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(71) Applicant *(for all designated States except US)*: **VPR MATRIX, INC.** [US/US]; 7601 Penn Avenue South, Richfield, MN 55423 (US).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **STEVEN, Lee, K.** [CA/US]; 5436 Brookview Avenue, Edina, MN 55424-1601 (US).

(74) Agents: **TYSVER, Daniel, A.** et al.; Beck & Tysver, P.L.L.C., 2900 Thomas Avenue S., Suite 100, Minneapolis, MN 55416 (US).

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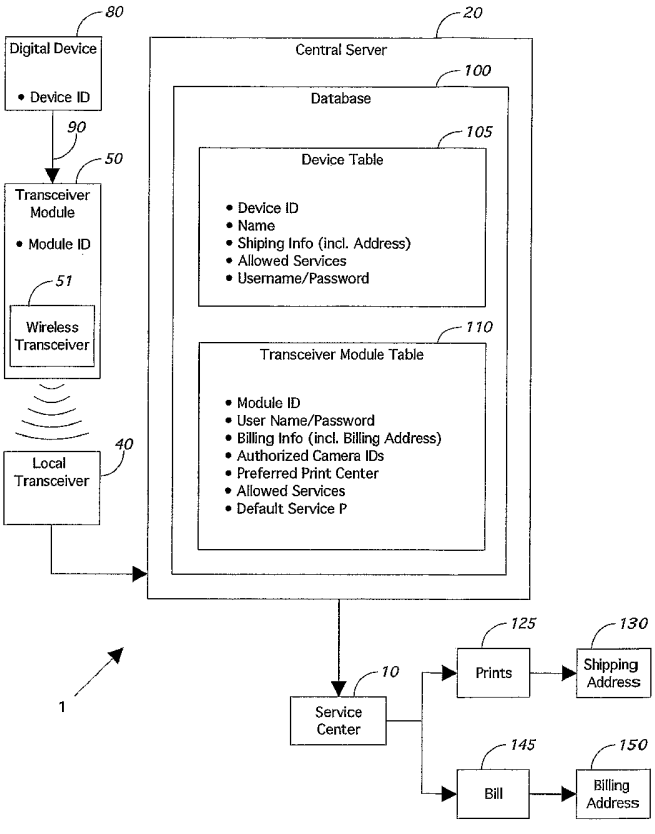
(54) Title: A SYSTEM AND METHOD FOR ROUTING SERVICE REQUESTS FROM A PAIRED DIGITAL DEVICE AND TRANSCEIVER MODULE



(57) Abstract: A system and method for obtaining services from a personal digital device uses a device and a transceiver module, each having unique identifiers that are stored in a database stored on a remote central server. To obtain the service, the user couples the digital device to the transceiver module and requests a service. The transceiver module sends the service request and any associated digital data files to the central server. The central server confirms that the request is authorized by querying its database to determine if the device identifier is authorized for use with the transceiver module. Provided the service request is authorized, the central server sends the service request to a service center. The service request is also provided with shipping and billing information, such that the service center is able to delivery physical embodiments of the digital data to the shipping address and bill the appropriate account.

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A System and Method for Routing Service Requests from a Paired Digital Device and Transceiver Module

Claim of Priority

The present application is a continuation-in-part of U.S. Patent Application No. 10/848,676, filed May 19, 2004, which in turn claims the benefit of U.S. Provisional Application No. 60/472,165, filed May 20, 2003. The present application is also a continuation-in-part of U.S. Patent Application No. 10/895,805, filed July 21, 2004, which in turn claims the benefit of U.S. Provisional Application No. 60/538,729, filed January 23, 2004.

Field of the Invention

The present invention relates generally to a system for obtaining services from a digital device, such as obtaining prints from a digital camera. More specifically, the present invention relates to a transceiver module and a paired digital device for wireless routing of service requests through a central server.

Background of the Invention

Portable digital devices, such as cell phones, personal digital assistants (PDAs), music players, digital cameras, digital camcorders, and devices that store and display still and video images, have revolutionized life in the twenty-first century. These devices allow people to easily carry and utilize technology more powerful than large business computers used only a few decades ago. One common feature

of these devices is that they manipulate digital data for the benefit of the device's user. This digital data often replaces physical, analog data that would have been used a few years ago. For instance, the digital images in cameras replace the film and negatives used in traditional cameras. Similarly, digital music players use digital sound files in place of the albums, cassettes, and CDs of the past, while PDAs use digital database files to replace traditional calendars and address books.

The replacement of the analog equivalents by digital data has numerous benefits. Nonetheless, there are numerous times when digital data is not a substitute for a tangible representation of the data. For instance, a digital camera or a storage device like the iPod Photo (trademarked device of Apple Computer Corporation, Cupertino, CA) allows a user to view an image, but they cannot replace an 8x10 framed photograph on a family member's desk. Alternatively, a digital camcorder user may prefer to have their movie files on a DVD or VHS tape. Or perhaps a physical copy of an executive's calendar needs to be shared with her associates. In these cases, it is necessary to process the digital data into a tangible form.

The processing of data from personal digital devices can be generalized as a service that is performed on the data. The production of digital image prints, the creation of a VHS tape, or the printing and delivery of a paper calendar can all be considered services that are performed on digital data that originates or is stored in personal digital devices. The delivery of digital data to the personal digital device, such as a newly purchased song to a personal music player, could also be

considered a service that relates to the digital data on a personal digital device.

Users of such devices have traditionally faced difficulty in requesting such services based on the data stored in their devices. To use the example of a digital camera, users may use one of several techniques to obtain a paper print of a digital photo. The most common technique is to print the photographs on a local color printer. To accomplish this, the user downloads the photos from the camera to a personal computer. Using software on the computer, the user then selects one or more photographs for printing, and sends them to a printer attached to the computer. Although the cost of color printers continues to decrease, users have been frustrated with this technique for creating prints of digital photographs for a number of reasons. First, the ink cartridges used by home color printers frequently run out of ink or dry out because of non-use. Purchasing and replacing the ink cartridges remains expensive and time consuming. In addition, the expense of buying the quality paper necessary for good photo prints means that there is little cost savings in printing photographs on home equipment.

To avoid the hassle of home printing, a user may email photographs from their personal computer to a photo printing service, such as Snapfish.com. While this is often easier than personally printing the image on a local printer, it is still less than an ideal solution since it requires the user to first download the image to a computer. This limits the locations from which the user may accomplish this task, and fails to

take advantage of the inherent portability of the camera as a personal digital device. Further, this process requires many steps and is cumbersome and time-consuming.

Alternatively, the media on which the digital camera stores images, such as on a compact flash memory card, can be transported to a photo lab for print processing. It may, however, be inconvenient for a user to travel to a photo lab. Furthermore, the user's preferred print lab may be remote from the user's location, such as when the user is traveling. In addition, flash memory cards and the like are small and may easily be lost or misplaced.

What is needed is a simple way to submit digital data directly from a portable digital device to a service provider for the performance of a service. Prior art techniques that accomplish this need suffer in that wireless transceivers are embedded directly in the digital device. This means that the device becomes bulky and more expensive, and that the transceiver quickly drains battery resources on the device. Furthermore, assuming the service payment mechanism is automatically accessed by a service request, the theft of such a digital device may allow a thief access to a user's payment mechanism.

Summary of the Invention

The present invention provides a simple, user-friendly way for the user of a digital device to request services relating to the digital data stored within the device. For instance, the present invention could be used in connection with a digital camera to have physical prints made

from the images stored in the camera, and to have the prints delivered to a designated address. Alternatively, an iPod Photo owner could use the present invention to route service requests for digital images such as archival services, book creation, on-line photo albums and the like. The same user could also request that digital data be wirelessly downloaded to their device, thereby allowing the purchase of a song or image through the portable device.

To accomplish these tasks, the user simply connects their digital device to a base or "transceiver module" and then indicates their desire to obtain a service from a service center such as by pushing a button on the device or the transceiver module, or by selecting a command on the user interface of the device or module.

The present invention uses a central server that preferably contains a database having a first table that stores unique device identifiers and a second table that stores unique transceiver module identifiers. Stored in association with the device identifiers are a name and one or more physical addresses that might be used for the delivery of services. In one embodiment, a list of available services is also stored in association with the device identifier. The transceiver module table tracks a username and password or other identification mechanism in association with the unique module identifier. The transceiver module table further includes billing information, such as a credit card number and expiration date, and a list of services available for that transceiver module. One or more device identifiers are associated with each transceiver identifier in the transceiver database.

To obtain a service, a user connects their digital device to a transceiver module and transmits a service request to a central server. This transmission may also include digital data created by or stored on the digital device. The transceiver module appends to this transmission the identifiers for the digital device and the transceiver module. The transceiver module may also include a network address with the transmission to allow the return of digital data to the personal digital device. Upon receiving the service request transmission, the central server checks its databases to determine whether the device identifier is associated with the transceiver module in the transceiver module table. If so, the service request and any associated digital data are transmitted to a service provider along with a delivery address and billing information. To the extent the service provider will provide digital data back to the portable digital device, the delivery address may represent a network address of the digital device/transceiver pair so as to directly communicate with the device. The service center then performs the requested service. For instance, a photographic printing service would generate the requested prints, ship them to the shipping address, and forward the billing information as directed. The user would then receive prints at their previously selected address and be charged for the prints according to payment information previously provided.

Brief Description of the Drawings

An exemplary version of a system and method for routing service requests from a personal digital device is shown in the figures

wherein like reference numerals refer to equivalent structure throughout.

Figure 1 is a schematic illustration of the present invention technique for routing service requests from portable digital devices to service centers.

Figure 2 is a schematic illustration of the technique of Figure 1 including further details on the central server of Figure 1.

Figure 3 is a schematic illustration of the components used in a first transceiver module embodiment.

Figure 4 is a schematic illustration of the components used in a second transceiver module embodiment.

Figure 5 is a schematic illustration of the components used in a third transceiver module embodiment.

Figure 6 is a schematic illustration of a base platform to be used with the strap-like transceiver module of Figure 5.

Figure 7 is a flow chart depicting a method of verifying that a request for services in authorized according to the present invention.

Detailed Description of Preferred Embodiment(s)

System Overview

Figure 1 schematically illustrates a system 1 for obtaining services from a digital device in a simple, user-friendly manner that provides for security to safeguard a user's payment information. The possible digital data services that could be provided through the

present invention include the delivery of physical photographic prints to a destination address or for pickup at a known location; the creation of a physical book from photographic images; the creation and delivery of physical copies of address books, calendars, memos, and letters; the making of archival copies of data, images, and the like made for later on-line download or physical delivery; the wireless delivery of digital data such as a song or image to the digital device; or the purchase and delivery of a physical product created from data stored on the digital device. For simplicity, the description below is sometimes presented in the context of a request for physical prints to be delivered to a destination address based on a digital image file, although the invention should not be considered so limited.

The system 1 supports one or more digital device families and yields services from one or more service centers. Three representative digital device families 5, 6, 7 and three representative service centers 10, 11, 12 are depicted in Figure 1. It will be understood that the system 1 may support any number of digital device families 5-7 and any number of service centers 10-12.

Coordinating the routing of the service requests from the digital device families 5, 6, 7 to the service centers 10, 11, 12 is a central server 20. The digital device families 5, 6, 7 communicate with the central server 20 via a network 25, such as the Internet. The central server 20 also communicates to service centers 10, 11, 12 via a network 30, such as the Internet.

Each digital device family 5, 6, 7 includes a base or transceiver module 50, 60, 70, respectively, and one or more associated digital devices 80, 81, 82, 83, 84, 85. More specifically, digital device family 5 includes three digital devices 80, 81, 82 that are affiliated, in a manner that will be described below, with transceiver module 50. Digital device family 6 includes one digital device 83 that is affiliated with transceiver module 60. Digital device family 7 includes two digital devices 84, 85 that are affiliated with transceiver module 70. A digital device family can contain any number of devices, and these depicted families 5, 6, 7 are merely examples. In addition, the digital devices 80-85 within a family may be the same type of device, such as a digital camera, or may be different types of devices. For example, the digital devices 80-82 in the first family 5 may include a digital camera 80, a cell phone 81, and a personal digital assistant 82. All of the devices 80-82 are capable of communicating with the central server 20 via the same transceiver module 50. This means that the components within the transceiver module 50, such as battery power and a wireless transceiver, need not be incorporated into each device 80-82 in a family, allowing the devices 80-82 to remain smaller, cheaper, and more battery efficient.

The digital devices 80-85 within a family 5-7 communicate with their associated transceiver module 50-70 via a communicator coupling 90, such as a physical coupling using either a standard communication protocol (such as USB or USB2) or a proprietary communication protocol. This communication coupling allows data and commands to be shared between the digital devices 80-85 and the transceiver

modules 50-70. The protocol used in the communication is not important to the present invention. All that is required is that the coupling includes an ability to share data and commands between the digital devices 80-85 and the transceiver modules 50-70.

Each digital device 80-85 is equipped to use and manipulate digital data in internal memory. For instance, a digital camera can take digital images and store the data on removable memory cards, while a digital music player might store music files on an internal hard drive. Other types of internal memory are also possible, such as flash memory or digital tape (used in camcorders). Each digital device 80-85 is assigned a unique identifier, such as a serial number, that is stored in built-in memory on the device.

Each transceiver module 50-70 similarly is assigned a unique identifier, such as a serial number, that is stored in built-in memory on the transceiver. The transceiver modules 50-70 are also equipped with hardware and software that allows the transfer of digital data files, commands, and other data to the central server 20 over the network 25. For example, to provide wireless transfer of data from the transceiver module 50, 60, 70 to the server 20, a transceiver module 50, 60, 70 may contain a wireless transceiver defined by one of the IEEE 802.11 standards, such as 802.11a, 802.11b, or 802.11g. This transceiver can then communicate to a local transceiver (not shown in Figure 1) that may be physically connected to the network 25.

System Details

The system 1 is further illustrated in Figure 2. Digital device 80 contains a device ID, and is in communication with the transceiver module 50. This communication could take a variety of forms, but preferably is made over a physical, wired connection 90. The transceiver module 50 contains a transceiver module ID and communicates a service request related to data on the digital device 80 to the central server 20. In the preferred embodiment, the transceiver module 50 contains a wireless transceiver 51 that communicates with local transceiver 40. The local transceiver does not need to be specially programmed for the present invention, although it may be possible to do so. The primary purpose of the local transceiver 40 is to accept wireless communications received from the transceiver module 50 and communicate them to the central server 20, such as through a wired Internet connection. In the preferred embodiment, the transceiver module 40 contains its own power supply such that the battery power in digital device 80 is not utilized to operate the wireless transceiver 51.

The central server 20 hosts a database 100. The database 100 includes a device table 105 and a base station or transceiver module table 110. There is one record in the device table 105 for each digital device 80 serviced by the central server 20, and one record in the transceiver module table 110 for each serviced transceiver module 50. Stored in each record in device table 105 is a device identifier, a name, and shipping information, such as a physical shipping address. In some instances, services available to that digital device 80 may also be stored in each record of the device table 105. The information to populate the

device table 105 will be provided by the digital device user or owner at the point of sale or later through other means, such as an online registration process.

Stored in each record of the transceiver module table 110 is a module identifier, a user name, a password, billing information (such as a credit card information and/or a billing address), and an identification of a preferred service center. In addition, the records in the transceiver module in table 110 are associated with one or more device identifiers. It is this association that groups one or more digital devices 80-85 together with a transceiver module 50-70 to form a digital device family 5, 6, 7. In some instances, services available to the transceiver module 50 may be stored in the transceiver module table 110. The information to populate the transceiver module table 110 is provided by the owner of the base transceiver module 50 at the point of sale or later via an online registration process.

The user name and password are used to prevent unauthorized modification of the information in the transceiver module table 110 and in the device table 105. By providing this information to the central server 20, a user is granted access to the record transceiver module records 110 as well as the records in the device table 105 relating to devices authorized to work with this transceiver module 50. Alternatively, the user name and password fields could be included in the device table 105 as well allowing direct access to this table 105 without first providing access to a related record in the transceiver module table 110. Adding a device ID to the list of authorized devices

in a record of the transceiver module table 110 requires at a minimum the user name and password found in that record of table 110. This prevents an unauthorized user of the transceiver module 50 from authorizing the use of the module 50 (and its associated billing information) with a new digital device 80. In addition, by associating a username and password with each digital device 80 in table 105, one can prevent any digital device 80 from being authorized with a new transceiver module 50 without knowledge of the device's password. Of course, the use of a user name and password are just one of the known methods of user identification that can be used to limit access to the database 100 in the central server 20. Other techniques could be used and achieve the same result.

Operation Scenario

In operation, a user will have digital data stored on a digital device 80. When the user desires a service to be performed on the digital data, the user couples their digital device 80 to an associated transceiver module 50 and presses the button or makes a menu selection to request the service. The transceiver module 50 connects to the central server 20 via the local transceiver 40 and transmits to the central server 20 the digital data to be processed (if any), the device identifier, the module identifier, and the service request. For example, in the case of a camera user requesting two 4x6 physical prints for each image transmitted, the digital camera would transmit the images and the request for physical prints to the central server 20. Alternatively, it

is possible that no explicit service request is included in the transmission, meaning the digital data will processed according to a default service request pre-established by either the digital device user or the service provider.

Upon receipt of this transmission, the central server 20 will query database 110 to find a record for the transaction module identifier and determine whether the transmitted device identifier matches an authorized device identifier for that transceiver module as indicated by the record in table 110. If a match is made, the service request is authorized and the server 20 sends the data files to the preferred service center 10 along with other details, such as the service request, and shipping and billing information. Again the service request could be explicitly defined in the transmission from the transceiver module 50, or could be based on defaults defined by the user in the database 110. Alternatively, no service request could be sent to the service center 10, allowing the service center 10 to handle the digital data according to its own default service procedures. Once the digital data is successfully sent to the service center 10, a confirmation of successful transmission can be sent back to the digital device 80 so that the user will know the service request has been successfully transmitted.

The service center 10 will then process the digital data, such as by making physical prints 125 of image data, based upon the service instructions. The service center 10 can then forward the resulting prints 125 to the shipping destination or address 130 and send a bill 145 to the billing destination or address 150. The user receives the prints 125 at the

shipping address 130 or can instruct the service center 10 to hold the prints for later pickup. The user will receive a bill 145 at the billing address 150 for the prints. It would also be possible to have the billing information in the transceiver module table 110 to include credit card information, thereby allowing the service center to directly charge the transaction to a credit card account.

A quick examination of the above usage scenario reveals that the device table 105 is not direct accessed to authorize a service request. Rather, the transmitted device ID is compared to the authorized devices associated with the transceiver module ID in the transceiver module table 110. Consequently, it would be clear to those of ordinary skill that the present invention could be implemented without a separate device table 105 in the database 100 of the central server 20. The use of the device table 105 does, however, generates several advantages. First, it allows user and delivery information for a device to be separated from the user and payment information related to the transceiver module. In this way, a parent could control the transceiver module 50 and payment information, while allowing children to directly order services relating to their own devices 80 and have physical objects ordered in service request delivered directly to the child.

The use of a separate device table 105 also allows devices 80 to be transferred or sold without the sale of the related transceiver module 50. The new owner of the device 80 would be fully able to alter the related entry in the device table 105 without granting access to the payment information in the transceiver module 110. Without access to

the original transceiver module 50, the new device owner could not charge services to the payment information relating to the transceiver module 50. In addition, for complete security, the selling party can alter the entry in the transceiver module table 110 to remove the sold device 80 from the list of authorized devices.

In addition, this separation allows the separate registration of each digital device 80 into the database of the central server 20 separate from the registration of the transceiver modules 50. In this way it is possible for one transceiver module 50 to be authorized with multiple devices 80-85, and to have one digital device 80 be authorized by multiple transceiver modules 50-70. This many to many relationship can be established without re-entering basic information about the devices 80 or transceiver modules 50.

Transceiver Module Embodiments

The transceiver module 50 may take a variety of forms, as shown in Figures 3-6. In Figure 3 the module 300 has an internal wireless transceiver 310 and internal battery supply 320 that allows the modules 300 to operate without being plugged into an AC power plug. The module 300 also has a wired connector 330 to connect it to the digital device 80. In this embodiment, the module 300 serves no other purpose than to connect to the digital device 80 and communicate signals it receives between the wired connection 330 and the wireless transceiver 310.

Figure 4 shows another embodiment of a transceiver module 400. Like the embodiment 300 shown in Figure 3, this transceiver module 400 has a wireless transceiver 410, an internal battery supply 420, and a wired connector 430. In addition, the embodiment 400 in Figure 4 is specially suited to function with a digital device 80 that contains a camera to acquire digital images. As such, this transceiver module 400 can be designed to serve as a stable base (like a tripod) for stabilizing the digital device 80 during image acquisition. The digital device 80 can be physically secured to the transceiver module 400 through an articulating joint 440. The joint 440 allows for the selective positioning and orientation of the device 80. A variety of articulating joints 440 are well known, including a ball and socket joint, and those of skill in the art will appreciate that any such joint may be incorporated into the extension module 400 according to the present invention. The module 400 is preferably of a size, weight and shape to provide adequate support to hold a digital device 80 mounted thereon in any orientation allowed by the articulating joint without tipping over. If necessary, the module 400 can also be equipped with three or more legs that stabilize the module 400 when used on an uneven or un-level surface. The physical connection between the joint 440 and the digital device 80 can be through a threaded connection, such as is traditionally used between a camera and a tripod. Other alternatives can easily be designed, including alternatives that combine the physical connection between the device 80 and the joint 440 along with the wired connection 430, thereby combining physical and electrical connectivity.

The embodiment 400 shown in Figure 4 can incorporate other features as well. For instance, one or more battery compartments 450 may be added to module 400. These compartments 450 can be sized and shaped to receive and store spare batteries for the mating digital device 80. These spare batteries are not functionally connected to either the transceiver 410 or the digital device 80, but rather can be removed from the transceiver module 400 and inserted into the digital device 80 as needed. The same type of compartments 450 can be used to store a memory or media card. In such an embodiment, the compartment 450 is sized and shaped to securely receive the appropriate card for the mating digital device 80. Compartments such as 450 may also be used to store a removable remote control for operating the digital device 80. Alternatively, remote control functions may be embedded in the module 400 and the module 450 itself functions as the remote control. In such an embodiment, the module 450 would include appropriate buttons, knobs and the like for controlling image-capture and playback functions.

In one embodiment, the transceiver module 400 can supply power directly to the digital device 80. In this case, the transceiver battery 420 has sufficient energy to power both the wireless transceiver 410 in the module 400 and the digital device 80. Alternatively, an additional battery within the transceiver module 400 powers the digital device 80. In either case, the transceiver module 400 functions as an external, auxiliary power supply for the digital device 80. The connection between the transceiver batter 420 and digital device 80 can

be through the wired connection 430 or through an additional cable running between the module 400 and the digital device 80. It is also possible to customize the physical connection that occurs between the joint 440 and the device 80 to provide physical connection, electrical signaling, and a battery power connection.

An additional method for providing power to the digital device 80 is for the transceiver module to provide a charging circuit 460. This charging circuit 460 is especially designed for the batteries used by a particular digital device 80. These batteries can be removed from the digital device 80 and connected to the charging circuit 460 for recharging by the transceiver module 400. Of course, it would be preferred for the charging circuit 460 to be integrated into the device battery compartment 450, allowing the batteries found within the compartment 450 to be automatically recharged. Alternatively, the device 80 may be designed to charge its batteries without removing the batteries from the device. In these circumstances, the charging circuit 460 would be associated with an electrical connection to the digital device 80 to allow the device batteries to be charged in place. Because of the power necessary to recharge the batteries of the digital device 80 at the charging connection 460, not to mention the power needed to recharge the transceiver batteries 420, the transceiver module preferably accesses an AC current power source via an electrical cord or plug 470. If a cord is used in addition to plug 470, it is preferable to allow the cord to retract into the body of the transceiver module 400,

such that the module 400 is relatively compact and streamlined when not in use for convenient transport.

The transceiver module 400 may also contain digital device storage memory 480 for the digital device 80. The storage memory 480 may be in the form of one or more removable flash memory or media cards or may be in the form of built-in memory. In a preferred embodiment, the memory 480 is accessible to the digital device 80 whenever the device 80 is connected to the transceiver module 400. To allow this to happen, the wired connection 430 between digital device 80 and module 400 must grant the digital device 80 access to the storage memory 480 within module 400. In effect, the digital data stored on the digital device 80 can be downloaded to the storage memory 480 for temporary or archival storage. For example, if the digital device 80 captures digital images, these images can be removed from the device 80 and temporarily stored on the storage memory 480 thereby freeing up the internal memory on the digital device 80. The downloading of data from the device 80 to the storage memory 480 can use routines commonly used to download data between such digital devices and personal computers. These routines often require complicated communications with the digital device 80, and therefore a processor 490 and associated programming can be used to control this interaction.

Figure 5 shows another embodiment for the transceiver module 500 in which the basic components of the module 500 are incorporated into a strap 510 that can be attached to the portable digital device 80. The main components of the transceiver 500 are the strap body 510, the

wireless transceiver 520 and associated antenna 522, and battery power 530. The antenna 522 is shown as a wire antenna running from a first end 540 of the strap 510 to a second end 542 of the strap 510. The length, shape, and composition of the antenna 522 would be determined according to known antenna theory and the characteristics of the wireless network to be used by the present invention.

Connectors 550, 552 are attached to each end 540, 542 of the strap, respectively. These connectors 550-552 are designed to form a physical connection with matching connectors 560-562 that are found on a portable digital device 80. When the two sets of connectors 550-552, 560-562 are connected, the strap 510 is held physically in place, thereby securing the strap 510 and the rest of the transceiver module to the portable device 80.

In the embodiment as shown in Figure 5, the connectors 550, 552, 560, 562 serve a dual purpose: creating a secure physical connection and providing an electrical connection between the strap 510 and the portable device 80. In this preferred embodiment, the wireless transceiver 520 and the battery 530 are connected to either or both of the strap connectors 550-552. Electrical conduits within at least one of the strap connectors 550-552 then make contact with electrical conduits within the corresponding device connector 560-562, thereby putting the device 80 in electrical communication with the wireless transceiver 520 and the battery 530 within strap 510. One example connector 550-562 that could be used to perform this dual physical/electrical function is the well-known BNC (bayonet) connector.

The battery 530 can be composed of one or more battery cells, and is preferably designed to both power the wireless transceiver 520 and to provide power to the portable digital device 80. It would be an easy matter to provide conversion circuitry within the strap 510 so as to change the voltage provided by the strap 510 to meet the needs of multiple digital devices 80.

It would be possible to include other elements of the transceiver module 400 shown in Figure 4 into the strap 510 of transceiver module 500. For instance, it would be a simple matter for the strap 510 to contain compartments 450 for battery, memory, or remote control storage or to contain digital device memory 480 such as that described above.

The embodiment shown in Figure 5 requires that the device 80 have connectors 560-562 built into the device to receive the strap connectors 550-552 and make connection to the wireless transceiver 520 and the battery 530. An alternative to requiring the device 80 to conform to the strap 510 is to use a base platform 600 such as that shown in Figure 6. The base platform 600 has a sheet component 610 that preferably provides a flat surface on which a digital device 80 can rest and be secured. Any known methods for attaching the device 80 to the sheet 610 can be used, such as straps, hook and loop tape, clips, etc. (not shown). The base platform 600 preferably has two tabs 620 extending from the sheet 610, with each tab 620 having a connector 630 (only one shown in Figure 6) for making a physical connection with the strap connectors 550-552. The base platform 600 further includes

electrical leads 640 for making an electrical connection with the device 80. In Figure 6, electrical lead 640 is shown with two connectors 642, 644, thereby providing a separate battery connector 642 and wireless transceiver connector 644. In the platform 600 shown in Figure 6, the lead 640 is connected to one of the platform connectors 630. When the strap connectors 50-52 are connected to the platform connectors 630, the lead 640 will be in communication with the wireless transceiver 520 and battery 530 within the strap 510. While figure 6 shows the lead 640 with two connection components 642, 644, it is well within the scope of the present invention to use a single component carrying both the data communication signal and battery power. It is also feasible that the platform would use two separate electrical leads 640, one for each connector 642, 644. These leads 640 could come from a single connector 630 or one lead 640 may come from each connector 630.

The sheet 610 can be a rigid sheet of a fixed size. In this case, the sheet would be sized to fit the known shape and size of a known digital device 80. Alternatively, it is known in the prior art to create sheets 610 of multiple parts that slide together, thereby allowing the sheet 610 to be of a variable size so as to fit multiple types and brands of portable digital devices 80. Especially where the sheet 610 is of a variable size, it is possible to use the sheet 610 and tabs 620 themselves to hold the electronic device 80 the platform 600 by adjusting the size of the sheet 610 so as to snugly hold the device 80 between tabs 620. Alternatively, separate adjustable tabs could be placed on the sheet 610 to hold the device.

The electrical lead 640 shown in Figure 6 could also be utilized to directly make a connection between the strap 510 and the digital device 80 shown in the embodiment of Figure 5. In this case, the strap connectors 550-552 would provide only a physical connection to the device 80, while using the electrical lead 640 to form the electrical connection. Once the connectors 550-552 no longer need to make an electrical connection as well as a physical connection, it is possible to simplify these connectors. For instance, the physical connectors could be simple hooks, snaps, carabiners, or clips that connect to mating connectors such as rings or bars.

A strap connected lead 640 could also extend directly from the strap 510. This would simplify either the connectors 550, 552 in the strap 510 of Figure 5, or the design of the platform 600 of Figure 6.

Process

The process used by the present invention is shown in the flow chart of Figure 7. At the point of sale to the consumer or through a later registration process, the transceiver module identifier is stored in the transceiver module table 110 of the database 100 (step 200). Similarly, at point of sale or through a later registration process, one or more device identifiers are stored (step 205) in the device table 105 and associated with a transceiver module 50 by being added to the authorized device fields of the appropriate record of the transceiver module table 110. When a user sends a service request, the server 20 receives the transmission from the transceiver module 50 (step 210). The

transmission includes the device identifier and the transceiver module identifier, along with the digital data to be processed (if any).

In step 215, the server compares the device identifier in the transmission to the device identifier(s) listed in the database 100 in association with the given transceiver module identifier. If the device identifier does not match any of the device identifiers association with the transceiver module identifier, the service request is not authorized and the request found in the transmission is refused (step 220).

If a match is made, the central server 20 then determines in step 225 whether the transmission includes a service request that is authorized in the database 100. This is accomplished by comparing the service request in the transmission to the available service requests in the appropriate records of the device table 105 or the transceiver module table 110. In one embodiment, both tables 105, 110 must indicate that the requested service is authorized. Alternatively, step 225 may be skipped, thereby authorizing all requested services. If step 225 indicates that the requested service is not authorized, the transmission is refused in step 220. Otherwise, the central server 20 will send the digital device data (if any) and the service request found in the transmission, along with the shipping and billing information from the database 100 to the selected service center 10 (step 230). The service center 10 can be selected through the database 100, or through information found in the transmission itself. Step 230 also involves sending a confirmation notice back to the digital device 80 to inform the user of the successful handling of the service request. Alternatively, this

confirmation notice could be triggered only after the service request is successfully received by the service center 10.

By requiring that the device identifier match a previously established association with a transceiver module identifier, the system 1 prevents services from being ordered where the user does not have a matching digital device 80 and transceiver module 50. This precludes unauthorized attempts to obtain services. Thus, a user must have both the digital device 80 and the proper transceiver module 50 to order services. If a digital device 80 is stolen without the transceiver module 50, the thief cannot obtain services simply by attaching the digital device 80 to another transceiver module 50, and thus the digital device owner will not be charged for unauthorized services. Similarly, if a transceiver module 50 is stolen, the thief cannot obtain services by attaching a different digital device 80 to the transceiver module 50.

The user name and password provide an additional layer of security since a thief cannot access sensitive account information, such as address or credit card information. With the user name and password, the legal, authorized user can access their account information to modify their billing or shipping information.

The system provides convenient ordering of services from anywhere, provided the user has both their digital device 80 and a paired transceiver module 50. Local transceivers 40 can be purchased for use within a user's home. Alternatively, the user can find a "hot spot" where a local transceiver 40 has been made available for public use, such as in a coffee shop, a hotel, or an airport. Regardless of the

location where the user accesses the system 1, the user can be assured that their preferred service center 10-12 will receive their service request, service their request in accordance with their instructions and digital data, deliver the results of the service request to the proper delivery address (if appropriate), and properly bill their account.

The operator of the central server 20 can receive income for its service in a variety of ways. For instance, the operator can sign up a plurality of service centers 10-12 to service clients of the central server 20, and receive a fixed fee or a percentage of all business sent to the service centers 10-12 through the central server 20. Alternatively, the operator can charge the fee to users of the system who send image data to the service centers 10-12.

Although an illustrative version of the device is shown, it should be clear that many modifications to the device might be made without departing from the scope of the invention. For instance, although the above description and figures depict the data in database 100 as a plurality of data tables 105, 110, any known technique for maintaining data in a database could be used, such as by defining one or more data objects. In addition, the authorization of certain digital devices 80 with a transceiver module 50 in database 100 could be accomplished using a variety of techniques, including relational databases, authorized device fields in a flat file database, and other well-known techniques. Consequently, the scope of the present invention should be defined only by the following claims.

I claim:

1. A method for obtaining services from a digital device, comprising the steps of:

a) associating a unique device identifier with the digital device;

b) associating a unique transceiver identifier with a transceiver module;

c) establishing an electronic connection between the digital device and the transceiver module;

d) receiving a service request relating to digital data stored on the digital device at one of the digital device or the transceiver module;

e) transmitting the service request, the transceiver identifier, and the device identifier from the transceiver module to a central server;

f) ensuring that the digital device is authorized to transmit service requests through the transceiver module; and

g) fulfilling the service request.

2. The method of claim 1, wherein the ensuring step is performed by consulting a database.

3. The method of claim 2, wherein the database contains a transceiver data construct associated with a plurality of transceiver modules from which information about a particular transceiver module can be obtained utilizing the transceiver identifier.

4. The method of claim 3, wherein the transceiver data construct is a database table.

5. The method of claim 3, wherein the transceiver data construct includes the ability to associate a plurality of device identifiers with each transceiver identifier.

6. The method of claim 5, wherein the transceiver data construct contains billing information.

7. The method of claim 6, wherein the database contains a digital device data construct associated with a plurality of digital devices.

8. The method of claim 7, wherein the digital device data construct contains delivery information.

9. The method of claim 8, wherein the step of fulfilling the service request includes transmitting digital device data stored on the digital device through the transceiver module and the central database to a service center, further wherein the service center creates a tangible object from the data.

10. The method of claim 9, wherein the service center is chosen from a plurality of possible service centers based upon information in the database.

11. The method of claim 9, wherein the service center is chosen from a plurality of possible service center based upon information transmitted from the transceiver module with the digital device data.

12. The method of claim 9, wherein the service center creates the tangible object based upon instructions submitted to the service center from the central server.

13. The method of claim 12, wherein the instructions are found within the service request transmitted to the central server from the transceiver module.

14. The method of claim 12, wherein the instructions are based upon a default service request found in the database.

15. The method of claim 1, further comprising recharging batteries found in the digital device using a recharging circuit found on the transceiver module.

16. A system for routing service requests relating to digital device data stored on a digital device comprising:

a) the digital device having a unique identifier stored electronically therein and memory for digital device data;

b) a transceiver module having a unique identifier stored electronically therein, said transceiver module being removably coupled to said digital device to receive the digital device data from the digital device;

c) a central server in data communication with the transceiver module for receiving the digital device data, the central server having a database storing the device identifier in association with the transceiver module identifier.

17. The system of claim 16, wherein the transceiver module has a wireless local area network transceiver.

18. The system of claim 17, wherein the wireless local area network transceiver is defined by one of the IEEEE 802.11 standards.

19. The system of claim 18, further comprising a local transceiver receiving wireless communications from the transceiver module and forwarding the communications to the central server.

20. The system of claim 16, wherein the remote routing server receives service requests from a plurality of digital devices and transceiver modules, and further wherein the database has a data construct for each of the plurality of digital devices and each of the plurality of transceiver modules.

21. The system of claim 20, wherein the data constructs for at least one of the plurality of transceiver modules associates a plurality of digital devices as authorized digital devices for the at least one transceiver module.

22. The system of claim 21, wherein the central server contains intelligence that rejects service requests received from digital device and the transceiver module if the digital device is not an authorized digital device for the transceiver module.

23. The system of claim 17, wherein the transceiver module further has battery power for powering the wireless interface.

24. The system of claim 23, wherein the coupling between the digital device and the transceiver module allows the digital device to access the transceiver module's battery power for the internal use of the digital device.

25. The system of claim 23, wherein the transceiver module further has a battery compartment for storing batteries used by the digital device.

26. The system of claim 25, wherein the transceiver module further has a charging circuit, such that the charging circuit is capable of charging batteries stored in the battery compartment.

27. The system of claim 23, wherein the transceiver module further has a charging circuit, wherein the coupling between the digital device and the transceiver module allows the charging circuit of the transceiver module to charge the batteries used by the digital device.

28. The system of claim 23, wherein the transceiver module further has additional digital memory for auxiliary storage of digital device data, wherein the coupling between the digital device and the transceiver module allows the digital device to transfer digital data to the additional digital memory when the transceiver module is coupled to the digital device.

28. The system of claim 23, wherein the transceiver module further has a strap, and the battery power and wireless transceiver are contained within the strap, and further wherein the strap is coupled to the digital device so as to function as a holding strap for the digital device.

Figure 1

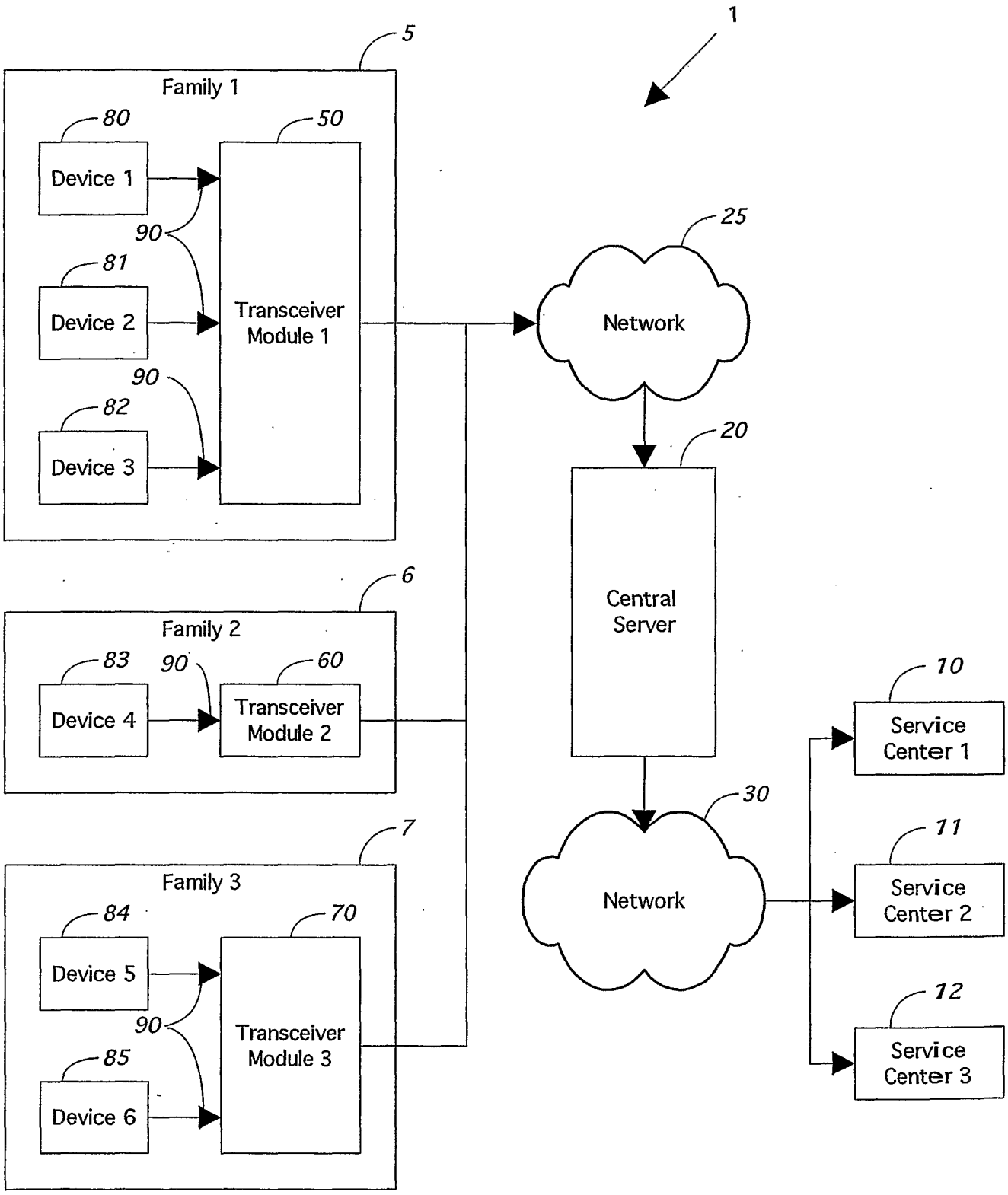

1
5
Family 1
80
Device 1
90
81
Device 2
90
82
Device 3
50
Transceiver Module 1
25
Network
20
Central Server
6
Family 2
83
Device 4
90
60
Transceiver Module 2
7
Family 3
84
Device 5
90
85
Device 6
70
Transceiver Module 3
30
Network
10
Service Center 1
11
Service Center 2
12
Service Center 3

Figure 2

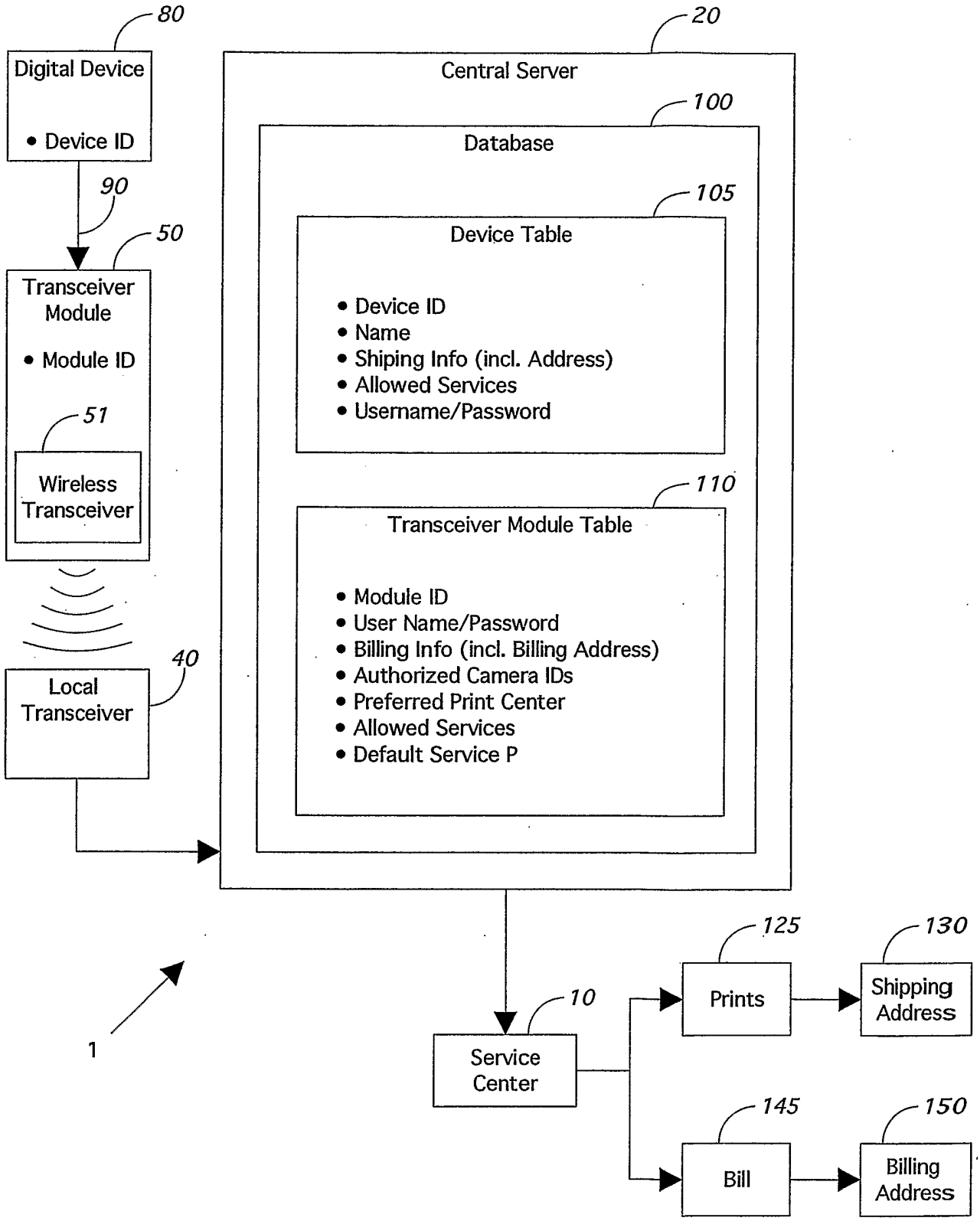

80
Digital Device
• Device ID
90
50
Transceiver Module
• Module ID
51
Wireless Transceiver
40
Local Transceiver
1
20
Central Server
100
Database
105
Device Table
• Device ID
• Name
• Shiping Info (incl. Address)
• Allowed Services
• Username/Password
110
Transceiver Module Table
• Module ID
• User Name/Password
• Billing Info (incl. Billing Address)
• Authorized Camera IDs
• Preferred Print Center
• Allowed Services
• Default Service P
10
Service Center
125
Prints
130
Shipping Address
145
Bill
150
Billing Address

Figure 3

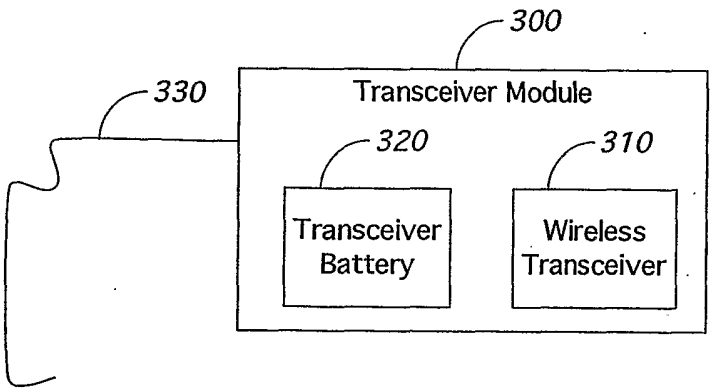


Figure 4

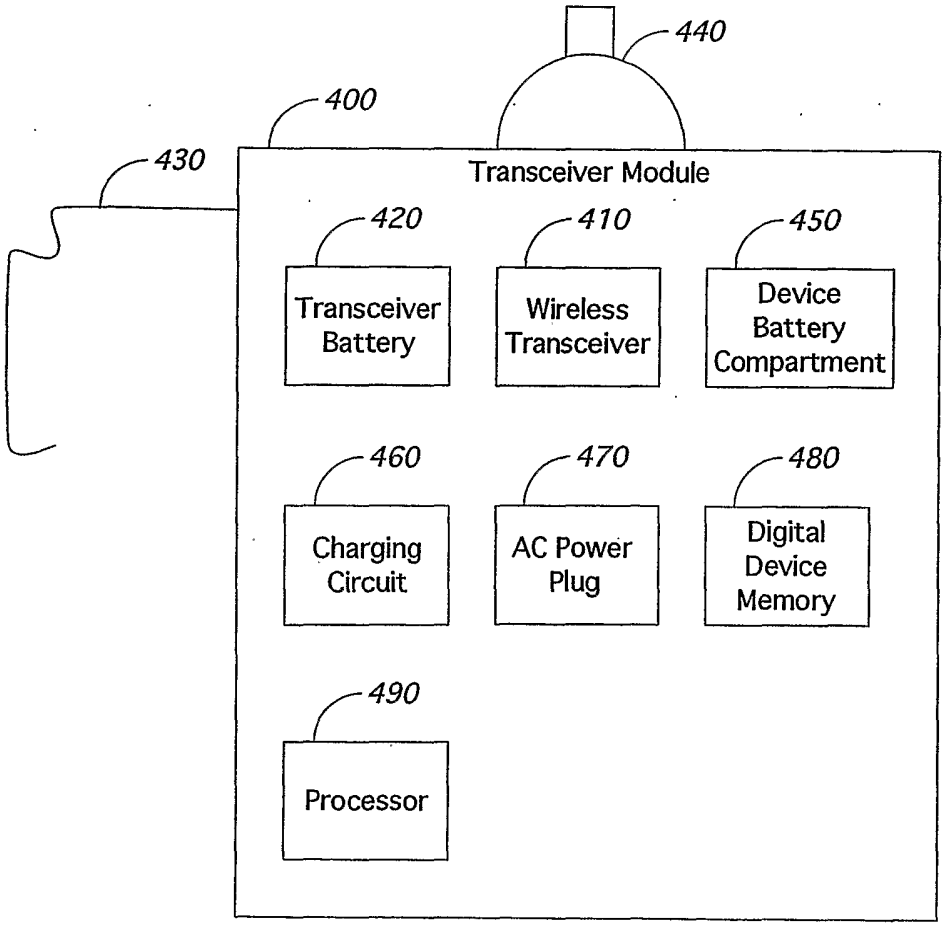


Figure 5

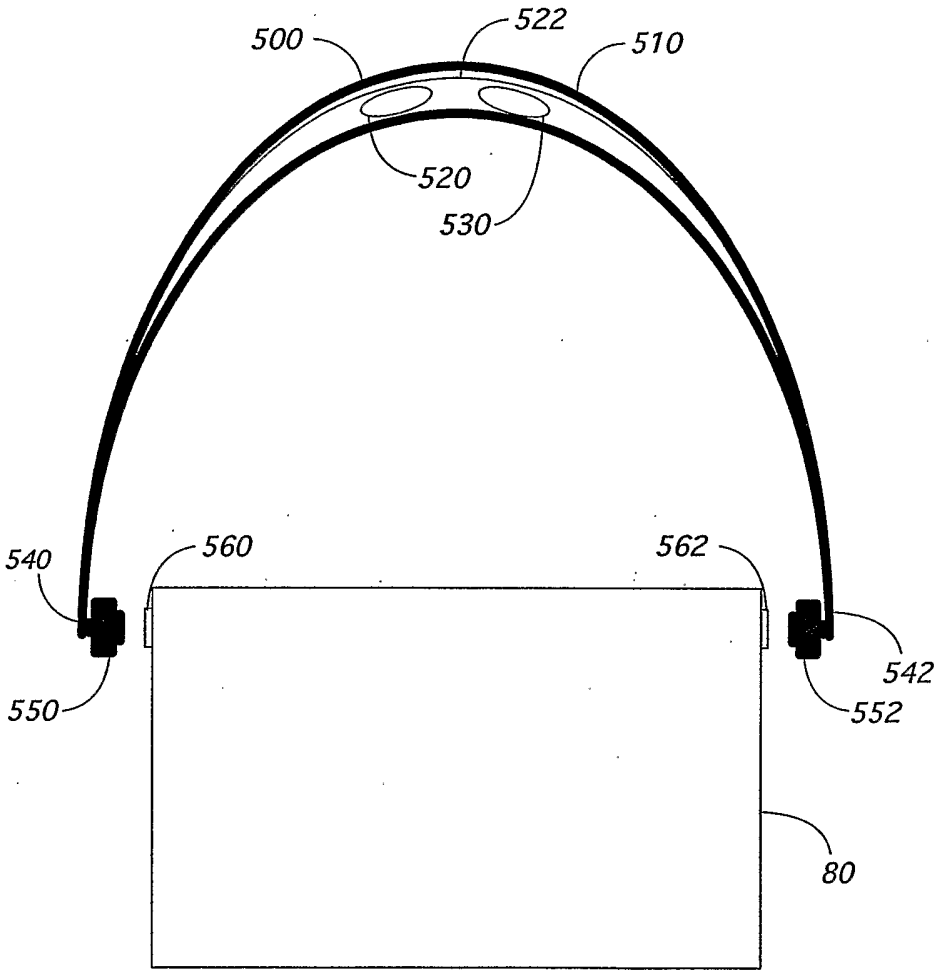


Figure 6

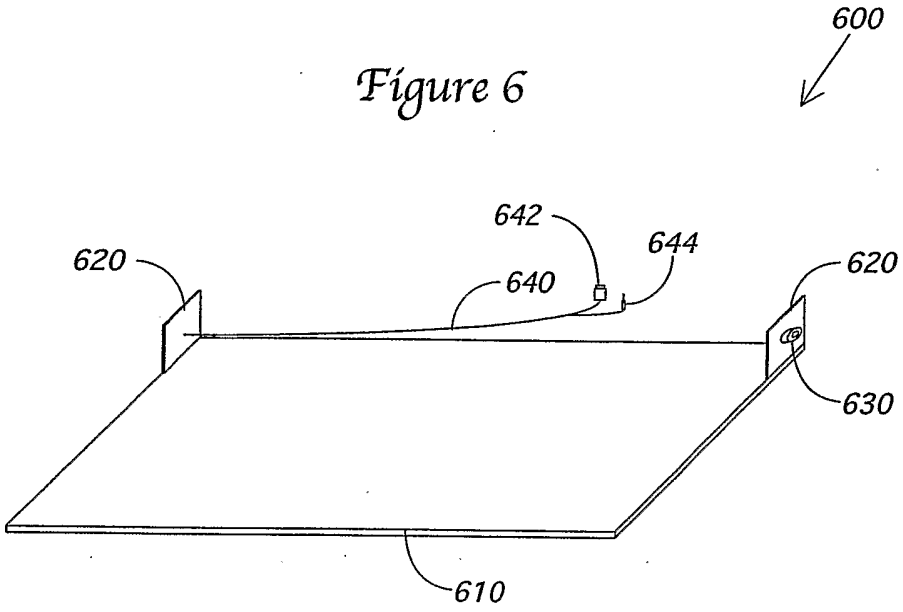
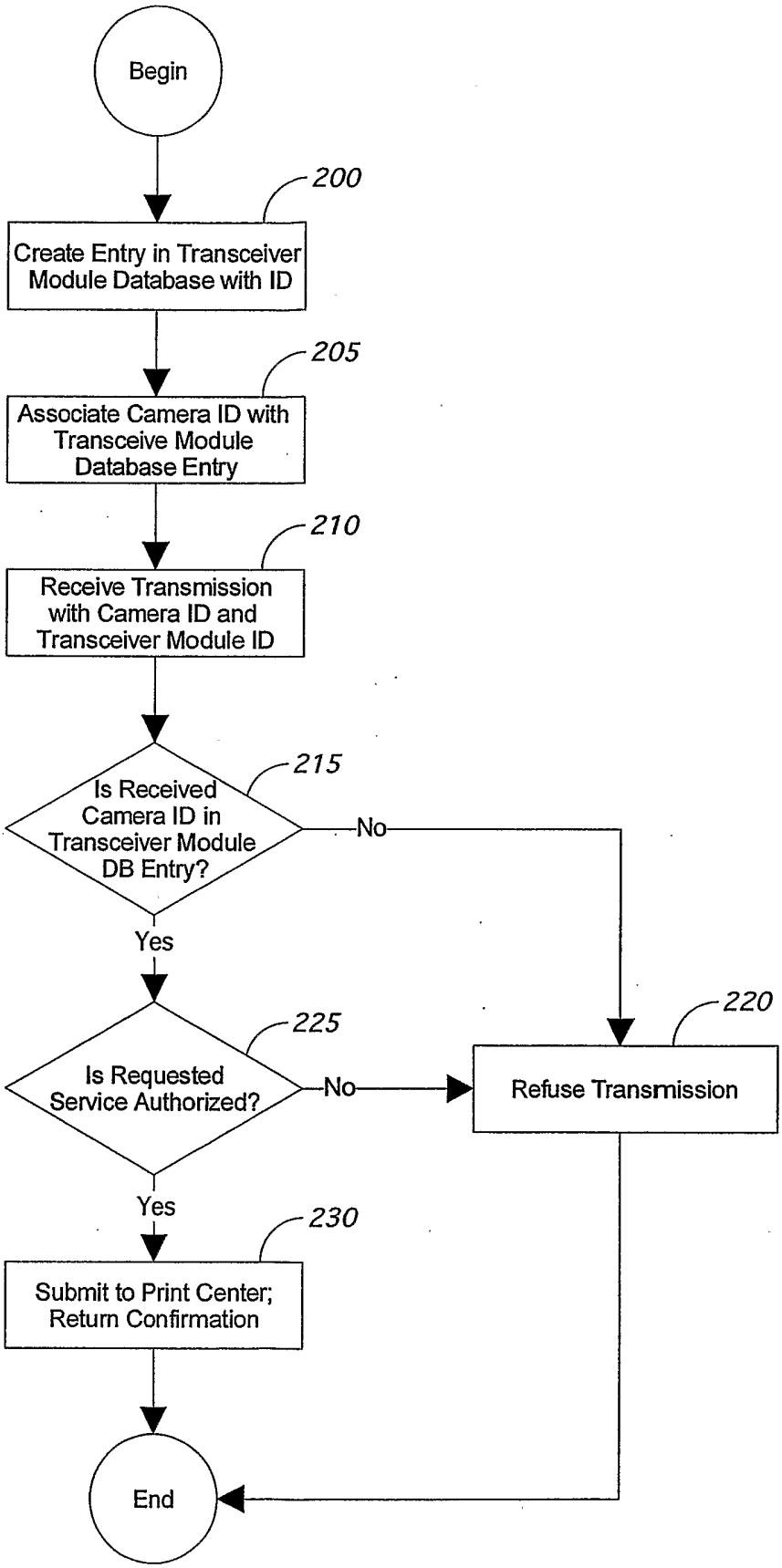


Figure 7


Begin
200
Create Entry in Transceiver Module Database with ID
205
Associate Camera ID with Transceive Module Database Entry
210
Receive Transmission with Camera ID and Transceiver Module ID
215
Is Received Camera ID in Transceiver Module DB Entry?
No
Yes
225
Is Requested Service Authorized?
No
220
Refuse Transmission
Yes
230
Submit to Print Center; Return Confirmation
End