence diagram 600 depicting communication between a client device 602 and an access point device 604, where client device 602 and access point device 604 are both configured to support the QoS differentiation techniques described above. Sequence diagram 600 illustrates the establishment of differentiated QoS in a WLAN environment, which may also include various network architecture components 606. Although not a requirement of the invention, the technique described above is particularly suited for use with WMM compliant and 802.11 compliant WLAN environments. In this regard, sequence diagram 600 refers to items, features, and operations found in the 802.1 1 family of specifications and the WMM specification. For the sake of brevity, known aspects of such items, features, and operations will not be described in detail herein.

[0047] Access point 604 periodically broadcasts beacons, which are associated with a particular BSS. A beacon generally provides operating parameters for the associated BSS. A beacon can be received by all compatible wireless client devices 602 within range of access point 604. The arrow 606 in FIG. 6 represents a beacon transmitted by access point 604 (in reality, access point 604 may transmit more than one beacon within the time period depicted in FIG. 6). In this example embodiment, the WMM parameters are not included in beacon 606. Rather, beacon 606 includes a WMM Info Element that indicates that WMM is enabled for the transmitting access point 604 (in contrast, if WMM is not enabled for the transmitting access point 604, then beacon 606 will not include a WMM Info Element). This Info Element in beacon 606 also includes the current parameter set count, which will be the same for all of the ESSs (and, therefore, for

all of the logical WLANs) maintained by access point 604. In addition, beacon 606 may include the ESS ID for the primary ESS designated for access point 604. In this example embodiment, beacon 606 does not identify any secondary ESSs supported by access point 604. It should be noted that the use of beacons as described above is not mandatory for purposes of providing QoS differentiation. They are, however, mandatory from the standpoint of compliance with 802.1 1 and the WMM Specification.

[0048] Client device 602 can send probe frames to access point devices in an attempt to discover the available access point devices within range and the respective parameters of the available logical WLANs. The arrow 610 represents a probe frame transmitted by client device 602. Briefly, client device 602 can "search" for a particular logical WLAN by sending a probe frame that contains the ESS ID corresponding to that logical WLAN. In the example embodiment, a probe frame may include the ESS ID for the primary ESS or for any of the secondary ESSs. With respect to the QoS differentiation technique described herein, probe frames aid the user in determining whether WMM is enabled or disabled for a given logical WLAN (insofar as the probe response does or does not contain the WMM parameters). Although probe frames are optional, they provide an efficient mechanism for client device 602 to discover access points within the area (rather than simply waiting and "listening" for beacons). Moreover, unlike beacons, probe frames allow discovery of secondary ESSs in a multi-ESS system.

[0049] A probe response is a frame transmitted by an access point in response to a probe frame. For example, if access point device 604 recognizes the ESS ID contained in probe frame 610, then it will send a probe response frame 612 back to client device 602. If, however, access point device 604 does not recognize the requested ESS ID, then it will simply ignore the probe. This exchange is desirable to enable client devices to discover access points without having to wait for the periodic beacons. This exchange also allows client devices to discover secondary ESSs. In accordance with the example QoS differentiation technique, probe response frame 612 includes the WMM parameters corresponding to the recognized ESS ID (again, the recognized ESS ID may be for the primary ESS or any of the secondary ESSs). In addition, probe response frame 612 may include the current parameter set count for the recognized ESS ID. Since probe responses are associated with a specific ESS ID and, therefore, a specific logical WLAN, the network administrator can provide different QoS parameters for different logical WLANs. Notably, if WMM is not enabled for the recognized ESS ID, then probe response frame 612 will not include any WMM parameters.

[0050] A client device transmits an association request when it wants to establish a connection through an access point. In other words, an association request initiates a connection. In this example, an association request includes the ESS ID for the logical WLAN requested by the client device. The arrow 614 in FIG. 6 represents an association request transmitted by client device 602. In response to association request 614, access point device 604 sends an association response 616 back to the requesting client device 602. Association response 616 may grant (as illustrated) or deny network access to client device 602.

[0051] Assuming that client device 602 is granted network access, then association response 616 may include the appropriate WMM parameters to provide the specified QoS. In accordance with the example QoS differentiation technique, association response 616 includes the WMM parameters corresponding to the requested ESS ID (again, this ESS ID may be for the primary ESS or any of the secondary ESSs). In addition, association response 616 may include the current parameter set count for the recognized ESS ID. Since association responses are associated with a specific ESS ID and, therefore, a specific logical WLAN, the network administrator can provide different QoS parameters for different logical WLANs. Notably, if WMM is not enabled for the requested ESS ID, then association response frame 616 will not include any WMM parameters.

[0052] In practical embodiments, access point device 604 may carry out an authentication procedure 618 to determine whether to grant or deny access to client device 602. As depicted in FIG. 6, authentication procedure 618 may cooperate with one or more network architecture components 606 to determine whether the user of client device 602 is authorized to log in to the identified logical WLAN, and authentication procedure 618 may (but need not) include an identification or transmission of the desired ESS ID for processing by the network architecture components 606.

[0053] The negotiation of parameters described above enables the WLAN architecture to provide differentiated QoS for a plurality of logical WLANs supported by access point device 604. The differentiated QoS results in prioritized data traffic handling based not only on data type, but also on logical wireless network segmentation. The arrow 620 in FIG. 6 depicts the ongoing data communication session between client device 602 and access point 604. At this point, data traffic is managed in accordance with the WMM specification.

Petitioner Samsung Ex-1004, 1281

[0054] While at least one example embodiment has been presented in the foregoing detailed description, it should be appreciated that a vast number of variations exist. It should also be appreciated that the example embodiment or embodiments described herein are not intended to limit the scope, applicability, or configuration of the invention in any way. Rather, the foregoing detailed description will provide those skilled in the art with a convenient road map for implementing the described embodiment or embodiments. It should be understood that various changes can be made in the function and arrangement of elements without departing from the scope of the invention as set forth in the appended claims and the legal equivalents thereof.

Petitioner Samsung Ex-1004, 1282

CLAIMS

What is claimed is:

1. A method for establishing quality of service ("QoS") differentiation in a wireless local area network ("WLAN") environment having a wireless access point configured to support a plurality of logical WLANs, said method comprising:

identifying an approved logical WLAN for a mobile client device, said approved logical WLAN being one of the plurality of logical WLANs supported by the wireless access point; and

providing said mobile client device with a specified QoS for said approved logical WLAN, said specified QoS influencing data type prioritization for data transmission between said mobile client device and the wireless access point.

2. A method according to claim 1, further comprising transmitting QoS parameters for said approved logical WLAN from the wireless access point to said mobile client device, said QoS parameters being utilized to provide said specified QoS.

3. A method according to claim 1, wherein said specified QoS corresponds to a set of priority levels based upon data type.

4. A method according to claim 3, wherein said set of priority levels includes a voice priority level, a video priority level, a best effort priority level, and a background priority level.

5. A method according to claim 1, wherein each of said plurality of logical WLANs is associated with a unique extended service set ("ESS") within said WLAN environment.

6. A method according to claim 5, further comprising:

obtaining an ESS identifier for said approved logical WLAN; and

identifying QoS parameters corresponding to said ESS identifier.

Petitioner Samsung Ex-1004, 1283

7. A method for providing quality of service ("QoS") differentiation in a wireless local area network ("WLAN") environment having a wireless access point configured to support a plurality of logical WLANs, said method comprising:

negotiating an association between a mobile client device and an identified logical WLAN from the plurality of logical WLANs supported by the wireless access point;

sending QoS parameters to said mobile client device, said QoS parameters corresponding to a specified QoS for said identified logical WLAN, said specified QoS influencing prioritization for data transmissions between said mobile client device and the wireless access point; and

scheduling data traffic between said mobile client device and the wireless access point in accordance with said specified QoS.

8. A method according to claim 7, wherein said specified QoS corresponds to a set of priority levels based upon data type.

9. A method according to claim 8, wherein said set of priority levels includes a voice priority level, a video priority level, a best effort priority level, and a background priority level.

10. A method according to claim 7, wherein each of said plurality of logical WLANs is associated with a unique extended service set ("ESS") within said WLAN environment.

11. A method according to claim 10, further comprising:

obtaining an ESS identifier for said identified logical WLAN; and

identifying QoS parameters corresponding to said ESS identifier.

12. A method according to claim 7, wherein said sending step comprises sending said QoS parameters in a probe response.

13. A method according to claim 7, wherein said sending step comprises sending said QoS parameters in an association response.

Petitioner Samsung Ex-1004, 1284

14. A method according to claim 7, wherein said mobile client device and the wireless access point are WMM compliant.

15. A wireless access device for a wireless local area network ("WLAN") environment, said wireless access device comprising:

a radio module configured to wirelessly transmit data to mobile client devices, and to wirelessly receive data from mobile client devices; and

processing logic in communication with said radio module, said processing logic being configured to:

identify an approved logical WLAN for a mobile client device, said approved logical WLAN being one of a plurality of logical WLANs supported by the wireless access device; and

provide said mobile client device with a specified QoS for said approved logical WLAN, said specified QoS influencing prioritization for data transmissions between said mobile client device and the wireless access device.

16. A wireless access device according to claim 15, further comprising:

a wireless access port that includes said radio module; and

a wireless switch that includes at least a portion of said processing logic.

17. A wireless access device according to claim 15, wherein:

said processing logic is configured to identify QoS parameters for said approved logical WLAN, said QoS parameters being utilized to provide said specified QoS; and

said radio module is configured to transmit said QoS parameters to said mobile client device.

18. A wireless access device according to claim 15, wherein said specified QoS corresponds to a set of priority levels based upon data type.

19. A wireless access device according to claim 18, wherein said set of priority levels includes a voice priority level, a video priority level, a best effort priority level, and a background priority level.

20. A wireless access device according to claim 15, further comprising memory configured to store respective QoS parameter sets for said plurality of logical WLANs.

21. A wireless access device according to claim 20, wherein each of said plurality of logical WLANs is associated with a unique extended service set ("ESS") within the WLAN environment, and wherein said processing logic is configured to:

obtain an ESS identifier for said approved logical WLAN; and

identify QoS parameters corresponding to said ESS identifier.

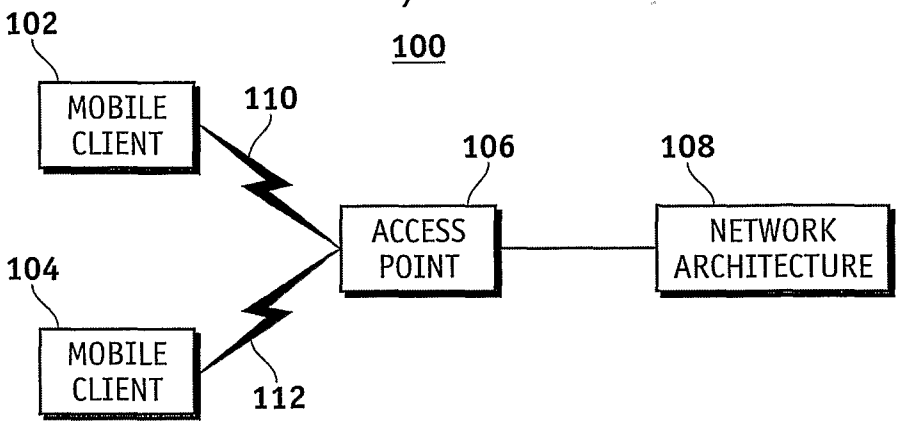


FIG. 1

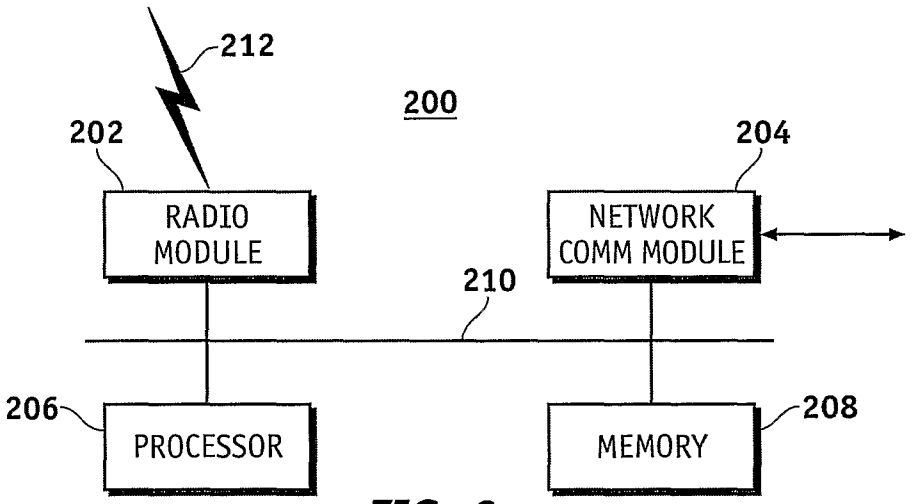


FIG. 2

300

302

ACCESS POINT			
ESS-1	ESS-1	•••	ESS-N
WMM ENABLED	WMM ENABLED	•••	WMM DISABLED
WMM PARAMETER SET 1	WMM PARAMETER SET 1	•••	--
QoS 1	QoS 2	•••	QoS N

FIG. 3

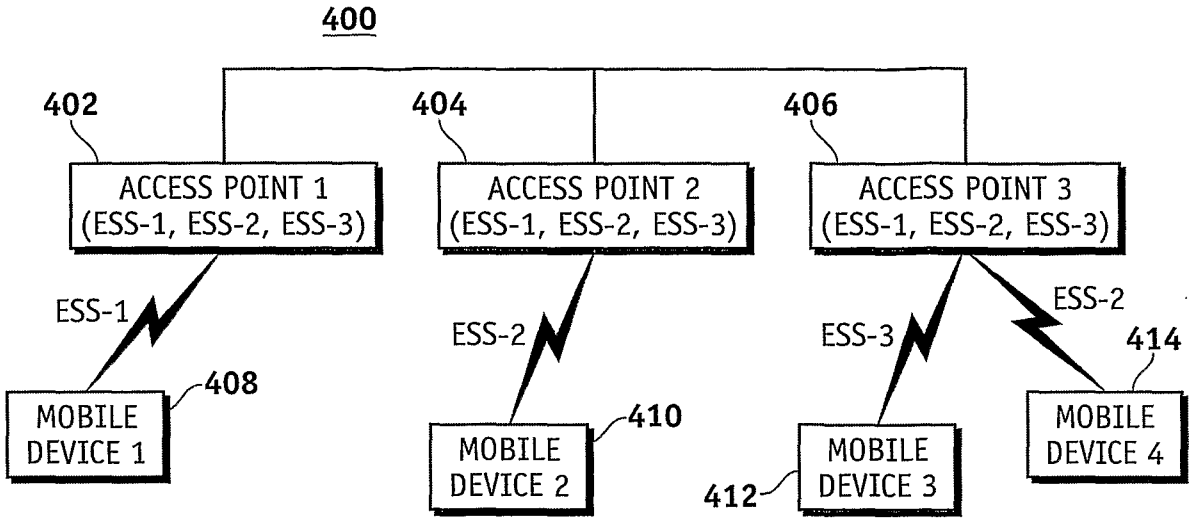

400
402
404
406
ACCESS POINT 1
(ESS-1, ESS-2, ESS-3)
ACCESS POINT 2
(ESS-1, ESS-2, ESS-3)
ACCESS POINT 3
(ESS-1, ESS-2, ESS-3)
ESS-1
ESS-2
ESS-3
ESS-2
414
408
410
412
MOBILE DEVICE 1
MOBILE DEVICE 2
MOBILE DEVICE 3
MOBILE DEVICE 4

FIG. 4

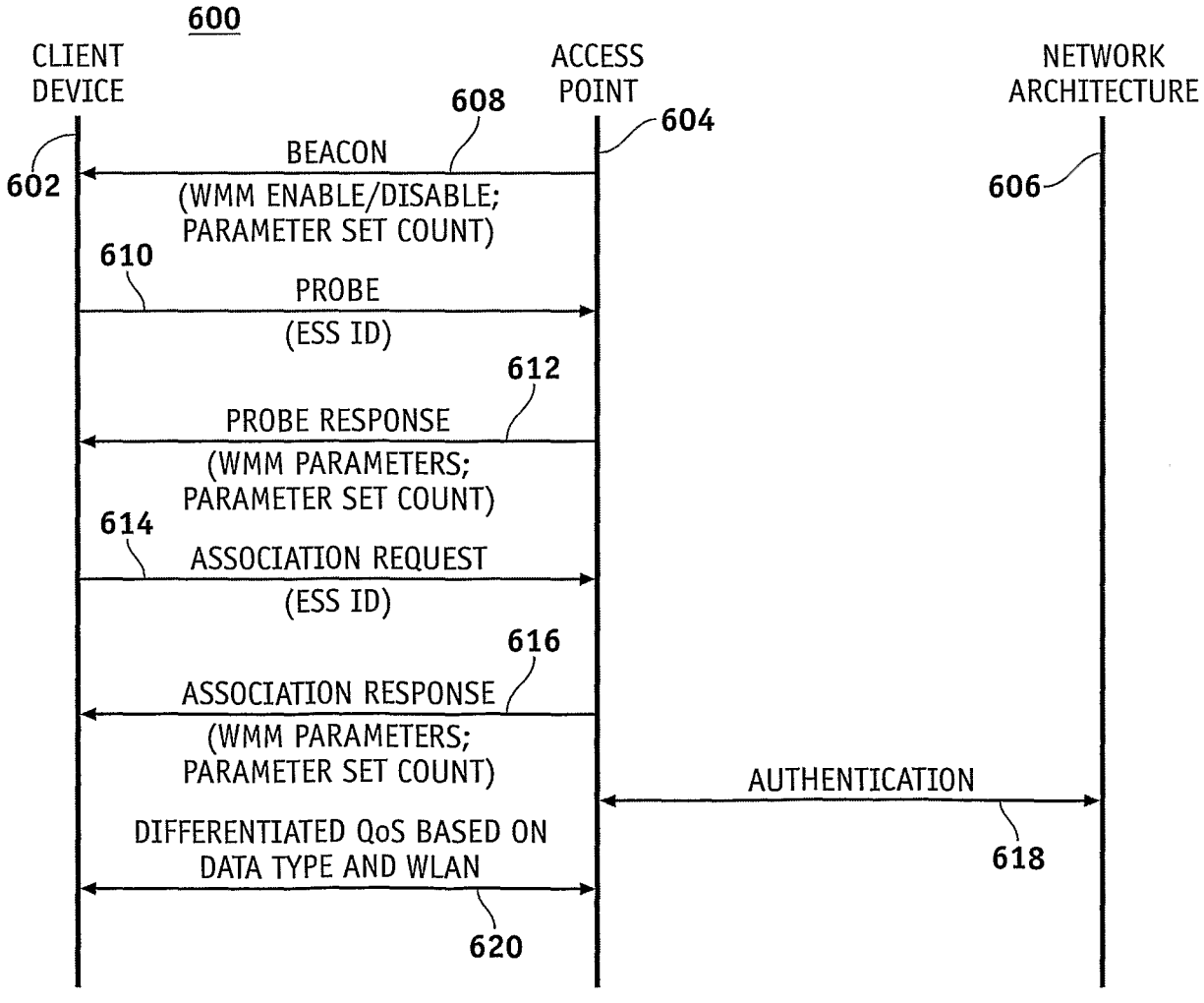

600
CLIENT DEVICE
ACCESS POINT
NETWORK ARCHITECTURE
602
604
606
608
BEACON
(WMM ENABLE/DISABLE; PARAMETER SET COUNT)
610
PROBE
(ESS ID)
612
PROBE RESPONSE
(WMM PARAMETERS; PARAMETER SET COUNT)
614
ASSOCIATION REQUEST
(ESS ID)
616
ASSOCIATION RESPONSE
(WMM PARAMETERS; PARAMETER SET COUNT)
AUTHENTICATION
618
DIFFERENTIATED QoS BASED ON DATA TYPE AND WLAN
620

FIG. 6

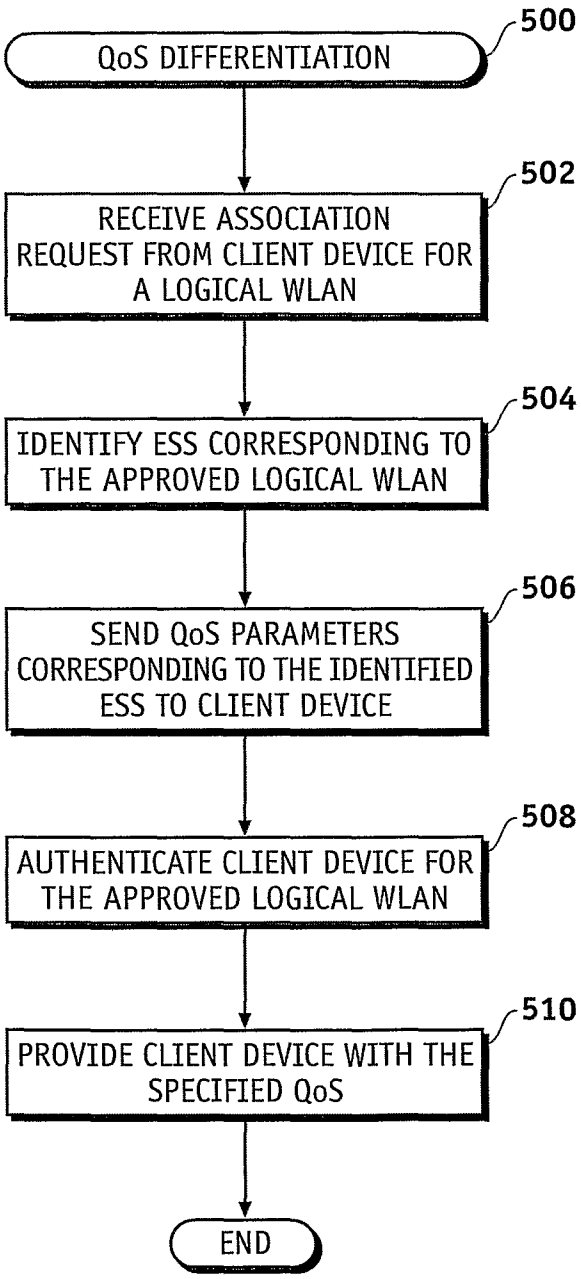

500
QoS DIFFERENTIATION
502
RECEIVE ASSOCIATION REQUEST FROM CLIENT DEVICE FOR A LOGICAL WLAN
504
IDENTIFY ESS CORRESPONDING TO THE APPROVED LOGICAL WLAN
506
SEND QoS PARAMETERS CORRESPONDING TO THE IDENTIFIED ESS TO CLIENT DEVICE
508
AUTHENTICATE CLIENT DEVICE FOR THE APPROVED LOGICAL WLAN
510
PROVIDE CLIENT DEVICE WITH THE SPECIFIED QoS
END

FIG. 5

Electronic Patent Application Fee Transmittal

Application Number:	15271410
Filing Date:	21-Sep-2016
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Filer:	David J. Thibodeau/Elisabeth Smith
Attorney Docket Number:	111054-0001U4C7

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	120	120
		Total in USD ($)		**120**

Electronic Acknowledgement Receipt

EFS ID:	35288058
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	28-FEB-2019
Filing Date:	21-SEP-2016
Time Stamp:	16:03:31
Application Type:	Utility under 35 USC 111(a)

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Warnings:					
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5	Non Patent Literature	Golle_Universal_Re-Encryption.pdf	983671 ffb8e4c736cd256c7980a3c5cdd4a6c266704d84	no	16
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6	Non Patent Literature	SimplePairing_WP_V10r00.pdf	4769813 d50e5fea6042bdcfdee33e870b208efbe44aaa46	no	23
Warnings:					
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7	Non Patent Literature	Wang-Peer2Me.pdf	860502 b04d39f7d28b28c321fca0583474 3f97cf587569	no	10
Warnings:					
Information:					
8	Non Patent Literature	Bluetooth_Whitepaper_AU_System.pdf	400196 331875bc575d14d01c8e5092394b2f5f22fe9723	no	26
Warnings:					
Information:					
9	Non Patent Literature	Wg_Device_Identification_Specification.pdf	173135 d247397403 73f73b812e158823cbb3f2cc1f2eac	no	20
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Information:					
10	Non Patent Literature	Mettala_Bluetooth_Protocol_Architecture.pdf	349215 2c4932575f40187ad726ca1515cac2bc5edbaba1	no	20
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Information:					
11	Information Disclosure Statement (IDS) Form (SB08)	20190228_111054-0001U4C7_TPO_IDS_1.pdf	1037656 f49caf0f599e60c0079d666835db8bb3766b13bf	no	13
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Information:					
12	Non Patent Literature	Weis.pdf	627103 fbae476785252e230dd4b70203428c23f31d88a0	no	12
Warnings:					
Information:					
13	Fee Worksheet (SB06)	fee-info.pdf	30683 809760e602b42f96330a8418d116940228b05a62	no	2
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	15271410
Filing Date	2016-09-21
First Named Inventor	James Arthur Proctor
Art Unit	3685
Examiner Name	SHERR, MARIA CRISTI OWEN
Attorney Docket Number	111054-0001U4C7

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6868079		2005-03-15	Hunt et al.	
	2	7167487		2007-01-23	Herrmann et al.	
	3	6993049		2006-01-31	Davies et al.	
	4	7020106		2006-03-28	Barnard et al.	
	5	7942337		2011-05-17	Jain et al.	
	6	7174031		2007-02-06	Rhoads et al.	
	7	7886962		2011-02-15	Vawter et al.	
	8	7436831		2008-10-14	Miller et al.	

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	Art Unit	3685
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	Attorney Docket Number	111054-0001U4C7

	9	7142527		2006-11-28	Garcia-Luna-Aceves	
	10	6791997		2004-09-14	Beyer et. al.	
	11	6788702		2004-09-07	Garcia-Luna-Aceves	
	12	6553006		2003-04-22	KALLIOKULJU et. al.	
	13	6970850		2005-11-29	Freeny et. al.	
	14	7016336		2006-03-21	Sorensen et. al.	
	15	7774231		2010-08-10	Pond et. al.	
	16	5987011		1999-11-16	Toh et. al.	
	17	6909721		2005-06-21	Ekberg et. al.	
	18	7158756		2007-01-02	Palin et. al.	
	19	7177594		2007-02-13	Burr et. al.	

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	20	7181521		2007-02-20	Knauerhase et. al	
	21	7197326		2007-03-27	Acampora et. al.	
	22	7200132		2007-04-03	Twitchell et al.	
	23	7209468		2007-04-24	Twitchell et al.	
	24	7221668		2007-05-22	Twitchell et al.	
	25	7302256		2007-11-27	O'Hara et. al.	
	26	7313120		2007-12-25	Ekberg et. al.	
	27	7322043		2008-01-22	Letsinger et. al.	
	28	7324824		2008-01-29	Smith et. al.	
	29	7327701		2008-02-05	Fong et al.	
	30	7339909		2008-03-04	Kotzin et. al.	

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	31	7342876		2008-03-11	Bellur et. al.	
	32	7343564		2008-03-11	Othmer et. al.	
	33	7346341		2008-03-18	Costa-Requena et al.	
	34	6615804		2003-09-09	Matthews et al.	

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	1	20090288012	A1	2009-00-19	Hertel et al.	
	2	20110039592	A1	2011-02-17	Haddad et al.	
	3	20100284447	A1	2010-11-11	Gore et al	
	4	20100250673	A1	2010-09-30	Laroia et al.	
	5	20070286111	A1	2007-12-13	Corson et al.	

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	Attorney Docket Number	111054-0001U4C7

	6	20080188261	A1	2008-08-07	Arnone et al.	
	7	20010003191	A1	2009-04-07	Kovacs et al.	
	8	20020061009	A1	2006-03-21	Sorensen et al.	
	9	20020188656	A1	2002-12-12	Patton et al.	
	10	20080132252	A1	2008-06-05	Altman et al.	
	11	20080114834	A1	2008-05-15	Miyazaki et al.	
	12	20080104227	A1	2008-05-01	Birnie et al.	
	13	20080102856	A1	2008-05-01	Fortescue	
	14	20080080397	A1	2008-04-03	Richardson et al.	
	15	20080071874	A1	2008-03-20	Roodman et al.	
	16	20080070593	A1	2008-03-20	Altman et al.	

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	Attorney Docket Number	111054-0001U4C7

	17	20080056215	A1	2008-03-06	KOPIKARE et al.	
	18	20080052109	A1	2008-02-28	Boys et al.	
	19	20080051033	A1	2008-02-28	Hymes et. al	
	20	20080036653	A1	2008-02-14	Huston et. al.	
	21	20070244633	A1	2007-10-18	Phillips et al.	
	22	20070237321	A1	2007-10-11	Bloebaum et. al.	
	23	20070233367	A1	2007-10-04	Chen et. al.	
	24	20070190494	A1	2007-08-16	Rosenberg et. al.	
	25	20070179792	A1	2007-08-02	Kramer et. al.	
	26	20070161382	A1	2007-07-12	Melinger et. al.	
	27	20070143348	A1	2007-06-21	Rosenberg et. al.	

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	Attorney Docket Number	111054-0001U4C7

	28	20070117576	A1	2007-05-24	Huston et. al.	
	29	20070061487	A1	2007-03-15	Moore et. al.	
	30	20070030824	A1	2007-02-08	Ribaudo et. al.	
	31	20060234631	A1	2006-10-19	Dieguez et. al.	
	32	20060229058	A1	2006-10-12	Rosenberg et. al.	
	33	20060089876	A1	2006-04-27	Boys et. al.	
	34	20050086211	A1	2005-04-21	Mayer et. al.	
	35	20050038876	A1	2005-02-17	Chaudhuri et. al.	
	36	20080255947	A1	2008-10-16	Friedman et. al.	
	37	20080249928	A1	2008-10-09	Hill et. al.	
	38	20080167988	A1	2008-07-10	Sun et. al.	

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	Art Unit	3685
	Examiner Name	SHERR, MARIA CRISTI OWEN
	Attorney Docket Number	111054-0001U4C7

	39	20050156026	A1	2005-07-21	Ghosh et. al.	
	40	20050187873	A1	2005-08-25	Labrou et. al.	
	41	20040019564	A1	2004-01-29	Goldthwaite et. al.	
	42	20020123965	A1	2002-09-05	Phillips et. al.	
	43	20060069922	A1	2006-03-30	Jelinek et. al.	
	44	20080134052	A1	2008-06-05	Davis et. al.	
	45	20080182591	A1	2008-07-31	Krikorian et. al.	
	46	20080222711	A1	2008-09-11	Michaelis et. al.	
	47	20080176583	A1	2008-07-24	BRACHET et. al.	
	48	20080139217	A1	2008-06-12	Alizadeh-Shabdiz et. al.	
	49	20080132170	A1	2008-06-05	Alizadeh-Shabdiz et. al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15271410
	Filing Date	2016-09-21
	First Named Inventor	James Arthur Proctor
	Art Unit	3685
	Examiner Name	SHERR, MARIA CRISTI OWEN
	Attorney Docket Number	111054-0001U4C7

	50	20080008121	A1	2008-01-10	Alizadeh-Shabdiz et. al.	
	51	20080008120	A1	2008-01-10	Alizadeh-Shabdiz et. al.	
	52	20080008119	A1	2008-01-10	Alizadeh-Shabdiz et. al.	
	53	20080008118	A1	2008-01-10	Alizadeh-Shabdiz et. al.	
	54	20080008117	A1	2008-01-10	Alizadeh-Shabdiz et. al.	
	55	20070004428	A1	2007-01-04	Morgan et al.	
	56	20070004427	A1	2007-01-04	Morgan et al.	
	57	20060240840	A1	2006-10-26	Morgan et al.	
	58	20060217131	A1	2006-09-28	Alizadeh-Shabdiz et. al.	
	59	20060200843	A1	2006-09-07	Morgan et al.	
	60	20060106850	A1	2006-05-18	Morgan et al.	

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	61	20060095349	A1	2006-05-04	Morgan et al.	
	62	20060095348	A1	2006-05-04	Jones et al.	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Wang, et al., "Peer2Me - Rapid Application Framework for Mobile Peer-to-Peer Applications", Department of Computer and Information Science	
	2	Golle et al. "Universal re-encryption for mixnets". In: Topics in Cryptology–CT-RSA 2004. Springer, 2004, pp. 163–178	
	3	U.S. Provisional Application No. 61/054,162 filed on May 18, 2008 by Mark Braverman for System And Method For Electronic Payment	
	4	"Simple Pairing Whitepaper", Bluetooth Special Interest Group, V10r00, (2006)	

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	5	Mettala, R., "Bluetooth Protocol Architecture", Bluetooth White Paper, Document No. 1.C.120/1.0, 3-20 (1999)
	6	Duflot, et al., "A Formal Analysis of Bluetooth Device Discovery", School of Computer Science, University of Birmingham, 1-16
	7	Wg, Hid, "Device Identification Specification", V12r00, 1-20 (2006) NEED PUBLICATION DETAILS
	8	U.S. Provisional Application No. 61/122,240 filed on December 12, 2008 by Rajiv Patel for System And Method For Electronic Payment
	9	Bluetooth White Paper 1.1, AU-System, 1-25 (2000)
	10	Brakman et al., "Formal model of the Bluetooth Inquiry Protocol", 1-13 (2006)
	11	Weis et al. "Security and privacy aspects of low-cost radio frequency identification systems". In: Security in pervasive computing. Springer, 201–212 (2004)

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See attached certification statement.

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Signature	/David J Thibodeau Jr Reg No 31671/	Date (YYYY-MM-DD)	2019-02-27
Name/Print	David J. Thibodeau, Jr.	Registration Number	31671

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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Filing Date	2016-09-21
First Named Inventor	James Arthur Proctor
Art Unit	3685
Examiner Name	SHERR, MARIA CRISTI OWEN
Attorney Docket Number	111054-0001U4C7

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7213742	B1	2007-05-08	Birch et al.	
	2	6629149	B1	2003-09-30	Fraser et al.	

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	1	20080214116	A1	2008-09-04	Hang et al.	
	2	20090307133	A1	2009-12-10	Holloway et al.	

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Electronic Patent Application Fee Transmittal

Application Number:	15271410
Filing Date:	21-Sep-2016
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Filer:	David J. Thibodeau/Elisabeth Smith
Attorney Docket Number:	111054-0001U4C7

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Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
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Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
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		Total in USD ($)		**120**

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EFS ID:	35541065
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	27-MAR-2019
Filing Date:	21-SEP-2016
Time Stamp:	11:55:08
Application Type:	Utility under 35 USC 111(a)

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	1	6901270	B1	2005-05-31	Beach	
	2	7039358	B1	2006-05-02	Shellhammer et al.	
	3	6580700	B1	2003-06-17	Pinard et al.	
	4	7039027	B2	2006-05-02	Bridgelall	
	5	6990587	B2	2006-01-24	Willins et al.	
	6	6587034	B1	2003-07-01	Heiman et al.	
	7	6067297	B1	2000-05-23	Beach	
	8	6188681	B1	2001-02-13	Vesuna	

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	9	7773995	B2	2010-08-10	Rappaport et al.	
	10	6909399	B1	2005-06-21	Zegelin et al.	
	11	7412246	B2	2008-08-12	Lewis et al.	
	12	7826425	B2	2010-11-02	Sekhar	
	13	6259898	B1	2001-07-10	Lewis	
	14	7030761	B2	2006-04-18	Bridgelall	
	15	7126926	B1	2006-10-24	Bjorklund et al.	
	16	7173922	B2	2007-02-06	Beach	
	17	6712274	B2	2004-03-30	Dvorkis et al.	
	18	6002918	A	1999-12-14	Heiman et al.	
	19	5815811	A	1998-09-29	Pinard et al.	

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	20	6715681	B2	2004-04-06	Dvorkis	
	21	7173923	B2	2007-02-06	Beach	
	22	7492254	B2	2009-02-17	Bandy et al.	
	23	6616049	B1	2003-09-09	Barkan et al.	
	24	7403120	B2	2008-07-22	Duron et al.	
	25	7280836	B2	2007-10-09	Fuccello et al.	
	26	8204039	B2	2012-06-19	Beach et al.	
	27	7440781	B2	2008-10-28	Beach et al.	
	28	6845338	B1	2005-01-18	Willins	
	29	7822000	B2	2010-10-26	Sekhar	
	30	6236674	B1	2001-05-22	Morelli et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2016-09-21
	First Named Inventor	James Arthur Proctor
	Art Unit	3685
	Examiner Name	SHERR, MARIA CRISTI OWEN
	Attorney Docket Number	111054-0001U4C7

	31	7030812	B2	2006-04-18	Bekritsky et al.	
	32	7005968	B1	2006-02-28	Bridgelall	
	33	7729326	B2	2010-06-01	Sekhar	

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	1	20080119136	A1	2008-05-22	Khazi	
	2	20050266868	A1	2005-12-01	Fuccello	
	3	20050243781	A1	2005-11-03	Vesuna	
	4	20080025282	A1	2008-01-31	Hong	
	5	20080002641	A1	2008-01-03	Hong et al.	
	6	20070281634	A1	2007-12-06	Rao et al.	

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Petitioner Samsung Ex-1004, 1320

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	7	20060264212	A1	2006-11-23	Sekhar	
	8	20070025287	A1	2007-02-01	Goren et al.	
	9	20060141932	A1	2006-06-29	Lawrence et al.	
	10	20050180367	A1	2006-07-13	Dooley et al.	
	11	20060153085	A1	2006-07-13	Willins et al.	
	12	20040264404	A1	2004-12-30	Zegelin	
	13	20050213553	A1	2005-09-29	Wang	
	14	20070002833	A1	2007-01-04	Bajic	
	15	20060245373	A1	2006-11-02	Bajic	
	16	20060245404	A1	2006-11-02	Bajic	
	17	20060245393	A1	2006-11-02	Bajic	

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	18	20060268765	A1	2006-11-30	Bajic et al.	
	19	20060268834	A1	2006-11-30	Bajic	
	20	20070204158	A1	2007-08-30	Hatashita et al.	
	21	20080136621	A1	2008-06-12	Malik et al	
	22	20060022038	A1	2006-02-02	Hewlin et al.	
	23	20060116160	A1	2006-06-01	Fuccello	
	24	20050124359	A1	2005-06-09	Willins et al.	
	25	20040076136	A1	2004-04-22	Beach	
	26	20060171341	A1	2006-08-03	Wang et al.	
	27	20070015549	A1	2007-01-18	Hernandez et al.	
	28	20050243737	A1	2005-11-03	Dooley et al.	

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	29	20050054350	A1	2005-03-10	Zegelin	
	30	20060125631	A1	2006-06-15	Sharony	
	31	20060114104	A1	2006-06-01	Scaramozzino	
	32	20070026818	A1	2007-02-01	Willins et al.	
	33	20070173248	A1	2007-07-26	Sekhar	
	34	20070091859	A1	2007-04-26	Sethi et al.	
	35	20060029024	A1	2006-02-09	Zeng et al.	
	36	20070010278	A1	2007-01-11	D'Agostino et al.	
	37	20060193258	A1	2006-08-31	Ballai	
	38	20050113090	A1	2005-05-26	Sharony	
	39	20070081503	A1	2007-04-12	Mower	

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	40	20070178907	A1	2007-08-02	Gopalan et al.	
	41	20070049297	A1	2007-03-01	Gopalan et al.	
	42	20070133453	A1	2007-06-14	Sethi et al.	
	43	20060111045	A1	2006-05-25	Orlassino et al.	
	44	20080009307	A1	2008-01-10	Sekhar et al.	
	45	20070060105	A1	2007-03-15	Batta	
	46	20070230441	A1	2007-10-04	Sethi et al.	
	47	20060045042	A1	2006-03-02	Sethi et al.	
	48	20060270412	A1	2006-11-30	Willins et al.	
	49	20070211727	A1	2007-09-13	Sethi et al.	
	50	20030100328	A1	2003-05-29	Klein et al.	

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	51	20050136891	A1	2005-06-23	Wang et al.	
	52	20050185615	A1	2005-08-25	Zegelin	
	53	20030021250	A1	2003-01-30	Willins et al.	

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	1	101233722	CN	A	2008-07-30	Sekhar		
	2	1098477	EP	B1	2009-12-23	Hughes et al.		
	3	1207654	EP	A2	2002-05-22	Beach et al.		
	4	2752347	FR	A1	1998-02-13	Swift et al.		
	5	2003152739	JP	A	2003-05-23	Beach et al.		
	6	2564287	CA	C	2010-08-24	Heiman et al.		

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	7	2218268	CA	C	2007-01-16	Heiman et al.		
	8	2506121	CA	C	2010-09-21	Pinard et al.		
	9	2798749	FR	A1	2001-03-23	Klein et al.		
	10	2007047181	WO	A2	2007-04-26	Bolluck et al.		
	11	1908235	EP	B1	2018-01-24	Meyer		
	12	101036061	CN	A	2007-09-12	Ha et al.		
	13	1296155	EP	A1	2003-03-26	Goren et al.		
	14	1759620	CN	A	2006-04-12	Melville et al.		

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Examiner Signature	/Cristina Owen Sherr/	Date Considered	05/08/2019

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☒ A certification statement is not submitted herewith.

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Signature	/David J Thibodeau Jr Reg No 31671/	Date (YYYY-MM-DD)	2019-02-25
Name/Print	David J. Thibodeau, Jr.	Registration Number	31671

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	1	7213742	B1	2007-05-08	Birch et al.	
	2	6629149	B1	2003-09-30	Fraser et al.	

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	1	20080214116	A1	2008-09-04	Hang et al.	
	2	20090307133	A1	2009-12-10	Holloway et al.	

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	1	Amended Invalidity Contentions, dated 3/22/2019, Case No. 6:16-cv-00064-RBK-GJK, Proxicom Wireless, L.L.C. v. Macy's, Inc. and Macy's Florida Stores, LLC	

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	1	6868079		2005-03-15	Hunt et al.	
	2	7167487		2007-01-23	Herrmann et al.	
	3	6993049		2006-01-31	Davies et al.	
	4	7020106		2006-03-28	Barnard et al.	
	5	7942337		2011-05-17	Jain et al.	
	6	7174031		2007-02-06	Rhoads et al.	
	7	7886962		2011-02-15	Vawter et al.	
	8	7436831		2008-10-14	Miller et al.	

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Petitioner Samsung Ex-1004, 1334

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15271410
	Filing Date	2016-09-21
	First Named Inventor	James Arthur Proctor
	Art Unit	3685
	Examiner Name	SHERR, MARIA CRISTI OWEN
	Attorney Docket Number	111054-0001U4C7

	9	7142527		2006-11-28	Garcia-Luna-Aceves	
	10	6791997		2004-09-14	Beyer et. al.	
	11	6788702		2004-09-07	Garcia-Luna-Aceves	
	12	6553006		2003-04-22	KALLIOKULJU et. al.	
	13	6970850		2005-11-29	Freeny et. al.	
	14	7016336		2006-03-21	Sorensen et. al.	
	15	7774231		2010-08-10	Pond et. al.	
	16	5987011		1999-11-16	Toh et. al.	
	17	6909721		2005-06-21	Ekberg et. al.	
	18	7158756		2007-01-02	Palin et. al.	
	19	7177594		2007-02-13	Burr et. al.	

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	20	7181521		2007-02-20	Knauerhase et. al	
	21	7197326		2007-03-27	Acampora et. al.	
	22	7200132		2007-04-03	Twitchell et al.	
	23	7209468		2007-04-24	Twitchell et al.	
	24	7221668		2007-05-22	Twitchell et al.	
	25	7302256		2007-11-27	O'Hara et. al.	
	26	7313120		2007-12-25	Ekberg et. al.	
	27	7322043		2008-01-22	Letsinger et. al.	
	28	7324824		2008-01-29	Smith et. al.	
	29	7327701		2008-02-05	Fong et al.	
	30	7339909		2008-03-04	Kotzin et. al.	

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	31	7342876		2008-03-11	Bellur et. al.	
	32	7343564		2008-03-11	Othmer et. al.	
	33	7346341		2008-03-18	Costa-Requena et al.	
	34	6615804		2003-09-09	Matthews et al.	

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	1	20090288012	A1	2009-00-19	Hertel et al.	
	2	20110039592	A1	2011-02-17	Haddad et al.	
	3	20100284447	A1	2010-11-11	Gore et al	
	4	20100250673	A1	2010-09-30	Laroia et al.	
	5	20070286111	A1	2007-12-13	Corson et al.	

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	6	20080188261	A1	2008-08-07	Arnone et al.	
	7	20010003191	A1	2009-04-07	Kovacs et al.	
	8	20020061009	A1	2006-03-21	Sorensen et al.	
	9	20020188656	A1	2002-12-12	Patton et al.	
	10	20080132252	A1	2008-06-05	Altman et al.	
	11	20080114834	A1	2008-05-15	Miyazaki et al.	
	12	20080104227	A1	2008-05-01	Birnie et al.	
	13	20080102856	A1	2008-05-01	Fortescue	
	14	20080080397	A1	2008-04-03	Richardson et al.	
	15	20080071874	A1	2008-03-20	Roodman et al.	
	16	20080070593	A1	2008-03-20	Altman et al.	

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	17	20080056215	A1	2008-03-06	KOPIKARE et al.	
	18	20080052109	A1	2008-02-28	Boys et al.	
	19	20080051033	A1	2008-02-28	Hymes et. al	
	20	20080036653	A1	2008-02-14	Huston et. al.	
	21	20070244633	A1	2007-10-18	Phillips et al.	
	22	20070237321	A1	2007-10-11	Bloebaum et. al.	
	23	20070233367	A1	2007-10-04	Chen et. al.	
	24	20070190494	A1	2007-08-16	Rosenberg et. al.	
	25	20070179792	A1	2007-08-02	Kramer et. al.	
	26	20070161382	A1	2007-07-12	Melinger et. al.	
	27	20070143348	A1	2007-06-21	Rosenberg et. al.	

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	28	20070117576	A1	2007-05-24	Huston et. al.	
	29	20070061487	A1	2007-03-15	Moore et. al.	
	30	20070030824	A1	2007-02-08	Ribaudo et. al.	
	31	20060234631	A1	2006-10-19	Dieguez et. al.	
	32	20060229058	A1	2006-10-12	Rosenberg et. al.	
	33	20060089876	A1	2006-04-27	Boys et. al.	
	34	20050086211	A1	2005-04-21	Mayer et. al.	
	35	20050038876	A1	2005-02-17	Chaudhuri et. al.	
	36	20080255947	A1	2008-10-16	Friedman et. al.	
	37	20080249928	A1	2008-10-09	Hill et. al.	
	38	20080167988	A1	2008-07-10	Sun et. al.	

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	39	20050156026	A1	2005-07-21	Ghosh et. al.	
	40	20050187873	A1	2005-08-25	Labrou et. al.	
	41	20040019564	A1	2004-01-29	Goldthwaite et. al.	
	42	20020123965	A1	2002-09-05	Phillips et. al.	
	43	20060069922	A1	2006-03-30	Jelinek et. al.	
	44	20080134052	A1	2008-06-05	Davis et. al.	
	45	20080182591	A1	2008-07-31	Krikorian et. al.	
	46	20080222711	A1	2008-09-11	Michaelis et. al.	
	47	20080176583	A1	2008-07-24	BRACHET et. al.	
	48	20080139217	A1	2008-06-12	Alizadeh-Shabdiz et. al.	
	49	20080132170	A1	2008-06-05	Alizadeh-Shabdiz et. al.	

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	50	20080008121	A1	2008-01-10	Alizadeh-Shabdiz et. al.	
	51	20080008120	A1	2008-01-10	Alizadeh-Shabdiz et. al.	
	52	20080008119	A1	2008-01-10	Alizadeh-Shabdiz et. al.	
	53	20080008118	A1	2008-01-10	Alizadeh-Shabdiz et. al.	
	54	20080008117	A1	2008-01-10	Alizadeh-Shabdiz et. al.	
	55	20070004428	A1	2007-01-04	Morgan et al.	
	56	20070004427	A1	2007-01-04	Morgan et al.	
	57	20060240840	A1	2006-10-26	Morgan et al.	
	58	20060217131	A1	2006-09-28	Alizadeh-Shabdiz et. al.	
	59	20060200843	A1	2006-09-07	Morgan et al.	
	60	20060106850	A1	2006-05-18	Morgan et al.	

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	61	20060095349	A1	2006-05-04	Morgan et al.	
	62	20060095348	A1	2006-05-04	Jones et al.	

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	1	Wang, et al., "Peer2Me - Rapid Application Framework for Mobile Peer-to-Peer Applications", Department of Computer and Information Science	
	2	Golle et al. "Universal re-encryption for mixnets". In: Topics in Cryptology–CT-RSA 2004. Springer, 2004, pp. 163–178	
	3	U.S. Provisional Application No. 61/054,162 filed on May 18, 2008 by Mark Braverman for System And Method For Electronic Payment	
	4	"Simple Pairing Whitepaper", Bluetooth Special Interest Group, V10r00, (2006)	

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	5	Mettala, R., "Bluetooth Protocol Architecture", Bluetooth White Paper, Document No. 1.C.120/1.0, 3-20 (1999)
	6	Duflot, et al., "A Formal Analysis of Bluetooth Device Discovery", School of Computer Science, University of Birmingham, 1-16
	7	Wg, Hid, "Device Identification Specification", V12r00, 1-20 (2006) NEED PUBLICATION DETAILS
	8	U.S. Provisional Application No. 61/122,240 filed on December 12, 2008 by Rajiv Patel for System And Method For Electronic Payment
	9	Bluetooth White Paper 1.1, AU-System, 1-25 (2000)
	10	Brakman et al., "Formal model of the Bluetooth Inquiry Protocol", 1-13 (2006)
	11	Weis et al. "Security and privacy aspects of low-cost radio frequency identification systems". In: Security in pervasive computing. Springer, 201–212 (2004)

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Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

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A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/David J Thibodeau Jr Reg No 31671/	Date (YYYY-MM-DD)	2019-02-27
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U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20100020746-A1	01-2010	Zaks; Artur	G06Q30/02	370/328
*	B	US-20030134650-A1	07-2003	Sundar, Rangamani	H04W48/18	455/465
*	C	US-20060032901-A1	02-2006	Sugiyama; Toshiharu	G07C9/00103	235/375
*	D	US-20050099291-A1	05-2005	Landau, Steven	A61H3/061	340/539.13
*	E	US-20060104200-A1	05-2006	Park; Jae-Hyun	H04W88/06	370/216
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	Attorney Docket Number	111054-0001U4C7

	1	IEEE Standard for Information Technology Part 11: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications, IEEE Std 802.11, (2007) 1232 pages.
	2	"Specification of the Bluetooth System", Bluetooth Master Table of Contents & Compliance Requirements, Covered Core Package version: 2.1 + EDR (2007)

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Attorney Docket Number	111054-0001U4C7

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

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See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/David J Thibodeau Jr Reg No 31671/	Date (YYYY-MM-DD)	2019-02-27
Name/Print	David J. Thibodeau, Jr.	Registration Number	31671

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Application Number	15271410
Filing Date	2016-09-21
First Named Inventor	James Arthur Proctor
Art Unit	3685
Examiner Name	SHERR, MARIA CRISTI OWEN
Attorney Docket Number	111054-0001U4C7

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6901270	B1	2005-05-31	Beach	
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	5	6990587	B2	2006-01-24	Willins et al.	
	6	6587034	B1	2003-07-01	Heiman et al.	
	7	6067297	B1	2000-05-23	Beach	
	8	6188681	B1	2001-02-13	Vesuna	

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	9	7773995	B2	2010-08-10	Rappaport et al.	
	10	6909399	B1	2005-06-21	Zegelin et al.	
	11	7412246	B2	2008-08-12	Lewis et al.	
	12	7826425	B2	2010-11-02	Sekhar	
	13	6259898	B1	2001-07-10	Lewis	
	14	7030761	B2	2006-04-18	Bridgelall	
	15	7126926	B1	2006-10-24	Bjorklund et al.	
	16	7173922	B2	2007-02-06	Beach	
	17	6712274	B2	2004-03-30	Dvorkis et al.	
	18	6002918	A	1999-12-14	Heiman et al.	
	19	5815811	A	1998-09-29	Pinard et al.	

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	20	6715681	B2	2004-04-06	Dvorkis	
	21	7173923	B2	2007-02-06	Beach	
	22	7492254	B2	2009-02-17	Bandy et al.	
	23	6616049	B1	2003-09-09	Barkan et al.	
	24	7403120	B2	2008-07-22	Duron et al.	
	25	7280836	B2	2007-10-09	Fuccello et al.	
	26	8204039	B2	2012-06-19	Beach et al.	
	27	7440781	B2	2008-10-28	Beach et al.	
	28	6845338	B1	2005-01-18	Willins	
	29	7822000	B2	2010-10-26	Sekhar	
	30	6236674	B1	2001-05-22	Morelli et al.	

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	31	7030812	B2	2006-04-18	Bekritsky et al.	
	32	7005968	B1	2006-02-28	Bridgelall	
	33	7729326	B2	2010-06-01	Sekhar	

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	1	20080119136	A1	2008-05-22	Khazi	
	2	20050266868	A1	2005-12-01	Fuccello	
	3	20050243781	A1	2005-11-03	Vesuna	
	4	20080025282	A1	2008-01-31	Hong	
	5	20080002641	A1	2008-01-03	Hong et al.	
	6	20070281634	A1	2007-12-06	Rao et al.	

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	7	20060264212	A1	2006-11-23	Sekhar	
	8	20070025287	A1	2007-02-01	Goren et al.	
	9	20060141932	A1	2006-06-29	Lawrence et al.	
	10	20050180367	A1	2006-07-13	Dooley et al.	
	11	20060153085	A1	2006-07-13	Willins et al.	
	12	20040264404	A1	2004-12-30	Zegelin	
	13	20050213553	A1	2005-09-29	Wang	
	14	20070002833	A1	2007-01-04	Bajic	
	15	20060245373	A1	2006-11-02	Bajic	
	16	20060245404	A1	2006-11-02	Bajic	
	17	20060245393	A1	2006-11-02	Bajic	

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	18	20060268765	A1	2006-11-30	Bajic et al.	
	19	20060268834	A1	2006-11-30	Bajic	
	20	20070204158	A1	2007-08-30	Hatashita et al.	
	21	20080136621	A1	2008-06-12	Malik et al	
	22	20060022038	A1	2006-02-02	Hewlin et al.	
	23	20060116160	A1	2006-06-01	Fuccello	
	24	20050124359	A1	2005-06-09	Willins et al.	
	25	20040076136	A1	2004-04-22	Beach	
	26	20060171341	A1	2006-08-03	Wang et al.	
	27	20070015549	A1	2007-01-18	Hernandez et al.	
	28	20050243737	A1	2005-11-03	Dooley et al.	

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	29	20050054350	A1	2005-03-10	Zegelin	
	30	20060125631	A1	2006-06-15	Sharony	
	31	20060114104	A1	2006-06-01	Scaramozzino	
	32	20070026818	A1	2007-02-01	Willins et al.	
	33	20070173248	A1	2007-07-26	Sekhar	
	34	20070091859	A1	2007-04-26	Sethi et al.	
	35	20060029024	A1	2006-02-09	Zeng et al.	
	36	20070010278	A1	2007-01-11	D'Agostino et al.	
	37	20060193258	A1	2006-08-31	Ballai	
	38	20050113090	A1	2005-05-26	Sharony	
	39	20070081503	A1	2007-04-12	Mower	

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	40	20070178907	A1	2007-08-02	Gopalan et al.	
	41	20070049297	A1	2007-03-01	Gopalan et al.	
	42	20070133453	A1	2007-06-14	Sethi et al.	
	43	20060111045	A1	2006-05-25	Orlassino et al.	
	44	20080009307	A1	2008-01-10	Sekhar et al.	
	45	20070060105	A1	2007-03-15	Batta	
	46	20070230441	A1	2007-10-04	Sethi et al.	
	47	20060045042	A1	2006-03-02	Sethi et al.	
	48	20060270412	A1	2006-11-30	Willins et al.	
	49	20070211727	A1	2007-09-13	Sethi et al.	
	50	20030100328	A1	2003-05-29	Klein et al.	

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	51	20050136891	A1	2005-06-23	Wang et al.	
	52	20050185615	A1	2005-08-25	Zegelin	
	53	20030021250	A1	2003-01-30	Willins et al.	

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	1	101233722	CN	A	2008-07-30	Sekhar		
	2	1098477	EP	B1	2009-12-23	Hughes et al.		
	3	1207654	EP	A2	2002-05-22	Beach et al.		
	4	2752347	FR	A1	1998-02-13	Swift et al.		
	5	2003152739	JP	A	2003-05-23	Beach et al.		
	6	2564287	CA	C	2010-08-24	Heiman et al.		

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	7	2218268	CA	C	2007-01-16	Heiman et al.		
	8	2506121	CA	C	2010-09-21	Pinard et al.		
	9	2798749	FR	A1	2001-03-23	Klein et al.		
	10	2007047181	WO	A2	2007-04-26	Bolluck et al.		
	11	1908235	EP	B1	2018-01-24	Meyer		
	12	101036061	CN	A	2007-09-12	Ha et al.		
	13	1296155	EP	A1	2003-03-26	Goren et al.		
	14	1759620	CN	A	2006-04-12	Melville et al.		

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EXAMINER SIGNATURE

Examiner Signature	/Cristina Owen Sherr/	Date Considered	05/08/2019

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Petitioner Samsung Ex-1004, 1362

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	5	6990587	B2	2006-01-24	Willins et al.	
	6	6587034	B1	2003-07-01	Heiman et al.	
	7	6067297	B1	2000-05-23	Beach	
	8	6188681	B1	2001-02-13	Vesuna	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15271410
	Filing Date	2016-09-21
	First Named Inventor	James Arthur Proctor
	Art Unit	3685
	Examiner Name	SHERR, MARIA CRISTI OWEN
	Attorney Docket Number	111054-0001U4C7

	9	7773995	B2	2010-08-10	Rappaport et al.	
	10	6909399	B1	2005-06-21	Zegelin et al.	
	11	7412246	B2	2008-08-12	Lewis et al.	
	12	7826425	B2	2010-11-02	Sekhar	
	13	6259898	B1	2001-07-10	Lewis	
	14	7030761	B2	2006-04-18	Bridgelall	
	15	7126926	B1	2006-10-24	Bjorklund et al.	
	16	7173922	B2	2007-02-06	Beach	
	17	6712274	B2	2004-03-30	Dvorkis et al.	
	18	6002918	A	1999-12-14	Heiman et al.	
	19	5815811	A	1998-09-29	Pinard et al.	

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	20	6715681	B2	2004-04-06	Dvorkis	
	21	7173923	B2	2007-02-06	Beach	
	22	7492254	B2	2009-02-17	Bandy et al.	
	23	6616049	B1	2003-09-09	Barkan et al.	
	24	7403120	B2	2008-07-22	Duron et al.	
	25	7280836	B2	2007-10-09	Fuccello et al.	
	26	8204039	B2	2012-06-19	Beach et al.	
	27	7440781	B2	2008-10-28	Beach et al.	
	28	6845338	B1	2005-01-18	Willins	
	29	7822000	B2	2010-10-26	Sekhar	
	30	6236674	B1	2001-05-22	Morelli et al.	

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	31	7030812	B2	2006-04-18	Bekritsky et al.	
	32	7005968	B1	2006-02-28	Bridgelall	
	33	7729326	B2	2010-06-01	Sekhar	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20080119136	A1	2008-05-22	Khazi	
	2	20050266868	A1	2005-12-01	Fuccello	
	3	20050243781	A1	2005-11-03	Vesuna	
	4	20080025282	A1	2008-01-31	Hong	
	5	20080002641	A1	2008-01-03	Hong et al.	
	6	20070281634	A1	2007-12-06	Rao et al.	

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	Attorney Docket Number	111054-0001U4C7

	7	20060264212	A1	2006-11-23	Sekhar	
	8	20070025287	A1	2007-02-01	Goren et al.	
	9	20060141932	A1	2006-06-29	Lawrence et al.	
	10	20050180367	A1	2006-07-13	Dooley et al.	
	11	20060153085	A1	2006-07-13	Willins et al.	
	12	20040264404	A1	2004-12-30	Zegelin	
	13	20050213553	A1	2005-09-29	Wang	
	14	20070002833	A1	2007-01-04	Bajic	
	15	20060245373	A1	2006-11-02	Bajic	
	16	20060245404	A1	2006-11-02	Bajic	
	17	20060245393	A1	2006-11-02	Bajic	

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	18	20060268765	A1	2006-11-30	Bajic et al.	
	19	20060268834	A1	2006-11-30	Bajic	
	20	20070204158	A1	2007-08-30	Hatashita et al.	
	21	20080136621	A1	2008-06-12	Malik et al	
	22	20060022038	A1	2006-02-02	Hewlin et al.	
	23	20060116160	A1	2006-06-01	Fuccello	
	24	20050124359	A1	2005-06-09	Willins et al.	
	25	20040076136	A1	2004-04-22	Beach	
	26	20060171341	A1	2006-08-03	Wang et al.	
	27	20070015549	A1	2007-01-18	Hernandez et al.	
	28	20050243737	A1	2005-11-03	Dooley et al.	

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	29	20050054350	A1	2005-03-10	Zegelin	
	30	20060125631	A1	2006-06-15	Sharony	
	31	20060114104	A1	2006-06-01	Scaramozzino	
	32	20070026818	A1	2007-02-01	Willins et al.	
	33	20070173248	A1	2007-07-26	Sekhar	
	34	20070091859	A1	2007-04-26	Sethi et al.	
	35	20060029024	A1	2006-02-09	Zeng et al.	
	36	20070010278	A1	2007-01-11	D'Agostino et al.	
	37	20060193258	A1	2006-08-31	Ballai	
	38	20050113090	A1	2005-05-26	Sharony	
	39	20070081503	A1	2007-04-12	Mower	

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	First Named Inventor	James Arthur Proctor
	Art Unit	3685
	Examiner Name	SHERR, MARIA CRISTI OWEN
	Attorney Docket Number	111054-0001U4C7

	40	20070178907	A1	2007-08-02	Gopalan et al.	
	41	20070049297	A1	2007-03-01	Gopalan et al.	
	42	20070133453	A1	2007-06-14	Sethi et al.	
	43	20060111045	A1	2006-05-25	Orlassino et al.	
	44	20080009307	A1	2008-01-10	Sekhar et al.	
	45	20070060105	A1	2007-03-15	Batta	
	46	20070230441	A1	2007-10-04	Sethi et al.	
	47	20060045042	A1	2006-03-02	Sethi et al.	
	48	20060270412	A1	2006-11-30	Willins et al.	
	49	20070211727	A1	2007-09-13	Sethi et al.	
	50	20030100328	A1	2003-05-29	Klein et al.	

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	Attorney Docket Number	111054-0001U4C7

	51	20050136891	A1	2005-06-23	Wang et al.	
	52	20050185615	A1	2005-08-25	Zegelin	
	53	20030021250	A1	2003-01-30	Willins et al.	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	101233722	CN	A	2008-07-30	Sekhar		
	2	1098477	EP	B1	2009-12-23	Hughes et al.		
	3	1207654	EP	A2	2002-05-22	Beach et al.		
	4	2752347	FR	A1	1998-02-13	Swift et al.		
	5	2003152739	JP	A	2003-05-23	Beach et al.		
	6	2564287	CA	C	2010-08-24	Heiman et al.		

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	Art Unit	3685
	Examiner Name	SHERR, MARIA CRISTI OWEN
	Attorney Docket Number	111054-0001U4C7

	7	2218268	CA	C	2007-01-16	Heiman et al.		
	8	2506121	CA	C	2010-09-21	Pinard et al.		
	9	2798749	FR	A1	2001-03-23	Klein et al.		
	10	2007047181	WO	A2	2007-04-26	Bolluck et al.		
	11	1908235	EP	B1	2018-01-24	Meyer		
	12	101036061	CN	A	2007-09-12	Ha et al.		
	13	1296155	EP	A1	2003-03-26	Goren et al.		
	14	1759620	CN	A	2006-04-12	Melville et al.		

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Filing Date	2016-09-21
First Named Inventor	James Arthur Proctor
Art Unit	3685
Examiner Name	SHERR, MARIA CRISTI OWEN
Attorney Docket Number	111054-0001U4C7

EXAMINER SIGNATURE			
Examiner Signature	/Cristina Owen Sherr/	Date Considered	05/08/2019

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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Petitioner Samsung Ex-1004, 1375

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	15271410
Filing Date	2016-09-21
First Named Inventor	James Arthur Proctor
Art Unit	3685
Examiner Name	SHERR, MARIA CRISTI OWEN
Attorney Docket Number	111054-0001U4C7

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/David J Thibodeau Jr Reg No 31671/	Date (YYYY-MM-DD)	2019-02-25
Name/Print	David J. Thibodeau, Jr.	Registration Number	31671

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/271,410	09/21/2016	James Arthur Proctor JR.	111054-0001U4C7	7653

86012 7590 06/03/2019

VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

EXAMINER
SHERR, MARIA CRISTI OWEN

ART UNIT	PAPER NUMBER
3685	

NOTIFICATION DATE	DELIVERY MODE
06/03/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@vlplawgroup.com

Petitioner Samsung Ex-1004, 1378

Office Action Summary	Application No. 15/271,410	Applicant(s) Proctor et al.	
	Examiner CRISTINA O SHERR	Art Unit 3685	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 28 January 2019.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-2,4,8,12-13,15,17,31,35 and 41-60 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-2,4,8,12-13,15,17,31,35 and 41-60 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date See Continuation Sheet.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Petitioner Samsung Ex-1004, 1379

Continuation of Attachment(s) 2) Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date: 28 February, 2019 (five such statements), and 27 March, 2019 (one such statement)

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. This Office Action is in response to the Applicant's Amendment filed January 28, 2018. Claims 1-2, 4, 8, 12-13, 15, 17, 31, 35, and 41-60 are pending in this case. Claims 43-60 are newly added. Claims 1, 2, 4, 13, 15, 17, 31, 35, and 42 are currently amended. Claims 3, 11, 16, 20, 24-30, and 33 were previously canceled. Claims 5-7, 9-10, 14, 18-19, 22-23, 32, 34, and 36-40 are currently canceled.

Election/Restrictions

3. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-2, 4, 8, 12-13, 15, 17, 31, 35, 41-42 and 44-60, drawn to location monitoring, classified in H04W 4/22.

II. Claim 43, drawn to sending the unique identifier, and receiving further information relating to an object or entity associated with being within proximity to the mobile device, classified in G06Q 30/02.

4. Newly submitted claim 43 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

5. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as sending a unique identifier. See MPEP § 806.05(d).

6. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 43 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Information Disclosure Statement

7. The information disclosure statements (IDS) submitted on 28 February, 2019 (five such statements), and 27 March, 2019 (one such statement) are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Remarks

8. Nonfunctional descriptive material does not serve to distinguish from the prior art. *In re Kao*, 639 F.3d1057, ___, 98 USPQ2d 1799, 1811-12 (Fed. Cir. 2011); *King Pharmaceuticals Inc. v. Eon Labs Inc.*, 616 F.3d1267, ___, 95 USPQ2d 1833, 1842 (Fed. Cir. 2010); *In re Gulack*, 217 USPQ 401 (Fed. Cir. 1983), *In re Ngai*, 70 USPQ2d (Fed. Cir. 2004), *In re Lowry*, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP 2111.05.

9. In claim 1, "each of the proximity beacon service transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier" are nonfunctional descriptive material.

Response to Arguments

10. Applicant's arguments, see REMARKS, filed January 28, 2019, with respect to the rejections of claims 4 and 18, as currently amended, under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, have been fully considered and are persuasive. The rejections of claims 4 and 18, as currently amended, under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, have been withdrawn.

11. Applicant's arguments, see REMARKS, filed January 28, 2019, with respect to the rejections of claims 1-2, 4-10, 12 - 15, 17-19, 21-23, 31-32, and 34-42, as currently amended, under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, have been fully considered and are persuasive. The rejections of claims 1-2, 4-10, 12 - 15, 17-19, 21-23, 31-32, and 34-42, as currently amended, under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, have been withdrawn.

12. Applicant's further arguments filed January 28, 2019, have been fully considered but they are not persuasive.

13. Applicant argues, regarding claims 1-2, 4, 8, 12-13, 15, 17, 31, 35, and 41-60, as currently amended, that the claims recite statutory subject matter.

14. Examiner respectfully disagrees.

15. The claims, as a whole, do not amount to significantly more than the abstract idea itself. This is because the claims do not effect an improvement to another technology or technical filed; the claims do not amount to an improvement to the functioning of a computer system itself; and the claims do not move beyond a general link of the use of an abstract idea to a particular technological environment.

16. Applicant argues, regarding claim 1, that nothing in the cited references teaches, discloses or suggests receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers;

receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI);

determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service:

then:

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

1. Examiner respectfully disagrees.

2. Sundar teaches receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers; (par 59-60)

receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI); (par 55-58, 65)

determining if a particular short range transmission of the plurality of short range transmissions includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service: (par 58-59, 65)

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information. (par 58-59, 65)

17. Sundar does not specifically teach each of the proximity beacon transmissions including a MAC address and a unique identifier.

18. Zaks teaches teach each of the proximity beacon transmissions including a MAC address and a unique identifier. (par 93-94).

19. It would be obvious to one of ordinary skill in the art to combine Sundar and Zaks in order to obtain greater transaction security.

20. Applicant's further arguments with respect to claims 1 and 31 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Claim Rejections - 35 USC § 101

21. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

22. Claims 1-2, 4, 8, 12-13, 15, 17, 31, 35, and 41-42 and 44-60 are rejected under 35 U.S.C. 101 because the claimed invention is directed to an abstract idea without significantly more.

23. In the instant case, claims 1- 2, 4, 8, 12-13, 15, 17, 45-46, and 58-59 are directed to a device. Claims 31, 35, 41-42, 44, 48-57, and 60 are directed to a method. Therefore, these claims fall within the four statutory categories of invention.

24. The claim(s) recite(s) determining distance. Specifically, the claims recite an algorithm that involves receiving a list of identifiers or locations, determining the location of a device, and determining that the device is in proximity to one of the locations on the list, which is grouped within the "certain methods of organizing human activity" grouping of abstract ideas in prong one of step 2A of the *Alice/Mayo* test (*See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 52, 54 (January 7, 2019)). Accordingly, the claims recite an abstract idea (*See* pages 7, 10, *Alice Corporation Pty. Ltd. v. CLS Bank International, et al.*, US Supreme Court, No. 13-298, June 19, 2014; 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 53-54 (January 7, 2019)).

25. This judicial exception is not integrated into a practical application because, when analyzed under prong two of step 2A of the *Alice/Mayo* test (*See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 54-55 (January 7, 2019)), the additional element(s) of the claim(s) such as a mobile wireless device comprising a first radio, a second radio, one or more processors, memory device merely use a computer as a tool to perform an abstract idea and/or generally link the use of a judicial exception to a particular technological environment. Specifically, the first and second radios and the memory devices perform the steps or functions of receiving information, determining content of the

information, and determining distance. The use of a processor/computer as a tool to implement the abstract idea and/or generally linking the use of the abstract idea to a particular technological environment does not integrate the abstract idea into a practical application because it requires no more than a computer performing functions that correspond to acts required to carry out the abstract idea. Additionally, the additional elements of sending and receiving the request, do not improve the functioning of the computer as they represent mere performance of a mathematical operation by a computer. The additional elements do not involve improvements to the functioning of a computer, or to any other technology or technical field (MPEP 2106.05(a)), the claims do not apply or use the abstract idea to effect a particular treatment or prophylaxis for a disease or medical condition (Vanda Memo), the claims do not apply the abstract idea with, or by use of, a particular machine (MPEP 2106.05(b)), the claims do not effect a transformation or reduction of a particular article to a different state or thing (MPEP 2106.05(c)), and the claims do not apply or use the abstract idea in some other meaningful way beyond generally linking the use of the abstract idea to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception (MPEP 2106.05(e) and Vanda Memo). Therefore, the claims do not, for example, purport to improve the functioning of a computer. Nor do they effect an improvement in any other technology or technical field. Accordingly, the additional elements do not impose any meaningful limits on practicing the abstract idea, and the claims are directed to an abstract idea.

26. The claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception because, when analyzed under step 2B of the *Alice/Mayo* test (*See* 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 52, 56 (January 7, 2019)), the additional element(s) of using a radios and a memory device to perform the steps amounts to no more than using a computer or processor to automate and/or implement the abstract idea of receiving information, determining content of the information, and determining distance. As discussed

above, taking the claim elements separately, the first and second radio and memory device perform(s) the steps or functions of receiving information, determining content of the information, and determining distance. These functions correspond to the actions required to perform the abstract idea. Therefore, the use of these additional elements does no more than employ the computer as a tool to automate and/or implement the abstract idea. The use of a computer or processor to merely automate and/or implement the abstract idea cannot provide significantly more than the abstract idea itself (MPEP 2106.05 (f) & (h)). Therefore, the claims are not patent eligible.

27. Dependent claims 2, 4, 12-13, 15, 17, 35, 41, and 44-60 further describe the abstract idea of determining distance. The dependent claims do not include additional elements that integrate the abstract idea into a practical application or that provide significantly more than the abstract idea. Therefore, the dependent claims are also not patent eligible.

Claim Rejections - 35 USC § 112

28. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

> (a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

29. The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

30. Claims 1-2, 4, 8, 12-13, 15, 17, 31, 35, 41-42 and 44-60 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

31. Regarding claims 1 and 31 –

32. Claims 1 and 31 recite the limitations of "if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service," and "determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier." The specification does not provide support for using one identifier (PBSI) to first indicate that a short range transmission is a proximity beacon transmission associated with the proximity beacon service, and then using a different identifier (unique identifier) to determine that an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device. Paragraph 60 of the pregrant publication of the specification (US 2017/0011425) states that one or more of the BSSID or SSID may be used to indicate that the beacons are associated with a service, but the specification does not disclose that one of these identifiers is used to indicate that the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service while another is used along with the identifier related information to determine if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device.

33. Dependent claims 2, 4, 8, 12-13, 15, 17, 35, 41-42 and 44-60 are rejected under similar criteria.

Claim Rejections - 35 USC § 103

34. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

35. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

36. Claims 1, 8, 12, 13, 45, 47-50, and 52-60 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Sundar et al (US 2003/0134650) in view of Zaks (2010/0020746).

37. Regarding claims 1 and 31 -

38. Sundar teaches a mobile wireless device (abs) comprising:

a first radio; (par 59-60)

a second radio; (par 55-58, 65)

one or more processors: (par 59-65)

one or more non-transitory memory devices coupled to the one or more processors, (par 59-65) the one or more non-transitory memory devices storing a set of instructions that, when executed by the one or more processors cause the one or more processors to perform operations including:

receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers; (par 59-60)

receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers; (par 59-60)

receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a proximity beacon service identifier (PBSI); (par 55-58, 65)

determining if a particular short range transmission of the plurality of short range transmissions includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service: (par 58-59, 65)

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information. (par 58-59, 65)

39. Sundar does not specifically teach each of the proximity beacon transmissions including a MAC address and a unique identifier, determining if a particular short range transmission of the plurality of short range transmissions includes a MAC address, and utilizing the unique identifier.

40. Zaks teaches each of the proximity beacon transmissions including a MAC address and a unique identifier, determining if a particular short range transmission of the plurality of short range transmissions includes a MAC address, and utilizing the unique identifier. (par 93-94).

41. It would be obvious to one of ordinary skill in the art to combine Zaks and Sundar in order to obtain greater transaction security.

42. Regarding claim 8 –

43. Sundar teaches that the one or more processors further execute the instructions to perform operations including further determining that at least one beacon transmitter device associated with the beacon service is in proximity to the mobile wireless device, by utilizing an action function including one or more previously downloaded unique identifiers. (par 58-59, 65)

44. Regarding claim 12 –

45. Sundar teaches that the one or more processors further execute the instructions to perform operations including determining, based upon at least a portion of the identifier related information, that at least one beacon transmitter is a broadcast device having a predetermined location. (par 58-59, 65)

46. Regarding claim 13 –

47. Sundar teaches that the identifier related information comprises application software for execution upon the mobile wireless device, and the one or more processors further execute the instructions to perform operations including sending of the unique identifier by the mobile wireless device to at least one server of the one or more servers; (par 58-59, 65) and

in response to the sending of the unique identifier, downloading the application software. (par 58-59, 65)

Regarding claims 45 and 50 –

48. Sundar teaches sending the unique identifier, using the first radio, to at least one server of the one or more servers, (fig 2-3, par 14, 58-59) and

receiving further information relating to an object or entity associated with being within proximity to the mobile device. (fig 2-3, par 14, 58-59)

49. Regarding claims 47 and 55 –

50. Sundar teaches controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device. (fig 2-3, par 14, 58-59)

51. Regarding claim 48 -

52. Sundar teaches receiving, using the first radio, access code information by the mobile device from at least one of the servers; (fig 2-3, par 14, 58-59) and

utilizing the access code information to gain access to the entity or object determined to be in proximity to the mobile device. (fig 2-3, par 14, 58-59)

53. Regarding claim 49 -

54. Sundar teaches that receiving the identifier related information, using the first radio, is performed in response to sending at least the unique identifier to at least one of the one or more servers using the first radio. (fig 2-3, par 14, 58-59)

55. Regarding claim 52 –

56. Sundar teaches that the further information relates to a service for providing a menu for use by a user of the mobile device for use in purchasing items, (fig 2-3, par 14, 58-59) and further comprising:

allowing for the user take delivery at or near the location of a fixed proximity beacon device. (fig 2-3, par 14, 58-59)

57. Regarding claim 53 -

58. Sundar teaches that the further information relates to a nearby user of an application on another device, in common with an application on the mobile device. (fig 2-3, par 14, 58-59)

59. Regarding claim 54 –

60. Sundar teaches that the application is a multiuser game. (fig 2-3, par 14, 58-59)

61. Regarding claims 56 and 58 –

62. Sundar teaches comparing the identifier related information with the unique identifier or information derived from the unique identifier. (fig 2-3, par 14, 58-59)

63. Regarding claim 57 –

64. Sundar teaches sending the unique identifier, using the first radio, to at least one server of the one or more servers (par 58-59, 65), and wherein the one or more servers perform the following steps:

associating an object or entity as being within proximity to the mobile device; (par 58-59, 65)

storing a user's purchasing practices or requests from the one or more servers, related to the associated object or entity information as stored proximity user behavior; (par 58-59, 65)

retrieving a stored user email address associated with an account associated with the mobile device; (par 58-59, 65) and

sending an email, addressed to the user email address containing customized content based upon the stored proximity user behavior. (par 58-59, 65)

65. Regarding claim 59 –

66. Sundar teaches sending at least the unique identifier to at least one of the one or more servers using the first radio. (par 58-59, 65)

67. Regarding claim 60 –

68. Sundar teaches the proximity beacon transmissions are received, at the mobile device, without requiring the mobile device to first perform a step of transmitting to the one or more beacon transmitter devices from which the plurality of proximity beacon transmissions are received. (fig 2-3, par 14, 58-59)

69. Claims 2, 4, 15, 17, 41-42, 44, and 46 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Sundar et al (US 2003/0134650) in view of Zaks (US 2010/0020746) and in view of Sugiyama et al (US 2006/0032901).

70. Sundar and Zaks teach as above.

71. Regarding claim 2 –

72. Sugiyama teaches that the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD ADDR. (par 26-28).

73. It would be obvious to one of ordinary skill in the art to combine Sundar and Zaks with Sugiyama in order to obtain greater transaction security.

74. Regarding claim 4 –

75. Sugiyama teaches receiving, by the second radio, a first proximity beacon transmission including a first MAC address and a first unique identifier at a first time; (par 26-28) and

receiving, by the second radio, a second proximity beacon transmission including a second MAC address and a second unique identifier at a second time, the second MAC address being different from

the first MAC address and the second unique identifier being different from the first unique identifier; (par 26-28) and

associating the first and second unique identifier with a single beacon transmitter device. (par 26-28)

76. Regarding claim 15 –

77. Sundar teaches that the identifier related information comprises a list of contact information, and the one or more processors further execute the instructions to perform operations including:

further determining that at least one beacon transmitter device associated with the beacon service is further associated with an entity included within the list of contact information based upon comparing a contact identifier information with at least the portion of the proximity beacon information, and the mobile wireless device, upon determining there is a match, allowing further communications with the detected beacon transmitter device associated with the entity included within the list of contact information, wherein the further communications utilize the first radio, (fig 2-3, par 14, 58-59)

78. Sugiyama teaches a MAC address that changes from time to time. (par 26-28)

79. Regarding claim 17 –

80. Sugiyama teaches receiving, via a second radio, the plurality of proximity beacon transmissions further includes receiving a first unique identifier at a first time that is different from a second unique identifier received at a second time: (par 26-28) and

associating the first and second unique with a single beacon transmitter device. (par 26-28)

81. Regarding claim 41 –

82. Sugiyama teaches that the MAC address is selected from a group consisting of (a) a randomly generated 48 bit number matching a format of a MAC address and (b) a Bluetooth BD ADDR. (par 26-28).

83. Regarding claim 42 –

84. Sugiyama teaches that a first one of the plurality of proximity beacon transmissions is received at a first time and includes a first unique identifier and first MAC address, and the Proximity beacon Service Identifier (PBSI) and wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier different from the first unique identifier and a second MAC address different from the first MAC address, and the proximity beacon service identifier; (par 26-28) and

associating both the first unique identifier and the second unique identifier with the same entity or object in proximity to the mobile device. (par 26-28)

85. Regarding claims 44 and 46 –

86. Sugiyama teaches preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission. (par 26-28)

87. Claim 35 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Sundar et al (US 2003/0134650) in view of Zaks (2010/0020746) and further in view of Park (2006/0104200).

88. Sundar and Sugiyama teach as above.

89. Regarding claim 35 –

90. Park teaches that a first one of the plurality of proximity beacon transmissions received at a first time includes a first unique identifier, and wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier the second unique identifier being different from the first unique identifier; (par 18, 21, 23, 41, 43) and

associating both the first unique identifier and the second unique identifier with a particular entity or object in proximity to the mobile device. (par 18, 21, 23, 41, 43)

91. It would be obvious to one of ordinary skill in the art to combine Sundar and Zaks with Park in order to obtain greater transaction security.

92. Claim 51 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Sundar et al (US 2003/0134650) in view of Zaks (2010/0020746) and in view of Landau (US 2005/0099291)

93. Sundar and Zaks teach as above.

94. Regarding claim 51 –

95. Landau teaches that the further information relates to one or more of the following:

a loyalty program; a payment service; or a coupon relating to an entity in proximity to the mobile device; or advertising content. (par 43, 95)

96. It would be obvious to one of ordinary skill in the art to combine Sundar and Zaks with Landau in order to obtain greater transaction security.

Conclusion

97. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

98. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

99. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRISTINA OWEN SHERR whose telephone number is (571)272-6711. The examiner can normally be reached on 8:30 - 5:30.

100. Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

101. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Calvin L Hewitt can be reached on 571-272-6709. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

102. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mohammad A. Nilforoush/
Primary Examiner, Art Unit 3685

UNITED STATES PATENT AND TRADEMARK OFFICE

USPTO Automated Interview Request (AIR)

Jun 10 2019

This paper requesting to schedule and/or conduct an interview is appropriate because:

I have previously submitted an authorization for internet communications in a patent application. See form SB/0439.

Name(s):
David J Thibodeau Jr

S-signature:
/David J Thibodeau Jr/

Registration Number:
31671

U.S. Application Number:
15271410

Confirmation Number:
7653

E-mail Address:
dthibodeau@vlplawgroup.com

Phone Number:
+1 6179255520

Proposed Time of Interview:
6-18-2019 11:00 AM ET

Alternative Proposed Time(s) of Interview:
6-17-2019 11:00 AM ET

Alternative Proposed Time(s) of Interview:
6-18-2019 2:00 PM ET

Prefered Interview Type:
In-person

I am the applicant or applicant's representative for this application.

Topic for Discussion:
1. Why at least claim 50 (directed to sending a unique ID and receiving further information) is statutory (35 USC 101); 2. Where support is found for using both the beacon service ID and unique ID (35 USC 112); 3. Why at least claims 17, 50 and 1 are allowable over the prior art (35 USC 103)

Petitioner Samsung Ex-1004, 1398

Electronic Acknowledgement Receipt

EFS ID:	36336965
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	18-JUN-2019
Filing Date:	21-SEP-2016
Time Stamp:	17:21:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Letter Requesting Interview with Examiner	20190618_111054-0001U4C7_TPO_Appl_Interview_Request-.pdf	933528 db68ba1bc6d1e767f993d0173f63b2eb4255e72f	no	3

Warnings:

Information:	
Total Files Size (in bytes):	933528

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: M865 or FAI.REQ.INTV

PTOL-413A (07-16)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Applicant Initiated Interview Request Form

Application No.: 15271410 First Named Applicant: Proxicom Wireless, LLC
Examiner: SHERR, MARIA CRISTI OWEN Art Unit: 3685 Status of Application: Final Rejection Mailed

Tentative Participants:
(1) Maria Cristi Owen Sherr, Examiner (2) Mohammed Nilforoush, Primary Examiner
(3) James Proctor, Jr, Inventor (4) David Thibodeau, Attorney

Proposed Date of Interview: July 10, 2019 **Proposed Time:** 1:30 (◉AM◉PM)

Type of Interview Requested:
(1) ☐ Telephonic (2) ☑ Personal (3) ☐ Video Conference

Exhibit To Be Shown or Demonstrated: ☐ YES ☑ NO
If yes, provide brief description: _____

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1)			☐	☐	☐
(2)			☐	☐	☐
(3)			☐	☐	☐
(4)			☐	☐	☐

☑ Continuation Sheet Attached ☐ Proposed Amendment or Arguments Attached

Brief Description of Arguments to be Presented:
(See attached sheet)

An interview was conducted on the above-identified application on _____

NOTE: This form should be completed and filed by applicant in advance of the interview (see MPEP § 713.01). If this form is signed by a registered practitioner not of record, the Office will accept this as an indication that he or she is authorized to conduct an interview on behalf of the principal (37 CFR 1.32(a)(3)) pursuant to 37 CFR 1.34. This is not a power of attorney to any above named practitioner. See the Instruction Sheet for this form, which is incorporated by reference. By signing this form, applicant or practitioner is certifying that he or she has read the Instruction Sheet. After the interview is conducted, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible. This application will not be delayed from issue because of applicant's failure to submit a written record of this interview.

/David J Thibodeau Jr Reg No 31671/
Applicant/Applicant's Representative Signature

Examiner/SPE Signature

David J. Thibodeau, Jr.
Typed/Printed Name of Applicant or Representative

617-925-5520
Applicant's/Applicant's Representative's Telephone Number

31671
Registration Number, if applicable

This collection of information is required by 37 CFR 1.133. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 24 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

CONTINUATION SHEET FOR APPLICANT-INITIATED INTERVIEW SUMMARY REQUEST FORM

Filed June 18, 2019

ISSUES TO BE DISCUSSED:

1. Why at least claim 50 (a radio sending a unique ID and receiving further information) is statutory (35 USC 101);

2. Where support is found for using both the beacon service ID and unique ID (35 USC 112); and

3. Why at least claims 1, 17 and 50 are allowable over the prior art (35 USC 103).

Doc Code: M865 or FAI.REQ.INTV

PTOL-413A (08-10)
Approved for use through 11/30/2020. OMB 0651-0031
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Instruction Sheet for:
APPLICANT INITIATED INTERVIEW REQUEST FORM

(Not to be Submitted to the USPTO)

1. If this form is signed by a registered practitioner not of record, the authority to submit the Applicant Initiated Interview Request Form is pursuant to limited authority to act in a representative capacity under 37 CFR 1.34 and further proof of authority to act in a representative capacity may be required. *See* 37 CFR 1.34.

   The Office will accept the signed form as an indication that the registered practitioner not of record is authorized to conduct an interview on behalf of the principal in pursuant to 37 CFR 1.34.

   For more information, see the "Conducting an Interview with a Registered Practitioner Acting in a Representative Capacity" notice which is available on the USPTO Web site at: http://www.uspto.gov/patents/law/notices/2010.jsp.

2. This is not a power of attorney to any named practitioner. Accordingly, any registered practitioner not of record named on the form does not have authority to sign a request to change the correspondence address, a request for express abandonment, a disclaimer, a power of attorney, or other document requiring the signature of the applicant, assignee of the entire interest or an attorney of record. If appropriate, a separate power of attorney to the named practitioner should be executed and filed in the US Patent and Trademark Office.

3. Any interview concerning an unpublished application under 35 U.S.C. § 122(b) with a registered practitioner not of record who obtains authorization through use of the PTOL-413A will be conducted based on the information and files supplied by the practitioner in view of the confidentiality requirements of 35 U.S.C. § 122(a).

Electronic Acknowledgement Receipt

EFS ID:	36560266
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	11-JUL-2019
Filing Date:	21-SEP-2016
Time Stamp:	16:39:28
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	20190711_111054-0001U4C7_TPO_Interview_summary.pdf	77380 fc63dd73afc93905b76da490622b042091378d58	no	2

Warnings:

Information:	
Total Files Size (in bytes):	77380

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of: James A. Proctor, Jr., et al.	
Serial No.: 15/271,410	Examiner: Sherr, Cristina Owen
Filed: September 21, 2016	Art Unit: 3685
For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED	Confirmation No.: 7653

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPLICANT SUMMARY OF EXAMINER INTERVIEW ON JULY 10, 2019

The Applicant thanks Examiners Sherr and Nilforoush for the courtesy of the in-person interview held on July 10, 2019.

Regarding the objections under 35 USC 112, Examiner Nilforoush agreed that claim 1 and the other claims would overcome these objections if the recitation "a includes a MAC address" were deleted from the claim. It was also agreed by Examiner Sherr that such amendment would not raise any new issues and would be properly entered at this time (after final rejection).

Regarding the rejection under 35 USC 103, Examiner Nilforoush agreed that claim 50 would be allowable over the prior art of record if rewritten in independent form, including the limitations of all claims from which it depends. It was noted that claim 45 would similarly be allowable if rewritten in independent form.

Regarding the rejections under 35 USC 101, no agreement was reached due to the limited time available. Examiner Niforoush indicated that further consideration would be given to written remarks if timely submitted.

Respectfully submitted,

/David J Thibodeau Jr Reg No 31671 /
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July 11, 2019

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of: James A. Proctor, Jr., et al.	
Serial No.: 15/271,410	Examiner: Sherr, Cristina Owen
Filed: September 21, 2016	Art Unit: 3685
For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED	Confirmation No.: 7653

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir/Madam:

RESPONSE TO FINAL OFFICE ACTION

This amendment is being filed in response to the Final Office Action dated June 3, 2019. An After Final Consideration Pilot 2.0 Request is also being filed herewith, and believed to be proper since at least one independent claim would be cancelled. Further consideration of the application is respectfully requested.

Amendments to the claims begin on page 2.

Remarks begin on page 11.

Petitioner Samsung Ex-1004, 1408

IN THE CLAIMS

Upon approval, the following will replace all prior listings of the claims in the application:

1. (Canceled).

2. (Currently Amended). The mobile wireless device of Claim ~~1~~45, wherein the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

3. (Cancelled).

4. (Currently Amended). The mobile wireless device of claim ~~1~~45

wherein the one or more processors further execute the instructions to perform operations including:

receiving, by the second radio, a first proximity beacon transmission including a first MAC address and a first unique identifier at a first time; and

receiving, by the second radio, a second proximity beacon transmission including a second MAC address and a second unique identifier at a second time, the second MAC address being different from the first MAC address and the second unique identifier being different from the first unique identifier; and

associating the first and second unique identifier with a single beacon transmitter device based upon using the first unique identifier, the second unique identifier and the identifier related information.

5-7. (Cancelled).

Petitioner Samsung Ex-1004, 1409

8. (Currently Amended). The mobile wireless device of Claim ~~1~~45, wherein the one or more processors further execute the instructions to perform operations including:

further determining that at least one beacon transmitter device associated with the beacon service is in proximity to the mobile wireless device, by utilizing an action function including one or more previously downloaded unique identifiers.

9-11. (Cancelled).

12. (Currently Amended). The mobile wireless device of Claim ~~1~~45, wherein the one or more processors further execute the instructions to perform operations including

determining, based upon at least a portion of the identifier related information, that at least one beacon transmitter is a broadcast device having a predetermined location.

13. (Currently Amended). The mobile wireless device of Claim ~~1~~45, wherein the identifier related information comprises application software for execution upon the mobile wireless device, and the one or more processors further execute the instructions to perform operations including:

~~sending of the unique identifier by the mobile wireless device to at least one server of the one or more servers; and~~

in response to the sending of the unique identifier to at least one server, then downloading the application software.

14. (Cancelled)

15. (Previously Presented). The mobile wireless device of Claim 4 wherein

the identifier related information comprises a list of contact information, and the one or more processors further execute the instructions to perform operations including:

Petitioner Samsung Ex-1004, 1410

further determining that at least one beacon transmitter device associated with the beacon service is further matched with an entity included within the list of contact information based upon comparing a contact identifier information with at least the portion of the unique identifier, and

the mobile wireless device, upon determining there is a match, allowing further communications with the detected beacon transmitter device associated with the entity included within the list of contact information, wherein the further communications utilize the first radio.

16. (Cancelled).

17. (Currently Amended). The mobile wireless device of claim ~~1~~45

wherein the one or more processors further execute the instructions to perform operations including:

receiving, via a second radio, the plurality of proximity beacon transmissions, including further ~~includes~~ receiving a first unique identifier at a first time that is different from a second unique identifier received at a second time; and

associating the first and second unique with a single beacon transmitter device.

18-30. (Cancelled).

31. (Cancelled)

32-34. (Cancelled).

35. (Currently amended). The method of claim ~~31~~50,

wherein a first one of the plurality of proximity beacon transmissions received at a first time includes a first unique identifier, and wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier the second unique identifier being different from the first unique identifier; and

Petitioner Samsung Ex-1004, 1411

associating both the first unique identifier and the second unique identifier with a particular entity or object in proximity to the mobile device.

36-40. (Cancelled).

41. (Currently Amended). The method of claim ~~31~~ 50 wherein the respective MAC address is selected from a group consisting of (a) a randomly generated 48 bit number matching a format of a MAC address and (b) a Bluetooth BD_ADDR.

42. (Currently Amended). The method of claim ~~31~~50

wherein a first one of the plurality of proximity beacon transmissions is received at a first time and includes a first unique identifier and first MAC address, and the Proximity beacon Service Identifier (PBSI), and wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier different from the first unique identifier and a second MAC address different from the first MAC address, and the proximity beacon service identifier; and

associating both the first unique identifier and the second unique identifier with the same entity or object in proximity to the mobile device.

43. (~~New~~Withdrawn) A method for facilitating use of proximity beacons comprising:

communicating between a mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including proximity beacon transmissions from a beacon transmitter device associated with a proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI);

wherein the MAC addresses and unique identifiers associated with the proximity beacon transmissions as received from the beacon transmitter device associated with the proximity beacon service occasionally change;

Petitioner Samsung Ex-1004, 1412

wherein the receiving, at the mobile device using the second radio, the proximity beacon transmissions occurs without first transmitting, by the mobile device, to the beacon transmitter device; and

when a particular short range transmission:

a) includes a MAC address; and

b) includes a proximity beacon service identifier (PBSI); and

c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service,

then performing additional steps including:

determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier;

sending the unique identifier, using the first radio, to at least one server of the one or more servers; and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

44. (Currently Amended) The method of Claim ~~31~~50, further comprising

subsequently preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission.

45. (Currently Amended) ~~The mobile wireless device of Claim 1,~~ A mobile wireless device comprising:

a first radio;

a second radio;

one or more processors;

one or more non-transitory memory devices coupled to the one or more processors, the one or more non-transitory memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including:

Petitioner Samsung Ex-1004, 1413

receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers;

receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier , and a proximity beacon service identifier (PBSI);

determining if a particular short range transmission of the plurality of short range transmissions a) includes the proximity beacon service identifier (PBSI) and if b) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;

then:

c) determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier associated with the particular short range transmission, and

~~wherein the instructions further comprise:~~

d) sending the unique identifier, using the first radio, to at least one server of the one or more servers, and

e) receiving further information relating to the ~~an object or~~ entity or object associated with being within proximity to the mobile device.

46. (Currently Amended) The mobile wireless device of Claim ~~1~~45, wherein the instructions further comprise:

subsequently preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission.

47. (Currently Amended) The mobile wireless device of Claim ~~1~~45, wherein the instructions further comprise:

Petitioner Samsung Ex-1004, 1414

controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device.

48. (Currently Amended) The method of Claim ~~31~~50, further comprising:

receiving, using the first radio, access code information by the mobile device from at least one of the servers; and

utilizing the access code information to gain access to the entity or object determined to be in proximity to the mobile device.

49. (Currently Amended) The method of Claim ~~31~~50, wherein receiving the identifier related information, using the first radio, is performed in response to sending at least the unique identifier to at least one of the one or more servers using the first radio.

50. (Currently Amended) ~~The method of Claim 31,~~ A method for facilitating use of proximity beacons, the method executing within a mobile device, and the method comprising:

communicating between the mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions from one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier (UID), and a proximity beacon service identifier (PBSI);

a) determining that a particular short range transmission includes the proximity beacon service identifier (PBSI), and

b) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service; and

when the determining steps a) and b) are each true, then

Petitioner Samsung Ex-1004, 1415

c) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier associated with the particular short range transmission, and

~~additionally comprising~~

d) sending the unique identifier, using the first radio, to at least one server of the one or more servers, and

e) receiving further information relating to an object or entity associated with being within proximity to the mobile device.

51. (Previously Presented) The method of Claim 50, wherein the further information relates to one or more of the following:

a loyalty program;

a payment service; or

a coupon relating to an entity in proximity to the mobile device; or

advertising content.

52. (Previously Presented) The method of Claim 50, wherein the further information relates to a service for providing a menu for use by a user of the mobile device for use in purchasing items, and further comprising:

allowing for the user take delivery at or near the location of a fixed proximity beacon device.

53. (Previously Presented) The method of Claim 50, wherein the further information relates to a nearby user of an application on another device, in common with an application on the mobile device.

54. (Previously Presented) The method of Claim 53, wherein the application is a multiuser game.

55. (Currently Amended) The method of Claim ~~31~~50, additionally comprising:

Petitioner Samsung Ex-1004, 1416

controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device.

56. (Currently Amended) The method of Claim ~~31~~50, wherein the step of determining that an entity or object is within proximity further comprises:

comparing the identifier related information with the unique identifier or information derived from the unique identifier.

57. (Currently Amended) The method of Claim ~~31~~50, additionally ~~comprising:~~

~~sending the unique identifier, using the first radio, to at least one server of the one or more servers, and~~ wherein the one or more servers perform the following steps:

associating an object or entity as being within proximity to the mobile device;

storing a user's purchasing practices or requests from the one or more servers, related to the associated object or entity information as stored proximity user behavior;

retrieving a stored user email address associated with an account associated with the mobile device; and

sending an email, addressed to the user email address containing customized content based upon the stored proximity user behavior.

58. (Currently Amended) The mobile wireless device of Claim ~~1~~45, wherein the one or more processors further execute the instructions to perform the operations for determining that an entity or object is within proximity by further:

comparing the identifier related information with the unique identifier or information derived from the unique identifier.

59. (Currently Amended) The mobile wireless device of Claim ~~1~~45, wherein the receiving of the identifier related information, using the first radio, is performed in response to the one or more processors executing instructions for:

sending at least the unique identifier to at least one of the one or more servers using the first radio.

Petitioner Samsung Ex-1004, 1417

60. (Currently Amended) The method of Claim ~~31~~50, wherein the proximity beacon transmissions are received, at the mobile device, without requiring the mobile device to first perform a step of transmitting to the one or more beacon transmitter devices from which the plurality of proximity beacon transmissions are received.

Petitioner Samsung Ex-1004, 1418

REMARKS

Interview Summary

The Applicant thanks Examiner Sherr and Examiner Nilforoush for the courtesy of the in-person interview ("the Interview") held on July 10, 2019, which is documented in the separately filed "Applicant Summary of Interview" filed on July 11, 2019. Further consideration of the application as discussed during that interview is respectfully requested and believed to be timely.

Status of the Claims

Entry of the above proposed amendments is requested. These amendments are believed to be timely and proper after final action under 37 CFR 1.116. As discussed and agreed during the July 10 interview, these amendments to the claims would resolve the objections under 35 USC 112 and would not raise any new issues under 35 USC 103 by incorporating limitations from allowable dependent claims into the independent claims.

Previous independent claims 1 and 31 would be cancelled. Claims 45 and 50 would be rewritten in independent form, including all limitations of prior independent claims 1 and 31 from which they previously depended. Step c) of claims 45 and 50 would also now clarify that the unique identifier is associated with the particular short range transmission.

Upon entry of the amendments requested herein, claims 45 and 50 would be only the remaining independent claims. All other claims in the application would depend from either claim 45 or 50.

Dependent Claims 13 and 57 would be amended to remove the reference to the step of "sending the unique identifier…" since that step is already recited in the amended claims

Petitioner Samsung Ex-1004, 1419

45 and 50.Claim 41 would be amended to refer to the "respective MAC address" for clarity.

Claim 44 would be amended to clarify that the "preventing step" occurs subsequent to the earlier claimed detections of the respective unique identifier associated with the proximity beacon transmission.

Claim Objections – 35 USC 112(a) or 35 USC First Paragraph (pre-AIA)

During the Interview, it was indicated by the Examiners that the 112 objection would be overcome if the second reference to a "MAC address" is deleted from the claims.

The proposed amended claims 45 and 50 would thus be allowable.

Since all other claims would depend from an allowable base claim, the objections to these other claims should also now be addressed.

Claim Rejections – 35 USC 103

During the Interview, it was agreed that method claim 50 (and the analogous device claim 45) would be allowable over the prior art if rewritten in independent form.

With entry of the amendments submitted herewith, all claims should therefore now be allowable in this regard.

Claim Rejections – 35 USC 101

The limited time available during the Interview did not permit full consideration of the rejection of the claims under 35 USC 101 as supposedly being "directed to an abstract idea without significantly more".

Petitioner Samsung Ex-1004, 1420

Further consideration of this rejection is respectfully requested.

(a) Neither *"*determining the location of a device*" nor "*determining that the device is in proximity to one of the locations on the list" is recited in the claims

The basis of this rejection is the statement in Paragraph 24 of the Final Action that

> "The claim(s) recite(s) determining distance. Specifically, the claims recite an algorithm that involves receiving a list of identifiers or locations, determining the location of a device, and determining that the device is in proximity to one of the locations on the list, which is grouped within the "certain methods of organizing human activity" grouping of abstract ideas.."

However, nowhere in the claims is "determining the location of a device" mentioned.

The rejection should therefore be withdrawn for this reason alone.

(b) "Determining proximity" is recited in the claims – but not "determining distance"

The Applicant has previously pointed out that "determining proximity" is not the same thing as "determining distance". Likewise, "determining proximity" is not the same thing as "determining location". The Final Office action improperly confuses and/or equates these concepts in a way that is inconsistent with the Applicant's specification.

"Determining distance" necessarily involves some measurement of a physical dimension such as feet, or yards, or kilometers.

"Determining location" necessarily involves resolving the position of a thing with regard to some known, fixed position.

On the other hand, "determining proximity" (in the context of the wireless devices of the claimed invention and in light of the specification as filed), involves determining whether

Petitioner Samsung Ex-1004, 1421

the two wireless devices are close enough to receive wireless beacon transmissions, regardless of their actual physical location or the distance between them.

(c) "Determining distance" is not a "certain method of organizing human activity"; nor have it or related concepts been found abstract by the Courts

The Office Action offers no reason why claims directed to "determining distance" are "a method of organizing human activity". Determining distance is not a fundamental economic principle; a commercial or legal interaction; managing personal behavior or relationships or interactions between people, as listed in in the 2019 Revised Patent Subject Matter Elibility Guidace (84 Fed. Reg. 50, 52).

In fact, claims which determined distance or relative location have actually been found to NOT be an abstract by the Court of Appeals for the Federal Circuit, on at least two occasions.

In *Thales Visionix Inc. v. United States and Elbit Systems of America, LLC*, 850 F.3d 1343 (Fed. Cir. 2017) the claimed invention determined the location of a tracked object relative to a moving reference frame. The CAFC found that such claims were not directed to an abstract idea.

Also applicable is the CAFC's decision in *SiRF Technology Inc. v. International Trade Commission,* 601 F.3d 1319 (Fed. Cir. 2010). That case involved an invention that computed the position of a satellite signal receiver. The claims in that case were also found to be patent-eligible. As in *SiRF*, the programmed processors in the present case also "act in concert with the radios" to enable the mobile devices to make their determination of their position.

As in the Thales and SiRF cases, the claims in the present application are directed to a specific way to determine whether two mobile devices are in proximity to one another in

Petitioner Samsung Ex-1004, 1422

a very specific way – by detecting and comparing specially formatted radio transmissions received by a mobile device using two different radios. The Applicant's claimed invention does not seek to tie up all ways of "determining distance", but only rather a specific application of those electromagnetic principals to a particular configuration of elements.

(d) The Applicant's claimed invention provides a practical effect

Claims 45 and 50, the remaining independent claims, have additional limitations that require the mobile device to send the received unique identifier to a server, and receive further information about the entity or object in proximity. Such an arrangement provides for a significant reduction in data traffic (and power consumption) using the first radio to communicate the unique identifier to the server to receive the now claimed "further information" This reduction in traffic and power related to the first radio is based upon the prevention of the sending of unique identifiers to the server when a short range transmission is not associated with the proximity beacon service. Such a prevention is based upon the required limitation of:

> "*determining if a particular short range transmission of the plurality of short range transmissions a) includes the proximity beacon service identifier (PBSI) and if b) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;*
> *then:"*

As a result, when a particular short range transmission is *NOT* associated with the proximity beacon service, the subsequent steps of sending the unique identifier to the server using the first radio, and receiving the further information, will not occur.

Such an arrangement permits two wireless devices, which are initially in proximity to one another, to continue to communicate with each other even after they move out of radio range.

Petitioner Samsung Ex-1004, 1423

Dependent claims 17 and 35 additionally allow for detecting an entity or object in proximity despite the changing of the unique identifier used to associate that entity or object with being in proximity Such capabilities provide further provide a practical effect, in the form of significant security and privacy enhancements.

The USPTO's 2019 Guidelines correctly instruct that a claim cannot be "directed to" a judicial exception under 35 USC 101, if the claim "recites additional elements that integrate the exception into a practical application of that exception."

(e) *"Significantly more" is now present*

With entry of the enclosed amendments, all remaining claims would be allowable over the prior art.

The claims now include specific limitations or combination of limitations that have been admitted by the patent office to not be not well-understood, routine, or conventional activity in the field.

Election / Restriction of Claim 43

The Applicant respectfully traverses the restriction of claim 43. Reconsideration of the same is respectfully requested, especially in light of the now allowable claim 50 and cancellation of the previously independent claims 1 and 31.

Petitioner Samsung Ex-1004, 1424

Conclusion

With entry of the foregoing amendments, all of the claims presented should be in condition for allowance.

July 16 , 2019

Respectfully submitted,

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Petitioner Samsung Ex-1004, 1425

Doc Code: A.NE.AFCP
Document Description: After Final Consideration Pilot Program Request

PTO/SB/434 (05-13)

CERTIFICATION AND REQUEST FOR CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0

Practitioner Docket No.:	Application No.:	Filing Date:
111054-0001U4C7	15271410	9-21-2016
First Named Inventor:	**Title:**	
James A. Proctor, Jr.	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE	

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0 (AFCP 2.0) OF THE ACCOMPANYING RESPONSE UNDER 37 CFR 1.116.

1. The above-identified application is (i) an original utility, plant, or design nonprovisional application filed under 35 U.S.C. 111(a) [a continuing application (*e.g.*, a continuation or divisional application) is filed under 35 U.S.C. 111(a) and is eligible under (i)], or (ii) an international application that has entered the national stage in compliance with 35 U.S.C. 371(c).
2. The above-identified application contains an outstanding final rejection.
3. Submitted herewith is a response under 37 CFR 1.116 to the outstanding final rejection. The response includes an amendment to at least one independent claim, and the amendment does not broaden the scope of the independent claim in any aspect.
4. This certification and request for consideration under AFCP 2.0 is the only AFCP 2.0 certification and request filed in response to the outstanding final rejection.
5. Applicant is willing and available to participate in any interview requested by the examiner concerning the present response.
6. This certification and request is being filed electronically using the Office's electronic filing system (EFS-Web).
7. Any fees that would be necessary consistent with current practice concerning responses after final rejection under 37 CFR 1.116, *e.g.*, extension of time fees, are being concurrently filed herewith. [There is no additional fee required to request consideration under AFCP 2.0.]
8. By filing this certification and request, applicant acknowledges the following:
    - Reissue applications and reexamination proceedings are not eligible to participate in AFCP 2.0.
    - The examiner will verify that the AFCP 2.0 submission is compliant, *i.e.*, that the requirements of the program have been met (see items 1 to 7 above). For compliant submissions:
        - The examiner will review the response under 37 CFR 1.116 to determine if additional search and/or consideration (i) is necessitated by the amendment and (ii) could be completed within the time allotted under AFCP 2.0. If additional search and/or consideration is required but cannot be completed within the allotted time, the examiner will process the submission consistent with current practice concerning responses after final rejection under 37 CFR 1.116, *e.g.*, by mailing an advisory action.
        - If the examiner determines that the amendment does not necessitate additional search and/or consideration, or if the examiner determines that additional search and/or consideration is required and could be completed within the allotted time, then the examiner will consider whether the amendment places the application in condition for allowance (after completing the additional search and/or consideration, if required). If the examiner determines that the amendment does not place the application in condition for allowance, then the examiner will contact the applicant and request an interview.
            - The interview will be conducted by the examiner, and if the examiner does not have negotiation authority, a primary examiner and/or supervisory patent examiner will also participate.
            - If the applicant declines the interview, or if the interview cannot be scheduled within ten (10) calendar days from the date that the examiner first contacts the applicant, then the examiner will proceed consistent with current practice concerning responses after final rejection under 37 CFR 1.116.

Signature	Date
/David J Thibodeau Reg No 31671/	16 July 2019
Name (Print/Typed)	**Practitioner Registration No.**
David J. Thibodeau	31671

***Note**: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.*

☐ * Total of 1 forms are submitted.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	36601187
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	16-JUL-2019
Filing Date:	21-SEP-2016
Time Stamp:	16:53:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response After Final Action	20190715_111054-0001U4C7_TPO_Response_Final_w_AFCP.pdf	111373 8972de3d75120d608ee6c038b8192c153833693c	no	18

Warnings:

Information:					
2	After Final Consideration Program Request	20190715_111054-0001U4C7_TPO_AFCP_Request.pdf	226830 a19fc8f13c1b1809620c2954b48f26a98f0bac1b	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	338203	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/271,410	Filing Date 09/21/2016	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)			
FOR	NUMBER FILED	NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	07/16/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 25	Minus	** 30	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/LISA R WRIGHT/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

AFCP 2.0 Decision

Application No.	Applicant(s)	
15/271,410	Proctor et al.	
Examiner	**Art Unit**	**AIA (FITF) Status**
CRISTINA O SHERR	3685	No

This is in response to the After Final Consideration Pilot request filed 16 July 2019.

1. **Improper Request** – The AFCP 2.0 request is improper for the following reason(s) and the after final amendment submitted with the request will be treated under pre-pilot procedure.

   ☐ An AFCP 2.0 request form PTO/SB/434 (or equivalent document) was not submitted.

   ☐ A non-broadening amendment to at least one independent claim was not submitted.

   ☐ A proper AFCP 2.0 request was submitted in response to the most recent final rejection.

   ☐ Other: _____

2. **Proper Request**

   A. After final amendment submitted with the request will not be treated under AFCP 2.0.
   The after final amendment cannot be reviewed and a search conducted within the guidelines of the pilot program.

   ☐ The after final amendment will be treated under pre-pilot procedure.

   B. Updated search and/or completed additional consideration.
   The examiner performed an updated search and/or completed additional consideration of the after final amendment within the time authorized for the pilot program. The result(s) of the updated search and/or completed additional consideration are:

   ☐ 1. All of the rejections in the most recent final Office action are overcome and a Notice of Allowance is issued herewith.

   ☐ 2. The after final amendment would not overcome all of the rejections in the most recent final Office action . See attached interview summary for further details.

   ☑ 3. The after final amendment was reviewed, and it raises a new issue(s). See attached interview summary for further details.

   ☐ 4. The after final amendment raises new issues, but would overcome all of the rejections in the most recent final Office action. A decision on determining allowability could not be made within the guidelines of the pilot. See attached interview summary for further details, including any newly discovered prior art.

   ☐ 5. Other: _____

   Examiner Note: Please attach an interview summary when necessary as described above.

Petitioner Samsung Ex-1004, 1431

Examiner-Initiated Interview Summary	Application No. 15/271,410	Applicant(s) Proctor et al.	
	Examiner CRISTINA O SHERR	Art Unit 3685	AIA (FITF) Status No

All participants (applicant, applicant's representative, PTO personnel):

(1) CRISTINA OWEN. SHERR.

(2) Mohammad Nilforoush.

(3) David J. Thibodeau, RegNo 31,671.

(4) James Proctor (Inventor).

Date of Interview: 20 August 2019.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☑ No.
If Yes, brief description: _____.

Issues Discussed ☐ 101 ☑ 112 ☐ 102 ☐ 103 ☐ Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 45.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

The proposed amendment, in the context of the claim, the combination of steps is not supported by the Specification. No agreement was reached. See attached Form PTO-2323, PTO-303.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/Cristina Owen Sherr/ Examiner, Art Unit 3685	/Mohammad A. Nilforoush/ Primary Examiner, Art Unit 3685

Petitioner Samsung Ex-1004, 1432

See also attached forms PTO-413B and Form PTO-2323

DO NOT ENTER: /C.O.S/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of: James A. Proctor, Jr., et al.	
Serial No.: 15/271,410	Examiner: Sherr, Cristina Owen
Filed: September 21, 2016	Art Unit: 3685
For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED	Confirmation No.: 7653

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir/Madam:

RESPONSE TO FINAL OFFICE ACTION

This amendment is being filed in response to the Final Office Action dated June 3, 2019. An After Final Consideration Pilot 2.0 Request is also being filed herewith, and believed to be proper since at least one independent claim would be cancelled. Further consideration of the application is respectfully requested.

Amendments to the claims begin on page 2.

Remarks begin on page 11.

Petitioner Samsung Ex-1004, 1434

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/271,410	09/21/2016	James Arthur Proctor JR.	111054-0001U4C7	7653

86012 7590 08/27/2019

VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

EXAMINER	
SHERR, MARIA CRISTI OWEN	

ART UNIT	PAPER NUMBER
3685	

NOTIFICATION DATE	DELIVERY MODE
08/27/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@vlplawgroup.com

Petitioner Samsung Ex-1004, 1435

Advisory Action Before the Filing of an Appeal Brief	Application No. 15/271,410	Applicant(s) Proctor et al.	
	Examiner CRISTINA O SHERR	Art Unit 3685	AIA (FITF) Status No

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 16 July 2019 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☑ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires ____ months from the mailing date of the final rejection.
   b) ☑ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection.The current period for reply expires ____ months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☑ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☑ They raise the issue of new matter (see NOTE below);
   c) ☑ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: See Continuation Sheet (See 37CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicants reply has overcome the following rejection(s): _____
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☑ For purposes of appeal, the proposed amendment(s):(a) ☑ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☑ Other: See also attached forms PTO-413B and Form PTO-2323.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed:_____.
    Claim(s) objected to:_____.
    Claim(s) rejected:2,4,8,12-13,15,17,35 and 41-59.
    Claim(s) withdrawn from consideration:_____.

/Cristina Owen Sherr/ Examiner, Art Unit 3685	/Mohammad A. Nilforoush/ Primary Examiner, Art Unit 3685

Petitioner Samsung Ex-1004, 1436

Continuation of 3. NOTE: Regarding claim 45, the specification does not support performing "receiving, using the first radio identifier related information associated with a proximity beacon service, from one or more servers," and then also performing "d) sending the unique identifier, using the first radio, to at least one server of the one or more servers," and "e) receiving further information relating to the entity or object associated with being within proximity to the mobile device," in a single method in the context of the rest of the claim, and specifically, in combination with also performing the steps of "receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI)" and "c) determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier associated with the particular short range transmission." Claim 50 also recites similar limitations.

See also attached forms PTO-413B and Form PTO-2323

Electronic Acknowledgement Receipt

EFS ID:	37050333
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	03-SEP-2019
Filing Date:	21-SEP-2016
Time Stamp:	15:42:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$400
RAM confirmation Number	E201993F42407498
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Notice of Appeal Filed	20190903_111054-0001U4C7_TPO_Notice_Appeal.pdf	259646 d648343ae8e711b9712bc91a9437655d042f6943	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30551 320b0f76d4106465f57594eca43dc6ab1451f380	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	290197		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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Electronic Patent Application Fee Transmittal

Application Number:	15271410
Filing Date:	21-Sep-2016
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Filer:	David J. Thibodeau/Elisabeth Smith
Attorney Docket Number:	111054-0001U4C7

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
NOTICE OF APPEAL	2401	1	400	400
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**400**

PTO/AIA/31 (03-14)
Approved for use through 11/30/2020. OMB 0651-0031
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NOTICE OF APPEAL FROM THE EXAMINER TO THE PATENT TRIAL AND APPEAL BOARD

Docket Number (Optional)
111054-0001U4C7

I hereby certify that this correspondence is being facsimile transmitted to the USPTO, EFS-Web transmitted to the USPTO, or deposited with the United States Postal Service with sufficient postage in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, on Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on September 3, 2019.

Signature /Elisabeth Smith/

Typed or printed name Elisabeth Smith

In re Application of
James Arthur Proctor

Application Number	Filed
15271410	2016-09-21

For
EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETER..

Art Unit	Examiner
3685	SHERR, MARIA CRISTI OWEN

Applicant hereby **appeals** to the Patent Trial and Appeal Board from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $ 800.00

☑ Applicant asserts small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by 50%, and the resulting fee is: $ 400.00

☐ Applicant certifies micro entity status. See 37 CFR 1.29. Therefore, the fee shown above is reduced by 75%, and the resulting fee is: $ _____
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. _____.

☑ Payment made via EFS-Web.

☐ A petition for an extension of time under 37 CFR 1.136(a) (PTO/AIA/22 or equivalent) is enclosed.
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WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant

☑ attorney or agent of record
Registration number 31671

☐ attorney or agent acting under 37 CFR 1.34
Registration number _____

Signature /David J Thibodeau Jr Reg No 31671/

Typed or printed name David J. Thibodeau, Jr.

Telephone Number 617-925-5520

Date September 3, 2019

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

This collection of information is required by 37 CFR 41.20(b)(1) and 41.31. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	37236818
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau
Filer Authorized By:	
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	23-SEP-2019
Filing Date:	21-SEP-2016
Time Stamp:	10:07:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition automatically granted by EFS	petition-request.pdf	38386 b7335e16345771ad90dc733629ddb8d66d7a9838	no	2

Warnings:

Information:	
Total Files Size (in bytes):	38386

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New International Application Filed with the USPTO as a Receiving Office

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UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
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In re Application of
James Arthur Proctor

Application No. 15271410
Filed: September 21,2016

Attorney Docket No. 111054-0001U4C7

:
:
:DECISION ON PETITION TO MAKE SPECIAL
:UNDER 37 CFR 1.102(c)(1)
:

This is a decision on the electronic petition under 37 CFR 1.102 (c)(1), filed 23-SEP-2019 to make the above-identified application special based on applicant's age as set forth in MPEP § 708.02, Section II.

The petition is **GRANTED**.

A grantable petition to make an application special under 37 CFR 1.102(c)(1), MPEP § 708.02, Section II : Applicant's Age must include a statement by applicant or a registered practitioner having evidence that applicant is at least 65 years of age. No fee is required.

Accordingly, the above-identified application has been accorded "special" status and will be taken up for action by the examiner upon the completion of all pre-examination processing.

Telephone inquiries concerning this electronic decision should be directed to the Electronic Business Center at 866-217-9197.

All other inquiries concerning either the examination or status of the application should be directed to the Technology Center.

Doc code : PET.OP.AGE
Description : Petition to make special based on Age/Health

PTO/SB/130 (07-09)

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PETITION TO MAKE SPECIAL BASED ON AGE FOR ADVANCEMENT OF EXAMINATION UNDER 37 CFR 1.102(c)(1)

Application Information

Application Number	15271410	Confirmation Number	8601	Filing Date	21-Sep-2016
Attorney Docket Number (optional)	111054-0001U4C7	Art Unit	3685	Examiner	MARIA CRISTI SHERR
First Named Inventor	James Arthur Proctor				
Title of Invention	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED				

Attention: Office of Petitions

An application may be made special for advancement of examination upon filing of a petition showing that the applicant is 65 years of age, or more. No fee is required with such a petition. See 37 CFR 1.102(c)(1) and MPEP 708.02 (II).

APPLICANT HEREBY PETITIONS TO MAKE SPECIAL FOR ADVANCEMENT OF EXAMINATION IN THIS APPLICATION UNDER 37 CFR 1.102(c)(1) and MPEP 708.02 (II) ON THE BASIS OF THE APPLICANT'S AGE.

A grantable petition requires one of the following items:
(1) Statement by one named inventor in the application that he/she is 65 years of age, or more; or
(2) Certification by a registered attorney/agent having evidence such as a birth certificate, passport, driver's license, etc. showing one named inventor in the application is 65 years of age, or more.

Name of Inventor who is 65 years of age, or older

Given Name	Middle Name	Family Name	Suffix
James	A.	Proctor	III

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18.
Please see 37 CFR 1.4(d) for the format of the signature.

Select (1) or (2) :

○ (1) I am an inventor in this application and I am 65 years of age, or more.

◉ (2) I am an attorney or agent registered to practice before the Patent and Trademark Office, and I certify that I am in possession of evidence, and will retain such in the application file record, showing that the inventor listed above is 65 years of age, or more.

Signature	/David J Thibodeau Jr Reg No 31671/		
Name	David J. Thibodeau, Jr.	Registration Number	31671

EFSWeb 1.0.18

PTO/SB/130 (07-09)
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about indivi duals.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: James A. Proctor, Jr., et al.	
Serial No.: 15/271,410	Examiner: Sherr, Cristina Owen
Filed: September 21, 2016	Art Unit: 3685
For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED	Confirmation No.: 7653

Sir/Madam:

APPEAL BRIEF

Appellant hereby submits this Appeal Brief in response to the Final Office Action dated June 3, 2019 and the Advisory Action dated August 27, 2019, and in furtherance of the Notice of Appeal filed September 3, 2019.

Appellant requests that the Office continue to treat this application and this appeal as a "special case" to be advanced out of turn under the procedures for MPEP 1203(II). A Request for Prioritized Examination was granted on September 7, 2018 and a Petition to Make Special Due to Age was granted on September 23, 2019.[1]

[1] "If the Applicant remains diligent, an application for patent that has once been made special and advanced out of turn by the United States Patent and Trademark Office (Office) for examination shall continue to be special throughout its entire course of prosecution in the office, including appeal, if any, to the Board. See MPEP 708.01."

Petitioner Samsung Ex-1004, 1449

TABLE OF CONTENTS

I. Real Party Interest 5

II. Related Appeals and Interferences 5

III. Summary of Claimed Subject Matter 6

IV. Issues on Appeal 9

V. Argument 10

1. Claim Rejections – 35 USC 101 10

(a) Neither "determining the location of a device" nor "determining that the device is in proximity to one of the locations on a list" are actually recited in the claims
.....10

(b) The claims actually recite using particular aspects of wireless transmissions received from two different radios
.....10

(c) "Determining proximity" is recited in the claims – but not "determining location" or "determining distance".....11

(d) "Determining distance is not a "certain method of organizing human activity"; nor have related concepts such as "determining location" been found abstract by the Courts
.....12

(e) The Appellant's claimed invention provides several practical effects..13

(f) Several of the dependent claims provide the Alice/Mayo "Step 2A" practical effect
..... 15

(g) "Significantly more" is certainly present 18

2. Claim Rejections – 35 USC 112, First Paragraph 21

(a) The specification demonstrates not just one, but several ways that

Petitioner Samsung Ex-1004, 1450

(i) one of these identifiers (the claimed "PBSI") is used to indicate that the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service and that

(ii) another identifier (the claimed "unique identifier") is used along with "identifier related information" to determine if an entity or object associated with the proximity beacon service is in proximity *21*

(b) The "proximity beacon transmissions" described in the specification include a "MAC address of the station device or the network adaptor", a "BSSID", and an "SSID" which serve as the claimed "MAC address", "PBSI" and "unique identifier", in various embodiments *22*

(c) The "identifier related information" is the information returned when the mobile device makes an inquiry to the server, in some embodiments ...24

(d) The specification also explains how the "unique identifier" is used along with the "identifier related information" to determine that "an entity or object" is in proximity *25*

(e) All of the questioned elements of claim 1 are found, and since claim 31 contains similar language, and since the dependent claims were not rejected for additional reasons, the rejection under 35 USC of all claims should be withdrawn *26*

(f) The specification actually teaches other ways to implement each of these claimed features *26*

(g) In other embodiments, the determination that a "device or entity" is in proximity still depends on both the unique identifier and the identifier related information *28*

(h) The Advisory Action's treatment of the claims is also erroneous..30

3. Claim Rejections – 35 USC 103 ..... *32*

(a) A person of skill in the art would not be motivated to combine Sundar with Zaks *32*

Petitioner Samsung Ex-1004, 1451

(b) *Any combination of Sundar in view of Zaks is also incompatible with certain of Applicant's dependent claims in which MAC addresses change, such as Claims 4, 17, 35 and 42* ……33

(c) *Even if motivation exists to combine Sunder and Zaks, the Final Office Action admits that Sundar does not disclose the claimed "unique identifier"; and Zaks also does not disclose the claimed "unique identifier"* ……35

(d) *Claim 4, 17, 35 and 42 (and other dependent claims) require "changing identifiers"- also not taught in Sundar or Zaks* ……36

(e) *Claim 45 and 50 require "sending the unique ID to a server" and "receiving further information related to an entity or object associated with being in proximity to the device"* …… 37

(f) *Claims 44 and 46 further require "preventing the sending of the unique identifier…based on previous detections of the respective unique identifier"* ……37

(g) *Claims 2, 8, 12, 13, 15, 41, 47-49, and 52-60 each depend from an allowable base claim 1 or claim 31, and thus are allowable for the same reasons stated above* ……38

(h) *The Office Action errs in concluding that "nonfunctional descriptive material" cannot serve to distinguish from the prior art*…… 38

4. *Conclusion* ……40

VI. *Claims Appendix* ……41

Petitioner Samsung Ex-1004, 1452

I. REAL PARTY IN INTEREST

The real party in interest is Proxicom Wireless, LLC by way of assignments as recorded at the U.S. Patent and Trademark Office at Reel/Frame 040276/0954 on November 10, 2016 and at Reel/Frame 040275/0722, also on November 10, 2016.

II. RELATED APPEALS AND INTERFERENCES

A judicial proceeding in the United States District Court, Middle District of Florida, Orlando Division, entitled "Proxicom Wireless, LLC v. Macy's, Inc. and Macy's Florida Stores, LLC (No. 6:18-cv-64-Orl-37GJK), now concluded, involved several patents that claim priority to the same applications as the application involved in this appeal.

Other than the judicial proceeding listed above, there are no other prior or pending appeals, interferences, trials before the Board, or judicial proceedings (collectively, "related cases") which satisfy all of the following conditions: involve an application or patent owned by the appellant or assignee, are known to appellant, the appellant's legal representative, or assignee, and may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

Petitioner Samsung Ex-1004, 1453

III. SUMMARY OF CLAIMED SUBJECT MATTER

In the following summary, Appellants have provided example references to sections of the specification and drawings in parenthesis showing support for the subject matter defined in the claims, as required by 37 C.F.R. §41.37. But the specification and drawings also include additional support for other example embodiments encompassed by the claimed subject matter. Thus, the references in this section are only intended to be illustrative and not restrictive.

Briefly, the Appellant's invention uses a certain type of radio transmission, called a proximity beacon, to activate special services when wireless devices are detected near one another. In the approach set forth in the claims, as more fully explained below, a wireless device uses two radios for this purpose. A first radio receives, from a server, "identifier related information" associated with the service. The second radio receives a so-called short-range transmission. When a short range transmission has a particular format - e.g., a so-called proximity beacon transmission - then that fact can be used, together with the received "identifier related information", to determine that an entity or object associated with the service is in proximity.

The pending independent claims 1 and 31 are reproduced below, with citations to pages (p.) and lines (ll.) containing supporting passages from the originally filed specification and drawings shown in parentheses.

1. A mobile wireless device **(Figure 1, device 108)** comprising:
a first radio **(p. 11 ll. 3-5, Figure 1, WWAN Link 1 104)**;
a second radio **(p. 11 ll 1-3, Figure 1, Local Link 107)**;
one or more processors **(p.10 ll.7-28)**;
one or more non-transitory memory devices coupled to the one or more processors, the one or more non-transitory memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including **(p.10 ll.13-16)**:

Petitioner Samsung Ex-1004, 1454

receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers **(p.18 ll.6-8, Figs. 6 and 7, step 704)**;

receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier , and a proximity beacon service identifier (PBSI) **(p. 17 ll.8-19, p. 18 ll.6-8, Figure 6 and Figure 7, step 704)**;

determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service **(p. 17 ll 8-20, p. 18 ll. 10-12, Figure 6, Figure 7, step 705; see also p.13 ll.7-12 and Figure 3)**;

then:

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier **(p. 18 ll.12-22, Figure 7, steps 705 and 706); see also p.13 ll.19-27 and Figure 3; see also p.19 ll.10-18 and Figure 8A** .

31. A method for facilitating use of proximity beacons, the method executing within a mobile device **(p. 10, ll 7-28, Figure 1, device 108)**, and the method comprising:

communicating between the mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio **(p. 11 ll. 3-5, Figure 1, WWLAN Link 1 104, and p.18 ll.6-8, Figures 6 and 7, step 704)**;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, **(p. 11 ll 1-3, Fig. 1, Local Link 107)** including a plurality of proximity beacon transmissions from one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier (UID), and a proximity beacon service identifier (PBSI) **(p. 17 ll.8-20, p. 18 ll.6-8, Figures 6 and 7, step 704)**;

Petitioner Samsung Ex-1004, 1455

a) determining that a particular short range transmission of the plurality of short range transmissions includes a MAC address,

b) determining that the proximity beacon service identifier (PBSI) is present, and

c) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service **(p. 17 ll 8-20, p. 18 ll. 10-12, Figure 7 step 705; see also p.13 ll.7-12 and Figure 3)**; and

when the three determining steps a) b) and c) are each true, then d) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier **(p. 18 ll.12-22, Figure 7, steps 705 and 706; see also p.13 ll.19-27 and Figure 3; see also p.19 ll.10-18 and Figure 8A.))**.

Petitioner Samsung Ex-1004, 1456

IV. *ISSUES ON APPEAL*

1. Whether the claims 1-2, 4, 8, 12-13, 15, 17, 31, 35, and 41-42 and 44-60 are directed to an abstract idea without significantly more, and thus deemed ineligible subject matter by the courts under 35 USC 101;

2. Whether claims 1-2, 4, 8, 12-13, 15, 17, 31, 35, 41-42 and 44-60 comply with 35 USC 112, first paragraph (pre-AIA), which requires the specification to contain a written description of the invention sufficient to enable one of skill in the art to make and use the invention; and

3. Whether the claims are obvious under 35 USC 103 namely:

   whether claims 1, 8, 12, 13, 45, 47-50, and 52-60 are obvious under pre-AIA 35 U.S.C. 103(a over Sundar et al (US 2003/0134650) in view of Zaks (2010/0020746);

   and

   whether Claims 2, 4, 15, 17, 41-42, 44, and 46 unpatentable over Sundar and Zaks and in further view of Sugiyama et al (US 2006/0032901)

Petitioner Samsung Ex-1004, 1457

V. ARGUMENT

1. CLAIM REJECTIONS – 35 USC 101

(a) Neither "determining the location of a device" nor "determining that the device is in proximity to one of the locations on a list" are actually recited in the claims

The basis of this rejection is the statement in Paragraph 24 of the Final Action that

> "The claim(s) recite(s) determining distance. Specifically, the claims recite an algorithm that involves receiving a list of identifiers or locations, determining the location of a device, and determining that the device is in proximity to one of the locations on the list, which is grouped within the "certain methods of organizing human activity" grouping of abstract ideas.."

However, nowhere in the claims are a "list of locations" or "determining the location of a device" actually mentioned. Nor do the claims mention "distance" anywhere. The rejection errs by failing to consider any of the actual language in the claims, and therefore should therefore be withdrawn for that reason alone.

(b) The claims actually recite using particular aspects of wireless transmissions received from two different radios

The claims actually recite a mobile wireless device that receives multiple short range transmissions within one radio, and then determines if they have a specific format which qualifies them as a "proximity beacon transmission" belonging to a "proximity beacon service".

If the short range transmission does have that format, then the mobile device performs another step – and uses two pieces of information to determine if an entity or object is in proximity to the mobile device: 1) a "unique identifier" (as was received as part of the proximity beacon transmission from a first radio), and

Petitioner Samsung Ex-1004, 1458

2) "identifier related information, received from a server (received using a second, different radio).

Nowhere do the claims provide for comparing a "list of locations" with a determined location of the mobile device, and then "determining that the device is within proximity to one of the locations on the list".

(c) "Determining proximity" is recited in the claims – but not "determining location" or "determining distance"

The Applicant's prior responses have explained that "determining proximity" is not the same thing as "determining distance". Likewise, "determining proximity" is not the same thing as "determining location"[2]. The Final Office action continues to improperly confuse and/or equate these concepts in a way that is inconsistent with the usual meaning of those words, and inconsistent with the Applicant's specification.

For example, "determining distance" necessarily involves some measurement of a physical dimension such as feet, or yards, or kilometers.

"Determining location" necessarily involves resolving the position of a thing with regard to some known position.

On the other hand, "determining proximity" (in the context of the wireless devices of the claimed invention and in light of the specification as filed), involves determining whether the two wireless devices are close enough to receive wireless beacon transmissions, regardless of their actual physical location.

With regard to the actually claimed invention in light of the specification, the description actually teaches away from first determining a "location" of a mobile device as part of the process of determining proximity. See for example:

[2] See at least the Response to Office Action dated January 23, 2019.

Petitioner Samsung Ex-1004, 1459

> ("This differs from the approaches employed by prior art location aware mobile social networking techniques in that no GPS is needed to determine when one device is in proximity to another. Many wireless devices in use are not GPS-capable, and even when they are, GPS will often not operate indoors or where the GPS signal is weak. Using a peer to peer detection process to locate nearby devices allows for the operation of proximity detection indoors." (p.6 ll.5-10),

and

> "Finally, because this method is proximity based it will also work indoors or in other situations where GPS location information is not available." (p.7. ll.25-26)

To be clear, one particular way of determining a location of a mobile device may include first determining "proximity" to other devices using radio transmissions with other nearby devices, as disclosed in the specification (p. 5 ll.8-10). But that does not amount to determining "location" in and of itself. For example, a location cannot be determined according to the claimed proximity detection approach without performing additional steps and without receiving additional information. As the specification explains:

> "By utilizing the central server 100, broadcast devices may be tied to a location or product thereby providing relevant information about the location such as in the museum tour example previously discussed." (p.14 ll. 16-18)

(d) "Determining distance is not a "certain method of organizing human activity"; nor have related concepts such as "determining location" been found abstract by the Courts

The Office Action offers no reason why claims directed to "determining distance" are "a method of organizing human activity". Determining distance is not on its face a fundamental economic principle; a commercial or legal interaction; managing personal behavior or relationships or interactions between people, as defined in in the U.S. Patent Office's 2019 Revised Patent Subject Matter Eligibility Guidance (84 Fed. Reg. 50, 52).

Petitioner Samsung Ex-1004, 1460

In fact, claims which determine distance or relative location have actually been found to NOT be abstract by the Court of Appeals for the Federal Circuit, on at least two occasions.

Once such case is *Thales Visionix Inc. v. United States and Elbit Systems of America, LLC*, 850 F.3d 1343 (Fed. Cir. 2017) where the claimed invention determined the location of a tracked object relative to a moving reference frame. The CAFC found that such claims were not directed to an abstract idea.

Also analogous to the present case was the CAFC's consideration of *SiRF Technology Inc. v. International Trade Commission,* 601 F.3d 1319 (Fed. Cir. 2010). That case involved an invention that computed the position of a satellite signal receiver. The claims in that case were also found to be patent-eligible. As in SiRF, the programmed processors in the present case also "act in concert with the radios" to enable the mobile devices to make a determination of their location.
The Applicant's claimed invention does not seek to tie up all ways of "determining proximity", but only rather by using specially formatted radio transmissions received by two different radio receivers.

(e) The Appellant's claimed invention provides several practical effects

The USPTO's 2019 Guidelines also correctly instruct that a claim cannot be "directed to" a judicial exception under 35 USC 101, if the claim "integrate the exception into a practical application."

Example method claim 31 provides (claim 1 is similar):

> a) determining that a particular short range transmission of the plurality of short range transmissions includes a MAC address,
>
> b) determining that the proximity beacon service identifier (PBSI) is present, and

Petitioner Samsung Ex-1004, 1461

c) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service; and

when the three determining steps a) b) and c) are each true, then d) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier.

As a result, when a particular short range transmission is NOT associated with the proximity beacon service, the further step of "determining whether an entity or object is in proximity" is not performed.

This claimed sequence of operations thus prevents the mobile device from performing steps that it would otherwise be forced to execute. For, example, identifiers that are not associated with the beacon service will not be passed to the final "determining" step. Otherwise, the mobile device would potentially by flooded with processing other types of transmissions that have identifiers, for which it is not concerned, such as identifiers for services other than the beacon service. This in turn at a minimum saves processing time, reduces the drain on a mobile device's battery, and frees the mobile device to perform other tasks.

Perhaps even more importantly, the claimed invention provides a practical effect in that it permits determining proximity in a situation where access to a GPS may not be available (such as when the wireless devices are indoors). The very beginning of the specification even explains this problem with the prior art:

> One problem with GPS based mobile application involves the GPS receiver not receiving sufficient signal strength in many indoor locations. As a result, these enhanced capabilities have typically been targeted at either navigation to a specified location... (p. 2 ll.13-16)

See also

> "This differs from the approaches employed by prior art location aware mobile social networking techniques in that no GPS is needed to

Petitioner Samsung Ex-1004, 1462

> determine when one device is in proximity to another. Many wireless devices in use are not GPS-capable, and even when they are, GPS will often not operate indoors or where the GPS signal is weak. Using a peer to peer detection process to locate nearby devices allows for the operation of proximity detection indoors." (p.6 ll.—10),

and

> "Finally, because this method is proximity based it will also work indoors or in other situations where GPS location information is not available." (p.7 ll.25-26)

Thus, the invention addresses a practical problem in a new way – providing proximity-based services in a power-efficient manner, and where they would not otherwise be available.

(f) Several of the dependent claims provide the Alice/Mayo "Step 2A" practical effect

Further arrangements recited in certain of the dependent claims additionally provide for a significant reduction in data traffic (and further reduce power consumption), by only using the first radio to communicate the unique identifier to the server when the proper type of identifier is detected. This reduction in traffic and power related to the first radio is based upon the prevention of the sending of unique identifiers to the server when a received short range transmission is not associated with the proximity beacon service.

Further specific examples of practical effects in dependent claims include the following:

Dependent Claims 44 and 46:

For example, at least claims 44 and 46 provide such a further practical effect, since they require a further step of "preventing the sending of the unique identifier…to the one or more servers, based on previous detections of the respective unique identifier associated with the proximity beacon transmission".

Petitioner Samsung Ex-1004, 1463

These claims thus provide a practical effect of reducing the amount of subsequent data that would otherwise be transmitted, in addition to the discussed prevention of processing and transmission related to "unqualified" short range transmissions (those not associated with the proximity beacon service discussed above). Thus, further power consumption of the wireless devices is reduced due to reduced processing requirements for the detection of subsequent beacon transmissions and reduced interaction with the server.

Such an arrangement provides for a significant reduction in data traffic (and power consumption) using the first radio to communicate the unique identifier to the server to receive the now claimed "further information".

In other words, when a particular short range transmission is *NOT* associated with the proximity beacon service (e.g. does not have the required format), the subsequent steps of sending the unique identifier to the server using the first radio, and receiving the further information, will not occur.

Dependent Claim 47:

Other claims, such as claim 47, require "controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device". Such an arrangement also permits two wireless devices, which are initially in proximity to one another, to also continue to communicate with each other even after they move out of radio range.

Dependent Claim 48:

With claim 48, a trusted third party now can control whether access is gained to the entity or object in proximity (as opposed to the mobile device itself) as it requires

> receiving, using the first radio, access code information by the mobile device from at least one of the servers; and

Petitioner Samsung Ex-1004, 1464

utilizing the access code information to gain access to the entity or object determined to be in proximity to the mobile device.

This, too, provides a practical application.

Dependent Claims 4, 17, 35, and 42:

Certain other dependent claims (such as claims 4, 17, 35 and 42) additionally allow for detecting an entity or object in proximity despite the changing of the unique identifier used to associate that entity or object with being in proximity. Such capabilities provide further provide a practical effect, in the form of significant security and privacy enhancements.

It was noted in the specification that the prior art has a distinct problem in this regard:

> "A further disadvantage is that all information to be exchanged must be stored locally on each of the peer devices as the communication occurs directly between the two devices and any policy for the delivery of locally stored content is difficult to enforce without the potential for fraud such as spoofing identities between the peers. Such fraud may lead to concerns of personal safety or privacy allowing the identity of an individual to be determined when it is not desired." (p. 4 ll 1-6)

and that the invention provides a solution:

> "A further distinction of the preferred embodiment is the use of a central server to determine identities of detected peer devices, which additionally allows for secure and fraud resistant application of policies for the disclosure of information and content. An issue with the existing pure peer to peer approaches is that they are not capable of enforcing policy associated with the disclosure of information to unknown entities in a secure and fraud resistant manor. One reason for this is that information related to a user's device must be disclosed in the process of detection in the form of a static identifier. By the nature of the identifier, it must be static, or peers would not be able to directly determine the identity of a friend over time with the information stored on their device. By using a central server, the system may coordinate the change of the identifiers from time to time such that the disclosure of an identifier by one device to

Petitioner Samsung Ex-1004, 1465

> another does not compromise the identity of the device. In this case the identifier may be assigned from a central server and such server coordinate the identifier's change from time to time." (p. 6 l.22 to p.7 l.6)

Dependent Claim 53:

Claims 53 includes a requirement that the further information relates to a nearby user of an application on another device, "in common with an application on the mobile device" and claim 54 further requires that the application may be a multiuser game. The claim 53 provides a practical effect, where the service is food delivery service offered at a venue such as a football game. (See the example at p. 29, ll.7-13 of the specification as filed).

In the scenario contemplated by claim 54, the user can now identify other players in proximity who also have access to the game.

(g) "Significantly more" is certainly present

For the reasons stated below in Section 3, each of the claims on appeal recites specific limitations or combination of limitations that are not obvious under 35 USC 103.

However, the Final Office Action concludes that all other parts of the claim beyond the supposed abstract idea "merely involve routine, conventional steps." But that conclusion is not supported by any findings of fact in the record, and certainly does not meet the burden of setting forth a *prima facie* case. As the CAFC explains in the case of *Berkheimer v HP, Inc.* (Fed. Cir. Feb. 8, 2018):

> At step two, we "consider the elements of each claim both individually and `as an ordered combination' to determine whether the additional elements `transform the nature of the claim' into a patent eligible application." *Alice,* 134 S. Ct. at 2355 (quoting *Mayo*, 566 U.S. at 78-79). The second step of the Alice test is satisfied when the claim limitations "involve more than performance of `well understood, routine, [and] conventional activities previously known to the industry.'" *Content Extraction,* 776 F.3d at 1347-48 (quoting *Alice*, 134 S. Ct. at 2359).

Petitioner Samsung Ex-1004, 1466

> The question of whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact. Any fact, such as this one, that is pertinent to the invalidity conclusion must be proven by clear and convincing evidence. See *Microsoft Corp. v. i4i Ltd. Partnership,* 564 U.S. 91, 95 (2011)

The Final Office Action provides no actual evidence that anything recited in Appellants' claims amount to "purely conventional" steps of "receiving data, transmitting data, and comparing data". To the contrary, all that is provided is an unsubstantiated conclusion.

The Federal Circuit's decision in the Berkheimer case prompted the Deputy Commissioner of U.S. Patent and Trademark Office (USPTO) to issue a memorandum on April 19,2018 – which explicitly changed the examination procedure pertaining to subject matter eligibility.

In that Memo, it was cautioned that the determination as to "whether something is well-understood, routine, and conventional to a skilled artisan at the time of the patent is a factual determination" and that an examiner should conclude that an element represents well-understood, routine, and conventional activity ***only when the examiner can readily conclude that the claimed elements are widely prevalent or in common use in the relevant industry***.

Moreover, the USPTO memorandum stated that even a showing under 35 U.S.C. § 102 and 103 is not sufficient to establish that the additional elements are well-understood, routine, conventional activities or elements to those in the relevant field.

The USPTO memorandum set forth four (4) possible ways to provide support for an allegation of a claim element being well-understood, routine, or conventional – but none of which have been satisfied by the present Final Office Action. The four ways are for the Examiner to:

Petitioner Samsung Ex-1004, 1467

(1) cite an express statement in the specification or to a statement made by an applicant during prosecution that demonstrates the well-understood, routine, conventional nature of the additional elements;
(2) cite to one or more court decisions discussed in MPEP § 2106.05(d)(II) as noting the well-understood, routine, conventional nature of the additional elements;
(3) a citation to a publication that demonstrates the well-understood, routine, conventional nature of the additional elements; or
(4) a statement that the examiner is taking official notice of the well-understood, routine, conventional naturel of the additional elements.

The Patent Office has not satisfied any of these four ways of establishing additional elements as being well-understood, routine, or conventional and thus, has not presented a prima facie case.

Here, the claims actually recite a "first radio" and a "second radio" respectively configured to receive identifier related information associated with a proximity beacon service, and beacon transmissions of a certain type (which must include a MAC address, a unique identifier, and a proximity beacon service identifier). The claims also require determining that at least one beacon transmitter device, entity, or object associated with the beacon service is in proximity in a very particular way - by utilizing the identifier related information.

Thus, any rejection of the claims as failing to provide "significantly more" must consider these elements as specifically claimed, without generalizing them. The Examiner carries the burden of actually proving that each of those elements are well-understood, routine, and conventional by one of (l)-(4) above, and not by merely alleging that "receiving information", "determining content of the information" and "determining distance" are in general are conventional.

Petitioner Samsung Ex-1004, 1468

Appellants respectfully submit that any analysis of the claimed features based on the principles set forth in the Berkheimer decision, as well as in following the guidance set forth in the USPTO memorandum based on Berkheimer, results in a finding that the claims recite substantially more than any alleged abstract idea. Therefore, the claims are statutory for this additional reason as well.

2. CLAIM REJECTIONS – 35 USC 112, FIRST PARAGRAPH[3]

(a) The specification demonstrates not just one, but several ways that
(i) one of these identifiers (the claimed "PBSI") is used to indicate that the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service and that
(ii) another identifier (the claimed "unique identifier") is used along with "identifier related information" to determine if an entity or object associated with the proximity beacon service is in proximity

The Final Office Action errs in concluding that the specification does not support the claimed proximity beacon transmission format, or that such proximity beacons do not indicate association with a proximity beacon service.

The Final Office Action also errs by considering only a single phrase of a single paragraph in the specification when it further concludes that the clamed manner of determining proximity – using both the unique identifier and the identifier related information - is not disclosed[4].

---

[3] This application claims priority to applications filed in 2008 and 2009 (See the Official Filing Receipt dated October 4, 2016. All rejections previously made to such priority claims were withdrawn (See the Office Action dated November 19, 2018). Thus, the application is entitled to a filing date prior to the 2012 effective date of the America Invents Act ("AIA"). Thus the "pre-AIA" version of 35 USC 112 applies.

[4] The 35 USC 112 rejection from the Final Office Action is repeated here for convenience– only a single phrase of a single paragraph of the specification was relied on:

> " The specification does not provide support for using one identifier (PBSI) to first indicate that a short range transmission is a proximity beacon transmission associated with the proximity beacon service, and then using a different identifier (unique identifier) to determine that an entity

Petitioner Samsung Ex-1004, 1469

As will be discussed in detail below, taking time to review the rest of the paragraph in context makes it clear that (i) one of these identifiers (the claimed "PBSI") is used to indicate that the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service and that (ii) another identifier (the claimed "unique identifier") is used along with "identifier related information" to determine if an entity or object associated with the proximity beacon service is in proximity.

> *(b) The "proximity beacon transmissions" described in the specification include a "MAC address of the station device or the network adaptor", a "BSSID", and an "SSID" which serve as the claimed "MAC address", "PBSI" and "unique identifier", in various embodiments*

The questioned claim limitations must not be considered in a vacuum, but rather in the context of the entire claim and in the context of what is taught in the specification. (DT to add Citation to case law)

Independent claim 1 (and similarly, independent claim 31) includes the limitation:

> receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI);

before reciting the questioned

---

or object associated with the proximity beacon service is in proximity to the mobile wireless device.

Paragraph 60 of the pre-grant publication of the specification (US 2017/0011425) states that one or more of the BSSID or SSID may be used to indicate that the beacons are associated with a service, but the specification does not disclose that one of these identifiers is used to indicate that the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service while another is used along with the identifier related information to determine if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device." (Final Office Action, at Paragraph 32).

Petitioner Samsung Ex-1004, 1470

determining … if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;

then:

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

The specification describes the "ad hoc" operation mode (as opposed to "infrastructure mode") as being the preferred embodiment when the network is a Wi-Fi network:

> "The second topology for Wi-Fi networks is the so-called Ad-Hoc mode of operations, referred to as an independent basic service set or IBSS." (p.17 ll.6-8)

and that

> ("In an IBSS all devices participating or advertising their interest in participating in an ad-hoc network transmit identifiers called beacons. These beacons contain the MAC address of the transmitting network adapter, the basic Service set identifier (BSSID), and ad-hoc network name or service set identity (SSID).") (p.17 ll.8-11)

That very same paragraph then goes on to explain different ways to assign these beacon transmission fields to the three claimed featured purposes: a MAC address, a "Proximity Beacon Service Identifier (PBSI) and a "unique identifier'. The following table contains one such assignment (footnotes to the table contain citations to the supporting sections of the specification):

Petitioner Samsung Ex-1004, 1471

	MAC address	PBSI	Unique Identifier
Embodiment 1	MAC address of the station device or network adapter[5]	BSSID[6]	SSID[7]

Thus, in this "Embodiment 1", the claimed "MAC address" is the MAC address of the station or the network adapter, claimed "PBSI" is the BSSID field of the beacon, and the claimed "unique identifier" is the SSID field of the beacon[8].

(c) *The "identifier related information" is the information returned when the mobile device makes an inquiry to the server, in this embodiment*

Figure 7 and the associated text, explaining how identifier DI2 is sent to the server and how EI2 is returned to the mobile device, certainly provide support for this part of the claim.

In particular and associated with some embodiments, the "identifier related information" is that information received from the server in response to the mobile device sending the unique identifier. These embodiments are specifically captured at least in dependent

[5] "These beacons contain the MAC address of the transmitting network adapter, the basic Service set identifier (BSSID), and ad-hoc network name or service set identity (SSID). See p. 17 ll. 9-11.

[6] "There are several embodiments related using the IBSS beacons and the identifiers. First the identifier may be used as the MAC address of the station device or network adapter, and one or both the BSSID and the SSID may be used to indicate these particular beacons are associated with a service. See p. 17 ll.16-18.

[7] "In other embodiments, one or more of the BSSID and the SSID may be used as the identifier." See p.17 ll.18-19.

[8] Patent claims do not lack enablement solely because they embrace different or even inoperative embodiments, provided that artisans in the field would know how to determine, without undue experimentation, which embodiments would work. See *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 750 F.2d 1569, 1576-77 (Fed. Cir. 1984).

Petitioner Samsung Ex-1004, 1472

claims 49, 57, 59. As described at page 18 of the specification and the flow chart of Figure 7, this is provided by step 705 as follows:

> The device identifier associated with Device 2 (703), DI2 is thereby detected. Device 1 (702) then transmits an inquiry message 705 using the WWAN (cellular data link such as GPRS, EDGE, 1xEV-DO, IS-2000, Wi-Max, LTE, or the like) to the server 701 inquiring if information related to the account and entity associated with DI2 is relevant, and available to the entity EI1 associated with Device 1 (702). See p.18 ll.8-12.

As per Figure 7, Device 1 then sends an inquiry containing that detected identifier – DI2- to the server (step 705), and receives "identifier related information" back (e.g., the "entity identifier EI2") in step 706 and notifies the user in step 707:

> [..] The server having determined that EI1 wants to be notified and is allowed to be notified responds in Step 706 to Device 1 (702) with a message indicating the DI2 is relevant to EI1 and including information such as Entity Identifier EI2 and associated details. A user application on Device 1 (702) notifies the user that the entity associated with Device 2 is in proximity in step 707[9]. See p.18 ll.9-12.

> *(d) The specification also explains how the "unique identifier" is used along with the "identifier related information" to determine that "an entity or object" is in proximity*

The flow of Figure 7 and associated text also show that a "user application" running on the mobile device then uses the detected unique identifier (DI2) and the entity-related information (EI1) returned from the server to notify a user that a specific entity is in proximity. See for example step 707 and the associated text (p.18 ll.17-22):

> The server having determined that **EI1** wants to be notified and is allowed to be notified responds in Step **706** to Device **1 (702)** with a message indicating the **DI2** is relevant to **EI1** and including information such as Entity Identifier **EI2** and associated details. A user application on Device **1 (702)** notifies the user that the entity associated with Device **2** is in proximity in step **707**.

[9] Note here that same page explains how "relevance", as that word is used in the specification, means that the entity associated with Device 2 is "in proximity". See the reference to "information related to the account and entity associated with DI2 is relevant and available" at p.18 ll.11-12, and "A user application notifies the user that the entity associated with Device 2 is in proximity in step 707" p.18 ll.20-22.

Petitioner Samsung Ex-1004, 1473

Both the unique identifier (DI2 in this example) and the identifier related information from the server (EI2 in this example) - that is both DI2 and EI2 - are thus used in the proximity determination of the entity associated with the service by the user application running on mobile Device 1.

(e) All of the questioned elements of claim 1 are found, and since claim 31 contains similar language, and since the dependent claims were not rejected for additional reasons, the rejection under 35 USC 112 of all claims should be withdrawn

For the reasons stated above, all elements of claim 1 are present and taught in the specification.

Claim 31 contains the same or analogous language as claim 1.

All other claims in the application either depend directly or indirectly from either claim 1 or claim 31. Since no other reasons are stated in the Final Office Action for rejection of such claims, they too are allowable.

(f) The specification also teaches other ways to implement each of these claimed features.

The U.S. Supreme Court has recognized that an Applicant is entitled (indeed encouraged) to disclose multiple embodiments in a patent specification. A patent is invalid for indefiniteness only "if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty those skilled in the art about the scope of the invention." See *Nautilus v. Biosig Instruments*, 134 S. Ct. 2120, 2129 (2014).

Petitioner Samsung Ex-1004, 1474

In the present case, the specification also explain how parts of the proximity beacon transmission can be assigned in other ways to provide the claimed PBSI and unique identifier.

As referred to above, either the "SSID alone" or "both of the SSID and BSSID" can serve as the PBSI. In such other embodiments, the "unique identifier" can then be one of the BSSID or the SSID (e.g., "any" of the three parts of an ad-hoc beacon transmission which are not used as the PBSI may serve as the "unique identifier").

One of skill in the art understands that different assignments of the parts of the proximity beacon transmission will work, as long as they are not inconsistent or do not conflict with each other.

For example, when the SSID is used as the PBSI, then that same SSID field cannot also serve a conflicting purpose as the "unique identifier". In such an embodiment, the unique identifier could be the station's MAC address to avoid such a conflict[10]. The "second" MAC address would then be the BSSID (which is explained as having the format of a MAC address[11]), and because the BSSID is not serving as the PBSI in this embodiment).

Thus, in this "Embodiment 2" the three fields are assigned as follows (with supporting citations in the footnotes):

[10] As noted elsewhere, the unique identifier can be the BSSID, and the MAC address can be the MAC address of the station device in yet other embodiments.

[11] "These beacons contain the MAC address of the transmitting network adapter, the basic Service set identifier (BSSID), and ad-hoc network name or service set identity (SSID). *The BSSID in a typical ad-hoc network is generated by the first station to enter the BSSID and is locally administered, typically a randomly generated 48 bit number matching the format of a MAC address."* p.17 ll.9-14.

Petitioner Samsung Ex-1004, 1475

	MAC Address	PBSI	Unique Identifier
Embodiment 2	BSSID[12] (a MAC Address)	SSID[13]	MAC address of the station device or network adapter [14]

Indeed, there are not just the two embodiments for the "unique identifier" in the two tables shown above. One of skill in the art would appreciate, after reading the above-cited sections, that the transmitter's MAC address may be the unique identifier, the BSSID may be the unique identifier (also in the format of a MAC address as discussed above), and the SSID (e.g. the network name) may be the unique identifier.

(g) In other embodiments, the determination that a "device or entity" is in proximity still depends on both the unique identifier and the identifier related information

Take for example Figure 3, which is a flow diagram of the operations performed at the mobile device and explained at page 13 of the specification as one possible implementation. The "action function **303**" is described as a "filter" which determines which of the detected identifiers are passed to the server, which also uses the "unique identifier" (as detected by the mobile) and "identifier related information" to determine proximity. Consider that the "identifier related information" (previously downloaded in this embodiment) is compared to the detected identifier (the unique identifier) in an

[12] "These beacons contain the MAC address of the transmitting network adapter, the basic Service set identifier (BSSID), and ad-hoc network name or service set identity (SSID). *The BSSID in a typical ad-hoc network is generated by the first station to enter the BSSID and is locally administered, typically a randomly generated 48 bit number matching the format of a MAC address."* p.17 ll.9-14.

[13] "First the identifier may be used as the MAC address of the station device or network adapter, and one or both the BSSID and ***the SSID*** may be used to indicate these particular beacons are associated with a service". p.17 ll.16-18.

[14] "[the] identifier may be used as the MAC address of the station device or network adapter" p. 17 ll.16-17, See also
"In the preferred embodiment, where the MAC address is used for the identifier, all the devices participating would likely have the same network name and SSID to aid in the identification of the device as being enabled" at ¶60. It should be noted that the "SSID" is the "network name", See "("These beacons contain the MAC address of the transmitting network adapter, the basic Service set identifier (BSSID), and ad-hoc network name or service set identity (SSID)" See p.17 ll.11-13.

Petitioner Samsung Ex-1004, 1476

"action function" that runs on the mobile device. These embodiments are more specifically claimed in at least dependent claims 8, 15, 56, 58. As the text explains:

> "If identifiers are found in 302, the device may employ an action function 303, which would act as a filter that determines which of the detected identifiers should be passed to the server. This function may instead be omitted, and all identifiers passed to the server 100. The idealized effect of the action function would be to reduce the number of requests to the server by not re-requesting recently requested identifiers which have already been passed to the server, for some period of time." p. 13 ll.7-12.
>
> "As an example of the overall process, a detected identifier may be relevant to the receiving device if the user associated with the detected identifier is listed in a "friends list" for the owner of the receiving device. If the identifiers for the individuals within the friends list have been passed to the device, the action function 303 may make this determination." p. 13 ll.19-27.

These two passages, when read in the context of Figure 3, teach one skilled in the art that in one embodiment, the mobile device can first download a list of friends and associated identifiers for these friends (as the claimed "identifier related information"). When the mobile device then subsequently detects a unique identifier (such as by receiving it from the second radio), and finds the unique identifier on that list, the mobile device can then conclude that a specific "entity" (e.g., a "friend") is in proximity.

Similar to embodiments discussed in section C above, Fig. 8A shows another way that proximity (relevance to the mobile device) is determined by passing a detected identifier to the server, matching to "account properties":

> Device **1** will send a message to the server **801** (also represented by **100** in FIG. 1) using the WWAN (cellular data link such as GPRS, EDGE, 1×EV-DO, IS-2000, Wi-Max, LTE, or the like) **104** requesting information related to **DI2** and its relevance to the entity related to device **1 802**. The server **801** then determines the relevance of **DI2** based on the account properties stored in the account associated with the consumer Device **1**. In this case, the account settings only allow messages from or notifications of entities on a friends list stored in the account record (represented in FIG. 10) associated with the consumer. Server **801** responds to device **802** with "no" indicating that **DI2** is not relevant to the Consumer. (p. 19 ll.10-18.)

As noted previously, "relevance" as used in the specification, means that the entity associated with the mobile is "in proximity" (see Footnote 9 herein).

Petitioner Samsung Ex-1004, 1477

(h) The Advisory Action's treatment of the claims is also erroneous.

Subsequent to the Final Office Action an Advisory Action dated August 27, 2019 was provided by the Examiners[15]. That Advisory Action concluded that the specification does not support a number of the elements of then proposed claims, which were similar to those of currently pending claim 45 and 50.

Support for the following claimed elements:

> "receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI)"

and

> "determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier associated with the particular short range transmission."

was already explained in sections (b)(c) and (d) above, and such reasons need not be repeated again here.

But the Advisory Action questioned the proposed claims, for the first time, whether the specification also provides support for other elements, such as whether

> "receiving, using the first radio identifier related information associated with a proximity beacon service, from one or more servers," …
>
> "sending the unique identifier, using the first radio, to at least one server of the one or more servers," and
>
> "receiving further information relating to the entity or object associated with being within proximity to the mobile device,"

[15] This was in connection with an After Final Consideration Pilot 2.0 Request (AFCP2.0) submitted by the Appellant on July 16, 2019. Although the proposed claims 45 and 50 submitted with that request were not entered, claim 45 referenced in the Advisory Action corresponds to dependent claim 45 currently on appeal. Similarly, claim 50 submitted with the AFCP request corresponds to claim 50 in this appeal.

Petitioner Samsung Ex-1004, 1478

were disclosed "in a single method in the context of the rest of the claim".

Without intending to limit the scope of the claims, and without admitting that any such requirement exists to "disclose a single embodiment encompassing all claimed method steps" one need only look to the example of Figure 7 and the corresponding text to appreciate that such a method was indeed contemplated by the inventors.

Consider that one of skill in the art readily interprets Fig. 7 as a single, coherent logical method consisting of the numbered steps 704, 605, 706, 707, etc. executed in sequence. The text begins by explaining the context of the Fig. 7 process as follows:

> FIG. 7 shows an example of a message flow diagram for an embodiment where an individual is in a library for example, and a friend arrives. The individual is notified by their device receiving an identifier that their friend is present, and they enter a chat session. Each person has a device (**FIGS. 1, 106 and 108 respectively)** that implements the preferred embodiments described above. The first individual associated with Device 1 (702) referred to as Entity 1 (EI1) performs a detection **process as described in FIGS. 4, 5, and 6 previously (Step 704)**. p. 18, ll.2-8.

Thus the reader understands that step 704 in Fig. 7 is a first step performed, and that the details of that "identifier search process" occurs using the devices previously described in Fig. 1 and according to the detection process that when the reader reaches this part of the specification, understands was already described in Figs. 4, 5 and 6.

For example, step 704 represents that a given device 106, 108 uses the wide area network (such as IS-2000, WCDMA, GPRS, EDGE, LTE, WiMax (IEEE802.16) to communicate with a server 100 via the claimed "first radio" as was shown in Fig. 1. (See p. 17 ll.2-5).

The reader also understands that step 704 is a shorthand representation of process where the given device 106, 108 using a short range wireless link (such as Bluetooth (IEEE802.15.1) or WiFi (IEEE 802.11), the claimed "second radio", to receive beacon transmissions from other nearby wireless devices, as also shown in Figure 1, described at p.11 lines 1-2, Figure 6 and the corresponding text, and elsewhere.

Petitioner Samsung Ex-1004, 1479

Thus, the "receiving" and "sending" steps called into question in the Advisory Action are explicitly represented by step 704 of Figure 7.

The following steps 705 and 706 and 707, as explained above in Section V(2)(c) (which need not be repeated here), then provide the claimed "receiving further information relating to the entity or object associated with being within proximity to the mobile device".

3. *CLAIM REJECTIONS - 35 USC 103*

The Final Office Action also fails to meet the Patent Office's burden to prove how the prior art renders the claims obvious. Because Sundar and Zaks have conflicting implementations, one of skill in the art would not try to combine them, because they would appreciate that such a combination would never work.

Furthermore, even a combination of Sundar and Zaks does teach utilizing **both** "the identifier related information **and** the unique identifier" to determine if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device", as claimed.[16]

(a) A person of skill in the art would not be motivated to combine Sundar with Zaks

[16] During the in-person interview on July 10, 2019, Examiners Sherr and Niforoush agreed that the claims distinguish over the Sundar and Zaks prior art. See the "Applicants Summery of Intewrview" dated July 11, filed the day after the interview. The Patent Office has not, as of the date of filing this Appeal Brief, provided any conflicting summary.

Petitioner Samsung Ex-1004, 1480

Sundar provides an approach that provisions a WiFi device with a list of "network names" (SSIDs) for one or more networks that provide access to a voice service. The access is provided via a WiFi Access Point having one of the listed SSIDs.
Zaks, on the other hand, teaches an approach for an access point to support "multiple SSIDs". The goal of Zaks' is to **avoid** the need to include "knowledge of specific SSIDs" ("*The user of the station obtains information on all security profiles available on the access point* ***without requiring any prior knowledge of specific SSIDs***", (emphasis supplied Zaks [0086]).

In contrast to Zaks, the primary goal of Sundar is to provision a mobile station with exactly this knowledge of specific SSIDs, so that the mobile device

station can determine which network SSIDs it will be able to authenticate with (e.g. which have a compatible security profile). ("The mobile station 310 is ***a priori provisioned with the valid list of SSIDs*** and SSID ranges" (emphasis supplied), Sundar [0059])

Thus, one of ordinary skill would thus not look to Zaks (to determine security profiles and to avoid needing a list of SSIDs) when considering Sundar (who clearly intends to provide such information regarding a list of SSIDs in advance).

In other words, Sundar teaches provisioning a mobile station, in advance with a list of SSIDs to which it can successfully authenticate. This is done so as to avoid unnecessary attempts at authentication with networks that do not support the mobile's desired voice network capability. As a result, one would not be motivated to look to other prior art, such as Zaks, which seeks to eliminate the need to download just such a list.

(b) Any combination of Sundar in view of Zaks is also incompatible with certain of Applicant's dependent claims in which MAC addresses change, such as Claims 4, 17, 35 and 42

Petitioner Samsung Ex-1004, 1481

The embodiments of Sundar and Zaks each teach the transmission of beacons or probe responses from an "infrastructure mode" wireless LAN network, referred to as an "Access Point". The BSSIDs of such access points in Zaks are defined by the MAC address of the access point itself:

> "Every BSS has an identification (ID) called the BSSID, which is the MAC address of the access point servicing the BSS." Zaks [0010]).

This address is used by mobile devices in Zaks to communicate with the access point, and gain access to other networks. Therefore, in infrastructure mode of IEEE 802.11, this MAC address of the access point cannot be changed. Otherwise, communications with all stations currently connected to that particular access point would cease to function and be rendered inoperable.

Indeed, this shortcoming of infrastructure mode networks such as Zaks was actually noted within the Appellant's own application as filed:

> "Further, since it is contemplated that the wireless identifiers transmitted on the short range wireless link from the devices would occasionally change, for security reasons, the present embodiment has the advantage that ongoing communications between mobile devices will not be interrupted despite a change in one of the device's identifier. In the case where the identifier is a MAC address of the short range wireless network adapter for one of the devices, **it is not otherwise possible to change this address and easily maintain on going communications** in a true peer to peer topology." (p. 12 ll.1-7)

Since both Sundar and Zaks teach operating access points with the intent of providing on-going network communications with the mobile device, they are not viable operating networks in any claimed embodiment in which a MAC address changes over time. Therefore, Sundar and Zaks cannot be combined with a changing MAC address or identifier (such as suggested by Sugiyama) to render such claims obvious. Indeed, Sugiyama does not disclose a MAC address anywhere, never mind the changing of a MAC address. The section(s) of Sugiyama cited in the Final Office Action actually related to Radio Frequency Identification (RFID) protocols. (Sugiyama at [0026-0028]. One of ordinary skill would understand that RFID protocols of Sugiyama do not include or implicate the use of MAC addresses.

Petitioner Samsung Ex-1004, 1482

Therefore, the Sundar and Zak references cannot be combined to form an operable system.

(c) Even if motivation exists to combine Sunder and Zaks, the Final Office Action admits that Sundar does not disclose the claimed "unique identifier"; and Zaks also does not disclose the claimed "unique identifier"

The Final Office Action argues, at paragraph 40, that

> "Zaks teaches each of the proximity beacon transmissions including a MAC address and a unique identifier, determining if a particular short range transmission of the plurality of short range transmissions includes a MAC address, and utilizing the unique identifier. (par 93-94)."

Looking at Zaks more carefully, there are actually three terms discussed in that section of Zaks– namely a Security Profile, BSSIDs, and SSIDs. But, as is clear from other sections of Zaks, in the context of Zaks's system, none of these function as the Applicant's claimed "unique identifier". Consider, for example:

> "A security profile is a mechanism or method used to achieve privacy over a WLAN connection. Examples of a security profile include: No Privacy, Fixed WEP, 802.1X Authentication with Dynamic WEP, WPA and WPA2." Zaks [0019]

> "The term security profile is intended to refer to a mechanism or method used to achieve privacy over a WLAN connection. Examples of a security profile include: No Privacy, Fixed WEP, 802.1X Authentication with Dynamic WEP, WPA and WPA2." Zaks [0081]

Therefore, the "security profile" referred to in Zaks is a privacy algorithm supported by the access point. It is not a "unique identifier" for a wireless device – nor could it be changed to act as one, because it already has another defined purpose integral to the operation of Zaks.

Petitioner Samsung Ex-1004, 1483

Zaks uses SSIDs not as unique identifiers (e.g., unique to a specific device), but rather as a representation of an "extended service set" which may include a wired "distribution system" between multiple locations. For example ...

> *"An infrastructure basic service set (BSS) can communicate with other stations that are not in the same basic service set by communicating through access points. An extended service set (ESS) is a set of connected BSSs. Access points in an ESS are connected by a distribution system.* Each ESS has an ID called the SSID which is a 32-byte (maximum) character string. *A distribution system connects access points in an extended service set. A distribution system is usually a wired LAN but can also be a wireless LAN." Zaks [0011]*

In Zaks the SSID is thus already being used to identify the network (or voice service) to which the device wishes to gain access). Therefore, it cannot also function as a unique identifier.

Finally, the BSSID is Zaks is not being used to *"determine if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device*", as claimed by the Appellant. The BSSIDs in Zaks are required to be the MAC addresses of the Access Points, and the use of this field for anything else is not taught.

Therefore, even if Sundar and Zaks could be combined (which one would not be motivated to do) the required limitations are not met. The rejections under 35 US 103 of independent claims 1 and 31 involved in this appeal should therefore be withdrawn.

For the same reasons, any claim that depends from either claim 1 or 31 should also be allowed, for at least the reasons stated above.

(d) Claim 4, 17, 35 and 42 (and other dependent claims) require "changing identifiers"- also not taught in Sundar or Zaks

Certain of the Applicant's dependent claims are allowable for additional reasons. These claims require using "a second MAC address and a second unique identifier at a second

Petitioner Samsung Ex-1004, 1484

time" that are "different from the first MAC address and the .... the first unique identifier". These claims are also allowable for other reasons.

Sundar does teach provisioning a mobile device with a list of identifiers for the access points of other 802.11 networks. These identifiers are then used to gain access to such other 802.11 networks.

But in the infrastructure mode of an 802.11 network (such as used by Zaks), this address, being the MAC address of the access point, *cannot be changed* – otherwise all communications would cease to function.

Thus at least claims 4, 17, 35 and 42 are allowable for this additional reason.

(e) *Claim 45 and 50 require "sending the unique ID to a server" and "receiving further information related to an entity or object associated with being in proximity to the device"*

Nowhere does Sundar or Zaks suggest that the mobile device sends a detected identifier back to a server. Therefore, neither can be said to suggest or teach receiving "further information" that relates to an entity or object in proximity.

Given that Sundar's mobile devices do not return unique IDs to a server, certainly Sundar does not "receive further information relating to an object or entity associated with being within proximity to the mobile device."

At least claims 45 and 50 are allowable for this additional reason.

(f) Claims 44 and 46 further require "preventing the sending of the unique identifier...based on previous detections of the respective unique identifier"

Petitioner Samsung Ex-1004, 1485

Since both Sundar and Zaks fail to suggest that the mobile device sends a detected unique identifier back to a server, neither reference teaches anything about "preventing" the transmission of identifiers that were previously detected".

At least claims 44 and 46 are allowable for this additional reason.

(g) Claims 2, 8, 12, 13, 15, 41, 47-49, and 52-60 each depend from an allowable base claim 1 or claim 31, and thus are allowable for the same reasons stated above

The other dependent claims are allowable over a combination of Sundar and Zaks, either together, or combined with other prior art, for the same reasons stated above for claims 1 and 31.

(h) The Office Action errs in concluding that "nonfunctional descriptive material" cannot serve to distinguish from the prior art

The Final Office Action also asserts that the recitation in claim 1 that requires

> "each of the proximity beacon service transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier"

is "nonfunctional descriptive material" and therefore should not be given patentable weight. (Final Office Action at Paragraph 8.). No justification for the conclusion is provided; nor is any explanation for how that conclusion supposedly affects the patentability of claims provided by the Patent Office.

The Examiner's position seems to be that the narrow "nonfunctional descriptive material" rule (as found for example, in MPEP 2111.05), a requirement that a functional relationship be recognized by a computer as part of a claim element, applies in this case to permit ignoring certain claim elements. This is contrary to MPEP 2111.05 itself for at least the following two reasons.

Petitioner Samsung Ex-1004, 1486

First, the narrow "nonfunctional descriptive material" exception is limited to situations where a "computer-readable medium" "merely serves as a support for information or data" such as "a claim to a memory stick containing tables of batting averages, or tracks of recorded music." See MPEP 2111.05. This is not such a situation. The Appellant's claimed respective MAC address, respective unique identifier, and proximity beacon service identifier are positively used, as recited later on the claim, to determine whether "the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service".

Clearly none of these fields, and their respective contents, are meant to merely convey a message to a human reader independent of the claimed processor. Instead, the three fields, and their respective contents, perform an integral function with respect to the computer with which they are associated.

Second, one of the cases cited, *In re Lowry*, confirms the above understanding. In that case, the claims recited a memory that contained a data structure, and a plurality of attribute data objects containing information. *See Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035. Indeed, the memory of claim 1 in *Lowry* simply recited a stored data structure, and not any particular method for which that data structure was used. The Court said that *"the printed matter cases have no factual relevance here"* and that "Lowry's data structures, which according to Lowry greatly facilitate data management by data processing systems, are processed by a machine." *See Lowry,* 32 F.3d at 1583-84, 32 USPQ2d at 1035 (emphasis added).

Therefore, when the data or information is used to able to "facilitate" a computer-related function - that is enough to require it be given patentable weight. *See* MPEP 2111.05 ("For instance, a claim to computer-readable medium programmed with attribute data objects that perform the function of facilitating retrieval, addition, and removal of information in the intended computer system, establishes a functional relationship such that the claimed attribute data objects are given patentable weight").

Petitioner Samsung Ex-1004, 1487

Appellant contends that, as a matter of law, the application of the nonfunctional descriptive material doctrine to the claims in this case is an error. The various claim elements that describe the format of the proximity beacon transmissions and how they are used must be given due patentable weight.

4. *Conclusion*

In view of the foregoing, Appellant respectfully requests that the Board reverse the rejections and pass this application to issue.

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Respectfully submitted,

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Petitioner Samsung Ex-1004, 1488

VI. CLAIMS APPENDIX

1. A mobile wireless device comprising:

a first radio;

a second radio;

one or more processors;

one or more non-transitory memory devices coupled to the one or more processors, the one or more non-transitory memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including:

receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers;

receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier , and a proximity beacon service identifier (PBSI);

determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;

then:

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

2. The mobile wireless device of Claim 1, wherein the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

Petitioner Samsung Ex-1004, 1489

3. (Cancelled).

4. The mobile wireless device of claim 1 wherein the one or more processors further execute the instructions to perform operations including:

receiving, by the second radio, a first proximity beacon transmission including a first MAC address and a first unique identifier at a first time; and

receiving, by the second radio, a second proximity beacon transmission including a second MAC address and a second unique identifier at a second time, the second MAC address being different from the first MAC address and the second unique identifier being different from the first unique identifier; and

associating the first and second unique identifier with a single beacon transmitter device.

5-7. (Cancelled).

8. The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform operations including:

further determining that at least one beacon transmitter device associated with the beacon service is in proximity to the mobile wireless device, by utilizing an action function including one or more previously downloaded unique identifiers.

9-11. (Cancelled).

12. The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform operations including

determining, based upon at least a portion of the identifier related information, that at least one beacon transmitter is a broadcast device having a predetermined location.

Petitioner Samsung Ex-1004, 1490

13. The mobile wireless device of Claim 1, wherein the identifier related information comprises application software for execution upon the mobile wireless device, and the one or more processors further execute the instructions to perform operations including:

sending of the unique identifier by the mobile wireless device to at least one server of the one or more servers; and

in response to the sending of the unique identifier, downloading the application software.

14. (Cancelled)

15. The mobile wireless device of Claim 4 wherein

the identifier related information comprises a list of contact information, and the one or more processors further execute the instructions to perform operations including:

further determining that at least one beacon transmitter device associated with the beacon service is further matched with an entity included within the list of contact information based upon comparing a contact identifier information with at least the portion of the unique identifier, and

the mobile wireless device, upon determining there is a match, allowing further communications with the detected beacon transmitter device associated with the entity included within the list of contact information, wherein the further communications utilize the first radio.

16. (Cancelled).

17. The mobile wireless device of claim 1 wherein the one or more processors further execute the instructions to perform operations including:

receiving, via a second radio, the plurality of proximity beacon transmissions further includes receiving a first unique identifier at a first time that is different from a second unique identifier received at a second time; and

associating the first and second unique with a single beacon transmitter device.

Petitioner Samsung Ex-1004, 1491

18-30. (Cancelled).

31. A method for facilitating use of proximity beacons, the method executing within a mobile device, and the method comprising:

communicating between the mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions from one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier (UID), and a proximity beacon service identifier (PBSI);

a) determining that a particular short range transmission of the plurality of short range transmissions includes a MAC address,

b) determining that the proximity beacon service identifier (PBSI) is present, and

c) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service; and

when the three determining steps a) b) and c) are each true, then d) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier.

32-34. (Cancelled).

35. The method of claim 31,

wherein a first one of the plurality of proximity beacon transmissions received at a first time includes a first unique identifier, and wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier the second unique identifier being different from the first unique identifier; and

Petitioner Samsung Ex-1004, 1492

associating both the first unique identifier and the second unique identifier with a particular entity or object in proximity to the mobile device.

36-40. (Cancelled).

41. The method of claim 31 wherein the MAC address is selected from a group consisting of (a) a randomly generated 48 bit number matching a format of a MAC address and (b) a Bluetooth BD_ADDR.

42. The method of claim 31

wherein a first one of the plurality of proximity beacon transmissions is received at a first time and includes a first unique identifier and first MAC address, and the Proximity beacon Service Identifier (PBSI), and

wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier different from the first unique identifier and a second MAC address different from the first MAC address, and the proximity beacon service identifier; and

associating both the first unique identifier and the second unique identifier with the same entity or object in proximity to the mobile device.

43. (Withdrawn) A method for facilitating use of proximity beacons comprising:

communicating between a mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including proximity beacon transmissions from a beacon transmitter device associated with a proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI);

wherein the MAC addresses and unique identifiers associated with the proximity beacon transmissions as received from the beacon transmitter device associated with the proximity beacon service occasionally change;

Petitioner Samsung Ex-1004, 1493

wherein the receiving, at the mobile device using the second radio, the proximity beacon transmissions occurs without first transmitting, by the mobile device, to the beacon transmitter device; and

when a particular short range transmission:

a) includes a MAC address; and

b) includes a proximity beacon service identifier (PBSI); and

c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service,

then performing additional steps including:

determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier;

sending the unique identifier, using the first radio, to at least one server of the one or more servers; and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

44. The method of Claim 31, further comprising

preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission.

45. The mobile wireless device of Claim 1, wherein the instructions further comprise:

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

46. The mobile wireless device of Claim 1, wherein the instructions further comprise:

Petitioner Samsung Ex-1004, 1494

preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission.

47. The mobile wireless device of Claim 1, wherein the instructions further comprise:

controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device.

48. The method of Claim 31, further comprising:

receiving, using the first radio, access code information by the mobile device from at least one of the servers; and

utilizing the access code information to gain access to the entity or object determined to be in proximity to the mobile device.

49. The method of Claim 31, wherein receiving the identifier related information, using the first radio, is performed in response to sending at least the unique identifier to at least one of the one or more servers using the first radio.

50. The method of Claim 31, additionally comprising:

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

51. The method of Claim 50, wherein the further information relates to one or more of the following:

a loyalty program;

a payment service; or

a coupon relating to an entity in proximity to the mobile device; or

advertising content.

Petitioner Samsung Ex-1004, 1495

52. The method of Claim 50, wherein the further information relates to a service for providing a menu for use by a user of the mobile device for use in purchasing items, and further comprising:

allowing for the user take delivery at or near the location of a fixed proximity beacon device.

53. The method of Claim 50, wherein the further information relates to a nearby user of an application on another device, in common with an application on the mobile device.

54. The method of Claim 53, wherein the application is a multiuser game.

55. The method of Claim 31, additionally comprising:

controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device.

56. The method of Claim 31, wherein the step of determining that an entity or object is within proximity further comprises:

comparing the identifier related information with the unique identifier or information derived from the unique identifier.

57. The method of Claim 31, additionally comprising:

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and wherein the one or more servers perform the following steps:

associating an object or entity as being within proximity to the mobile device;

storing a user's purchasing practices or requests from the one or more servers, related to the associated object or entity information as stored proximity user behavior;

retrieving a stored user email address associated with an account associated with the mobile device; and

sending an email, addressed to the user email address containing customized content based upon the stored proximity user behavior.

Petitioner Samsung Ex-1004, 1496

58. The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform the operations for determining that an entity or object is within proximity by further:

comparing the identifier related information with the unique identifier or information derived from the unique identifier.

59. The mobile wireless device of Claim 1, wherein the receiving of the identifier related information, using the first radio, is performed in response to the one or more processors executing instructions for:

sending at least the unique identifier to at least one of the one or more servers using the first radio.

60. The method of Claim 31, wherein the proximity beacon transmissions are received, at the mobile device, without requiring the mobile device to first perform a step of transmitting to the one or more beacon transmitter devices from which the plurality of proximity beacon transmissions are received.

Petitioner Samsung Ex-1004, 1497

Petitioner Samsung Ex-1004, 1498

Electronic Acknowledgement Receipt

EFS ID:	37267152
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	25-SEP-2019
Filing Date:	21-SEP-2016
Time Stamp:	10:57:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Appeal Brief Filed	20190925_111054-0001U4C7_TPO_Appeal_Brief.pdf	301871 6cb17892a00526acfd0c1acfb8b7ebcd6f5529e9	no	50

Warnings:

Information:	
Total Files Size (in bytes):	301871

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/271,410	09/21/2016	James Arthur Proctor JR.	111054-0001U4C7	7653

86012 7590 01/22/2020

VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

EXAMINER
SHERR, MARIA CRISTI OWEN

ART UNIT	PAPER NUMBER
3685	

NOTIFICATION DATE	DELIVERY MODE
01/22/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@vlplawgroup.com

Petitioner Samsung Ex-1004, 1501

Office Action Summary	Application No. 15/271,410	Applicant(s) Proctor et al.	
	Examiner CRISTINA O SHERR	Art Unit 3685	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 25 September 2019.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-2,5,8,12-13,15,17,31,35 and 41-60 is/are pending in the application.

5a) Of the above claim(s) 43 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-2,5,8,12-13,15,17,31,35,41-42 and 44-60 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Petitioner Samsung Ex-1004, 1502

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. In view of the Appeal Brief filed on September 25, 2019, PROSECUTION IS HEREBY REOPENED. Reasons set forth below.

3. To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

4. Claims 1-2, 5, 8, 12-13, 15, 17, 31, 35, and 41-60 are pending in this case. Claim 43 was previously withdrawn. Accordingly, claims 1-2, 5, 8, 12-13, 15, 17, 31, 35, 41-42, and 44-60 are currently under examination in this case.

Response to Arguments

5. Applicant's arguments with respect to the claims have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Remarks

6. Note that actions which may or may not be done are indefinite and therefore do not serve to distinguish from the prior art. *In re Collier*, 158 USPQ 266 (CCPA 1968).

7. In this case, in claim 31, the recitation "when the three determining steps . . . identifier" constitutes optional/indefinite language which does not serve to distinguish from the prior art.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

> (a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

9. The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 1-2, 5, 8, 12-13, 15, 17, 31, 35, 41-42, and 44-60 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor, at the time the application was filed, had possession of the claimed invention.

Written Description

11. Regarding claims 1 and 31 –

12. The claims recite a mobile wireless device "comprising" (*i.e.*, storing) a first radio and a second radio. The Specification does not support the said recitation. (See PgPub US 2017/0011425 at par 11 reciting "two wireless devices", also fig.1/106/108 disclosing two wireless devices). To satisfy the written description requirement, the specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed

invention at the time of filing. (*In re Katz Interactive Call Processing Patent Litigation*, 97 USPQ2d 1737 (Fed. Cir. 2011)).

13. Regarding claims 1 and 31 –

14. The claims recite a mobile wireless device "comprising" (*i.e.*, storing) one or more nontransitory memory devices. The Specification does not support the said recitation. (See PgPub US 2017/0011425 at par 41 reciting "memory"). To satisfy the written description requirement, the specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention at the time of filing. (*In re Katz Interactive Call Processing Patent Litigation*, 97 USPQ2d 1737 (Fed. Cir. 2011)).

New Matter

15. Claims 13, 44-46, 50, and 57 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

16. Regarding claim 13 –

17. The Specification does not support performing downloading application software in response to sending the unique identifier to the server. (See PgPub US 2017/0011425 at par 99).

18. Regarding claims 45 and 50 –

19. Claims 45 and 50 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

20. The Specification does not support performing "sending the unique identifier, using the first radio, to at least one server of the one or more servers," and "receiving further information relating to the entity or object associated with being within proximity to the mobile device," in a single method in the context of the rest of the claim, and specifically, in combination with also performing the steps of "receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI)" and "determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier associated with the particular short range transmission." (*See* PgPub US 2017/0011425 at par 111)

21. Regarding claims 44 and 46 –

22. The Specification does not support both receiving identifier related information from the server as recited in claims 1 and 31, and preventing the sending of the unique identifier to the servers as recited in claims 44 and 46. (See PgPub US 2017/0011425 at par 111)

23. Regarding claim 57 –

24. The Specification does not support the steps of “retrieving a stored user email” and “sending an email … based upon the stored proximity user behavior”. (*See* PgPub US 2017/0011425 at par 67)

25. Claims 2, 5, 8, 12-13, 15, 17, 35, 41-42, and 44-60 are similarly rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as each depends from claim 1 or claim 31.

26. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

27. The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

28. Claims 1-2, 5, 8, 12-13, 15, 17, 31, 35, 41-42, and 44-60 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Relative Terms

29. Regarding claims 1 and 31 –

30. The terms “respective MAC Address”, “respective unique identifier" and “determining . . . is in proximity" in claims 1 and 31 are relative terms which render the claim indefinite. The terms "respective" and “proximity” are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

31. Regarding claim 1 –

32. The term “determining . . . is in proximity . . ." in claim 1 is a relative term which renders the claims indefinite. The term “proximity” is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

33. Regarding claim 31 –

34. The term “determining . . . is within proximity . . ." in claim 31 is a relative term which renders the claims indefinite. The term “proximity” is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

35. Regarding claims 45 and 50 –

36. The term "receiving . . . within proximity . . ." in claims 45 and 50 is a relative term which renders the claims indefinite. The term "proximity" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Missing Step

37. Regarding claim 13 –

38. Claim 13 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are as follows:

- Claim 13 recites that "downloading" is performed "in reaction to sending of the unique identifier," but claim 1 does not include a step of sending the unique identifier to the server.

Unclear Scope

39. Regarding claim 1 –

40. Claim 1 is directed to "A mobile wireless device". However, the body of the claim also recites "receiving… when the device…", "determining… is in proximity to the mobile wireless device" and "receiving… to the mobile device". The scope of the claim is thereby rendered unclear, as the scope of the mobile wireless device is defined in terms of the device itself.

Hybrid Claims

41. Regarding claim 1 –

42. A single claim which purports to be both a product or machine and a process is ambiguous and is properly rejected under 35 USC 112, second paragraph, for failing to particularly point out and distinctly claim the invention. *Ex Parte Lyell*, 17 USPQ2d 1548 (B.P.A.I. 1990).

43. In this case, claim 1 is directed to a "mobile wireless device" and further recites "receiving… when the device is located within a detection range…", rendering the claim ambiguous.

Lack of Antecedent Basis

44. Claim 17 recites the limitation "the first and second unique" in line 6 of the claim. There is insufficient antecedent basis for this limitation in the claim.

45. Claims 2, 5, 8, 12-13, 15, 17, 35, 41-42, and 44-60 are similarly rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as each depends from claim 1 or claim 31.

Conclusion

46. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRISTINA OWEN SHERR whose telephone number is (571)272-6711. The examiner can normally be reached on 8:30 - 5:30.

47. Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

48. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Calvin L Hewitt can be reached on 571-272-6709. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

49. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer

Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mohammad A. Nilforoush/
Primary Examiner, Art Unit 3685

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/CALVIN L HEWITT II/
Supervisory Patent Examiner, Art Unit 3685

Dictionary.com Thesaurus.com

DEFINITIONS comprising

TOP DEFINITIONS QUIZZES RELATED CONTENT EXAMPLES

EXPLORE DICTIONARY BRITISH

comprise [kuh m-prahyz] SHOW IPA

SEE SYNONYMS FOR *comprise* ON THESAURUS.COM

verb (used with object), **com·prised, com·pris·ing.**

1 to include or contain:
The Soviet Union comprised several socialist republics.

2 to consist of; be composed of:
The advisory board comprises six members.

3 to form or constitute:
Seminars and lectures comprised the day's activities.

Petitioner Samsung Ex-1004, 1511

Electronic Acknowledgement Receipt

EFS ID:	39212266
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	20-APR-2020
Filing Date:	21-SEP-2016
Time Stamp:	21:30:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	20200420_111054-0001U4C7_TPO_Transmittal.pdf	70742 4ed72722e30e3327ec2be39f592b6419580000f8	no	1

Warnings:

Information:					
2	Affidavit/Dec/Exhibit after Notice of Appeal	20200420_111054-0001U4C7_TPO_Declaration_James_A_Proctor_Jr.pdf	642517 7d6b52db6d74e5ec11987ffc6b6533fb13bfc7b7	no	34
Warnings:					
Information:					
3	Affidavit/Dec/Exhibit after Notice of Appeal	Exhibit1JamesAProctorJrCV.pdf	106753 f0c7bb1a6ee0d6b1c048af9bdccd9efb883082d2	no	5
Warnings:					
Information:					
4	Affidavit/Dec/Exhibit after Notice of Appeal	Exhibit2ClaimsasofApr-20-2020.pdf	39299 e8cbf4019c8fde905e4c59899a24c18c67a9477e	no	10
Warnings:					
Information:					
5	Affidavit/Dec/Exhibit after Notice of Appeal	Exhibit3Comprising.pdf	88015 c94d99cac920066145825024fc705cd6387c7ba7	no	1
Warnings:					
Information:					
6	Affidavit/Dec/Exhibit after Notice of Appeal	Exhibit4Storing.pdf	85436 09829dbbfdcc7852b267027406ce70e3178c7f7e	no	1
Warnings:					
Information:					
7	Affidavit/Dec/Exhibit after Notice of Appeal	Exhibit5Respective.pdf	26780 203cf79777b43f047174e638b75006b29d56522f	no	1
Warnings:					
Information:					
8	Affidavit/Dec/Exhibit after Notice of Appeal	Exhibit6Volatile.pdf	26952 5439bd2ca5368773e39c0228f6bc6d0610126711	no	1
Warnings:					
Information:					

9	Affidavit/Dec/Exhibit after Notice of Appeal	Exhibit7Transitory.pdf	25437 9ade68a24f18fe90692ff05dd66d75c4d37650e3	no	1
Warnings:					
Information:					
10	Affidavit/Dec/Exhibit after Notice of Appeal	Exhibit8MACAddressPBSIUniqueID.pdf	92413 7fb9646896b24535f83ee044b9175a3d63edcc3a	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1204344		

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National Stage of an International Application under 35 U.S.C. 371

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New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

James A. Proctor Jr.

1680 North Riverside Drive, Indialantic, FL 32903 - (321) 271-8411 - jproctor@ieee.org

EDUCATION

Georgia Institute of Technology, Atlanta, Georgia — M.S. Electrical Engineering
Graduated: September 1992
Interests: Digital Signal Processing, Communications, Optics

The University of Florida, Gainesville, Florida — B.S. Electrical Engineering
Graduated: May 1991
Minor Studies: Business
Honors & Activities: PI ETA SIGMA Honor Society
ALPHA LAMBDA DELTA Freshman Honor Society
ETA KAPPA NU National Electrical Engineering Fraternity

Skills & Achievements

- Successfully led Qualcomm / WiDeFi integration efforts resulting in a new product effort within Qualcomm related to the 3G/4G Market
- Co-founded WiDeFi and successfully raised >$14M of venture funding
- Generated intellectual property and product strategy leading to the acquisition of two companies (WiDeFi, and Tantivy Communications), contributing to > $100M of revenue
- Performed extensive customer and industry business development to provide support for innovative product definition, requirement definition, and customer support for business plan and forecasts (Qualcomm, WiDeFi, and Tantivy Communications)
- Led and coached many R&D teams to refine and de-risk innovative wireless concepts
- Led cross functional product teams to deliver high volume ready prototypes
- Ability to balance market, programmatic, and technical concerns and refine clear strategy and actionable plans
- Generated >290 issued US Patents Currently and >700 international patent publications
- Have spoken at numerous public events: industry, venture, and technical
- Strong communication and technical skills

Work Experience

Proctor Consulting, LLC — **December 2008 - Present**

- Early stage market and technology strategy
  - Interim CTO/Team Member, business development/validation
  - Roadmap / IP development
  - Advisory Board Member
- Technical / Market Consultant
  - Fastback Networks, Audigence, Peregrine Semiconductor
- Intellectual property portfolio analysis within the communications market space
  - Market / Product Applicability, Claims Chart Development and Analysis, Valuation
  - Expert Witness Consulting in Wireless Communications (WiFi, 2G-GSM, 3G-C2K/WCDMA, 4G/LTE and associated networks)

Proxicom Wireless. Co-Founder, Managing Director — **November 2011 – Present**

- Proximity based mobile technology utilizing a centralized trusted third party
- Development of foundational Intellectual Property (12+ US Patents)
- Enabling technology applicable to a variety of proximity based applications including highly secure: Mobile Payments, Electronic Coupons and Loyalty, Rating and Reviews, Social Commerce

Petitioner Samsung Ex-1004, 1515

Qualcomm Inc., Principal Engineer (Consulting) **October 2007 - October 2009**

- Technical and Business development leadership of a consumer level 3G wireless repeater product concept based upon WiDeFi's technology during the integration
- Provided technical leadership in architecture development
    - Defined initial architecture approach for the wireless repeater concept based upon WiDeFi's technology
    - Worked with technical team to refine approach and achieve "key proof points"
- Performed Business Development with International Wireless Operators
    - Worked closely with business development from ESG and QCT divisions
    - Developed bottoms up forecast with the top international wireless operators for consumer repeater products.
    - Refined product features to meet carrier's requirements
- Market Analysis to estimate Market Size and Competitive Landscape
- Named inventor on 44+ Issued or pending patents for Qualcomm on wireless repeater concepts

WiDeFi, Inc., EVP/CTO, and Co-Founder, Director **August 2005 - October 2007**

- Focused on aligning WiDeFi's technology and product roadmaps to customer and market drivers
    - Strategic and Technical Marketing, Product Definition
    - Market Analysis to estimate Market Size and Competitive Landscape
    - Collaborated with customers and internal team to define and pursue product/customer opportunities (Retail Wi-Fi, Mesh Repeater, VoiP over Wi-Fi Repeater, Cellular Repeaters, Wi-Max Repeaters, In-Building Distribution Systems)
    - Customer Development from initial contact, joint testing, first purchase order, to new product introduction
    - Contributed to and managed WiDeFi's IP portfolio
    - Pursued fund raising from corporate and venture capital communities

WiDeFi, Inc., President, CEO, and Co-Founder, Director **July 2002 - August 2005**

- Led WiDeFi from inception to the recruitment of an expansion-stage CEO.
- Principal duties:
    - Direct Fundraising of initial seed and Series A Venture Capital
    - General Management (Finance, Business Administration, Legal/Contracts and Organizational Development/Recruiting)
    - Coordination of Board of Directors and Investors
    - Sales (WiDeFi was Cash Flow positive prior to venture investment)

Tantivy Communications **April 1998 - June 2002**
Director of Strategic and Technical Marketing

- Business Development/Technical Due Diligence
- Represented Tantivy in a wide range of Wireless Broad Band Industry Conferences
- Intellectual Property Management and Strategy
    - Represented Tantivy's Patents and their value to External Companies
    - Performed Validity, Infringement, and Value Analysis of Tantivy Patents for non-Tantivy products
- Industry Standards Representation for 3G Technologies
    - TIA/3GPP2, Over 15 Technical Contributions/Papers
    - T1P1 (3GPP Member)
- Project Management of an International Technology Transfer Team (S Korea)
- Performed System Architecture and Analysis

Spectrian, Advanced Development and Technical Marketing **1995 - April 1998**

- Interfaced with NORTEL/Qualcomm's Product Management
- Performed Advanced Technology Development/Systems Analysis

Petitioner Samsung Ex-1004, 1516

Harris Corp. GCSD, **September 1992 - 1995**
Senior Engineer Signal Processing Section, Modems Group

Georgia Tech Research Institute, CSITL **June 1991 - August 1992**

Harris Corp.. ISD, Electro-optics, Co-op **May 1990 - August 1990**
- Acousto-optic signal processing

Standards Development

- Participated in architecting "Internet CDMA" (I-CDMA)
- Jointly led establishment of the Committee T1, working group T1P1.4 "WWINA" standardization effort, which stands for "Wireless Wideband Internet Access"
  - T1 Approved this system as the T1.723-2002 standard
- ATIS approved as **ATIS0700723-2002 I-CDMA Spread Spectrum Systems Air Interface Standard**
- Participated in 3GPP2 Standards Developments (including 15+ technical contributions)

Intellectual Property

- More than 290 Issued U.S. Patents
- More than 700 Issued or Pending International Patent Applications (WIPO)
- Patents Cited at the USPTO more than 6000 times
- 55+ Patents Assigned to Intel
- 45+ Patents Assigned to Qualcomm
- 16+ Patents designated as "Standards Essential" for UMTS (WCDMA)
- 6+ Patents designated as "Standards Essential" for LTE

Testifying Expert Experience

SPH Am., LLC v. Acer, Inc., 09CV02535-CAB MDD, 2012 WL 1344515 (S.D. Cal. Apr. 18, 2012).
Testifying Expert offering opinions on validity for the defense. The technology related to WCDMA modulation techniques. Resulted in settlement prior to trial.

WI-LAN USA, INC. and WI-LAN INC. v. ELEFONAKTIEBOLAGET LM ERICSSON and ERICSSON INC., Case No. I:12-23569-Civ (S.D. FL)
Testifying expert offering opinions on infringement for the defense. The technology involved LTE "contention free" handover (CFRA), and Media Access Control (MAC) layer messaging for Quality of Service (QOS). Resulted in a summary judgement finding of non-infringement for the defense, and settlement after appeal.

U.S. ETHERNET INNOVATIONS, LLC. V. STMICROELECTRONICS, INC.,
Civil Action No. 6:12-cv-4181-MHS-JDL
Testifying expert offering opinions on both validity and infringement for the defense. The technology related to Ethernet devices. Resulted in settlement prior to trial.

UNWIRED PLANET, V. SQUARE, INC.,
Case No. 3:13-CV-00579-RCJ-WGC, DISTRICT OF NEVADA,
Case CBM2014-00156, Case IPR2014-01164, Case IPR2014-01165, UNITED STATES PATENT TRIAL AND APPEAL BOARD,

Petitioner Samsung Ex-1004, 1517

Provided testimony related to claim construction, and validity for the defense. The technology was related to location based services (LBS). The case resulted in a finding by the Patent Trial and Appeal Board of unpatentability of all asserted claims.

PRISM TECHNOLOGIES LLC, V. T-MOBILE USA, INC., Case No. 12-CV-124

Testifying expert at trial, and deposition offering opinions on both validity and infringement for the defense. The technology was related to SIM/USIM/ISIM based authentication in UMTS, LTE, and IMS networks. The case resulted in a jury verdict of non-infringement.

FASTVDO LLC, V. AT&T Mobility LLC, AT&T Services, Inc., and Apple Inc.,
Case No. 3:16-cv-00385-H-WVG

Engaged by Apple as the testifying expert offering opinions on infringement for the defense. The technology was related to Forward Error Correction (FEC) and voice codecs in GSM and WCDMA standards, including detailed FEC performance simulations. The case was stayed pending IPR outcome and a finding of unpatentable subject matter by the PTAB.

BLACKBERRY LIMITED V. BLU PRODUCTS, INC.,
Case No.: 16-23535-CIV-MORENO

Engaged by Blackberry as the testifying expert offering opinions on infringement for the plaintiff. The technology involved WCDMA and battery saving techniques in Radio Resource Control (RRC) states. The case was settled between the parties prior to trial.

CELLULAR COMMUNICATIONS EQUIPMENT LLC V. AT&T Inc., and Apple Inc.
Case No.: 2:15-cv-00576-RWS-RSP

Engaged by Apple as the testifying expert offering opinions on validity and benefits of the alleged inventions for the defense. The technology involved Media Access Control (MAC) messaging for LTE (Power Headroom Reporting) and LTE Advanced (CSI reporting for Carrier Aggregation). The case resulted in summary judgement for the defense.

GENERAL ACCESS SOLUTIONS, LTD. v. Sprint Corporation et al.
Civil Action No. 2:16-cv- 00465 (E.D. Tex.) and PTAB Proceedings (IPR2017-01885 (Patent 7,173,916 B2) IPR2017-01887 (Patent 6,891,810 B2) IPR2017-01889 (Patent 7,230,931 B2),

Engaged by Sprint to provide expert testimony relating to claim construction, and validity for the defense before the Patent Trial and Appeal Board (PTAB) relating to an Inter Partes Review petition, providing multiple expert declarations, and deposition testimony. The technology related to Adaptive Modulation and Coding (AMC) in a wireless system; Adaptive Beamforming, Sectorization, and Multi-Input Multi-Output (MIMO). All trials were instituted by the PTAB Board, with a finding of all petitioned claims unpatentable for two of the three patents.

TC TECHNOLOGY LLC, V., Sprint Corporation and Sprint Spectrum, L.P
Case 1:16-cv-00153-RGA

Engaged by Sprint to provide expert testimony relating to validity and infringement by the defense, in the district of Delaware. The technology related to OFDMA and SC-FDMA use in the LTE uplink, for multiplexing transmissions from different UEs utilizing mutually exclusive OFDM subcarriers. The matter is currently pending.

Mobility Workx, LLC v T-Mobile US, Inc.
Civil Action No. 4:17-cv-00567-ALM
Retained by the defendant, and provided declarations and deposition for claim construction, engaged for both invalidity and non-infringement analysis and testimony. This matter relates to LTE handover, and Mobile IP. The case was settled between the parties prior to trial.

Petitioner Samsung Ex-1004, 1518

Mobility Workx, LLC v Cellco Partnership d/b/a Verizon Wireless
Case No. 4:17-cv-872-ALM
Retained by the defendant, engaged for both invalidity and non-infringement analysis and testimony. This matter relates to LTE handover, and Mobile IP. The case was settled between the parties prior to trial.

Uniloc USA, Inc., et al. v. Apple Inc.
No. 18-cv-158 and 18-cv-161, engaged by Apple as a technical and testifying expert. This matter relates to Quality of Service aspect of 3G UMTS (WCDMA), and the request and allocation of uplink resources in LTE. The matter was stayed, pending result of PTAB IPR Trial.

Wi-LAN v. LG.
Case No. Case No.: 3:18-cv-01577-H-BGS
Engaged by LG as a technical and testifying expert. The technology involved LTE "contention free" handover (CFRA), Media Access Control (MAC) layer messaging for bandwidth management and Quality of Service (QOS).

Fractus, S.A. v. Sprint Communications Company, L.P. et al.,
Civil Action No. 2:18-cv-00135 (E.D. Tex.), Engaged by Sprint and Verizon Wireless as a technical and testifying expert for invalidity. The technology involved design aspects of antenna element placement in multiband antenna arrays for use at cellular base stations.

Wilson Electronics, LLC v.Cellphone-Mate,Inc. dba SureCall.
Case No. 2:17-cv- 00305-DB (District of Utah)
Retained by the Wilson Electronics, and engaged for both invalidity and non-infringement analysis and testimony. This matter relates to cellular multi-band wireless signal boosters / repeaters. This matter is pending.

Sol IP, LLC v Joint Defense Group (AT&T, Ericsson, Nokia, Sprint, Verizon)
Civil Action No. 2:18-cv-00526 (E.D. Tex.)
Retained by each of the defendants, and engaged to provide testimony relating to infringement of the asserted claims for 8 of the asserted patents. The subject matter related to random access, paging, resource allocation, and carrier aggregation in LTE. The matter remains pending.

Petitioner Samsung Ex-1004, 1519

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adjective

1 evaporating rapidly; passing off readily in the form of vapor:
Acetone is a volatile solvent.

2 tending or threatening to break out into open violence; explosive:
a volatile political situation.

3 changeable; mercurial; flighty:
a volatile disposition.

4 (of prices, values, etc.) tending to fluctuate sharply and regularly:
volatile market conditions.

5 fleeting; transient:
volatile beauty.

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noun

Petitioner Samsung Ex-1004, 1520

CLAIMS

1. A mobile wireless device comprising:

a first radio;

a second radio;

one or more processors;

one or more non-transitory memory devices coupled to the one or more processors, the one or more non-transitory memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including:

receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers;

receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier , and a proximity beacon service identifier (PBSI);

determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;

then:

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

2. The mobile wireless device of Claim 1, wherein the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

Petitioner Samsung Ex-1004, 1521

3. (Cancelled).

4. The mobile wireless device of claim 1 wherein the one or more processors further execute the instructions to perform operations including:

receiving, by the second radio, a first proximity beacon transmission including a first MAC address and a first unique identifier at a first time; and

receiving, by the second radio, a second proximity beacon transmission including a second MAC address and a second unique identifier at a second time, the second MAC address being different from the first MAC address and the second unique identifier being different from the first unique identifier; and

associating the first and second unique identifier with a single beacon transmitter device.

5-7. (Cancelled).

8. The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform operations including:

further determining that at least one beacon transmitter device associated with the beacon service is in proximity to the mobile wireless device, by utilizing an action function including one or more previously downloaded unique identifiers.

9-11. (Cancelled).

12. The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform operations including

determining, based upon at least a portion of the identifier related information, that at least one beacon transmitter is a broadcast device having a predetermined location.

Petitioner Samsung Ex-1004, 1522

13. The mobile wireless device of Claim 1, wherein the identifier related information comprises application software for execution upon the mobile wireless device, and the one or more processors further execute the instructions to perform operations including:

sending of the unique identifier by the mobile wireless device to at least one server of the one or more servers; and

in response to the sending of the unique identifier, downloading the application software.

14. (Cancelled)

15. The mobile wireless device of Claim 4 wherein

the identifier related information comprises a list of contact information, and the one or more processors further execute the instructions to perform operations including:

further determining that at least one beacon transmitter device associated with the beacon service is further matched with an entity included within the list of contact information based upon comparing a contact identifier information with at least the portion of the unique identifier, and

the mobile wireless device, upon determining there is a match, allowing further communications with the detected beacon transmitter device associated with the entity included within the list of contact information, wherein the further communications utilize the first radio.

16. (Cancelled).

17. The mobile wireless device of claim 1 wherein the one or more processors further execute the instructions to perform operations including:

receiving, via a second radio, the plurality of proximity beacon transmissions further includes receiving a first unique identifier at a first time that is different from a second unique identifier received at a second time; and

associating the first and second unique with a single beacon transmitter device.

Petitioner Samsung Ex-1004, 1523

18-30. (Cancelled).

31. A method for facilitating use of proximity beacons, the method executing within a mobile device, and the method comprising:

communicating between the mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions from one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier (UID), and a proximity beacon service identifier (PBSI);

a) determining that a particular short range transmission of the plurality of short range transmissions includes a MAC address,

b) determining that the proximity beacon service identifier (PBSI) is present, and

c) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service; and

when the three determining steps a) b) and c) are each true, then d) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier.

32-34. (Cancelled).

35. The method of claim 31,

wherein a first one of the plurality of proximity beacon transmissions received at a first time includes a first unique identifier, and wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier the second unique identifier being different from the first unique identifier; and

Petitioner Samsung Ex-1004, 1524

associating both the first unique identifier and the second unique identifier with a particular entity or object in proximity to the mobile device.

36-40. (Cancelled).

41. The method of claim 31 wherein the MAC address is selected from a group consisting of (a) a randomly generated 48 bit number matching a format of a MAC address and (b) a Bluetooth BD_ADDR.

42. The method of claim 31

wherein a first one of the plurality of proximity beacon transmissions is received at a first time and includes a first unique identifier and first MAC address, and the Proximity beacon Service Identifier (PBSI), and

wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier different from the first unique identifier and a second MAC address different from the first MAC address, and the proximity beacon service identifier; and

associating both the first unique identifier and the second unique identifier with the same entity or object in proximity to the mobile device.

43. (Withdrawn) A method for facilitating use of proximity beacons comprising:

communicating between a mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including proximity beacon transmissions from a beacon transmitter device associated with a proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI);

wherein the MAC addresses and unique identifiers associated with the proximity beacon transmissions as received from the beacon transmitter device associated with the proximity beacon service occasionally change;

Petitioner Samsung Ex-1004, 1525

wherein the receiving, at the mobile device using the second radio, the proximity beacon transmissions occurs without first transmitting, by the mobile device, to the beacon transmitter device; and

when a particular short range transmission:

a) includes a MAC address; and

b) includes a proximity beacon service identifier (PBSI); and

c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service,

then performing additional steps including:

determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier;

sending the unique identifier, using the first radio, to at least one server of the one or more servers; and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

44. The method of Claim 31, further comprising

preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission.

45. The mobile wireless device of Claim 1, wherein the instructions further comprise:

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

46. The mobile wireless device of Claim 1, wherein the instructions further comprise:

Petitioner Samsung Ex-1004, 1526

preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission.

47. The mobile wireless device of Claim 1, wherein the instructions further comprise:

controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device.

48. The method of Claim 31, further comprising:

receiving, using the first radio, access code information by the mobile device from at least one of the servers; and

utilizing the access code information to gain access to the entity or object determined to be in proximity to the mobile device.

49. The method of Claim 31, wherein receiving the identifier related information, using the first radio, is performed in response to sending at least the unique identifier to at least one of the one or more servers using the first radio.

50. The method of Claim 31, additionally comprising:

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

51. The method of Claim 50, wherein the further information relates to one or more of the following:

a loyalty program;

a payment service; or

a coupon relating to an entity in proximity to the mobile device; or

advertising content.

Petitioner Samsung Ex-1004, 1527

52. The method of Claim 50, wherein the further information relates to a service for providing a menu for use by a user of the mobile device for use in purchasing items, and further comprising:

allowing for the user take delivery at or near the location of a fixed proximity beacon device.

53. The method of Claim 50, wherein the further information relates to a nearby user of an application on another device, in common with an application on the mobile device.

54. The method of Claim 53, wherein the application is a multiuser game.

55. The method of Claim 31, additionally comprising:

controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device.

56. The method of Claim 31, wherein the step of determining that an entity or object is within proximity further comprises:

comparing the identifier related information with the unique identifier or information derived from the unique identifier.

57. The method of Claim 31, additionally comprising:

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and wherein the one or more servers perform the following steps:

associating an object or entity as being within proximity to the mobile device;

storing a user's purchasing practices or requests from the one or more servers, related to the associated object or entity information as stored proximity user behavior;

retrieving a stored user email address associated with an account associated with the mobile device; and

sending an email, addressed to the user email address containing customized content based upon the stored proximity user behavior.

Petitioner Samsung Ex-1004, 1528

58. The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform the operations for determining that an entity or object is within proximity by further:

comparing the identifier related information with the unique identifier or information derived from the unique identifier.

59. The mobile wireless device of Claim 1, wherein the receiving of the identifier related information, using the first radio, is performed in response to the one or more processors executing instructions for:

sending at least the unique identifier to at least one of the one or more servers using the first radio.

60. The method of Claim 31, wherein the proximity beacon transmissions are received, at the mobile device, without requiring the mobile device to first perform a step of transmitting to the one or more beacon transmitter devices from which the plurality of proximity beacon transmissions are received.

Petitioner Samsung Ex-1004, 1529

Petitioner Samsung Ex-1004, 1530

EXHIBIT 8. EXAMPLE EMBODIMENTS FOR MAC ADDRESS, PBSI AND UNIQUE IDENTIFIER

	MAC address	PBSI	Unique Identifier
Embodiment 1	MAC address of the station device or network adapter[1]	BSSID[2]	SSID[3]

[1] "These beacons contain the *MAC address of the transmitting network adapter*, the basic Service set identifier (BSSID), and ad-hoc network name or service set identity (SSID). Par. [0060] at lines 14-17

[2] "There are several embodiments related using the IBSS beacons and the identifiers. First the identifier may be used as the MAC address of the station device or network adapter, *and one or both the BSSID and the SSID may be used to indicate these particular beacons are associated with a service*. Par. [0060] at lines 22-27.

[3] "*In other embodiments, one or more of the BSSID and the SSID may be used as the identifier.*" Par. [0060] at lines 27-29.

	MAC Address	PBSI	Unique Identifier
Embodiment 2	BSSID[4] (a MAC Address)	SSID[5]	MAC address of the station device or network adapter [6]

[4] "These beacons contain the MAC address of the transmitting network adapter, the basic Service set identifier (BSSID), and ad-hoc network name or service set identity (SSID). *The BSSID in a typical ad-hoc network is generated by the first station to enter the BSSID and is locally administered, typically a randomly generated 48 bit number matching the format of a MAC address."* Par. [0060] lines 14-20.

[5] "First the identifier may be used as the MAC address of the station device or network adapter, and one or both the BSSID and ***the SSID*** *may be used to indicate these particular beacons are associated with a service*". Par. [0060] lines 24-27.

[6] "[the] identifier may be used as the MAC address of the station device or network adapter" Par. [0060] lines 24-25.

"In the preferred embodiment, where the MAC address is used for the identifier, all the devices participating would likely have the same network name and SSID to aid in the identification of the device as being enabled" Par. [0060] lines 37-41.

In this embodiment the "SSID" is the "network name", See "("These beacons contain the MAC address of the transmitting network adapter, the basic Service set identifier (BSSID), *and ad-hoc network name or service set identity (SSID)"* Par. [0060] lines 14-17.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: James A. Proctor, Jr., et al.	
Serial No.: 15/271,410	Examiner: Sherr, Cristina Owen
Filed: September 21, 2016	Art Unit: 3685
For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED	Confirmation No.: 7653

DECLARATION OF JAMES A. PROCTOR, JR UNDER 37 CFR 1.132

I. INTRODUCTION

1. My name is James Arthur Proctor, Jr.

2. I am one of the named inventors in the above-referenced patent application, which I will refer to as the "'410 application".

3. I serve as managing director of Proxicom Wireless, LLC, the applicant in the above-referenced application.

4. All statements made herein of my own knowledge are true, and all statements made on information and belief are believed by me to be true.

5. All of my opinions stated herein are based on my own personal knowledge and judgment, and my analysis of the materials and information currently available to me.

Petitioner Samsung Ex-1004, 1533

II. QUALIFICATIONS AND PROFESSIONAL EXPERIENCE

6. I am qualified by education and experience to testify as an expert in the field of telecommunications. Attached as Exhibit 1 to this Declaration is a copy of my Curriculum Vitae (CV) detailing my education and experience. Additionally, the following overview of my background pertains to my qualifications for providing expert testimony in this matter.

7. I have worked as an engineer and entrepreneur in the field of wireless communications for over 25 years, and have been involved with various aspects of wireless communications for the duration of my career.

8. I currently am named inventor or co-inventor on more than 290 issued U.S. patents, and more than 700 international patent publications. The vast majority of these patents and patent applications are related to wireless communications. I have multiple patents which have been deemed "standards essential" for 3G and 4G wireless standards, within the 3rd Generation Partnership Project (3GPP) standards organization.

9. As will be discussed in further detail below, the subject of the '410 patent relates generally to wireless devices that use beacon services to control the exchange of information.

10. I have testified at trial as a technical expert on matters of patent validity, including issues of claim interpretation and patent validity, trial in the matter of Prism Technologies, LLC v. T-Mobile USA, Inc., in the United States District Court for the District of Nebraska, No. 8:12-cv-00124.

11. I have also provided technical tutorials to the Court in U.S. Southern District of Florida in the matter of Wi-Lan v. Ericsson (Case No. l:12-23569-Civ).

12. Additionally, I have been engaged as an expert to provide testimony in form of expert reports and/or deposition testimony relating to wireless communications by leading companies in the wireless communications industry including (further details may be found in my CV attached as Exhibit 1):

Petitioner Samsung Ex-1004, 1534

a. Mobile Device providers: Apple, Blackberry, LG, HTC, ZTE, and Sierra Wireless

b. Mobile Infrastructure (base station) providers: Alcatel, Ericsson, and Nokia

c. Wireless Network Operators: AT&T, Sprint, Verizon, and T-Mobile

13. I am an inventor on the following patents related to methods of exchanging information between mobile or wireless devices:

U.S. Patent 8,385,913 entitled "Using a first wireless link to exchange identification information used to communicate over a second wireless link", issued February 26, 2013;

U.S. Patent 8,090,616 entitled "Visual identification information used as confirmation in a wireless communication" issued January 3, 2012.

U.S. Patent 8,116,749 entitled "Protocol for anonymous wireless communication" issued February 14, 2012.

U.S. Patent 9,135,612 entitled "Proximity detection, virtual detection, or location based triggering of the exchange of value and information" issued September 15, 2015.

14. A substantial portion of my formal education and professional work has been focused on wireless communication systems and products.

15. For example, my educational background includes a Bachelor of Science in Electrical Engineering (BSEE) from the University of Florida (1991) and a Master of Science in Electrical Engineering (MSEE) from the Georgia Institute of Technology (1992) focusing on digital signal processing.

16. From 1986 to 1991, while at the University of Florida, I interned with Harris Corporation in various roles including mechanical design, software development, and digital design. From 1991 to 1992, while at Georgia Institute of Technology, I worked at the Georgia Tech Research Institute (GTRI) as a graduate research assistant, performing software development on classified government programs.

Petitioner Samsung Ex-1004, 1535

17. From 1993 to 1995, while working for Harris Corporation, I designed various cellular communications systems for voice, data, and tracking/location. Many of the systems I designed utilized advanced communications technologies, such as those utilized in the then-developing and now widespread telecommunication standards (such as IS-95, W-CDMA, and aspects of LTE).

18. From 1995 to 1998, I worked at Spectrian in advanced development and technical marketing. At Spectrian, I interfaced with Nortel's and Qualcomm's product management and performed advanced technology development and systems analysis. In this role, I designed IS-95 CDMA and GSM base station power amplifiers and control electronics, and received several patents associated with advanced linearization techniques for the reduction of transmitted distortion.

19. From 1998 to 2002, I served as the Director of Strategic and Technical Marketing at Tantivy Communications, a venture capital-funded 3G cellular data and chip set company. At Tantivy, I helped to architect and standardize the I-CDMA Spread Spectrum Systems Air Interface Standard (T1P1.4). I also developed both subscriber units and base stations that complied with the standard. The base stations utilized various protocols, and interfaced with the wire line network utilizing IP over Ethernet. Additionally, I participated in and provided technical contributions to 3GPP/3GPP2 standardization efforts related to the development of CDMA2000 and 1xEV-DO. This work resulted in my being named as a co-inventor on more than 150 pending or issued U.S. patents or applications.

20. From 2002 to 2007, as co-founder of WiDeFi, Inc., I served in various roles including as its President, CEO, CTO, and board member. As the CEO, my responsibilities included advanced development of platform technologies. I was co-inventor of wireless technology components, including a frequency translating TDD repeater, a same frequency repeater architecture for TDD/FDD-based systems, and physical layer multi-stream MIMO repeater technology. WiDeFi invented and provided wireless home networking products based on WiFi and cellular technologies. While at WiDeFi, I was a named inventor on over 25 issued U.S. patents or patent applications.

Petitioner Samsung Ex-1004, 1536

21. From 2007 to 2009, I consulted as a principal engineer for Qualcomm Inc. as part of their acquisition of WiDeFi's technology. While at Qualcomm, I worked with its corporate R&D division and developed consumer 3G and 4G cellular coverage enhancement systems utilizing WiDeFi's baseband interference cancellation technologies. My responsibilities included working with international cellular operators on product requirements, detailed W-CDMA simulations, Long Term Evolution ("LTE") systems analysis, and participation in prototype product realization. I am currently a named inventor on roughly 45 issued U.S. patents or patent applications assigned to Qualcomm.

22. From 2010 to the present, I have served as managing director and co-founder of Proxicom Wireless, LLC, which has developed and continues to develop cloud-based, mobile social networking and mobile payments technology based upon the proximity and location of mobile devices. Proxicom currently holds twelve issued U.S. patents and multiple pending patent applications, of which I am a co-inventor. Significant aspects of Proxicom's technology involve a mobile device's use of short range wireless technologies (802.11, near field communications, and Bluetooth) in combination with cellular data links (3G/WCDMA or 4G/LTE, for example) to facilitate frictionless interactions via a wireless networked central cloud server.

23. Since 2007, I also have been the principal of Proctor Consulting, LLC. In this role, I have been a consultant relating to wired, wireless, and cellular communication and technologies, start-up companies and intellectual property. I also have been involved with numerous patent infringement, patent validity, and patent analysis assignments for public and private companies in the wired, wireless, and cellular networking industries.

24. Additionally, I have worked and consulted for both cellular infrastructure and device focused companies (Spectrian, Qualcomm, Fastback Networks), and defense contractors (Harris Corporation), where I developed covert-tracking and location technologies involving CDMA and smart-antenna technologies.

25. In various of the above-detailed roles, I have been responsible for the development of business plans, product development plans, product development budgets, and product bill of materials estimations. I have been responsible for numerous product development teams,

Petitioner Samsung Ex-1004, 1537

including schedule and costs of the development process at various stages of my career. For example, at Tantivy Communications, I ran a joint development of I-CDMA cellular base stations in Seoul, Korea that were used in a field trial in that country. Additionally, as founder and CEO of WiDeFi, Inc., I was responsible for similar such activities, as required to raise venture capital funding and reporting to the board of directors.

26. For these reasons, and because of my technical experience and training as outlined below, I am qualified to offer the opinions expressed herein regarding the validity of the '410 patent application.

III. MATERIALS CONSIDERED

27. In connection with my analysis in this case thus far, I reviewed and considered a number of documents, including

a. the original specification and drawings that were filed as the '410 application;

b. U.S. Patent Publication 2017/0011425A1, which is the published version of the '410 application;

c. The Office Action dated November 19, 2018;

d. the Office Action dated January 22, 2020 (which I refer to as the "last Office Action" below);

e. the Appeal Brief filed September 25, 2019; and

f. other publicly available information and documents as identified herein.

28. I understand that the claims pending in the '410 application, as of the date I sign this declaration, are reflected in the claim listing attached as Exhibit 2.

29. This information, where my consideration of it relates to opinions expressed in this report, is identified through citation and serves as my identification of the facts and documents I considered in forming my opinions.

Petitioner Samsung Ex-1004, 1538

30. I reserve the right to rely upon any additional information or materials that may be provided to me or that are relied upon by the Patent Office in this case, if asked to give additional opinions regarding this matter.

IV. RELEVANT LEGAL PRINCIPLES

31. In forming my opinions, I have relied upon certain principles of law that legal counsel in this matter and in multiple other contested matters have explained to me. My understanding of these concepts is summarized below.

A. Person of Ordinary Skill in the Art

32. I have been informed that claims are construed from the perspective of one of ordinary skill in the art to which the patented subject matter pertains at the time of the invention. That analysis should consider the perspective of the skilled person at the time the invention was made. Furthermore, I understand that a determination of the level of ordinary skill in the art includes as relevant factors (1) the person's educational level; (2) the type of problems encountered in the art; (3) the prior solutions to those problems; (4) the rapidity with which innovations are made in the art; (5) the sophistication of the technology in the art; and (6) the educational level of other active workers in the field.

B. Written Description and Enablement

33. I have been informed that certain other requirements are imposed on the form of a patent's disclosure: the specification must meet both the "written description" and "enablement" requirements. I understand that these requirements can be summarized as follows:

34. I understand that to have an adequate written description, the patent must convey with reasonable clarity to one skilled in the art that, as of the filing date sought, that the patentee was in possession of the invention.

Petitioner Samsung Ex-1004, 1539

35. I understand that to demonstrate possession of the invention, the specification must permit such a person with ordinary skill in the art to visualize or recognize the identity of the subject matter purportedly described.

36. Although the specification need not describe the claimed subject matter verbatim to demonstrate possession of the invention, generalized language will not suffice if it does not convey the details of the claimed invention in some way.

37. I understand that to have an adequate written description, each element of the claimed invention must be actually or inherently disclosed in the specification. I understand that material added by amendment is not inherent to the original specification for this purpose, if that amendment would broaden the scope of the invention beyond that which is supported in the initial disclosure.

38. I understand that to be an enabling disclosure, the specification must adequately disclose to one skilled in the art how to make or carry out the claimed invention without undue experimentation.

39. I also understand that my opinions expressed herein must be supported by factual evidence, to which I will refer.

C. Clarity of Claim Language

40. I understand that patents must have definite claims that clearly and precisely inform persons skilled in the art of their boundaries.

41. It is my understanding that the claims in patent applications are interpreted, not solely on the basis of the specific language used, but also by giving claims their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art at the time the invention was made.

42. I also understand that under this broadest reasonable interpretation, the words in a claim are to be interpreted in a manner that is consistent with their ordinary and customary meaning of

Petitioner Samsung Ex-1004, 1540

the term, unless specific term(s) have been given a special definition in the specification. Any such special meaning must be consistent with the text of the specification and drawings.

V. PERSON OF ORDINARY SKILL IN THE ART FOR THE '410 APPLICATION

43. In my opinion, the person of ordinary skill in the art needed to have the capability of understanding the scientific and engineering principles applicable to the '410 patent application. Such a person would typically have a Master's degree in electrical engineering or related field with emphasis in digital communications and at least one year of industry experience with wireless communication design, or a Bachelor's degree in electrical engineering or related field with emphasis in digital communication and at least two years of industry experience with wireless communication design.

44. The Office Action dated November 19, 2018 the Patent Office determined that the '410 application was entitled to a filing date of January 28, 2009.

45. As of January 28, 2009, I would have qualified as a person of ordinary skill in the art. I would have thus appreciated the perspective of such a person as of that date.

VI. ANALYSIS

46. By way of introduction, the invention claimed in the '410 application uses a certain type of radio transmission, called a proximity beacon, to activate special services when one wireless device is detected near another. In the approach set forth in the claims, as more fully explained below, a wireless device uses two radios for this purpose within a single device. A first radio receives, from a server, "identifier related information" associated with the service. The second radio receives a so-called short-range transmission from other wireless devices. When a received

Petitioner Samsung Ex-1004, 1541

short range transmission has a particular format - e.g., a so-called proximity beacon transmission - then that fact can be used, together with the received "identifier related information", to determine that an entity or object associated with the service is in proximity.

Claim 31 and "actions which may or may not be done"

47. I see that the Last Office Action considers the final paragraph of claim 31 to recite "actions which may or may not be done", and thus are indefinite.

48. Claim 31 actually includes several "determining" steps. Read in context, the last part of claim 31 recites:

> a) determining that a particular short range transmission of the plurality of short range transmissions includes a MAC address,
> b) determining that the proximity beacon service identifier (PBSI) is present, and
> c) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service; and
> when the three determining steps a) b) and c) are each true, then d) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier.

49. Testing for the logical state of a thing, to see if it has a true value or a false value, is not a "conditional" step.

50. The "determining" steps labeled a), b), and c), being tests for the logical state of a thing, are thus unconditionally performed for the "particular" short range transmission having the required format.

51. One of skill in the art would have thus understood these three steps a), b) and c) must be performed.

Petitioner Samsung Ex-1004, 1542

52. But so too must the determining step in the final clause be performed, for the particular short range transmission. That clause requires testing the logical result of three prior steps – that is, it requires determining that three things are true:

a) "a particular… short range transmission includes a MAC address",

b) "the PBSI is present"; and

c) "the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service".

53. Therefore, there is no "option" to perform, or to not perform, the final step of claim 31.

54. The last part of claim 31 states a requirement to test for three logical states, and one of skill in the art would have understood that to be the case.

55. The result of that test, when the determination is made that all three logical states are true, then the rest of the claim is also performed – namely, a conclusion is made that the device is in proximity, by using both the identifier related information and the unique identifier.

56. In my opinion, one skilled in the art at the time of filing the '410 application would have readily understood the scope of the claim.

57. This conclusion that the device is in proximity is also not optional – it must be performed.

58. I also see that the last part of claim 1 calls for:

> determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;
>
> then:
>
> determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

Petitioner Samsung Ex-1004, 1543

59. These parts of claim 1 require the same three determining steps a), b), and c) to be performed as are recited in claim 31.

60. Claim 1 also requires that the same final determining step to be performed – namely, "if" all three of a), b), and c) are true, then a determination must be made that "an entity or object" is in proximity to the mobile wireless device, by further using the "identifier related information" and the "unique identifier".

61. I note that the analogous language in claim 1 has not been questioned by the Patent Office as being "optional" or "indefinite".

62. In my opinion, one of skill in the art as of the filing date of the '410 application would have therefore also considered claim 31 to be of the exact same scope, and no less definite than claim 1.

Introduction; Claims 1 and 31

63. Claim 1 recites:

> A mobile wireless device comprising:
> a first radio;
> a second radio;
> one or more processors;
> one or more non-transitory memory devices coupled to the one or more processors, the one or more non-transitory memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including:
> receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers;
> receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier , and a proximity beacon service identifier (PBSI);
> determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the

Petitioner Samsung Ex-1004, 1544

particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;

then:

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

64. According to an accepted dictionary definition (See Exhibit 3), "comprising" means "to include or contain", or "to consist; be composed of".

65. According to an accepted dictionary definition (See Exhibit 4), "storing" means "to accumulate or put away, for future use".

66. The plain English meaning of the word "comprising" therefore is not the same thing as the plain English meaning of the word "storing".

67. What is plainly recited in claim 1 is that the two radios are part of an apparatus. The apparatus of claim 1 includes (that is, it "comprises") a "first radio", and "a second radio".

68. The apparatus of claim 1 also comprises "one or more processors", and "one or more memory devices". The one or more memory devices are coupled to the one or more processors, to permit the processor(s) to perform the instructions to process information received from the two radios (such as the "identifier related information" and the "short range transmissions").

69. Claim 31 is a method claim. The method of claim 31 "comprises" a set of steps that are executed within a mobile device, and processes certain information (such as the "identifier related information" and the "short range transmissions") received using two radios.

70. Claim 31 states, in its entirety:

31. A method for facilitating use of proximity beacons, the method executing within a mobile device, and the method comprising:

communicating between the mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions from one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective

Petitioner Samsung Ex-1004, 1545

MAC address, a respective unique identifier (UID), and a proximity beacon service identifier (PBSI);

a) determining that a particular short range transmission of the plurality of short range transmissions includes a MAC address,

b) determining that the proximity beacon service identifier (PBSI) is present, and

c) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service; and

when the three determining steps a) b) and c) are each true, then d) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier.

71. Claim 31 does not recite or use the word "storing" anywhere.

72. To equate the word "comprising" to the word "storing" is therefore also inconsistent within what the claims actually say.

"first radio" and "second radio"

73. Paragraph 12 of the Last Office Action is correct in observing that Fig. 1 shows two wireless devices 106 and 108.

74. However, neither claim 1 nor claim 31 actually recites "two wireless devices".

75. What claim 1 actually recites is "***A*** mobile wireless device" comprising "a first radio" and "a second radio" (emphasis supplied).

76. Note that claim 31 recites a method "executing within ***a mobile device***" with steps of "receiving, at the mobile device, identifier related information, using a first radio" and "receiving, at the mobile device using a second radio, a plurality of short range transmissions…" (emphasis supplied).

Petitioner Samsung Ex-1004, 1546

77. Each of claim 1 and claim 31 therefore refers only to a ***single wireless device***, with that ***single wireless device having two different radios*** (in the case of apparatus claim 1) ***or using two different radios*** (in the case of method claim 31).

78. The Last Office Action therefore confuses the usual and customary meaning of a single "wireless device" "having two radios" with the usual and customary meaning of "two wireless devices".

79. The specification also clearly shows each example wireless device 106 and 108, in both the drawings and in the text, as including the claimed "first radio" and claimed "second radio."

80. Figure 1 from the published version of the '410 application (reproduced below), illustrates mobile device 106 has having the "first radio". That is, the radio that mobile device 106 uses for communicating over link 107 (labelled as being a Local Link, Wi-Fi, Bluetooth, etc) is the claimed "first radio" in one embodiment.

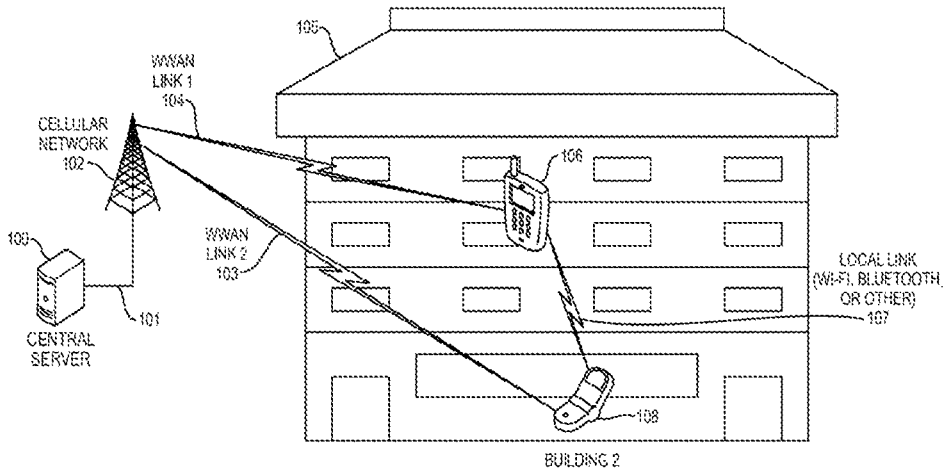


Figure 1

81. The "second radio" in mobile device 106 is the radio 104 that mobile device 106 uses to communicate over the other link 104 (labelled as being a WWLAN (Wireless Wide Area Network) Link 104.

Petitioner Samsung Ex-1004, 1547

82. One of skill in the art understands from Figure 1 that the single device 106 thus , uses two different radios to communicate over the two different wireless links 104 and 107.

83. One of skill in the art also understands each of "lightening bolts" (103,104, and 107) in Figure 1 to illustrate that wireless communication is taking place between the devices connected by the lightening bolts.

84. One of skill in the art also views Figure 1 and sees device 108 as another example mobile device. It is similar to device 106, as it also has a "first radio" – that is the radio that enables the communication over illustrated link 107 (e.g., a Local Link Wi-Fi, Bluetooth, or other radio). The "second radio" in mobile device 108 is the radio for link 103 (labelled as being a WWLAN (Wireless Wire Area Network)

85. It is my understanding that the specification as a whole must be considered to determine whether there is an enabling disclosure or not.

86. In this declaration, I will sometimes refer to various paragraphs of the published version of the '410 application (U.S. Patent Publication 2017/0011425A1) as their corresponding bracketed numbers.

87. For example, paragraphs [0039] and [0043] also provide a complete description of the claimed "mobile wireless device" and/or "mobile device" as follows:

> [0039] Referring to FIG. 1, a central server 100 is connected to devices 106 and 108 by an internet protocol (IP) based network, carried over a series of connections, at least one of which is a wireless connection. For example, the server 100 has a connection allowing IP based communications to a cellular network 102 using connection 101. The cellular network is connected to devices 106 and 108 by wide area wireless links 104 and 103 respectively, allowing for IP based communications between the devices (106 and 108) and the server 100.
>
> ...
>
> [0043] More particularly, a given device 106, 108 uses a short range wireless link 107 such as a Bluetooth (IEEE802.15.1) or Wi-Fi (IEEE802.11) link to detect the presence of other devices such as device 108, and uses the wide area wireless network connections 103, 104 such as IS-2000, WCDMA, GPRS, EDGE, LTE, Wi-Max (IEEE802.16), or the like to perform communications to central server 100, and to perform the actual substantive communications between the wireless devices 106 and 108.
> Device 108 typically uses the short range wireless link 107 and wide area wireless link 103 in a similar manner to locate and initiate communicate with device 106. One

Petitioner Samsung Ex-1004, 1548

> distinction relative to prior art is that the short range wireless 107 is only used for the detection process, or to advertise a device's presence. In this embodiment, specific information called "wireless identifier" or simply "identify" (described in more detail below) is passed between devices 106 and 108 over the short range link 107. By transmitting a wireless identifier using the short range Wi-Fi, Bluetooth or other short range wireless link 107 and receiving wireless identifiers from other devices, this short range wireless link 107 will allow for a proximity detection process.

88. Therefore, one of skill in the art as of the earliest claimed filing date of the application, would have understood that the example claimed wireless device, such as wireless device 106 or wireless device 108, has a first radio needed to communicate on the WWAN link (either link 103 or 104, e.g. such as IS-2000, WCDMA, GPRS, EDGE, LTE, Wi-Max (IEEE802.16), or the like) and a second radio needed to communicate on a local link (e.g., the Wi-Fi or Bluetooth link 107).

89. One of ordinary skill in the art would have further understood the disclosed embodiments including different and incompatible wireless standards for each of the two wireless links (for example WCDMA and Bluetooth) would require two radios, because each radio must conform to the specified wireless standard required for each separate link in order to communicate with their respective end points. One of ordinary skill would, for example, know that a WCDMA radio can not wirelessly communicate with Bluetooth radio, and therefore two radios are required within embodiments of mobile devices 106 and 108.

"memory devices"

90. Paragraph 14 of the Last Office Action notes that the word "memory" appears in paragraph [0041] of the specification. However the Last Office Action neglects to consider that paragraph in its entirety, or the context and meaning of that paragraph with its surrounding paragraphs.

Petitioner Samsung Ex-1004, 1549

91. For example, the prior paragraph [0040] explains that "storage" is part of the wireless device, and issued, along with a processor "for executing wireless system protocols, interfaces, and application level programs":

> [0040] Devices 106, 108 can be considered "client(s)" of the server 100. The clients 106, 108 and server 100 provide processing, storage, and input/output devices for executing wireless system protocols, interfaces, and application level programs according to the invention. Client devices 106, 108 can also be linked through various communications networks to other computing devices, including other client devices/processes and other server computer(s). Communications network(s) providing the connection 101 can typically be part of a remote access network, a global network (e.g., the Internet), a worldwide collection of computers, Local area or Wide area networks, and gateways that currently use respective protocols (TCP/IP, 3G Wireless, Bluetooth, etc.). Other electronic device/computer network architectures are suitable.

92. And paragraphs [0041-0042] further explain that:

> [0041] The internal structure of devices 106, 108 or server 100 includes one or more data processors (not shown in detail) that are well known in the art to include a system bus for data transfer among the other internal components of a computer system (e.g., processor, disk storage, memory, input/output ports, network ports, etc.). Attached to the bus are other input/output devices (e.g., keyboard, mouse, displays, printers, speakers, network interfaces, etc.). Network interfaces allow the computer to connect to various other devices attached to a network. Memory provides volatile storage for computer software instructions and data used to implement an embodiment of the present invention (e.g., applications programs and the like). Disk storage can provide non-volatile storage for computer software instructions and data used to implement an embodiment of the present invention.
>
> [0042] In one embodiment, the invention may include a computer program product including a computer readable medium (e.g., a removable storage medium such as one or more DVD-ROM's, CD-ROM's, diskettes, tapes, etc.) that provides at least a portion of the software instructions for the invention system. Computer program product can be installed by any suitable software installation procedure, as is well known in the art. In another embodiment, at least a portion of the software instructions may also be downloaded over a cable, communication and/or wireless connection. In other embodiments, the invention programs are a computer program propagated signal product 107 embodied on a propagated signal on a propagation medium (e.g., a radio wave, an infrared wave, a laser wave, a sound wave, or an electrical wave propagated over a global network such as the Internet, or other network(s)). Such carrier medium or signals provide at least a portion of the software instructions for the present invention.

Petitioner Samsung Ex-1004, 1550

93. One of skill in the art, at the time the 410 application was filed, would consult all of these paragraphs [0040-0042] to further understand how the claimed wireless device includes storage for "computer software instructions".

94. Such a person would have understood that in one example, a "memory" may provide volatile storage for such programs and that a "disk" provides non-volatile storage for such programs.

95. A dictionary definition of "volatile" include "evaporating rapidly; … fleeting; transient". See Exhibit 6 hereto.

96. A dictionary definition of "transitory" is "lasting only a short time; brief; short-lived; temporary". See Exhibit 7 hereto.

97. Such a person would have, therefore, understood the use of the word "non-transitory" in claim 1 to mean the same thing as "non-volatile" as stated in the specification.

98. That same person would have also understood that the computer program(s) can be installed by "any suitable software installation procedure."

99. For example, one of skill in the art, at the time the invention was made, would have understood paragraph [0042] to mean that computer programs may be stored on a variety of non-volatile, non-transitory computer readable media, and that these would have included DVD-ROMs, CD-ROMs, diskettes, tapes, and other non-volatile media.

100. Paragraph [0041] also explains that a system bus provides for data transfer among these different components.

101. Thus, that person of skill in the art understands that any data (including programs) can be installed by, for example, transferring them from the non-volatile disk storage to the volatile memory via the system bus.

102. The specification thus teaches one of skill in the art how to provide the claimed "non-transitory memory" for "storing a set of instructions" of claim 1.

Petitioner Samsung Ex-1004, 1551

103. It is also my opinion that, even if the specification lacked the detailed description of paragraphs [0041-0042], the skilled person was taught, at least as early as their undergraduate engineering courses, how programs are routinely stored, loaded, and executed in a computer system.

Claim 13 and "downloading application software"

104. Claim 13 depends from claim 1 and adds additional operations performed by the one or more processors as follows:

> sending of the unique identifier by the mobile wireless device to at least one server of the one or more servers; and
>
> in response to the sending of the unique identifier, downloading the application software.

105. Paragraph [0046] of the published specification for the '410 application provides an example where an application is "downloaded" after the "unique identifier" is sent to the server:

> [0046] An example of an application using this infrastructure follows. The device 204 will simply broadcast an identifier, with no WWAN connection but may facilitate advertising or local information. For instance, an account associated with one or more identifiers may belong to a museum. As a museum patron walks to an exhibit, the ***patron's device 202 will receive an identifier sent from museum broadcast device 204 operated by the museum. The patron device 202 passes the identifier or museum device 204 to the central server 100***, which in-turn recognizes it as being associated with that exhibit within that museum and ***passes relevant information back to the user's device 202***. A distinguishing feature of this approach relative to prior art is that the patron device 202 in this example may move out of proximity of broadcast device 204, yet continue to view the content being provided by the server 100 related to the detected broadcast device 204. ***Content may include text, pictures, web pages, application software*** such as games, ***informative display applications***, or other content such as audio or video to be offered to the user's device as well. Other examples might include electronic coupons (such as in a grocery store), menus or special offers in a restaurant. (Emphasis added)

Petitioner Samsung Ex-1004, 1552

106. In this example, a museum patron walks over to an exhibit. Her mobile device 202 receives an identifier from the museum's broadcast device 204. The patron's device then passes that identifier "for" the museum device to the server 100 – and the server then "***passes relevant information back to the user's device".*** The content passed back can include "text, pictures, web pages, and ***application software such as games, informative display applications or other content..***"

107. One of skill in the art, in my opinion, would have appreciated after reading paragraph [0046] that the claimed "application software" is, in some embodiments, b "downloaded"(i.e. "content passed back") to the mobile device as a result of having previously sent the "identifier" to the server.

Claims 45 and 50 and "a single method in context of the rest of the claim"

108. In my opinion, dependent claims 45 and 50 do not introduce any "new matter" that was not already included in the specification as filed.

109. Quite the contrary, an exact description was provided in the application that would have enabled one of skill in the art to understand where each of the elements of claims 45 and 50 are found.

110. Indeed, the specification provides a clear example of an embodiment that performs the claimed steps in a single method "in the context of the rest of the claim",

111. In my opinion, one of skill in the art would have readily interpreted at least Figure 7 and the other parts of the specification that it explicitly references, as an example of an embodiment that is a single such coherent logical method.

Petitioner Samsung Ex-1004, 1553

112. For example, the example coherent method consists of at least the numbered steps 704, 705, 706, 707 illustrated as being executed in sequence in Figure 7.

113. The text in Paragraph [0061] explains the context of Figure 7 to one of skill in the art as follows:

> [0061] FIG. 7 shows an example of a message flow diagram for an embodiment where an individual is in a library for example, and a friend arrives. The individual is notified by their device receiving an identifier that their friend is present and they enter a chat session. Each person has a **device (FIGS. 1, 106 and 108** respectively) **that implements the preferred embodiments described above. The first individual associated with Device 1 (702) referred to as Entity 1 (EI1) performs a detection process as described in FIGS. 4, 5, and 6 previously (step 704). The device identifier associated with Device 2 (703), DI2 is thereby detected. Device 1 (702) then transmits an inquiry message 705 using the WWAN (cellular data link such as GPRS, EDGE, 1×EV-DO, IS-2000, Wi-Max, LTE, or the like) to the server** 701 inquiring if information related to the account and entity associated with DI2 is relevant, and available to the entity EI1 associated with Device 1 (702). The server 701 retrieves the account information related to EI1 and determines that EI2 is listed in a friends list in the account associated with EI1 and that EI1 should be notified when EI2 is detected. Next the server retrieves the account information associated with EI2 and determines that EI1 is on a list of entities which are allowed to be notified of EI2 being present and personal information such as the name of the individual, their phone number and the like. **The server having determined that EI1 wants to be notified and is allowed to be notified responds in Step 706 to Device 1 (702) with a message indicating the DI2 is relevant to EI1 and including information such as Entity Identifier EI2 and associated details. A user application on Device 1 (702) notifies the user that the entity associated with Device 2 is in proximity in step 707.** The user of Device 1 provides input to the device directing it to request a chat session with the entity associated with Device 2 (703), and a message 708 is sent the server 701 commanding "send 'Hello' to EI2". The server acknowledges reception of the message with a "ACK" message 709, in return. Next server 701 sends "Request Chat: 'Hello' from EII" to Device 2 703. The user of Device 2 accepts the chat and returns a message "I'm by the front door" with message 711, sending it to the server to be relayed to device 1 (702).

114. Thus one of skill in the art understands that Figure 7 illustrates a series of steps, performed in sequence.

115. Those steps are carried out by one of the example wireless devices 106 (or 108) that the skilled person knows were already shown and described in connection with Fig. 1.

Petitioner Samsung Ex-1004, 1554

116. The skilled reader also understands paragraph [0061] to mean that step 704, which is the first step shown in Fig. 7, performs an "identifier search" process" according to the detection process that was previously described in Figures 4, 5 and 6.

117. I will now refer to each of the features of claims 45 and 50 called into question in the Last Office Action, and where support for those questioned elements are found in the single embodiment of Figure 6 and Figure 7.

> *"sending the unique identifier, using the first radio, to at least one server of the one or more servers"*

118. Step 705 is a step of the wireless device (106 or 108) sending a detected identifier (e.g., DI2) to the server 100 via the claimed "first radio" that was shown in Fig. 1.

> *"receiving further information relating to the entity or object associated with being within proximity to the mobile device"*

119. Step 706 represents that the same wireless device then "receives further information". In this particular example, the "further information" is the "Device 2 Entity Identifer" EI2.

> *"receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service*

120. From step 704 and paragraph [0061], the skilled reader also understands the wireless device (106 or 108) also performs a "IBSS scan process" (as shown in the example of Fig. 6) to receive "beacon transmissions" 604, 605. These beacons are received using the short range

Petitioner Samsung Ex-1004, 1555

wireless link (such as Bluetooth (IEEE802.15.1) or WiFi (IEEE 802.11) accessible via the claimed "second radio".

> *each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI)"*

121. The skilled person also understands the description of step 704 to mean that the example IBSS beacons were already shown in Fig. 6 and described in the corresponding text.

122. The specification actually at least two different ways to assign these beacon transmission fields to the three claimed featured purposes: a MAC address, a "Proximity Beacon Service Identifier (PBSI) and a "unique identifier'.

123. The immediate prior paragraph, paragraph [0060] explains that in one embodiment, the claimed "MAC address" is the MAC address of the station or the network adapter, claimed "PBSI" is the BSSID field of the beacon, and the claimed "unique identifier" is the SSID field of the beacon.

124. Paragraph [0060] also explains another embodiment, where the claimed "MAC address is the BSSID field, the claimed "PBSI" is the SSID, and the claimed "unique identifier" is the MAC address of the station identifier or network adapter"[1].

> *"determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier associated with the particular short range transmission."*

[1] Exhibit 8 submitted herewith (described in more detail below), is a chart with references to the parts of paragraph [0060] and Figure 6 that explain example formats for these beacon transmissions.

Petitioner Samsung Ex-1004, 1556

125. Steps 706 and 707 and the associated text in paragraph [0061] also explain how a "user application" running on the mobile device then uses the detected unique identifier (DI2) and the entity-related information (EI1) returned from the server to notify a user that a specific entity is in proximity.

126. For example, the specification explains at [0061]:

> "The server having determined that EI1 wants to be notified and is allowed to be notified responds in Step 706 to Device 1 (702) with a message indicating the DI2 is relevant to EI1 and including information such as Entity Identifier EI2 and associated details. A user application on Device 1 (702) notifies the user that the entity associated with Device 2 is in proximity in step 707."

127. Note here that paragraph [0061] also explains how "relevance", as that word is used in the specification, means that the entity associated with Device 2 is "in proximity".

128. See too the reference to "information related to the account and entity associated with DI2 is relevant and available" and that "A user application notifies the user that the entity associated with Device 2 is in proximity in step 707".

129. Therefore, the specification explains how both the unique identifier (DI2) and the identifier related information from the server (EI2) are also used in the single coherent method to make the proximity determination, by the user application running on mobile Device 1.

Claims 44 and 46 and "preventing the sending of the unique identifier"

130. What claim 44 actually states is that (claim 46 is analogous):

> preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission.

Petitioner Samsung Ex-1004, 1557

131. In my opinion, one of skill in the art would have interpreted these words to mean that the ***previously*** detected unique identifier is what is prevented from being sent to the server.

132. My interpretation is also consistent with the specification. For example, paragraphs [0047] and [0048] provide:

> [0047] .. If identifiers are found in 302, the device may employ an action function 303, which would ***act as a filter that determines which of the detected identifiers should be passed to the server.*** This function may instead be omitted and all identifiers passed to the server 100. The idealized effect of the action function would be to reduce the number of requests to the server by not re-requesting recently requested identifiers which have already been passed to the server, for some period of time. [..]
>
> [0049] [..] In the preferred embodiment, the server would determine the identity and the relevance of the detected identifiers, ***and the action function 303 would work to reduce frequency of re-requests to the server***. ...

133. Therefore, there is a first step of receiving detected identifiers; but only after that step is performed, is then a step of passing the detected identifiers to the server performed.

134. In this example embodiment described in paragraphs [0047-0048], an "action function" can be used to reduce the frequency of re-requests to the server, for example, by not submitting a subsequent request to the server for identifiers that have already been passed (for a period of time).

135. Therefore, the specification supports both an initial step of (a) receiving identifier related information from the server, and then (b) preventing the sending of that same respective detected identifier should it be subsequently received.

Claim 57 and sending email

Petitioner Samsung Ex-1004, 1558

136. Claim 57 states:

> 57. The method of Claim 31, additionally comprising:
> sending the unique identifier, using the first radio, to at least one server of the one or more servers, and wherein the one or more servers perform the following steps:
> associating an object or entity as being within proximity to the mobile device;
> storing a user's purchasing practices or requests from the one or more servers, related to the associated object or entity information as stored proximity user behavior;
> retrieving a stored user email address associated with an account associated with the mobile device; and
> sending an email, addressed to the user email address containing customized content based upon the stored proximity user behavior.

137. While the Last Office Action mentions paragraph [0067] of the specification, it contains no attempt to interpret the words in that paragraph or explain why it supposedly has any shortcomings.

138. What paragraph [0067] actually states is that:

> [0067] Finally, the transaction details may be stored by the server, or sent to a thirdly party ***server for tracking spending habits of that account holder***, or customers of that merchant allowing the merchant to track that specific customer's behavior and ***cater to them in the future with various specials delivered via email***, or during their next visit via their device in the form of an electronic coupon. This process can be performed with a goal to help the merchant expose the customer to other products or services the merchant believes the customer might find desirable.

139. One of skill in the art therefore understands, after reading paragraph [0067] that the service can track "prior habits" of an account holder. The server then caters to such users in the future, by sending emails to their device with specials, or in the form of an electronic coupon.

140. One of skill in the art understands that in order for the server to send an email to a user, it must have previously stored the email address, so that it knows where to send the customized content.

Petitioner Samsung Ex-1004, 1559

141. Therefore, support is provided for the claimed "storing a user's purchasing practices or requests", "retrieving a stored user email address", and "sending an email … containing customized content based on prior behavior".

Relative Terms

142. Paragraphs 29-36 of the Last Office Action conclude that the terms "respective MAC address" "respective unique identifier" and "determining .. in proximity" as used in claims 1 and 31 and the phrase "receiving … in proximity" as used in claims 45 and 50 are "relative terms". I disagree.

"Respective"

143. I first refer to the attached dictionary definition (Exhibit 5) of the word "respective". It means "pertaining individually or severally to each of a number of persons, things, etc.; particular."

144. In claims 1 and 31, the term "respective" is used in the customary way, as an attributive adjective – meaning a feature that concerns or is appropriate to each of the things listed.

145. Therefore, as used in claims 1 and 31, the term "respective" is actually indicate that each proximity beacon transmission includes a particular "MAC address", and a particular "unique identifier."

Petitioner Samsung Ex-1004, 1560

146. In other words, the plain meaning to one of skill in the art is that each "proximity beacon transmission" has it own MAC address and unique identifier, which may be different from those of other detected transmissions.

147. The lack of the adjective "respective" before the recitation of "proximity beacon service identifier (PBSI)" means, in claims 1 and 31, to one of skill in the art, that the PBSI in a proximity beacon transmission may not be "particular". That is, this part of the claim means that more than one proximity beacon transmission may share the **same** PBSI.

148. This interpretation makes perfect sense to one of skill in the art, since the purpose of the PBSI is to identify transmissions associated with the proximity beacon service. The PBSI for a given service is shared among multiple wireless devices that use the service. But the MAC address and the unique identifier, will be unique to a particular device and a particular entity associated with the device.

149. Paragraph [0060] of the published application, in connection with Figure 6, describes different embodiments of the PBSI. To the extent that the Last Office Action calls into question whether the claimed format for the PBSI is supported, the Attached Exhibit 8 contains a detailed reference to where support for each of two possible embodiments is found in Paragraph [0060].

150. Therefore, one of skill in the art, as of the earliest claimed filing date of the '410 application, understands what the word "respective" means. It is not being used as a "relative term". Its use is consistent with the usual English language usage and the specification as interpreted by one of skill in the art.

"Proximity"

Petitioner Samsung Ex-1004, 1561

151. Regarding claim 1, one of skill in the art would have understood that the word "proximity" is not also a "relative" term.

152. By way of review and as explained above, the '410 application explains how a certain type of radio transmission, called a proximity beacon, can be used to activate special services when wireless transmissions of a certain type are detected. A first radio receives, from a server, "identifier related information" associated with the service. A second radio receives a so-called short-range transmission. When that short range transmission has a particular format - e.g., a so-called proximity beacon transmission - then that fact can be used, together with the received "identifier related information", to determine that an entity or object associated with the service is "in proximity" – that is, it can now participate in the services enabled by the proximity beacon.

153. To properly interpret a claim, I understand that it must be read in its entirety, and in the context of the specification.

154. Accordingly, claim 1 recites a device having a first and second radio, and a processor that executes steps including (with support in the specification highlighted):

> receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers;
>
> receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions ***when the device is located within a detection range of one or more beacon transmitter devices*** associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier , and a proximity beacon service identifier (PBSI);
>
> determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;
>
> then:
>
> determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

Petitioner Samsung Ex-1004, 1562

155. Thus, the claim is not just referring to measuring some distance between devices. Rather, the second "receiving step" states that the "short range transmissions" are received "**when the device is located within a detection range".**

156. One of skill in the art thus understands such short range transmissions will be received when, say the device 106 of Fig. 1 is within radio range of another device 108, e.g., the device 106 is receiving transmissions over the short range local link 107.

157. One of skill in the art also looks to the specification to understand what is meant by a "proximity beacon transmission" in the claim.

158. The word "proximity" appears numerous times in the specification.

159. As one example, paragraph [0060] of the specification describes the "ad hoc" operation mode (as opposed to "infrastructure mode") as being the preferred embodiment when the network is a Wi-Fi network:

> "The second topology for Wi-Fi networks is the so-called Ad-Hoc mode of operations, referred to as an independent basic service set or IBSS."

and that

> "In an IBSS all devices participating or advertising their interest in participating in an ad-hoc network transmit identifiers called beacons. These beacons contain the MAC address of the transmitting network adapter, the basic Service set identifier (BSSID), and ad-hoc network name or service set identity (SSID).")

160. That very same paragraph [0060] then explains different ways to assign these proximity beacon transmission fields to the three claimed featured purposes: a MAC address, a "Proximity Beacon Service Identifier (PBSI) and a "unique identifier'. See also Exhibit 8 hereto.

161. Consistent with the description, the accordingly recites that the "proximity" determination depends on several things.

Petitioner Samsung Ex-1004, 1563

162. First, a determination is made of whether the "short range transmission" is of a particular type -- namely a "proximity beacon transmission" that has a format associated with the "proximity beacon service".

163. As claimed, this determination involves examining the received short range transmission – as received over the short range radio link (e.g., WiFi or Bluetooth) to see if it has the three claimed things – a) a MAC address, a PBSI, and whether the PBSI indicates the transmission is associated with the service.

164. Taking time to review the rest of the claim in context makes it clear to one of skill in the art that (i) one of these identifiers (the claimed "PBSI") is used to indicate that the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service and that (ii) another identifier (the claimed "unique identifier") is used along with "identifier related information" to determine if an entity or object associated with the proximity beacon service is in proximity.

165. Indeed, how the claimed device determines if an "entity or object" "associates with the services" is "in proximity" is even explicitly defined in the plain meaning of the claim itself.

166. Namely, when the three fields indicate that a beacon transmission having the proper format is detected as being present, as the claim states, that fact is then used together with received unique identifier to determine that a device associated with that beacon service has been detected, and thus is "in proximity".

167. One of skill in the art thus understands the metes and bounds of the claim, and where to find a description in the specification.

168. Other parts of the specification also support this interpretation. For example, recall that paragraph [0046] explains a museum patron example:

> [0046] As a museum patron walks to an exhibit, the patron's device **202** will receive an identifier sent from museum broadcast device **204** operated by the museum. *The patron device **202** passes the identifier or museum device **204** to the central server **100**, which in-turn recognizes it as being associated with that exhibit within that museum and passes relevant information back to the user's device **202**.* A distinguishing feature of this approach relative to prior art is that the patron device **202** in this example may ***move***

Petitioner Samsung Ex-1004, 1564

out of proximity of broadcast device **204**, yet continue to view the content being provided by the server **100** related to the detected broadcast device **204**. Content may include text, pictures, web pages, application software such as games, informative display applications, or other content

169. Here in this embodiment, the museum patron's device is at first receiving and exchanging identifiers over the Bluetooth or WiFi radio. But later the patron moves to another location in the museum, and thus "moves out of proximity", meaning that the transmissions having "identifiers" associated with the "proximity beacon service" are no longer being received. And yet despite having moved out of range, content from the museum broadcast device can still be viewed.

170. The meaning of the term "proximity" is thus further described in [0046] as well.

171. I note also that Step 707 of Figure 7 states "Notify Device 1 Entity that Device 2 Entity is within proximity". The reader understands that this "notification" is based in part, upon the detection of device 2 beacon transmissions in the prior step 704 which states "Devices Perform Identifier Search Process. Device 1 detects Device 2 identifier (DI2)".

172. The specification describes the context of these relevant steps of Figure 7 as follows:

[0061] .... Each person has a device (FIG. 1, 106 and 108 respectively) that implements the preferred embodiments described above. The first individual associated with Device 1 (702) referred to as Entity 1 (EI1) performs a detection process as described in FIGS. 4, 5, and 6 previously (step 704). The device identifier associated with Device 2 (703), DI2 is thereby detected ... **A user application on Device 1 (702) notifies the user that the entity associated with Device 2 is in proximity in step 707.**

173. The meaning of two devices "being in proximity" is also understood from still other parts of the specification:

[0011]....In one embodiment, this can be accomplished by a first device using a first short range wireless capability **to detect an identifier transmitted from a second device in proximity to the first device, ideally using existing short range radio communication standard capabilities such as Bluetooth (IEEE802.15.1-2002) or Wi-Fi (IEEE802.11).** The detected identifier, being associated with the device, is also associated with an entity. Rather than directly exchanging application data flow between the two devices using the short range wireless capability, a second wireless capability then allows for one or more of the devices to communicate with a central server via the internet, and perform an exchange of application data flow."

Petitioner Samsung Ex-1004, 1565

and

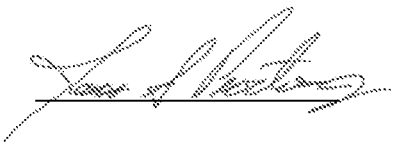
> [0043] .... By transmitting a wireless identifier using the short range Wi-Fi, Bluetooth or other short range wireless link 107 and receiving wireless identifiers from other devices, this **short range wireless link 107 will allow for a proximity detection process.**"

174. In other words, the proximity detection depends upon the two devices being able to receive (e.g., detect) identifiers received using the short range radio (either Bluetooth or WiFi), in different embodiments.

175. Therefore, it is my opinion that one of skill in the art would be reasonably apprised as to what the words "respective" and "proximity" mean in the context of the claims, and certainly after reading and appreciating the content of the specification.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. I have been warned that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon.

Executed this 20th day of April 2020 in _____Indialantic, FL_____



James A. Proctor, Jr.

Petitioner Samsung Ex-1004, 1566

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: James A. Proctor, Jr., et al.	
Serial No.: 15/271,410	Examiner: Sherr, Cristina Owen
Filed: September 21, 2016	Art Unit: 3685
For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED	Confirmation No.: 7653

TRANSMITTAL

Enclosed herewith is a Declaration of James A. Proctor, Jr. Under 37 CFR 1.132, with Exhibits 1 through 8 attached thereto.

Per Manual of Patent Examining Procedure (MPEP) 716.01(A)(1), this filing made prior to final rejection and is therefore timely.

April 20, 2020

Respectfully submitted,

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Petitioner Samsung Ex-1004, 1567

Dictionary.com Thesaurus.com

DEFINITIONS storing

TOP DEFINITIONS QUIZZES RELATED CONTENT EXAMPLES

EXPLORE DICTIONARY BRITISH IDIOMS AND PHRASES

store [stawr, stohr] SHOW IPA

SEE SYNONYMS FOR *store* ON THESAURUS.COM

noun

1 an establishment where merchandise is sold, usually on a retail basis.

2 a grocery:
We need bread and milk from the store.

SEE MORE

verb (used with object), **stored, stor·ing.**

8 to supply or stock with something, as for future use.

9 to accumulate or put away, for future use (usually followed by *up* or *away*).

SEE MORE

verb (used without object), **stored, stor·ing.**

12 to take in or hold supplies, goods, or articles, as for future use.

Petitioner Samsung Ex-1004, 1568

Dictionary.com Thesaurus.com

DEFINITIONS respective

Pick T
Word
The C
And V

TOP DEFINITIONS QUIZZES RELATED CONTENT EXAMPLES

EXPLORE DICTIONARY BRITISH

respective [ri-**spek**-tiv] SHOW IPA

SEE SYNONYMS FOR *respective* ON THESAURUS.COM

adjective

1 pertaining individually or severally to each of a number of persons, things, etc.; particular:
I will now discuss the respective merits of the candidates.

Petitioner Samsung Ex-1004, 1569

Dictionary.com Thesaurus.com

DEFINITIONS transitory

Test Your Word Play!

Advertisement

TOP DEFINITIONS QUIZZES RELATED CONTENT EXAMPLES

EXPLORE DICTIONARY BRITISH

transitory

[**tran**-si-tawr-ee, -tohr-ee, -zi-] SHOW IPA

SEE SYNONYMS FOR *transitory* ON THESAURUS.COM

adjective

1 not lasting, enduring, permanent, or eternal.

2 lasting only a short time; brief; short-lived; temporary.

Advertisement

QUIZZES

PSST, CALLING ALL QUIDNUNCS! THE NEW WORD OF THE DAY QUIZ HAS ARRIVED!

This week's quiz is chockablock with wonderful words. See how many you remember

Petitioner Samsung Ex-1004, 1570

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: James A. Proctor, Jr., et al.	
Serial No.: 15/271,410	Examiner: Sherr, Cristina Owen
Filed: September 21, 2016	Art Unit: 3685
For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED	Confirmation No.: 7653

NOTICE OF APPEAL

The Applicant hereby appeals to the Patent Trial and Appeal Board from the last decision of the examiner.

This is a reinstatement of an appeal after prosecution was reopened with the office action of January 22, 2020. Per MPEP 1204.01, the previously paid appeal fees under 37 CFR 41.20 should be applied to this new appeal on the same application. A final Board decision has not been made on the prior appeal. Therefore, no additional fee is believed to be due.

Nonetheless, authorization is given to charge any fees due to Deposit Account No 50-4929.

April 21, 2020

Respectfully submitted,

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Electronic Acknowledgement Receipt

EFS ID:	39218531
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	21-APR-2020
Filing Date:	21-SEP-2016
Time Stamp:	14:06:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Notice of Appeal Filed	20200421_111054-0001U4C7_TPO_NoticeofAppeal.pdf	70951 745276b19e991974358d40b2aae8a8b8360d2da3	no	1

Warnings:

Information:	
Total Files Size (in bytes):	70951

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: James A. Proctor, Jr., et al.	
Serial No.: 15/271,410	Examiner: Sherr, Cristina Owen
Filed: September 21, 2016	Art Unit: 3685
For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED	Confirmation No.: 7653

AMENDMENT AFTER NOTICE OF APPEAL
PURSUANT TO 37 CFR 41.33

Appellant hereby submits this Amendment after the Notice of Appeal filed on April 21, 2020.

Amendments to the Claims begin on page 2.

Remarks begin on page 11.

Petitioner Samsung Ex-1004, 1574

REMARKS

This Amendment is filed after a Notice of Appeal, but prior to filing an Appeal Brief. It is believed to be proper and timely as it addresses a requirement of form set forth in the last office action dated January 22, 2020.

In particular, claim 17 stands rejected due to lack of antecedent basis for the claimed "first and second unique" in line 6. The above amendment adds the word "identifier" after that phrase. The recitation in line 6 then would correctly refer back to the "first unique identifier" and "second unique identifier" in lines 4 and 5 of the same claim 17.

Since entry of the amendment would therefore reduce the number of issues on appeal, it is also believed to be proper and timely.

April 22, 2020

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Petitioner Samsung Ex-1004, 1575

AMENDMENTS TO THE CLAIMS

The following listing replaces all prior versions of the claims:

1. (Previously Presented). A mobile wireless device comprising:

a first radio;

a second radio;

one or more processors;

one or more non-transitory memory devices coupled to the one or more processors, the one or more non-transitory memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including:

receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers;

receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier , and a proximity beacon service identifier (PBSI);

determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;

then:

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

Petitioner Samsung Ex-1004, 1576

2. (Previously Presented). The mobile wireless device of Claim 1, wherein the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

3. (Cancelled).

4. (Previously Presented). The mobile wireless device of claim 1 wherein the one or more processors further execute the instructions to perform operations including:

receiving, by the second radio, a first proximity beacon transmission including a first MAC address and a first unique identifier at a first time; and

receiving, by the second radio, a second proximity beacon transmission including a second MAC address and a second unique identifier at a second time, the second MAC address being different from the first MAC address and the second unique identifier being different from the first unique identifier; and

associating the first and second unique identifier with a single beacon transmitter device.

5-7. (Cancelled).

8. (Previously Presented). The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform operations including:

further determining that at least one beacon transmitter device associated with the beacon service is in proximity to the mobile wireless device, by utilizing an action function including one or more previously downloaded unique identifiers.

9-11. (Cancelled).

12. (Previously Presented). The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform operations including

determining, based upon at least a portion of the identifier related information, that at least one beacon transmitter is a broadcast device having a predetermined location.

Petitioner Samsung Ex-1004, 1577

13. (Previously Presented). The mobile wireless device of Claim 1, wherein the identifier related information comprises application software for execution upon the mobile wireless device, and the one or more processors further execute the instructions to perform operations including:

sending of the unique identifier by the mobile wireless device to at least one server of the one or more servers; and

in response to the sending of the unique identifier, downloading the application software.

14. (Cancelled)

15. (Previously Presented). The mobile wireless device of Claim 4 wherein

the identifier related information comprises a list of contact information, and the one or more processors further execute the instructions to perform operations including:

further determining that at least one beacon transmitter device associated with the beacon service is further matched with an entity included within the list of contact information based upon comparing a contact identifier information with at least the portion of the unique identifier, and

the mobile wireless device, upon determining there is a match, allowing further communications with the detected beacon transmitter device associated with the entity included within the list of contact information, wherein the further communications utilize the first radio.

16. (Cancelled).

17. (Currently Amended). The mobile wireless device of claim 1 wherein the one or more processors further execute the instructions to perform operations including:

Petitioner Samsung Ex-1004, 1578

receiving, via a second radio, the plurality of proximity beacon transmissions further includes receiving a first unique identifier at a first time that is different from a second unique identifier received at a second time; and

associating the first and second unique identifier with a single beacon transmitter device.

18-30. (Cancelled).

31. (Previously Presented). A method for facilitating use of proximity beacons, the method executing within a mobile device, and the method comprising:

communicating between the mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions from one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier (UID), and a proximity beacon service identifier (PBSI);

a) determining that a particular short range transmission of the plurality of short range transmissions includes a MAC address,

b) determining that the proximity beacon service identifier (PBSI) is present, and

c) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service; and

when the three determining steps a) b) and c) are each true, then d) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier.

32-34. (Cancelled).

Petitioner Samsung Ex-1004, 1579

35. (Previously Presented). The method of claim 31,

wherein a first one of the plurality of proximity beacon transmissions received at a first time includes a first unique identifier, and wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier the second unique identifier being different from the first unique identifier; and

associating both the first unique identifier and the second unique identifier with a particular entity or object in proximity to the mobile device.

36-40. (Cancelled).

41. (Previously Presented). The method of claim 31 wherein the MAC address is selected from a group consisting of (a) a randomly generated 48 bit number matching a format of a MAC address and (b) a Bluetooth BD_ADDR.

42. (Previously Presented). The method of claim 31

wherein a first one of the plurality of proximity beacon transmissions is received at a first time and includes a first unique identifier and first MAC address, and the Proximity beacon Service Identifier (PBSI), and

wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier different from the first unique identifier and a second MAC address different from the first MAC address, and the proximity beacon service identifier; and

associating both the first unique identifier and the second unique identifier with the same entity or object in proximity to the mobile device.

43. (Withdrawn) A method for facilitating use of proximity beacons comprising:

communicating between a mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

Petitioner Samsung Ex-1004, 1580

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including proximity beacon transmissions from a beacon transmitter device associated with a proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI);

wherein the MAC addresses and unique identifiers associated with the proximity beacon transmissions as received from the beacon transmitter device associated with the proximity beacon service occasionally change;

wherein the receiving, at the mobile device using the second radio, the proximity beacon transmissions occurs without first transmitting, by the mobile device, to the beacon transmitter device; and

when a particular short range transmission:

a) includes a MAC address; and

b) includes a proximity beacon service identifier (PBSI); and

c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service,

then performing additional steps including:

determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier;

sending the unique identifier, using the first radio, to at least one server of the one or more servers; and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

44. (Previously Presented). The method of Claim 31, further comprising

preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission.

Petitioner Samsung Ex-1004, 1581

45. (Previously Presented). The mobile wireless device of Claim 1, wherein the instructions further comprise:

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

46. (Previously Presented). The mobile wireless device of Claim 1, wherein the instructions further comprise:

preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission.

47. (Previously Presented). The mobile wireless device of Claim 1, wherein the instructions further comprise:

controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device.

48. (Previously Presented). The method of Claim 31, further comprising:

receiving, using the first radio, access code information by the mobile device from at least one of the servers; and

utilizing the access code information to gain access to the entity or object determined to be in proximity to the mobile device.

49. (Previously Presented). The method of Claim 31, wherein receiving the identifier related information, using the first radio, is performed in response to sending at least the unique identifier to at least one of the one or more servers using the first radio.

50. (Previously Presented). The method of Claim 31, additionally comprising:

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and

Petitioner Samsung Ex-1004, 1582

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

51. (Previously Presented). The method of Claim 50, wherein the further information relates to one or more of the following:

a loyalty program;

a payment service; or

a coupon relating to an entity in proximity to the mobile device; or

advertising content.

52. (Previously Presented). The method of Claim 50, wherein the further information relates to a service for providing a menu for use by a user of the mobile device for use in purchasing items, and further comprising:

allowing for the user take delivery at or near the location of a fixed proximity beacon device.

53. (Previously Presented). The method of Claim 50, wherein the further information relates to a nearby user of an application on another device, in common with an application on the mobile device.

54. (Previously Presented). The method of Claim 53, wherein the application is a multiuser game.

55. (Previously Presented). The method of Claim 31, additionally comprising:

controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device.

56. (Previously Presented). The method of Claim 31, wherein the step of determining that an entity or object is within proximity further comprises:

comparing the identifier related information with the unique identifier or information derived from the unique identifier.

Petitioner Samsung Ex-1004, 1583

57. (Previously Presented). The method of Claim 31, additionally comprising:

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and wherein the one or more servers perform the following steps:

associating an object or entity as being within proximity to the mobile device;

storing a user's purchasing practices or requests from the one or more servers, related to the associated object or entity information as stored proximity user behavior;

retrieving a stored user email address associated with an account associated with the mobile device; and

sending an email, addressed to the user email address containing customized content based upon the stored proximity user behavior.

58. (Previously Presented). The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform the operations for determining that an entity or object is within proximity by further:

comparing the identifier related information with the unique identifier or information derived from the unique identifier.

59. (Previously Presented). The mobile wireless device of Claim 1, wherein the receiving of the identifier related information, using the first radio, is performed in response to the one or more processors executing instructions for:

sending at least the unique identifier to at least one of the one or more servers using the first radio.

60. (Previously Presented). The method of Claim 31, wherein the proximity beacon transmissions are received, at the mobile device, without requiring the mobile device to first perform a step of transmitting to the one or more beacon transmitter devices from which the plurality of proximity beacon transmissions are received.

Petitioner Samsung Ex-1004, 1584

Electronic Acknowledgement Receipt

EFS ID:	39227897
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/271,410	Filing Date 09/21/2016	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	04/22/2020	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 30	Minus	** 30	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	OPAC
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/BRIDGET C. MONROE/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: James A. Proctor, Jr., et al.	
Serial No.: 15/271,410	Examiner: Sherr, Cristina Owen
Filed: September 21, 2016	Art Unit: 3685
For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED	Confirmation No.: 7653

APPEAL BRIEF

Appellant hereby submits this Appeal Brief in response to the Office Action dated January 22, 2020, and in furtherance of the Notice of Appeal filed April 21, 2020.

Appellant requests that the Office continue to treat this application and this appeal as a "special case" to be advanced out of turn under the procedures for MPEP 1203(II). A Request for Prioritized Examination was granted on September 7, 2018 and a Petition to Make Special Due to Age was granted on September 23, 2019.[1]

[1] "If the Applicant remains diligent, an application for patent that has once been made special and advanced out of turn by the United States Patent and Trademark Office (Office) for examination shall continue to be special throughout its entire course of prosecution in the office, including appeal, if any, to the Board." See MPEP 708.01.

Petitioner Samsung Ex-1004, 1588

TABLE OF CONTENTS

I. Real Party in Interest 4

II. Related Appeals and Interferences 4

III. Summary of Claimed Subject Matter 5

IV. Issues on Appeal 8

V. Argument 9

1. Claim Rejections – 35 USC 112, First Paragraph 9

(a) "First radio" and "second radio" 10

(b) "Memory" 13

(c) Claim 13 and "downloading application software" 15

(d) Claims 45 and 50 and "sending a unique identifier" and "receiving further information" in the context of a single method 16

i. Steps 704, 705, 706 and 707 are one example embodiment of a "single, coherent logical method" 17

ii. Step 704 includes the claimed "receiving using the second radio" 18

iii. The "proximity beacon transmissions" in step 704 include a "MAC address of the station device or the network adaptor", a "BSSID", and an "SSID" which are one embodiment of the claimed "MAC address", "PBSI" and "unique identifier" 18

iv. DI2 is the claimed "identifier related information" as sent to the server in step 705, EI2 is the claimed "further information" as returned in step 706, and the claimed "proximity determination" is step 707, in this embodiment 20

(e) Claims 44 and 46 and "preventing the sending of the unique identifier" 21

(f) Claim 57 and "retrieving a stored user email" and "sending an email based on the stored user behavior" 23

(g) All other dependent claims are allowable 24

Petitioner Samsung Ex-1004, 1589

2. Claim Rejections – 35 USC 112, Second Paragraph *25*

(a) Relative terms do not automatically render claims indefinite *27*

(b) "Respective" is not being used as a "relative" word *28*

(c) "Proximity" is clear from the claim itself and consistent with the specification *29*

(d) No step is "missing" in claim 13 ..... *33*

(e) It is proper for claim 1 to be "defined in terms of the claim itself" *34*

(f) The supposed "hybrid" format for claim 1 is permissible *35*

(g) Claim 17 has been amended *36*

(h) The other dependent claims are also allowable *37*

(i) The last clause of claim 31 must be performed, and thus is not indefinite *37*

3. Conclusion *40*

VI. Claims Appendix *41*

VII. Evidence Appendix *50*

Exhibit A. Definition of "comprising"

Exhibit B. Definition of "storing"

Exhibit C. Definition of "respective"

Exhibit D. Definition of "volatile"

Exhibit E. Definition of "transitory"

Exhibit F. U.S. Patent Application Publication 2017/0011425A1

Petitioner Samsung Ex-1004, 1590

I. *REAL PARTY IN INTEREST*

The real party in interest is Proxicom Wireless, LLC by way of assignments as recorded at the U.S. Patent and Trademark Office at Reel/Frame 040276/0954 on November 10, 2016 and at Reel/Frame 040275/0722, also on November 10, 2016.

II. *RELATED APPEALS AND INTERFERENCES*

A judicial proceeding in the United States District Court, Middle District of Florida, Orlando Division, entitled "Proxicom Wireless, LLC v. Macy's, Inc. and Macy's Florida Stores, LLC (No. 6:18-cv-64-Orl-37GJK), now concluded, involved several issued patents that claim priority to the same application involved in this appeal.

A judicial proceeding currently pending in the United States District Court, Middle District of Florida, Orlando Division entitled "Proxicom Wireless, LLC v. Target Corporation" (No. 6:19-cv-1886-RBD-LRH), involves several patents that claim priority to the same application involved in this appeal.

Other than the judicial proceedings listed above, there are no other prior or pending appeals, interferences, trials before the Board, or judicial proceedings (collectively, "related cases") which satisfy all of the following conditions: involve an application or patent owned by the appellant or assignee, are known to appellant, the appellant's legal representative, or assignee, and may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

Petitioner Samsung Ex-1004, 1591

III. SUMMARY OF CLAIMED SUBJECT MATTER

In the following summary, Appellants have provided example references to sections of the specification and drawings in parenthesis showing support for the subject matter defined in the claims, as required by 37 C.F.R. §41.37. But the specification and drawings also include additional support for other example embodiments encompassed by the claimed subject matter. Thus, the references in this section are only intended to be illustrative and not restrictive.

Briefly, the Appellant's invention uses a certain type of radio transmission, called a proximity beacon, to activate special services when wireless devices are detected near one another. In the approach set forth in the claims, as more fully explained below, a wireless device uses two radios for this purpose. A first radio receives, from a server, "identifier related information" associated with the service. The second radio receives a so-called short-range transmission. When a short range transmission has a particular format - a so-called proximity beacon transmission - then that fact can be used, together with the received "identifier related information", to determine that an entity or object associated with the service is in proximity.

The pending independent claims 1 and 31 are reproduced below, with citations to pages (p.) and line numbers (ll.) containing supporting passages from the originally filed specification and drawings shown in parentheses.

1. A mobile wireless device **(Figure 1, device 108)** comprising:
a first radio **(p. 11 ll. 3-5, Figure 1, WWAN Link 1 104)**;
a second radio **(p. 11 ll 1-3, Figure 1, Local Link 107)**;
one or more processors **(p.10 ll.7-28)**;
one or more non-transitory memory devices coupled to the one or more processors, the one or more non-transitory memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including **(p.10 ll.13-28)**;

Petitioner Samsung Ex-1004, 1592

receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers **(p.18 ll.6-8, Figs. 6 and 7, step 704)**;

receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier , and a proximity beacon service identifier (PBSI) **(p. 17 ll.8-19, p. 18 ll.6-8, Figure 6 elements 604, 605, 606; Figure 7, step 704)**;

determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service **(p. 17 ll 8-20, p. 18 ll. 5-12, Figure 7, steps 704 and 705; see also p.13 ll.7-12 and Figure 3)**;

then:

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier **(p. 18 ll.12-22, Figure 7, steps 706, and 707); see also p.13 ll.19-27 and Figure 3; see also p.19 ll.10-18 and Figure 8A; see also p. 13 ll.7-9)**.

31. A method for facilitating use of proximity beacons, the method executing within a mobile device **(p. 10, ll 7-28, Figure 1, device 108)**, and the method comprising:

communicating between the mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio **(p. 11 ll. 3-5, Figure 1, WWLAN Link 1 104; and p.18 ll.6-8, Figure 7, step 704)**;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, **(p. 11 ll 1-3, Figure 1, Local Link 107)** including a plurality of proximity beacon transmissions from one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier (UID), and a proximity beacon service identifier (PBSI) **(p. 17 ll.8-29, p. 18 ll.6-8; Figure 6 elements 604, 605, 606;**

Petitioner Samsung Ex-1004, 1593

Figure 7, step 704);

a) determining that a particular short range transmission of the plurality of short range transmissions includes a MAC address **(Figure 7, step 704; p. 17 ll 8-12)**

b) determining that the proximity beacon service identifier (PBSI) is present **(Figure 7, step 704, p. 17 ll.8-12),** and

c) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service **(p. 17 ll.8-20, p. 18 ll. 5-12, Figure 7 steps 704 and 705; see also p.13 ll.7-12 and Figure 3)**; and

when the three determining steps a) b) and c) are each true, then d) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier **(p. 18 ll.12-22, Figure 7, steps 706 and 707; see also p.13 ll.19-27 and Figure 3; see also p.19 ll.10-18 and Figure 8A; see also see also p. 13 ll.7-9)**.

Petitioner Samsung Ex-1004, 1594

IV. *ISSUES ON APPEAL*

1. Whether claims 1-2, 5, 8, 12-13, 15, 17, 31, 35, 41-42, and 44-60 comply with 35 U.S.C. 112, first paragraph (pre-AIA), which requires the specification to contain a written description of the invention sufficient to enable one of skill in the art to make and use the invention; and

2. Whether claims 1-2, 5, 8, 12-13, 15, 17, 31, 35, 41-42, and 44-60 comply with 35 U.S.C. 112, second paragraph (pre-AIA), which requires the claims to particularly point out and distinctly claim the subject matter sought to be patented.

Petitioner Samsung Ex-1004, 1595

V. ARGUMENT

1. Claim Rejections – 35 USC 112 First Paragraph[2]

The inquiry into whether the description requirement is met must be determined on a case-by-case basis and is a question of fact. *In re Wertheim*, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). A description as filed is ***presumed to be adequate***, unless or until sufficient evidence or reasoning to the contrary has been presented by the examiner to rebut the presumption. See, e.g., *In re Marzocchi*, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971). The examiner, therefore, must have a reasonable basis to challenge the adequacy of the written description. The examiner has the initial burden of presenting by a preponderance of evidence why a person skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims. *Wertheim* 541 F.2d at 263, 191 USPQ at 97. See also MPEP 2163.04.[3]

As stated by the Federal Circuit in *In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011):

> As this court has repeatedly noted, "the prima facie case is merely a procedural device that enables an appropriate shift of the burden of production." *Hyatt v. Dudas*, 492 F.3d 1365, 1369 (Fed. Cir. 2007) (citing *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). See also *In re Piasecki,* 745 F.2d 1468, 1472 (Fed. Cir. 1984). The Patent and Trademark Office ("PTO") satisfies its initial burden of production by "adequately explain[ing] the shortcomings it perceives so that the

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[2] This application claims priority to applications filed in 2008 and 2009 (See the Official Filing Receipt dated October 4, 2016. All rejections previously made to such priority claims were then withdrawn (See the Office Action dated November 19, 2018). The application is therefore entitled to a filing date prior to the 2012 effective date of the America Invents Act ("AIA"). The "pre-AIA" version of 35 USC 112 thus applies in this case and any citation to the "post-AIA" version of the law is in error.

[3] A patent examiner is not necessarily a "person of skill in the art". Although the Federal Circuit has stated that a patent examiner is deemed to have some experience in the art, he or she does not necessarily meet that criteria. In *In re Lee*, 277 F.3d 1338, 1345 (2002) the Federal Circuit stated that, while patent examiners are deemed to have experience in the field of the invention, "this experience, insofar as applied to the determination of patentability, must be applied from the viewpoint of the 'person having ordinary skill in the art to which said subject matter pertains". Having a certain number of years of design experience working in the field," is not a prerequisite to be a patent examiner. That indicates that patent examiners are not POSITAs in all instances. See *Orthopedic Equip. Co., Inc. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1382 (Fed. Cir. 1983).

Petitioner Samsung Ex-1004, 1596

> applicant is properly notified and able to respond." *Hyatt*, 492 F.3d at 1370.... In other words, the PTO carries its procedural burden of establishing a prima facie case when its rejection satisfies 35 U.S.C. § 132, in "notify[ing] the applicant ...[by] stating the reasons for [its] rejection, or objection or requirement, together with such information and references as may be useful in judging of the propriety of continuing the prosecution of [the] application." 35 U.S.C. § 132. That section "is violated when a rejection is so uninformative that it prevents the applicant from recognizing and seeking to counter the grounds for rejection." Chester v. Miller, 906 F.2d 1574, 1578 (Fed. Cir. 1990).

Per MPEP 2163.I.B., there is no *en haec verba* requirement for written support -- claim limitations may be supported in the specification through express, implicit, or inherent disclosure.

It is respectfully submitted that many of the present rejections under 35 USC 112, first paragraph do not "adequately explain the shortcomings" in the present application. Rather, reviewing the text and drawings make it abundantly evident that each of the questioned features are supported.

(a) "First radio" and "second radio"

The Last Office Action regards claims 1 and 31 to lack support for the claimed "first radio" and "second radio". The rejection states the law, but gives no actual reason for the rejection:

> 11. Regarding claims 1 and 31
>
> 12. The claims recite a mobile wireless device "comprising" *(i.e.,* storing) a first radio and a second radio. The Specification does not support the said recitation. (See PgPub U S 2017 /0011425 at par 11 reciting "two wireless devices", also fig.1/106/108 disclosing two wireless devices). To satisfy the written description requirement, the specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention at the time of filing. *(In re Katz Interactive Call Processing Patent Litigation,* 97 USPQ2d 1737 (Fed. Cir. 2011)).

Petitioner Samsung Ex-1004, 1597

This rejection amounts to mere general reference to a single paragraph of the specification and a single figure. It contains no actual analysis at all, and is therefore inadequate to meet the Patent Office's *prima facie* burden.

This is especially the case where, as in the present application, *multiple prior responses* by the Appellant have shown where a wireless device having the claimed "first radio" and "second radio" are found. See at least:

- The Appeal Brief filed September 25, 2019 at page 31
- The Response filed November 27, 2017 (pages 27)[4]
- The Response dated July 20, 2018 (pages 14 and 16-17)

Indeed, Exhibits D and E filed with the response dated July 20, 2018 are detailed charts showing where these elements of claims 1 and 31 are found in the priority applications originally filed on September 8, 2008 and February 3, 2009. The next office action, dated November 19, 2018 (at page 4, paragraph 8) agreed that the claims were entitled to the earlier filing date in this regard.

The Last Office Action also provides no reasons why such prior responses were deficient.

Nonetheless, support for these elements will be proven again here.

The Examiner is correct in observing that Figure 1 shows two wireless devices 106 and 108. However the Examiner (a) fails to consider the actual language of the claim, and (b) fails to consider any other part of the specification – such as those parts that describe the components of each example wireless device.

[4] The rejection under 35 USC 112, first paragraph for failing to recite a "first radio" and "second radio" were not repeated in the immediate next office action dated March 22, 2018, and thus were presumably withdrawn by the Patent Office at that time. Yet they are now raised again, with no explanation or reasons given.

Petitioner Samsung Ex-1004, 1598

First, neither claim 1 nor claim 31 actually recites "two wireless devices". What claim 1 actually recites is "***A*** mobile wireless device" comprising "a first radio" and "a second radio" (emphasis supplied). What claim 31 actually recites is a method "executing within ***a mobile device***" with steps of "receiving, at the mobile device, identifier related information, using a first radio" and "receiving, at the mobile device using a second radio, a plurality of short range transmissions…" (emphasis supplied).

Thus, each of claim 1 and claim 31 actually refers to a ***single wireless device***, with that single wireless device ***having two different radios*** (in the case of apparatus claim 1) or ***using two different radios*** (in the case of method claim 31).

The Last Office Action therefore confuses "two wireless devices" with the claimed "single wireless device" "having two radios".

The specification also clearly shows each example wireless device 106 and 108, in both the drawings and in the text, as including the claimed "first radio" and claimed "second radio."

Figure 1 shows that a mobile device 106 communicating over a link 107 (labelled as a Local Link, Wi-Fi, Bluetooth, etc). The radio it uses for that is the claimed "first radio". The "second radio" in mobile device 106 is the radio 104 that the mobile device 106 uses to communicate over the other link 104 (labelled as a WWLAN (Wireless Wide Area Network) Link 104).

One of skill in the art also considers Figure 1 in the context of at least paragraphs [0039] and [0043] of the published specification[5], which explains:

> [0039] The cellular network is connected to devices **106** and **108** by wide area wireless links **104** and **103** respectively, allowing for IP based communications between the devices (**106** and **108**) and the server **100 [0039]**
>
> [0043] … a given device **106**, **108** uses a short range wireless link **107** such as a Bluetooth (IEEE802.15.1) or Wi-Fi (IEEE802.11) link to detect the presence of other devices such as device **108**, and uses the wide area wireless network

[5] The Last Office Action refers throughout to the numbered paragraphs of the published version of the (United States Patent Application Publication 2017/0011425A1). For consistency, this Appeal Brief will also cite to the text of in the same way. Exhibit F hereto is a copy of the published application.

Petitioner Samsung Ex-1004, 1599

> connections **103**, **104** such as IS-2000, WCDMA, GPRS, EDGE, LTE, Wi-Max (IEEE802.16), or the like to perform communications to central server **100**, and to perform the actual substantive communications between the wireless devices **106** and **108.**

Therefore, one of skill in the art understands from Figure 1 that a single device, such as device 106, uses two different radios to communicate over the two different wireless links/connections.

See also the Declaration of James A. Proctor Jr. Under 37 CFR 1.132 filed April 21, 2020 (hereinafter referred to as "Proctor Decl."), at Paragraphs 73-89, which confirms this was also the understanding of one of skill in the art as of the effective filing date of the application.[6]

(b) "Memory"

Paragraph 14 of the Last Office Action asserts another reason for supposed lack of support for claims 1 and 31:

> 14. The claims recite a mobile wireless device "comprising" *(i.e.,* storing) one or more nontransitory memory devices. The Specification does not support the said recitation. (See PgPub US 2017 /0011425 at par 41 reciting "memory"). To satisfy the written description requirement, the specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention at the time of

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6 Evidence traversing rejections, when timely presented, must be considered by the Patent Office whenever present. See MPEP 716.01(B). Testimony, such as that contained in sworn declarations, as to factual evidence is entitled to consideration so long as the opinion is not on the ultimate legal conclusion at issue. However, while **an opinion as to a legal conclusion is not entitled to any weight, the underlying factual basis for the opinion may be persuasive.** See *In re Chilowsky,* 306 F.2d 908, 134 USPQ 515 (CCPA 1962) (expert opinion that an application "meets the requirements of 35 U.S.C. 112" is not entitled to any weight; however, **facts supporting a basis for deciding that the specification complies with 35 U.S.C. 112 are entitled to some weight.** In assessing the probative value of an expert opinion, the Patent Office must consider the nature of the matter sought to be established, the strength of any opposing evidence, the interest of the expert in the outcome of the case, and the presence or absence of factual support for the expert's opinion. *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 227 USPQ 657 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986). See also *In re Oelrich*, 579 F.2d 86, 198 USPQ 210 (CCPA 1978) (factually based expert opinions on the level of ordinary skill in the art were sufficient to rebut the prima facie case) MPEP 716.01(c)III.

Petitioner Samsung Ex-1004, 1600

filing. *(In re Katz Interactive Call Processing Patent Litigation,* 97 USPQ2d 1737 (Fed. Cir. 2011)).

Claim 31 is a method claim and does not actually recite any "memory device". For this reason alone, the rejection of at least claim 31 is *prima facie* deficient as a matter of law

This rejection also errs, to the extent it equates the word "comprising" with the word "storing". According to accepted dictionary definitions[7], "comprising" means "to include or contain", or "to consist; be composed of". "Storing", on the other hand, means "to accumulate or put away, for future use". See Exhibits A and B submitted herewith.

See also Proctor Decl., at least at Pars. 64-66 and 72 and the dictionary definitions attached thereto as Exhibits 3 and 4).

To equate the word "comprising" to the word "storing" is therefore inconsistent with their plain meaning in the English language.

The Examiner does correctly note that the word "memory" appears in paragraph [0041] of the specification. But the Last Office Action provides no actual reason why the description in the '410 application, when taken as a whole, fails to inform one of skill in the art how to arrange the claimed programmed processor to retrieve instructions for execution.

For example, the paragraph immediately prior to the one referenced by the Examiner, namely paragraph [0040], explains that ***"storage"*** is part of the wireless device, and is used, along with a processor "for executing wireless system protocols, interfaces, and application level programs".

And paragraphs [0041-0042] further explain that the wireless device includes

storage for "computer software instructions".

"memory" provides "volatile storage" for such programs; and

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[7] 37 CFR 41.30 expressly permits both the Applicant and Examiner to submit dictionary definitions to the Board during the briefing stage.

Petitioner Samsung Ex-1004, 1601

"disk" provides non-volatile storage for such programs.

while also mentioning that the computer program(s) can be installed by "any suitable software installation procedure." As one example, paragraph [0041] indicates that a system bus can provide for data transfer among these components. Thus, one of skill in the art understands that programs can be installed by, for example, using the system bus to transfer them from the non-volatile disk storage to the volatile memory.

The words "non-transitory" and "non-volatile" mean the same thing in English, and to one of skill in the art. See the respective dictionary definitions for these words in Exhibits D and E submitted

As of the priority filing date of the application, the skilled person would have therefore understood how programs are loaded into the claimed "non-transitory" devices and executed in a computer system.

See the Proctor Decl., at Paragraphs 90-103 which confirms this was also the understanding of one of skill in the art as of the earliest claimed filing date of the application.

Because the specification explicitly teaches one of skill in the art how to provide the claimed "non-transitory memory" for "storing a set of instructions", the rejection of claims 1 and 31 must be withdrawn.

(c) Claim 13 and "downloading application software"

Claim 13 depends from claim 1 and recites as follows:

> 13. The mobile wireless device of Claim 1, wherein the identifier related information comprises application software for execution upon the mobile wireless device, and the one or more processors further execute the instructions to perform operations including:
>
> sending of the unique identifier by the mobile wireless device to at least one server of the one or more servers; and
>
> in response to the sending of the unique identifier, downloading the application software.

Petitioner Samsung Ex-1004, 1602

The Last Office Action questions where support for this claim exists, by merely referring to paragraph [0099], and without any reference to any other part of the specification, or providing any reason. The rejection is therefore *prima facie* deficient.

For example, paragraph [0046] specifically provides an example where an application is "downloaded" after the "unique identifier" is sent to the server:

> In that example, a museum patron walks over to an exhibit. Her mobile device 202 receives an identifier from the museum's broadcast device 204. The patron's device then passes that identifier "for" the museum device to the server 100 – and the server then "***passes relevant information back to the user's device 202".*** The relevant information passed back, ie., the "content" can include "text, pictures, web pages, and ***application software such as games, informative display applications or other content..***"

Thus, as the specification explains, "relevant information" such as "application software" is "passed back" after the "unique identifier" is sent to the server. In other words, the "downloading" of "application software" occurs in response to such sending.

See the Proctor Decl., at Pars. 104-107, which confirms this was also the understanding of one of skill in the art as of the earliest claimed filing date of the application.

(d) Claims 45 and 50 and "sending a unique identifier" and "receiving further information" in the context of a single method

The office action next rejects claims 45 and 50 as failing to comply with the written description requirement, as supposedly failing to support performing the steps of:

> "sending the unique identifier, using the first radio, to at least one server of the one or more servers," and
>
> "receiving further information relating to the entity or object associated with being within proximity to the mobile device"
>
> in a single method in the context of the rest of the claim, and specifically, in combination with also performing the steps of

Petitioner Samsung Ex-1004, 1603

"receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service,

each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI)"

and

"determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier associated with the particular short range transmission."

This rejection only refers to a single paragraph of the specification (paragraph [0011]) in passing, and reaches its sweeping conclusion with no analysis whatsoever. Such a rejection fails to meet the Patent Office's initial burden. It is prima facie deficient, especially in light of the fact that the very same issue was already addressed in the Appeal Brief filed September 25, 2019 at pages 24-26 and pages 30-32, for which no analysis is given in the Last Office Action.

i. Steps 704, 705, 706 and 707 are one example embodiment of a "single, coherent logical method"

As argued in the prior Appeal Brief filed September 25 2019, an argument to which no consideration was given in the Last Office Action, one of skill in the art readily interprets Figure 7 as a single, coherent logical method consisting of the numbered steps 704, 705, 706, and 707 executed in sequence. The specification explains the context of the Figure 7 process as follows:

FIG. 7 shows an example of a message flow diagram for an embodiment where an individual is in a library for example, and a friend arrives. The individual is notified by their device receiving an identifier that their friend is present, and they enter a chat session. Each person has a device (**FIGS. 1, 106 and 108 respectively)** that implements the preferred embodiments described above. The first individual associated with Device 1 (702) referred to as Entity 1 (EI1) performs a detection **process as described in FIGS. 4, 5, and 6 previously (Step 704)**. p. 18, ll.2-8.

Petitioner Samsung Ex-1004, 1604

Thus the skilled reader understands that step 704 in Figure 7 is a first step performed, and that the details of that "identifier search process" occurs using the devices such as 106 or 108 previously described in Figure 1. The skilled reader also understands from this passage that step 704 represents "the detection process" that was already described in Figures 4, 5 and 6.

ii. Step 704 includes the claimed "receiving using the second radio"

For example, step 704 represents that a given device 106, 108 uses the wide area network (such as IS-2000, WCDMA, GPRS, EDGE, LTE, WiMax (IEEE802.16) to communicate with a server 100 via the claimed "first radio" as was shown in Figure 1. (See Par. [0061], ll.5-10 and Par. [0043], ll. 4-7).

The reader also understands that step 704 is a shorthand representation of the fact that the given device 106, or 108 also uses the short range wireless link (such as Bluetooth (IEEE802.15.1) or WiFi (IEEE 802.11), ***the claimed "second radio", to receive beacon transmissions from other nearby wireless devices***, as also shown in Figure 1, and described at Par. [0043] ll. 1-3.

iii. The "proximity beacon transmissions" in step 704 include a "MAC address of the station device or the network adaptor", a "BSSID", and an "SSID" which serve as the claimed "MAC address", "PBSI" and "unique identifier", in this embodimen

One example of the claimed format of the beacon transmissions is shown in Figure 6 and also described in the specification . For example, an "ad hoc" operation mode (as opposed to "infrastructure mode") is described as being the preferred embodiment when the network is a Wi-Fi network:

> "The second topology for Wi-Fi networks is the so-called Ad-Hoc mode of operations, referred to as an independent basic service set or IBSS." [Par. [0060] at lines 9-11]

Petitioner Samsung Ex-1004, 1605

and that

> ("In an IBSS all devices participating or advertising their interest in participating in an ad-hoc network transmit identifiers called beacons. These beacons contain the MAC address of the transmitting network adapter, the basic Service set identifier (BSSID), and ad-hoc network name or service set identity (SSID)."). Par. [0060] at lines 12-17

That very same paragraph then goes on to explain different ways to assign these beacon transmission fields to the three claimed features: a MAC address, a "Proximity Beacon Service Identifier (PBSI) and a "unique identifier'. The following table contains one such assignment that is then evident to one of skill in the art: (footnotes to the table contain citations to the supporting sections of the specification):

	MAC address	PBSI	Unique Identifier
Embodiment 1	MAC address of the station device or network adapter[8]	BSSID[9]	SSID[10]

[8] "These beacons contain the MAC address of the transmitting network adapter, the basic Service set identifier (BSSID), and ad-hoc network name or service set identity (SSID) . See Par. [0060] at lines 14-17.

[9] "There are several embodiments related using the IBSS beacons and the identifiers. First the identifier may be used as the MAC address of the station device or network adapter, and one or both the BSSID and the SSID may be used to indicate these particular beacons are associated with a service. See [0060] ll. 22-27.

[10] "In other embodiments, one or more of the BSSID and the SSID may be used as the identifier." See [0060] ll.27-29.

Petitioner Samsung Ex-1004, 1606

Thus, in this "Embodiment 1", the claimed "MAC address" is the MAC address of the station or the network adapter, claimed "PBSI" is the BSSID field of the beacon, and the claimed "unique identifier" is the SSID field of the beacon[11].

The specification even has a second embodiment for the PBSI. See the Proctor Decl. filed herewith at Pars.148-19 Exhibit 8 therein, as well as the Appeal Brief filed September 25, 2019 at pp. 27-28.

iv. DI2 is the claimed "identifier related information" as sent to the server in step 705, EI2 is the claimed "further information" as returned in step 706, and the claimed "proximity determination" is step 707, in this embodiment

The following steps 705 and 706 then provide the claimed "sending the unique identifier, using the first radio, to the server", and then "receiving further information relating to the entity or object associated with being within proximity to the mobile device".

The skilled person need only continue referring to Figure 7 and reading along in the associated text, to understand how identifier DI2 is sent to the server in step 705 and how EI2, "further information", is then returned to the mobile device in step 706. More particularly, the text describing step 705 provides as follows:

> The ***device identifier associated with Device 2 (703), DI2 is thereby detected. Device 1 (702) then transmits an inquiry message 705 using the WWAN*** (cellular data link such as GPRS, EDGE, 1xEV-DO, IS-2000, Wi-Max, LTE, or the like) ***to the server 701*** inquiring if information related to the account and entity associated with DI2 is relevant, and available to the entity EI1 associated with Device 1 (702). Par [0061], ll 10-17.

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[11] Patent claims do not lack enablement solely because they embrace different or even inoperative embodiments, provided that artisans in the field would know how to determine, without undue experimentation, which embodiments would work. See *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 750 F.2d 1569, 1576-77 (Fed. Cir. 1984).

Petitioner Samsung Ex-1004, 1607

Device 1 thus sends an inquiry containing the identifier it detects – DI2- to the server at step 705. The device then receives "identifier related information" back (e.g., the "entity identifier EI2") in step 706.

The process of Figure 7 then continues by explaining how the "proximity" decision is made, in step 707:

> [..] The server having determined that EI1 wants to be notified and is allowed to be notified responds in Step 706 to Device 1 (702) with a message indicating the DI2 is relevant to EI1 and including information such as Entity Identifier EI2 and associated details. ***A user application on Device 1 (702) notifies the user that the entity associated with Device 2 is in proximity in step 707***[12]. Par. [0061], ll. 25-32

The flow of Figure 7 and associated text thus also show that a "user application" running on the mobile device then uses the detected unique identifier (DI2) and the entity-related information (EI1) returned from the server to notify a user that a specific entity is in proximity.

Both the unique identifier (DI2 in this example) and the identifier related information from the server (EI2 in this example) - that is both DI2 and EI2 - are thus used in the proximity determination of the entity associated with the service by the user application running on mobile Device 1.

See also the Proctor Decl. submitted herewith, at Pars.108-129 for further evidence of why one of skill in the art interprets the specification as teaching at least one embodiment as single, logical sequence of steps.

All of the elements of claim 45 and 50 are thus found in a single, coherent embodiment. This rejection should also be withdrawn.

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[12] Note here that same paragraph [0061] explains how "relevance", as that word is used in the specification, means that the entity associated with Device 2 is "in proximity". See the reference to "information related to the account and entity associated with DI2 is relevant and available" at ll. 15-17.

Petitioner Samsung Ex-1004, 1608

(e) Claims 44 and 46 and "preventing the sending of the unique identifier"

The Office action at paragraphs 22 rejects these claims supposedly because:

> 22. The Specification does not support both receiving identifier related information from the server as recited in claims 1 and 31, and preventing the sending of the unique identifier to the servers as recited in claims 44 and 46. (See PgPub US 2017 /0011425 at par 111)

This issue was already addressed by the applicant. See at least the response filed January 29, 2019, p. 14 and Appendix A that was filed therewith. Indeed this basis of rejection was actually withdrawn in the next succeeding office action dated June 3, 2019 where the Applicant's arguments for support for claims 44 and 46 was ***"deemed to be persuasive".*** (See the Office Action dated June 3, 2019 page three, paragraphs 10 and 11). And yet the rejection is now repeated with no explanation given.

Nonetheless, the Last Office Action ignores the fact that the ***claims 44 and 46 each actually require the preventing step to be "based upon previous detections"*** In other words, there is a first step of receiving detected identifiers; and only then a ***subsequent*** step of passing such detected identifiers to back the server.

In an example embodiment described in paragraphs [0047-0048], an "action function" can be used to prevent the sending of previously detected identifiers:

> [0047] FIG. 3 is a block diagram with further detail of this operation. A device **106**, **108**, or **202** after performing a search (FIG. 3, step **301**) for identifiers on the WPAN or WLAN, will subsequently use the WWAN link to communicate with the central server **100**. .... ***If identifiers are found in 302,*** the device may employ an action function **303**, which would act as a filter that determines which of the detected identifiers should be passed to the server. .... The idealized effect of the action function would be to reduce the number of requests to the server by not re-requesting recently requested identifiers which have already been passed

Petitioner Samsung Ex-1004, 1609

to the server, for some period of time. In step **304**, if no identifiers require server information, searching is continued in step **301**.

[0048] Assuming there are identifiers which are new to the device, the device will pass along a list of currently detected identifiers ***and request 305 that the server return information related to any other local device. The server will return the information related to any identifier that meets certain policy requirements. For instance, information is returned which is 1) relevant to that device, and 2) that the device is authorized to receive.***

See also the Proctor Decl., at Pars. 130-135, which confirms this was also the understanding of one of skill in the art as of the earliest claimed filing date of the application.

Claims 44 and 46 are thus clearly supported by the specification, including both the specification and the drawings, and the Patent Office has not carried its burden of proof.

(f) Claim 57 and "retrieving a stored user email" and "sending an email based on the stored user behavior"

Claim 57 provides, in its entirety:

> 57. The method of Claim 31, additionally comprising:
> sending the unique identifier, using the first radio, to at least one server of the one or more servers, and wherein the one or more servers perform the following steps:
> associating an object or entity as being within proximity to the mobile device;
> storing a user's purchasing practices or requests from the one or more servers, related to the associated object or entity information as stored proximity user behavior;
> retrieving a stored user email address associated with an account associated with the mobile device; and
> sending an email, addressed to the user email address containing customized content based upon the stored proximity user behavior.

While the last office action mentions paragraph [0067] of the specification, it contains no attempt to interpret the words in that paragraph or explain any of its shortcomings. Paragraph [0067] actually explains that:

Petitioner Samsung Ex-1004, 1610

> [0067] Finally, the ***transaction details may be stored by the server***, or sent to a thirdly party server for ***tracking spending habits of that account holder***, or customers of that merchant allowing the merchant to track that specific customer's behavior and cater to them in the future with various specials ***delivered via email***, or during their next visit via their device in the form of an electronic coupon. This process can be performed with a goal to help the merchant expose the customer to other products or services the merchant believes the customer might find desirable.

The specification thus explicitly states that the beacon service can track "prior habits" of an account holder. The service can then cater to such users in the future, by sending emails to their device with specials, such as in the form of an electronic coupon.

One of skill in the art inherently understands, without further explanation, that in order for the server to send an email to that user account, it must have previously stored the associated email address. Otherwise, the server would not know where to send the customized content.

See the Proctor Decl., at Pars. 136-141, which confirms this was also the understanding of one of skill in the art as of the earliest claimed filing date of the application.

The law does not require a "one to one correspondence" between the language in the claim and the specification. The U.S. Supreme Court has recognized that a patent is invalid for indefiniteness only "if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty those skilled in the art about the scope of the invention." See *Nautilus v. Biosig Instruments*, 134 S. Ct. 2120, 2129 (2014).

(g) All other dependent claims are allowable

No other reasons were given for rejecting any other dependent claims under 35 USC 112, first paragraph. Therefore, all claims must be allowable in this regard for the same reasons stated for the claims from which they depend.

Petitioner Samsung Ex-1004, 1611

Accordingly, reversal of all rejections under the first paragraph of 35 U.S.C. §112 is warranted.

2. CLAIM REJECTIONS – 35 USC 112, SECOND PARAGRAPH[13]

Under pre-AIA 35 U.S.C. § 112, second paragraph, the specification must conclude with "one or more claims particularly pointing out and distinctly claiming the subject matter" regarded as the invention. This "definiteness" requirement "secure[s] to the patentee all to which he is entitled" and "apprise[s] the public of what is still open to them." *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 373 (1996) (quotation and brackets omitted).

The Patent Office carries the initial procedural burden of presenting a prima facie case that a pending claim is indefinite. *Hyatt v. Dudas*, 492F.3d 1365, 1369-70 (Fed. Cir. 2007) ("In the prosecution of a patent, the initial burden falls on the [Office] to set forth the basis for any rejection, i.e., a prima facie case."). The Patent Office "determines the scope of claims ... not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction 'in light of the specification as it would be interpreted by one of ordinary skill in the art.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (quoting *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004)).

Applying the broadest reasonable interpretation of a claim, then, ***the Office must establish a prima facie case of indefiniteness with a rejection explaining how the metes and bounds of a pending claim are not clear*** See *In re Packard*, 751 F.3d 1307, 1310 (Fed. Cir. 2014) (per curiam) (citing Manual of Patent Examining Procedure ("MPEP") §

[13] The pre-AIA version of 5 USC 112 applies in this case. See footnote 2.

Petitioner Samsung Ex-1004, 1612

2173 .05); see also MPEP § 2173.02(1) (9th ed. Rev. 7, Nov. 2015) (advising examiners that a rejection for indefiniteness is appropriate "after applying the broadest reasonable interpretation to the claim").

After the *Packard* decision, the Supreme Court in *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S._, 134 S. Ct. 2120, 2129 (2014), explained that "[t] he definiteness requirement, so understood, mandates clarity, while recognizing that absolute precision is unattainable." Indeed "this requirement is not a demand for unreasonable precision," and "does not contemplate in every case a verbal precision of the kind found in mathematics." *Packard,* 751 F.3d at 1313. Instead, the requirement that claims be written in clear and unambiguous terms "necessarily invokes some standard of reasonable precision in the use of language in the context of the circumstances." Id. See also *Ex Parte McAward*, Appeal 2015-006416, Application 13/435,655 (deemed precedential).

MPEP 2173 provides:

> II. Threshold Requirements of Clarity and Precision
>
> The examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112, second paragraph, is … **not whether "more suitable" language or modes of expression are available.** When the examiner is satisfied that patentable subject matter is disclosed, and it is apparent to the examiner that the claims are directed to such patentable subject matter, the examiner should allow claims which define the patentable subject matter with the required degree of particularity and distinctness. Some latitude in the manner of expression and the aptness of terms should be permitted so long as 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112, second paragraph, is satisfied. Examiners … **should not insist on their own preferences if other modes of expression selected by applicants satisfy the statutory requirement**.
>
> ….. An Office Action Should Provide a Sufficient Explanation
>
> **The Office action must set forth** the specific term or phrase that is indefinite and **why the metes and bounds are unclear**. Since a rejection requires the applicant to respond by explaining why claim language would be recognized by a person of ordinary skill in the art as definite or by

Petitioner Samsung Ex-1004, 1613

> amending the claim, the Office action should provide enough information for the applicant to prepare a meaningful response.

The Last Office Action fails to demonstrate why persons of ordinary skill would not understand what is claimed by reading the claims in light of the specification. Instead, the Last Office action largely fails to articulate the required rational basis for the rejections under 35 USC 112, second paragraph.

(a) Relative terms do not automatically render claims indefinite

The Last Office Action first asserts that claims 1 and 31 lack clarity in their supposed use of "relative terms":

> 30. The terms "respective MAC Address", "respective unique identifier" and "determining ... is in proximity" in claims 1 and 31 are relative terms which render the claim indefinite. The terms "respective" and "proximity" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention

MPEP 2173.05(b) provides:

> The use of relative terminology in claim language, including terms of degree, ***does not automatically render the claim indefinite*** under 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112, second paragraph. *Seattle Box Co., Inc. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984). Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification. MPEP 2173.05(b)

While a conclusion is reached that the words "respective" and "proximity" are "relative terms", no analysis of the claim language, nor any attempt to interpret these terms in light of the specification has been made. Nor is any reasons why they are supposedly "relative" is given. The rejection is therefore *prima facie* deficient.

Petitioner Samsung Ex-1004, 1614

(b) "Respective" is not being used as a "relative" word

"Respective" normally means "pertaining individually or severally to each of a number of persons, things, etc.; particular." See the dictionary definition of the word attached hereto as Exhibit C.

In claims 1 and 31, the word "respective" the starting point must be that it is being used in the usual sense -- as an attributive adjective – to indicate that a feature concerns or is appropriate to some other feature.

Reference should also be made to the Proctor Decl. at Pars. 143-150 explaining how one of ordinary skill would have understood the word "respective" to mean in the claim(s) as of the filing date, and the dictionary definition of the word referred to therein.

Claims 1 and 31 thus clearly use the term "respective" to indicate that each proximity beacon transmission includes a particular "MAC address", and a particular "unique identifier." In other words, each proximity beacon transmission has its own MAC address and its own unique identifier, particularly when transmitted from different beacon transmitter devices.

This interpretation also makes perfect sense to one of skill in the art in light of the specification, since the purpose of the PBSI is to ***identify transmissions associated with the proximity beacon service***. The specification explains, for example, that :one or both the BSSID and the SSID may be used to indicate these particular beacons are associated with a service." [Par. 0060] at ll. 25-27. In other words, the PBSI would be consistent for short range transmissions which qualify as proximity beacon transmissions.

The skilled person understands that the PBSI for a given service is shared among multiple wireless devices that use the service. But its MAC address and the unique identifier should be unique to a particular device, to enable the service to identify that device and an entity associated with the device.

Petitioner Samsung Ex-1004, 1615

Indeed, as explained above, embodiments are disclosed in which the MAC address is the MAC address of the transmitting adaptor ("These beacons contain the MAC address of the transmitting network adapter" (See Par. [0060] ll. 14-16].

Therefore, one of ordinary skill in the art would also understand the MAC address of the transmitter to depend upon which transmitter actually transmitted the beacon, and that this necessarily results in each beacon transmitted from different devices as having a differing MAC address.

Secondly, the claimed "unique identifier" is disclosed as being associated with, in some embodiments, the transmitting device or associated entity as well. This further supports claiming that transmissions from differing devices have differing unique identifiers.

See also the Proctor Decl. at least a Pars. 122-124, 148-149 and 162, and Exhibit 8 referenced therein, for further insight into how one of skill in the art interprets the specification and understands the use of the PBSI, which is consistent with the above discussion.

(c) "Proximity" is clear from the claim itself and the consistent with the specification

The Last Office Action also considers this word to be "relative" and therefore concludes it renders the claims indefinite. However, no consideration was given to its meaning in the context of the claim or the specification.

The interpretation of this word was already explained in the Appeal Brief dated September 25, 2019 at pages 25-26; the Last Office Action does not contain any rebuttal of those arguments.

First, the meaning of the term "proximity" is exactly understandable from the four corners of the claim itself. In short, a device associated with the "proximity beacon

Petitioner Samsung Ex-1004, 1616

service" is in "proximity" when its "short range transmissions" that include a "proximity beacon" that has the expected format. The Applicant is entitled to "be their own lexicographer", *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357 (Fed. Cir, 1999).

More particularly, claim 1 recites a device having a first and second radio, and a processor that executes steps including:

> receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers;
>
> receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions ***when the device is located within a detection range of one or more beacon transmitter devices*** associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier , and a proximity beacon service identifier (PBSI);
>
> ***determining if a particular short range transmission*** of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission ***is a proximity beacon transmission associated with the proximity beacon service***;
>
> then:
>
> ***determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier***. [14]
>
> .

Thus, in using the word "proximity", the claim itself is clearly not just referring to measuring some physical distance between devices. The device must be within a "detection range", e.g. so that the "proximity beacon transmission" can be received.

One of skill in the art thus understands such short range transmissions will be received when, say the device 106 of Figure 1 is receiving radio transmissions (eg., is within a radio "detection range" of another device 108) via the short range local link 107.

See also the Proctor Decl. at Pars. 154-156, which explain how the skilled person would have interpreted the specification as of the claimed filing date.

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[14] Written description support for these claim elements as a "single coherent method" was already explained in detail above.

Petitioner Samsung Ex-1004, 1617

But the claim does not stop there. Proper interpretation of the use of the term "proximity" requires reading the claim further. Doing so reveals that the "proximity" determination depends on other things. First, a determination is made of whether the received "short range transmission" is of a particular type -- namely a "proximity beacon transmission" that has a format associated with the "proximity beacon service".

As claimed, this determination involves examining the received short range transmission to see if it has the three claimed things – a) a MAC address, b) a PBSI, and c) whether the PBSI indicates the transmission is associated with the service.

How the claimed device determines if an "entity or object" "associated with the service" is "in proximity" is then explicitly and exactly defined in the last clause of the claim. Namely, when the three things a), b), and c) indicate that the beacon transmission has the proper format is received, that fact is then used together with the received unique identifier and the receive "identifier related information" to determine that a device associated with that beacon service has been detected, and thus is "in proximity".

The specification also supports this interpretation. Recall the "museum" example, described at paragraph [0046]:

> [0046] *As a museum patron walks to an exhibit, the patron's device **202** will receive an identifier sent from museum broadcast device **204** operated by the museum. The patron device **202** passes the identifier or museum device **204** to the central server **100**, which in-turn recognizes it as being associated with that exhibit within that museum and passes relevant information back to the user's device **202.*** A distinguishing feature of this approach relative to prior art is that the patron device **202** in this example may ***move out of proximity*** of broadcast device **204**, yet continue to view the content being provided by the server **100** related to the detected broadcast device **204**. Content may include text, pictures, web pages, application software such as games, informative display applications, or other content

In this embodiment, the patron's device 202 at first is receiving and exchanging identifiers with the museum's broadcast device 204. But later, device 202 "moves out of proximity" from museum device 204 -- meaning that the transmissions having "identifiers" associated with the "proximity beacon service" are no longer being received over, for example, the WiFi connection. In other words, the patron's wireless device 202

Petitioner Samsung Ex-1004, 1618

has moved far enough away from the museum device 204 such that it is no longer able to receive the "short range transmissions". And yet despite having moved out of radio range, content associated with the museum broadcast device can still be viewed.

This meaning of the word "proximity" is also clearly consistent with other parts of the specification, such as the detailed explanation of the identifier search and comparison process in connection with Figure 7. One of skill in the art sees step 707 stating "notify Device 1 Entity that Device 2 Entity **is within proximity**", and understands that the notification must be made based upon the detection of the Device 2 beacon transmissions in the prior step 704, the step of "Devices Perform Identifier Search Process. Device 1 detects Device 2 identifier (DI2)".

The specification further describes the context of these relevant steps 704 and 707 of Figure 7 as follows:

> "Each person has a device (FIG. 1, 106 and 108 respectively) that implements the preferred embodiments described above. The first individual associated with Device 1 (702) referred to as Entity 1 (EI1) performs a detection process as described in FIGS. 4, 5, and 6 previously (step 704). The device identifier associated with Device 2 (703), DI2 is thereby detected …[Par. 0061] at ll.5-12)
>
> A user application on Device 1 (702) notifies the user that the entity associated with Device 2 is in proximity in step 707." Par. [0061] at ll. 30-32

See also other parts of the specification, such as:

> "Using a peer to peer detection process to locate nearby devices allows for the operation of proximity detection indoors" Par. [0016], ll. 6-8
>
> "By transmitting a wireless identifier using the short range Wi-Fi, Bluetooth or other short range wireless link 107 and receiving wireless identifiers from other devices, this short range wireless link 107 will allow for a proximity detection process." (Par. [0043], ll. 17-19

Therefore, one of skill in the art would be reasonably apprised as to what the words "respective" and "proximity" mean in the context of the claim after reading and understanding the specification.

Petitioner Samsung Ex-1004, 1619

See also the Proctor decl. at Pars. 151-174, confirming what one of ordinary skill at the time would have understood the word "proximity".

Claims 31, 45, and 50 are also thus allowable for the reasons stated for claim 1.

(d) No step is "missing" in claim 13

Patent claims are interpreted in their entirety. *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999). When that is done here, and all of claim 13 is considered, the claim itself actually explains the context of the "downloading step":

> 13. The mobile wireless device of Claim 1, wherein the identifier related information comprises application software for execution upon the mobile wireless device, and the one or more processors further execute the instructions to perform operations including:
>
> sending of the unique identifier by the mobile wireless device to at least one server of the one or more servers; and
>
> ***in response to the sending of the unique identifier***, downloading the application software.

Thus, the claimed steps involve first sending the unique identifier from the mobile wireless device to the server. Then, and only then, ***in response to having performed that sending step***, is the step of "downloading the application software" performed.

The claim is simply specifying an order in which the operations are performed for the claimed embodiment. There is nothing ambiguous or indefinite at all.

One of skill in the art interprets claim 13 the same way, with no difficulty. See the Proctor Decl. at Pars. 104-107.

Petitioner Samsung Ex-1004, 1620

(e) It is proper for claim 1 to be "defined in terms of the claim itself"

Paragraph 40 of the Last Office Action asserts:

> 40. Claim 1 is directed to "A mobile wireless device". However, the body of the claim also recites "receiving ... when the device ... ", "determining ... is in proximity to the mobile wireless device" and "receiving ... to the mobile device". The scope of the claim is thereby rendered unclear, as the scope of the mobile wireless device is defined in terms of the device itself.[15]

Here, the Last Office Action also misconstrues the purpose of the claims. As pointed out by the United States Supreme Court in in *Markman v Westview Instruments*: "A ***claim*** covers and secures a process, a machine, a manufacture, a composition of matter, or a design …" and "define[s] the scope of a patent grant". *Markman* 517 U.S. 370, 373 (1996). All inventions are necessarily, as a matter of law, "defined in terms of the claim itself".

Indeed, the patent statute, at 35 USC 100(j) also provides:

> The term "claimed invention" means the subject matter defined by a claim in a patent or an application for a patent.

It is axiomatic therefore, that the claims must define the scope of the protection conferred. To the extent that the Last Office Action purports to assert that the claim itself should not define the invention, it is an incorrect statement of the law and should be withdrawn.

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[15] Only claim 1, and not independent claim 31, stands rejected in this regard. Therefore, at least claim 31 and the claims that depend from it have been found acceptable. But the Office Action offers no reasons why claim 31 is acceptable, but claim 1 is not.

Petitioner Samsung Ex-1004, 1621

To the extent the rejection finds the format of the claim objectionable, or that the words used in the claim find no support either in their plain meaning or in the specification, it is *prima facie* deficient.

(f) The supposed "hybrid" format of claim 1 is permissbile

Paragraphs 41-43 the office action reject claim 1 as supposedly being a single claim that purports to be both a product or machine and a process:

> Regarding claim 1 –
> A single claim which purports to be both a product or machine and a process is ambiguous and is properly rejected under 35 USC 112, second paragraph, for failing to particularly point out and distinctly claim the invention. *Ex Parte Lyell*, 17 USPQ2d 1548 (B.P.A.I. 1990).
> In this case, claim 1 is directed to a "mobile wireless device" and further recites "receiving... when the device is located within a detection range...", rendering the claim ambiguous.

As explained above, one of skill in the art understands claim 1 to be a mobile wireless ***device***. That device includes two radios, and a computer processor programmed to perform a series of operations. One of skill in the art also understands those operations to establish a relationship between the two radios and the programmed processor—that relationship being one of defining the types of data that are received via the respective two radios, and how that received data is then processed by the wireless device.

More particularly, the relationship is specifically understood to mean that the claimed data objects -- namely the claimed "identifier related information", "short-range transmissions", "proximity beacon transmissions" -- are examined to determine if they are

> received when the device is located with a detection range of one or more beacon transmissions, and

Petitioner Samsung Ex-1004, 1622

> have a particular format including a respective MAC address, respective unique identifier and proximity beacon service identifier associated with the proximity beacon service.

exactly as claimed.

This format adopted for claim 1 – a device that includes a processor programmed to perform a series of steps - is considered to be proper by both the Patent Office itself and the Courts. For instance, a claim to computer storage medium programmed with attribute data objects that perform the function of facilitating retrieval, addition, and removal of information in the intended computer system, established a functional relationship such that the claimed attribute data objects are given patentable weight. See *In re Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035, as cited in MPEP 2111.05 B(III).

The Court of Appeals for the Federal Circuit also considered this topic in *MasterMine Software, Inc. v. Microsoft Corp.*, 2017 U.S. App. LEXIS 21479 (Fed. Cir. Oct. 30, 2017) (Newman, O'Malley, Stoll) recognizing that "apparatus claims are not necessarily indefinite for using functional language", citing to *Microprocessor Enhancement Corp. v. Texas Instruments Inc. (MEC),* 520 F.3d 1367, 1375 (Fed. Cir. 2008), finding that a claimed "processor" programmed "for executing instructions" was proper form, and not indefinite (See *MasterMine*, slip op. at 14)." Functional terms in claims are not indefinitely where the patent provides general guidelines and examples sufficient to enable a person of ordinary skill in the art to determine their scope. *Nevro Corp. v. Boston Sci. Corp.*, Nos. 2018-2220, 2018-2349, 2020 U.S. App. LEXIS 11170, slip op. at 7. (Fed. Cir. Apr. 9, 2020).

The format of claim 1 is therefore expressly permitted under the law.

(g) Claim 17 has been amended

Claim 17 has now been amended to address this concern. See the Amendment filed on April 21, 2020.

Petitioner Samsung Ex-1004, 1623

(h) The other dependent claims are also allowable

For at least the reasons stated above, each of the dependent claims are also compliant with 35 USC 112, second paragraph.

(i) The last clause of claim 31 must be performed, and thus is not "indefinite"

The Office Action begins with a "Remarks" section that states:

> 6. Note that actions which may or may not be done are indefinite and therefore do not serve to distinguish from the prior art. In re Collier, 158 USPQ 266 (CCPA 1968).
>
> 7. In this case, in claim 31, the recitation "when the three determining steps ... identifier" constitutes optional/indefinite language which does not serve to distinguish from the prior art.

This statement by the Examiner is not strictly limited to 35 USC 112 considerations, but also appears to invoke concepts under 35 USC 102 and/or 35 USC 103, to the extent that it purports to reject claim 31 as having certain elements that are "indefinite"[16].

But nowhere in the Last Office Action are the claims actually rejected in view of the prior art. All previous such rejections were addressed in the prior Appeal Brief, and no new rejections under 35 USC 102 or 103 are actually made in the Last Office Action.

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[16] Paragraphs 6 and 7 of the Office Action do not actually pose a question of indefiniteness or other issues under 35 USC 112, but rather invoke a question of claim breath, if anything. Had the Examiner produced a prior art reference necessitating Applicant to further limit a scope of the claimed invention, then Applicant would have done so. But failure to positively recite elements that are not needed to distinguish over the prior art does not make those claims ambiguous or indefinite. Rather, those claims already set forth the elements needed to distinguish the invention over the prior art. See *In Re Zeltz*, 893 F.2d 319, 321.

Petitioner Samsung Ex-1004, 1624

The Applicant therefore necessarily limits its response herein to only the issues that the Examiner has identified as the statutory basis for any remaining rejection pursuant to 35 USC 132(a) – namely 35 USC 112, first and second paragraphs.

Nonetheless, when read together with the immediately prior steps, that last part of claim 31 recites:

> a) determining that a particular short range transmission of the plurality of short range transmissions includes a MAC address,
> b) determining that the proximity beacon service identifier (PBSI) is present, and
> c) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service; and
> *when the three determining steps a) b) and c) are each true, then d) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier (emphasis supplied).*

There is no question that the first three "determining steps" labelled "a)", "b)", and "c)" are required to be performed. There are no conditions attached to their execution. But so, too, is the final "determining" step not optional. That step ***requires*** testing the logical result of three prior steps – that is, it must determine that the three things a), b), and c) are each true.

See also the Proctor Decl. at Pars 48-57 discussing the understanding of one of skill in the art.

"Conditional" limitations, such as these that test for a logical state in method claim, are not "optional" limitations. They are given patentable weight -- especially when the claim itself leaves no option as to whether or not those steps are performed. See Ex Parte Schulhauser 2013-007847 (PTAB April 28, 2016) and *Lincoln Nat'l Life Ins. Co. v. Transamerica Life Ins. Co.*, 609 F.3d 1364, 1369 (Fed. Cir. 2010).

Petitioner Samsung Ex-1004, 1625

It should also be noted that the Examiner apparently agrees that the corresponding part of claim 1 which recites:

> determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;
>
> then:
>
> determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

is not indefinite and thus carries patentable weight.

Yet no reason is given for why claim 1 is not indefinite, but claim 31 supposedly is indefinite. As noted by the Court in *In re Swinehart*, 439 F.2d 210, 213-214 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought. Such focus by the Examiner on rejecting the exact wording of claim 31 but apparently allow the wording of claim 1 is misguided.

Petitioner Samsung Ex-1004, 1626

3. *CONCLUSION*

In view of the foregoing, Appellant respectfully requests that the Board reverse the rejections and pass this application to issue.

April 27, 2020

Respectfully submitted,

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Petitioner Samsung Ex-1004, 1627

VI. CLAIMS APPENDIX

The following listing of the Claims presumes the amendment to claim 17 filed April 22, 2020 has been entered:

1. A mobile wireless device comprising:

a first radio;

a second radio;

one or more processors;

one or more non-transitory memory devices coupled to the one or more processors, the one or more non-transitory memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including:

receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers;

receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier , and a proximity beacon service identifier (PBSI);

determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;

then:

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

Petitioner Samsung Ex-1004, 1628

2. The mobile wireless device of Claim 1, wherein the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

3. (Cancelled).

4. The mobile wireless device of claim 1 wherein the one or more processors further execute the instructions to perform operations including:

receiving, by the second radio, a first proximity beacon transmission including a first MAC address and a first unique identifier at a first time; and

receiving, by the second radio, a second proximity beacon transmission including a second MAC address and a second unique identifier at a second time, the second MAC address being different from the first MAC address and the second unique identifier being different from the first unique identifier; and

associating the first and second unique identifier with a single beacon transmitter device.

5-7. (Cancelled).

8. The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform operations including:

further determining that at least one beacon transmitter device associated with the beacon service is in proximity to the mobile wireless device, by utilizing an action function including one or more previously downloaded unique identifiers.

9-11. (Cancelled).

12. The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform operations including

determining, based upon at least a portion of the identifier related information, that at least one beacon transmitter is a broadcast device having a predetermined location.

Petitioner Samsung Ex-1004, 1629

13. The mobile wireless device of Claim 1, wherein the identifier related information comprises application software for execution upon the mobile wireless device, and the one or more processors further execute the instructions to perform operations including:

sending of the unique identifier by the mobile wireless device to at least one server of the one or more servers; and

in response to the sending of the unique identifier, downloading the application software.

14. (Cancelled)

15. The mobile wireless device of Claim 4 wherein

the identifier related information comprises a list of contact information, and the one or more processors further execute the instructions to perform operations including:

further determining that at least one beacon transmitter device associated with the beacon service is further matched with an entity included within the list of contact information based upon comparing a contact identifier information with at least the portion of the unique identifier, and

the mobile wireless device, upon determining there is a match, allowing further communications with the detected beacon transmitter device associated with the entity included within the list of contact information, wherein the further communications utilize the first radio.

16. (Cancelled).

17. (Amended) The mobile wireless device of claim 1 wherein the one or more processors further execute the instructions to perform operations including:

Petitioner Samsung Ex-1004, 1630

receiving, via a second radio, the plurality of proximity beacon transmissions further includes receiving a first unique identifier at a first time that is different from a second unique identifier received at a second time; and

associating the first and second unique *identifier* with a single beacon transmitter device.

18-30. (Cancelled).

31. A method for facilitating use of proximity beacons, the method executing within a mobile device, and the method comprising:

communicating between the mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions from one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier (UID), and a proximity beacon service identifier (PBSI);

a) determining that a particular short range transmission of the plurality of short range transmissions includes a MAC address,

b) determining that the proximity beacon service identifier (PBSI) is present, and

c) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service; and

when the three determining steps a) b) and c) are each true, then d) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier.

32-34. (Cancelled).

Petitioner Samsung Ex-1004, 1631

35. The method of claim 31,

wherein a first one of the plurality of proximity beacon transmissions received at a first time includes a first unique identifier, and wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier the second unique identifier being different from the first unique identifier; and

associating both the first unique identifier and the second unique identifier with a particular entity or object in proximity to the mobile device.

36-40. (Cancelled).

41. The method of claim 31 wherein the MAC address is selected from a group consisting of (a) a randomly generated 48 bit number matching a format of a MAC address and (b) a Bluetooth BD_ADDR.

42. The method of claim 31

wherein a first one of the plurality of proximity beacon transmissions is received at a first time and includes a first unique identifier and first MAC address, and the Proximity beacon Service Identifier (PBSI), and

wherein a second one of the plurality of proximity beacon transmissions received at a second time includes a second unique identifier different from the first unique identifier and a second MAC address different from the first MAC address, and the proximity beacon service identifier; and

associating both the first unique identifier and the second unique identifier with the same entity or object in proximity to the mobile device.

43. (Withdrawn) A method for facilitating use of proximity beacons comprising:

communicating between a mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

Petitioner Samsung Ex-1004, 1632

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including proximity beacon transmissions from a beacon transmitter device associated with a proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI);

wherein the MAC addresses and unique identifiers associated with the proximity beacon transmissions as received from the beacon transmitter device associated with the proximity beacon service occasionally change;

wherein the receiving, at the mobile device using the second radio, the proximity beacon transmissions occurs without first transmitting, by the mobile device, to the beacon transmitter device; and

when a particular short range transmission:

a) includes a MAC address; and

b) includes a proximity beacon service identifier (PBSI); and

c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service,

then performing additional steps including:

determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier;

sending the unique identifier, using the first radio, to at least one server of the one or more servers; and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

44. The method of Claim 31, further comprising

preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission.

45. The mobile wireless device of Claim 1, wherein the instructions further comprise:

Petitioner Samsung Ex-1004, 1633

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

46. The mobile wireless device of Claim 1, wherein the instructions further comprise:

preventing the sending of the unique identifier, using the first radio, to the one or more servers, based upon previous detections of the respective unique identifier associated with the proximity beacon transmission.

47. The mobile wireless device of Claim 1, wherein the instructions further comprise:

controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device.

48. The method of Claim 31, further comprising:

receiving, using the first radio, access code information by the mobile device from at least one of the servers; and

utilizing the access code information to gain access to the entity or object determined to be in proximity to the mobile device.

49. The method of Claim 31, wherein receiving the identifier related information, using the first radio, is performed in response to sending at least the unique identifier to at least one of the one or more servers using the first radio.

50. The method of Claim 31, additionally comprising:

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and

receiving further information relating to an object or entity associated with being within proximity to the mobile device.

Petitioner Samsung Ex-1004, 1634

51. The method of Claim 50, wherein the further information relates to one or more of the following:

a loyalty program;

a payment service; or

a coupon relating to an entity in proximity to the mobile device; or

advertising content.

52. The method of Claim 50, wherein the further information relates to a service for providing a menu for use by a user of the mobile device for use in purchasing items, and further comprising:

allowing for the user take delivery at or near the location of a fixed proximity beacon device.

53. The method of Claim 50, wherein the further information relates to a nearby user of an application on another device, in common with an application on the mobile device.

54. The method of Claim 53, wherein the application is a multiuser game.

55. The method of Claim 31, additionally comprising:

controlling further communications between the mobile device and at least one device or server associated with an entity or object in proximity to the mobile device.

56. The method of Claim 31, wherein the step of determining that an entity or object is within proximity further comprises:

comparing the identifier related information with the unique identifier or information derived from the unique identifier.

57. The method of Claim 31, additionally comprising:

sending the unique identifier, using the first radio, to at least one server of the one or more servers, and wherein the one or more servers perform the following steps:

associating an object or entity as being within proximity to the mobile device;

Petitioner Samsung Ex-1004, 1635

storing a user's purchasing practices or requests from the one or more servers, related to the associated object or entity information as stored proximity user behavior;

retrieving a stored user email address associated with an account associated with the mobile device; and

sending an email, addressed to the user email address containing customized content based upon the stored proximity user behavior.

58. The mobile wireless device of Claim 1, wherein the one or more processors further execute the instructions to perform the operations for determining that an entity or object is within proximity by further:

comparing the identifier related information with the unique identifier or information derived from the unique identifier.

59. The mobile wireless device of Claim 1, wherein the receiving of the identifier related information, using the first radio, is performed in response to the one or more processors executing instructions for:

sending at least the unique identifier to at least one of the one or more servers using the first radio.

60. The method of Claim 31, wherein the proximity beacon transmissions are received, at the mobile device, without requiring the mobile device to first perform a step of transmitting to the one or more beacon transmitter devices from which the plurality of proximity beacon transmissions are received.

Petitioner Samsung Ex-1004, 1636

VI. EVIDENCE APPENDIX

Petitioner Samsung Ex-1004, 1637

Exhibit “A”

Dictionary.com Thesaurus.com

DEFINITIONS comprising

TOP DEFINITIONS QUIZZES RELATED CONTENT EXAMPLES

EXPLORE DICTIONARY BRITISH

comprise [k*uh* m-**prahyz**] SHOW IPA

SEE SYNONYMS FOR *comprise* ON THESAURUS.COM

verb (used with object), **com·prised, com·pris·ing.**

1 to include or contain:
The Soviet Union comprised several socialist republics.

2 to consist of; be composed of:
The advisory board comprises six members.

3 to form or constitute:
Seminars and lectures comprised the day's activities.

Petitioner Samsung Ex-1004, 1639

Exhibit “B”

Dictionary.com Thesaurus.com

DEFINITIONS storing

TOP DEFINITIONS QUIZZES RELATED CONTENT EXAMPLES

EXPLORE DICTIONARY BRITISH IDIOMS AND PHRASES

store [stawr, stohr] SHOW IPA

SEE SYNONYMS FOR *store* ON THESAURUS.COM

noun

1 an establishment where merchandise is sold, usually on a retail basis.

2 a grocery;
We need bread and milk from the store.

SEE MORE

verb (used with object), **stored, stor·ing.**

8 to supply or stock with something, as for future use.

9 to accumulate or put away, for future use (usually followed by *up* or *away*).

SEE MORE

verb (used without object), **stored, stor·ing.**

12 to take in or hold supplies, goods, or articles, as for future use.

Petitioner Samsung Ex-1004, 1641

Exhibit “C”

Dictionary.com Thesaurus.com

DEFINITIONS respective

Pick T
Word
The D
And V

TOP DEFINITIONS QUIZZES RELATED CONTENT EXAMPLES

EXPLORE DICTIONARY BRITISH

respective [ri-**spek**-tiv] SHOW IPA

SEE SYNONYMS FOR *respective* ON THESAURUS.COM

adjective

1 pertaining individually or severally to each of a number of persons, things, etc.; particular:
I will now discuss the respective merits of the candidates.

Petitioner Samsung Ex-1004, 1643

Exhibit “D”

Dictionary.com Thesaurus.com

DEFINITIONS volatile

Test Your Word Play!

Advertisement

TOP DEFINITIONS QUIZZES RELATED CONTENT EXAMPLES

EXPLORE DICTIONARY BRITISH MEDICAL SCIENTIFIC

volatile

[**vol**-*uh*-tl, -til *or, esp. British*, -tahyl] SHOW IPA

SEE SYNONYMS FOR *volatile* ON THESAURUS.COM

adjective

1 evaporating rapidly; passing off readily in the form of vapor:
Acetone is a volatile solvent.

2 tending or threatening to break out into open violence; explosive:
a volatile political situation.

3 changeable; mercurial; flighty:
a volatile disposition.

4 (of prices, values, etc.) tending to fluctuate sharply and regularly:
volatile market conditions.

5 fleeting; transient:
volatile beauty.

SEE MORE

noun

Petitioner Samsung Ex-1004, 1645

Exhibit “E”

Dictionary.com Thesaurus.com

DEFINITIONS transitory

Test Your Word Play!

Advertisement

TOP DEFINITIONS QUIZZES RELATED CONTENT EXAMPLES

EXPLORE DICTIONARY BRITISH

transitory

[**tran**-si-tawr-ee, -tohr-ee, -zi-] SHOW IPA

SEE SYNONYMS FOR *transitory* ON THESAURUS.COM

adjective

1 not lasting, enduring, permanent, or eternal.

2 lasting only a short time; brief; short-lived; temporary.

Advertisement

QUIZZES

PSST, CALLING ALL QUIDNUNCS! THE NEW WORD OF THE DAY QUIZ HAS ARRIVED!

This week's quiz is chockablock with wonderful words. See how many you remember

Petitioner Samsung Ex-1004, 1647

Exhibit “F”

US 20170011425A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2017/0011425 A1

Proctor, JR. et al. (43) Pub. Date: Jan. 12, 2017

(54) **EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED**

(71) Applicant: **Proxicom Wireless, LLC**, Indialantic, FL (US)

(72) Inventors: **James Arthur Proctor, JR.**, Indialantic, FL (US); **James Arthur Proctor, III**, Indialantic, FL (US)

(21) Appl. No.: **15/271,410**

(22) Filed: **Sep. 21, 2016**

Related U.S. Application Data

(63) Continuation of application No. 14/861,563, filed on Sep. 22, 2015, which is a continuation of application No. 14/472,477, filed on Aug. 29, 2014, now Pat. No. 9,161,164, which is a continuation of application No. 13/775,435, filed on Feb. 25, 2013, now Pat. No. 8,849,698, which is a continuation of application No. 13/212,723, filed on Aug. 18, 2011, now Pat. No. 8,385,896, which is a continuation of application No. 12/364,828, filed on Feb. 3, 2009, now Pat. No. 8,090,359.

(60) Provisional application No. 61/095,001, filed on Sep. 8, 2008, provisional application No. 61/095,359, filed on Sep. 9, 2008.

Publication Classification

(51) **Int. Cl.**

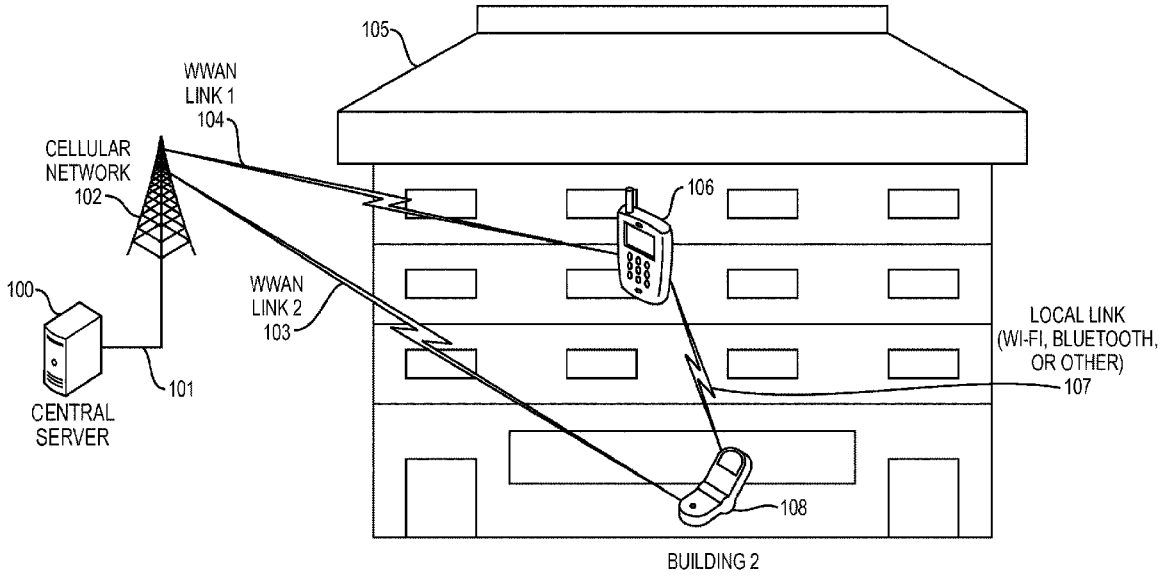
G06Q 30/02	(2006.01)
H04W 4/02	(2006.01)
G06Q 30/06	(2006.01)
G06Q 50/00	(2006.01)
H04L 29/06	(2006.01)
G06Q 20/32	(2006.01)

(52) **U.S. Cl.**

CPC ***G06Q 30/0261*** (2013.01); ***H04L 63/20*** (2013.01); ***G06Q 20/3224*** (2013.01); ***G06Q 30/0601*** (2013.01); ***G06Q 50/01*** (2013.01); ***H04W 4/023*** (2013.01); *H04L 61/2038* (2013.01)

(57) **ABSTRACT**

A server exchanges information between one or more wireless devices to complete a transaction. The server receives second device identifier information from a first wireless device using a wide area network. The second device identifier information was previously provided to the first wireless device using short range wireless communication. The server then uses the second device identifier information to determine additional information concerning an entity or object located in proximity to the second device, and then the server delivers information to the first wireless device based at least in part upon both (a) the second device identifier and (b) a current step in a multiple step process for an ongoing electronic commerce transaction.



Petitioner Samsung Ex-1004, 1649

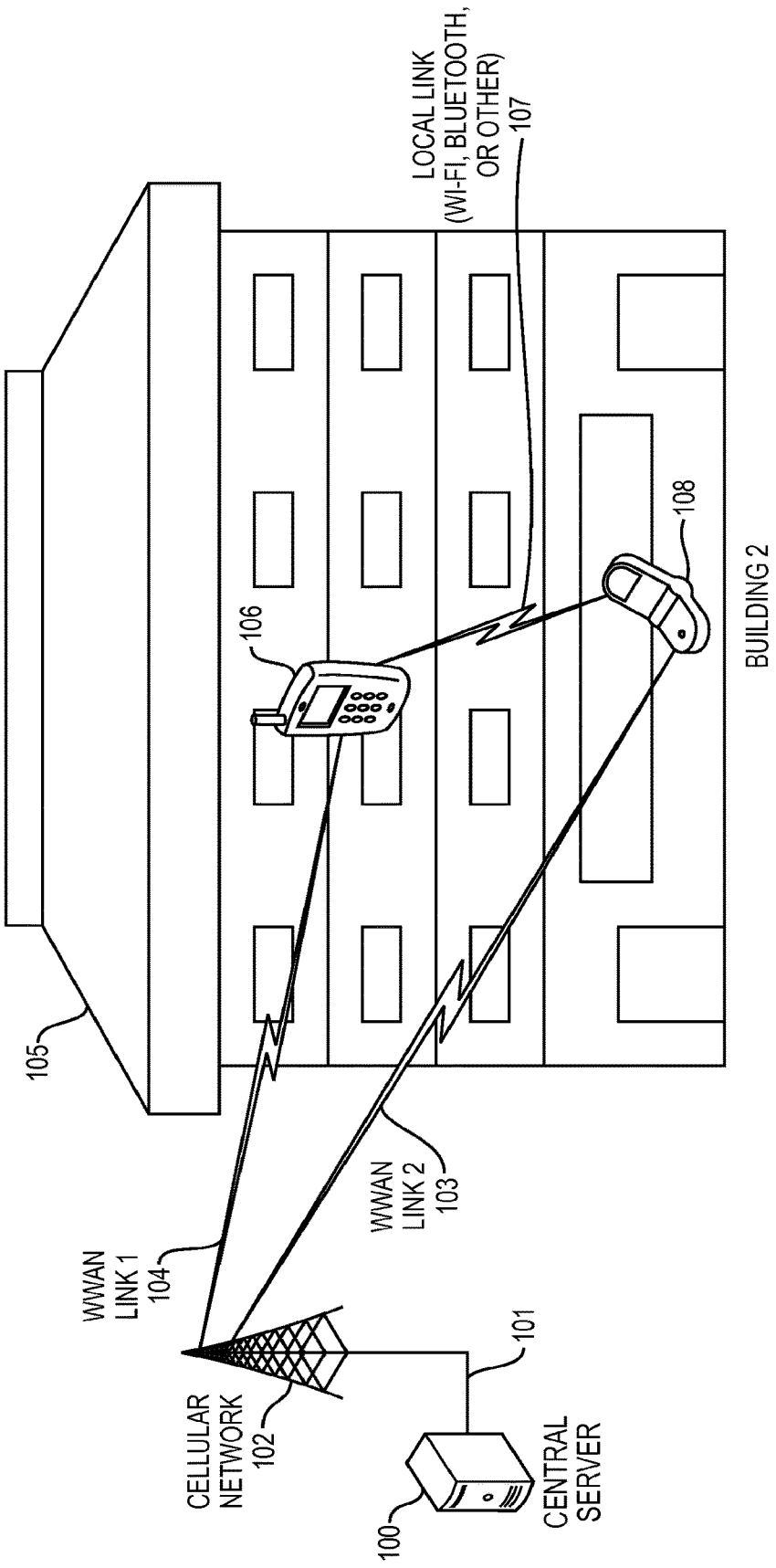

LOCAL LINK
(WI-FI, BLUETOOTH,
OR OTHER)
107
108
106
BUILDING 2
105
WWAN
LINK 1
104
WWAN
LINK 2
103
101
CELLULAR
NETWORK
102
CENTRAL
SERVER
100

Figure 1

Figure 2

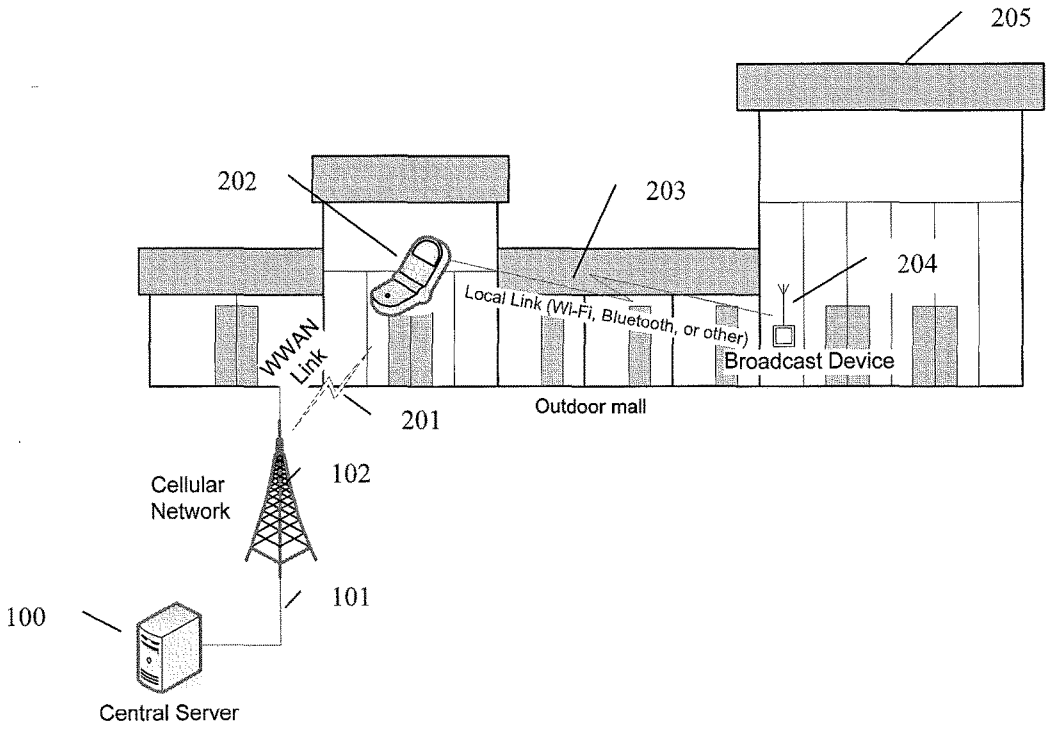
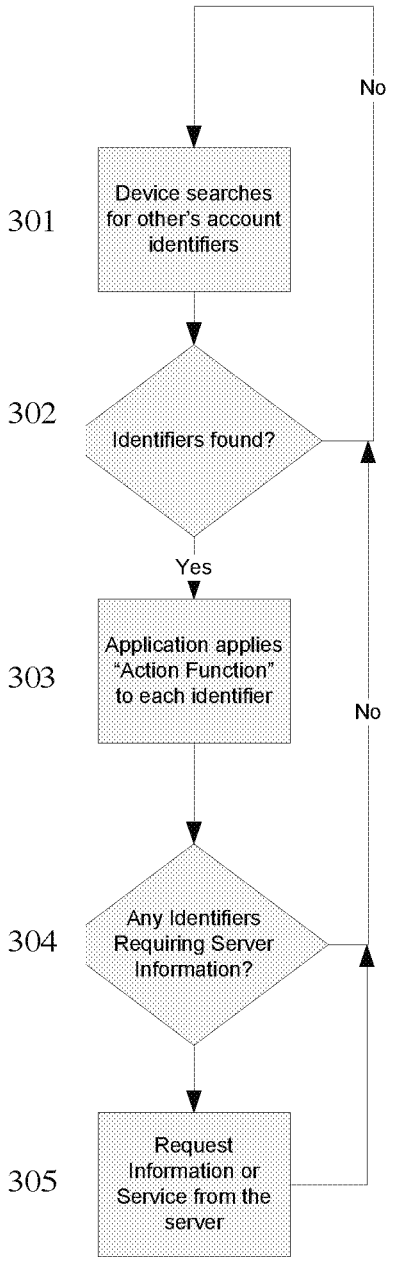

205
202
203
204
Local Link (Wi-Fi, Bluetooth, or other)
WWAN Link
Broadcast Device
Outdoor mall
201
Cellular Network
102
101
100
Central Server

Figure 3


No
301
Device searches for other's account identifiers
302
Identifiers found?
Yes
303
Application applies "Action Function" to each identifier
No
304
Any Identifiers Requiring Server Information?
305
Request Information or Service from the server

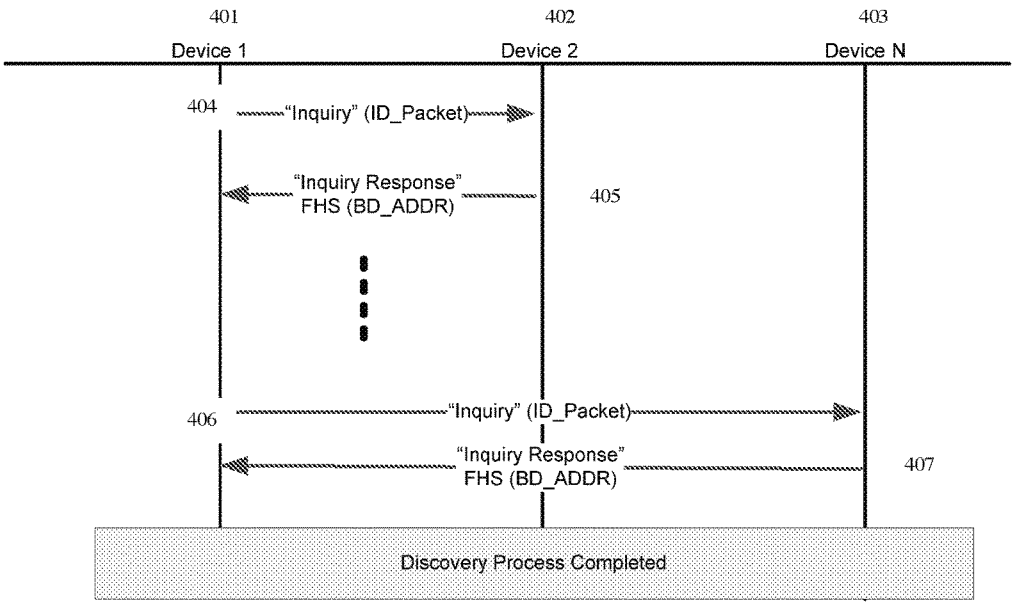


Figure 4 – 802.15.1-2002 (Bluetooth V1.2) Device Discovery

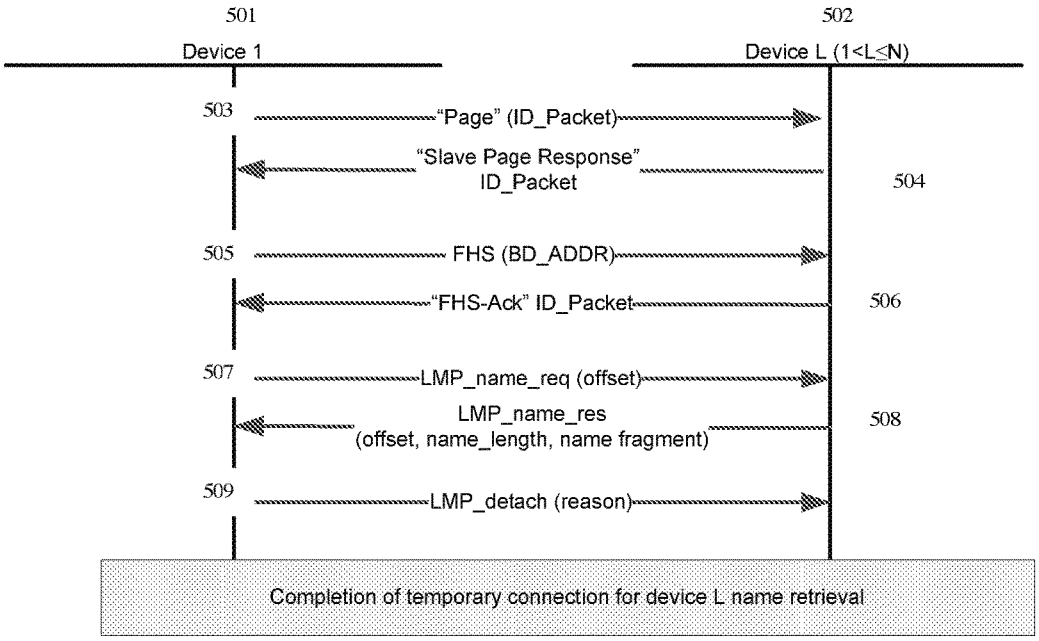


Figure 5 – 802.15.1-2002 (Bluetooth V1.2) Remote Name Request

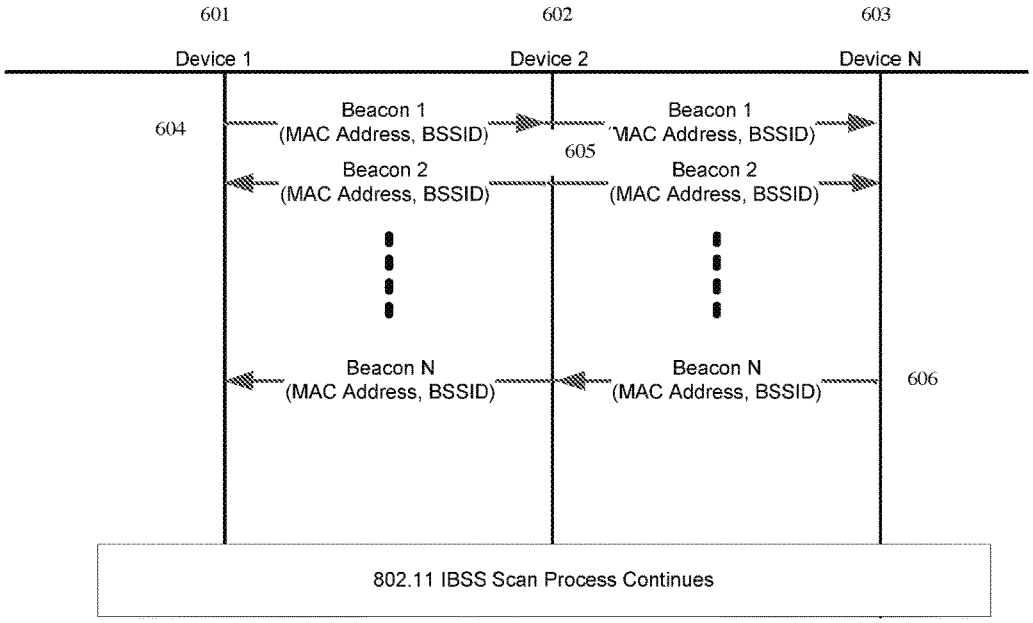


Figure 6 - 802.11 IBSS Beacon Process

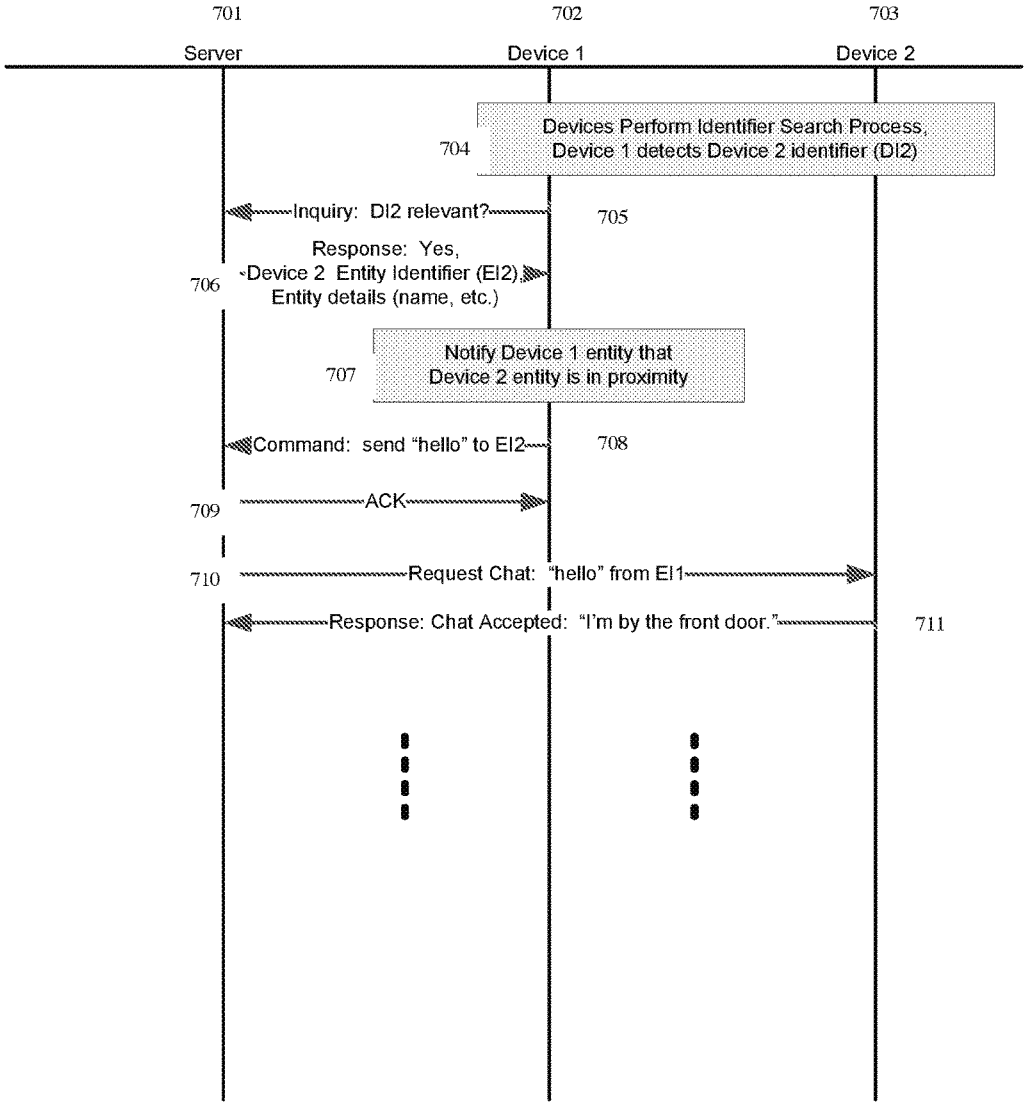


Figure 7 – Process of Detection and entering a Chat Session

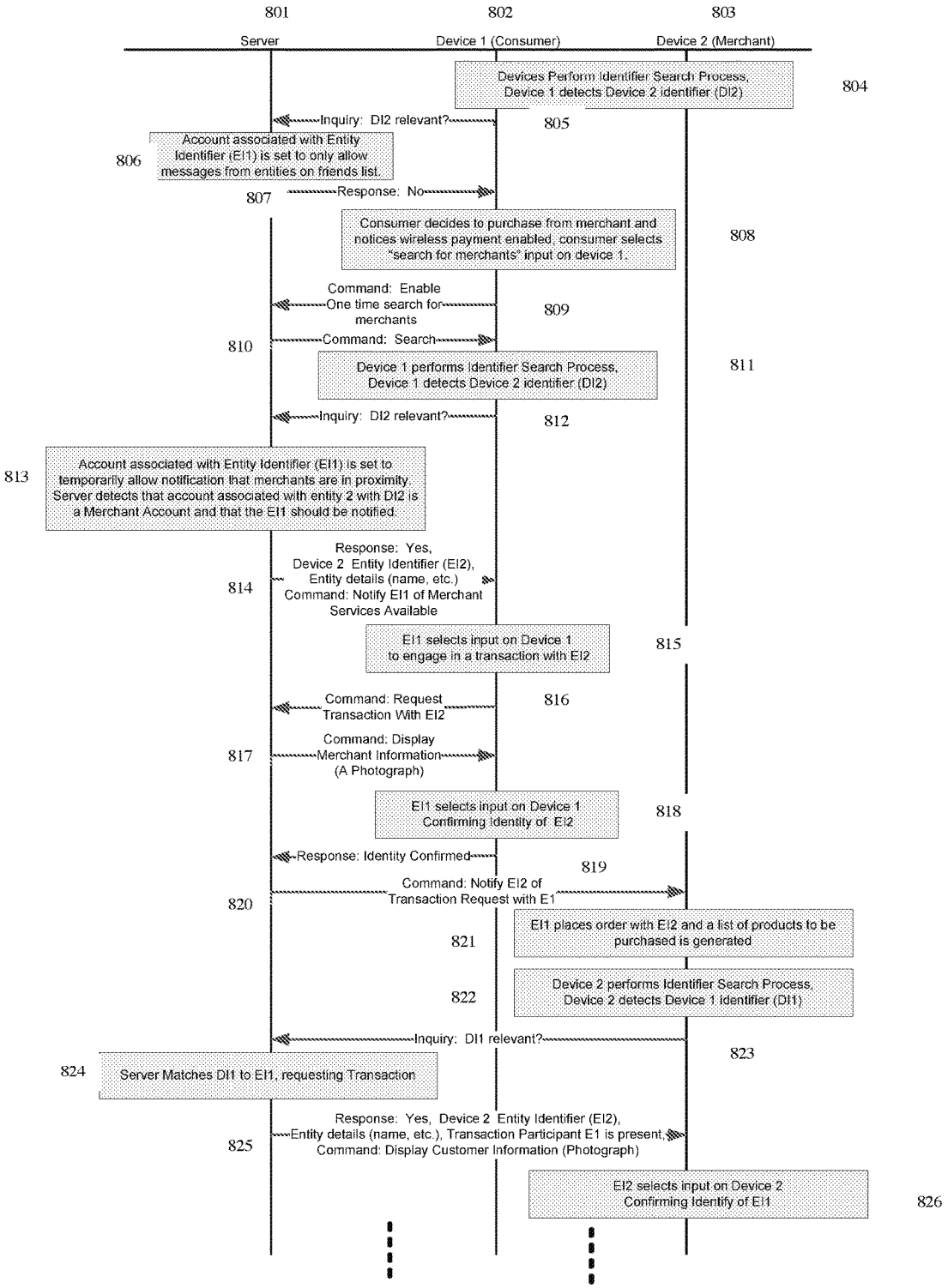
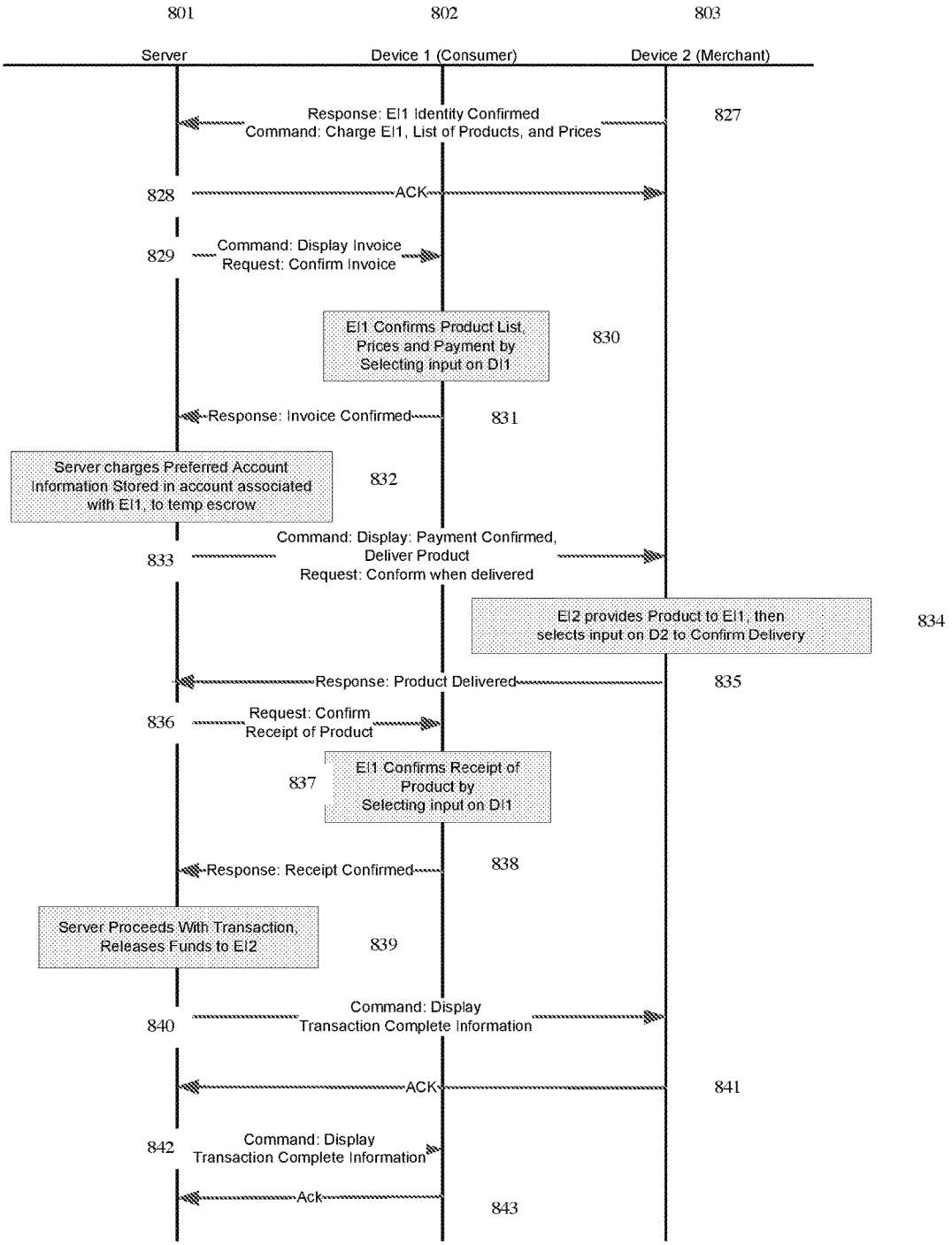


Figure 8A – E Commerce Process

Figure 8B – E Commerce Process Continued



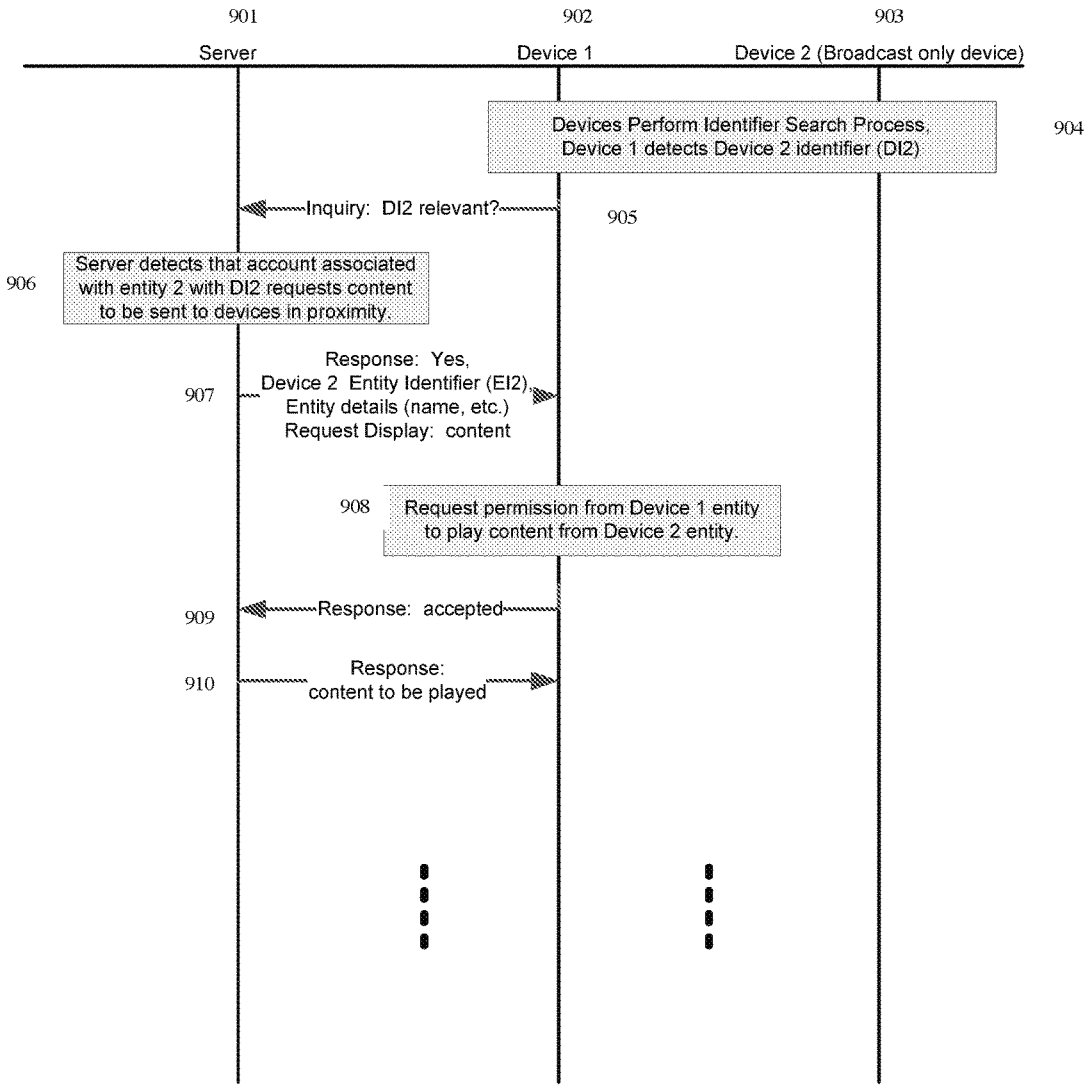


Figure 9 Broadcast and mobile device interaction

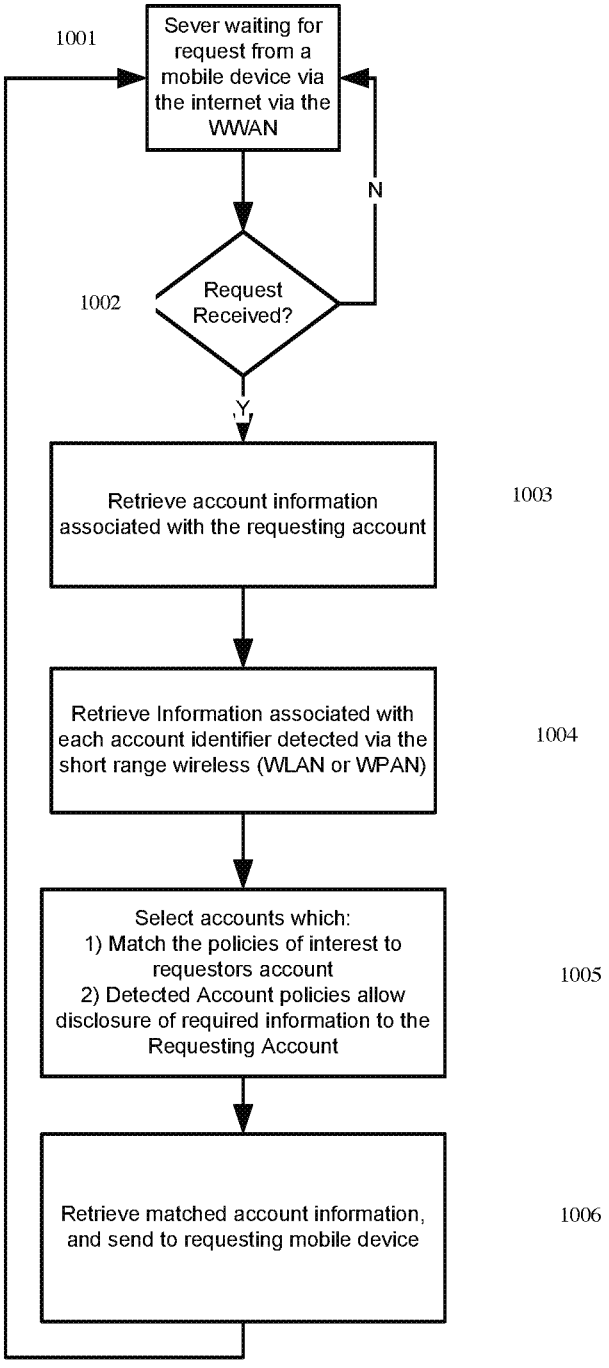


Figure 10 – Server Processing Example for Detected Device

Figure 11 – Example Individual Account Record associated with an Entity Stored in the Server

Record Index	Field	Field Information Group Disclosure Policy Assignments List
1	Account Number	[All, Explicit Approval, NONE, 1..N]
2	Identifier	
3	Identifier Type [Fixed MAC Address, Dynamic MAC Address, BSSID, Device Name]	
4	Number of Fields	
5	Field List	
6	Account User Name	NONE
7	Account Password	NONE
8	Entity Name	
9	Entity Address	
10	Entity Type [Individual, Merchant, Broadcast Entity]	
11	Billing Information	
12	Device Type	
13	Device IP Address	
14	Device SMS Phone Number	
15	Device Capabilities	
16	Entity AutoPlay Script 1	
17	Entity AutoPlay Script 2	
18	Detected AutoPlay Script 1	
19	Detected AutoPlay Script 2	
20	Entity Instant Message Address List	
21	Information Group Disclosure Policy 1 (IGDP#) [Characteristic 1 (C1), C2,.. CN, Friend List 1 (FL1), FL2, .. FLN, etc]	
22	Information Group Disclosure Policy 2	
23	Information Group Disclosure Policy 3	
24	Information Group Disclosure Policy 4	
25	Additional Personal Information Field 1 (APIF#) [Content Type/Content] (Picture, mp3, xml/AJAX, Text, Contact List, URL (MySpace, Facebook, Loopt), Login Credentials (MySpace, Facebook, Loopt, Itunes, etc.), Payment Information (Credit Card Information, PayPal Information, etc.), IM Credentials List (Username/Password))	
26	Additional Personal Information Field 2	
27	Additional Personal Information Field 3	
...		

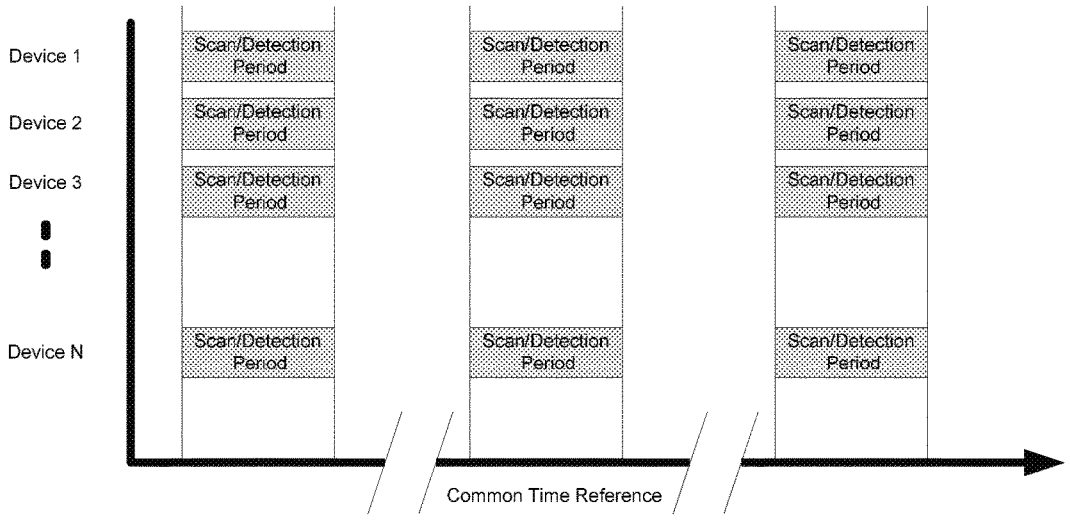


Figure 12 Use of common time reference for intermittent detection intervals

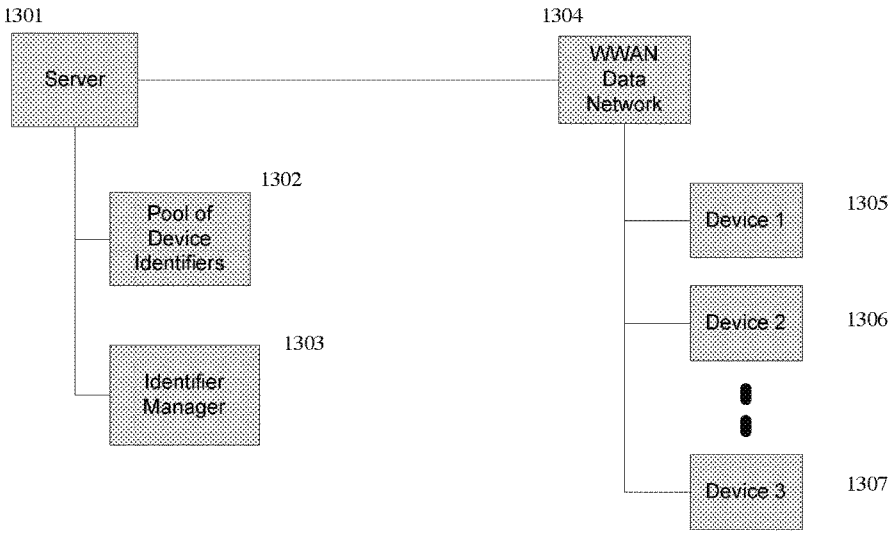


Figure 13 - Management of Device Identifiers by Identifier Manager in the Server

EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED

RELATED APPLICATION(S)

[0001] This application is a continuation of pending U.S. patent application Ser. No. 14/861,563, filed Sep. 22, 2015 which is a continuation of pending U.S. patent application Ser. No. 14/472,477, filed Aug. 29, 2014 which is a continuation of U.S. patent application Ser. No. 13/775,435, filed Feb. 25, 2013, now issued as U.S. Pat. No. 8,849,698 on Sep. 30, 2014 which is a continuation of U.S. patent application Ser. No. 13/212,723, filed Aug. 18, 2011, now issued as U.S. Pat. No. 8,374,592 on Feb. 12, 2013 which is a continuation of U.S. application Ser. No. 12/364,828, filed Feb. 3, 2009, now issued as U.S. Pat. No. 8,090,359 on Jan. 3, 2012 which claims the benefit of U.S. Provisional Application No. 61/095,001, entitled "Central Server Enabled Proximity Based Applications Utilizing Both Short Range, and Wide Area Wireless Radios", filed on Sep. 8, 2008 and U.S. Provisional Application No. 61/095,359, entitled "Central Server Enabled Proximity Based Applications Utilizing Both Short Range, and Wide Area Wireless Radios", filed on Sep. 9, 2008. The entire teachings of the above applications are incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] Several key internet applications have become increasingly popular in recent years. A current trend in internet usage involves social networking. Social networking involves making use of internet services which allow for the interaction and sharing of information between users of service.

[0003] Recently, mobile wireless communication standards have progressed to the point where relatively high speed data connections are possible to the phone over the wireless wide area network (WWAN). These standards include 1×EV-DO, HSDPA, EDGE, GPRS, Wi-Max (IEEE802.16e) and the like. Some social networking sites have included interfaces to their web sites optimized to make use of such high data rate mobile services for use on a mobile phone. These services are referred to as mobile social networking. For the most part, these services are simply versions of the standard social networking, redesigned to be usable on a mobile phone, adding little in the way of increased capability.

[0004] With the common capability of global positioning system (GPS) receivers being incorporated into phones, some additional capabilities have been added to some mobile social networking interfaces by incorporating location information for the user and that of the individual they interact with.

[0005] These services are utilizing GPS to determine the location of one mobile wireless user and to another to facilitate mobile social networking. An example of an existing application utilizing this approach is Loopt (www.loopt.com), which coordinates location based social interaction. One problem with GPS based mobile application involves the GPS receiver not receiving sufficient signal strength in many indoor locations. As a result these enhanced capabilities have typically been targeted at either navigation to a specified location, or as in the case with Loopt, allowing a user to see where their friends are located in a relatively large geographic location, on a map.

[0006] Another popular application for the internet is electronic commerce. Just as with social network, e-commerce services have provided interfaces optimized for use on mobile phones which provide basically the same capabilities as the standard interfaces. Very little location or proximity information has been used to enhance the mobile e-commerce experience.

[0007] Some attempts have been made to utilize RFID (Radio Frequency Identification) chips to perform mobile payments. This approach requires the additional hardware on a phone in the form of a RFID chip, or other specialized features. As a result, mobile electronic commerce has mostly allowed users to perform transaction with a remote party, such as purchasing an item on ebay (www.ebay.com). To date mobile electronic payments for individuals who are in close proximity to each other have not been practical for a number of reasons. First there is a need for the individuals to have a third trusted party to help facilitate the electronic transaction. Secondly, there needs to be a convenient, electronically secure, personally secure and anonymous method for each of the individuals to specify the party with which they wish to engage in a transaction. Thirdly, there is a need to cross validate the identities of the individuals engaged in the transaction. Finally, this method must work in indoors locations.

[0008] Most mobile phones on the market today support at least two wireless standards; one for the cellular wireless wide area network connection (WWAN) and one for a wireless personal or local area network (WPAN, WLAN). The cellular connection or WWAN is utilized for voice and data and can adhere to many different standards such as CDMA (IS-2000), GSM, W-CDMA, WiMax, etc. The WPAN or WLAN connection is typically for short range communications and is often used for wireless hands free devices, such as headsets, peripherals, or higher speed internet connections. The typical standards used for the sort range wireless communications include Bluetooth, Wi-Fi, and in some cases Ultra-Wide-B and (UWB).

[0009] In another approach to mobile social networking some services have attempted to utilize short range wireless capabilities often available on phones such as IEEE802.11 (Wi-Fi) or Bluetooth to facilitate peer to peer communications. These are also referred to a MANETs or Mobile Ad-hoc Networks. These services typically consist of a software application operating on a mobile phone using peer to peer networks to facilitate communication between wireless devices. Examples of such existing applications include Mobile-Cheddar, Peer-2-Me, and Flobbi. Published US Patent application US 2008/0182591 A1 filed Dec. 13, 2007 describes one such peer to peer approach. One issue with these approaches is that one can not communicate with a peer once the devices are no longer in proximity. A further disadvantage is that all information to be exchanged must be stored locally on each of the peer devices as the communication occurs directly between the two devices and any policy for the delivery of locally stored content is difficult to enforce without the potential for fraud such as spoofing identities between the peers. Such fraud may lead to concerns of personal safety or privacy allowing the identity of an individual to be determined when it is not desired. Further this peer to peer model is inadequate for mobile electronic

Petitioner Samsung Ex-1004, 1664

commerce in part due to the lack of an independent third party to facilitate the services required for a secure proximity based mobile electronic transaction as previously mentioned.

SUMMARY OF THE INVENTION

[0010] The present invention is generally concerned with facilitating the exchange of information and transactions between two entities associated with two wireless devices when the devices are in close proximity to each other utilizing both a short range and a long range wireless capability.

[0011] Preferred embodiments of the present invention are generally concerned with facilitating the exchange of information and transactions between two entities associated with two wireless devices when the devices are in close proximity to each other. In one embodiment, this can be accomplished by a first device using a first short range wireless capability to detect an identifier transmitted from a second device in proximity to the first device, ideally using existing short range radio communication standard capabilities such as Bluetooth (IEEE802.15.1-2002) or Wi-Fi (IEEE802.11). The detected identifier, being associated with the device, is also associated with an entity. Rather than directly exchanging application data flow between the two devices using the short range wireless capability, a second wireless capability then allows for one or more of the devices to communicate with a central server via the internet, and perform an exchange of application data flow. By using a central server to draw on stored information and content associated with the entity or entities, the server can broker the exchange of information between the entities and the devices. In a preferred embodiment, this exchange may be comprised of information stored on the server associated with a detected entity, and it may be comprised of information received from the detected device via the second wireless capability and facilitated by the server.

[0012] In addition, the server can also allow for a brokering service, ideally independent of the entities, to enable the application of policy based on the identity of the two entities for the disclosure of stored information associated with the entities, the flow in information between the devices and the entities, and the enablement of procedures such as security verification between the entities.

[0013] Applications running on a device may also interact with the server to perform various functions, for example retrieving information associated with an entity or device, by utilizing a detected identifier. Such information may include stored content associated with the entity's account record such as music, pictures, links to social networking sites, instant messaging addresses, advertising content, and even executable scripts or application such as in AJAX. An example of such an application may include the detection of a device's identifier in a fixed location allowing for tour guide like information to be provided for that location.

[0014] As the server may be running applications which perform more function than just the retrieval of content, a pre-defined interaction process may also be applied by the server to the devices such as allowing the approval to share private content with the entity associated with the detected device. This process may eventually allow or disallow the sharing of information and to facilitate the interacting with another entity.

[0015] As a more complex example, in other embodiments, the devices may utilize the server as a third party to provide for new capabilities such as a secure three way e-commerce transaction between two entities. In this more complex process, the server may require confirmation of each party's identity with visual cross verification of the parties using pictures or other unique identifiers. The server may use this visual cross verification in conjunction with detecting that the individuals are in proximity with each other. The server may verify the proximity using GPS or using the peer to peer detection process in another embodiment. Further, the server may facilitate a process requiring each party to perform a step by step confirmation during the transaction including the stages of: the request for purchase, the payment, the receipt of goods and services, and the providing of payment receipt.

[0016] This differs from the approaches employed by prior art location aware mobile social networking techniques in that no GPS is needed to determine when one device is in proximity to another. Many wireless devices in use are not GPS-capable, and even when they are, GPS will often not operate indoors or where the GPS signal is weak. Using a peer to peer detection process to locate nearby devices allows for the operation of proximity detection indoors.

[0017] Preferred embodiments of the present invention can also differ from known peer to peer based social networking in that the information flow between the devices running the applications are over the wide area network via a central server, rather than carried over the peer to peer network itself. An example of this is a service called Flobbi, as discussed previously, where community members can identify each other via Bluetooth transmissions, then interact with chat. The messaging in this case is carried over Bluetooth itself. A distinction from such peer to peer approaches is the use of a central server to "broker" the transactions between peers, enhancing the ability to manage security and information disclosure. Such use allows for the opportunity to customize delivered content to include elements such as advertising or other content customized to the recipient based on additional information such as known personal purchasing history, or interests.

[0018] A further distinction of the preferred embodiment is the use of a central server to determine identities of detected peer devices, which additionally allows for secure and fraud resistant application of policies for the disclosure of information and content. An issue with the existing pure peer to peer approaches is that they are not capable of enforcing policy associated with the disclosure of information to unknown entities in a secure and fraud resistant manor. One reason for this is that information related to a user's device must be disclosed in the process of detection in the form of a static identifier. By the nature of the identifier, it must be static or peers would not be able to directly determine the identity of a friend over time with the information stored on their device. By using a central server, the system may coordinate the change of the identifiers from time to time such that the disclosure of an identifier by one device to another does not compromise the identity of the device. In this case the identifier may be assigned from a central server and such server coordinate the identifier's change from time to time.

[0019] Reliance on a central server also allows the secure and fraud resistant application of disclosure policy. Such policy might include the verification of the identity of the

Petitioner Samsung Ex-1004, 1665

party to which information (identity and presence for instance) or content (pictures of the account owner) is to be provided. Such verification is performed in an anonymous way such that in the process of verifying information associated with each party, no personal information is disclosed between the parties prior to satisfaction of some pre-set policy such as inclusion on a friend list or belonging to a specific group or organization. Another important policy required for such services would be the determination of any past negative feed back ratings by other past peers for behavior for the particular user to which the information is to be provided. An individual with significant poor ratings having detected a peer, may be denied access to personal information or even notification of arrival of the detected peer based on the server policy setting by the detected peer or the server in general.

[0020] A further distinction is to enable electronic payments for individuals who are in close proximity to each other. The central server can act as a third trusted party to help facilitate the electronic transaction between the individuals. Secondly, the server allows for a convenient, electronically secure, personally secure and anonymous method for each of the individuals to specify the party with which they wish to engage in a transaction. Thirdly, participants in a transaction can cross validate the identities of the individuals engaged in the transaction. Finally, because this method is proximity based it will also work indoors or in other situations where GPS location information is not available.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] The foregoing will be apparent from the following more particular description of example embodiments of the invention, as illustrated in the accompanying drawings in which like reference characters refer to the same parts throughout the different views. The drawings are not necessarily to scale, emphasis instead being placed upon illustrating embodiments of the present invention.

[0022] FIG. **1** is a block diagram of two mobile devices utilizing a preferred embodiment.

[0023] FIG. **2** is a block diagram of a fixed broadcast device and a mobile device.

[0024] FIG. **3** is a flow diagram of the operation of an application on the mobile devices.

[0025] FIG. **4** is a message sequence chart showing the Bluetooth discovery process using in one embodiment.

[0026] FIG. **5** is a message sequence chart showing the Bluetooth Remote Name Request Process.

[0027] FIG. **6** is a message sequence chart showing the IBSS beacon process.

[0028] FIG. **7** is a message sequence chart showing the interaction between the server and two devices performing a detection and entering a chat application.

[0029] FIG. **8**A is a message sequence chart showing an E-commerce example.

[0030] FIG. **8**B is a continued example message sequence chart showing an E-commerce example.

[0031] FIG. **9** is a message sequence chart showing an example of a mobile device and a fixed broadcast device interaction.

[0032] FIG. **10** is a flow diagram for the server processing associated with the detection process.

[0033] FIG. **11** is an example individual account record stored in the server associated with an Entity.

[0034] FIG. **12** illustrates a timing reference for intermittent active and dormant times.

[0035] FIG. **13** shows a diagram of functional blocks associated with management of dynamically assigned device identifiers.

DETAILED DESCRIPTION OF THE INVENTION

[0036] A description of example embodiments of the invention follows.

[0037] The teachings of all patents, published applications and references cited herein are incorporated by reference in their entirety.

[0038] FIG. **1** is a block diagram of two mobile devices utilizing a preferred embodiment.

[0039] Referring to FIG. **1**, a central server **100** is connected to devices **106** and **108** by an internet protocol (IP) based network, carried over a series of connections, at least one of which is a wireless connection. For example, the server **100** has a connection allowing IP based communications to a cellular network **102** using connection **101**. The cellular network is connected to devices **106** and **108** by wide area wireless links **104** and **103** respectively, allowing for IP based communications between the devices (**106** and **108**) and the server **100**.

[0040] Devices **106**, **108** can be considered "client(s)" of the server **100**. The clients **106**, **108** and server **100** provide processing, storage, and input/output devices for executing wireless system protocols, interfaces, and application level programs according to the invention. Client devices **106**, **108** can also be linked through various communications networks to other computing devices, including other client devices/processes and other server computer(s). Communications network(s) providing the connection **101** can typically be part of a remote access network, a global network (e.g., the Internet), a worldwide collection of computers, Local area or Wide area networks, and gateways that currently use respective protocols (TCP/IP, 3G Wireless, Bluetooth, etc.). Other electronic device/computer network architectures are suitable.

[0041] The internal structure of devices **106**, **108** or server **100** includes one or more data processors (not shown in detail) that are well known in the art to include a system bus for data transfer among the other internal components of a computer system (e.g., processor, disk storage, memory, input/output ports, network ports, etc.). Attached to the bus are other input/output devices (e.g., keyboard, mouse, displays, printers, speakers, network interfaces, etc.). Network interfaces allow the computer to connect to various other devices attached to a network. Memory provides volatile storage for computer software instructions and data used to implement an embodiment of the present invention (e.g., applications programs and the like). Disk storage can provide non-volatile storage for computer software instructions and data used to implement an embodiment of the present invention.

[0042] In one embodiment, the invention may include a computer program product including a computer readable medium (e.g., a removable storage medium such as one or more DVD-ROM's, CD-ROM's, diskettes, tapes, etc.) that provides at least a portion of the software instructions for the invention system. Computer program product can be installed by any suitable software installation procedure, as is well known in the art. In another embodiment, at least a

Petitioner Samsung Ex-1004, 1666

portion of the software instructions may also be downloaded over a cable, communication and/or wireless connection. In other embodiments, the invention programs are a computer program propagated signal product **107** embodied on a propagated signal on a propagation medium (e.g., a radio wave, an infrared wave, a laser wave, a sound wave, or an electrical wave propagated over a global network such as the Internet, or other network(s)). Such carrier medium or signals provide at least a portion of the software instructions for the present invention.

[0043] More particularly, a given device **106**, **108** uses a short range wireless link **107** such as a Bluetooth (IEEE802.15.1) or Wi-Fi (IEEE802.11) link to detect the presence of other devices such as device **108**, and uses the wide area wireless network connections **103**, **104** such as IS-2000, WCDMA, GPRS, EDGE, LTE, Wi-Max (IEEE802.16), or the like to perform communications to central server **100**, and to perform the actual substantive communications between the wireless devices **106** and **108**. Device **108** typically uses the short range wireless link **107** and wide area wireless link **103** in a similar manner to locate and initiate communicate with device **106**. One distinction relative to prior art is that the short range wireless **107** is only used for the detection process, or to advertise a device's presence. In this embodiment, specific information called "wireless identifier" or simply "identify" (described in more detail below) is passed between devices **106** and **108** over the short range link **107**. By transmitting a wireless identifier using the short range Wi-Fi, Bluetooth or other short range wireless link **107** and receiving wireless identifiers from other devices, this short range wireless link **107** will allow for a proximity detection process.

[0044] The support for IP based networking is standard for WWAN or 3G connections such as 1×EV-DO or HSPA, and as a result, communication between one device to another using the WWAN is currently supported in many devices with no modification. The use of simple detection of one or more identifiers requires significantly less resources in a phone than performing a complete peer to peer based communication network protocol, which accommodates dynamic configuration of nodes being added and dropped continuously. It is noted that the IP address on the WWAN interface is not location dependent in the present embodiment, but is addressing approaches are location dependent when true Peer to Peer topologies are used. The present embodiment has the advantage that communication between two devices may continue after the devices have left proximity of each other, but in the same manner as they had been communicating previously. As a result, a user who detects a short range transmission of an identifier, then begins a conversation or some other interaction with that device via the wireless wide area network may continue that conversation even in the case where the two devices move out of the proximity of the each other, and are no longer within the reception range of the short range wireless communication protocol. Further, since it is contemplated that the wireless identifiers transmitted on the short range wireless link from the devices would occasionally change, for security reasons, the present embodiment has the advantage that ongoing communications between mobile devices will not be interrupted despite a change in one of the device's identifier. In the case where the identifier is a MAC address of the short range wireless network adapter for one of the devices, it is not otherwise possible to change this address and easily maintain on going communications in a true peer to peer topology.

[0045] Referring to FIG. **2**, central server **100** is connected to the cellular network **101**, and is able to communicate information to and from wireless device **202** using a wide area wireless link such as IS-2000, WCDMA, GPRS, EDGE, LTE, Wi-Max (IEEE802.16), or the like within structure **205**. Device **204** does not have a wide area wireless or cellular link, but transmits identifying information using short range wireless link **203**. Device **202** is capable of receiving the identifying information and requesting information related to that device from server **100**.

[0046] An example of an application using this infrastructure follows. The device **204** will simply broadcast an identifier, with no WWAN connection but may facilitate advertising or local information. For instance, an account associated with one or more identifiers may belong to a museum. As a museum patron walks to an exhibit, the patron's device **202** will receive an identifier sent from museum broadcast device **204** operated by the museum. The patron device **202** passes the identifier or museum device **204** to the central server **100**, which in-turn recognizes it as being associated with that exhibit within that museum and passes relevant information back to the user's device **202**. A distinguishing feature of this approach relative to prior art is that the patron device **202** in this example may move out of proximity of broadcast device **204**, yet continue to view the content being provided by the server **100** related to the detected broadcast device **204**. Content may include text, pictures, web pages, application software such as games, informative display applications, or other content such as audio or video to be offered to the user's device as well. Other examples might include electronic coupons (such as in a grocery store), menus or special offers in a restaurant.

[0047] FIG. **3** is a block diagram with further detail of this operation. A device **106**, **108**, or **202** after performing a search (FIG. **3**, step **301**) for identifiers on the WPAN or WLAN, will subsequently use the WWAN link to communicate with the central server **100**. If the device does not find identifiers **302** it will either continue to search, or search at a later time **301**. If identifiers are found in **302**, the device may employ an action function **303**, which would act as a filter that determines which of the detected identifiers should be passed to the server. This function may instead be omitted and all identifiers passed to the server **100**. The idealized effect of the action function would be to reduce the number of requests to the server by not re-requesting recently requested identifiers which have already been passed to the server, for some period of time. In step **304**, if no identifiers require server information, searching is continued in step **301**.

[0048] Assuming there are identifiers which are new to the device, the device will pass along a list of currently detected identifiers and request **305** that the server return information related to any other local device. The server will return the information related to any identifier that meets certain policy requirements. For instance, information is returned which is 1) relevant to that device, and 2) that the device is authorized to receive.

[0049] As an example of the overall process, a detected identifier may be relevant to the receiving device if the user associated with the detected identifier is listed in a "friends list" for the owner of the receiving device. If the identifiers

Petitioner Samsung Ex-1004, 1667

for the individuals within the friends list have been passed to the device, the action function **303** may make this determination. In the preferred embodiment, the server would determine the identity and the relevance of the detected identifiers, and the action function **303** would work to reduce frequency of re-requests to the server. FIG. **7** describes an example of how to use this for messaging associated with the device and server interaction during the detection and identifier inquiry process, with a more detailed explanation to follow.

[0050] To enable server **100** to associate an identifier with an entity, each device or entity (such as the museum) associated with an identifier has an account on server **100** or a related server as is common in information technology. The account is associated with the entity and the device and the current identifier.

[0051] As used herein, an "entity" may be a legal entity, such as an individual person or a business.

[0052] An "object" is intended to include a physical thing, such as a product that is being offered for sale, and may include a tangible article or intangible such as an electronic music or video file or photograph.

[0053] There is various information associated with each account. An example data record for an account is shown in FIG. **11**. When the account is associated with an individual or (other entity), there may be personal information such as the individual's name, contact information, information regarding allowed communication, such as chat or IM, links to their other social networking services, and the like. When the account is associated with a broadcast device **204** the account may contain content to be displayed to the detecting device **202**. By utilizing the central server **100**, broadcast devices may be tied to a location or product thereby providing relevant information about the location such as in the museum tour example previously discussed. In this situation, the content delivered to device **202** may be informative information about an exhibit including pictures, text, audio, or video and the like. In the case of a broadcast device being in a supermarket and near a specific product, advertisement or discounts with electronic coupons my be stored in the account and provided to device **202**.

[0054] There can also be policy based permissions associated with each account and applied to any information associated with that account. The stored policy permissions can be used to determine what information and under which situations information may be disclosed to another device or user associated with another account. For example, the entity (person in this case) associated with device **202** may have set a policy in their account to not receive any unsolicited information from a broadcast device so as to not be disturbed. However, the person associated with **202** may see the broadcast device and a sign stating a discount is available, and provide input to their device to request any broadcast information on a one time exception basis. The messaging associated with an example mobile and broadcast device process will be described in more detail to follow associated with FIG. **9**.

[0055] As already mentioned above, in step **301** of FIG. **3**, each device performs a search function looking for identifiers sent from other devices utilizing a short range wireless capability. The following describes the process of devices detecting identifiers from other devices in more detail.

[0056] The identifiers themselves may be a hardware address such as the MAC address of the wireless device, or they may be another label such as the SSID for a IEEE802.11 device, or the device name for a Bluetooth device. Referring to FIG. **4**, in the case where a Bluetooth wireless personal area network device is utilized, a first device **401** transmits an inquiry (ID_Packet) message **404**, and any proximal Bluetooth devices **402**, **403** respond with messages identifying the MAC address, called BD_ADDR in IEEE802.15.1 of each device using a message referred to as an "Inquiry Response" FHS message **405** containing the BD_ADDR or Bluetooth device address of the detected device. In the Bluetooth standard all devices **402**, **403** are required to respond in this manner assuming they are enabled to be discoverable. To enable this, an application on the mobile device ensures the Bluetooth device is set to discoverable mode. Device **1** (**401**) will attempt to locate Devices on different channels by scanning the channels and transmitting multiple Inquiry (ID_Packet) messages. Such an example is shown with inquiry exchange **406** and **407** to discover Device N (**403**).

[0057] In one embodiment the BD_ADDR or MAC address of the Bluetooth device can be used as the Identifier and no further Bluetooth interaction is required until the next scan process is performed.

[0058] In another embodiment, the Bluetooth "Device Name" is used as the identifier. FIG. **5** shows the process of a first device "Device **1**" (**501**) determining another Bluetooth enabled device's (**502**) Bluetooth Device Name. Following the device discovery process completion from FIG. **4**, Device **1** **501** sends a Page message **503** to another device (Device L **502**). Message **504** is sent in response to create a temporary Asynchronous Connectionless Link (ACL) to be established between Device **1** **501** and Device L **502**, without an explicit connection request. Not having an explicit connection request indications the Entity associated with Device L would not have to provide explicit approval for a connection from their user input on the device, as would be the case if other services were requested from the device such as might be the case with a wireless headset or remotely connected GPS receiver to a phone. An ACL connection allows link management packets to be exchanged, and following interchanges of messages **505** and **506** to determine features of the devices, a temporary connection is established between the two devices. A name request message (**507**) is then sent by Device **1** to Device L, and Device L responds with at least one LMS_name_res message **508** containing the Bluetooth device name of Device L **502**. If the name is longer than that allowed within the LMS_name_res message, additional messages follow to allow for the entire name to be delivered. Finally the connection is ended with message **509**, LMP_detach.

[0059] The transmitted identifiers associated with any given device are only known to the central server and the device transmitting the identifiers. These identifiers may change from time to time, making a user's or a device's identity anonymous over time. The central server and any particular device must be coordinated such that the identifier and any device transmitting it, remains identifiable by the central server. This process is coordinated between the wireless device, and the central server utilizing the WWAN or cellular data link, carrying messaging between them and using an identifier manager **1303** to maintain a list of device identifiers **1302** in a central but secure location. This is shown in more detail in FIG. **13**.

Petitioner Samsung Ex-1004, 1668

[0060] Referring to FIG. **6**, an example of using on IEEE802.11 link as the short range wireless capability is discussed. Generally, Wi-Fi devices operation in a so-called infrastructure mode which utilizes a BSS or basic service set. One component of a infrastructure network based wireless LAN is the use of a central access point or AP. In a mobile network the use of a central AP is not practical, as only the AP transmits an identifier, which does not meet the requirements of the preferred embodiment. The second topology for Wi-Fi networks is the so-called Ad-Hoc mode of operations, referred to as an independent basic service set or IBSS. In an IBSS all devices participating or advertising their interest in participating in an ad-hoc network transmit identifiers called beacons. These beacons contain the MAC address of the transmitting network adapter, the basic service set identifier (BSSID), and ad-hoc network name or service set identity (SSID). The BSSID in a typical ad-hoc network is generated by the first station to enter the BSSID and is locally administered, typically a randomly generated 48 bit number matching the format of a MAC address. In an ad-hoc network, each device **601**, **602**, **603** participating or desiring to participate transmits a beacon. There are several embodiments related using the IBSS beacons and the identifiers. First the identifier may be used as the MAC address of the station device or network adapter, and one or both the BSSID and the SSID may be used to indicate these particular beacons are associated with a service. In other embodiments, one or more of the BSSID and the SSID may be used as the identifier. In any of the embodiments for delivery of the identifier in an IBSS beacon, it is possible to coordinate the change of those identifiers with the server **100**. As the MAC address is always broadcast in any operation of a Bluetooth or Wi-FI link, the use of a MAC address as an identifier provides for an additional level of security for the device **601**, **602**, **603**, when identifier is changed from time to time as devices may be detected and identities tracked using a constant MAC address. In the preferred embodiment, where the MAC address is used for the identifier, all the devices participating would likely have the same network name and SSID to aid in the identification of the device as being enabled, although not necessarily required. Examples using an 802.11 network in ad-hoc mode transmitting beacons are showed as messages **604**, **605**, and **606**.

Chat Example Between Two Mobile Devices

[0061] FIG. **7** shows an example of a message flow diagram for an embodiment where an individual is in a library for example, and a friend arrives. The individual is notified by their device receiving an identifier that their friend is present and they enter a chat session. Each person has a device (FIGS. **1**, **106** and **108** respectively) that implements the preferred embodiments described above. The first individual associated with Device **1** (**702**) referred to as Entity **1** (EI**1**) performs a detection process as described in FIGS. **4**, **5**, and **6** previously (step **704**). The device identifier associated with Device **2** (**703**), DI**2** is thereby detected. Device **1** (**702**) then transmits an inquiry message **705** using the WWAN (cellular data link such as GPRS, EDGE, 1×EV-DO, IS-2000, Wi-Max, LTE, or the like) to the server **701** inquiring if information related to the account and entity associated with DI**2** is relevant, and available to the entity EI**1** associated with Device **1** (**702**). The server **701** retrieves the account information related to EI**1** and determines that EI**2** is listed in a friends list in the account associated with EI**1** and that EI**1** should be notified when EI**2** is detected. Next the server retrieves the account information associated with EI**2** and determines that EI**1** is on a list of entities which are allowed to be notified of EI**2** being present and personal information such a the name of the individual, their phone number and the like. The server having determined that EI**1** wants to be notified and is allowed to be notified responds in Step **706** to Device **1** (**702**) with a message indicating the DI**2** is relevant to EI**1** and including information such as Entity Identifier EI**2** and associated details. A user application on Device **1** (**702**) notifies the user that the entity associated with Device **2** is in proximity in step **707**. The user of Device **1** provides input to the device directing it to request a chat session with the entity associated with Device **2** (**703**), and a message **708** is sent the server **701** commanding "send 'Hello' to EI**2**". The server acknowledges reception of the message with a "ACK" message **709**, in return. Next server **701** sends "Request Chat: 'Hello' from EI**1**" to Device **2** **703**. The user of Device **2** accepts the chat and returns a message "I'm by the front door" with message **711**, sending it to the server to be relayed to device **1** (**702**).

E-Commerce Between Two Mobile Devices

[0062] FIGS. **8**A and **8**B show a message flow diagram for an embodiment where two individuals are performing a financial transaction on the street (for example, a customer and a street vendor). Each has a device (FIGS. **1**, **106** and **108** respectively) enabled with the preferred embodiments described above. In this example, an individual's device would see a vendor and the vendor's device (enabled with the current invention) would notify them that the vendor was also enabled with a device supporting the identifier search and other protocols described above, as well as being capable of electronic payments. These steps are performed in the following way. In step **804** the customer's device **802** (Device **1**) performs an identifier search process as previously described, and detects a device identifier **2** (DI**2**) sent from Device **2** (**803**) belonging to the merchant. Device **1** will send a message to the server **801** (also represented by **100** in FIG. **1**) using the WWAN (cellular data link such as GPRS, EDGE, 1×EV-DO, IS-2000, Wi-Max, LTE, or the like) **104** requesting information related to DI**2** and its relevance to the entity related to device **1** **802**. The server **801** then determines the relevance of DI**2** based on the account properties stored in the account associated with the consumer Device **1**. In this case, the account settings only allow messages from or notifications of entities on a friends list stored in the account record (represented in FIG. **10**) associated with the consumer. Server **801** responds to device **802** with "no" indicating that DI**2** is not relevant to the Consumer.

[0063] The customer, having an account enabled with electronic payments, and wanting an item the vendor has, would press a button or make other input to his phone (or other device) which would indicate they would like to make a purchase and pay using their device (**808**). In this case the input selection would be "search for merchants." The customer's device would then send a message (**809**) to the central server directing the server to perform a one time search for merchants, despite the current account settings. In one embodiment, the server would then direct the consumer's device **802** to initiate another search (**809**). Other embodiments may not include the server commanding

Petitioner Samsung Ex-1004, 1669

Device **1** (**802**) to perform the search, but rather the search may be performed automatically, or use results from a recent search. In Step **811**, Device **1** (**802**) performs another search and detects the identifier from Device **2** (**803**), DI**2**. Device **1** then sends a message **812** to the server again requesting information for all relevant devices detected, which will include at least DI**2**. In Step **813** the server, having received the request and list including DI**2**, looks up account information associated with DI**2** and determines that the associated entity is a merchant. As the settings of the account associated Device **1** now allow for the notification of the user when a merchant is detected in proximity, DI**2** is determined to be relevant to Device **1** and the Entity **1** (EI**1**) should be notified. The server then sends a message **814** to Device **1** (**802**) stating merchant services are available in proximity with a list of available merchant's information including information related to the entity (EI**2**). The user of device **1**, Entity **1** (EI**1**) then provides input in step **815**, (pressing a soft key on a touch screen for instance), selecting the specific merchant EI**2** to engage with in a transaction. Device **1** (**802**) will then send a message (**816**) to the server requesting a transaction with EI**2** associated with Device **2** (**803**). The server (**801**) will then respond in this embodiment with a message **817** to Device **1** confirming receipt of the requested transaction and providing information to allow the EI**1** associated with Device **1** to independently confirm the identity of EI**2** associated with Device **2** (**803**). In this embodiment the identifying information can include the name of the merchant, the merchant's logo, a picture of the vendor, or their mobile shopping cart. In other embodiments, the picture may be of a specific unattended vending machine in the location it is currently operating. It may also include other information such as the address of the merchant in cases where a fixed store location is provided. As this particular merchant in this example is a street vendor, an address may not be used. GPS information stored in the account associated with Device **2** may be used as further confirmation in some instances. However, in this example, GPS coordinates are not be available on Device **2** due to lack of capability, or Device **2** being indoors and without sufficient signal to determine a location. Further GPS information from Device **1** (**802**) may be used to provide further confirmation information. In this embodiment the photograph sent in message **817** shows a picture of the particular merchant and also his city issued business license in text and as a picture of where it is displayed on the cart. The consumer entity EI**1** provides input to Device **1** in step **818** confirming the identity of EI**2**, the merchant entity associated with Device **2** (**803**). Device **1** then sends a message **819** to the server **801** confirming the identity of the merchant.

[0064] Server **801** then sends a message **820** to the merchant's device **803** notifying them of the request for a transaction with EI**1**. Device **2** (**803**) then indicates to the merchant that a customer with the capability and desire to pay electronically is in proximity. In step **821** the customer associated with Device **1** (**802**) places an order with the merchant associated with Device **2** (**803**) and a list of products to be purchased is generated and the merchant provides input to Device **2** (**803**) to proceed with a electronic transaction. In step **822** Device **2** performs a scan of identifiers and DI**1** associated with device **1** (**802**) and the Consumer is detected. A request is sent to the server **801** with a list of identifiers which were detected to determine if any of them are relevant to the merchant. Note that while the merchant device **803**, (and the merchant) have now been notified of the desire for EI**1** to enter a transaction, they do not necessarily know the identifier for EI**1** yet. In other embodiments, the identifier associated with EI**1** and Device **1** (**802**) may be sent in message **819**, and a confirmation that this identifier is detected during the scan process **821** may be performed at the device. In the preferred embodiment, further security may be provided by the having the server perform this function independently. The server performs this confirmation in step **824** may matching the device **1** identifier DI**1** with the information stored in the account associated with Entity **1** (EI**1**) also referred to as the Consumer.

[0065] The server than generates a message **825** to Device **2** (**803**) indicating that EIl is relevant, and the transaction participant is present. The message in the preferred embodiment can also include a picture of the Consumer. Additionally, the message could also include other pictures of other individuals allowed to use this device for purchases. If more than one identifier was detected in step **822** and matched in step **824** to entities having requested transactions previously which are pending for that merchant, a list of information for each entity involved with a pending transaction request can be provided in message **825**. The merchant then selects the correct consumer using the picture of that consumer, confirming the identity of the part to the transaction in step **826**. The consumer information provided in message **825** in another embodiment may simply be the name of the customer and the merchant may either ask their name, or request identification such as a driver's license. In the preferred embodiment, where a picture is passed in message **825**, it is not necessary that the individual's name be passed to the merchant for the merchant to be able to provide confirmation of the identity of the Consumer thus providing a level of anonymity to the transaction such as may be present when cash is used.

[0066] Following the confirmation by the merchant of the identity of the Consumer participating in the current transaction in step **826**, Device **2** sends a message **827** to the server confirming the identity of the Consumer as Entity **1** (E**1**), and with information required for the transaction including the list of products to be purchased, their prices, the total price, and a request to charge E**1** this total amount. Server **801** then confirms receipt of this message in step **828**. The server then sends a message **829** to Device **1** requesting the Consumer to confirm the list of goods to be purchased and the total price to be paid. In step **830**, the Consumer (Entity **1**) reviews the list and amount to be paid and provides input to device **1** confirming the accuracy of the information and they the authorizing the server to pay. In step **832** the server charges E**1** utilizing stored preferred charge card information, stored credit, or other payment method such as a PalPal™ user name (PayPal is a trademark of Ebay, Inc.) and password stored in the account associated with E**1**, and charges the consumer. In the case where a stored credit is used, the Consumer's account can be debited, and the credits not applied to the merchants account until a later step. In the case of a credit card, or PalPal™ transaction, the server provides payment to E**2** (the merchant) utilizing information stored in the account associated with Device **2**. The server then indicates payment is made to the merchant, and instructing the merchant to deliver the goods with message **833**. E**2** (the Merchant) then provides the goods and provides input to Device **2** that the goods have

Petitioner Samsung Ex-1004, 1670

been delivered in step **834**. Message **835** is generated by Device **2** (**803**) to the server confirming product delivery, and acknowledging the receipt of the payment confirmation message **833**. The server can then send message **836** requesting the Consumer to confirm they received the goods. If a confirmation is not received in response to this request, this information may later be used to settle any dispute that might arise. In step **837** the consumer confirms receipt of the products, and message **838** is generated to the server confirming the receipt of goods by the consumer. In Step **839** the server concludes the transaction by completing any steps required to credit the Merchant with the payment amount from the Consumer, if required. The server then sends a message **840** to the Merchant indication the transaction is complete, which is acknowledges in message **841**. The Consumer is notified of the completed transaction with message **842**, which is acknowledged with message **843**.

[0067] Finally, the transaction details may be stored by the server, or sent to a thirdly party server for tracking spending habits of that account holder, or customers of that merchant allowing the merchant to track that specific customer's behavior and cater to them in the future with various specials delivered via email, or during their next visit via their device in the form of an electronic coupon. This process can be performed with a goal to help the merchant expose the customer to other products or services the merchant believes the customer might find desirable.

[0068] The present invention can be extended to facilitate other types of transactions as well. In one specific application, consider use of the invention to facilitate a transaction such as the rental of an automobile. A well known business called ZipCar™, presently operating in several major urban areas in the United States, makes available a fleet of vehicles for shared use by their club members who pay a monthly fee plus a per use charge. Using the present invention, the club member would have a wireless device that serves as the "Consumer device" (Device **1**) and the ZipCar vehicle would be equipped with a wireless device serving as the "Merchant" device (Device **2**). The consumer would walk up to an available ZipCar vehicle and, using their wireless device, start an initial exchange of identifiers with the desired Merchant device, for example, using the short range local wireless network. The Consumer device and/or Merchant device would send a message to an application running on the Server requesting that a person associated with an account for the Consumer be granted access to a specific vehicle (e.g., an "object") that is in the vicinity of and associated with the Merchant device. A set of confirmatory messages (such as to exchange access codes, to confirm the location of the vehicle, the per-use fee due, and payment for the same, etc.), are then typically also exchanged between the Consumer and the Merchant device with the assistance of the Server and the long range wireless network. Upon confirmation of the necessary transaction information, the Server sends a message to the Merchant device to unlock the vehicle requested (which may be sent over the second long range wireless network or a yet another network, such as a satellite network).

Example of a Mobile Device and a Broadcast Device.

[0069] FIG. **9** shows a message flow diagram for an embodiment where an individual is in the presence of a broadcast device, such as for the museum example of FIG. **2**. As with FIG. **2**, the individual device **202** and the broadcast device **204** are present and enabled. In this example, an individual **902** is in a grocery store and their device **902** (Device **1**) performs a scan for identifiers in step **904**, as described previously. DI**2** is detected having been transmitted from device **2** (**903**). Device **1** (**902**) sends a message to server **901** inquiring if DI**2** is relevant to the entity associated with Device **1** and if the information associated with that device identifier (DI**2**) is available to be returned. In step **906**, the server retrieves the accounts associated with both DI**2** and Device **1** (EI**1**). The server detects that the entity associated with DI**2** is an advertisement company, and that this device is a broadcast device only, and that there is an electronic coupon available for download to Device **1**, and multimedia content available to be played if desired. Additionally, the account settings associated with EI**1** allow for the notification of broadcast devices in proximity.

[0070] Server **901** then transmits a Response message **907** indicated the presence of the detected device and the content available. The device **902** requests input from the entity associated with the device **901** for permission to download the coupon, and the availability to play content such as video about how to prepare a recipe using the vendors product. In this case the individual associated with Device **1** accepts the content, and a message **909** is sent to the server accepting the content. Response message **910** begins the delivery of the content.

[0071] As previously mentioned, several key distinctions of this embodiment include that the user of device **902** may walk away out of range form the broadcast device **903** and continue to receive the content using their cellular link, or may choose to play the content at a later time having stored the detected like in a favorites list. Additionally, the content stored in the account associated with the broadcast device **2** (**903**) is relevant to the placement of the device and the products near it. Further, as the content is stored in the server **901** rather than in the broadcast device **903**, the content may be updated, modified, or deleted at anytime. For example the server **901** knowing that the consumer has never been detected previously, may customize the electronic coupon to provide a deeper discount than a regularly detected consumer. In the case where the devices are used for electronic commerce as in FIG. **8**, knowledge of the user's past purchases may be used to induce the consumer to try a new product. Alternatively if the consumer is a regular purchaser a loyalty program may provide a coupon upon a particular number of repeated purchases.

[0072] FIG. **10** is a processing flow chart performed by the server receiving a request from a device inquiring about the relevant and availability of information associated with detected device identifiers. In step **1001** the server is waiting for a request from a device. When a request is received in decision **1002**, step **1003** is performed. In this step the account information associated with the requesting device is retrieved. In step **1004** the information associated with the accounts for each of the detected device identifiers is retrieved. In step **1005** the server performs a matching process between the policies of the requesting account and each of the policies for each account associated with each detected device identifier. In step **1006** the information related to the matched policies for the associated entities will be sent to the requesting mobile device.

[0073] Just as in the previous example of an identifier being deemed relevant to a user based on a friends list,

Petitioner Samsung Ex-1004, 1671

permission for disclosing a device's presence may require being on a friends list as well. For example, when a server receives an inquiry from a device with a list of identifiers, it may only respond with information for users associated with the identifiers that are on that device's friends list, and on each of the individual's friend lists as well. These friends' lists and policies can be stored within a user account which allows for disclosure of a user's presence only to individuals on this list, such as described in FIG. **11** (to be described below.)

[0074] It is contemplated that the permissions not be an "all or nothing" decision, but that different classes of information may be assigned different permissions and mechanisms. An example of this might be a user's presence, identity, and cart services being made available to only one set of other accounts (or users), while the presence of an anonymous individual being made available to anyone, but with other classes services available such as multi-player games being treated differently. Additionally multiple contacts may be included in the account, each given customized permissions. An example can be that any user may be notified of an anonymous user or other information based on additional policies.

[0075] As only the server contains personal information, and performs the association of an account with a particular identifier, it can inherently enforce the security of the policies as a distinct advantage relative to true peer to peer services. In this way, the central server controls the process of passing information related to an account to a particular requesting device.

[0076] FIG. **11** shows an example account record to be associated with an entity and at least one device. The columns of the account record can consist of a Record Index which will be used to described the account, a Field which is a descriptive name for the contents stored in the record, and a Field Information Group Disclosure Policy Assignment List (PAL). The PAL provides rules for the disclosure of the information in the associated row in the Field column. The following list are possible PAL entries:

ALL:	may be disclosed to any requesting entity
EXPLICIT APPROVAL:	the Entity associated with the account must provide input approving the disclosure of the information
NONE:	Do not disclose this information to any other entity
M:	where M is a integer from 1 to N indicating a Information Group Disclosure Policy which may consist of a list of contacts, friends, groups, characteristics, and the like.

[0077] Most of the fields in FIG. **11** are self explanatory and typical in the industry such as the account number, however a few fields are worth a clarifying discussion. The Device identifier is in record index **2**, with a Identifier type in record **4**. The identifier type can define what type of identifier the device associated with this account would use. Record index **10** is the Entity Type Field. This describes is the entity is a Merchant, Individual, or if the device associated with this account is a broadcast only device.

[0078] Referring now to FIG. **12** a timing map reference for scanning times and dormant times for devices is shown. In one embodiment, it is desired that the power consumption and scan timing for the devices in a cellular network be reduced. Since the server and the WWAN is involved with all mobile devices, coordination of the broadcasting periods and the searching periods for the short range radios is possible. This can be based on a common reference time such as that provided by most cellular systems, any the time of day clocks inherently within mobile devices. This allows for reduced power consumption and other resource consumption in the devices. If no coordination is achieved, then the short range receivers in each device must be scanning for transmitted identifiers much more often and for longer durations. Utilizing a common timing base, and the central server to notify the devices of a coordination approach for "active times" and "non-active times" and will allow for the devices to minimize the power consumption in the transmission of and scanning for identifiers. This approach also allows for synchronizing the update of each device's identifier (as described previously) to enhance anonymity and security, coordinated with the central server. The "non-active times" may be used as "boundaries" over which the changing identifiers may be updated. This update may be based on either direct communication with the server, or rule and algorithm based updates previously coordinated with the central server so as to minimize server messaging, but allowing the updates to remain synchronized to the server such that the device and the server are always associating the same identifier between them.

[0079] As will be recognized by an individual skilled in the area of information technology, the concept of a central server may well be implemented as a collection of servers to allow for load balancing, redundancy, and the like in a manor common to the information technology industry.

[0080] FIG. **13** shows a diagram of functional blocks associated with the management of dynamically assigned device identifiers. The Server **1301** has an application agent called an Identifier Manager (**1303**) which has access to a pool of device identifiers (**1302**). The Identifier Manager monitors timing information and determines when it is time to update a particular device's identifier. This time may be a regular interval, or a random generated time period by an algorithm such as a pseudo-random sequence generator, or a combination of both. When it is time to update a device identifier, Manager **1303** retrieves a new identifier form the pool **1302**. The pool of identifiers may be a list or range of identifiers, or generated algorithmically. The new identifier is stored in the account associated with the entity determined to require updating and a message sent to the device **1305** associated with that account commanding it to update its device identifier with the new one. This message is sent over the WWAN Data network **1304** such as IS-2000, HSPA, GPRS, IS-95, Edge, Wi-Max, and the like. All devices **1305** to **1307** will eventually all be updated in a similar manner. This update process does not disrupt ongoing communication and interaction between devices despite the update as the communications are preformed based on the identity of the entities following the detection of the device identifiers which are no longer utilized. This unique capability allows for the updating process to be implemented and not impact the applications being utilized concurrently.

Other Example Applications Utilizing Still Other Embodiments Follow Below.

[0081] Requiring the brokering of the communication via a central server can also allow a mobile device to receive information associated with a "broadcast only" device, such as in the museum example discussed previously. This is important, as such broadcast devices can enable a vast set of

Petitioner Samsung Ex-1004, 1672

new applications built upon the infrastructure developed in this application, beyond the museum application. Some of these applications may involve an electronic commerce aspect, for example.

Electronic Commerce Applications

[0082] Ecommerce between a fixed broadcast device and a mobile device

[0083] Football Stadium Example

[0084] An embodiment of a transaction model, enabled by the infrastructure described above can be an event such as a concert, or sporting event (particularly when it is an indoor venue where no GPS is available). A number of the broadcast only devices are placed through out the seating areas. The devices are very short range, and only transmit intermittently and as a result may be battery powered and to remain active over a very long time period. Each device can be placed in a known location, in a predicable manner.

[0085] An attendee at the event has his or her device enabled with the identifier protocol and other embodiments described above. The device detects a broadcast device, and interacts over the internet with the server via the WWAN connection (as already described above). The server receives an indication of the broadcast device's identifier and the identifier of the account associated with the device which detected the broadcast device. The server retrieves content associated with the service provider's account and provide that content to the application on the requesting mobile device. The content may indicate that the venue has a product delivery service. The user may then press an indication on their device that they would like to see a menu or list of items for sale from the merchant(s) in the venue. The application on the user's device would then allow them to see a menu, for instance, and select items to purchase. The user then would be asked to confirm the purchase. The server would then indicate to the merchant that a user located near a specific broadcast device has ordered something. In this case, it is expected that a delivery fee could also be charged for the enhanced service. The server would facilitate the purchasing of the goods or services from the merchant and payment from customer's account, and provide confirmation to each. Such confirmation can include an electronic receipt provided to the customer, for user upon arrival of the delivery person of the good or service. The customer can then select an indication on their device confirming receipt of the good or service via the mobile device, thereby completing the transfer of funds and the transition. Optionally, the delivery person of the good or service may have an enabled mobile device as well. In this case the identifiers may be detected by the customer's device and reported to the server to confirm that the provider's delivery person was present. Further, the delivery person's device can be able to detect the broadcast device's identifier and reported to the server confirming the delivery person was in the correct area independently. Even further proximity confirmation may be achieved by the customer's device's transmitted identifier being detected by the delivery person's device and reported to the central server further confirming the physical proximity of the parties involved in the transaction. Upon arrival of the delivery person, the customer may be notified that the delivery person is looking for them, and has arrived. These cross confirmations can allow for the central server evidence to justify payments both in completed transactions and in disputed or failed transactions. Further, the delivery person may receive a picture of the requesting customer assisting to identify the customer to whom the food is to be delivered. Once the customer is found, the delivery person can confirm the delivery of the good or service to the customer via the user input on their mobile device, and that confirmation being reported to the central server. The customer can have the option to report confirmation or denial of the reception of the product or service as well, as in the last example.

[0086] In another embodiment, the merchant device may be fixed, but have an internet connection (wireless or otherwise). Further, in some embodiments, the merchant may be an automated device such as a vending machine. In such a model, a customer may use their enabled cell phone to purchase an item such as a beverage from the machine without the need to insert currency into the machine. This can be accomplished by the customer's cell phone detecting the vending machine transmission of the identifier or visa-versa. Following the detection of either the customer's identifier by the vending machine, or the customer detecting the vending machine identifier, the respective device notifies the server, which in turn provides notification (assuming the account settings allow for notification) to the potential customer via their device. Assuming the customer selects to purchase an item from the vending machine using their account associated with their device, the customer may be presented a menu as in the example above. The customer may further be presented information to ensure the identity of the vending machine, such as a description of the machine, a machine identification number, or a (most likely) a picture of the machine where it is located. The customer can then confirm this is the machine they are interfacing with, and select to pay via their account. The customer may in one model select the item to dispense by input to their phone, or they may simply select to provide payment to the machine allowing them to make the selection manually as is the typical mode of operation today. The vending machine can then interact with the server via its own internet connection, and participate in the transaction in a manner similar to the mode described above allowing for step by step confirmation as previously described.

Electronic Opinion Polling, Tied to a Known Location.

[0087] In a much simpler example, such a capability might be used to tie a survey to a known location in such a way as to provide an e-coupon to the survey taker on their device in return for completion of the survey. Alternatively, this type of interaction can enable a very large crowd to interact with a Jumbo-Tron like display to provide input to polls or to participate in group activities. Users at different locations in a audience may form teams and interact with other teams for group activities.

FEATURE SUMMARY OF PREFERRED EMBODIMENTS

[0088] 1. In a first embodiment:

[0089] One device is transmitting a wireless identifier using a wireless protocol capable of peer to peer communication;

[0090] The wireless identifier being associated with a specific account on a server connected to the internet;

[0091] A second device receiving the wireless identifier

[0092] The second device capable of communicating with the server over an internet connection;

Petitioner Samsung Ex-1004, 1673

[0093] The second device requesting information from the service associated with the first identifier

[0094] The second device having a second identifier associated with a second account on the server; and/or

[0095] The server providing different amounts of information related to the first account based on the parameters associated with one or both of the first and second accounts

[0096] The identifiers associated with the accounts being updated such that the identifiers would no longer be recognized as being associated with specific accounts without past or current interaction with the server;

[0097] Using one or more of Cellular network timing information, and information form the central server to coordinate the broadcast and search times amongst the devices. (to reduce power and resource consumption); and/or

[0098] Data necessary to engage in an E-commerce transaction may be exchanged as well such as the identity verification such as via a picture and/or mutual identifier detection.

2. In a second embodiment,

[0099] A device is capable of operating two wireless protocols simultaneously, utilizing a first wireless protocol in the device to detect the proximity of another wireless device and using the second wireless protocol to communicate with a remote server, where:

[0100] a. One or more of the devices are mobile devices;

[0101] b. Where the first wireless protocol is a local, or personal area network wireless protocol such as 802.11, Bluetooth, UWB or other local connectivity protocol;

[0102] c. Where the first wireless capability used for detecting the presence of another device, or advertising the presence or a device;

[0103] d. Utilizing a wireless wide area data link from one or more of the wireless devices to, optionally:

[0104] i. Connect to a central server;

[0105] ii. Perform user authorization functions;

[0106] iii. Perform download of information associated with account identifiers utilizing the short range wireless capability;

[0107] iv. Request forwarding of messages/packets to the other active account;

[0108] e. Utilizing the messaging with a mobile proximity based social networking capability; and optionally,

[0109] i. The messaging being performed via the WWAN; and/or

[0110] f. The server providing a centrally assigned user identity, with relationship brokering or identification capability.

3. In another embodiment,

[0111] A central serving capability is provided to mobile devices utilizing a wireless WAN connection to provide and exchange information between one or more application on one or more wireless devices and the central server where

[0112] the information passed to the central server is collected by one wireless device from another wireless device via a separate local wireless reception from the other wireless device;

[0113] the separate local wireless reception from the second wireless device contains information directly assigned by, derived from, or known to the central server associated with the identity of the second wireless device;

[0114] this identity is related to certain information and preferences of an account holder associated with an application operating on the second wireless device;

[0115] the application is operating on both wireless devices;

[0116] the application operating on the first device also provides its own identifying information to the central server as well as detected identifiers from devices with applications on them;

[0117] The central server contains account information registered to the applications running on each wireless device;

[0118] The preferences associated with the account information also contain policies related to the disclosure of one account's stored information to other accounts and hence to their application on their devices;

[0119] These policies including a classification of other accounts each classification having different policies some of these policies being one of:

[0120] no not allow notification of my presence

[0121] allow notification of my presence

[0122] disclose my name/do not disclose my name

[0123] disclose age/do not disclose age

[0124] disclose personal details;

[0125] Where an application running on each device can optionally perform point of sale transitions coordinated via the central server, over the WWAN, utilizing user input on each device as confirmation of successive steps in the transition;

[0126] Further, where at least one of the confirmation steps additionally involves displaying an identifying picture related to one of the devices, on the other device;

[0127] Additionally the server performing an authorization for the transition to a third party;

[0128] Or, optionally, a device is interacting with a point of sale device to associate an itemized list of items with a detected second device;

[0129] The service performing a confirmation with the application on the second device requiring user input that the bill of goods list is correct; and/or

[0130] The server storing the information related to the second devices detected account identity and inventory in a database for later use

4. In still other embodiments, a device in the present invention has a wireless capability with no WWAN capability, but only with the ability to broadcast a unique identifier, and

[0131] A central server stores having the broadcast device's details;

[0132] And when the first device provides these detail to the server, authorized and current information about the broadcast device are provided to the first wireless device;

[0133] Where this information optionally includes advertising information or information related to "e-coupons" for special offers for products or services; and/or

Petitioner Samsung Ex-1004, 1674

[0134] Where the content of the e-coupons might be customized based on the identity of the requesting device or account holder;

[0135] Where the content is further customized based on other information known by the server related to the user's account; or

[0136] Where the other information is related to the user's past purchasing practices or previous requests; and/or

[0137] A mobile device, upon detecting a broadcast device and if enabled to do so, will report that broadcast Id to the server over a WWAN, and retrieve the current content from the server associated with that device and:

[0138] Display it to the user on their device; or

[0139] Execute instructions associated with the information retrieved from the server.

5. In still further embodiments, a good or service delivery model utilizing the above described broadcast device, is placed in a known location, and further

[0140] a. A mobile device is for detecting the fixed device's identifier via the WPAM/WLAN;

[0141] b. The mobile device reporting this identifier and passing an identifier associated with itself, or the account associated with the user utilizing the device;

[0142] c. The server determining that the detected broadcast device is associated with the broadcast device with a known location;

[0143] d. The server further determining that the identifier is associated with a service, and further associated with an account or that service;

[0144] e. The server retrieving content associated with the service provider's account and providing that content to the application on the requesting mobile device;

[0145] f. Where that content may be a list of items for sale, services for sale, a opinion pole, food menu, or other menu style content which allows for user selection of items, which can be implemented in java code, xml, simple text, or other for example optionally including active code elements;

[0146] g. The application on the mobile device displaying the content to the user display with the itemized list of goods, services, or other selection items;

[0147] h. A user providing selection of one or more of the items, and confirming they wish to purchase said items, and take delivery at or near the location of the fixed broadcast device;

[0148] i. The server facilitating the purchasing of the goods or services from the merchant's account and the customer's account, and providing confirmation to each. Such confirmation including an electronic receipt provided to the customer, for user upon arrival of the deliverer of the good to or service;

[0149] j. The customer confirming receipt of the good or service via the mobile device, thereby completing the transfer of funds and the transition; and/or

[0150] k. The deliverer of the good or service optionally having a mobile device and optionally:

[0151] i. such that identifiers from that device may be detected by the customers device and reported to the server to confirm that the provider's delivery person was present;

[0152] ii. such that the broadcast devices identifier is detected by the delivery person's mobile device and reported to the server confirming the deliver person was in the correct area

[0153] iii. such that the customer's device's transmitted identifier is detected by the delivery persons device and reported to the central server further confirming the physical proximity of the parties involved in the transaction; and/or

[0154] iv. The delivery person confirming the delivery of the good or service to the customer via the user input on their mobile device, and that confirmation being reported to the central server.

6. In another embodiment, a software program is arranged to operate at the application layer on a mobile device, which interfaces to a device driver interface:

[0155] Using wi-fi 802.11 to perform a WLAN local connection protocol; or

[0156] Using Bluetooth to perform the WLAN local connection;

[0157] Where the device driver interface is an NDIS driver or the like;

[0158] Using 1×EVDO, HSDPA, GPRS, EDGE or the like for a wide area WWAN interface;

[0159] The application then providing the reported identifiers to a server, which will make decisions regarding a users interest in these detected identifiers, and policy regard privacy other identifiers;

[0160] The decision process optionally based on priority of the identifier, the class an identifier belongs to, a list the identifier is, or is not included on;

Based on the result of the action function,

Sending at least one detected identifier to the network, potentially with additional information from the action function, and retrieving information back from the server related to that identifiers' account information stored on that server;

The server then receiving a request from a device's application, with a detected identifier

[0161] The server examining both the requesting and the requested identifier's identity and making a policy decision regarding the release of the requested identifiers information related to their account;

[0162] The server in some cases providing a continuously or periodically changing account or device identifier to a specific application on a device to enhance the privacy of the identity of that device;

[0163] The changing of the identifier may be effected by a rule based generation local to the application, or may be downloaded from the server directly; and/or

[0164] The update of the identifier being synchronized to such that it is coordinated with predetermined scanning and broadcasting periods allowing for a known update boundary;

7. In still another embodiment, a method uses the mobile device's time of day derived from the network or other reference for

[0165] synchronizing a PAN/WLAN discovery and advertisement times to save battery life;

[0166] doing the same in a synchronized way among multiple devices;

[0167] while coordinating the timing information utilizing the WWAN and a central server available commonly to the devices, such as by

[0168] Synchronizing identifier transmission timing to save power from WWAN network parameters obtained for the server;

[0169] Coordinating any identifier updates to this same timing source; and/or

[0170] Using a pool of identifiers available to the central server to assign identifiers to devices changing the identifiers at some time interval derived for the common time reference

8. In another embodiment,

[0171] A central server uses an identity manager to assign identifiers to devices using a WWAN cellular data link, and wherein

[0172] identifiers are occasionally changed

[0173] identifiers are assigned from a pool of identifiers available to the servers;

[0174] identifiers are used as 48 bit media access control (MAC) addresses of the short range wireless network adapter

[0175] identifiers are optionally used as

[0176] an SSID in a IBSS in IEEE-802.11 network beacons

[0177] a BSSID of the IEEE802.11 network adapter;

[0178] in a IEEE802.15.1 Inquiry Response Message as the BD_ADDR

[0179] a device name in a Bluetooth name response packet; or

[0180] listed in a services list as provided in a LMP_features_req message or LMP_features_req_ext message for a Bluetooth device

[0181] While this invention has been particularly shown and described with references to example embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the scope of the invention encompassed by the appended claims.

What is claimed is:

1. A mobile wireless device for facilitating the use of proximity beacons comprising:

a first radio for communicating with one or more servers and receiving identifier related information;

a second radio for receiving proximity beacon transmissions from a plurality of beacon transmitter devices and for providing proximity beacon information derived from the proximity beacon transmissions; and

a data processor for determining the proximity of at least one beacon transmitter device, entity, or object associated with at least a portion of the proximity beacon information by utilizing the identifier related information;

wherein each of the proximity beacon transmissions comprises a MAC address, a unique identifier, and proximity beacon identification information;

wherein the proximity beacon identification information indicates the proximity beacon transmissions are associated with a proximity beacon service; and

wherein the proximity beacon identification information is the same for all proximity beacon transmissions from the plurality of beacon transmitter devices and identifies of each of the plurality of proximity beacon transmitter devices as being enabled with the proximity beacon service.

2. The mobile wireless device of claim 1, wherein the MAC address is a randomly generated 48 bit number matching the format of a MAC address.

3. The mobile wireless device of claim 2, wherein the MAC address is a Bluetooth BD_ADDR.

4. The wireless device of claim 3 wherein both the MAC address and the unique identifier received by the second radio occasionally change, for security reasons.

5. The wireless device of claim 2 wherein both the MAC address and the unique identifier change from time to time, making one or more of an entity's identity associated with the at least one beacon transmitter and the at least one beacon transmitter's identity anonymous over time to other devices or entities not having permissions at the one or more central server to access the identifier information.

6. The mobile wireless device of claim 1, wherein at least the portion of the identifier related information includes a downloaded unique identifier or information which is used to determine a downloaded unique identifier associated with the least one beacon transmitter of the plurality of beacon transmitter devices.

7. The mobile wireless device of claim 6, wherein the data processor determines the proximity by comparing the downloaded unique identifier with the portion of the proximity beacon information comprising the unique identifier associated with the at least one beacon transmitter device, entity, or object.

8. The mobile wireless device of claim 1, wherein the data processor determines the proximity utilizing an action function including one or more previously downloaded unique identifiers.

9. The mobile wireless device of claim 1, wherein the data processor determines the proximity by comparing the proximity beacon information with the identifier related information.

10. The mobile wireless device of claim 1, wherein the data processor determines the proximity by sending at least the unique identifier associated with the at least one beacon transmitter to at least one of the one or more servers using the first radio, and receives at least a portion of the identifier related information usable to make the proximity determination.

11. The mobile wireless device of claim 10, wherein the unique identifier associated with the at least one beacon transmitter is associated at the at least one of the one or more servers with being a broadcast device having a known location.

12. The mobile wireless device of claim 1, wherein the data processor further determines, based upon at least a portion of the identifier related information, that at least one beacon transmitter is a broadcast device having a known location.

13. The mobile wireless device of claim 1, wherein the identifier related information comprises application software for execution upon the mobile wireless device, downloaded in reaction to the sending of a unique identifier by the mobile wireless device to the at least one server, wherein the mobile wireless device first received the unique identifier as part of the proximity beacon information.

Petitioner Samsung Ex-1004, 1676

14. The mobile wireless device of claim **1**, wherein the identifier related information comprises application software for execution upon the mobile wireless device.

15. The mobile wireless device of claim **1** wherein

the identifier related information comprises a list of contact information, and the data processor performs the proximity determination of a beacon transmitter device associated with an entity included within the list of contact information based upon comparing a contact information related unique identifier with at least the portion of the proximity beacon information, and wherein the mobile wireless device, upon determining there is a match, engages in further steps to allow further communications with the detected beacon transmitter device associated with the entity included within the list of contact information, wherein the further communications utilize the first radio, and further

wherein the both the MAC address and the identifier associated with proximity beacon transmissions from the detected proximity beacon transmitter associated with entity included within the list of contact information change from time to time, but remains identifiable by the wireless mobile device, but anonymous to other devices not having required permissions to make such an identification.

16. The wireless device of claim **1** wherein the changing of the MAC address and the unique identifier associated with the at least one beacon transmitter is coordinated with the at least one of the one or more remote central servers.

17. The wireless device of claim **1** wherein the unique identifier of at least the portion of the proximity beacon transmissions changes over time based upon an algorithm in synchronization with at least one server of the one or more remote central servers.

18. The wireless device of claim **1** wherein the unique identifier associated with at least one beacon transmitter is associated with a single beacon transmitter and is generated algorithmically and only known to at least one the central servers and the one beacon transmitter, and updated based, at least in part, upon a clock interval within the beacon transmitter, and further

wherein the MAC address associated with the beacon transmitter is changed as well, so as to prevent the identity of the beacon transmitter from being determined by unauthorized devices.

19. The mobile wireless device of claim **1**, wherein the second radio is a Bluetooth based radio.

20. The mobile wireless device of claim **1**, wherein the second radio is a Wi-Fi based radio.

21. The mobile wireless device of claim **1**, wherein the MAC address is a randomly generated 48 bit BD_ADDR, wherein both the MAC address and the unique identifier change from time to time, making one or more of an entity's identity associated with the at least one beacon transmitter and the at least one beacon transmitter's identity anonymous over time to other devices or entities not having permissions at the one or more central server to access the identifier related information, and wherein at least the portion of the identifier related information includes a downloaded unique identifier or information which is used to determine a downloaded unique identifier associated with the least one beacon transmitter of the plurality of beacon transmitter devices, wherein the data processor determines the proximity by comparing the downloaded unique identifier with the portion of the proximity beacon information comprising the unique identifier associated with the at least one beacon transmitter device, entity, or object.

22. The mobile wireless device of claim **21**, wherein the data processor determines the proximity utilizing an action function including one or more previously downloaded unique identifiers.

23. The mobile wireless device of claim **1**, wherein the proximity beacon service utilizes a standards based protocol derived from Bluetooth and including unsolicited automatically repetitive advertisements, and wherein the proximity beacon transmissions are transmitted within the format of the unsolicited automatically repetitive advertisements, and wherein the proximity beacon identification information is included within a configurable field of the unsolicited automatically repetitive advertisements while conforming to the standards based protocol and, wherein no connection is made between the mobile wireless device and the plurality of beacon transmitted receiving when receiving the unique identifier.

24. A wireless device for facilitating the use of proximity beacons comprising:

a short range radio for transmitting proximity beacon advertisements and receiving proximity beacon advertisement information; and

a data processor for providing the proximity beacon advertisement information to the short range radio,

wherein the data processor generates the proximity beacon advertisement information based, at least in part, upon configuration information provided by one or more remote central servers.

wherein each of the proximity beacon transmissions comprises a MAC address, a unique identifier, and proximity beacon identification information;

wherein the proximity beacon identification information indicates the proximity beacon transmissions are associated with a proximity beacon service; and

wherein the proximity beacon identification information is the same for all proximity beacon transmissions from the plurality of beacon transmitter devices and identifies of each of the plurality of proximity beacon transmitter devices as being enabled with the proximity beacon service.

25. A system for facilitating the use of proximity beacons comprising:

one or more central servers for communicating with a plurality of wireless devices;

software residing on a wireless device of the plurality of wireless devices for:

utilizing a first radio of the wireless device to communicate with at least one of the one or more servers and for receiving identifier related information; and for,

utilizing a respective second radio of the wireless device for receiving proximity beacon transmissions from a plurality of beacon transmitter devices and for providing received proximity beacon information derived from the proximity beacon transmissions; and for,

determining the proximity of at least one beacon transmitter device, entity, or object associated with at least a portion of the proximity beacon information by utilizing the identifier related information;

Petitioner Samsung Ex-1004, 1677

wherein each of the proximity beacon transmissions comprises a MAC address, a unique identifier, and proximity beacon identification information;

wherein the proximity beacon identification information indicates the proximity beacon transmissions are associated with a proximity beacon service; and

wherein the proximity beacon identification information is the same for all proximity beacon transmissions from the plurality of beacon transmitter devices and identifies of each of the plurality of proximity beacon transmitter devices as being enabled with the proximity beacon service.

26. The system of claim **25**, wherein the identifier related information comprises application software for execution upon the mobile wireless device.

27. The system of claim **25**, wherein the identifier related information is received in response to the software residing on the wireless device sending at least one unique identifier determined from the proximity beacon information.

28. The system of claim **27** wherein after determining the at least one beacon transmitter device is in proximity, at least one server of the plurality of servers provides an identifying picture of a consumer to at least one device for use by an operator of the device for confirming the picture matches an individual in proximity as a step in a multi-step electronic commerce transaction.

29. The system of claim **28**, wherein the MAC address and unique identifier of the proximity beacon transmissions from each of the at least one beacon transmitter devices change from time to time, and wherein at least the unique identifiers of the at least one of beacon transmitter devices remain associated with an account associated with the consumer.

30. The system of claim **25**, wherein the second radio is a Bluetooth compliant radio.

* * * * *

Electronic Acknowledgement Receipt

EFS ID:	39268138
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	27-APR-2020
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Time Stamp:	10:00:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Appeal Brief Filed	20200427_111054-0001U4C7_TPO_Appeal_Brief_with_Evidence_Appendix.pdf	4171976 6712e9aa772df3fc6d8d0b31320c3c0c2736aa75	no	91

Warnings:

Information:	
Total Files Size (in bytes):	4171976

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/271,410	09/21/2016	James Arthur Proctor JR.	111054-0001U4C7	7653

86012 7590 06/05/2020

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EXAMINER
SHERR, MARIA CRISTI OWEN

ART UNIT	PAPER NUMBER
3685	

NOTIFICATION DATE	DELIVERY MODE
06/05/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@vlplawgroup.com

Petitioner Samsung Ex-1004, 1681

Advisory Action Before the Filing of an Appeal Brief	Application No. 15/271,410	Applicant(s) Proctor et al.	
	Examiner CRISTINA O SHERR	Art Unit 3685	AIA (FITF) Status No

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 22 April 2020 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☐ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires ____ months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection.The current period for reply expires ____ months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☑ The Notice of Appeal was filed on 21 April 2020. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: _____ (See 37CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☑ Applicants reply has overcome the following rejection(s): The rejection under 112(b) for lack of antecedent basis
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☑ For purposes of appeal, the proposed amendment(s):(a) ☐ will not be entered, or (b) ☑ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☑ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on 21 April 2020
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☑ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☑ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☑ Other: See Continuation Sheet.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed:_____.
    Claim(s) objected to:_____.
    Claim(s) rejected:1-2,5,8,12-13,15,17,31,35,41-42 and 44-60.
    Claim(s) withdrawn from consideration:43.

/Cristina Owen Sherr/ Examiner, Art Unit 3685	/Mohammad A. Nilforoush/ Primary Examiner, Art Unit 3685

Petitioner Samsung Ex-1004, 1682

Continuation of REQUEST FOR RECONSIDERATION/OTHER 12.

The request for reconsideration has been considered but does NOT place the application in condition for allowance because:

In this case, the declaration presents opinion evidence on the ultimate legal conclusions of whether the claims provide a sufficient written description under 35 USC 112(a) or whether the claims are indefinite under 35 USC 112(b). MPEP 716.09 states "Affidavits or declarations presented to show that the disclosure of an application is sufficient to one skilled in the art are not acceptable to establish facts which the specification itself should recite. In re Buchner, 929 F.2d 660, 18 USPQ2d 1331 (Fed. Cir. 1991)," and "Affidavits or declarations purporting to explain the disclosure or to interpret the disclosure of a pending application are usually not considered. In re Oppenauer, 143 F.2d 974, 62 USPQ 297 (CCPA 1944)." Here , in addressing the 112(a) rejections, the declaration states applicant's opinion on how a person of ordinary skill would have interpreted the specification. Similarly, in addressing the 112(b) rejections, the declaration states applicant's opinion on why a person of ordinary skill would find the cited claim language definite.

Regarding claim 31 and paragraphs 47-62 of the declaration explaining why applicant believes claim 31 is definite because the claim does not recite language which may or may not be done, please note that the cited language in claim 31 was identified as not having patentable weight or not serving to differentiate the claims from the prior art.

Regarding 112(a) rejection of claims 1 and 31 for reciting a mobile wireless device with a first radio and second radio, in paragraphs 63-103 of the declaration, the applicant points to the wireless links of Fig. 1 and paragraphs 39 and 43 of the PGPub. However, these portions discuss communications links, but do not disclose a mobile wireless device having a first radio and a second radio.

Regarding the 112(a) rejection of claim 13 for "downloading application software in response to sending the unique identifier to the server," applicant states, in paragraphs 104-107 of the declaration, that paragraph 46 of the PGPub supports this limitation. However, claim 13 recites that "the identifier related information comprises application software for execution upon the mobile wireless device," and then recites a step of "sending of the unique identifier," and "in response to the sending of the unique identifier, downloading the application software." Additionally, claim 1, on which claim 13 depends, recites "receiving , using the first radio, identifier related information…." Therefore, claim 13 requires that the application software, which is part of the identifier related information, to first be received by the first radio, and then be downloaded again after the unique identifier is received by the mobile device from the proximity beacon transmissions and sent to the server. Paragraph 46 does not disclose downloading the application software in response to sending the unique identifier to the server, where the downloading is in addition to receiving the application software as part of the identifier related information in claim 1. Paragraph 46 also does not disclose that the identifier sent to the server is the same identifier that corresponds to the "unique identifier" of claim 1 received as part of the proximity beacon transmission.

Regarding the 112(a) rejection of claims 45 and 50, in paragraphs 108-129 of the declaration, applicant points to paragraph 61 of the specification and step 706 of Figure 7 to correlate the "Device 2 Entity Identifier" EI2 to the "further information relating to the entity or object" in the step of "receiving further information relating to the entity or object associated with being within proximity to the mobile device." Applicant then cited paragraph 61 and steps 706 and 707 of Figure 7 as support for the step of " determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier." However, step 706 is a single step, while the claim recites two distinct steps of "receiving further information…" and "

determining if an entity or object…is in proximity….” Additionally, step 707 only notifies a user that the entity is in proximity as a result of step 706, but does not perform “determining if an entity or object…is in proximity…” nor “receiving further information…” Additionally, the step of “determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device…” utilizes “the identifier related information and the unique identifier,” where the identifier related information was received from the server, and the unique identifier was received in the proximity beacon transmission in the claim. Steps 706-706 of Figure 7 and paragraph 61 of the specification do not disclose that these two identifiers (distinct from the Device 2 Entity Identifier EI2 which applicant has correlated to the “further information relating to the entity or object”) are used to perform “determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device…”

Regarding the 112(a) rejection of claims 44 and 46, in paragraphs 130-135 of the declaration, applicant points to paragraphs 47 and 49 of the pgpub as supporting both receiving identifier related information from the server as recited in claims 1 and 31, and preventing the sending of the unique identifier to the servers. However, par 47 recites determining which of the detected identifiers should be passed to the server. No "preventing" step is recited.

Regarding the 112(a) rejection of claim 57, in paragraphs 136-141 of the declaration, applicant states that the disclosure in paragraph 67 of the pgpub of specials being delivered to customers via email requires “ retrieving a stored user email address associated with an account associated with the mobile device; and sending an email, addressed to the user email address containing customized content based upon the stored proximity user behavior.” However, paragraph 67 does not disclose the particular steps recited in the claim, nor does it provide any indication that these particular steps would have to be performed for “ specials delivered via email.”

Regarding the 112(b) rejection of claims 1 and 31, in paragraphs 142-150 of the declaration, applicant argues that "respective" is not a relative term.

Please note the following definition ----
relative

adjective
1. comparative, considerable, reasonable, moderate, in comparison a period of relative calm
2. corresponding, comparable, respective, comparative, reciprocal, correlative the relative importance of education in 50 countries
3. (with to) in proportion to, corresponding to, proportionate to, proportional to The satellite remains in one spot relative to the earth's surface.
Collins Thesaurus of the English Language – Complete and Unabridged 2nd Edition. 2002 © HarperCollins Publishers 1995, 2002

Regarding the 112(b) rejection of claims 1 and 31, in paragraphs 151- 175, applicant argues that "in proximity" is not a relative term.
Please note the following definition --

proximity
noun
: the quality or state of being proximate : CLOSENESS

“Proximity.” Merriam-Webster Dictionary, Merriam-Webster

Note further that the term “proximity” is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably

apprised of the scope of the invention. In other words --- how close? And all we know from the specification is with the bounds of wifi or bluetooth, but not how far within the bounds, whether at the limits or at half that distance, etc.

Continuation of REQUEST FOR RECONSIDERATION/OTHER 14. Other: The affidavit, filed 20 April 2020 , is not persuasive - --

Written Description
Regarding claims 1 and 31 –

The claims recite a mobile wireless device “comprising” (i.e., storing) a first radio and a second radio. The Specification does not support the said recitation. (See PgPub US 2017/0011425 at par 11 reciting “two wireless devices”, also fig.1/106/108 disclosing two wireless devices). To satisfy the written description requirement, the specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention at the time of filing. (In re Katz Interactive Call Processing Patent Litigation, 97 USPQ2d 1737 (Fed. Cir. 2011)).

Regarding claims 1 and 31 –

The claims recite a mobile wireless device “comprising” (i.e., storing) one or more nontransitory memory devices. The Specification does not support the said recitation. (See PgPub US 2017/0011425 at par 41 reciting “memory”). To satisfy the written description requirement, the specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention at the time of filing. (In re Katz Interactive Call Processing Patent Litigation, 97 USPQ2d 1737 (Fed. Cir. 2011)).

New Matter

Claims 13, 44-46, 50, and 57 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.
16. Regarding claim 13 –
17. The Specification does not support performing downloading application software in response to sending the unique identifier to the server. (See PgPub US 2017/0011425 at par 99).
18. Regarding claims 45 and 50 –
19. Claims 45 and 50 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.
20. The Specification does not support performing "sending the unique identifier, using the first radio, to at least one server of the one or more servers," and "receiving further information relating to the entity or object associated with being within proximity to the mobile device," in a single method in the context of the rest of the claim, and specifically, in combination with also performing the steps of "receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI)" and "determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier associated with the particular short range transmission." (See PgPub US 2017/0011425 at par

111)
21. Regarding claims 44 and 46 –
22. The Specification does not support both receiving identifier related information from the server as recited in claims 1 and 31, and preventing the sending of the unique identifier to the servers as recited in claims 44 and 46. (See PgPub US 2017/0011425 at par 111)
23. Regarding claim 57 –
24. The Specification does not support the steps of “retrieving a stored user email” and “sending an email … based upon the stored proximity user behavior”. (See PgPub US 2017/0011425 at par 67)
28. Claims 1-2, 5, 8, 12-13, 15, 17, 31, 35, 41-42, and 44-60 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.
Relative Terms
29. Regarding claims 1 and 31 –
30. The terms “respective MAC Address”, “respective unique identifier" and “determining . . . is in proximity " in claims 1 and 31 are relative terms which render the claim indefinite. The terms "respective" and “ proximity” are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
31. Regarding claim 1 –
32. The term “determining . . . is in proximity . . ." in claim 1 is a relative term which renders the claims indefinite. The term “proximity” is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
33. Regarding claim 31 –
34. The term “determining . . . is within proximity . . ." in claim 31 is a relative term which renders the claims indefinite. The term “proximity” is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
35. Regarding claims 45 and 50 –
36. The term “receiving . . . within proximity . . ." in claims 45 and 50 is a relative term which renders the claims indefinite. The term “proximity” is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
Missing Step
37. Regarding claim 13 –
38. Claim 13 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are as follows:

- Claim 13 recites that “downloading” is performed “in reaction to sending of the unique identifier,” but claim 1 does not include a step of sending the unique identifier to the server.
Unclear Scope
39. Regarding claim 1 –
40. Claim 1 is directed to “A mobile wireless device”. However, the body of the claim also recites “ receiving… when the device…”, “determining… is in proximity to the mobile wireless device” and “ receiving… to the mobile device”. The scope of the claim is thereby rendered unclear, as the scope of the mobile wireless device is defined in terms of the device itself.
Hybrid Claims
41. Regarding claim 1 –
42. A single claim which purports to be both a product or machine and a process is ambiguous and is properly rejected under 35 USC 112, second paragraph, for failing to particularly point out and distinctly claim the invention. Ex Parte Lyell, 17 USPQ2d 1548 (B.P.A.I. 1990).

43. In this case, claim 1 is directed to a “mobile wireless device” and further recites “receiving… when the device is located within a detection range…”, rendering the claim ambiguous.

Lack of Antecedent Basis

44. Claim 17 recites the limitation "the first and second unique" in line 6 of the claim. There is insufficient antecedent basis for this limitation in the claim.

OK TO ENTER: /C.O.S/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: James A. Proctor, Jr., et al.	
Serial No.: 15/271,410	Examiner: Sherr, Cristina Owen
Filed: September 21, 2016	Art Unit: 3685
For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED	Confirmation No.: 7653

AMENDMENT AFTER NOTICE OF APPEAL
PURSUANT TO 37 CFR 41.33

Appellant hereby submits this Amendment after the Notice of Appeal filed on April 21, 2020.

Amendments to the Claims begin on page 2.

Remarks begin on page 11.

Petitioner Samsung Ex-1004, 1688

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/271,410	09/21/2016	James Arthur Proctor JR.	111054-0001U4C7	7653

86012 7590 06/10/2020

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EXAMINER
SHERR, MARIA CRISTI OWEN

ART UNIT	PAPER NUMBER
3685	

NOTIFICATION DATE	DELIVERY MODE
06/10/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@vlplawgroup.com

Petitioner Samsung Ex-1004, 1689

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Application Number: 15/271,410
Filing Date: 21 Sep 2016
Appellant(s): Proctor et al.

David J. Thibodeau, Jr., RegNo 31,671
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 27, 2020.

(1) Grounds of Rejection to be Reviewed on Appeal

Every ground of rejection set forth in the Office action dated January 22, 2020, from which the appeal is taken is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner.

In view of the Applicant's Amendment, filed April 22, 2020, the rejection of claim 17, under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, for Lack of Antecedent Basis, is hereby withdrawn.

(2) Response to Argument

First Issue

Appellant argues, regarding claims 1 and 31, that the claims are properly supported by the Specification. Specifically, Appellant argues, that the Specification discloses a mobile wireless device with a first radio and second radio. Further, the applicant points to the wireless links of Fig. 1 and paragraphs 39 and 43 of the PGPub.

Examiner respectfully disagrees.

Note that these portions discuss communications links, but do not disclose a mobile wireless device having a first radio and a second radio.

Second Issue

Appellant argues, regarding claims 1 and 31, that the Specification properly supports a mobile wireless device comprising one or more nontransitory memory devices.

Examiner respectfully disagrees.

The claims recite a mobile wireless device "comprising" (i.e., storing) one or more nontransitory memory devices. The Specification does not support the said recitation. (See PgPub US 2017/0011425 at par 41 reciting "memory"). To satisfy the written description requirement, the Specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention at the time of filing. (*In re Katz* Interactive Call Processing Patent Litigation, 97 USPQ2d 1737 (Fed. Cir. 2011)).

Appellant further argues that the terms "storage," "memory," and "disk" in paragraph 41 provide support for the "one or more non-transitory memory devices" of the claim. Note that paragraph 41 of the pregrant publication of the Specification in this case mentions that the internal components of a computer system can include disk storage and memory. This makes a distinction between disk storage

and memory, and only provides support for the computer system having a single "memory". Claim 1 recites a mobile wireless device having "one or more non-transitory memory devices," which reads on a mobile wireless device having more than one non-transitory memory device. Additionally, this limitation of the claim specifically recites "memory devices" as opposed to other forms of storage media. The Specification does not provide support for a mobile wireless device having more than one non-transitory memory device because it recites that the computer system has only a single memory. The "disk storage" is disclosed as being distinct from the "memory" in paragraph 41 of the pregrant publication of the Specification, and thus cannot provide support for a second "memory device."

Third Issue

Appellant argues, regarding claim 13, that the feature, "downloading application software in response to sending the unique identifier to the server," is properly supported by the Specification. Specifically, Appellant states, that paragraph 46 of the PGPub supports this limitation.

Examiner respectfully disagrees.

Claim 13 recites that "the identifier related information comprises application software for execution upon the mobile wireless device," and then recites a step of "sending of the unique identifier," and "in response to the sending of the unique identifier, downloading the application software." Additionally, claim 1, on which claim 13 depends, recites "receiving, using the first radio, identifier related information…." Therefore, claim 13 requires that the application software, which is part of the identifier related information, to first be received by the first radio, and then be downloaded again after the unique identifier is received by the mobile device from the proximity beacon transmissions and sent to the server. Paragraph 46 of the PgPub does not disclose downloading the application software in response to sending the unique identifier to the server, where the downloading is in addition to receiving the application software as part of the identifier related information in claim 1.

Paragraph 46 also does not disclose that the identifier sent to the server is the same identifier that corresponds to the "unique identifier" of claim 1 received as part of the proximity beacon transmission.

Fourth Issue

Appellant argues, regarding claims 45 and 50, that the feature of "sending the unique identifier, using the first radio, to at least one server of the one or more servers," and "receiving further information relating to the entity or object associated with being within proximity to the mobile device," in a single method in the context of the rest of the claim, and specifically, in combination with also performing the steps of "receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI)" and "determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier associated with the particular short range transmission", is properly supported by the Specification. More specifically, Appellant points to paragraph 61 of the Specification and step 706 of Figure 7 to correlate the "Device 2 Entity Identifier" EI2 to the "further information relating to the entity or object" in the step of "receiving further information relating to the entity or object associated with being within proximity to the mobile device." Appellant then cites paragraph 61 and steps 706 and 707 of Figure 7 as support for the step of "determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier."

Examiner respectfully disagrees.

Step 706 of Figure 7 is a single step, while the claim recites two distinct steps of "receiving further information…" and "determining if an entity or object…is in proximity…." Additionally, step 707

only notifies a user that the entity is in proximity as a result of step 706, but does not perform "determining if an entity or object…is in proximity…" nor "receiving further information…" Also, the step of "determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device…" utilizes "the identifier related information and the unique identifier," where the identifier related information was received from the server, and the unique identifier was received in the proximity beacon transmission in the claim. Steps 706-707 of Figure 7 and paragraph 61 of the Specification do not disclose that these two identifiers (distinct from the Device 2 Entity Identifier EI2 which applicant has correlated to the "further information relating to the entity or object") are used to perform "determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device…"

Further, appellant maps the SSID to the "unique identifier" of the claim on pp. 18-20 of the brief when describing the content of the "proximity beacon transmissions" for the step of "receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions," but then identifies a different item, identifier DI2, as corresponding to the "unique identifier" in the step of "sending the unique identifier, using the first radio, to the server" on pp. 20-21 of the brief. However, the claim requires that these be the same identifier.

Appellant also maps EI2 to the "further information" for the step of "receiving further information relating to the entity or object…," on p. 20 of the brief, but then maps the same identifier EI2 to the "identifier related information" for the step of "determining if an entity or object associated with the proximity beacon service is in proximity to the mobile device, by utilizing identifier related information and the unique identifier…" on p. 21 of the brief. However, the claim makes a distinction between "further information" and "identifier related information."

Additionally, appellant states on p. 21 of the brief that "a 'user application' running on the mobile device then uses the detected unique identifier (DI2) and the entity-related information (EI1)

returned from the server…." However, neither Figure 7 nor its description in the Specification indicates that EI1 is returned from the server to Device 1 of Figure 7.

Fifth Issue

Appellant argues, regarding claims 44 and 46, that the Specification properly supports the features of receiving identifier related information from the server as recited in claims 1 and 31, and preventing the sending of the unique identifier to the servers. Specifically, Appellant points to paragraphs 47 and 49 of the pregrant publication as supporting both receiving identifier related information from the server as recited in claims 1 and 31, and preventing the sending of the unique identifier to the servers.

Examiner respectfully disagrees.

Paragraph 47 of the PgPub recites determining which of the detected identifiers should be passed to the server. No "preventing" step is recited.

Sixth Issue

Appellant argues, regarding claim 57, that the feature of retrieving a stored user email address associated with an account associated with the mobile device; and sending an email, addressed to the user email address containing customized content based upon the stored proximity user behavior. Is properly supported by the Specification. Specifically, Appellant argues that that the disclosure in paragraph 67 of the pregrant publication of the Specification being delivered to customers via email requires "retrieving a stored user email address associated with an account associated with the mobile device; and sending an email, addressed to the user email address containing customized content based upon the stored proximity user behavior."

Examiner respectfully disagrees.

Paragraph 67 does not disclose the particular steps recited in the claim, nor does it provide any indication that these particular steps would have to be performed for "specials delivered via email."

Seventh Issue

Appellant argues, regarding claims 1 and 31 that the claims are neither vague nor unclear. Specifically, Appellant argues that that "respective" is not a relative term.

Examiner respectfully disagrees.

Please note the following definition ----

Relative (adjective)

1. comparative, considerable, reasonable, moderate, in comparison a period of relative calm

2. corresponding, comparable, respective, comparative, reciprocal, correlative the relative importance of education in 50 countries

3. (with to) in proportion to, corresponding to, proportionate to, proportional to The satellite remains in one spot relative to the earth's surface.

Collins Thesaurus of the English Language – Complete and Unabridged 2nd Edition. 2002 © HarperCollins Publishers 1995, 2002.

Relative terms such as “respective” and others do not convey a positive description. These and other similar terms will instead only provide a relational description. When using this type of relative terminology you are not describing the action, item, or element itself directly, but rather you are describing in terms of what it has in common with something else, thereby rendering the claim unclear.

Eighth Issue

Appellant argues, regarding claims 1 and 31 that the claims are neither vague nor unclear. Specifically, Appellant argues that that "in proximity" is not a relative term.

Examiner respectfully disagrees.

Please note the following definition --

proximity (noun)

: the quality or state of being proximate : CLOSENESS

“Proximity.” Merriam-Webster Dictionary, Merriam-Webster

Note further that the term "proximity" is not defined by the claims, the Specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In other words --- how close? And all we know from the Specification is with the bounds of wifi or bluetooth, but not how far within the bounds, whether at the limits or at half that distance, etc.

Further, relative terms such as "proximity" and others do not convey a positive description. These and other similar terms will instead only provide a relational description. When using this type of relative terminology you are not describing the action, item, or element itself directly, but rather you are describing in terms of what it has in common with something else, thereby rendering the claim unclear.

Ninth Issue

Appellant argues, regarding claim 13, that the said claim does not have a missing step.

Examiner respectfully disagrees.

Claim 13 recites that "downloading" is performed "in reaction to sending of the unique identifier," but claim 1 does not include a step of sending the unique identifier to the server. Neither claim 1, from which claim 13 depends, nor claim 13 state where, when or by whom or what device the unique identifier is sent. The scope of the claim is therefore unclear.

Tenth Issue

Appellant argues, regarding claim 1, that it is proper for the claim to be defined in terms of itself.

Examiner respectfully disagrees.

Claim 1 is directed to "A mobile wireless device". However, the body of the claim also recites "receiving… when the device…", "determining… is in proximity to the mobile wireless device" and

"receiving… to the mobile device". The scope of the claim is thereby rendered unclear, as the scope of the mobile wireless device is defined in terms of the device itself.

Eleventh Issue

Appellant argues, regarding claim 1, that the claim is not a hybrid claim.

Examiner respectfully disagrees.

In this case, claim 1 is directed to a "mobile wireless device" and further recites "receiving… when the device is located within a detection range…", rendering the claim ambiguous. In other words, the claim is directed to a "mobile wireless device" and also recites an action "is located within . . .", which is not attributed to any of the structural elements of the "mobile wireless device". *UltimatePointer, LLC v. Nintendo Co.*, 118 USPQ2d 1125 (Fed. Cir. 2016); *Rembrandt Data Techs., LP v. AOL, LLC*, 641 F.3d 1331, 98 USPQ2d 1393 (Fed. Cir. 2011).

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Cristina Owen Sherr, AU 3685 /COS/

Conferees:

/Mohammad A. Nilforoush/
Primary Examiner, Art Unit 3685

/CALVIN L HEWITT II/
Supervisory Patent Examiner, Art Unit 3685

Requirement to pay appeal forwarding fee. In order to avoid dismissal of the instant appeal in any application or ex parte reexamination proceeding, 37 CFR 41.45 requires payment of an appeal forwarding fee within the time permitted by 37 CFR 41.45(a), unless appellant had timely paid the fee for filing a brief required by 37 CFR 41.20(b) in effect on March 18, 2013.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/271,410	09/21/2016	James Arthur Proctor JR.	111054-0001U4C7	7653

86012 7590 06/22/2020

VLP Law Group LLP
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EXAMINER
SHERR, MARIA CRISTI OWEN

ART UNIT	PAPER NUMBER
3685	

NOTIFICATION DATE	DELIVERY MODE
06/22/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@vlplawgroup.com

Petitioner Samsung Ex-1004, 1700

Applicant-Initiated Interview Summary	**Application No.** 15/271,410	**Applicant(s)** Proctor et al.	
	Examiner CRISTINA O SHERR	**Art Unit** 3685	**AIA (FITF) Status** No

All participants (applicant, applicants representative, PTO personnel):

(1) CRISTINA OWEN. SHERR. (3) _____.

(2) DavidJ Thinodeau, Jr RegNo 31,671. (4) _____.

Date of Interview: 09 June 2020.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☑ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☑Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: _____.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Discussion of status of Advisory Action, response to Declaration, and Examiner's Answer to Appeal Brief..

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/Cristina Owen Sherr/ Examiner, Art Unit 3685	/Mohammad A. Nilforoush/ Primary Examiner, Art Unit 3685

Petitioner Samsung Ex-1004, 1701

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiners responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicants correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,-
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicants record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiners version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, Interview Record OK on the paper recording the substance of the interview along with the date and the examiners initials.

Electronic Patent Application Fee Transmittal

Application Number:	15271410
Filing Date:	21-Sep-2016
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Filer:	David J. Thibodeau/Elisabeth Smith
Attorney Docket Number:	111054-0001U4C7

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
APPEAL FORWARDING FEE	2413	1	1120	1120
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1120**

Electronic Acknowledgement Receipt

EFS ID:	40082504
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	23-JUL-2020
Filing Date:	21-SEP-2016
Time Stamp:	10:00:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

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Payment was successfully received in RAM	$1120
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Reply Brief Filed	20200723_111054-0001U4C7_TPO_Reply_Brief.pdf	188663 e2934d95c8f8d5aff14e288a79d2f60c8d2e0a2b	no	15
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30652 81801fbc7fc21bf2ce9a81ab12b91d5d571fc9f2	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	219315		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: James A. Proctor, Jr., et al.

Serial No.: 15/271,410 Examiner: Sherr, Cristina Owen

Filed: September 21, 2016 Art Unit: 3685

Confirmation No: 7653

For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION DEVICES TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED

REPLY BRIEF UNDER 37 CFR §41.41

Appellant hereby submits a Reply Brief ("Reply") in response to the Answer ("Answer") dated June 10, 2020. Appellant requests that the appeal be maintained. The appeal forwarding fee under 37 CFR §41.45 is enclosed.

To assist with the Board's further review of this Appeal, the issue numbering adopted for the first time in the Answer has been maintained in this Reply.

Status of the Claims

The rejection of claim 17 for lacking antecedent basis has been withdrawn.

Introduction

The sweeping statement in the Answer that "Every ground of rejection set forth in the Office action dated January 22, 2020, is being maintained" does not operate to relieve the Patent Office from its burden of addressing each and every argument in the Appeal Brief filed April 27, 2020 (the "Brief").

Petitioner Samsung Ex-1004, 1707

An overarching example of this failure concerns the Declaration of James A. Proctor ("Proctor") filed April 20, 2020 (the "Proctor Declaration" or "Proctor Decl.") properly admitted into evidence per Manual of Patent Examining Procedure (MPEP) 716.01(A)(1) (submitted prior to a final rejection). However , the Answer gives absolutely no consideration to Mr. Proctor's fact testimony whatsoever.

Evidence of fact traversing rejections, when timely presented, must be considered by the Examiner whenever present. Where the evidence is insufficient to overcome the rejection, the Examiner must specifically explain why the evidence is insufficient. General statements without an explanation supporting such findings are insufficient. See MPEP 716.01(b and MPEP 716.01(c) citing to *In re Chilowsky,* 306 F.2d 908, 134 USPQ 515 (CCPA 1962) (an expert opinion (e.g., "on the ultimate conclusion") that an application meets the requirements of 35 U.S.C. 112 is not entitled to any weight; however, facts shown therein that provide a basis for deciding that the specification complies with 35 U.S.C. 112 are entitled to at least some weight).

An affidavit of an applicant as to the patentability of his or her own claimed invention, while less persuasive than that of a disinterested person, ***cannot be disregarded for that reason alone.*** *Ex parte Keyes*, 214 USPQ 579 (Bd. App. 1982); *In re McKenna*, 203 F.2d 717, 97 USPQ 348 (CCPA 1953) as cited in MPEP 716.01(c) III.

See also *In re Weber*, 341 F.2d 143, 52 CCPA 1015 (1965) where one of the affidavits contained a sworn statement, made of the affiant's own knowledge, that the average computer programmer is familiar with subroutines for running integration. In the absence of a challenge to the affiant's qualifications or, at the *very least, a contrary inference by the board or Examiner from other evidence*, the appeals court found they were unable to uphold the rejection of the claims.

MPEP 2164.06(c) III is also instructive. When USPTO personnel question the adequacy of computer system or computer programming disclosures, the reasons for finding the specification to be non-enabling should be supported by the record as a whole. In this regard, it is also essential for USPTO personnel to reasonably challenge evidence submitted by the applicant. Citing to *In re Naquin*, supra, and *In re Morehouse*, 545 F.2d 162, 165-66, 192 USPQ 29, 32 (CCPA 1976).

The ultimate determination of patentability must be based on consideration *of the entire record, by a preponderance of evidence,* with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker,* 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992).

Petitioner Samsung Ex-1004, 1708

First Issue

In addition to ignoring the testimony of Mr. Proctor, the Answer also fails to consider how a person of skill in the art ("POSITA") interprets the claims, giving the claims their broadest reasonable meaning in view of what the specification shows.

The last Office Action, a non-final action dated January 22, 2020 (the "last Office Action"), had argued that the claims encompass two wireless devices. In response to that, the Brief explained why example claim 1 actually recites a single "mobile wireless device" that comprises "a first radio" and "a second radio" (emphasis supplied). The Answer does not further address this issue – and therefore it should be deemed to have been admitted.

However, the Answer still argues that there is no support for the single wireless device having a first and second radio. We disagree.

First, the Answer overlooks the fact that the specification explicitly states that the wireless device uses a radio to provide the first short range "capability". As one example, see the specification at Paragraph [0011] (a copy of which was included as Exhibit F to the Brief) :

> *"In one embodiment, this can be accomplished by a first device using a first short range wireless capability to detect an identifier transmitted from a second device in proximity to the first device, ideally using existing short range radio communication standard capabilities such as Bluetooth (IEEE802.15.1-2002) or Wi-Fi (IEEE802.11)."*

It is also said later on in the specification (when referring to FIG. 2) that the central server 100 is connected to the cellular network 101, and is "able to communicate information to and from wireless device 202 using a wide area wireless link such as IS-2000, WCDMA, GPRS, EDGE, LTE, Wi-Max (IEEE802.16)" Spec. at [0045]. This is evidence that the specification also teaches one of skill in the art that the device must have the claimed "second radio".

One of skill in the art understands that "wireless" in this context, means using a radio (as opposed to wires or cables) to transmit signals.

Note also the following dictionary definition for "wireless":

> Wireless *adj*. 1: Having no wire 2: Relating to communication by electrtic waves but without connecting wires
> Wireless *n*. 1: Wireless telegraphy. 2: RADIO.

Petitioner Samsung Ex-1004, 1709

Webster's Beginning Dictionary © 1980, G &C Merriam Co., page 794

Therefore, "wireless" means "radio" both in the sense of a general definition and in the context of the specification.

A person of skill in the art would therefore equate the specification's reference to a "wireless" link to mean that a "radio" is inherent to a device participating in such communications.

The Answer offers no contrary evidence whatsoever, other than an unsupported, bald statement that the specification "does not disclose a mobile wireless device having a first radio and a second radio".

There is also nothing on the record to rebut Mr. Proctor's testimony that a person of ordinary skill in the art (POSITA) would readily conclude that mobile device 106 must have both a "first radio" to communicate over link 107 as described (labelled as being a Local Link, Wi-Fi, Bluetooth, etc.) and a "second radio" to communicate over the wireless wide area link 104 (labelled as being a WWLAN (Wireless Wide Area Network) Link 104). (See Proctor Decl. at Par. 80 and 81.)

A person of ordinary skill in the art would understand that the disclosure of a device that utilizes a wide area link using certain cellular network protocols and a short range link utilizing different local link protocols, as discussed above, would inherently have two different radios.

The Answer also offers no reason why each of "lightning bolts" (103,104, and 107) in Figure 1 are not further evidence that POSITA understands wireless communication is taking place between the devices connected by the lightning bolts -- and thus each device would have to have the necessary radios to "use" each of the links. See also the Proctor Decl. at Par. 83).

The Board may take notice of the fact that as of the earliest claimed September 8, 2008 filing date of the application, both the first and second generation of Apple iPhones were in widespread use in the United States. It was therefore known even among the general public that for example a Bluetooth radio and cellular radio – providing several options for the claimed "two radios" - were standard components in a typical smart phone as referred to in the specification.

Petitioner Samsung Ex-1004, 1710

Second Issue

The Answer frames this issue differently from how it was presented in the last office action. The Patent Office now argues here for the first time that the specification only provides support for the computer system to have a single "non-transitory memory" (as opposed to whether the "memory" is transitory or non-transitory as argued in the Last Office Action.)

Because of this restatement of the issue in the Answer, additional arguments submitted herewith are therefore timely.

(A) First, the Answer errs again in failing to note that claim 31 is a method claim and does not actually recite any "memory device". At least the rejection of claim 31 on this basis must be withdrawn.

(B) The Answer is also mistaken in concluding that the specification "recites the computer system must have only a single memory device" when it considers an incomplete portion of paragraph [0041] of the specification. What paragraph [0041] actually says is:

> *"The internal structure of devices 106, 108 or server 100 includes one or more data processors (not shown in detail) that are well known in the art to include a system bus for data transfer among the other internal components of a computer system (e.g., processor, disk storage, memory, input/output ports, network ports, etc.)*

The specification therefore does explain that the processors include "memory" – but it contains no such requirement for a single memory device – such as a single memory chip.

A POSITA understands that the reference to "memory" in the context of discussing the architecture of a computer would not necessarily be limited to a single memory chip. Nothing in the specification suggests the contrary.

Petitioner Samsung Ex-1004, 1711

(C) Certainly the passage of the specification cited above supports at least that each of the described "one or more processors" has its own respective "memory". Therefore, the one or more processors thus have their corresponding one or more memories. The claims are read in light of the specification -- which must be given its broadest reasonable interpretation.

(D) Furthermore, one of skill in the art also would have understood that the "memory" used for storing instructions within well known data processors includes more than one memory type. For example, the Board can note the fact that processors based on the popular Intel Pentium architecture as of at least September 9, 2008 were well known to have a BIOS, a system memory, and multiple levels of cache (Layer 1 and Layer 2) that may all be used for storing code.

Third Issue

Claim 13 depends from claim 1 and is therefore directed to a more specific embodiment than claim 1.

First, the preamble of claim 13 simply serves to further define that the "identifier related information" includes "application software".

The first step of Claim 13 is an added step of "sending the unique identifier" to at least one server.

The second and final step of Claim 13 serves to define two further aspects of the invention. It (a) specifies the order of the steps (e.g., the "sending" step occurs "before" the "downloading" step (2) and further defines the receiving step as a downloading step. "Receiving" application software is often referred to by a POSITA as "downloading it".

This interpretation of the claim is consistent with the embodiment described in Paragraph [0046]. In that example, a mobile device 202 receives an identifier from a museum's broadcast device 204. The device 202 then passes that identifier "for" the museum device to the server 100 – and the server then "passes relevant information back to the user's device 202". The relevant information passed back, i.e., the "content" can include "text, pictures, web pages, and application software such as games, informative display applications or other content." This single flow of operations - receiving an identifier, passing the identifier to the server, and then receiving application software – is exactly consistent with the steps recited in claim 13.

Petitioner Samsung Ex-1004, 1712

Claim 13 requires that the identifier related information comprise application software. This also confirms that the downloading step is meant to further define the receiving step, which is for "receiving the identifier related information" -- and hence the application software as well.

The interpretation of claim 13 urged in the Answer – that the application software MUST be downloaded again, a second time – is therefore inconsistent with both the specification and with the claim language itself.

Fourth Issue

This issue touches only dependent claims 45 and 50 and does not concern the validity of the independent claims 1 and 31 from which they respectively depend.

(A) As testified to by Mr. Proctor, the example coherent method consists of not just steps 706 and 707 – but rather the four numbered steps 704, 705, 706, 707. These are illustrated as being executed in sequence in Figure 7, which must also be interpreted in the context of the other figures (such as Figs. 1, 4, 5 and 6 that were discussed prior to paragraph [0061]. See Proctor Decl. at 111-129.)

The Answer offers no reason why these other parts of the specification should not be considered when interpreting the claims.

What claim 45 actually says is (claim 50 is analogous):

> *45. The mobile wireless device of Claim 1, wherein the instructions further comprise:*
> *sending the unique identifier, using the first radio, to at least one server of the one or more servers, and*
> *receiving further information relating to an object or entity associated with being within proximity to the mobile device.*

When read in the context of claim 1, the scope of claim 45 is clear. The wireless device receives two things back from the server in some embodiments – BOTH "the identifier related information" (as per independent claim 1) AND the "further information" (as per claim 45).

The embodiment of Fig. 9, and in particular step 907, is illustrative of claim 45. It is an example where EI2 (the exemplary claimed "identifier related information") plus other content as the exemplary claimed

Petitioner Samsung Ex-1004, 1713

"further information" (e.g., the illustrated "entity details, name etc. and request - display content) are both received.

See also the following sentence in paragraph [0090] of the specification which explains, in this embodiment, that two things are returned – both the identifier related information (indicating the presence of the detected device) AND the available content (the claimed "further information"):

> *"Server 901 then transmits a Response message 907 indicated the presence of the detected device and the content available."*

Paragraph [0046] also actually supports a non-limiting interpretation of what the returned content may include. In this example it isn't simply the identifier related information, but may also include:

> "text, pictures, web pages, application software such as games, informative display applications, or other content such as audio or video to be offered to the user's device as well. Other examples might include electronic coupons (such as in a grocery store), menus or special offers in a restaurant."

Other example interpretations may define the identifier related information and the further information to include the above information types in alternative arrangements.

There is no legal requirement that a dependent claim be directed to exactly the same single embodiment as the independent claim from which it depends. "The features or functions of (a single) embodiment should not be read into the claims …. (without) a clear and unmistakable disavowel in the patent specification or the prosecution history. *Continental Circuits LLC v. Intel Corp.*, 915 F.3d 788, 795 (Fed. Cir. 2019).

The Answer also offers no legal authority for its conclusion that every step or every element in a claim ***must*** be represented by a corresponding block in a drawing. As long as one of skill in the art would have understood the invention, taking into account both the drawings and the corresponding text, the claim is enabled. See *Toro Co. v. White Consolidated Industries Inc.*, 199 F.3d 1295, 1301 (Fed. Cir. 1999) as cited in MPEP 2111.01 (the meaning of words used in a claim is not construed in a "lexicographic vacuum", but in the context of both the specification and drawings"). It is entirely appropriate for a single

Petitioner Samsung Ex-1004, 1714

block in a drawing to represent two or more claim steps, if that is how a POSITA would interpret the claim.

The Answer's conclusion that:

> "Additionally, step 707 only notifies a user that the entity is in proximity as a result of step 706, but does not perform "determining if an entity or object...is in proximity..." nor "receiving further information..."

is also illogical. It is submitted that a POSITA would know from the other parts of the specification that the device must first "conclude" that the entity is in proximity before it can "notify" the user of such proximity. Again, see the Proctor Decl. at Par [111-129].

(B) The Answer also argues that claim 45 presents a conflicting definition for the "unique identifier". Claim 45 does not further "define" the unique identifier – it merely requires that the unique identifier that was received from the second radio, is then sent to the one or more servers. In other words, "the unique identifier" referred to in the "sending step" (claim 45 at line 2) is clearly the same "unique identifier" referred to claim 1 at line 15 as being received from the second radio.

The Answer also specifically mentions "DI2" as supposedly some evidence of inconsistency. DI2 is not mentioned in the claims. It is however, consistently referred to in some embodiments in the specification as the detected unique identifier. Paragraph [0061] explains that

> *"The first individual associated with Device 1 (702) referred to as Entity 1 (EI1) performs a detection process as described in FIGS. 4, 5, and 6 previously (step 704) the device identifier associated with Device 2 (703),* ***DI2*** *is thereby detected" (emphasis supplied) .*

See also Fig. 8 and Par. [0062] ("In step 804 the customer's device 802 (Device 1) performs an identifier search process as previously described, and detects a device identifier 2 (DI2) sent from Device 2 (803)…" and Fig. 9 and Par. [0069] ("In this example, an individual 902 is in a grocery store and their device 902 (Device 1) performs a scan for identifiers in step 904, as described previously. DI2 is detected having been transmitted from device 2 (903)."

Petitioner Samsung Ex-1004, 1715

Thus different embodiments are taught for transporting the claimed "unique identifier" (and hence DI2)[1].

The POSITA was therefore taught that the "unique identifier" can also be contained in the SSID field (in one embodiment) or it can be contained in one or more of the SSID and BSSID fields (in other embodiments), and elsewhere in yet other embodiments. The Appellant is entitled to draft a claim that covers more than one embodiment.

Thus, in the context of one embodiment, DI2 ***is the SSID***. The two terms are not mutually exclusive. "DI2" is simply used in the specification as a generic way to refer to the different embodiments of the claimed "unique identifier".

(C) The reference to "EI1" on page 21 of the Brief as the "identifier related information" was a typographical error. It should have referenced "EI2" as what is returned to the mobile device when the server "responds" in the Fig. 7 embodiment.

Notwithstanding the error in the Brief, it is the case here that the facts on record, such as stated in the Proctor declaration, are consistent. See the Proctor Decl. at 126-128, where Mr. Proctor explained that the following section of the specification at Par. [0061] teaches that EI2 is what is returned by the server:

> *"The server having determined that EI1 wants to be notified and is allowed to be notified responds in Step 706 to Device 1 (702) with a message indicating the DI2 is relevant to EI1 and including information such as Entity Identifier EI2 and associated details. A user application on Device 1 (702) notifies the user that the entity associated with Device 2 is in proximity in step 707."*

As already explained above, the specification also teaches other embodiments (such as that in step 907 of Fig. 9) where more than one piece of information is returned to the device, in response to having sent the unique identifier to the server.

---

[1] As was explained in the Brief, the "unique identifier" can also be physically transmitted as a field within the SSID (in one embodiment) or it can be contained in one or more of the SSID and BSSID fields (in other embodiments). See Proctor Decl. at 123-124, as well as Brief at pp.22-24.

Petitioner Samsung Ex-1004, 1716

Claim 50 depends from claim 31 and contains analogous language as claim 45. It is therefore patentable for the same reasons.

To the extent that any remaining arguments in the Answer concerning claims 45 and 50 are based on an erroneous interpretation of the claims, such arguments are irrelevant.

Fifth Issue

The Applicant is entitled to be his own lexicographer, and equate "not sending a subsequent request" described in the specification as support for "preventing the sending of a subsequent request" as recited in the claim.

The Answer also fails to directly consider how embodiments of the "action function" are described in the specification. In the example embodiment described in paragraphs [0047-0048], an "action function" is said to be used to reduce the frequency of re-requests to the server, for example, by not submitting a subsequent request to the server for "previously received" identifiers that have already been passed to the server. See also Proctor Decl. at Par. 130-135.

There is no requirement that the words in the claim exactly match analogous terms used in the specification. *Vitronics Corp. v. Conceptronic,* 90 F.3d 1576, 1582 (Fed. Cir. 1996).

Sixth Issue

Here, the Answer fails to accurately state the Applicant's argument, and also fails to consider the testimony of Mr. Proctor.

One of skill in the art understands, after reading paragraph [0067] that the service can track "prior habits" of an account holder and "cater" to them by delivering "specials" via email. Proctor Decl. Par. 139. A POSITA also understands that for the server to be able to send an email, it must have previously stored the email address. Proctor Decl. Par. 140.

As explained by the Supreme Court in *KSR Int'l Co.v.Teleflex Inc* 550 U.S. 398 (2007), "A person of ordinary skill in the art is also a person of ordinary creativity, not an automaton..." 550 U.S. at 421.

Petitioner Samsung Ex-1004, 1717

Furthermore "the inferences and creative steps that a person of ordinary skill in the art would employ" must also be considered when evaluating what a POSITA would have understood. 550 U.S. at 419.

Seventh Issue

The Answer offers no reason why the dictionary definition evidence previously submitted by the Appellant for "respective" as "pertaining individually or severally to each of a number of persons, things, etc.; particular" is to be ignored.

The Board should note that the Answer's citation to the Collins Dictionary is for the word "relative" – not the actual word that appears in the claims – which is the word "respective". For that reason alone, the Answer is not persuasive.

But consider that the definition of the word "relative" referenced in the Answer actually equates the word "respective" to another word -- "corresponding". That interpretation is thus actually consistent with the Applicant's arguments.

In other words, the term "respective" is used by the Appellant in the customary way for patent claims, as an attributive adjective – meaning a feature that concerns or is appropriate or "corresponds" to each of the things listed.

The Answer also fails to consider the use of the word "respective" in the context of the entire claim. Here the part of the claim that follows the term "respective" most definitely and clearly positively describes each "proximity beacon transmission" – that is, as having its own "corresponding" MAC address and unique identifier. See also Proctor Decl. at 123-126.

Eighth Issue

The Answer continues to err in overlooking that the claim itself actually defines what is meant by "proximity".

Neither the claim nor the specification calls for measuring some physical distance or relative closeness between devices – instead, claim 1 must be considered for what it actually says --

Petitioner Samsung Ex-1004, 1718

determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;

then:

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

Namely, when three things are true (short range transmission has a MAC address, and that transmission also a PBSI, and that the PBSI indicates association with the proximity beacon service) -- that fact is then used together with received "identifier related information" and the "unique identifier" to conclude that a device associated with that beacon service is "in proximity".

This interpretation fits squarely within the corresponding parts of the specification, including at least Fig. 7 and Pars. [0043] and [0061] as was explained in the Brief. See also Proctor Decl. at Par. 162-175.

The Answer offers no reason why the words of the claim itself should be ignored; or why the claim should be interpreted in a way that is inconsistent with the specification; or any reasons why Mr. Proctor's interpretation is incorrect and should be ignored.

Ninth Issue

It is indeed true that claim 1 does not recite that "downloading" is performed before "sending the unique identifier". But Claim 13 itself most definitely does recite where, when, by whom, and by what device the unique identifier is sent.

The preamble at line 4 of claim 13 defines by whom steps are performed – namely, the mobile device.

Lines 4 and 5 of claim 13 provide a precise destination for the unique identifier – at least one server of the one or more servers".

And claim 13 also explicitly defines "when" the unique identifier is sent. It has to be sent after it "receives" it from the second radio (as recited in claim 1 at line 15) , and before the downloading step (which claim 13 itself requires to happen in "response" to the sending step).

Petitioner Samsung Ex-1004, 1719

Tenth Issue

As pointed out by the Supreme Court in *Markman et al. v. Westview Instruments Inc., et al*, "A claim covers and secures a process, a machine, a manufacture, a composition of matter, or a design …" and "define[s] the scope of a patent grant". *Markman* 517 U.S. 370, 373 (1996).

It is axiomatic therefore, that the claims define, in technical terms, the extent, i.e. the scope, of the protection conferred. To the extent that the Last Office Action or the Answer purport to assert that the claim itself should not define the scope of the inventive device, it is an incorrect statement of the law. No case contrary to *Markman* is cited by the Patent Office.

The fact that the claim 1 is directed to a device that includes a computer processor for performing a series of steps does not in and of itself render the claim unclear. The Answer also offers no reason why the Court of Appeals for the Federal Circuit's decisions in *MasterMine Software, Inc. v. Microsoft Corp.*, _ 874 F.3d 1307 (Fed. Cir. 2017) recognizing that "apparatus claims are not necessarily indefinite for using functional language", and *Microprocessor Enhancement Corp. v. Texas Instruments Inc. (MEC)*, 520 F.3d 1367, 1375 (Fed. Cir. 2008), have been overruled or are irrelevant. Those cases held that a claim to a "processor" programmed "for executing instructions" was proper form, and not per se indefinite.

Eleventh Issue

The Answer also misstates what the Appellant has argued in the Brief in this section.

What the Brief actually argued was that the format adopted for claim 1 – a processor programmed to perform a series of steps - is indeed proper form for a claim as recognized by both the Patent Office itself (see MPEP 2111.05 B(III)) and the CAFC (as opined in at least the *MasterMine* and *Microprocessor Enhancement* cases cited above) .

The Answer cites to *UltimatePointer, LLC v. Nintendo Co.*,118 USPQ2d 1125 (Fed. Cir. 2016) and *Rembrandt Data Techs., LP v. AOL, LLC,* 641 F.3d 1331,98 USPQ2d 1393 (Fed. Cir. 2011). for the supposed proposition that a 'hybrid claim' is improper. Neither case holds any such thing.

The mention of "hybrid" in *UItimatePointer* was in the context of an invention that used a particular type of device – a "hybrid direct/indirect pointing device". The word "hybrid" in that case was thus a

Petitioner Samsung Ex-1004, 1720

reference to a technical feature of the claimed invention, and not to particular the claim format used (indeed, the claim format was actually found to be proper).

Rembrandt was a case that involved determining the scope of a patent license. It too had nothing to do with considering whether a supposed "hybrid" claim format is proper.

Conclusion

In view of the foregoing, Appellant again respectfully requests the Board to reverse the rejections and pass this application to issue.

July 23 2020

Respectfully submitted,

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Petitioner Samsung Ex-1004, 1721

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/271,410	09/21/2016	James Arthur Proctor JR.	111054-0001U4C7	7653

86012 7590 07/29/2020

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EXAMINER
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ART UNIT	PAPER NUMBER
3685	

NOTIFICATION DATE	DELIVERY MODE
07/29/2020	ELECTRONIC

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Petitioner Samsung Ex-1004, 1722

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAMES ARTHUR PROCTOR JR. et al.

Appeal 2020-005573
Application 15/271,410
Technology Center 3600

APPEAL DOCKETING NOTICE

The Patent Trial and Appeal Board received the appeal in the above-identified application from the Technology Center on July 27, 2020, and has assigned it the appeal number indicated above.

The recipient of this notice is reminded of its ongoing duty, within 20 days of any change during the proceeding, to update its mandatory notices to identify the real party-in-interest and each judicial or administrative proceeding that could affect, or be affected by, the Board proceeding. 37 C.F.R. § 41.8. For example, another docketed appeal in a related application may have the potential to affect, or be affected by, the Board proceeding.

In all future communications regarding this appeal, please include both the application number and the appeal number. Telephone inquiries can be made by calling 571-272-9797 and referencing the appeal number listed above. The mailing address for the Board is:

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex Parte: James A. Proctor, Jr., et al.

Appeal No. 2020-005573 Confirmation No.: 7653

Application No.: 15/271,410 Examiner: Sherr, Cristina Owen

Application Filed: September 21, 2016 Art Unit: 3685

For: EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION DEVICES TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED

NOTICE UNDER 37 CFR §41.8

Appellant hereby updates the list of each judicial or administrative proceeding that could affect, or be affected by, the above-referenced Board proceeding.

A judicial proceeding in the United States District Court, Middle District of Florida, Orlando Division, entitled "Proxicom Wireless, LLC v. Macy's, Inc. and Macy's Florida Stores, LLC (No. 6:18-cv-64-Orl-37GJK), now concluded, involved several issued patents that claim priority to the same application involved in this appeal.

A judicial proceeding currently pending in the United States District Court, Middle District of Florida, Orlando Division entitled "Proxicom Wireless, LLC v. Target Corporation" (No. 6:19-cv-1886-RBD-LRH), involves several patents that claim priority to the same application involved in this appeal.

The following Requests for Inter Partes Review before the U.S. Patent and Trademark Office Trial and Appeal Board have now either been instituted or denied:

IPR No.	Petitioner	App. No.	Patent No.	Respondent	Status
IPR2020-00903	Target Corporation	13/744457	9038129	Proxicom Wireless, LLC	Trial Instituted
IPR2020-00904	Target Corporation	12364897	7936736	Proxicom Wireless, LLC	Trial Instituted

Petitioner Samsung Ex-1004, 1724

IPR2020-00931	Target Corporation	12364828	8090359	Proxicom Wireless, LLC	Trial Instituted
IPR2020-00932	Target Corporation	12364828	8090359	Proxicom Wireless, LLC	Trial Instituted
IPR2020-00933	Target Corporation	13212766	8374592	Proxicom Wireless, LLC	Trial Instituted
IPR2020-00934	Target Corporation	13212723	8385896	Proxicom Wireless, LLC	Trial Instituted
IPR2020-00977	Target Corporation	13213028	8369842	Proxicom Wireless, LLC	Trial Instituted
IPR2020-00978	Target Corporation	12364938	8116749	Proxicom Wireless, LLC	Institution Denied
IPR2020-00979	Target Corporation	14472477	9161164	Proxicom Wireless, LLC	Trial Instituted
IPR2020-00980	Target Corporation	12364819	8385913	Proxicom Wireless, LLC	Trial Instituted

Other than the proceedings listed above, there are no other prior or pending appeals, interferences, trials before the Board, or judicial proceedings (collectively, "related cases") which satisfy all of the following conditions: involve an application or patent owned by the appellant or assignee, are known to appellant, the appellant's legal representative, or assignee, and may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

January 19 2021

Respectfully submitted,

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Petitioner Samsung Ex-1004, 1725

Electronic Acknowledgement Receipt

EFS ID:	41676579
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	20210119_111054-0001U4C7_TPO_Notice_Under_37CFR_41_8.pdf	96327 3d49213d96eb2d9a0a24d56c11b209482e6c1110	no	2

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/271,410	09/21/2016	James Arthur Proctor JR.	111054-0001U4C7	7653

86012 7590 08/17/2021

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Petitioner Samsung Ex-1004, 1728

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAMES ARTHUR PROCTOR JR. and
JAMES ARTHUR PROCTOR III

Appeal 2020–005573
Application 15/271,410
Technology Center 3600

Before CARL W. WHITEHEAD JR., ERIC S. FRAHM and
IRVIN E. BRANCH, *Administrative Patent Judges*.

WHITEHEAD JR., *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE[1]

Appellant[2] is appealing the final rejection of claims 1, 2, 4, 8, 12, 13, 15, 17, 31, 35, 41, 42 and 44–60 under 35 U.S.C. § 134(a). *See* Appeal Brief

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[1] Rather than reiterate Appellant's arguments and the Examiner's determinations, we refer to the Appeal Brief (filed April 27, 2020), the Reply Brief (filed July 23, 2020), the Final Action (mailed January 22, 2020) and the Answer (mailed June 10, 2020), for the respective details.

[2] Appellant refers to "applicant" as defined in 37 C.F.R. 1.42(a). ("The word 'applicant' when used in this title refers to the inventor or all of the joint inventors, or to the person applying for a patent as provided in §§ **1.43**, **1.45**, or **1.46**."). Appellant identifies Proxicom Wireless, LLC as

8. Claims 1 and 31 are independent. Claims 3, 5–7, 9–11, 14, 16, 18–30, 32–34 and 36–40 are canceled; claim 43 is withdrawn. *See* Claims Appendix. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

Introduction

According to Appellant, "The present invention is generally concerned with facilitating the exchange of information and transactions between two entities associated with two wireless devices when the devices are in close proximity to each other utilizing both a short range and a long range wireless capability." Specification 4.

Independent Claims

1. A mobile wireless device comprising:

a first radio;

a second radio;

one or more processors;

one or more non-transitory memory devices coupled to the one or more processors, the one or more non-transitory memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including:

receiving, using the first radio, identifier related information associated with a proximity beacon service, from one or more servers;

receiving, using the second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions when the device is

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the real party in interest. Appeal Brief 4.

Petitioner Samsung Ex-1004, 1730

located within a detection range of one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier, and a proximity beacon service identifier (PBSI);

determining if a particular short range transmission of the plurality of short range transmissions a) includes a MAC address, and b) includes the proximity beacon service identifier (PBSI) and if c) the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service;

then:

determining if an entity or object associated with the proximity beacon service is in proximity to the mobile wireless device, by utilizing the identifier related information and the unique identifier.

31. A method for facilitating use of proximity beacons, the method executing within a mobile device, and the method comprising:

communicating between the mobile device and one or more servers and receiving, at the mobile device, identifier related information, using a first radio;

receiving, at the mobile device using a second radio, a plurality of short range transmissions, including a plurality of proximity beacon transmissions from one or more beacon transmitter devices associated with the proximity beacon service, each of the proximity beacon transmissions including a respective MAC address, a respective unique identifier (UID), and a proximity beacon service identifier (PBSI);

a) determining that a particular short range transmission of the plurality of short range transmissions includes a MAC address,

Petitioner Samsung Ex-1004, 1731

b) determining that the proximity beacon service identifier (PBSI) is present, and

c) determining that the PBSI indicates the particular short range transmission is a proximity beacon transmission associated with the proximity beacon service; and

when the three determining steps a) b) and c) are each true, then d) determining that an entity or object associated with the proximity beacon service is within proximity to the mobile device, by utilizing the identifier related information and the unique identifier.

Rejections on Appeal[3]

Claims 1, 2, 4, 8, 12, 13, 15, 17, 31, 35, 41, 42 and 44–60 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Final Action 3–4.

Claims 13, 44–46, 50 and 57 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Final Action 4–5.

Claims 1, 2, 4, 8, 12, 13, 15, 17, 31, 35, 41, 42 and 44–60 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Final Action 6–7.

Claim 13 stands rejected under 35 U.S.C. § 112, second paragraph, as

[3] The Examiner incorrectly list claim 5 as being rejected however claim 5, as noted above, was canceled. We view this as harmless error. The Examiner withdraws the 35 U.S.C. § 112, second paragraph of claim 17 for lack of antecedent basis. *See* Answer 3.

Petitioner Samsung Ex-1004, 1732

being incomplete for omitting essential steps, such omission amounting to a gap between the steps. Final Action 7.

ANALYSIS[4]

Claims 1, 2, 4, 8, 12, 13, 15, 17, 31, 35, 41, 42 and 44–60 – written description rejection

The Examiner determines that the Specification fails to provide written support for the first and second radio limitations recited both in independent claims 1 and 31. Specification 3–4. Appellant contends that there is support for the radio limitations in paragraphs 39 and 43 of the US Patent Publication 2017/0011425 A1 of the instant application which coincides with pages 9 and 11 of the Specification. Appeal Brief 12–13.

We find Appellant's argument persuasive of Examiner error because the Specification discloses, referring to Figure 1, "The cellular network is connected to devices 106 and 108 by wide area wireless links 104 and 103" (Specification 9), and "a given device 106, 108 uses a short range wireless link 107 such as a Bluetooth (IEEE802.15.l) or Wi-Fi (IEEE802.11) link to detect the presence of other devices such as device 108" (Specification 11). Further, Appellant readily admits that "Most mobile phones on the market today support at least two wireless standards; one for the cellular wireless wide area network connection (WWAN) and one for a wireless personal or local area network (WPAN, WLAN)." Specification 3. We agree with Appellant that the Specification provides sufficient support for the disputed

[4] Appellant and Examiner refer to the paragraphs of US Patent Publication 2017/0011425 A1 of the instant application. We make note of this and refer to the corresponding pages of the Specification of the instant application for clarity.

Petitioner Samsung Ex-1004, 1733

claim limitations because we find the Specification discloses multiple wireless standards employed in communicating via radio waves. *See* Specification 11. We further find Appellant's argument that the Examiner fails to provide adequate reasoning for the rejection by explaining why the Specification was not sufficient to support the disputed claim limitations persuasive of Examiner error. *See* Appeal Brief 10; Final Action 3–4. We find Appellant's arguments persuasive of Examiner error in regard to claims 1 and 31 written description rejection. Accordingly, we reverse the Examiner written description rejection of independent claims 1 and 31, as well as, dependent claims 2, 4, 8, 12, 13, 15, 17, 35, 41, 42 and 44–60.

The Examiner further determines that the Specification does not support non-transitory memory devices recited in independent claims 1 and 31. *See* Final Action 4; Answer 4–5. Appellant contends, "Claim 31 is a method claim and does not actually recite any 'memory device'. For this reason alone, the rejection of at least claim 31 is *prima facie* deficient as a matter of law." Appeal Brief 14. Appellant's argument is persuasive of Examiner error in regard to claim 31 written description rejection because claim 31 does not recite non-transitory memory devices as claim 1 does. Accordingly, we reverse the Examiner's written description rejection of claim 31, as well as, dependent claims 35, 41, 42, 44–57 and 60.

In regard to claim 1, the Specification discloses, "Memory provides volatile storage for computer software instructions and data used to implement an embodiment of the present invention (e.g., applications programs and the like). Disk storage can provide non-volatile storage for computer software instructions and data used to implement an embodiment of the present invention." Specification 10 (emphasis added). Appellant

Petitioner Samsung Ex-1004, 1734

argues that "The words 'non-transitory' and 'non-volatile' mean the same thing in English, and to one of skill in the art." Specification 15; *see* Declaration ¶ 97 ("Such a person would have, therefore, understood the use of the word 'non-transitory' in claim 1 to mean the same thing as 'non-volatile' as stated in the specification.").

Here, Appellant's arguments are not persuasive of Examiner error in regard to the written description rejection of claim 1. The Declaration states that an artisan at the time the invention was made "would have understood paragraph [0042] to mean that computer programs may be stored on a variety of non-volatile, non-transitory computer readable media, and that these would have included DVD ROMs, CD-ROMs, diskettes, tapes, and other non-volatile media." Declaration ¶ 99. We do not agree with Appellant's position that the terms non-volatile and non-transitory mean the same because not all non-volatile storage is non-transitory. For example, rewritable CDs and DVDs, as well as, rewritable hard drives are not considered to be volatile, however because data stored on them can be rewritten, that means they are transitory. Accordingly, we sustain the Examiner's written description rejection of claim 1, as well as, claims 2, 4, 8, 12, 13, 15, 17, 58 and 59.

Claims 13, 44–46, 50 and 57 – written description rejection

In regard to claim 13, the Examiner determines, "The Specification does not support performing down loading application software in response to sending the unique identifier to the server. (See PgPub US 2017/0011425 at para. 99)." Final Action 4; *see* Specification 32–33.

Petitioner Samsung Ex-1004, 1735

However, the Specification discloses:

> For instance, an account associated with one or more identifiers may belong to a museum. As a museum patron walks to an exhibit, the patron's device 202 will receive an identifier sent from museum broadcast device 204 operated by the museum. The patron device 202 passes the identifier or museum device 204 to the central server 100, which in-turn recognizes it as being associated with that exhibit within that museum and passes relevant information back to the user's device 202. A distinguishing feature of this approach relative to prior art is that the patron device 202 in this example may move out of proximity of broadcast device 204, yet continue to view the content being provided by the server 100 related to the detected broadcast device 204. Content may include text, pictures, web pages, application software such as games, informative display applications, or other content such as audio or video to be offered to the user's device as well.

Specification 12 (emphasis added).

Appellant argues, the Examiner only initially refers paragraph 99 (Specification 32–33) "without any reference to any other part of the specification, or providing any reason." Appeal Brief 16; *see* Final Action 4. Appellant contends, "paragraph [0046] specifically provides an example where an application is 'downloaded' after the 'unique identifier' is sent to the server." Appeal Brief 16 (citing Specification 12). We find Appellant's argument is persuasive of Examiner error because the Specification provides support for downloading application software as recited in claim 13. Accordingly, we reverse the Examiner's written description rejection of claim 13.

In regard to claims 45 and 50 which depend upon independent claims 1 and 31 respectively, the Examiner determines that the Specification does not provide support for the limitation "sending the unique identifier, using

Petitioner Samsung Ex-1004, 1736

the first radio, to at least one server of the one or more servers, and receiving further information relating to an object or entity associated with being within proximity to the mobile device" in context with the independent claims. Final Action 4–5 (citing paragraph 111, Specification 33). Appellant contends that support for the claims is found in Figures 1 and 4–7, as well as, paragraph 61 (Specification 18). *See* Appeal Brief 16–21; Reply Brief 7–11. The Examiner does not explain in the Final Action why the Figures and the Specification are deficient. *See* Final Action 4–5. The Examiner provides an explanation of why the Specification and Figure 7 are considered to be deficient in the Answer, however we find Appellant's contention is persuasive of Examiner error because the Specification, as well as the Figures, provide support for the disputed claim limitations. *See* Answer 6–8. Accordingly, we reverse the Examiner's written description rejection of claims 45 and 50.

In regard to dependent claims 44 and 46, the Examiner determines, "The Specification does not support both receiving identifier related information from the server as recited in claims 1 and 31, and preventing the sending of the unique identifier to the servers as recited in claims 44 and 46. (See PgPub US 2017/0011425 at para. 111)." Final Action 5 (citing Specification 33). Appellant contends the Specification provides support for the claims in paragraphs 47 and 48. *See* Appeal Brief 22–23. Appellant's argument is persuasive of Examiner error because the Specification discloses, "The idealized effect of the action function would be to reduce the number of requests to the server by not re-requesting recently requested identifiers which have already been passed to the server, for some period of

Petitioner Samsung Ex-1004, 1737

time." Specification 33. Accordingly, we reverse the Examiner's written description rejection of claims 44 and 46.

In regard to claim 57, the Examiner determines, "The Specification does not support the steps of 'retrieving a stored user email' and 'sending an Email ... based upon the stored proximity user behavior'. (See PgPub US 2017/001425 at para. 67)." Final Action 5 (citing Specification 23). Appellant contends that support for the claim is provided by the Specification. Appeal Brief 23–24. The Specification discloses:

> Finally, the transaction details may be stored by the server, or sent to a thirdly party server for tracking spending habits of that account holder, or customers of that merchant allowing the merchant to track that specific customer's behavior and cater to them in the future with various specials delivered via email, or during their next visit via their device in the form of an electronic coupon. This process can be performed with a goal to help the merchant expose the customer to other products or services the merchant believes the customer might find desirable.

Specification 23 (emphasis added).

Appellant contends, "One of skill in the art inherently understands, without further explanation, that in order for the server to send an email to that user account, it must have previously stored the associated email address. Otherwise, the server would not know where to send the customized content." Appeal Brief 24. The Examiner does not provide an explanation for why claim 57 is not supported by the Specification in the Final Action. *See* Final Action 5. Further, we do not agree with the Examiner's response or position in the Answer that paragraph 67 is deficient. *See* Answer 8. Appellant's contention is persuasive of Examiner error and, accordingly, we reverse the Examiner's written description rejection of claim 57.

Petitioner Samsung Ex-1004, 1738

Claims 1, 2, 4, 8, 12, 13, 15, 17, 31, 35, 41, 42 and 44–60 – indefiniteness rejection

The Examiner determines that:

> The terms "respective MAC Address", "respective unique identifier" and "determining . . . is in proximity" in claims 1 and 31 are relative terms which render the claim indefinite. The terms "respective" and "proximity" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
>
> Final Action 6.

Appellant contends, "While a conclusion is reached that the words 'respective' and 'proximity' are 'relative terms', no analysis of the claim language, nor any attempt to interpret these terms in light of the specification has been made. Nor is any reasons why they are supposedly 'relative' is given." Appeal Brief 27. Appellant's contention is persuasive of Examiner error. We are not persuaded that the claims are indefinite merely because terms are broad or that the terms might be relative terms because the scope of the claimed subject matter is clearly defined. *See* M.P.E.P. §§ 2173.04, 2173.05(b).[5] Accordingly,

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[5] A broad claim is not indefinite merely because it encompasses a wide scope of subject matter provided the scope is clearly defined. M.P.E.P. § 2173.04.

The use of relative terminology in claim language, including terms of degree, does not automatically render the claim indefinite under **35 U.S.C. 112(b)** or **pre-AIA 35 U.S.C. 112**, second paragraph. *Seattle Box Co., Inc. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984). Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification. M.P.E.P. § 2173.05(b).

Petitioner Samsung Ex-1004, 1739

we reverse the Examiner's indefiniteness rejection of claims 1, 2, 4, 8, 12, 13, 15, 17, 31, 35, 41, 42 and 44–60.

In regard to claim 1, the Examiner determines that, "A single claim which purports to be both a product or machine and a process is ambiguous and is properly rejected under 35 USC 112, second paragraph, for failing to particularly point out and distinctly claim the invention." Final Action 7. The Examiner determines that "claim 1 is directed to a 'mobile wireless device' and further recites 'receiving . . .when the device is located within a detection range…", rendering the claim ambiguous. Final Action 8.

Appellant argues that the Examiner's determination is in error because the claim is in a permissible format. *See* Appeal Brief 34–36. Appellant's argument is persuasive of Examiner error because the claim "merely use[s] permissible function language to describe the capabilit[y] of the claimed [device]" and is therefore distinguish from a claim that claims "both an apparatus and a method of using the apparatus within a single claim [that makes] it 'unclear whether infringement ... occurs when one creates a[n infringing] system, or whether infringement occurs when the user actually uses [the system in an infringing manner]." *Mastermine Software, Inc. v. Microsoft Corp.,* 874 F.3d 1307, 1316 (Fed. Cir. 2017); *see* M.P.E.P. § 2173.05(p) II; *see also* Appeal Brief 34. We reverse the Examiner's indefinite rejection of claim 1.

In regard to claim 13, the Examiner determines, "Claim 13 recites that 'downloading' is performed 'in reaction to sending of the unique identifier,' but claim 1 does not include a step of sending the unique identifier to the server" and therefore claim 13 is incomplete for omitting essential steps.

Petitioner Samsung Ex-1004, 1740

Final Action 7; *see* M.P.E.P. § 2172.01.[6] Appellant contends, "the claimed steps involve first sending the unique identifier from the mobile wireless device to the server. Then, and only then, in response to having performed that sending step, is the step of 'downloading the application software' performed." Appeal Brief 33. Appellant argues that, "The claim is simply specifying an order in which the operations are performed for the claimed embodiment. There is nothing ambiguous or indefinite at all." Appeal Brief 33. Appellant argument is persuasive of Examiner error. Accordingly, we reverse the Examiner's indefiniteness rejection of claim 13.

CONCLUSION

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 4, 8, 12, 13, 15, 17, 31, 35, 41, 42, 44–60	112	Written description	1, 2, 4, 8, 12, 13, 15, 17, 58, 59	1, 2, 4, 8, 12, 13, 15, 17, 31, 35, 41, 42, 44–60
13, 44–46, 50, 57	112	Written description		13, 44–46, 50, 57
1, 2, 4, 8, 12, 13, 15, 17, 31, 35, 41, 42, 44–60	112	indefiniteness		1, 2, 4, 8, 12, 13, 15, 17, 31, 35,

[6] Depending on the specific facts at issue, a claim which omits matter disclosed to be essential to the invention as described in the specification or in other statements of record may be rejected . . . under **35 U.S.C. 112(b)** or **pre-AIA 35 U.S.C. 112**, second paragraph, as indefinite (see, e.g., *In re Venezia,* 530 F.2d 956, 189 USPQ 149 (CCPA 1976)). M.P.E.P. § 2172.01.

Petitioner Samsung Ex-1004, 1741

				41, 42, 44–60
13	112	indefiniteness		13
Overall Outcome			1, 2, 4, 8, 12, 13, 15, 17, 58, 59	31, 35, 41, 42, 44–57, 60

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1). *See* 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED-IN-PART

Petitioner Samsung Ex-1004, 1742

Electronic Acknowledgement Receipt

EFS ID:	43576858
Application Number:	15271410
International Application Number:	
Confirmation Number:	7653
Title of Invention:	EXCHANGING IDENTIFIERS BETWEEN WIRELESS COMMUNICATION TO DETERMINE FURTHER INFORMATION TO BE EXCHANGED OR FURTHER SERVICES TO BE PROVIDED
First Named Inventor/Applicant Name:	James Arthur Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U4C7
Receipt Date:	23-AUG-2021
Filing Date:	21-SEP-2016
Time Stamp:	16:35:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

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Information:					

44	Non Patent Literature	80_PeertoPeer_919753.pdf	532968 0622aa1baed0529e7825e8035811ba0601061667	no	9
Warnings:					
Information:					
45	Non Patent Literature	81_InBuilding_919742.pdf	971196 f9abb0722074f1c35f0f6baa37bd36079d715fc6	no	5
Warnings:					
Information:					
46	Non Patent Literature	82_EX1003_Declarat_919747_Part0.pdf	23316645 d973311597f4663a1b50443833233587e0c802dc	no	58
Warnings:					
Information:					
47	Non Patent Literature	82_EX1003_Declarat_919747_Part1.pdf	23280590 60029e79926f387da35bed26ce663b680c8a1a73	no	58
Warnings:					
Information:					
48	Non Patent Literature	82_EX1003_Declarat_919747_Part2.pdf	13442740 2869e1b3642ba9b116c5cdd918efdb184c8cbeb0	no	30
Warnings:					
Information:					
49	Non Patent Literature	83_ContextAware_919719.pdf	1125824 be48046c2e60176ad4c13a4a6bce07501585775d	no	8
Warnings:					
Information:					
50	Non Patent Literature	84_Place_Lab_919743.pdf	2295516 ed546201525954baa61cfcd22026a4f6862b3256	no	20
Warnings:					
Information:					

51	Non Patent Literature	85_qqqqqqqqqqqdddd_919903_Part0.pdf	23434510 0821cf6c1bede7b2c0d3d084f9213bd0934f8f84	no	145
Warnings:					
Information:					
52	Non Patent Literature	85_qqqqqqqqqqqdddd_919903_Part1.pdf	16436607 7fb2df6ffef95285df1f3f0cc3a8b4d5ec5180e5	no	105
Warnings:					
Information:					
53	Non Patent Literature	86_ECommerce_919758_Part0.pdf	23434510 94f22b601ab19e1d2df9f62a71f0cc491a643a53	no	145
Warnings:					
Information:					
54	Non Patent Literature	86_ECommerce_919758_Part1.pdf	16436607 87b7ec31c7629ea9436fff13a8fb54b3a522f0d5	no	105
Warnings:					
Information:					
55	Non Patent Literature	87_An_Agent_919749.pdf	919124 abd3c6106b1aab443bae7244467e10acfef2920f	no	17
Warnings:					
Information:					
56	Non Patent Literature	88_Zero_919733.pdf	3207613 b4701eaf9bf520b1cb57609ac5e8d6bd756412c8	no	14
Warnings:					
Information:					
57	Non Patent Literature	89_Survey_919727.pdf	3539926 0dfb3fd61fad2f2cc60bf2f2630bf51a0fb94ff0	no	14
Warnings:					
Information:					

58	Non Patent Literature	8_Indoor_919724.pdf	1277333 ddc904ca792da4bf1c8305e8ffeb834eb8bb2604	no	6
Warnings:					
Information:					
59	Non Patent Literature	90_Tamper_Univer_919734.pdf	12796051 33f418e29add71b507a5bd91a65ad5fd04e2c9b8	no	140
Warnings:					
Information:					
60	Non Patent Literature	91_qqqqqqqqqq_919735.pdf	2655252 cab05676e39376ea69374a8b74547610612 61321	no	12
Warnings:					
Information:					
			Total Files Size (in bytes):	450536944	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 111052-89PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 18/12277	International filing date *(day/month/year)* 04 January 2018 (04.01.2018)	(Earliest) Priority Date *(day/month/year)* 04 January 2017 (04.01.2017)
Applicant AMI RESEARCH & DEVELOPMENT, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☒ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☐ as suggested by the applicant.

☒ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 18/12277

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: claims 1 and 2: drawn to a directional antenna apparatus having an output independent of both orientation of that apparatus and polarization of the radiated signal.

Group II: claim 3: drawn to an indoor positioning system.

Group III: claim 4: drawn to a directional antenna apparatus having a processor for using the azimuth, elevation, and known height information to locate the remote device in three dimensions.

---See continuation on supplemental page---

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-2

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 18/12277

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G01S 3/42; G01S 3/40; H01Q 3/12 (2018.01)
CPC - H01Q 3/08; H01Q 3/16; H01Q 3/12; H01Q 3/0005; G01S 3/08; G01S 3/40; G01S 3/42;

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
See Search History Document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
See Search History Document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
See Search History Document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2014/0035791 A1 (Dielectric LLC) 06 February 2014 (06.02.2014), para [0018], [0020], [0040].	1-2
Y	US 2014/0176385 A1 (AMI Research & Development LLC), 26 June 2014 (26.06.2014), para [0038]-[0039].	1-2
Y	US 2007/0279311 A1 (Kai et al.) 06 December 2007 (06.12.2007), para [0038], [0040], [0049]-[0051].	1-2
A	US 2008/0316131 A1 (Apostolos et al.) 25 December 2008 (25.12.2008), entire document.	1-2
A	US 8,988,303 B1 (AMI Research & Development LLC) 24 March 2015 (24.03.2015), entire document.	1-2
A	US 2008/0316128 A1 (Apostolos) 25 December 2008 (25.12.2008), entire document.	1-2
A	US 2009/0096691 A1 (Apostolos) 16 April 2009 (16.04.2009), entire document.	1-2
A	US 2009/0073049 A1 (Apostolos) 19 March 2009 (19.03.2009), entire document.	1-2
A	US 4,035,805 A (Mobley) 12 July 1977 (12.07.1977), entire document.	1-2

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
01 May 2018	11 MAY 2018
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 18/12277

CONTINUATION OF BOX NO. III (LACK OF UNITY):

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Special technical features:

Group I requires a pair of crossed dipole elements, a loop elements; and wherein the output is independent of both orientation of the apparatus and polarization of the radiated signal.

Group II requires a beacon device for receiving a wireless signal from a tag device using an orientation independent antenna for receiving the wireless signal, the wireless signal having been transmitted from the tag device using a directional antenna, not found in the other groups.

Group III requires an orientation-independent antenna array located at a known height from a floor, and a processor, for using the azimuth, elevation, and known height information to locate the remote device in three dimensions, not found in the other groups.

Shared Features:
The only technical features shared by Groups I-III that would otherwise unify the groups are a directional antenna.

The only additional technical features shared by Groups I and III that would otherwise unify the groups are combining circuits to produce an output proportional to azimuth and elevation of a signal radiated from a remote device.

However, these shared technical features do not represent a contribution over prior art, because the shared technical features are disclosed by US 4,035,805 A to Mobley 12 July 1977 (12.07.1977), which discloses a directional antenna apparatus (col 1, ln 4-13 -1 AND ((azimuth W3 elevation) W2 signal)) which includes combining circuits to produce an output proportional to azimuth and elevation of a signal radiated from a remote device (col 9, ln 4-36 -1 AND ((azimuth W3 elevation) W2 signal) -From the changes in signal strength, azimuth and elevation offset data are obtained. The azimuth offset is combined with the relative bearing data in the heading input unit 204 to provide the azimuth control signal. The elevation offset is provided in analog form by the unit 210 and is combined with the elevation signal from the digital to analog converters which represents the command data derived from the elevation thumbwheel switches by the heading input unit 204 to provide a composite elevation command signal.).

As the shared technical features were known in the art at the time of the invention, they cannot be considered special technical features that would otherwise unify the groups.

Groups I-III therefore lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: DAVID J. THIBODEAU
VLP LAW GROUP LLP
555 BRYANT STREET
SUITE 820
PALO ALTO, CA 94301

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	11 MAY 2018

Applicant's or agent's file reference	FOR FURTHER ACTION
111052-89PCT	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US 18/12277	04 January 2018 (04.01.2018)	04 January 2017 (04.01.2017)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G01S 3/42; G01S 3/40; H01Q 3/12 (2018.01)
CPC - H01Q 3/08; H01Q 3/16; H01Q 3/12; H01Q 3/0005; G01S 3/08; G01S 3/40; G01S 3/42;

Applicant AMI RESEARCH & DEVELOPMENT, LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300	01 May 2018	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (January 2015)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 18/12277

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).

3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

a. ☐ forming part of the international application as filed:

☐ in the form of an Annex C/ST.25 text file.

☐ on paper or in the form of an image file.

b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

c. ☐ furnished subsequent to the international filing date for the purposes of international search only:

☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 18/12277

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit:

   ☐ paid additional fees.

   ☐ paid additional fees under protest and, where applicable, the protest fee.

   ☐ paid additional fees under protest but the applicable protest fee was not paid.

   ☒ not paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is

   ☐ complied with.

   ☒ not complied with for the following reasons:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: claims 1 and 2: drawn to a directional antenna apparatus having an output independent of both orientation of that apparatus and polarization of the radiated signal.

Group II: claim 3: drawn to an indoor positioning system.

Group III: claim 4: drawn to a directional antenna apparatus having a processor for using the azimuth, elevation, and known height information to locate the remote device in three dimensions.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Special technical features:
Group I requires a pair of crossed dipole elements, a loop elements; and wherein the output is independent of both orientation of the apparatus and polarization of the radiated signal.

Group II requires a beacon device for receiving a wireless signal from a tag device using an orientation independent antenna for receiving the wireless signal, the wireless signal having been transmitted from the tag device using a directional antenna, not found in the other groups.

Group III requires an orientation-independent antenna array located at a known height from a floor, and a processor, for using the azimuth, elevation, and known height information to locate the remote device in three dimensions, not found in the other groups.

Shared Features:
The only technical features shared by Groups I-III that would otherwise unify the groups are a directional antenna.

The only additional technical features shared by Groups I and III that would otherwise unify the groups are combining circuits to produce an output proportional to azimuth and elevation of a signal radiated from a remote device.

However, these shared technical features do not represent a contribution over prior art, because the shared technical features are disclosed by US 4,035,805 A to Mobley 12 July 1977 (12.07.1977), which discloses a directional antenna apparatus (col 1, ln 4-13 -1 AND ((azimuth W3 elevation) W2 signal)) which includes combining circuits to produce an output proportional to azimuth and elevation of a signal radiated from a remote device (col 9, ln 4-36 -1 AND ((azimuth W3 elevation) W2 signal) -From the changes in signal strength, azimuth and elevation offset data are obtained. The azimuth offset is combined with the relative bearing data in the heading input unit 204 to provide the azimuth control signal. The elevation offset is provided in analog form by the unit 210 and is combined with the elevation signal from the digital to analog converters which represents the command data derived from the elevation thumbwheel switches by the heading input unit 204 to provide a composite elevation command signal.).

As the shared technical features were known in the art at the time of the invention, they cannot be considered special technical features that would otherwise unify the groups.

Groups I-III therefore lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.

4. Consequently, this opinion has been established in respect of the following parts of the international application:

   ☐ all parts.

   ☒ the parts relating to claims Nos. 1-2

Petitioner Samsung Ex-1004, 1759

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 18/12277

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-2	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-2	NO
Industrial applicability (IA)	Claims	1-2	YES
	Claims	NONE	NO

2. Citations and explanations:

Claim 1 lacks an inventive step under PCT Article 33(3) as being obvious over US 2014/0035791 A1 to Dielectric LLC (hereinafter Dielectric) in view of US 2014/0176385 A1 to AMI Research & Development LLC (hereinafter AMI).

Regarding claim 1, Dielectric discloses a directional antenna apparatus (antenna 10 having radiator 12; para [0018]- "FIG. 1 shows an antenna 10 having at least one radiator 12. In one embodiment, the radiator 12 is dual-loop crossed dipole radiator 12"), comprising:

a pair of crossed dipole elements (pair of cross-dipole elements 14; para [0020]- "FIG. 2 shows a four-element radiator 12 in greater detail. Hereinafter, the elements 14 will be referred to as "petals" 14, in view of their outlines, and four of these petals 14 make up a four-leaf-clover-shaped crossed-dipole radiator 12, as shown in FIG. 2");

a loop element (loop 16L, 36L; para [0020]- "Each petal 14 in the embodiment shown in FIG. 2 includes a plurality of segments. Specifically, each petal 14 includes a first plurality of segments that forms a first, e.g., outer, loop 16L and a second plurality of segments that forms a second, e.g., inner, loop 36L"); and

circuit to produce an output proportional to at least one of azimuth or elevation of a radiated signal, the output independent of both orientation of the apparatus and polarization of the radiated signal (circuit not shown for generating output proportional to azimuth of radiated signal, also is independent of orientation and polarization; see figure 4; para [0040]- "FIG. 4 presents, in polar chart 400 form, measured far-field signal strength versus azimuth for a dual-radiator antenna 10, such as the embodiment of the antenna 10 shown in FIG. 1 and described in greater detail above. As is typical in measuring performance of antennas 10 capable of circular polarization, the antenna 10 is affixed to a platform that is rotatable about a vertical axis and fed signals suited to causing circularly polarized emission, while the antenna 10 is repeatedly rotated through all azimuths. A calibrated, single-polarization receiving antenna in far field at about the same height as the antenna 10 under test is successively held fixed in a vertical orientation, held fixed in a horizontal orientation, and rotated relatively rapidly about an axis directed toward the antenna 10 under test, as the antenna 10 rotates relatively slowly through all azimuths. The chart 400 shows the received far-field signal strength when the calibrated antenna is vertically oriented 402, horizontally oriented 404, and rotating 406. The ratio of signal strength in the vertical 402 to horizontal 404 at each azimuth is a rough measure of axial ratio, assuming axial tilt to be zero. As stated above, the signal 406 from the rotating receiving antenna samples intermediate angles over all azimuths. The maximum and minimum excursions of the voltage trace at each azimuth define two curves similar to the vertical and horizontal axis measurements, but more accurately correspond to the relative magnitudes of the major axis and minor axis components of the polarization ellipse at that azimuth, and thus the axial ratio. For acquiring the data in this test chart 400, there was a 90 degree phase lag for one feed with respect to the other, with signals of equal strength applied to the respective inputs").

Dielectric does not disclose a combining circuit to produce the output.

AMI in the related art of crossed dipole antenna for communication discloses a combining circuit to produce output signal having different direction and polarizations (combiners; para [0038]- "The coaxial feedlines are connected as shown in the top view of FIG. 3A. The conductors 102-1, 102-2, 102-3, 102-4 are connected to the top plates 101-1, 101-2, 101-3, 101-4 at corresponding points near the center of the structure. The shield and inner conductors of the coaxial cables may be as arranged as will be discussed in more detail below"; para [0039]- "At the bottom of the structure the feed lines 102 can be connected to a combining network 300. The combining network, in one embodiment, consists of a pair of 180 degree hybrid combiners 301-1, 301-2 feeding a 90 degree hybrid combiner 302 as shown in FIG. 3B. This combining network 300 provides Left Hand (LH) 305-L and Right Hand (RH) 305-H circularly polarized (C-POL) feed points; other types of combining networks can be used to produce other types of directional and/or polarized signals. For example, a monopole pattern may be derived from the directional elements by feeding the sum ports of the 180 hybrids into a combiner (not shown). A switch controlled by decision logic (also not shown) can permit selection of one of these directional operating modes, such as for example, by selecting the mode that produces the highest received power at a given time").

It would have been obvious to a person having ordinary skill in the art to modify the antenna apparatus of Dielectric with the teaching of the combining circuit as disclosed by AMI as this would have provided the advantage for generating output signals having different type of directions and polarizations (para [0039]).

---See continuation on supplemental page---

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US 18/12277

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:
Box No. V.2. Citations and Explanations:

Claim 2 lacks an inventive step under PCT Article 33(3) as being obvious over Dielectric in view of AMI and further in view of US 2007/0279311 A1 to Kai et al. (hereinafter Kai).

Regarding claim 2, Dielectric in view of AMI does not disclose a position detection system comprising a beacon device or tag device that use the antenna of claim 1 for reception and/or transmission of wireless signals.

Kai in the related art of position detection system discloses a tag device that use a directional crossed-dipole antenna that is orientation and polarization independent for reception and transmission of the wireless signals with improved distance (para [0038]- "In FIG. 4, an antenna pattern structure according to a first embodiment of the present invention is shown. The antenna pattern is formed using a conductive material of Cu, Ag, Al, or the like, on PET, film or paper material constituting a base body of a tag"; para [0040]- "In the pair of dipole antennas 1a, 1b, antenna lines extend in a cross shape from the feed point 20. At the end of the above antenna lines, the lines are bent with a right angle. Further, lines are expanded in a triangle shape. The overall sizes of the antenna pattern are 78 mm vertically and 78 mm horizontally. At feed point 20 locating at the center position of the cross shape, there is provided a mount portion of an LSI chip 2"; para [0048]- "FIGS. 7A and 7B show tag operation in case a linearly polarized wave 100 is used for the R/W antenna. In FIG. 7A, the polarization plane 100a of antenna la lies in the direction rotated by approximately 30 degrees from the left and right directions (horizontal direction), while the polarization plane of antenna 1b differs by 90 degrees therefrom; para [0049]- When linear polarization plane 100 of the R/W antenna coincides with the tag polarization plane, the communication distance becomes maximum, while when the above planes differ by 90 degrees, the communication distance becomes minimum. Accordingly, when attention is paid only to antenna la, if the tag is rotated 30 degrees counterclockwise, linear polarization plane 100 of the R/W antenna coincides with tag polarization plane 100a, and thereby a maximum communication distance is obtained. If the tag is rotated further by 90 degrees, at the rotation position of 120.degree., the communication distance becomes minimum. Such the state is shown with a broken line la in FIG. 7B. In this FIG. 7B, the horizontal axis shows the rotation angle, while the vertical axis shows the communication distance"; para [0050]- "On the other hand, when attention is paid to antenna 1b, there is a phase difference of 90.degree. from antenna 1a. In FIG. 7B, the relationship between the rotation angle and the communication distance is shown with a one-dot chain line 1b. Accordingly, in the composite characteristics of antennas 1a and 1b, it is understood that a tag having no large deterioration of the communication distance as a whole can be realized, as shown with the solid line indicated by (1a+1b) in FIG. 7B"; para [0051]- "The maximum distance at this time is approximately 1.4 times as compared to a case when using circular polarization for the R/W antenna and linear polarization for the tag as usual. Thus, it becomes possible to expand the communication distance in the RFID system").

It would have been obvious to a person having ordinary skill in the art to modify the antenna apparatus of Dielectric and AMI with the teaching of the position detection system comprising a tag device that uses a cross-dipole antenna for reception and transmission of wireless signals as disclosed Kai as this would have provided the advantage for configuring the tag device to use the antenna of claim 1 to provide maximum distance communication that is independent of orientation and polarization (para [0050]-[0051]).

Claims 1-2 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

SEARCH HISTORY

Application Number	PCT/US 18/12277
Search Conducted By	LAP
Search Approved By	ADS

CPC/IPC Classifications Searched	IPC(8) – G01S 3/42; G01S 3/40; H01Q 3/12 (2018.01) CPC-- H01Q 3/08; H01Q 3/16; H01Q 3/12; H01Q 3/0005; G01S 3/08; G01S 3/40; G01S 3/42;
Date Conducted	30 April 2018 (30.04.2018)

Documentation Searched	IPC(8)- G01S 3/42; G01S 3/40; H01Q 3/12 (2018.01) CPC- H01Q 3/08; H01Q 3/16; H01Q 3/12; H01Q 3/0005; G01S 3/08; G01S 3/40; G01S 3/42; H01Q 21/26; H01Q 7/00 USPC– 342/422,426,428,432,450,451,408,386; 343/742,747,797
Search Terms Used	Pair, dual, two, diagonal or crossed dipole, elements or patches, loop element, directional antenna, combining, azimuth, elevation, beacon tag, orientation independent antenna, polarization independent of radiated signals
Date Conducted	30 April 2018 (30.04.2018)

Electronic Database Searched	PatBase
Files Searched	Full-text: AU BE BR CA CH CN DE DK EP ES FI FR GB IN JP KR SE TH TW US WO Bibliographic: (Europe) AT BA BE BG CH CS CY CZ DD DK EE ES FI GE GR HR HU IE IS IT LT LU LV MC MD MT NL NO PL PT RO RS SE SI SK SM TR UA YU (Asia) EA GC HK ID IL IN KZ MN MY PH RU SG SU TH TJ TW UZ VN (North America) CA CR CU DO GT HN MX NI PA SV TT (South America) AR BR CL CO EC PE UY (Australasia) AU NZ (Africa) AP DZ EG KE MA MW OA ZA ZM ZW
Date Conducted	30 April 2018 (30.04.2018)

Search Logic:

- 1) (IC=(G01S3/42 OR G01S3/40 OR H01Q3/12)) (2233)
- 2) (CPC=(H01Q3/08 OR H01Q3/16 OR H01Q3/12 OR H01Q3/0005 OR G01S3/08 OR G01S3/40 OR G01S3/42 OR H01Q21/26 OR H01Q7/00)) (7197)
- 3) (UC=(342/422 OR 342/426 OR 342/428 OR 342/432 OR 342/450 OR 342/451 OR 342/408 OR

342/386 OR 343/742 OR 343/747 OR 343/797)) (3550)

- 4) 1 OR 2 OR 3 (11817)
- 5) 4 AND (antenna* OR radiator*) W7 (direction* OR steer*) (4434)
- 6) 5 AND (dipole* OR doublet*) W8 (cross* OR diagonal) (302)
- 7) 6 AND (loop* OR ring) W7 (element* OR radiator*) (78)
- 8) 7 AND (output* W8 (azimuth OR elevation)) (2)
- 9) 7 AND (output* W8 (combiner* OR (combin* near circuit*) OR summer*)) (6)
- 10) 6 AND (orientation W7 independ*) (9)
- 11) 5 AND (polarization W7 independent) (43)
- 12) 11 AND (orientation W7 independent) (6)
- 13) 11 AND ((radiat* OR transmi*) W7 polarization) (30)
- 14) 13 AND (cross* OR diagonal*) W7 (dipole* OR doublet*) (8)
- 15) 4 AND (antenna* OR radiator*) W8 (dipole* OR doublet*) (1983)
- 16) 15 AND (cross* OR diagonal) W7 (element* OR radiator* OR antenna*) (861)
- 17) 16 AND (loop* OR ring*) W7 (element* OR radiator*) (258)
- 18) 17 AND (output* W7 independ*) (8)
- 19) 17 AND (orient* W7 independent*) (9)
- 20) 18 AND (polarization W7 independent) (1)
- 21) (PN=(US20140035791 OR US20120098725 OR US20090096691 OR US20080316128 OR US200900730249 OR US20070279311 OR US20140035792 OR US20080316131 OR US4035805 OR US9118116 OR US8988303)) (9)
- 22) CTB 21 OR CTF 21 (170)
- 23) 22 AND (radiat* OR transmi*) W7 (signal* OR wave*) (108)
- 24) 23 AND ((antenna* OR radiator*) W8 orientation*) (33)
- 25) 24 AND (independ* W7 (orientation OR polarization*)) (8)
- 26) (direction* OR steer*) W8 (antenna* OR radiator*) (97406)
- 27) 26 AND (dipole* W7 (cross* OR diagonal*)) (1178)
- 28) 27 AND (loop* OR ring*) W7 (element* OR component*) (182)
- 29) 28 AND ((combiner* OR (combin* near circuit*)) W8 output*) (6)
- 30) 28 AND (orientation W8 (antenna* OR radiator*)) (48)
- 31) 30 AND (radiat* OR transmi*) W8 (polar* OR polarization) (36)
- 32) 31 AND (independ* W8 (orientation OR polar*)) (10)
- 33) 26 AND (beacon* OR tag*) W8 (antenna* OR radiator*) (4711)
- 34) 33 AND (cross* OR diagonal) W7 (dipole* OR element*) (277)
- 35) 34 AND (orientation* W7 independent) (9)
- 36) 35 AND (polarization W7 independent*) (1)
- 37) 27 AND (orientation W7 (antenna* OR radiator*)) (243)
- 38) 37 AND (independ* W7 orientation*) (26)
- 39) 37 AND (polarization W7 independent) (5)
- 40) (PA=(AMI W2 Research)) (29)
- 41) (PA=(Apostolos W2 John)) (51)
- 42) (IN=(Apostolos W2 John)) (103)
- 43) (IN=(Mouyos W2 William)) (31)
- 44) (IN=(Logan W2 James)) (350)
- 45) (IN=(Joseph W2 Sean)) (73)
- 46) 41 OR 42 OR 43 OR 44 OR 45 (523)

- 47) 46 AND (antenna* OR radiator*) W8 (dipole* OR (cross* near dipole*)) (20)
- 48) 47 AND ((orientation OR polarization) W7 independent) (2)

Electronic Database Searched	Google
Files Searched	Scholar (Articles excluding patents)
Date Conducted	30 April 2018 (30.04.2018)

Search Logic:

orientation polarization independent directional antenna pair of dipole (elements OR patches) loop combiner output radiated signal (azimuth OR elevation) -about 564 results (0.13 sec)

orientation independent directional antenna pair of crossed dipole (elements OR patches) loop combiner generate output radiated signal (azimuth OR elevation) polarization independent -about 498 results (0.12 sec)

(beacon OR tag) device use orientation independent directional antenna pair of crossed dipole (elements OR patches) loop combiner generate output radiated signal (azimuth OR elevation) polarization independent -about 115 results (0.12 sec)

orientation-independent directional antenna pair of dipole (elements OR patches) loop combiner generate output radiated signal (azimuth OR elevation) polarization independent -about 3 results (0.07 sec)

Electronic Database Searched	Google
Files Searched	Patents
Date Conducted	30 April 2018 (30.04.2018)

Search Logic:

directional antenna comprising (dual OR pair) crossed dipole (elements OR patches) loop (combing circuit OR combiner) generate output radiated signal (azimuth OR elevation) independent of orientation of antenna polarization of radiated signal -about 562 results (0.71 seconds)

orientation independent directional antenna comprising (dual OR pair) crossed dipole (elements OR patches) loop (combing circuit OR combiner) generate output radiated signal (azimuth OR elevation) independent of polarization of radiated signal -about 562 results (0.48 seconds)

orientation independent directional antenna comprising (dual OR pair OR two) (diagonal OR crossed) dipole (elements OR patches) loop (combing circuit OR combiner) generate output radiated signal (azimuth OR elevation) independent of polarization of radiated signal -about 274 results (0.62 seconds)

orientation independent directional (radiator OR antenna) (dual OR pair OR two) (diagonal OR crossed) dipole (elements OR patches) loop (combing circuit OR combiner) generate output proportional to radiated signal (azimuth OR elevation) independent of polarization of radiated signal -about 204 results