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- (71) Applicant: OOMA, INC. [US/US]; Ooma, Inc., 1880 Embarcadero Road, Palo Alto, California 94303 (US).
- (72) Inventors: HART, Douglas, E.; Ooma, Inc., 1880 Embarcadero Road, Palo Alto, California 94303 (US). FAR-RAND, Tobin, E.; Ooma, Inc., 1880 Embarcadero Road, Palo Alto, California 94303 (US). BRYAN, David, A.; Ooma, Inc., 1880 Embarcadero Road, Palo Alto, California 94303 (US).
- (74) Agents: KLINE, Keith et al.; Carr & Ferrell LLP, 120 Constitution Drive, Menlo Park, California 94025 (US).

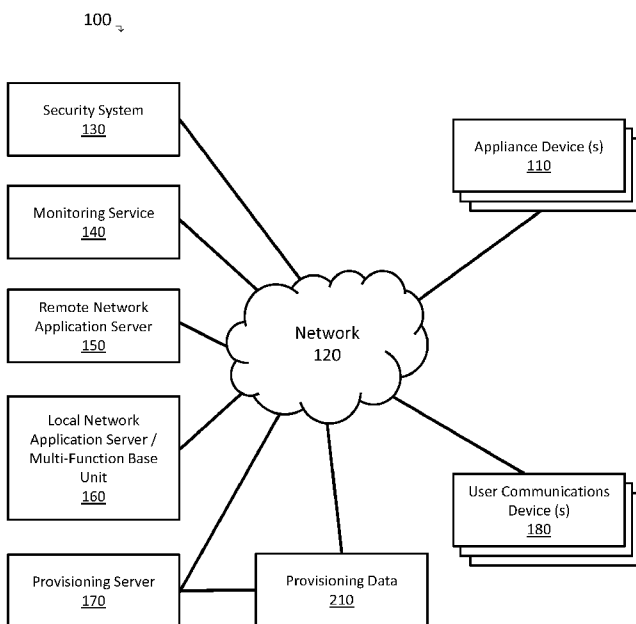
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(54) Title: APPLIANCE DEVICE INTEGRATION WITH ALARM SYSTEMS

FIG. 1



(57) Abstract: Systems, methods, and software for allowing interaction between consumer appliance devices and security systems are provided herein. An exemplary method may include allowing various interactions of a user with a consumer appliance device to generate a signal, such as a panic signal, causing various forms of security systems to escalate the signal to obtain help. Another exemplary method involves allowing the device, when placing the panic signal, to involve back end systems related to the security system to provision access to an emergency service provider (i.e., 911 provider) "just in time," eliminating the need for costly pre-provisioning. Another exemplary method involves various sensors of the security system to communicate with consumer appliance devices to improve the performance, usability, or efficiency of the consumer appliance device or related systems.

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APPLIANCE DEVICE INTEGRATION WITH ALARM SYSTEMS

Cross-Reference to Related Applications

[0001] This Application is related to U.S. Patent Application No. 14/283,132, filed May 20, 2014, the disclosure of which is hereby incorporated by reference in its entirety.

Background of the Invention

Field of the Invention

[0002] The present technology pertains to monitoring and control of appliances, and more specifically to monitoring and control of appliances using sensor data.

Description of Related Art

[0003] Consumer electronics, such as thermostats, smoke alarms, television remote controls, intercoms, and internet of things (IOT) devices are becoming prevalent in homes, but do not communicate with residential alarm systems. Commercial and residential alarm systems detect intrusions and hazardous conditions (e.g., fire) to prevent injury and property loss. Alarm systems generally include switches on doors and windows, motions detectors, and heat sensors, but their use and associated data are limited to the alarm system. Alarm systems optionally include panic buttons, which allow a user to initiate an alarm upon the touch of a button. However, the expense of installing panic buttons and their fixed locations have limited their adoption.

Brief Summary of the Invention

[0004] In at least one embodiment, the present technology is directed to a method for intelligent control of an appliance device. The method may include receiving information from at least one sensor using a computer network, the at least one sensor associated with an alarm system, the alarm system associated with a structure; and operating the appliance device using the received information.

[0005] In at least one embodiment, the present technology is directed to a method for notifying first responders of an emergency situation at a structure. The method may include receiving from an appliance device a user input using a computer network; and contacting a user associated with the appliance device, the contacting including at least one of a short message service (SMS) text message, push notification, email, audio message, video message, push notification or similar network signaling method, and telephone call, the telephone call using at least one of plain old telephone service (POTS), T1, and Voice-over-Internet Protocol (VoIP).

[0006] In at least one embodiment, the present technology is directed to a method for provisioning an appliance device. The method may include receiving a service address from a user associated with an appliance device; validating the received service address; storing the validated service address; receiving a panic signal from the user using the appliance device after the validated service address is stored; providing the validated service address to an emergency telephone number service provider for provisioning; and transmitting the validated service address to a public safety access point (PSAP) associated with the validated service address, the transmitting in response to the provisioning being successful.

[0007] In at least one embodiment, the present technology is directed to a method for provisioning an appliance device. The method may include receiving a service address from a user associated with an appliance device; validating the received service

address; storing the validated service address; receiving a panic signal from the user using the appliance device after the validated service address is stored; providing the validated service address to an emergency telephone number service provider for provisioning; and transmitting the validated service address to a national PSAP, the transmitting in response to the provisioning being unsuccessful.

Brief Description of the Drawings

[0008] The accompanying drawings, where like reference numerals refer to identical or functionally similar elements throughout the separate views, together with the detailed description below, are incorporated in and form part of the specification, and serve to further illustrate embodiments of concepts that include the claimed disclosure, and explain various principles and advantages of those embodiments. The methods and systems disclosed herein have been represented where appropriate by conventional symbols in the drawings, showing only those specific details that are pertinent to understanding the embodiments of the present disclosure so as not to obscure the disclosure with details that will be readily apparent to those of ordinary skill in the art having the benefit of the description herein.

[0009] FIG. 1 is a simplified block diagram of a system, according to some embodiments of the present invention.

[00010] FIG. 2 is a simplified block diagram of an environment of a structure, in accordance with various embodiments.

[00011] FIG. 3 is a simplified block diagram of a security system, according to several embodiments.

[00012] FIG. 4 is a simplified block diagram of processing paths for a panic button signal, in accordance with some embodiments.

[00013] FIG. 5 is a simplified flow diagram of processing a panic button signal, according to various embodiments.

[00014] FIG. 6 is a simplified flow diagram of contacting a user, in accordance with several embodiments.

[00015] FIG. 7 is another simplified flow diagram of contacting a user, according to some embodiments of the present invention.

[0016] FIG. 8 is a simplified block diagram for a computing system according to some embodiments..

Detailed Description

[0017] While this technology is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail several specific embodiments with the understanding that the present disclosure is to be considered as an exemplification of the principles of the technology and is not intended to limit the technology to the embodiments illustrated. The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the technology. As used herein, the singular forms "a", "an," and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises" and/or "comprising," when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof. It will be understood that like or analogous elements and/or components, referred to herein, may be identified throughout the drawings with like reference characters. It will be further understood that several of the figures are merely schematic representations of the present technology. As such, some of the components may have been distorted from their actual scale for pictorial clarity.

[0018] According to various embodiments of the present invention, (home or consumer) appliance devices—such as thermostats, TV remote controls, light switches, electrical outlets, home theater systems, smoke detectors, carbon monoxide detectors, pool safety alarms, intercom devices, and the like—connect to local area networks (LANs) in a commercial or residential structure (e.g., home) through wireless and/or wired connections. The LAN connection, for example, enables appliance devices to be monitored and/or controlled from a central location, improving their function, providing additional capabilities, allowing them to coordinate actions with other

appliances, and the like. Additionally, the LAN connection enables appliance devices to share information obtained by each device (e.g., through sensors or user input) with other devices. Such interconnection of appliance devices can make them easier to use for the end user. Integration of appliance devices with an alarm system, for example, offers opportunities to improve the performance and/or capabilities of the alarm system by incorporating appliance devices, and to improve the performance of appliance devices by access to capabilities of the alarm system.

[0019] In various embodiments, home security systems include a plurality of sensors that provide valuable information about the state of a structure (e.g., house). Sensors, for example, monitor if any doors or windows are opened or have been left open. Motion sensors, pressure sensors, vibration sensors, and/or sound sensors can detect the presence of individuals; magnetic sensors can detect the presence of vehicles at a residence; and smoke, water, and/or carbon monoxide detectors can monitor the environment for hazardous conditions. While the sensors conventionally provide information to the security system to determine if an intruder is present or another threat has arisen, the sensors in the present technology also provide valuable and useful information to home appliance devices, which can improve the appliance device's utility, usability, and/or performance.

[0020] Panic buttons may be a feature of home security systems. Panic buttons enable a user to initiate an alarm at the touch of a button, for example, requesting police, fire, or ambulance service, or indicating that an end user requires assistance in some other way. However, the expense of the panic button and its installation are impediments to its wide adoption, and the placement of the panic button in the home can be unsightly, inconvenient, or in a location that is not accessible when needed. Some embodiments provide an affordable method to embed the desirable function of the panic button into other appliance devices in the home (in addition to the devices' associated control applications), and increases the usefulness of both the appliance

device and the security system. In addition, the utility of the panic button can be increased by using network connectivity and/or additional capabilities of the appliance device.

[0021] FIG. 1 illustrates system 100 (e.g., in a commercial or residential structure) for communication, data exchange, and use of the information that has been exchanged among at least appliance devices and security systems. The system of FIG. 1 includes an electronic device (appliance device) 110, by way of example and not limitation, a thermostat, remote control, intercom, light switch, door bell, telephone handset, video game system, garage door control system, environmental sensor incorporates some mechanism allowing a user to interact with that device to indicate a panic situation, and the like. The interaction mechanism may be associated with one or more appliance devices and may be in different forms. The interaction mechanism, for example, may be at least one of a dedicated button, "soft" or programmable button on a display, accelerometer (e.g., detecting shaking and/or striking), touch sensor, audio sensor (e.g., recognizing speech or a loud scream), switch conventionally provisioned for a different purpose (e.g., light switch), and the like that when operated in a particular way (e.g. clicking 3 times rapidly than holding down) initiates the interaction or some other response/action.

[0022] Appliance device 110 in the structure communicates wirelessly and/or through a wired connection with interconnect and/or network 120. Interconnect and/or network 120 may be one or more of a public computer network (e.g., the Internet), local computer network (e.g., LAN), a wireless computer network (e.g., WiFi), a wired computer network, and the like; other network technology (e.g. Bluetooth, ZigBee, ZWave, DECT, and the like); plain old telephone service, T1, and/or Voice over IP (VoIP) phone network; a cellular network; a proprietary network connection; and the like. Interconnect and/or network 120 may include multiple devices, translators, aggregators or concentrators that allow information on one type of network to reach

devices on a different type of network. Appliance device 110 (e.g., thermostats and smoke detectors) may include wireless and/or wired network capability in addition to buttons and/or control panels. Various states of appliance device 110 may be communicated over the network to other networked devices or networked application servers. In addition, the network capability of appliance device 110 may be used to send panic signals.

[0023] In various embodiments, one or more appliance devices 110 are equipped to generate a panic signal and transmit it over network/interconnect 120. After appropriate translation between different network protocols as needed, the panic signal is received by one or more of security system 130, network-connected monitoring service 140, network application server 150, and local network application server multi-function base unit 160.

[0024] When an emergency condition (e.g., presence of an intruder, fire, medical emergency, and the like) is perceived, the end user may activate the panic feature/mechanism associated with appliance device 110 (e.g., by pressing a button, striking appliance device 110 sufficiently to cause the embedded accelerometer to trigger, etc.). When the panic feature is activated, a panic signal is provided over the device's network connection using interconnect and/or network 120, and the panic signal notifies one or more of security system 130, network-connected monitoring service 140, network application server 150, and local network application server multi-function base unit 160.

[0025] User communication device(s) 180 include at least one of a personal computer (PC), hand held computing system, telephone, mobile computing system, workstation, tablet, phablet, wearable, mobile phone, server, minicomputer, mainframe computer, or any other computing system. User communication device(s) 180 is described further in relation to computing system 800 in FIG. 8.

[0026] In some embodiments user communication device(s) 180 may include a web browser (or other software application) to communicate, for example, with a 911 service provider. For example, computing device 110 is a PC running a web browser inside (or outside) a commercial or residential structure. Additionally or alternatively, computing device 110 is a smart phone running a client (or other software application).

[0027] In various embodiments user communication device(s) 180 is used for telecommunications. For example, a user from his web or smartphone client upon could initiate a panic signal (and any emergency call signals that may result) as if it were originating from the structure, rather than from the user's smartphone client. Normally a 911 call from a cell phone is directed to a PSAP associated with the geographical location of the cell phone. According to some embodiments, a PSAP is a call center responsible for answering calls to an emergency telephone number for emergency services, such as police, fire, and ambulance services. For example, telephone operators may dispatch such emergency services. The present technology is capable of caller location for landline calls and mobile phone locations. For a user at a remote location who is notified of an emergency situation at the structure, dialing 911 from his cell phone could normally result in significant delay as he explains the situation to the PSAP serving the physical location of his smartphone (rather than that of the house that has been invaded), then waits for his call to be transferred to a PSAP in the area of his home and then takes the time to communicate the location of the house that is being invaded (which may even be in another state), and convinces the authorities to go to the structure.

[0028] In some embodiments, user communication device(s) 180 receives push notifications using a client (or other software application) running on user communication device(s) 180. For example, the push access protocol (PAP) (e.g., WAP-164 of the Wireless Application Protocol (WAP) suite from the Open Mobile Alliance) may be used.

[0029] System 100 of FIG. 1 further includes provisioning data 210. In some embodiments, at least one of security system 130, monitoring service 140, remote network application server 150, and local application server/multi-function base unit 160 may access provisioning data 210, for example by accessing (e.g., reading or writing to) it directly, by communicating with provisioning server 170, and the like. Provisioning data 210 stores information related to the end user/owner of appliance device 110.

[0030] Data stored by provisioning data 210 provided by security system 130, monitoring service 140, remote network application server 150, local application server/multi-function base unit 160, and/or provisioning server 170 may include at least one of usage information, user preferences information, and a service address of the structure (e.g., in which the appliance device is disposed). An operator of a processing entity (e.g., alarm service which remotely monitors the alarm system) may validate the service address and/or ensure the accuracy of the address information provided by the end user/owner of the appliance device. Incorrect or inaccurate information may result in sending first responders to the wrong location in the event of an emergency.

[0031] FIG 2 illustrates system 200 includes at least one sensor associated with security system 130, by way of example and not limitation, motion sensor 201, pressure sensitive pad 202, vibration sensor 203, door or window close/open switch 204, and magnetic sensor (e.g., may determine if a car is in the driveway or parking space) 205. Sensors 201-205 may communicate with home security system 130 using interconnect and/or network 120. Interconnect and/or network 120 may be wired and/or wireless, use at least one communications protocol, and use adaptors to interface different devices, media, and protocols. One or more of appliance devices 110 are communicatively coupled to interconnect and/or network 120. Appliance devices 110 may include (but are not limited to) thermostat 211, phone handset/base 212, intercom/intercom controller 213, door bell/monitor/announce system 214, home

entertainment device/device controller 215, intelligent light switch 216, power controller 217, and an irrigation control system 218.

[0032] For example, security system 130 and sensors 201-205 communicate with one or more appliance devices 211-218 (110 in FIG. 1) using interconnect and/or network 120. In addition or alternatively, appliance devices 211-218 may query security system 130 and/or sensors 201-205. Information provided by security system 130 and/or sensors 201-205 may be used by appliance devices 211-218 to improve their performance, utility, and usability.

[0033] For example, thermostat 211 uses information provided by door or window close/open switch(s) 204 to determine when a window in the structure has been left open. To save energy, thermostat 211 may disable a climate control system associated with the structure while the windows are open.

[0034] For example, thermostat 211 uses the information provided by at least one of motion, pressure, and vibration sensors 201-203, and alarm system 130 (e.g., state information such as home, away, and the like) to determine occupancy and a state of the occupants (e.g., awake, sleeping, and the like). Using such information, thermostat 211 may adjust temperatures, enable or disable the climate control system, and the like. In some embodiments, thermostat 211 includes a (built-in) motion sensor (or similar sensor), and the state of the security system may be used in conjunction with information provided by the (built-in) motion sensor.

[0035] For example, at least one of phone handset/base 212, intercom/intercom controllers 213, door bell/monitor/announce system 214, and home entertainment device/controller 215 uses information provided by motion, pressure, or vibration sensors 201-203, and the state of the alarm system 130 (e.g., home, away, and the like) to determine occupancy and the state of the occupants (e.g., awake, sleeping, and the like). Using such information, at least one of phone handset/base 212, intercom/intercom controllers 213, door bell/monitor/announce system 214, and home entertainment

device/controller 215 may be powered down when unused, be muted or silenced to ensure they do not disturb (sleeping) occupants, and the like. Additionally, more sophisticated actions are possible, for example, screening calls or doorbell presses selectively, allowing only very important (e.g., urgent) calls or doorbell presses.

[0036] For example, intelligent light switches 216 and power control modules 217 use information provided by at least one of motion, pressure, or vibration sensors 201-203, and the state of the alarm system 130 (e.g., at home, away, and the like) to determine occupancy and the state of the occupants (e.g., awake, sleeping, and the like). Using such information, intelligent light switches 216 and power control modules 217 may turn off power to unused devices, turn lights off, etc. In various embodiments, intelligent light switches 216 and power control modules 217 include a (built-in) motion sensor (or similar device), and the state of the security system may be used in conjunction with information provided by the (built-in) motion sensor.

[0037] For example, irrigation control system 218 uses information provided by magnetic sensor 205 to determine when a car has been left out overnight, and based on the determination suppress activation of an irrigation zone that would cause the car to become wet.

[0038] For example, irrigation control system 218 uses information provided by door or window close/open switch 204 to determine that a window near a sprinkler zone or garage door is open, and prevent that irrigation zone from running and spraying water into the structure .

[0039] As would be readily appreciated by one of ordinary skill in the art, different combinations and permutations of appliance devices 211-218 may use information provided by different combinations and permutations of sensors 201-205 to control operation of respective appliance devices 211-218. Moreover as would be readily appreciated by one of ordinary skill in the art, different appliance devices 110 (FIG. 1) and sensors associated with security system 130 (FIG. 1) may be used.

[0040] FIG. 3 illustrates processing paths for a panic button signal generated by appliance device 110 including security system 130, monitoring service 140, remote network application server 150, and local application server/multi-function base unit 160, according to some embodiments.

[0041] For example, remote network application server 150 receives the panic signal (or alert) 301 generated by appliance device 110. Remote network application server 150 may access provisioning information 210 (e.g., directly and/or using provisioning server 170, shown in FIG. 1). When the panic signal is received, remote application server 170 (serving as a processing entity) processes the panic signal at 350 as shown by path 302.

[0042] For example, remote network application server 150 receives the panic signal 301 and (instead of processing it directly) panic signal 303 is provided to monitoring service 140. Monitoring service 140 may access provisioning information 210 (e.g., directly and/or using provisioning server 170, shown in FIG. 1). When the panic signal 303 is received, the remote monitoring service (serving as the processing entity) processes the panic signal at 350 as shown by path 302.

[0043] For example, local network application server/multi-function base unit 160 receives panic signal 305 generated by appliance device 110. Local network application server/multi-function base unit 160 may access provisioning information 210 (e.g., directly and/or using provisioning server 170, shown in FIG. 1). When the panic signal 305 is received, local network application server/multi-function base unit 160 (serving as the processing entity) processes the panic signal at 350, as shown by path 306, and as described below. In various embodiments, local network application server/multi-function base unit 160 may provide other services in addition to monitoring for panic signals, for example, home automation services, home entertainment services, telephony services, and the like.

[0044] For example, local network application server/multi-function base unit 160 receives panic signal 305, and (instead of processing it directly) panic signal 307 is provided to monitoring service 140. Monitoring service 140 may access provisioning information 210 (e.g., directly and/or using provisioning server 170, shown in FIG. 1). When the panic signal 305 is received, remote monitoring service 140 (serving as the processing entity) processes the panic signal at 350, as shown by path 308.

[0045] For example, security system 130 receives panic signal 309 provided by appliance device 110. Security system 130 may access provisioning information 210 (e.g., directly and/or using provisioning server 170, shown in FIG. 1). When panic signal 309 is received, security system 103 (serving as the processing entity) processes the panic signal at 350, as shown by path 310.

[0046] For example, security system 130 receives panic signal 309, and (instead of processing it directly) panic signal 311 is provided to monitoring service 140. Monitoring service 140 may access provisioning information 210 (e.g., directly and/or using provisioning server 170, shown in FIG. 1). When panic signal 311 is received, remote monitoring service 140 (serving as the processing entity) processes the panic signal at 350, as shown by path 312.

[0047] For example, security system 130 receives panic signal 309, and (instead of processing it directly) panic signal 313 is provided to remote network application server 150. Remote network application server 150 may (serving as the processing entity) processes the panic signal at 350 directly as shown by path 302 and/or may provide panic signal 303 to monitoring service 140 for processing (e.g., monitoring service serves as the processing entity) at 350, as shown by path 304. Remote application server 150 and/or monitoring service 140 may access provisioning information 210 (e.g., directly and/or using provisioning server 170, shown in FIG. 1).

[0048] For example, security system 130 receives the panic signal 309, and (instead of processing it directly) panic signal 314 is provided to local network

application server/multi-function base unit 160. Local network application server/multi-function base unit 160 (serving as the processing entity) may process the panic signal at 350 directly, as shown by path 306, and/or provide panic signal 307 to monitoring service 140 for processing (e.g., monitoring service serves as the processing entity) at 350, as shown by path 308. Remote application server 150 or monitoring service 140 may access provisioning information 210 (e.g., directly and/or using provisioning server 170, shown in FIG. 1).

[0049] For example, security system 130 receives panic signal 309 from appliance device 110, and panic signal 313 is provided to remote network application server 150 and/or panic signal 314 is provided to local network application server/multi-function base unit 160. Remote application server 150 and/or local application server 160 may include provisioning information and/or receive information, relating to the end user/owner of appliance device 110 issuing the panic signal, from provisioning server 170 (not shown in FIG. 3). When panic signal 313 and/or 314 is received, remote application server 150 and/or local application server 160 (respectively, serving as the processing entity) go on to process the panic signal at 350.

[0050] FIG. 4 illustrates processing paths for a panic button signal 401 received by processing entity 410. Processing entity 410 may be one or more of security system 130, monitoring service 140, remote network application server 150, and local network application server/multi-function base unit 160 (shown in FIG. 3), or be another entity receiving signal 401 from one of security system 130, monitoring service 140, remote network application server 150, and local network application server/multi-function base unit 160. In response to receiving panic signal 401 using network 120 (and optionally at least one of security system 130, remote network application server 150, and local application server/multi-function base unit 160, shown in FIG. 1), processing entity 410 may instruct 402 a 911 (or other emergency telephone number) server 420 to initiate a call. Call 403 is placed to the Public Safety Answering Point (PSAP) 430

associated with the physical address where appliance device 110 is located. Optionally, one or more intermediary 911 service providers 432 are used to facilitate the connection to the local PSAP 431. Call 403 may be completed using at least one of plain old telephone service, T1, VoIP protocols such as session initiation protocol (SIP), cellular signaling, and the like.

[0051] For example, when call 403 is terminated to local PSAP 431, call 403 is connected to announcement server 440, and announcement server 440 notifies 404 a PSAP operator associated with PSAP 430 that (automated) call 403 was initiated by a person at the provisioned service address.

[0052] For example, when call 403 is terminated to local PSAP 430, call 403 is connected 405 (directly) to provisioned user 450 through 406 a communication device or devices 180 using a call initiated by the processing entity to the user's preferred phone number; or using some other interactive communications mechanism (SMS, IM, video, smartphone application, or other communications mechanism) supported by communication device(s) 180 of 406 user 450.

[0053] For example, when call 403 is terminated to local PSAP 430, call 403 is connected 404 to announcement server 440 and additional calls 405 are placed sequentially or concurrently to a plurality of alternate telephone numbers associated with communication device(s) 180 of 406 user 450; or using some other interactive communications mechanism 406 (e.g., SMS, IM, video, smartphone application, or other communications mechanism) supported by communication device(s) 180 of user 450. The PSAP operator can talk to a live human to handle the emergent situation if the user is available, but still receives the notification via the server immediately even if the user does not answer.

[0054] For example, when call 403 is terminated to local PSAP 430, call 403 is connected 408 directly to provisioned user 450 using 409 consumer appliance device 110

in the structure with capability for voice, video, and/or instant messaging (IM) communication.

[0055] For example, when call 403 is terminated to local PSAP 430, call 403 is connected 404 to announcement server 440 while the system places additional calls 408 to telephone numbers associated with appliance device 110 of 409 user 450 in the structure with capability for voice, video, IM, or other form of communication. The PSAP operator can talk to a live human to handle the emergent situation if the user is available, but still receives the notification via the server immediately or if the user does not answer.

[0056] FIG 5 depicts a simplified flow diagram for processing entity 410 processing a panic signal. An incoming panic signal is received (e.g., by processing entity 410) at step 510. At step 520, a call to the PSAP 430 is initiated, connecting an operator at PSAP 430 to announcement server 440, and in response to being connected an emergency announcement with the provisioned location information is provided. Concurrently at step 530 user 450 is contacted using one or more user communications devices 180. At step 540, whether the user has been reached through an interactive mechanism (e.g., voice, video, SMS, other interactive communications software, etc.) is determined. When the user is not reached within a predetermined period of time, the announcement continues to play for the PSAP operator at step 550. When the user is reached, the user is connected to the PSAP operator at step 560.

[0057] For example, processing entity 410, in response to receiving panic signal 401 through network 120 (and optionally at least one of security system 130, remote network application server 150, and local application server/multi-function base unit 160, shown in FIG. 1) sends a notification 407 to user 450 through 406 user communication device 180 (e.g., via a smartphone app, push notification, SMS message, phone call, email, or other mechanism). In this way, the user has an opportunity (e.g., with a time limit or password to ensure the user is not under duress) to prevent the 911

call from being placed in the case of a false alarm. When the user is unreachable or confirms the panic signal relates to a legitimate security event, the 911 call is placed to PSAP 430 as described above in relation to steps 403 and 404 of FIG. 4.

[0058] FIG. 6 shows a simplified flow diagram for processing entity 410 processing a panic signal. An incoming panic signal is received (e.g., by the processing entity) at step 610. At step 620 user 450 (not shown) is contacted using one or more of user communications devices 180 and appliance device 110 with voice, video, IM, or other communication capabilities. At step 630, the system waits a predetermined time to see if the user has been reached. If not, at step 640 a call is initiated to PSAP 430, connecting PSAP 430 to an announcement server 440 and playing the emergency announcement with the provisioned location information. In response to the user being reached, a mechanism is used to determine if the panic event is legitimate and if the user is under duress, at step 650. If the panic signal relates to a legitimate security event and the user is under duress, the processing entity initiates a call to PSAP 430 and the user is connected directly to PSAP 430, at step 660. In response to the user indicating the panic signal was a false alarm at step 650, the emergency process is canceled at step 670.

[0059] Providers of network-connected devices may also provide a remote software control mechanism, for example, smartphone application, web access, telephone touch-tone control, and the like. Such remote software control mechanisms may be useful for monitoring and controlling the appliance device 110 remotely (e.g., from the office, while on vacation, and the like). In various embodiments, the additional panic-button functionality of the consumer appliance device is also available through the remote software control mechanism. For example, the emergency infrastructure described above is used to allow such remote software control mechanisms to initiate emergency calls that appear as if they came from the service address of the monitored device (provisioned location), rather than the physical

location of the smartphone running the application. The user 450 may be connected to and communicating with emergency services (e.g., PSAP) from a remote location using one or more user communications device (s), but it will appear to the emergency services personnel that the communication is originating from the structure.

[0060] For example, the remote software control mechanism may have the capability of issuing panic signals from the location of a smartphone (not illustrated in FIG. 6; e.g., located using at least one of GPS coordinates, WiFi location, cellular triangulation, and the like), and/or from the location of appliance device 110 being controlled (provisioned location). In this way, panic capabilities may be used to indicate a problem at the site of the consumer appliance device and/or at user's location.

[0061] A service connecting a caller to a PSAP with proper address information may be provided for a fee on a monthly basis. Such an expense can be several cents per month. Further, some municipalities charge a dollar or more per month in taxes/service fees for each customer of a telephone service capable of dialing 911. Given the potentially long operating life of appliance device 110 (e.g., a thermostat, remote control, and similar appliance in the home), the relatively low likelihood of an emergency event in any particular month, and the fact that appliance device 110 does not provide a regular phone service, this prohibitive expense should be avoided. In some embodiments, provisioning of the address for the triggering device is not done until an actual emergency event is established. Since provisioning may be performed electronically, such that there is no perceptible delay in the handling of a 911 call and costs associated with providing a phone number and ongoing 911 service, and associated government taxes/fees are avoided until the service is needed.

[0062] FIG. 7 illustrates a simplified block diagram for a system 700 for provisioning a user and his or her location on an as-needed basis with a 911 service provider.

[0063] Provisioning of addresses with a 911 service provider 432 (FIG. 4) may be provided using an application programming interface (API) used by the network operator's (e.g., organization producing appliance device 110) operations support system (OSS) 710 to communicate with the 911 service provider. When an end user 450 initially activates their consumer appliance device, they provide their service address as part of the activation process at step 701. OSS 710 may perform a variety of checks of the service address to ensure that it is valid and then stores it in address database 720, for future provisioning at step 702.

[0064] A panic signal may be triggered in response to user 450 pressing a button, shaking, striking, etc. the consumer appliance device 110, selecting an option via remote software control mechanism accessed by a user communication device 180, and the like, at path 703. When the end user generates their first panic signal, the panic signal is sent to the appliance device's OSS 710, at step 704. When this initial panic signal leading to their first call to 911 is received, an emergency call signal is sent to the 911 server which determines if the user's device has already been provisioned with 911 services at step 705. When the user is not provisioned, OSS server 710 retrieves a previously validated address from the database 720 at step 706 and submits the previously validated address to the 911 service provider's API at step 707.

[0065] In response to provisioning being confirmed, a 911 server portion of OSS 710 may send a control emergency call signal 708 to the 911 service provider asking it to initiate a 911 call. The 911 service provider, having the provisioned address of the device initiating the call, presents the provisional address 709 to the appropriate PSAP 431, and connects the call. The 911 server determines the appropriate call handling for the origination side of the call (e.g., connecting the call to an announcement server, to a user's pre-selected phone number, and the like).

[0066] When the provisioning fails, the address proves to be invalid (in spite of having been previously validated), etc., the 911 service provider may pass the call to a national center 730 at step 710 for proper routing to the appropriate PSAP at step 711.

[0067] FIG. 8 illustrates an exemplary computing system 800 that is used to implement some embodiments of the present systems and methods. The computing system 800 of FIG. 8 is implemented in the contexts of the likes of computing devices, networks, webservers, databases, or combinations thereof. The computing device 800 of FIG. 8 includes a processor 810 and memory 820. Memory 820 stores, in part, instructions and data for execution by processor 810. Memory 820 stores the executable code when in operation. The computing system 800 of FIG. 8 further includes a mass storage 830, portable storage 840, output devices 850, input devices 860, a display system 870, and peripherals 880. The components shown in FIG. 8 are depicted as being connected via a single bus 890. The components are connected through one or more data transport means. Processor 810 and memory 820 may be connected via a local microprocessor bus, and the mass storage 830, peripherals 880, portable storage 840, and display system 870 may be connected via one or more input/output (I/O) buses.

[0068] Mass storage 830, which may be implemented with a magnetic disk drive, solid-state drive (SSD), or an optical disk drive, is a non-volatile storage device for storing data and instructions for use by processor 810. Mass storage 830 can store the system software for implementing embodiments of the present technology for purposes of loading that software into memory 820.

[0069] Portable storage 840 operates in conjunction with a portable non-volatile storage medium, such as a floppy disk, compact disk or digital video disc, to input and output data and code to and from the computing system 800 of FIG. 8. The system software for implementing embodiments of the present technology may be stored on

such a portable medium and input to the computing system 800 via the portable storage 840.

[0070] Input devices 860 provide a portion of a user interface. Input devices 860 may include an alphanumeric keypad, such as a keyboard, for inputting alphanumeric and other information, or a pointing device, such as a mouse, a trackball, stylus, or cursor direction keys. Additionally, the system 800 as shown in FIG. 8 includes output devices 850. Suitable output devices include speakers, printers, network interfaces, and monitors.

[0071] Display system 870 includes a liquid crystal display (LCD) or other suitable display device. Display system 870 receives textual and graphical information, and processes the information for output to the display device.

Peripherals 880 include any type of computer support device to add additional functionality to the computing system. Peripherals 880 may include a modem or a router.

[0072] The components contained in the computing system 800 of FIG. 8 are those typically found in computing systems that may be suitable for use with embodiments of the present technology and are intended to represent a broad category of such computer components that are well known in the art. Thus, the computing system 800 can be a personal computer, hand held computing system, telephone, mobile phone, smartphone, tablet, phablet, wearable technology, mobile computing system, workstation, server, minicomputer, mainframe computer, or any other computing system. The computer can also include different bus configurations, networked platforms, multi-processor platforms, etc. Various operating systems can be used including UNIX, LINUX, WINDOWS, MACINTOSH OS, IOS, ANDROID, CHROME, and other suitable operating systems.

[0073] Some of the above-described functions may be composed of instructions that are stored on storage media (e.g., computer-readable medium). The instructions

may be retrieved and executed by the processor. Some examples of storage media are memory devices, tapes, disks, and the like. The instructions are operational when executed by the processor to direct the processor to operate in accord with the technology. Those skilled in the art are familiar with instructions, processor(s), and storage media.

[0074] In some embodiments, the computing system 800 may be implemented as a cloud-based computing environment, such as a virtual machine operating within a computing cloud. In other embodiments, the computing system 800 may itself include a cloud-based computing environment, where the functionalities of the computing system 800 are executed in a distributed fashion. Thus, the computing system 800, when configured as a computing cloud, may include pluralities of computing devices in various forms, as will be described in greater detail below.

[0075] In general, a cloud-based computing environment is a resource that typically combines the computational power of a large grouping of processors (such as within web servers) and/or that combines the storage capacity of a large grouping of computer memories or storage devices. Systems that provide cloud-based resources may be utilized exclusively by their owners or such systems may be accessible to outside users who deploy applications within the computing infrastructure to obtain the benefit of large computational or storage resources.

[0076] The cloud is formed, for example, by a network of web servers that comprise a plurality of computing devices, such as the computing system 800, with each server (or at least a plurality thereof) providing processor and/or storage resources. These servers manage workloads provided by multiple users (e.g., cloud resource customers or other users). Typically, each user places workload demands upon the cloud that vary in real-time, sometimes dramatically. The nature and extent of these variations typically depends on the type of business associated with the user.

[0077] It is noteworthy that any hardware platform suitable for performing the processing described herein is suitable for use with the technology. The terms "computer-readable storage medium" and "computer-readable storage media" as used herein refer to any medium or media that participate in providing instructions to a CPU for execution. Such media can take many forms, including, but not limited to, non-volatile media, volatile media and transmission media. Non-volatile media include, for example, optical, magnetic, and solid-state disks, such as a fixed disk. Volatile media include dynamic memory, such as system RAM. Transmission media include coaxial cables, copper wire and fiber optics, among others, including the wires that comprise one embodiment of a bus. Transmission media can also take the form of acoustic or light waves, such as those generated during radio frequency (RF) and infrared (IR) data communications. Common forms of computer-readable media include, for example, a floppy disk, a flexible disk, a hard disk, magnetic tape, any other magnetic medium, a CD-ROM disk, digital video disk (DVD), any other optical medium, any other physical medium with patterns of marks or holes, a RAM, a PROM, an EPROM, an EEPROM, a FLASH memory, any other memory chip or data exchange adapter, a carrier wave, or any other medium from which a computer can read.

[0078] Various forms of computer-readable media may be involved in carrying one or more sequences of one or more instructions to a CPU for execution. A bus carries the data to system RAM, from which a CPU retrieves and executes the instructions. The instructions received by system RAM can optionally be stored on a fixed disk either before or after execution by a CPU.

[0079] Computer program code for carrying out operations for aspects of the present technology may be written in any combination of one or more programming languages, including an object oriented programming language such as JAVA, SMALLTALK, C++ or the like and conventional procedural programming languages, such as the "C" programming language or similar programming languages. The

program code may execute entirely on the user's computer, partly on the user's computer, as a stand-alone software package, partly on the user's computer and partly on a remote computer or entirely on the remote computer or server. In the latter scenario, the remote computer may be connected to the user's computer through any type of network, including a local area network (LAN) or a wide area network (WAN), or the connection may be made to an external computer (for example, through the Internet using an Internet Service Provider).

[0080] The corresponding structures, materials, acts, and equivalents of all means or step plus function elements in the claims below are intended to include any structure, material, or act for performing the function in combination with other claimed elements as specifically claimed. The description of the present technology has been presented for purposes of illustration and description, but is not intended to be exhaustive or limited to the invention in the form disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art without departing from the scope and spirit of the invention. Exemplary embodiments were chosen and described in order to best explain the principles of the present technology and its practical application, and to enable others of ordinary skill in the art to understand the invention for various embodiments with various modifications as are suited to the particular use contemplated.

[0081] Aspects of the present technology are described above with reference to flowchart illustrations and/or block diagrams of methods, apparatus (systems) and computer program products according to embodiments of the invention. It will be understood that each block of the flowchart illustrations and/or block diagrams, and combinations of blocks in the flowchart illustrations and/or block diagrams, can be implemented by computer program instructions. These computer program instructions may be provided to a processor of a general purpose computer, special purpose computer, or other programmable data processing apparatus to produce a machine,

such that the instructions, which execute via the processor of the computer or other programmable data processing apparatus, create means for implementing the functions/acts specified in the flowchart and/or block diagram block or blocks.

[0082] These computer program instructions may also be stored in a computer readable medium that can direct a computer, other programmable data processing apparatus, or other devices to function in a particular manner, such that the instructions stored in the computer readable medium produce an article of manufacture including instructions which implement the function/act specified in the flowchart and/or block diagram block or blocks.

[0083] The computer program instructions may also be loaded onto a computer, other programmable data processing apparatus, or other devices to cause a series of operational steps to be performed on the computer, other programmable apparatus or other devices to produce a computer implemented process such that the instructions which execute on the computer or other programmable apparatus provide processes for implementing the functions/acts specified in the flowchart and/or block diagram block or blocks.

[0084] The flowchart and block diagrams in the Figures illustrate the architecture, functionality, and operation of possible implementations of systems, methods and computer program products according to various embodiments of the present technology. In this regard, each block in the flowchart or block diagrams may represent a module, segment, or portion of code, which comprises one or more executable instructions for implementing the specified logical function(s). It should also be noted that, in some alternative implementations, the functions noted in the block may occur out of the order noted in the figures. For example, two blocks shown in succession may, in fact, be executed substantially concurrently, or the blocks may sometimes be executed in the reverse order, depending upon the functionality involved. It will also be noted that each block of the block diagrams and/or flowchart illustration,

and combinations of blocks in the block diagrams and/or flowchart illustration, can be implemented by special purpose hardware-based systems that perform the specified functions or acts, or combinations of special purpose hardware and computer instructions.

[0085] While the present technology has been described in connection with a series of preferred embodiment, these descriptions are not intended to limit the scope of the technology to the particular forms set forth herein. It will be further understood that the methods of the technology are not necessarily limited to the discrete steps or the order of the steps described. To the contrary, the present descriptions are intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the technology as defined by the appended claims and otherwise appreciated by one of ordinary skill in the art.

Claims

What is claimed is:

1. A method for intelligent control of an appliance device comprising:
receiving information from at least one sensor using a computer network, the at least one sensor associated with an alarm system, the alarm system associated with a structure; and
operating the appliance device using the received information.
2. The method of claim 1 further comprising:
ascertaining the presence of one or more occupants in the structure using the received information from the at least one sensor, the occupants being at least one of a person and domestic animal, the at least one sensor being one or more of a motion sensor, pressure sensor, and vibration sensor; and
reducing a heating threshold or increasing a cooling threshold of the appliance device using at least the ascertained presence, the appliance device being a thermostat, the thermostat controlling a heating, ventilation, and air conditioning (HVAC) system, the HVAC system associated with the structure.
3. The method of claim 2 further comprising:
determining a state of the one or more occupants using the received information, the state being at least one of awake and asleep; and
reducing the heating threshold or increasing the cooling threshold of the thermostat using at least the determination.

4. The method of claim 2 further comprising:
determining a state of the one or more occupants using the received information, the state being at least one of awake and asleep; and
muting the appliance device in response to the state being asleep, the appliance device being at least one of a telephone, doorbell, entertainment system, and intercom.
5. The method of claim 2 further comprising:
determining a state of the one or more occupants using the received information, the state being at least one of awake and asleep; and
un-muting the appliance device in response to the state being awake, the appliance device being at least one of a telephone, doorbell, entertainment system, and intercom.
6. The method of claim 1 further comprising:
determining a state of the one or more occupants using the received information, the state being at least one of awake and asleep; and
selectively powering down an electrical device by the appliance, the electrical device being at least one of a light, fan, entertainment system, and HVAC system, the appliance being at least one of a light switch and power control module when at least one occupant is not present or the at least one occupant

7. The method of claim 1 further comprising:

determining at least one opening being in an open state for a predetermined amount of time using the at least one sensor, the at least one opening associated with the structure and being one or more of a door and window, the at least one sensor being one or more of a door open/close switch type and window open/close switch type, the predetermined amount of time being in a range of one minute to sixty minutes; and

reducing the heating threshold or increasing the cooling threshold of the appliance device using at least the determination, the appliance device being a thermostat, the thermostat controlling an HVAC system, the HVAC system associated with the structure.

8. The method of claim 1 further comprising:

determining at least one opening being in an open state for a predetermined amount of time, the at least one opening associated with the structure and being one or more of a door and window, the at least one sensor being one or more of a door open/close switch type and window open/close switch type, the predetermined amount of time being in a range of one minute to sixty minutes; and

powering down by the appliance device an HVAC system, the appliance device being a thermostat, the HVAC system being associated with the structure, using at least the determination.

9. The method of claim 1 further comprising:

determining at least one opening being in an open state for a predetermined amount of time, the at least one opening associated with the structure and being one or more of a door and window, the at least one sensor being one or more of a door open/close switch type and window open/close switch type, the predetermined amount of time being in a range of one minute to sixty minutes; and

suppressing by the appliance device an irrigation zone of a plurality of irrigation zones such that water from one or more sprinklers associated with the irrigation zone does not enter the structure through the opening, the appliance device being an irrigation control system, the irrigation zone being proximate to the opening.

10. The method of claim 1 further comprising:

ascertaining at least one motor vehicle is parked in an area using the received information from the at least one sensor, the area being near the structure, the motor vehicle being at least one of a motorcycle, car, truck, and recreational vehicle, the at least one sensor being one or more magnetic sensors; and

suppressing by the appliance device an irrigation zone of a plurality of irrigation zones such that water from one or more sprinklers associated with the irrigation zone does not spray the motor vehicle, the appliance device being an irrigation control system, the irrigation zone being associated with the area.

11. A method for notifying first responders of an emergency situation at a structure comprising:

receiving, by at least one of an appliance device associated with the structure and a processing entity, an alarm indicating the presence of the emergency situation;

providing, by at least one of the appliance device and the processing entity, to a mobile device a notification for a user, the notification including indicia of the emergency situation;

receiving, by at least one of the appliance device and the processing entity, a user confirmation of the emergency situation from the mobile device; and

initiating, by at least one of the appliance device and the processing entity, communications between the user and a public-safety answering point (PSAP), the initiating including providing a location associated with the structure to the PSAP.

12. The method of claim 11 wherein the processing entity is at least one of a remote server box, local server or multi-function base unit, alarm system in the structure, and a remote monitoring service.

13. The method of claim 11 wherein the mobile device is one or more of a desktop computer, notebook computer, tablet computer, phablet, and smart phone, the mobile device using one or more applications for the notification and user confirmation.

14. The method of claim 11 wherein the location associated with the structure is different from a present location associated with the mobile device.

15. The method of claim 11 wherein the appliance device determines the presence of the emergency situation using one or more sensors, the one or more sensors sensing at least one of a panic indication from the user, smoke, a predetermined temperature greater than 117°F, and carbon monoxide.

16. The method of claim 14 wherein receiving the alarm, providing the notification, and receiving the user confirmation each use at least one of a short message service (SMS) text message, push notification, email, audio message, video message, plain old telephone service (POTS), T1, wireless broad band, and voice over internet protocol (VoIP).

17. A method for provisioning an appliance device comprising:
receiving a service address from a user associated with an appliance device;
validating the received service address;
storing the validated service address;
receiving a panic signal from the user using the appliance device after the validated service address is stored;
providing the validated service address to an emergency telephone number service provider for provisioning, the providing in response to receiving the panic signal; and
transmitting the validated service address to a PSAP associated with the validated service address, the transmitting in response to the provisioning being successful.

18. The method of claim 17 wherein the emergency telephone number service provider is a 911 service provider.

19. A method for provisioning an appliance device comprising:
- receiving a service address from a user associated with an appliance device;
 - validating the received service address;
 - storing the validated service address;
 - receiving a panic signal from the user using the appliance device;
 - providing the validated service address to an emergency telephone number service provider for provisioning; and
 - transmitting the validated service address to a national PSAP, the transmitting in response to the provisioning being unsuccessful.
20. The method of claim 19 wherein the emergency telephone number service provider is a 911 service provider.

FIG. 1

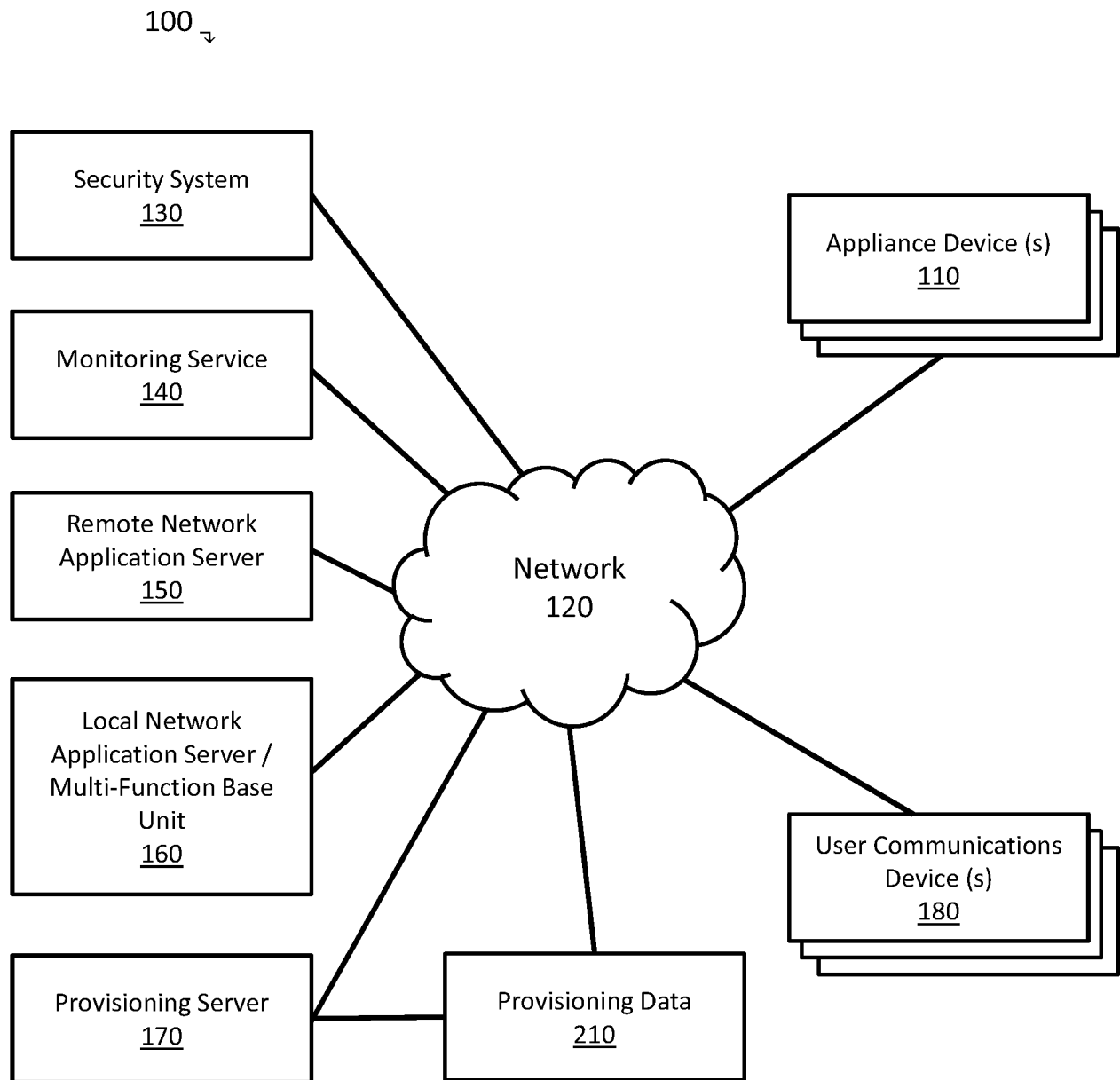


FIG. 2

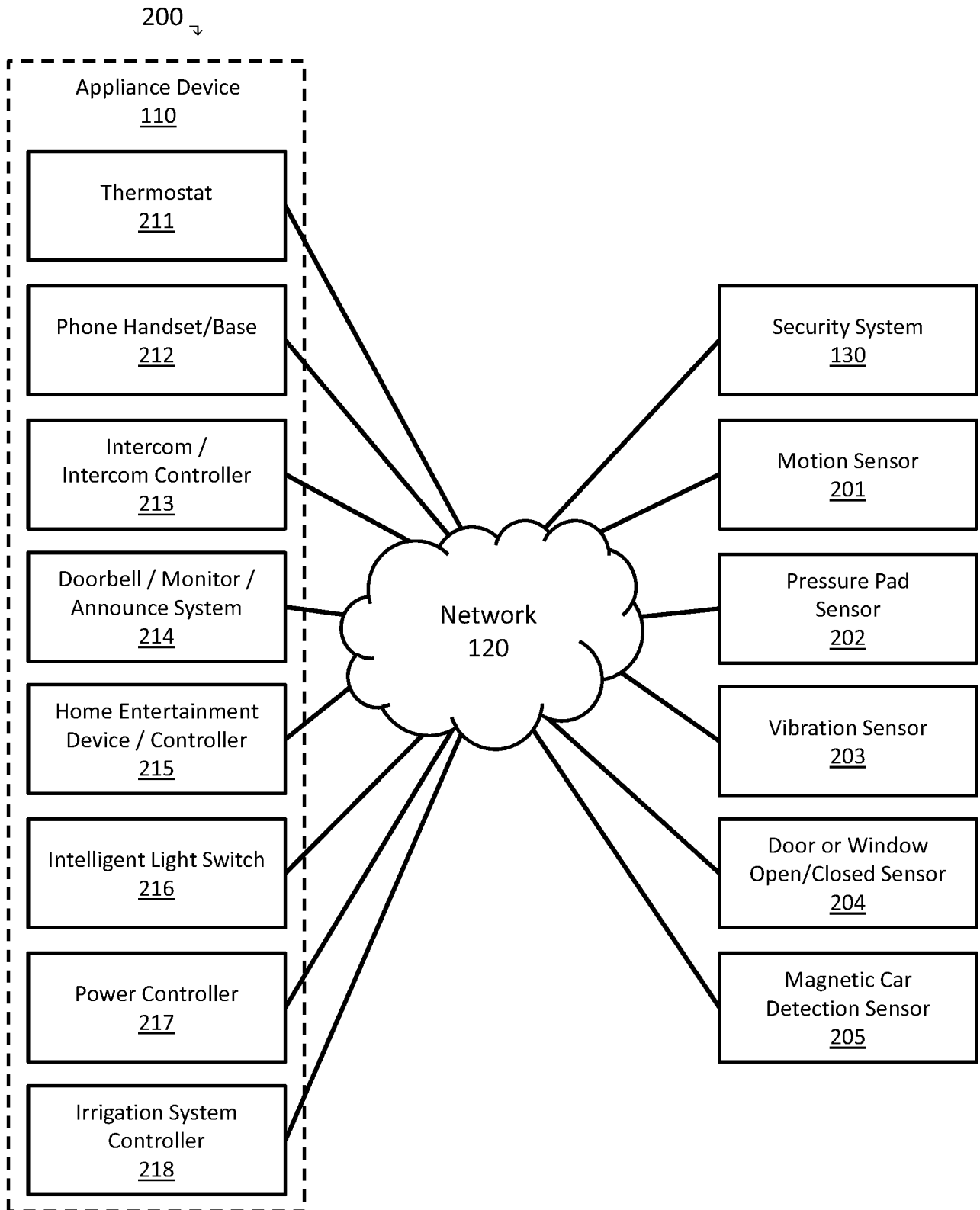


FIG. 3

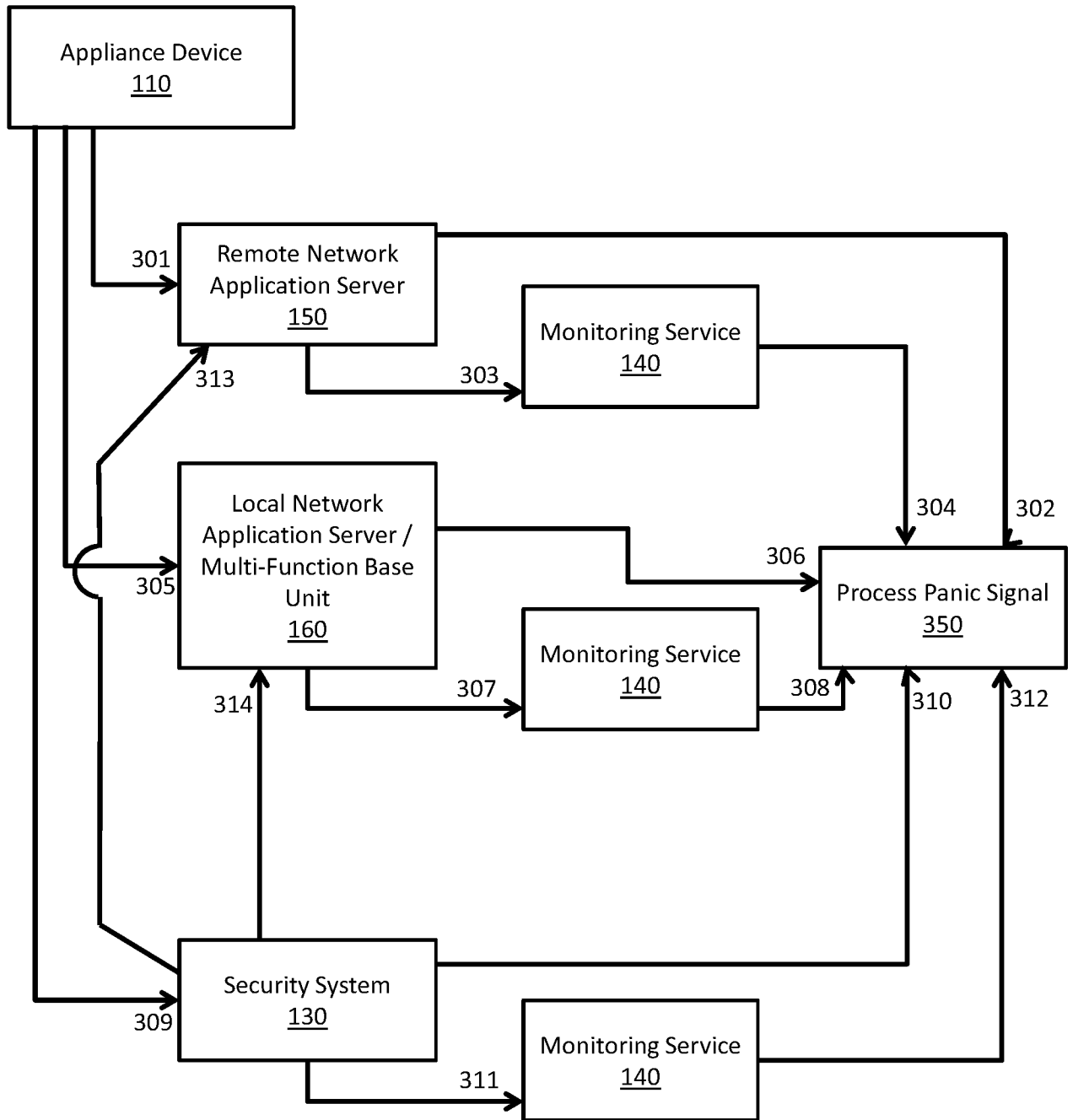


FIG. 4

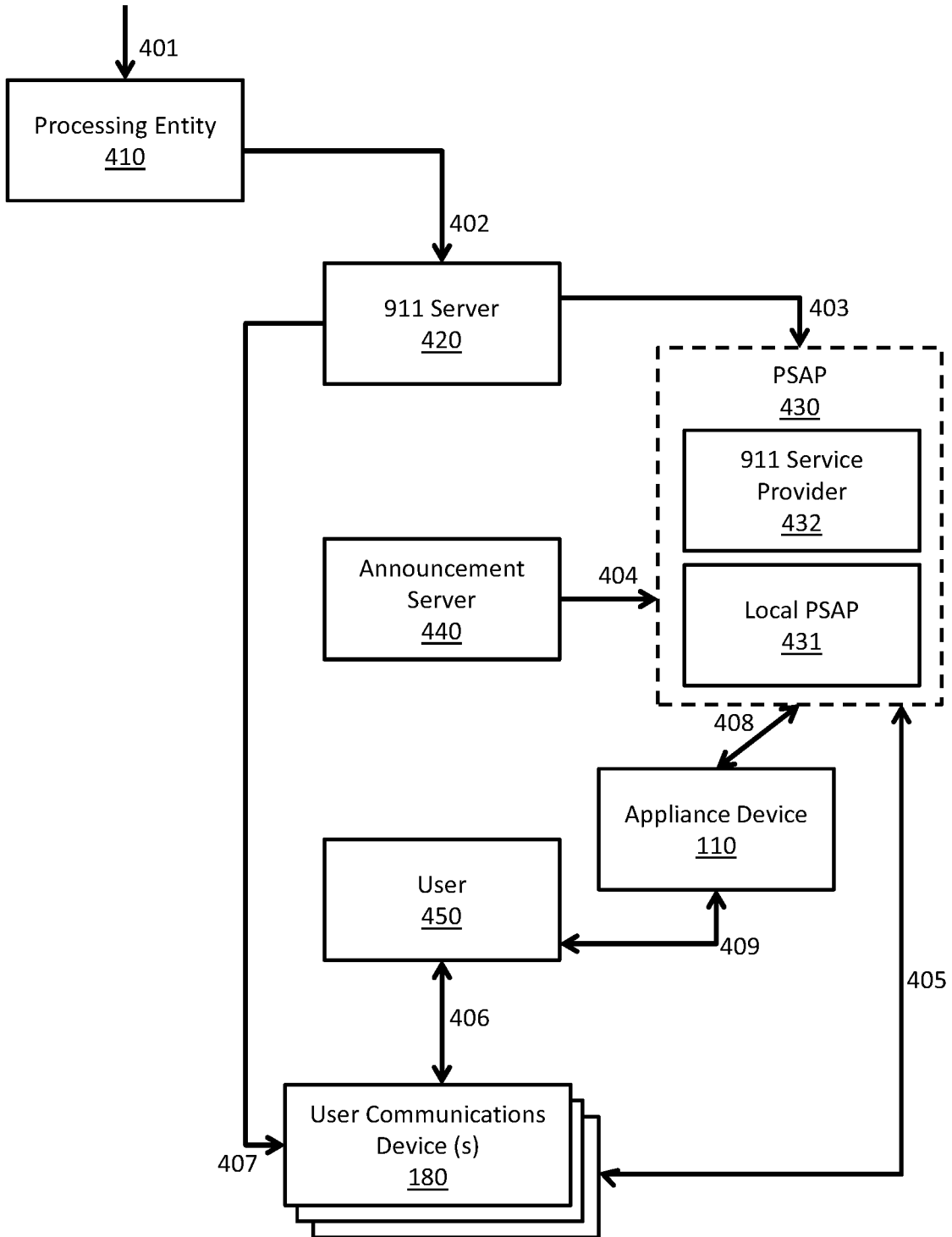


FIG. 5

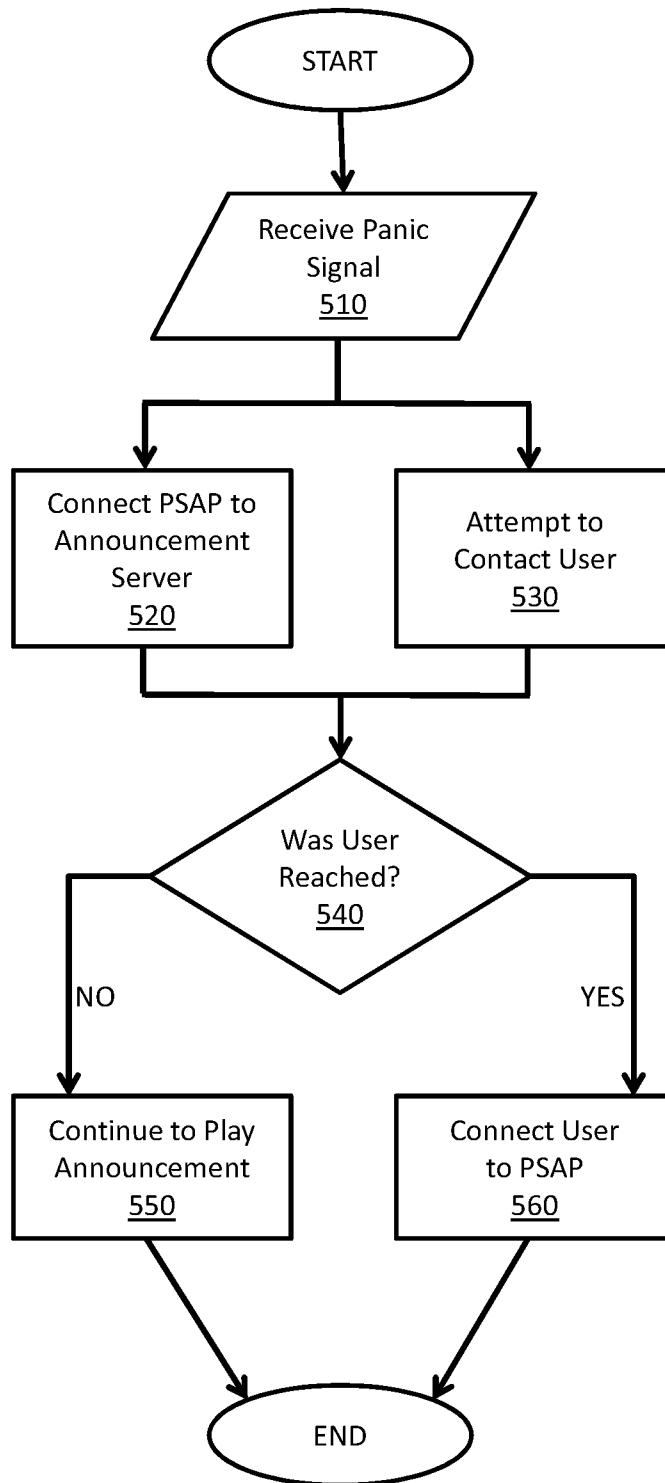


FIG. 6

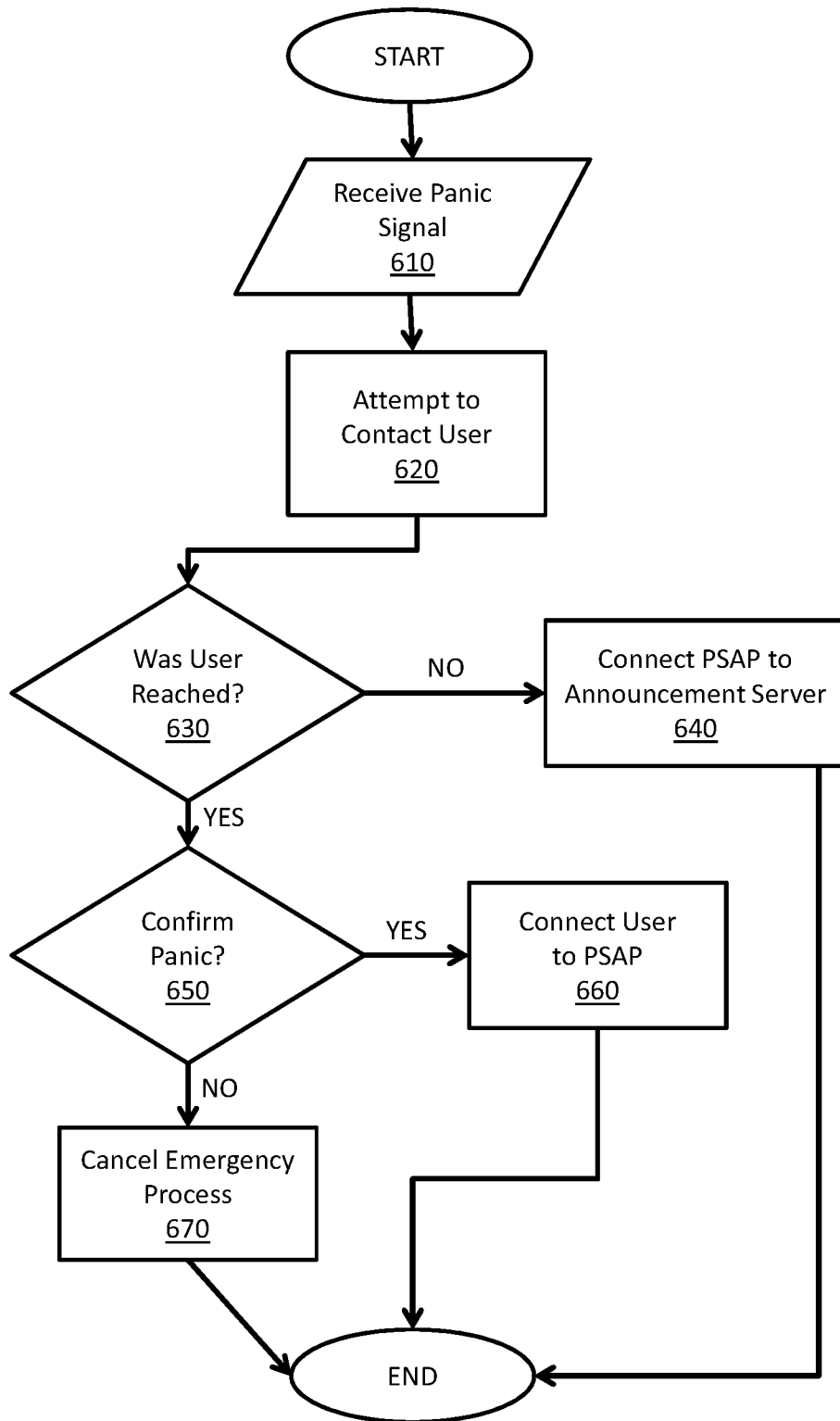
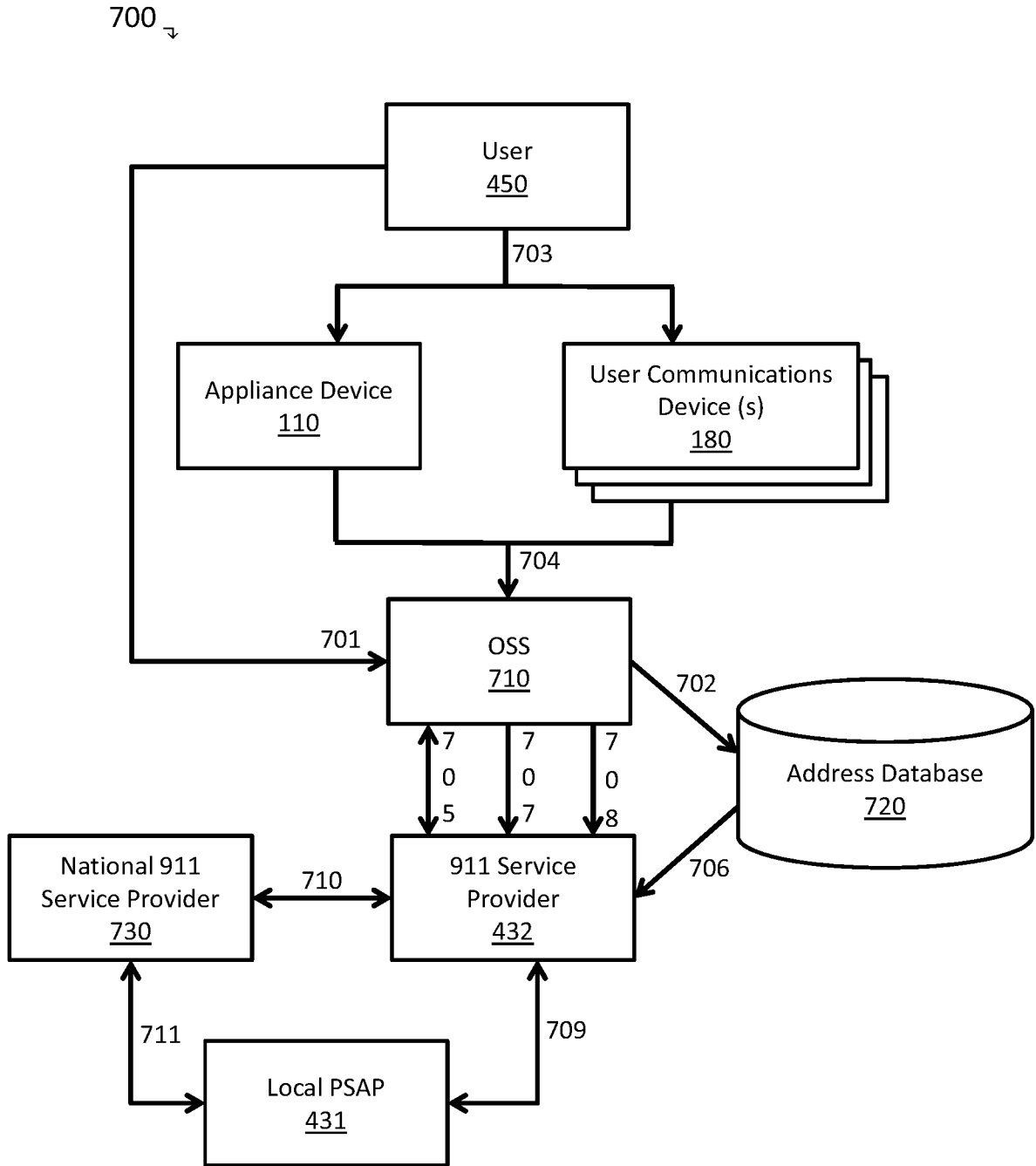


FIG. 7



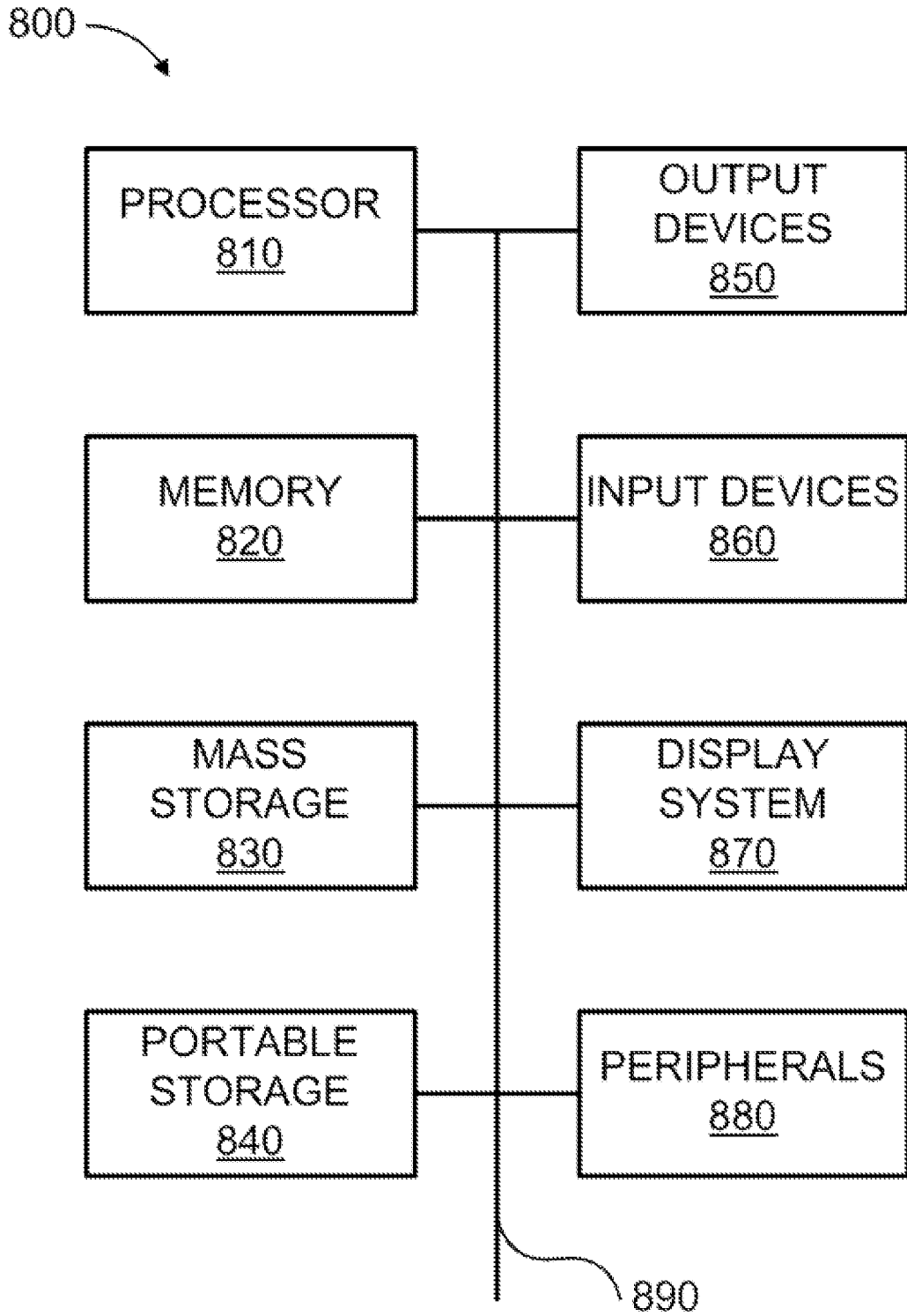


FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 15/34054

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G05B 15/00, G05B 15/02 (2015.01) CPC - G05B15/00 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) CPC: G05B15/00; IPC(8): G05B 15/00, G05B 15/02 (2015.01); USPC: 700/9 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched CPC: G05B15/00, G05B15/02, G05B19/042, G05B19/0421, G05B19/4181, G05B19/4185; USPC: 700/9, 702/130, 700/274, 700/282, 700/65, 700/19, 700/17, 340/3.1, 340/539.14, 700/20 (keyword limited; terms below) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatBase; Google Scholar Search Terms: intelligent, appliance, sensor, network, alarm, first responder, notification, emergency, panic, mobile device, PSAP, service address, validate, provision																												
C. DOCUMENTS CONSIDERED TO BE RELEVANT																												
<table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X --- Y</td> <td>US 2014/0085093 A1 (MITTLEMAN et al.) 27 March 2014 (27.03.2014), entire document, especially abstract and para [0046]-[0048], [0059], [0068]-[0070], [0079], [0082], [0087]-[0088], Fig. 1, Fig. 2, Fig. 3.</td> <td>1-3, 6 ----- 4-5, 7-10</td> </tr> <tr> <td>X</td> <td>US 2014/0120863 A1 (FERGUSON et al.) 01 May 2014 (01.05.2014), entire document, especially abstract and para [0014], [0029], [0035], [0057]-[0059], [0067], [0073], [0075].</td> <td>11-16</td> </tr> <tr> <td>X</td> <td>US 2014/0022915 A1 (CARON et al.) 23 January 2014 (23.01.2014), entire document, especially abstract and para [0004], [0047]-[0048], [0053], [0071]-[0073], [0086], [0089]-[0092], [0095], [0114]-[0115], [0119].</td> <td>17-20</td> </tr> <tr> <td>Y</td> <td>US 2014/0169274 A1 (KWEON et al.) 19 June 2014 (19.06.2014), entire document, especially abstract and para [0061], [0113].</td> <td>4-5</td> </tr> <tr> <td>Y</td> <td>US 2005/0222820 A1 (CHUNG) 06 October 2005 (06.10.2005), entire document, especially abstract and para [0044], [0099], [0122]-[0132].</td> <td>7-9</td> </tr> <tr> <td>Y</td> <td>US 2013/0018509 A1 (KORUS) 17 January 2013 (17.01.2013), entire document, especially abstract and para [0007], [0028], [0033]-[0035].</td> <td>9-10</td> </tr> <tr> <td>Y</td> <td>US 2014/0101082 A1 (MATSUOKA et al.) 10 April 2014 (10.04.2014), entire document, especially abstract and para [0087]-[0088].</td> <td>10</td> </tr> <tr> <td>A</td> <td>US 2013/0035774 A1 (WARREN et al.) 07 February 2013 (07.02.2013), entire document.</td> <td>1-5, 7-20</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X --- Y	US 2014/0085093 A1 (MITTLEMAN et al.) 27 March 2014 (27.03.2014), entire document, especially abstract and para [0046]-[0048], [0059], [0068]-[0070], [0079], [0082], [0087]-[0088], Fig. 1, Fig. 2, Fig. 3.	1-3, 6 ----- 4-5, 7-10	X	US 2014/0120863 A1 (FERGUSON et al.) 01 May 2014 (01.05.2014), entire document, especially abstract and para [0014], [0029], [0035], [0057]-[0059], [0067], [0073], [0075].	11-16	X	US 2014/0022915 A1 (CARON et al.) 23 January 2014 (23.01.2014), entire document, especially abstract and para [0004], [0047]-[0048], [0053], [0071]-[0073], [0086], [0089]-[0092], [0095], [0114]-[0115], [0119].	17-20	Y	US 2014/0169274 A1 (KWEON et al.) 19 June 2014 (19.06.2014), entire document, especially abstract and para [0061], [0113].	4-5	Y	US 2005/0222820 A1 (CHUNG) 06 October 2005 (06.10.2005), entire document, especially abstract and para [0044], [0099], [0122]-[0132].	7-9	Y	US 2013/0018509 A1 (KORUS) 17 January 2013 (17.01.2013), entire document, especially abstract and para [0007], [0028], [0033]-[0035].	9-10	Y	US 2014/0101082 A1 (MATSUOKA et al.) 10 April 2014 (10.04.2014), entire document, especially abstract and para [0087]-[0088].	10	A	US 2013/0035774 A1 (WARREN et al.) 07 February 2013 (07.02.2013), entire document.	1-5, 7-20	<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																										
X --- Y	US 2014/0085093 A1 (MITTLEMAN et al.) 27 March 2014 (27.03.2014), entire document, especially abstract and para [0046]-[0048], [0059], [0068]-[0070], [0079], [0082], [0087]-[0088], Fig. 1, Fig. 2, Fig. 3.	1-3, 6 ----- 4-5, 7-10																										
X	US 2014/0120863 A1 (FERGUSON et al.) 01 May 2014 (01.05.2014), entire document, especially abstract and para [0014], [0029], [0035], [0057]-[0059], [0067], [0073], [0075].	11-16																										
X	US 2014/0022915 A1 (CARON et al.) 23 January 2014 (23.01.2014), entire document, especially abstract and para [0004], [0047]-[0048], [0053], [0071]-[0073], [0086], [0089]-[0092], [0095], [0114]-[0115], [0119].	17-20																										
Y	US 2014/0169274 A1 (KWEON et al.) 19 June 2014 (19.06.2014), entire document, especially abstract and para [0061], [0113].	4-5																										
Y	US 2005/0222820 A1 (CHUNG) 06 October 2005 (06.10.2005), entire document, especially abstract and para [0044], [0099], [0122]-[0132].	7-9																										
Y	US 2013/0018509 A1 (KORUS) 17 January 2013 (17.01.2013), entire document, especially abstract and para [0007], [0028], [0033]-[0035].	9-10																										
Y	US 2014/0101082 A1 (MATSUOKA et al.) 10 April 2014 (10.04.2014), entire document, especially abstract and para [0087]-[0088].	10																										
A	US 2013/0035774 A1 (WARREN et al.) 07 February 2013 (07.02.2013), entire document.	1-5, 7-20																										
* 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 29 September 2015 (29.09.2015)	Date of mailing of the international search report 02 NOV 2015																											
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																											

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 15/34054

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:

--- please see extra sheet ---

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.:

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 15/34054

Continuation of Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet):

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.

Group I: Claims 1-10, directed to a method for intelligent control of an appliance device.

Group II: Claims 11-16, directed to a method for notifying first responders of an emergency situation at a structure.

Group III: Claims 17-20, directed to a method for provisioning an appliance device.

The groups of inventions listed above 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:

The special technical feature of the Group I invention is intelligent control of an appliance device by using sensor-collected information over a computer network, wherein at least one sensor is associated with an alarm system, the alarm system associated with a structure, and operating the appliance device using the received information, not required by Group II-III. (See Fig. 2 for example).

The special technical feature of the Group II invention is notifying first responders of an emergency situation at a structure comprising receiving, by at least one of an appliance device associated with the structure and a processing entity, an alarm indicating the presence of the emergency situation, providing a notification indicating the emergency situation to a user's mobile device, receiving a user confirmation of the emergency situation from the mobile device, and initiating communications between the user and a public-safety answering point (PSAP), including providing a location associated with the structure to the PSAP, not required by Group I or III. (See Fig. 4 for example).

The special technical feature of the Group III invention is provisioning an appliance device comprising receiving a service address from a user associated with an appliance device, validating the received service address, storing the validated service address, receiving a panic signal from the user using the appliance device, providing the validated service address to an emergency telephone number service provider for provisioning, and transmitting the validated service address to a PSAP, the transmitting in response to the provisioning being unsuccessful/unsuccessful, not required by Group I-II. (See Fig. 5 for example).

Groups I-III share the technical features of, in various combination, controlling/provisioning of an appliance device in conjunction with receipt of a signal/data/indication of alarm/panic/emergency situations.

However, these shared technical features fail to represent a contribution over the prior art of US 2014/0179257 A1 (Petite), which discloses controlling/provisioning of an appliance device in conjunction with receipt of a signal/data/indication of alarm/panic/emergency situations (para [0101], [0107]-[0109] - "suitable always-on appliances may be configured to communicate with an emergency message transceiver 502. For example, a home personal computer (PC), a security alarm system control panel, a digital telephone/message system, or a fax machine are other examples of suitable always-on appliances configured to operate with a transceiver of the present invention").

Groups II-III share the technical features of, in various combination, controlling/provisioning of an appliance device in conjunction with receipt of a signal/data/indication of alarm/panic/emergency situations, and communication between a user and a public-safety answering point (PSAP), the communication including at least providing location/address information to the PSAP.

However, these shared technical features fail to represent a contribution over the prior art of US 2014/0162583 A1 to Daly et al. (hereinafter 'Daly'), which discloses controlling/provisioning of an appliance device (para [0035] - "communications device 300 that is configurable to initiate a call to an emergency call center and receive an emergency alert message"; "communications device 300 can include non-conventional computing devices, such as, for example, a kitchen appliance") in conjunction with receipt of a signal/data/indication of alarm/panic/emergency situations (para [0028], [0030] - "emergency alert message is distributed to the originator of an emergency call"), and communication between a user and a public-safety answering point (PSAP), the communication including at least providing location/address information to the PSAP (para [0019]-[0020], [0030] - "location determination and Public Safety Answering Point (PSAP) routing. In the wireless network 106, there may be configuration information that associates every cell site with an appropriate PSAP including instructions on how to address and route calls to that specific PSAP. When an emergency call is initiated by the communications device 104, the wireless network 106 may be instructed, via call set-up signaling, that this is an emergency call").

Thus, the inventions listed as Groups I-III lack unity of invention because they do not share a same or corresponding special technical feature providing a contribution over the prior art.