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(54) **COMPUTING SYSTEM WITH CONTROL MECHANISM AND METHOD OF OPERATION THEREOF**

(71) Applicant: **Samsung Electronics Co., Ltd.**, Suwon-si (KR)

(72) Inventors: **Ke-Yu Chen**, Seattle, WA (US); **Daniel Ashbrook**, Sunnyvale, CA (US); **Sung Hyuck Lee**, Menlo Park, CA (US); **James M.A. Begole**, Los Altos, CA (US)

(73) Assignee: **Samsung Electronics Co., Ltd.**, Suwon-si (KR)

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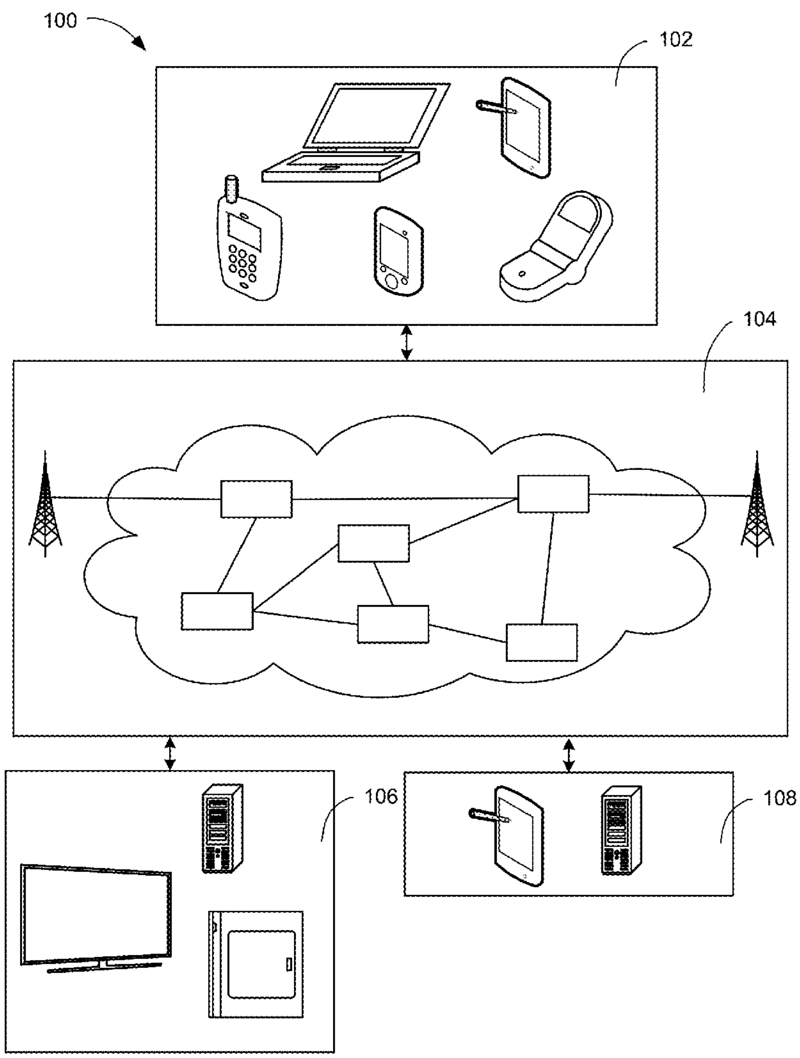
(57) **ABSTRACT**

A computing system includes: a communication unit configured to communicate a client recognition pattern for detecting an agent device within a detection proximity; and a control unit, coupled to the communication unit, configured to: determine a detection quantity based on the client recognition pattern, assign a channel bin based on comparing the detection quantity to a channel occupancy available, and generate an activity command based on an activity request pattern assigned to the channel bin for controlling a device functionality of an electronic device.



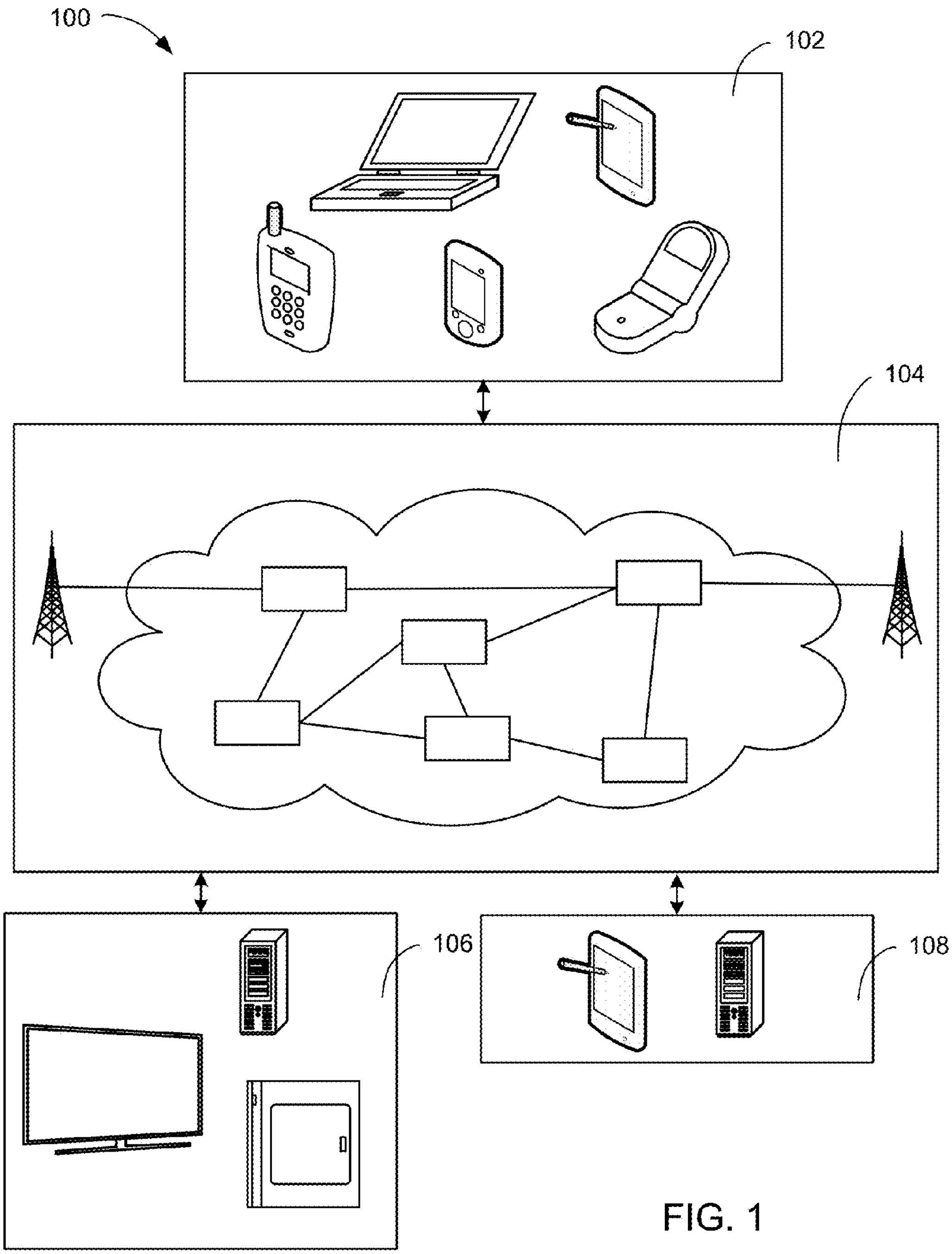


FIG. 1

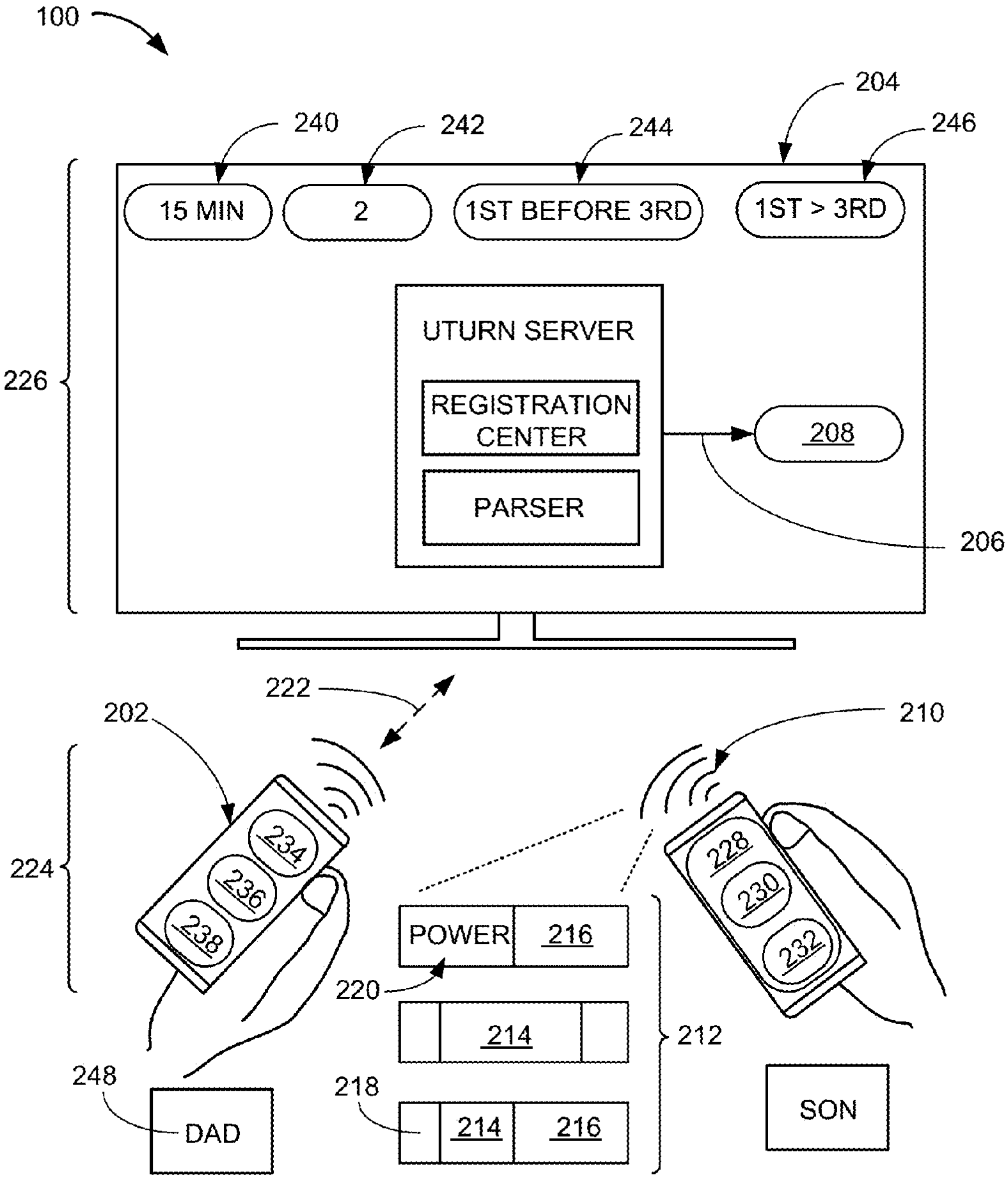

100
204
240
242
244
246
15 MIN
2
1ST BEFORE 3RD
1ST > 3RD
UTURN SERVER
REGISTRATION CENTER
PARSER
208
206
226
222
202
210
224
234
236
238
228
230
232
POWER
216
220
214
212
218
214
216
248
DAD
SON

FIG 2

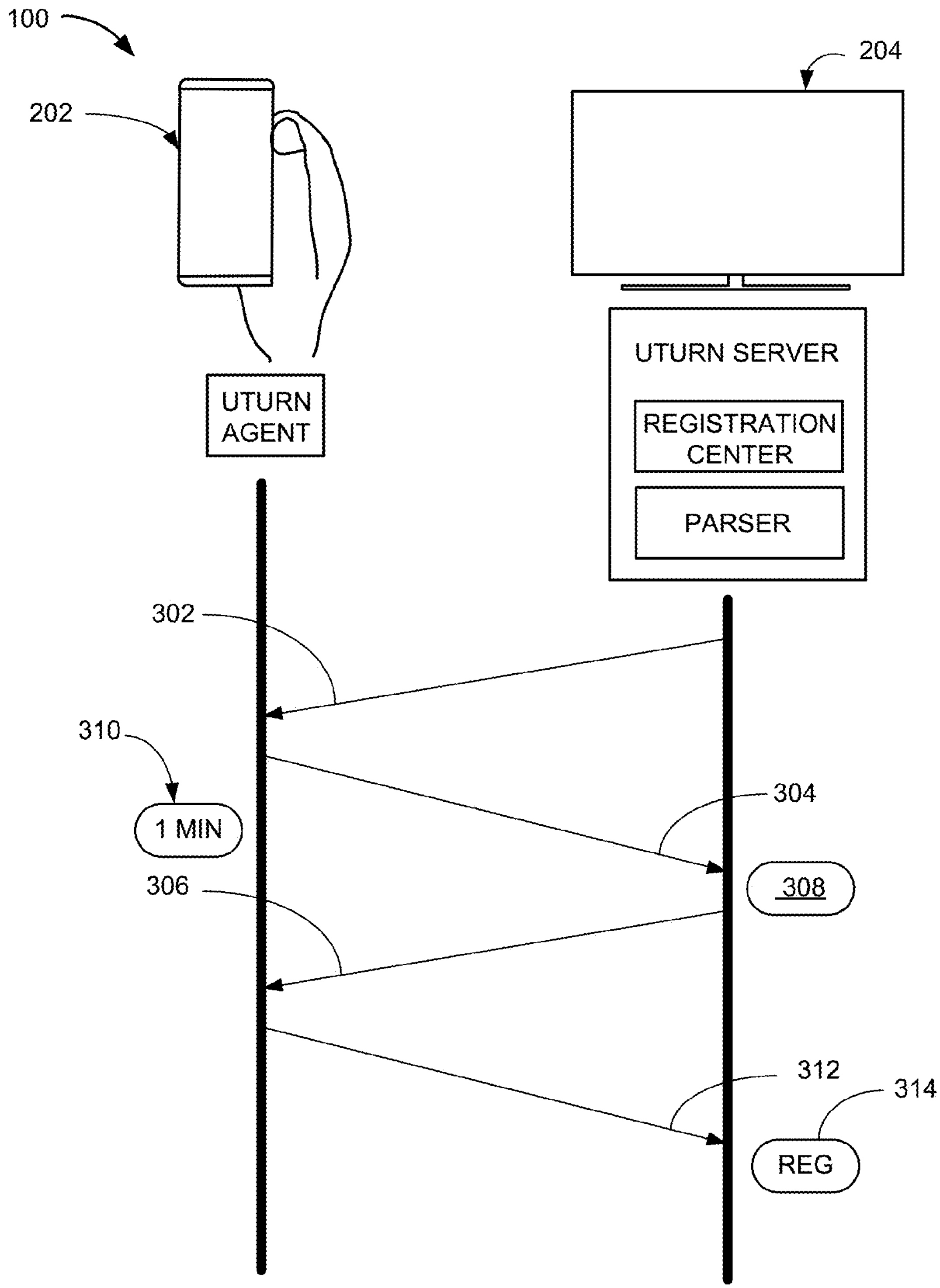

100
202
204
UTURN AGENT
UTURN SERVER
REGISTRATION CENTER
PARSER
302
310
1 MIN
304
308
306
312
314
REG

FIG. 3

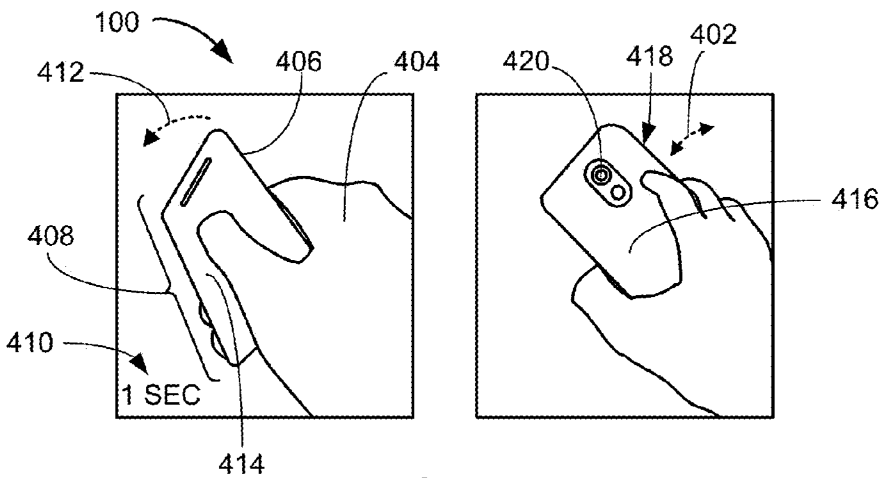
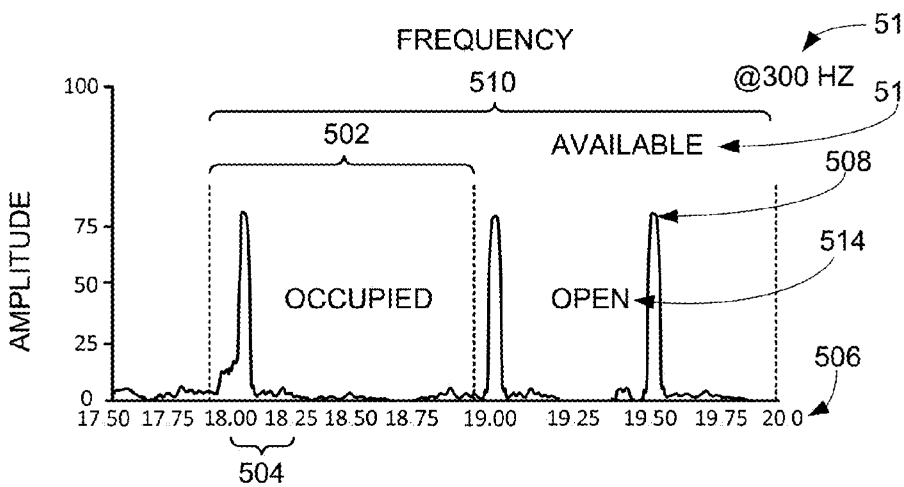

100
412
406
404
420
418
402
416
408
410
1 SEC
414

FIG. 4


FREQUENCY
512
@300 HZ
510
516
502
AVAILABLE
508
514
OCCUPIED
OPEN
506
504
AMPLITUDE
100
75
50
25
0
17.50
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19.75
20.0

FIG. 5

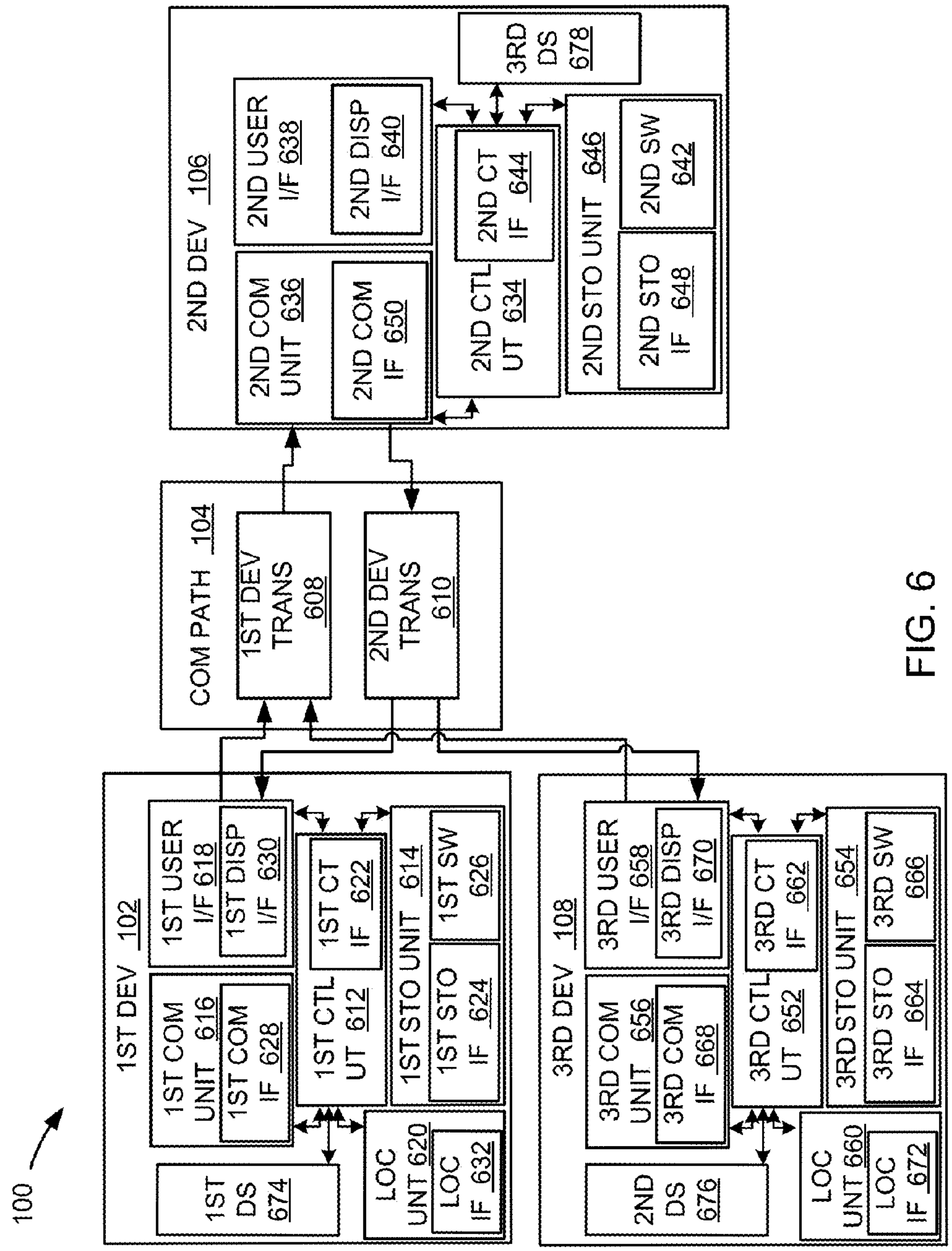
100
1ST DEV 102
1ST COM UNIT 616
1ST COM IF 628
1ST USER I/F 618
1ST DISP I/F 630
1ST CTL UT 612
1ST CT IF 622
1ST STO UNIT 614
1ST STO IF 624
1ST SW 626
1ST DS 674
LOC UNT 620
LOC IF 632
3RD DEV 108
3RD COM UNIT 656
3RD COM IF 668
3RD USER I/F 658
3RD DISP I/F 670
3RD CTL UT 652
3RD CT IF 662
3RD STO UNIT 654
3RD STO IF 664
3RD SW 666
2ND DS 676
LOC UNT 660
LOC IF 672
COM PATH 104
1ST DEV TRANS 608
2ND DEV TRANS 610
2ND DEV 106
2ND COM UNIT 636
2ND COM IF 650
2ND USER I/F 638
2ND DISP I/F 640
2ND CTL UT 634
2ND CT IF 644
2ND STO UNIT 646
2ND STO IF 648
2ND SW 642
3RD DS 678

FIG. 6

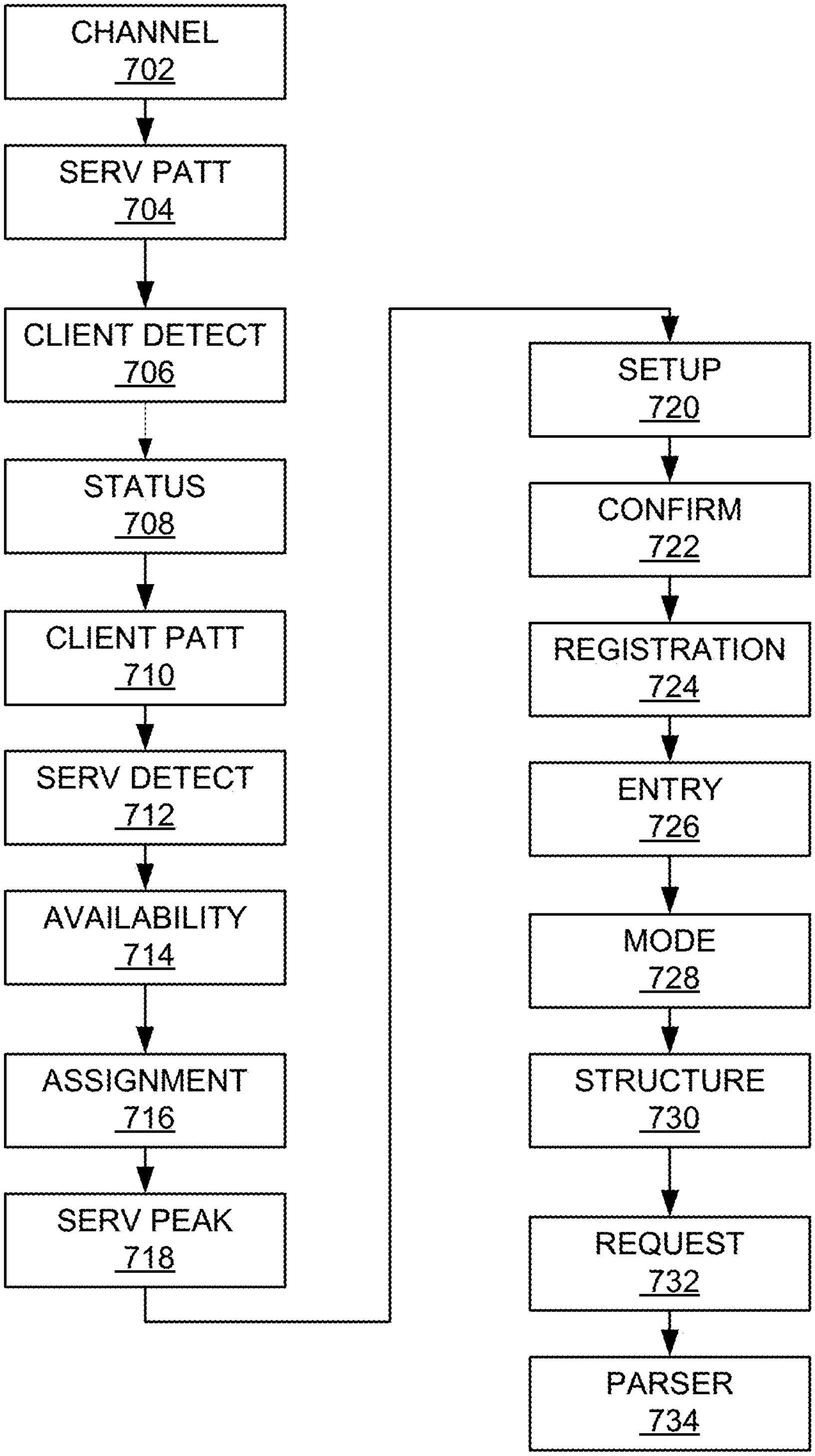
CHANNEL
702
SERV PATT
704
CLIENT DETECT
706
STATUS
708
CLIENT PATT
710
SERV DETECT
712
AVAILABILITY
714
ASSIGNMENT
716
SERV PEAK
718
SETUP
720
CONFIRM
722
REGISTRATION
724
ENTRY
726
MODE
728
STRUCTURE
730
REQUEST
732
PARSER
734

FIG. 7

COMPUTING SYSTEM WITH CONTROL MECHANISM AND METHOD OF OPERATION THEREOF

TECHNICAL FIELD

[0001] An embodiment of the present invention relates generally to a computing system, and more particularly to a system for control mechanism.

BACKGROUND

[0002] Modern portable client and industrial electronics, especially client devices such as cellular phones, portable digital assistants, and combination devices are providing increasing levels of functionality to support modem life including location-based information services. Research and development in the existing technologies can take a myriad of different directions.

[0003] As users become more empowered with the growth of devices, new and old paradigms begin to take advantage of this new device space. There are many technological solutions to take advantage of this new device capability to communicate with other devices. One existing approach is to use device movement to provide access through a mobile device, such as a cell phone, smart phone, or a personal digital assistant.

[0004] Access services allow users to create, transfer, store, and/or control information in order for users to create, transfer, store, and control in the "real world." One such use of personalized content services is to efficiently transfer or guide users to the desired product or service.

[0005] Thus, a need still remains for a computing system with control mechanism for aiding the access of devices. In view of the ever-increasing commercial competitive pressures, along with growing client expectations and the diminishing opportunities for meaningful product differentiation in the marketplace, it is increasingly critical that answers be found to these problems. Additionally, the need to reduce costs, improve efficiencies and performance, and meet competitive pressures adds an even greater urgency to the critical necessity for finding answers to these problems. Solutions to these problems have been long sought but prior developments have not taught or suggested any solutions and, thus, solutions to these problems have long eluded those skilled in the art.

SUMMARY

[0006] An embodiment of the present invention provides a computing system including: a communication unit configured to communicate a client recognition pattern for detecting an agent device within a detection proximity; and a control unit, coupled to the communication unit, configured to: determine a detection quantity based on the client recognition pattern, assign a channel bin based on comparing the detection quantity to a channel occupancy available, and generate an activity command based on an activity request pattern assigned to the channel bin for controlling a device functionality of an electronic device.

[0007] An embodiment of the present invention provides a computing system including: a control unit configured to: determine an entry gesture based on a movement direction of a device posture, generate an instruction code having an action type of a device functionality, generate an activity request pattern having the instruction code based on the entry gesture, and a communication unit, coupled to the control unit, configured to communicate an activity request pattern for controlling the device functionality of an electronic device.

[0008] An embodiment of the present invention provides a method of operation of a computing system including: determining a detection quantity based on a client recognition pattern received; assigning a channel bin based on comparing the detection quantity to a channel occupancy available; and generating an activity command with a control unit based on an activity request pattern assigned to the channel bin for controlling a device functionality of an electronic device.

[0009] An embodiment of the present invention provides a method of operation of a computing system including: determining an entry gesture based on a movement direction of a device posture; generating an instruction code having an action type of a device functionality; generating an activity request pattern with a control unit having the instruction code based on the entry gesture for controlling the device functionality of an electronic device.

[0010] An embodiment of the present invention provides a non-transitory computer readable medium including instructions for execution by a control unit including: determining a detection quantity based on a client recognition pattern received; assigning a channel bin based on comparing the detection quantity to a channel occupancy available; and generating an activity command based on an activity request pattern assigned to the channel bin for controlling a device functionality of an electronic device.

[0011] An embodiment of the present invention provides a non-transitory computer readable medium including instructions for execution by a control unit including: determining an entry gesture based on a movement direction of a device posture; generating an instruction code having an action type of a device functionality; generating an activity request pattern having the instruction code based on the entry gesture for controlling the device functionality of an electronic device.

[0012] Certain embodiments of the invention have other steps or elements in addition to or in place of those mentioned above. The steps or elements will become apparent to those skilled in the art from a reading of the following detailed description when taken with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. **1** is a computing system with control mechanism in an embodiment of the present invention.

[0014] FIG. **2** is an example of an architectural diagram of the computing system for an agent device requesting an electronic device to execute an activity command.

[0015] FIG. **3** is an example of a handshaking process of the computing system between the agent device and the electronic device.

[0016] FIG. **4** is examples of an entry gesture performed on the agent device of FIG. **2**.

[0017] FIG. **5** is an example of a channel bin.

[0018] FIG. **6** is an exemplary block diagram of the computing system.

[0019] FIG. **7** is a control flow of the computing system.

DETAILED DESCRIPTION

[0020] The following embodiments of the present invention provide an agent device to control a device functionality of an electronic device remotely. The agent device can detect a server presence and the electronic device can detect a client presence to exchange communication pattern for the agent device to request the electronic device to execute an activity command to control the device functionality.

[0021] An embodiment of a present invention can determine a detection quantity based on a client recognition pattern received can improve the efficiency of assigning a channel bin. By limiting the assignment of the channel bin based on a channel occupancy, the embodiment of the present invention can assign the agent device to the channel bin with a channel availability. As a result, the embodiment of the present invention can generate the activity command based on an activity request pattern with the channel bin assigned for optimal allocation of a communication channel to control the device functionality of the electronic device.

[0022] The following embodiments are described in sufficient detail to enable those skilled in the art to make and use the invention. It is to be understood that other embodiments would be evident based on the present disclosure, and that system, process, or mechanical changes may be made without departing from the scope of the present invention.

[0023] In the following description, numerous specific details are given to provide a thorough understanding of the invention. However, it will be apparent that the invention may be practiced without these specific details. In order to avoid obscuring the embodiment of the present invention, some well-known circuits, system configurations, and process steps are not disclosed in detail.

[0024] The drawings showing embodiments of the system are semi-diagrammatic, and not to scale and, particularly, some of the dimensions are for the clarity of presentation and are shown exaggerated in the drawing figures. Similarly, although the views in the drawings for ease of description generally show similar orientations, this depiction in the figures is arbitrary for the most part. Generally, the invention can be operated in any orientation.

[0025] The term “module” referred to herein can include software, hardware, or a combination thereof in the embodiment of the present invention in accordance with the context in which the term is used. For example, the software can be machine code, firmware, embedded code, and application software. Also for example, the hardware can be circuitry, processor, computer, integrated circuit, integrated circuit cores, a pressure sensor, an inertial sensor, a microelectromechanical system (MEMS), passive devices, or a combination thereof.

[0026] Referring now to FIG. **1**, therein is shown a computing system **100** with control mechanism in an embodiment of the present invention. The computing system **100** includes a first device **102**, such as a client or a server, connected to a second device **106**, such as a client or server. The first device **102** can communicate with the second device **106** with a communication path **104**, such as a wireless or wired network. The computing system **100** can also include a third device **108** connected to the first device **102**, the second device **106**, or a combination thereof with the communication path **104**. The third device **108** can be a client or server.

[0027] For example, the first device **102** or the third device **108** can be of any of a variety of display devices, such as a cellular phone, personal digital assistant, wearable digital device, tablet, notebook computer, television (TV), automotive telematic communication system, or other multi-functional mobile communication or entertainment device. The first device **102** or the third device **108** can be a standalone device, or can be incorporated with a vehicle, for example a car, truck, bus, aircraft, boat/vessel, or train. The first device **102** or the third device **108** can couple to the communication path **104** to communicate with the second device **106**.

[0028] For illustrative purposes, the computing system **100** is described with the first device **102** or the third device **108** as a mobile device, although it is understood that the first device **102** or the third device **108** can be different types of devices. For example, the first device **102** or the third device **108** can also be a non-mobile computing device, such as a server, a server farm, or a desktop computer.

[0029] The second device **106** can be any of a variety of centralized or decentralized computing devices. For example, the second device **106** can be a computer, grid computing resources, a virtualized computer resource, cloud computing resource, routers, switches, peer-to-peer distributed computing devices, or a combination thereof. For another example, the second device **106** can include TV, appliances, such as washing machine or refrigerator, or a combination thereof.

[0030] The second device **106** can be centralized in a single computer room, distributed across different rooms, distributed across different geographical locations, embedded within a telecommunications network. The second device **106** can have a means for coupling with the communication path **104** to communicate with the first device **102** or the third device **108**. The second device **106** can also be a client type device as described for the first device **102** or the third device **108**.

[0031] In another example, the first device **102**, the second device **106**, or the third device **108** can be a particularized machine, such as a mainframe, a server, a cluster server, a rack mounted server, or a blade server, or as more specific examples, an IBM System z10™ Business Class mainframe or a HP ProLiant ML™ server. Yet another example, the first device **102**, the second device **106**, or the third device **108** can be a particularized machine, such as a portable computing device, a thin client, a notebook, a netbook, a smartphone, personal digital assistant, or a cellular phone, and as specific examples, an Apple iPhone™, Android™ smartphone, or Windows™ platform smartphone.

[0032] For illustrative purposes, the computing system **100** is described with the second device **106** as a non-mobile computing device, although it is understood that the second device **106** can be different types of computing devices. For example, the second device **106** can also be a mobile computing device, such as notebook computer, another client device, or a different type of client device. The second device **106** can be a standalone device, or can be incorporated with a vehicle, for example a car, truck, bus, aircraft, boat/vessel, or train.

[0033] Also for illustrative purposes, the computing system **100** is shown with the second device **106** and the first device **102** or the third device **108** as end points of the communication path **104**, although it is understood that the computing system **100** can have a different partition between the first device **102**, the second device **106**, the third device **108**, and the communication path **104**. For example, the first device **102**, the second device **106**, the third device **108** or a combination thereof can also function as part of the communication path **104**.

[0034] The communication path **104** can be a variety of networks. For example, the communication path **104** can include wireless communication, wired communication, optical, ultrasonic, or the combination thereof. Satellite communication, cellular communication, Bluetooth, wireless High-Definition Multimedia Interface (HDMI), Near Field Communication (NFC), Infrared Data Association standard (IrDA), wireless fidelity (WiFi), and worldwide interoperability for microwave access (WiMAX) are examples of wireless communication that can be included in the communication path **104**. Ethernet, HDMI, digital subscriber line (DSL), fiber to the home (FTTH), and plain old telephone service (POTS) are examples of wired communication that can be included in the communication path **104**.

[0035] Further, the communication path **104** can traverse a number of network topologies and distances. For example, the communication path **104** can include direct connection, personal area network (PAN), local area network (LAN), metropolitan area network (MAN), wide area network (WAN) or any combination thereof.

[0036] Referring now to FIG. **2**, therein is shown an example of an architectural diagram of the computing system **100** for an agent device **202** requesting an electronic device **204** to execute an activity command **206**. For clarity and brevity, the discussion of an embodiment of the present invention will be described with the agent device **202** as the first device **102** of FIG. **1** or the third device **108** of FIG. **1** and the second device **106** of FIG. **1** as the electronic device **204**. More specifically, the embodiments of the present invention will describe the first device **102**, the third device **108**, or a combination thereof requesting the second device **106** to perform an operation based on the request. However, the first device **102**, the second device **106**, and the third device **108** can be discussed interchangeably.

[0037] The electronic device **204** is a device that provides a service based on a request. For example, the electronic device **204** can provide the device functionality **208** based on the request by the agent device **202**. The activity command **206** is a directive to execute the device functionality **208**. The device functionality **208** is an invocable activity of a device. For example, the electronic device **204** can execute the activity command **206** to invoke the device functionality **208** of raising the volume.

[0038] The agent device **202** is a device sending a request to the electronic device **204** to perform the device functionality **208**. For example the agent device **202** can send an activity request pattern **210** to request the electronic device **204** to execute the activity command **206**. The activity request pattern **210** is a request to execute the activity command **206**. For example, the agent device **202** can transmit the activity request pattern **210** as a mechanical wave, an electromagnetic wave, or a combination thereof. For further example, the activity request pattern **210** can represent an ultrasonic tone.

[0039] The activity request pattern **210** can include an instruction code **212**. The instruction code **212** is a data structure containing information detailing the device functionality **208** to be executed. The instruction code **212** can include an action segment **214**, a data segment **216**, a control segment **218**, or a combination thereof.

[0040] The action segment **214** is a data containing information regarding an action type **220** for the device functionality **208**. The action type **220** is a categorization of the device functionality **208**. For example, the action type **220** can include the device functionality **208** representing volume control, play/pause a video, zoom in/out, forward/backward, or a combination thereof of the electronic device **204** representing a TV.

[0041] The data segment **216** is a data containing command on controlling the device functionality **208**. For example, the data segment **216** can include a command to raise the volume by 3 levels. The control segment **218** is a data containing a flag to determine whether the instruction code **212** is a binary or non-binary action. For example, the binary action can represent the device functionality **208** including two options. The non-binary action can represent the device functionality **208** including more than two options. As an example, the binary action can represent “on” or “off.” The non-binary action can represent different levels of volume to control the audio level of a TV.

[0042] The agent device **202** can transmit the activity request pattern **210** if the agent device **202** is within a detection proximity **222**. The detection proximity **222** is a distance in space where the agent device **202** and the electronic device **204** can communicate. The distance can be set as a setting, based on factors, or a combination thereof. Some factors can include the interference of transmission or reception in the environment from other devices or sources of signaling.

[0043] For example, if the agent device **202** is within the detection proximity **222**, the electronic device **204** can detect a client presence **224**. If the electronic device **204** is within the detection proximity **222**, the agent device **202** can detect a server presence **226**. The client presence **224** is awareness by the electronic device **204** of the agent device **202** within the detection proximity **222**. The server presence **226** is awareness by the agent device **202** of the electronic device **204** within the detection proximity **222**.

[0044] A mode type **228** is a categorization of a device state. For example, the agent device **202** can have the mode type **228** representing a transmission mode **230**, a non-transmission mode **232**, or a combination thereof. The transmission mode **230** is a device state where the agent device **202** can communicate with the electronic device **204**. The non-transmission mode **232** is a device state where the agent device **202** is not communicating with the electronic device **204**. For example, if the user is using a device application **234** on the agent device **202** irrelevant to controlling the device functionality **208** of the electronic device **204**, the agent device **202** can be in the non-transmission mode **232**. The agent device **202** and the electronic device **204** can communicate with or without internet connection. As an example for communication without internet connection, the agent device **202** and the electronic device **204** can communicate by transmitting ultrasonic tone to one another.

[0045] The device application **234** can represent software running on the agent device **202**, the electronic device **204**, or a combination thereof. An application status **236** is a state of the device application **234**. For example, the device application **234** can represent a remote control application to control the electronic device **204** by the agent device **202**. If the agent device **202** is within the detection proximity **222**, thus the server presence **226** is detected, the computing system **100** can change the mode type **228** from the non-transmission mode **232** to the transmission mode **230** and change the application status **236** to activate the remote control application.

[0046] An inactivity time **238** is time duration of the agent device **202** making no requests to the electronic device **204**. A time threshold **240** is maximum time duration allowed for the inactivity time **238** before the mode type **228** switches from the transmission mode **230** to the non-transmission mode **232**. For example, the time threshold **240** can represent 15 minutes. The agent device **202** can be placed on a table with the inactivity time **238** of 20 minutes. The computing system **100** can change the mode type **228** from the transmission mode **230** to the non-transmission mode **232**.

[0047] A plurality of the agent device **202** can make request to control the electronic device **204**. A detection quantity **242** is a number of the client presence **224** detected by the electronic device **204**. A request timing **244** is a time sequence for when the agent device **202** made a request to the electronic device **204**. A device priority **246** is a level importance placed on one device over another device. For example, the device priority **246** can be placed on the agent device **202** with a user profile **248** of a parent over the agent device **202** with the user profile **248** of a child. The user profile **248** is personal information. For example, the user profile **248** can include the name, gender, age, occupation, or a combination thereof regarding the user of the agent device **202**.

[0048] Referring now to FIG. **3**, therein is shown an example of a handshaking process of the computing system **100** between the agent device **202** and the electronic device **204**. The electronic device **204** can transmit a server recognition pattern **302**. The server recognition pattern **302** is a notification to broadcast the server presence **226** of FIG. **2**. For example, the electronic device **204** can transmit the server recognition pattern **302** as a mechanical wave, an electromagnetic wave, or a combination thereof. For further example, the server recognition pattern **302** can represent an ultrasonic tone.

[0049] The agent device **202** can transmit a client recognition pattern **304**. The client recognition pattern **304** is a notification to broadcast the client presence **224** of FIG. **2**. For example, the agent device **202** can transmit the client recognition pattern **304** as a mechanical wave, an electromagnetic wave, or a combination thereof. For further example, the client recognition pattern **304** can represent an ultrasonic tone.

[0050] The electronic device **204** can transmit a peak pattern **306**. The peak pattern **306** is a notification to inform the availability of the electronic device **204** to the agent device **202**. For example, the electronic device **204** can transmit the peak pattern **306** as a mechanical wave, an electromagnetic wave, or a combination thereof. For further example, the peak pattern **306** can represent an ultrasonic tone.

[0051] A setup possibility **308** is a prospect of the agent device **202** establishing communication with the electronic device **204** to control the device functionality **208** of the electronic device **204**. More specifically, if the electronic device **204** transmits the peak pattern **306**, the setup possibility **308** can represent "yes" because the electronic device **204** is available. In contrast, if the electronic device **204** does not transmit the peak pattern **306** to the agent device **202**, the setup possibility **308** can represent "no" because the electronic device **204** is unavailable. A request window **310** is a maximum timeframe allowed for receiving the peak pattern **306** after communicating the client recognition pattern **304**.

[0052] The agent device **202** can transmit a confirmation pattern **312**. The confirmation pattern **312** is a notification to inform the awareness by the agent device **202** that the electronic device **204** is available. For example, the agent device **202** can transmit the confirmation pattern **312** as a mechanical wave, an electromagnetic wave, or a combination thereof. For further example, the confirmation pattern **312** can represent an ultrasonic tone. A device registration **314** is the electronic device **204** registering the agent device **202** to allow control of the device functionality **208** of the electronic device **204**. For example, the electronic device **204** can determine the device registration **314** after receiving the confirmation pattern **312** from the agent device **202**.

[0053] Referring now to FIG. **4**, therein is shown examples of an entry gesture **402** performed on the agent device **202** of FIG. **2**. The entry gesture **402** is a user entry **404** detected and comprehended by the computing system **100**. For example, the user entry **404** can represent a tap, a swipe, a pinch, a turn, or a combination thereof. For another example, the user entry **404** can represent the user of the computing system **100** pointing the agent device **202** towards the electronic device **204** of FIG. **2**.

[0054] The computing system **100** can detect and comprehend the tap, the swipe, the pinch, the turn, or a combination thereof as the entry gesture **402**. For a specific example, the computing system **100** can determine the entry gesture **402** based on a detection area **406**, a device posture **408**, a contact duration **410**, a movement direction **412**, or a combination thereof.

[0055] The detection area **406** is surface of the agent device **202** to receive the user entry **404**. For example, the detection area **406** can include a display interface **414**, a device backside **416**, a device side **418**, or a combination thereof. The contact duration **410** is a length of time a contact is made on the detection area **406**. For example, if the user entry **404** makes a contact with the display interface **414** for the contact duration **410** of less than 1 second, the computing system **100** can determine the user entry **404** as the entry gesture **402** of a tap.

[0056] The device posture **408** is an orientation of the agent device **202**. The movement direction **412** is a change in an orientation of the agent device **202**. The user can change the device posture **408** by turning the agent device **202** towards the movement direction **412** of clockwise, counterclockwise, or a combination thereof. The movement direction **412** can represent turning the agent device **202** along the x, y, and z coordinates. For a specific example, the user can change the device posture **408** by pointing the agent device **202** towards the electronic device **204** for a time period, such as 2 seconds. The computing system **100** can detect the change in the device posture **408** or the movement direction **412** with a detecting sensor **420**. The detecting sensor **420** can represent accelerometer, magnetometer, gyroscope, microphone, or the combination thereof.

[0057] Referring now to FIG. **5**, therein is shown an example of a channel bin **502**. The channel bin **502** is a group of a communication channel **504**. The channel bin **502** allows a plurality of the agent device **202** of FIG. **2** to simultaneously communicate with the electronic device **204** of FIG. **2**. For example, the electronic device **204** can assign one instance of the channel bin **502** to the agent device **202** representing the first device **102** of FIG. **1** and another instance of the channel bin **502** to the gent device **202** representing the third device **108** of FIG. **2** for accepting multiple requests from multiple instances of the agent device **202**.

[0058] The communication channel **504** is a medium used to transmit information. For example, the communication channel **504** can be used to convey information signal between the agent device **202** and the electronic device **204**. For example, the communication channel **504** can be selected from a plurality of a communication frequency **506** ranging from 18 kilohertz (kHz) to 21 kHz. The communication frequency **506** is a number of cycles per unit for a mechanical wave, an electromagnetic wave, or a combination thereof. A channel peak **508** is the communication frequency **506** having a highest amplitude. For example, the channel peak **508** for the channel bin **502** between 18 kHz and 18.5 kHz can be at the communication frequency **506** of 18.01 kHz.

[0059] A frequency range **510** is a scope of a plurality of the communication frequency **506** considered to determine the channel bin **502**. For example, the frequency range **510** can represent the communication frequency **506** ranging from 18 kHz to 21 kHz. A frequency interval **512** is a size of the communication channel **504** to segment the frequency range **510**. For example, the frequency interval **512** can represent 300 hertz (Hz). The frequency range **510** can represent from 18 kHz to 21 kHz. The computing system **100** can segment the frequency range **510** with the frequency interval **512** to generate 10 instances of the communication channel **504**. Moreover, the computing system **100** can group 5 instances of the communication channel **504** to generate the channel bin **502**. As a result, 2 instances of the channel bin **502** can be generated.

[0060] A channel occupancy **514** is a status of whether the channel bin **502** is assigned or not. A channel availability **516** is a result of whether the channel bin **502** is available or not based on the channel occupancy **514**. For example, the electronic device **204** can assign the channel bin **502** if the channel occupancy **514** represents unoccupied. As a result, the electronic device **204** can inform the channel availability **516** to the agent device **202**.

[0061] Referring now to FIG. **6**, therein is shown an exemplary block diagram of the computing system **100**. The computing system **100** can include the first device **102**, the third device **108**, the communication path **104**, and the second device **106**. The first device **102** or the third device **108** can send information in a first device transmission **608** over the communication path **104** to the second device **106**. The second device **106** can send information in a second device transmission **610** over the communication path **104** to the first device **102** or the third device **108**.

[0062] For illustrative purposes, the computing system **100** is shown with the first device **102** or the third device **108** as a client device, although it is understood that the computing system **100** can have the first device **102** or the third device **108** as a different type of device. For example, the first device **102** or the third device **108** can be a server having a display interface.

[0063] Also for illustrative purposes, the computing system **100** is shown with the second device **106** as a server, although it is understood that the computing system **100** can have the second device **106** as a different type of device. For example, the second device **106** can be a client device.

[0064] For brevity of description in this embodiment of the present invention, the first device **102** or the third device **108** will be described as a client device and the second device **106** will be described as an electronic device. The embodiment of the present invention is not limited to this selection for the type of devices. The selection is an example of the present invention.

[0065] The first device **102** can include a first control unit **612**, a first storage unit **614**, a first communication unit **616**, a first user interface **618**, and a location unit **620**. The first control unit **612** can include a first control interface **622**. The first control unit **612** can execute a first software **626** to provide the intelligence of the computing system **100**.

[0066] The first control unit **612** can be implemented in a number of different manners. For example, the first control unit **612** can be a processor, an application specific integrated circuit (ASIC) an embedded processor, a microprocessor, a hardware control logic, a hardware finite state machine (FSM), a digital signal processor (DSP), or a combination thereof. The first control interface **622** can be used for communication between the first control unit **612** and other functional units in the first device **102**. The first control interface **622** can also be used for communication that is external to the first device **102**.

[0067] The first control interface **622** can receive information from the other functional units or from external sources, or can transmit information to the other functional units or to external destinations. The external sources and the external destinations refer to sources and destinations physically separate from to the first device **102**.

[0068] The first control interface **622** can be implemented in different ways and can include different implementations depending on which functional units or external units are being interfaced with the first control interface **622**. For example, the first control interface **622** can be implemented with a pressure sensor, an inertial sensor, a microelectromechanical system (MEMS), optical circuitry, waveguides, wireless circuitry, wireline circuitry, or a combination thereof.

[0069] The location unit **620** can generate location information, current heading, and current speed of the first device **102**, as examples. The location unit **620** can be implemented in many ways. For example, the location unit **620** can function as at least a part of a global positioning system (GPS), an inertial navigation system, a cellular-tower location system, a pressure location system, or any combination thereof.

[0070] The location unit **620** can include a location interface **632**. The location interface **632** can be used for communication between the location unit **620** and other functional units in the first device **102**. The location interface **632** can also be used for communication that is external to the first device **102**.

[0071] The location interface **632** can receive information from the other functional units or from external sources, or can transmit information to the other functional units or to external destinations. The external sources and the external destinations refer to sources and destinations physically separate from the first device **102**.

[0072] The location interface **632** can include different implementations depending on which functional units or external units are being interfaced with the location unit **620**. The location interface **632** can be implemented with technologies and techniques similar to the implementation of the first control interface **622**.

[0073] The first storage unit **614** can store the first software **626**. The first storage unit **614** can also store the relevant information, such as advertisements, points of interest (POI), navigation routing entries, or any combination thereof. The relevant information can also include news, media, events, or a combination thereof from the third party content provider.

[0074] The first storage unit **614** can be a volatile memory, a nonvolatile memory, an internal memory, an external memory, or a combination thereof. For example, the first storage unit **614** can be a nonvolatile storage such as nonvolatile random access memory (NVRAM), Flash memory, disk storage, or a volatile storage such as static random access memory (SRAM).

[0075] The first storage unit **614** can include a first storage interface **624**. The first storage interface **624** can be used for communication between and other functional units in the first device **102**. The first storage interface **624** can also be used for communication that is external to the first device **102**.

[0076] The first storage interface **624** can receive information from the other functional units or from external sources, or can transmit information to the other functional units or to external destinations. The external sources and the external destinations refer to sources and destinations physically separate from the first device **102**.

[0077] The first storage interface **624** can include different implementations depending on which functional units or external units are being interfaced with the first storage unit **614**. The first storage interface **624** can be implemented with technologies and techniques similar to the implementation of the first control interface **622**.

[0078] The first communication unit **616** can enable external communication to and from the first device **102**. For example, the first communication unit **616** can permit the first device **102** to communicate with the first device **102** of FIG. **1**, an attachment, such as a peripheral device or a computer desktop, and the communication path **104**.

[0079] The first communication unit **616** can also function as a communication hub allowing the first device **102** to function as part of the communication path **104** and not limited to be an end point or terminal unit to the communication path **104**. The first communication unit **616** can include active and passive components, such as microelectronics or an antenna, for interaction with the communication path **104**.

[0080] The first communication unit **616** can include a first communication interface **628**. The first communication interface **628** can be used for communication between the first communication unit **616** and other functional units in the first device **102**. The first communication interface **628** can receive information from the other functional units or can transmit information to the other functional units.

[0081] The first communication interface **628** can include different implementations depending on which functional units are being interfaced with the first communication unit **616**. The first communication interface **628** can be implemented with technologies and techniques similar to the implementation of the first control interface **622**.

[0082] The first user interface **618** allows a user (not shown) to interface and interact with the first device **102**. The first user interface **618** can include an input device and an output device. Examples of the input device of the first user interface **618** can include a keypad, a touchpad, soft-keys, a keyboard, a microphone, an infrared sensor for receiving remote signals, or any combination thereof to provide data and communication inputs.

[0083] The first user interface **618** can include a first display interface **630**. The first display interface **630** can include a display, a projector, a video screen, a speaker, or any combination thereof.

[0084] The first control unit **612** can operate the first user interface **618** to display information generated by the computing system **100**. The first control unit **612** can also execute the first software **626** for the other functions of the computing system **100**, including receiving location information from the location unit **620**. The first control unit **612** can further execute the first software **626** for interaction with the communication path **104** via the first communication unit **616**.

[0085] The second device **106** can be optimized for implementing the embodiment of the present invention in a multiple device embodiment with the second device **106**. The second device **106** can provide the additional or higher performance processing power compared to the first device **102**. The second device **106** can include a second control unit **634**, a second communication unit **636**, and a second user interface **638**.

[0086] The second user interface **638** allows a user (not shown) to interface and interact with the second device **106**. The second user interface **638** can include an input device and an output device. Examples of the input device of the second user interface **638** can include a keypad, a touchpad, soft-keys, a keyboard, a microphone, or any combination thereof to provide data and communication inputs. Examples of the output device of the second user interface **638** can include a second display interface **640**. The second display interface **640** can include a display, a projector, a video screen, a speaker, or any combination thereof.

[0087] The second control unit **634** can execute a second software **642** to provide the intelligence of the second device **106** of the computing system **100**. The second software **642** can operate in conjunction with the first software **626**. The second control unit **634** can provide additional performance compared to the first control unit **612**.

[0088] The second control unit **634** can operate the second user interface **638** to display information. The second control unit **634** can also execute the second software **642** for the other functions of the computing system **100**, including operating the second communication unit **636** to communicate with the second device **106** over the communication path **104**.

[0089] The second control unit **634** can be implemented in a number of different manners. For example, the second control unit **634** can be a processor, an embedded processor, a microprocessor, hardware control logic, a hardware finite state machine (FSM), a digital signal processor (DSP), or a combination thereof.

[0090] The second control unit **634** can include a second control interface **644**. The second control interface **644** can be used for communication between the second control unit **634** and other functional units in the second device **106**. The second control interface **644** can also be used for communication that is external to the second device **106**.

[0091] The second control interface **644** can receive information from the other functional units or from external sources, or can transmit information to the other functional units or to external destinations. The external sources and the external destinations refer to sources and destinations physically separate from the second device **106**.

[0092] The second control interface **644** can be implemented in different ways and can include different implementations depending on which functional units or external units are being interfaced with the second control interface **644**. For example, the second control interface **644** can be implemented with a pressure sensor, an inertial sensor, a microelectromechanical system (MEMS), optical circuitry, waveguides, wireless circuitry, wireline circuitry, or a combination thereof.

[0093] A second storage unit **646** can store the second software **642**. The second storage unit **646** can also store the relevant information, such as advertisements, points of interest (POI), navigation routing entries, or any combination thereof. The second storage unit **646** can be sized to provide the additional storage capacity to supplement the first storage unit **614**.

[0094] For illustrative purposes, the second storage unit **646** is shown as a single element, although it is understood that the second storage unit **646** can be a distribution of storage elements. Also for illustrative purposes, the computing system **100** is shown with the second storage unit **646** as a single hierarchy storage system, although it is understood that the computing system **100** can have the second storage unit **646** in a different configuration. For example, the second storage unit **646** can be formed with different storage technologies forming a memory hierarchal system including different levels of caching, main memory, rotating media, or off-line storage.

[0095] The second storage unit **646** can be a volatile memory, a nonvolatile memory, an internal memory, an external memory, or a combination thereof. For example, the second storage unit **646** can be a nonvolatile storage such as non-volatile random access memory (NVRAM), Flash memory, disk storage, or a volatile storage such as static random access memory (SRAM).

[0096] The second storage unit **646** can include a second storage interface **648**. The second storage interface **648** can be used for communication between other functional units in the second device **106**. The second storage interface **648** can also be used for communication that is external to the second device **106**.

[0097] The second storage interface **648** can receive information from the other functional units or from external sources, or can transmit information to the other functional units or to external destinations. The external sources and the external destinations refer to sources and destinations physically separate from the second device **106**.

[0098] The second storage interface **648** can include different implementations depending on which functional units or external units are being interfaced with the second storage unit **646**. The second storage interface **648** can be implemented with technologies and techniques similar to the implementation of the second control interface **644**.

[0099] The second communication unit **636** can enable external communication to and from the second device **106**. For example, the second communication unit **636** can permit the second device **106** to communicate with the first device **102** over the communication path **104**.

[0100] The second communication unit **636** can also function as a communication hub allowing the second device **106** to function as part of the communication path **104** and not limited to be an end point or terminal unit to the communication path **104**. The second communication unit **636** can include active and passive components, such as microelectronics or an antenna, for interaction with the communication path **104**.

[0101] The second communication unit **636** can include a second communication interface **650**. The second communication interface **650** can be used for communication between the second communication unit **636** and other functional units in the second device **106**. The second communication interface **650** can receive information from the other functional units or can transmit information to the other functional units.

[0102] The second communication interface **650** can include different implementations depending on which functional units are being interfaced with the second communication unit **636**. The second communication interface **650** can be implemented with technologies and techniques similar to the implementation of the second control interface **644**.

[0103] The first communication unit **616** can couple with the communication path **104** to send information to the second device **106** in the first device transmission **608**. The second device **106** can receive information in the second communication unit **636** from the first device transmission **608** of the communication path **104**.

[0104] The second communication unit **636** can couple with the communication path **104** to send information to the first device **102** in the second device transmission **610**. The first device **102** can receive information in the first communication unit **616** from the second device transmission **610** of the communication path **104**. The computing system **100** can be executed by the first control unit **612**, the second control unit **634**, or a combination thereof.

[0105] For illustrative purposes, the second device **106** is shown with the partition having the second user interface **638**, the second storage unit **646**, the second control unit **634**, and the second communication unit **636**, although it is understood that the second device **106** can have a different partition. For example, the second software **642** can be partitioned differently such that some or all of its function can be in the second control unit **634** and the second communication unit **636**. Also, the second device **106** can include other functional units not shown in FIG. **6** for clarity.

[0106] The third device **108** can include a third control unit **652**, a third storage unit **654**, a third communication unit **656**, a third user interface **658**, and a location unit **660**. The third control unit **652** can include a third control interface **662**. The third control unit **652** can execute a third software **666** to provide the intelligence of the computing system **100**. The third control unit **652** can be implemented in a number of different manners. For example, the third control unit **652** can be a processor, an embedded processor, a microprocessor, a hardware control logic, a hardware finite state machine (FSM), a digital signal processor (DSP), or a combination thereof. The third control interface **662** can be used for communication between the third control unit **652** and other functional units in the third device **108**. The third control interface **662** can also be used for communication that is external to the third device **108**.

[0107] The third control interface **662** can receive information from the other functional units or from external sources, or can transmit information to the other functional units or to external destinations. The external sources and the external destinations refer to sources and destinations physically separate to the third device **108**.

[0108] The third control interface **662** can be implemented in different ways and can include different implementations depending on which functional units or external units are being interfaced with the third control interface **662**. For example, the third control interface **662** can be implemented with a pressure sensor, an inertial sensor, a microelectromechanical system (MEMS), optical circuitry, waveguides, wireless circuitry, wireline circuitry, or a combination thereof.

[0109] The location unit **660** can generate location information, current heading, and current speed of the third device **108**, as examples. The location unit **660** can be implemented in many ways. For example, the location unit **660** can function as at least a part of a global positioning system (GPS), an inertial navigation system, a cellular-tower location system, a pressure location system, or any combination thereof.

[0110] The location unit **660** can include a location interface **672**. The location interface **672** can be used for communication between the location unit **660** and other functional units in the third device **108**. The location interface **672** can also be used for communication that is external to the third device **108**.

[0111] The location interface **672** can receive information from the other functional units or from external sources, or can transmit information to the other functional units or to external destinations. The external sources and the external destinations refer to sources and destinations physically separate to the third device **108**.

[0112] The location interface **672** can include different implementations depending on which functional units or external units are being interfaced with the location unit **660**. The location interface **672** can be implemented with technologies and techniques similar to the implementation of the third control interface **662**.

[0113] The third storage unit **654** can store the third software **666**. The third storage unit **654** can also store the relevant information, such as advertisements, points of interest (POI), navigation routing entries, or any combination thereof.

[0114] The third storage unit **654** can be a volatile memory, a nonvolatile memory, an internal memory, an external memory, or a combination thereof. For example, the third storage unit **654** can be a nonvolatile storage such as nonvolatile random access memory (NVRAM), Flash memory, disk storage, or a volatile storage such as static random access memory (SRAM).

[0115] The third storage unit **654** can include a third storage interface **664**. The third storage interface **664** can be used for communication between the location unit **660** and other functional units in the third device **108**. The third storage interface **664** can also be used for communication that is external to the third device **108**.

[0116] The third storage interface **664** can receive information from the other functional units or from external sources, or can transmit information to the other functional units or to external destinations. The external sources and the external destinations refer to sources and destinations physically separate to the third device **108**.

[0117] The third storage interface **664** can include different implementations depending on which functional units or external units are being interfaced with the third storage unit **654**. The third storage interface **664** can be implemented with technologies and techniques similar to the implementation of the third control interface **662**.

[0118] The third communication unit **656** can enable external communication to and from the third device **108**. For example, the third communication unit **656** can permit the third device **108** to communicate with the second device **106** of FIG. **1**, an attachment, such as a peripheral device or a computer desktop, and the communication path **104**.

[0119] The third communication unit **656** can also function as a communication hub allowing the third device **108** to function as part of the communication path **104** and not limited to be an end point or terminal unit to the communication path **104**. The third communication unit **656** can include active and passive components, such as microelectronics or an antenna, for interaction with the communication path **104**.

[0120] The third communication unit **656** can include a third communication interface **668**. The third communication interface **668** can be used for communication between the third communication unit **656** and other functional units in the third device **108**. The third communication interface **668** can receive information from the other functional units or can transmit information to the other functional units.

[0121] The third communication interface **668** can include different implementations depending on which functional units are being interfaced with the third communication unit **656**. The third communication interface **668** can be implemented with technologies and techniques similar to the implementation of the third control interface **662**.

[0122] The third user interface **658** allows a user (not shown) to interface and interact with the third device **108**. The third user interface **658** can include an input device and an output device. Examples of the input device of the third user interface **658** can include a keypad, a touchpad, soft-keys, a keyboard, a microphone, or any combination thereof to provide data and communication inputs.

[0123] The third user interface **658** can include a third display interface **670**. The third display interface **670** can include a display, a projector, a video screen, a speaker, or any combination thereof.

[0124] The third control unit **652** can operate the third user interface **658** to display information generated by the computing system **100**. The third control unit **652** can also execute the third software **666** for the other functions of the computing system **100**, including receiving location information from the location unit **660**. The third control unit **652** can further execute the third software **666** for interaction with the communication path **104** via the third communication unit **656**.

[0125] The functional units in the first device **102** can work individually and independently of the other functional units. The first device **102** can work individually and independently from the second device **106**, the third device **108**, and the communication path **104**.

[0126] The functional units in the second device **106** can work individually and independently of the other functional units. The second device **106** can work individually and independently from the first device **102**, the third device **108**, and the communication path **104**.

[0127] The functional units in the third device **108** can work individually and independently of the other functional units. The third device **108** can work individually and independently from the first device **102**, the second device **106**, and the communication path **104**.

[0128] For illustrative purposes, the computing system **100** is described by operation of the first device **102**, the second device **106**, and the third device **108**. It is understood that the first device **102**, the second device **106**, the third device **108** can operate any of the modules and functions of the computing system **100**. For example, the first device **102** is described to operate the location unit **620**, although it is understood that the second device **106** or the third device **108** can also operate the location unit **620**.

[0129] A first detecting sensor **674** can be the detecting sensor **420** of FIG. **4**. Examples of the first detecting sensor **674** can include accelerometer, magnetometer, gyroscope, microphone, or the combination thereof.

[0130] A second detecting sensor **676** can be the detecting sensor **420**. Examples of the second detecting sensor **676** can include accelerometer, magnetometer, gyroscope, microphone, or the combination thereof.

[0131] A third detecting sensor **678** can be the detecting sensor **420**. Examples of the third detecting sensor **678** can include accelerometer, magnetometer, gyroscope, microphone, or the combination thereof.

[0132] Referring now to FIG. **7**, therein is shown a control flow **700** of the computing system **100** of FIG. **1**. For clarity and brevity, the discussion of the control flow **700** will focus on the first device **102** of FIG. **1** or the third device **108** of FIG. **1** communicating with the second device **106** of FIG. **1**. However, the first device **102**, the second device **106**, the third device **108**, or a combination thereof can be discussed interchangeably. The discussion of the specificity of the modules pertaining to the first device **102**, the second device **106**, the third device **108**, or a combination thereof will be discussed when appropriate.

[0133] For further example, the first device **102** or the third device **108** can represent the device used by the user represented as the agent device **202** of FIG. **2**. The second device **106** can represent the electronic device **204** of FIG. **2** communicated by the first device **102**, the third device **108**, or a combination thereof.

[0134] The computing system **100** can include a channel module **702**. The channel module **702** generates the channel bin **502** of FIG. **5**. For example, the channel module **702** can generate the channel bin **502** representing a plurality of the communication channel **504** of FIG. **5**. For further example, the channel module **702** can generate the channel bin **502** by grouping a plurality of the communication channel **504** within the frequency range **510** of FIG. **5**.

[0135] The channel module **702** can generate the channel bin **502** in a number of ways. For example, the channel module **702** can generate the channel bin **502** by separating the frequency range **510** with the frequency interval **512** of FIG. **5**. For a specific example, the frequency range **510** can include a plurality of the communication frequency **506** of FIG. **5** ranging from 18 kHz to 21 kHz. The frequency interval **512** can represent 300 hertz (Hz). As an example, the channel module **702** can generate a plurality of the communication channel **504** of 10 channels based on (21000 Hz-18000 Hz)/300 Hz.

[0136] The channel module **702** can generate the channel bin **502** by grouping the plurality of the communication channel **504**. For example, the channel module **702** can assign a plurality of the communication channel **504** within the frequency range **510** from 18.01 kHz to 19.50 kHz as one instance of the channel bin **502**. The channel module **702** can assign a plurality of the communication channel **504** within the frequency range **510** from 19.51 kHz to 21.00 kHz as another instance of the channel bin **502**. The channel module **702** can generate the channel bin **502** having more than two instances of the channel bin **502** by changing the frequency range **510**, the frequency interval **512**, or a combination thereof. The channel module **702** can communicate the channel bin **502** to a server pattern module **704**.

[0137] The computing system **100** can include the server pattern module **704**, which can couple to the channel module **702**. The server pattern module **704** generates the server recognition pattern **302** of FIG. **3**. For example, the server pattern module **704** can generate the server recognition pattern **302** based on the communication frequency **506**, the frequency range **510**, or a combination thereof.

[0138] More specifically, the server pattern module **704** can generate the server recognition pattern **302** based on the communication frequency **506** outside of the frequency range **510** determined for the channel bin **502**. For example, the server pattern module **704** can generate the server recognition pattern **302** with the communication frequency **506** that is higher or lower than a plurality of the communication frequency **506** within the frequency range **510**. For a specific example, the frequency range **510** can represent a range from 18 kHz to 21 kHz. The server pattern module **704** can generate the server recognition pattern **302** with the communication frequency **506** of 21.5 kHz. The server pattern module **704** can communicate the server recognition pattern **302** to a client detection module **706**.

[0139] The computing system **100** can include the client detection module **706**. The client detection module **706** detects the server presence **226** of FIG. **2**. For example, the client detection module **706** can detect the server presence **226** based on the server recognition pattern **302**.

[0140] The client detection module **706** can detect the server presence **226** in a number of ways. For example, the agent device **202** can detect the server recognition pattern **302** if the agent device **202** is within the detection proximity **222** of FIG. **2**. Once the server recognition pattern **302** is detected, the client detection module **706** can determine that the server presence **226** of the electronic device **204**.

[0141] For further example, the client detection module **706** can determine the server presence **226** based on the communication frequency **506** of the server recognition pattern **302**. The communication frequency **506** for the server recognition pattern **302** for a particular instance of the electronic device **204** can be defined within the agent device **202**. More specifically, as discussed above, the communication frequency **506** for the server recognition pattern **302** can represent 21.5 kHz. By detecting the server recognition pattern **302** with a particular instance of the communication frequency **506**, the client detection module **706** can detect the server presence **226**. The client detection module **706** can communicate the server presence **226** to a status module **708**.

[0142] The computing system **100** can include the status module **708**, which can couple to the client detection module **706**. The status module **708** changes the application status **236** of FIG. **2**. For example, the status module **708** can change the application status **236** of the device application **234** of FIG. **2** on the agent device **202**. More specifically, the status module **708** can change the application status **236** to "activate" the device application **234** on the agent device **202** to control the electronic device **204** based on detecting the server presence **226**.

[0143] For another example, the status module **708** can maintain the application status **236**. More specifically, the application status **236** can represent the user using the device application **234** on the agent device **202** irrelevant to controlling the electronic device **204**. To avoid interrupting the user, the status module **708** can maintain the application status **236** for the device application **234** currently being used to avoid communicating with the electronic device **204**. The status module **708** can communicate the application status **236** to a client pattern module **710**.

[0144] The computing system **100** can include the client pattern module **710**, which can couple to the status module **708**. The client pattern module **710** generates the client recognition pattern **304** of FIG. **3**. For example, the client pattern module **710** can generate the client recognition pattern **304** based on the communication frequency **506**, the frequency range **510**, or a combination thereof.

[0145] More specifically, the client pattern module **710** can generate the client recognition pattern **304** based on the communication frequency **506** outside of the frequency range **510**

determined for the channel bin **502**, different from the server recognition pattern **302**, or a combination thereof. For example, the client pattern module **710** can generate the client recognition pattern **304** with the communication frequency **506** that is higher or lower than a plurality of the communication frequency **506** within the frequency range **510**, the server recognition pattern **302**, or a combination thereof. For a specific example, the frequency range **510** can represent a range from 18 kHz to 21 kHz. As stated above, the server recognition pattern **302** can have the communication frequency **506** of 21.5 kHz. The client pattern module **710** can generate the client recognition pattern **304** with the communication frequency **506** of 22 kHz. The client pattern module **710** can communicate the client recognition pattern **304** to a server detection module **712**.

[0146] The computing system **100** can include the server detection module **712**, which can couple to the client pattern module **710**. The server detection module **712** detects the client presence **224** of FIG. **2**. For example, the server detection module **712** can detect the client presence **224** based on the client recognition pattern **304**.

[0147] The server detection module **712** can detect the client presence **224** in a number of ways. For example, the electronic device **204** can detect the client recognition pattern **304** if the agent device **202** is within the detection proximity **222**. Once the client recognition pattern **304** is detected, the server detection module **712** can determine that the client presence **224** of the agent device **202**.

[0148] For further example, the server detection module **712** can determine the client presence **224** based on the communication frequency **506** of the client recognition pattern **304**. The communication frequency **506** for the client recognition pattern **304** for a particular instance of the agent device **202** can be defined within the electronic device **204**. More specifically, as discussed above, the communication frequency **506** for the client recognition pattern **304** can represent 22 kHz. By detecting the client recognition pattern **304** with a particular instance of the communication frequency **506**, the server detection module **712** can detect the client presence **224**. The server detection module **712** can communicate the client presence **224** to an availability module **714**.

[0149] The computing system **100** can include the availability module **714**, which can couple to the server detection module **712**. The availability module **714** determines the channel availability **516** of FIG. **5**. For example, the availability module **714** can determine the channel availability **516** based on the client presence **224**.

[0150] The availability module **714** can determine the channel availability **516** in a number of ways. For example, the availability module **714** can scan the channel bin **502** to determine the channel occupancy **514** of FIG. **5** of the communication channel **504**. As an example, two instances of the channel bin **502** can be available. If the channel occupancy **514** for either instance or both instances of the channel bin **502** is unoccupied, the availability module **714** can determine the channel availability **516** for the channel bin **502** as "available for assignment." In contrast, if the channel occupancy **514** for both instances of the channel bin **502** are assigned, the availability module **714** can determine the channel availability **516** as "unavailable for assignment."

[0151] For another example, the availability module **714** can determine the channel availability **516** based on comparing the detection quantity **242** of FIG. **2** and the channel occupancy **514**. More specifically, if the detection quantity **242** exceeds the number of the channel occupancy **514**, the availability module **714** can determine the channel availability **516** as unavailable. In contrast, if the detection quantity **242** meets or below the number of the channel occupancy **514**, the availability module **714** can determine the channel availability **516** as available.

[0152] For a specific example, the availability module **714** can determine the detection quantity **242** based on a number of instances of the client recognition pattern **304** detected. The channel occupancy **514** can represent two instances of the channel bin **502** available. The client recognition pattern **304** detected can represent two instances. The availability module **714** can determine the channel availability **516** as available. The availability module **714** can communicate the channel availability **516** to an assignment module **716**.

[0153] The computing system **100** can include the assignment module **716**, which can couple to the availability module **714**. The assignment module **716** assigns the channel bin **502**. For example, the assignment module **716** can assign the channel bin **502** based on the channel availability **516**.

[0154] The assignment module **716** can assign the channel bin **502** in a number of ways. For example, the assignment module **716** can assign the channel bin **502** to the agent device **202** based on the channel availability **516**. More specifically, if the channel occupancy **514** is available, thus, the channel availability **516** is "available for assignment," the assignment module **716** can assign the channel bin **502** to the agent device **202**.

[0155] For another example, the assignment module **716** can assign the channel bin **502** based on the detection quantity **242**, the device priority **246** of FIG. **2**, the user profile **248** of FIG. **2**, the request timing **244** of FIG. **2**, or a combination thereof. More specifically, the channel availability **516** can represent two instances of the channel bin **502** available. The detection quantity **242** can represent three instances of the agent device **202** communicating the client recognition pattern **304**. The assignment module **716** can assign the two instances of the channel bin **502** to the two devices of the agent device **202**.

[0156] It has been discovered that the computing system **100** assigning a plurality of the channel bin **502** to a plurality of the agent device **202** improves the efficiency of operating the electronic device **204**, the computing system **100**, or a combination thereof. By assigning each instances of the channel bin **502**, the computing system **100** can allow more than instance of the agent device **202** to access the device functionality **208** of FIG. **2** of the electronic device **204**. As a result, the computing system **100** can improve the efficiency of controlling the electronic device **204** for enhanced user experience operating the electronic device **204**, the computing system **100**, or a combination thereof.

[0157] Continuing with the example, the assignment module **716** can assign the channel bin **502** based on the device priority **246**, the user profile **248**, the request timing **244**, or a combination thereof for managing a plurality of the agent device **202**. More specifically, one instance of the user profile **248** can represent the father and another instance of the user profile **248** can represent the son. The device priority **246** can represent the agent device **202** operated by the father can have a higher priority than the agent device **202** operated by the son. As a result, the assignment module **716** can assign the available instance of the channel bin **502** to the agent device **202** operated by the father before the agent device **202** operated by the son. In contrast, the request timing **244** of the agent device **202** operated by the son made the client presence **224** known to the electronic device **204** before the agent device **202** operated by the father. The assignment module **716** can assign the channel bin **502** to the agent device **202** operated the son before the agent device **202** operated by the father.

[0158] It has been discovered that the computing system **100** assigning the channel bin **502** based on the device priority **246** improves the efficiency of operating the electronic device **204**, the computing system **100**, or a combination thereof. By assigning each instances of the channel bin **502** based on the device priority **246**, the computing system **100** can allow more than instance of the agent device **202** to access the device functionality **208** of FIG. **2** of the electronic device **204** and reduce conflict as to which instance of the agent device **202** to occupy the channel bin **502**. As a result, the computing system **100** can improve the efficiency of controlling the electronic device **204** for enhanced user experience operating the electronic device **204**, the computing system **100**, or a combination thereof.

[0159] For further example, the assignment module **716** can override the channel occupancy **514** to create the channel availability **516** for the agent device **202** having the device priority **246** higher than the agent device **202** already occupying the channel occupancy **514**. For example, the channel bin **502** can be occupied by the agent device **202** operated by the son and the agent device **202** operated by the mother. If the client presence **224** of the agent device **202** operated by the father is within the detection proximity **222**, the assignment module **716** can cancel the channel occupancy **514** of the agent device **202** with the lowest instance of the device priority **246** to reassign the channel bin **502** made available to the agent device **202** operated by the father.

[0160] For another example, the assignment module **716** can assign the channel bin **502** based on the communication frequency **506** of the client recognition pattern **304**. More specifically, one instance of the agent device **202** can communicate the client recognition pattern **304** with the communication frequency **506** of 22.0 kHz. Another instance of the agent device **202** can communicate the client recognition pattern **304** with the communication frequency **506** of 22.5 kHz. The assignment module **716** can assign the channel bin **502** to the agent device **202** communicating with the client recognition pattern **304** having the highest or the lowest instance of the communication frequency **506** over the agent device **202** communicating with the client recognition pattern **304** having lowest or the highest instance, respectively, of the communication frequency **506**. The assignment module **716** can communicate the channel bin **502** assigned to a server peak module **718**.

[0161] The computing system **100** can include the server peak module **718**, which can couple to the assignment module **716**. The server peak module **718** generates the peak pattern **306** of FIG. **3**. For example, the server peak module **718** can generate the peak pattern **306** based on the channel availability **516**. More specifically, the channel availability **516** can indicate that the channel bin **502** representing the frequency range **510** between 18.01 kHz to 19.50 kHz as available. The server peak module **718** can generate the peak pattern **306** having the channel peak **508** of FIG. **5** based on determining the communication frequency **506** with the highest amplitude within the channel bin **502**. In contrast, if the channel availability **516** is unavailable, the server peak module **718** can remain silent and not generate the peak pattern **306**. More specifically, the server peak module **718** can communicate the peak pattern **306** to a setup module **720** based on whether the peak pattern **306** is generated to notify the agent device **202** of being assigned with the channel bin **502**.

[0162] The computing system **100** can include the setup module **720**, which can couple to the server peak module **718**. The setup module **720** determines the setup possibility **308** of FIG. **3**. For example, the setup module **720** can determine the setup possibility **308** based on the peak pattern **306**, the request window **310** of FIG. **3**, or a combination thereof.

[0163] For a specific example, the setup module **720** can determine the setup possibility **308** based on the agent device **202** receiving the peak pattern **306** within the request window **310**. More specifically, the setup module **720** can determine the setup possibility **308** for the agent device **202** to occupy the channel bin **502** by detecting the channel peak **508** from the peak pattern **306**. If the setup module **720** did not receive the peak pattern **306** within the request window **310**, the agent device **202** can recognize that the channel availability **516** as unavailable, the electronic device **204** is busy, or a combination thereof. The setup module **720** can communicate the setup possibility **308** to a confirmation module **722**.

[0164] The computing system **100** can include the confirmation module **722**, which can couple to the setup module **720**. The confirmation module **722** generates the confirmation pattern **312** of FIG. **3**. For example, the confirmation module **722** can generate the confirmation pattern **312** having the channel peak **508**.

[0165] For a specific example, the confirmation module **722** can generate the confirmation pattern **312** to notify the electronic device **204** that the agent device **202** is aware of the assigned instance of the channel bin **502**. Moreover, the confirmation module **722** can generate the confirmation pattern **312** with the channel peak **508** of the peak pattern **306** to indicate the awareness of the channel bin **502** assigned by the electronic device **204** to the agent device **202**. The confirmation module **722** can communicate the confirmation pattern **312** to a registration module **724**.

[0166] The computing system **100** can include the registration module **724**, which can couple to the confirmation module **722**. The registration module **724** determines the device registration **314** of FIG. **3**. For example, the registration module **724** can determine the device registration **314** based on the confirmation pattern **312**. More specifically, the registration module **724** can determine the device registration **314** for the agent device **202** as registered based on the agent device **202** communicating the confirmation pattern **312**. The electronic device **204** can register the agent device **202** for the channel bin **502** based on the confirmation pattern **312** to allow the agent device **202** to control the electronic device **204**. The registration module **724** can communicate the device registration **314** to an entry module **726**.

[0167] The computing system **100** can include the entry module **726**, which can couple to the registration module **724**. The entry module **726** determines the entry gesture **402** of FIG. **4**. For example, the entry module **726** can determine the entry gesture **402** based on the user entry **404** of FIG. **4**, the detection area **406** of FIG. **4**, the device posture **408** of FIG. **4**, or a combination thereof.

[0168] The entry module **726** can determine the entry gesture **402** in a number of ways. For example, the entry module **726** can determine the entry gesture **402** based on detecting the user entry **404** on the detection area **406** of the agent device **202**. More specifically, the detection area **406** can represent the display interface **414** of FIG. **4**, the device backside **416** of FIG. **4**, the device side **418** of FIG. **4**, or a combination thereof. The user entry **404** can represent a tap on the display interface **414**. The entry module **726** can determine the entry gesture **402** as a plurality of a tap on the device backside **416** based on determining the contact duration **410** of FIG. **4** of the user entry **404** on the detection area **406**.

[0169] For another example, the entry module **726** can determine the entry gesture **402** based on the device posture **408**, the movement direction **412** of FIG. **4**, or a combination thereof of the agent device **202**. The user entry **404** can change the device posture **408** of the agent device **202** by turning the device backside **416** facing the user and display interface **414** facing away from the user. The entry module **726** can determine the change in the device posture **408** with the detecting sensor **420** of FIG. **4** representing the gyroscope. As an example, the entry module **726** can determine the device posture **408** of whether the movement direction **412** is clockwise or counterclockwise with the detecting sensor **420**. As a result, the entry module **726** can determine the entry gesture **402** as turning the agent device **202** clockwise or counterclockwise based on the movement direction **412** of the device posture **408** changing. The entry module **726** can communicate the entry gesture **402** to a mode module **728**.

[0170] The computing system **100** can include the mode module **728**, which can couple to the entry module **726**. The mode module **728** determines the mode type **228** of FIG. **2**. For example, the mode module **728** can determine the mode type **228** based on the entry gesture **402**.

[0171] The mode module **728** can determine the mode type **228** in a number of ways. For example, the mode module **728** can determine the mode type **228** based on the entry gesture **402**. As an example, the mode type **228** can include the transmission mode **230** of FIG. **2** or the non-transmission mode **232** of FIG. **2**. Moreover, the mode module **728** can have the mode type **228** predefined based on the entry gesture **402**. For example, the mode module **728** can continuously run the transmission mode **230** if the entry gesture **402** represents a continuous contact on the display interface **414** by the user of the computing system **100**. Continuing with the previous example, the entry gesture **402** can represent taps on the display interface **414**. The mode module **728** can determine the mode type **228** to represent the transmission mode **230**.

[0172] For a different example, the mode module **728** can update the mode type **228** based on the inactivity time **238** of FIG. **2**, the time threshold **240** of FIG. **2**, the server recognition pattern **302**, or a combination thereof. For a specific example, the mode module **728** can calculate the inactivity time **238** based on the last time the user entry **404** made contact with the agent device **202**. If the inactivity time **238** meets or exceeds the time threshold **240**, the mode module **728** can determine the mode type **228** as the non-transmission mode **232**. For another example, the mode module **728** can determine the mode type **228** as the non-transmission mode **232** if the agent device **202** can no longer detect the server recognition pattern **302** or outside of the detection proximity **222**. The mode module **728** can communicate the mode type **228** to a structure module **730**.

[0173] For illustrative purposes, the status module **708** is described with changing the application status **236** based on detecting the server presence **226**, although the status module **708** can operate differently. For example, the status module **708** can change the application status **236** based on the inactivity time **238** meeting or exceeding the time threshold **240**. More specifically, the status module **708** can change the application status **236** from "active" to "inactive" if the inactivity time **238** meets or exceeds the time threshold **240**.

[0174] The computing system **100** can include the structure module **730**, which can couple to the mode module **728**. The structure module **730** generates the instruction code **212** of FIG. **2**. For example, the structure module **730** can generate the instruction code **212** having the action segment **214** of FIG. **2**, the data segment **216** of FIG. **2**, or a combination thereof.

[0175] The structure module **730** can generate the instruction code **212** in a number of ways. For example, the length of the instruction code **212** can represent 6 bits long. The structure module **730** can generate the instruction code **212** having the action segment **214** and the data segment **216** that are 3 bits long each.

[0176] For a different example, the structure module **730** can customize the instruction code **212** by generating the instruction code **212** having the control segment **218** of FIG. **2** in addition to the action segment **214** and the data segment **216**. More specifically, the structure module **730** can generate the instruction code **212** having the control segment **218** based on the action type **220** of FIG. **2**.

[0177] For a specific example, if the action type **220** can represent a binary action, such as on/off, forward/backward, or previous/next, the structure module **730** can generate the instruction code **212** having the data segment **216** that is 1 bit long. Further, the structure module **730** can generate the instruction code **212** having the control segment **218** with a value of 0 to indicate that the action type **220** represents a binary action. Additionally, the structure module **730** can generate the instruction code **212** having the action segment **214** that is 4 bits long.

[0178] In contrast, the action type **220** can represent a non-binary action, such as volume control, which requires finer scale in data representation. As a result, the structure module **730** can generate the data segment **216** that is 3 bits long to reserve more bits. Additionally, the structure module **730** can generate the control segment **218** having the value of 1 to indicate that the action type **220** represents a non-binary action. The structure module **730** can communicate the instruction code **212** to a request module **732**.

[0179] The computing system **100** can include the request module **732**, which can couple to the structure module **730**. The request module **732** generates the activity request pattern **210** of FIG. **2**. For example, the request module **732** can generate the activity request pattern **210** based on the instruction code **212**, the entry gesture **402**, or a combination thereof.

[0180] The request module **732** can generate the activity request pattern **210** in a number of ways. For example, the request module **732** can generate the activity request pattern **210** based on the entry gesture **402** on the detection area **406**. More specifically, the entry gesture **402** can represent a tap on the device backside **416**. The request module **732** can generate the activity request pattern **210** having the instruction code **212** to switch the action type **220** for controlling the electronic device **204**.

[0181] For a specific example, the action type **220** can represent "on/off" to turn on or off the electronic device **204**. The instruction code **212** can include the action segment **214** and the data segment **216** to request the electronic device **204** to turn on or off. The request module **732** can generate the activity request pattern **210** with the instruction code **212** to turn on the electronic device **204**.

[0182] Once the electronic device **204** is turned on, the user of the computing system **100** can make the user entry **404** representing a tap to the device backside **416** of the agent device **202** to switch the action type **220**. As an example, the user can switch the action type **220** from "on/off" to "volume control." As a result, the request module **732** can update the activity request pattern **210** to include the instruction code **212** for "volume control" to be transmitted to the electronic device **204**.

[0183] For a different example, the request module **732** can generate the activity request pattern **210** based on the entry gesture **402** from the change in the device posture **408**. More specifically, the display interface **414** of the agent device **202** can initially face towards the user. The user can rotate the agent device **202** with the movement direction **412** of clockwise or counterclockwise to turn the device backside **416** to face towards the user. The request module **732** can generate the activity request pattern **210** to include the instruction code **212** based on the movement direction **412**. Moreover, the request module **732** can capture the device posture **408** to change the modulation of the activity request pattern **210** to indicate the change in the instruction code **212**. For example, the movement direction **412** of counterclockwise can represent "volume down" while the movement direction **412** of clockwise can represent "volume up." The request module **732** can communicate the activity request pattern **210** to a parser module **734**.

[0184] The computing system **100** can include the parser module **734**, which can couple to the request module **732**. The parser module **734** generates the activity command **206** of FIG. **2**. For example, the parser module **734** can generate the activity command **206** based on the activity request pattern **210**.

[0185] For a specific example, the parser module **734** can generate the activity command **206** by demodulating the activity request pattern **210**. The parser module **734** can listen to the activity request pattern **210** via the detecting sensor **420** of the agent device **202**. The parser module **734** can perform, for example, Fast Fourier Transform to convert the activity request pattern **210** representing an audio data from the time domain to frequency domain. Since the activity request pattern **210** may be noisy, the parser module **734** can smooth the activity request pattern **210** by applying, for example, Hamming Filter to reduce the leaking energy at the side slope. Subsequently, the parser module **734** can amplify the activity request pattern **210**.

[0186] For further example, the parser module **734** can recover the instruction code **212** through detecting the channel peak **508** of the activity request pattern **210**. The parser module **734** can generate the activity command **206** by decoding the instruction code **212** to obtain the information provided in the action segment **214** and the data segment **216**.

[0187] The physical transformation for detecting the server presence **226** results in the movement in the physical world, such as people using the first device **102**, the second device **106**, the third device **108**, or a combination thereof, based on the operation of the computing system **100**. As the movement in the physical world occurs, the movement itself creates additional information that is converted back into generating the client recognition pattern **304** for detecting the client presence **224** for the continued operation of the computing system **100** and to continue movement in the physical world.

[0188] The first software **626** of FIG. **6** of the first device **102** of FIG. **6** can include the computing system **100**. For example, the first software **626** can include the channel module **702**, the server pattern module **704**, the client detection module **706**, the status module **708**, the client pattern module **710**, the server detection module **712**, the availability module **714**, the assignment module **716**, the server peak module **718**, the setup module **720**, the confirmation module **722**, the registration module **724**, the entry module **726**, the mode module **728**, the structure module **730**, the request module **732**, and the parser module **734**.

[0189] The first control unit **612** of FIG. **6** can execute the first software **626** for the channel module **702** to generate the channel bin **502**. The first control unit **612** can execute the first software **626** for the server pattern module **704** to generate the server recognition pattern **302**.

[0190] The first control unit **612** can execute the first software **626** for the client detection module **706** to detect the server presence **226**. The first control unit **612** can execute the first software **626** for the status module **708** to change the application status **236**.

[0191] The first control unit **612** can execute the first software **626** for the client pattern module **710** to generate the client recognition pattern **304**. The first control unit **612** can execute the first software **626** for the server detection module **712** to detect the client presence **224**. The first control unit **612** can execute the first software **626** for the availability module **714** to determine the channel availability **516**. The first control unit **612** can execute the first software **626** for the assignment module **716** to assign the channel bin **502**.

[0192] The first control unit **612** can execute the first software **626** for the server peak module **718** to generate the peak pattern **306**. The first control unit **612** can execute the first software **626** for the setup module **720** to determine the setup possibility **308**. The first control unit **612** can execute the first software **626** for the confirmation module **722** to generate the confirmation pattern **312**. The first control unit **612** can execute the first software **626** for the registration module **724** to determine the device registration **314**.

[0193] The first control unit **612** can execute the first software **626** for the entry module **726** to determine the entry gesture **402**. The first control unit **612** can execute the first software **626** for the mode module **728** to determine the mode type **228**. The first control unit **612** can execute the first software **626** for the structure module **730** to generate the instruction code **212**. The first control unit **612** can execute the first software **626** for the request module **732** to generate the activity request pattern **210**. The first control unit **612** can execute the first software **626** for the parser module **734** to generate the activity command **206**.

[0194] The second software **642** of FIG. **6** of the second device **106** of FIG. **6** can include the computing system **100**. For example, the second software **642** can include the channel module **702**, the server pattern module **704**, the client detection module **706**, the status module **708**, the client pattern module **710**, the server detection module **712**, the availability module **714**, the assignment module **716**, the server peak module **718**, the setup module **720**, the confirmation module **722**, the registration module **724**, the entry module **726**, the mode module **728**, the structure module **730**, the request module **732**, and the parser module **734**.

[0195] The second control unit **634** of FIG. **6** can execute the second software **642** for the channel module **702** to generate the channel bin **502**. The second control unit **634** can execute the second software **642** for the server pattern module **704** to generate the server recognition pattern **302**.

[0196] The second control unit **634** can execute the second software **642** for the client detection module **706** to detect the server presence **226**. The second control unit **634** can execute the second software **642** for the status module **708** to change the application status **236**.

[0197] The second control unit **634** can execute the second software **642** for the client pattern module **710** to generate the client recognition pattern **304**. The second control unit **634** can execute the second software **642** for the server detection module **712** to detect the client presence **224**. The second control unit **634** can execute the second software **642** for the availability module **714** to determine the channel availability **516**. The second control unit **634** can execute the second software **642** for the assignment module **716** to assign the channel bin **502**.

[0198] The second control unit **634** can execute the second software **642** for the server peak module **718** to generate the peak pattern **306**. The second control unit **634** can execute the second software **642** for the setup module **720** to determine the setup possibility **308**. The second control unit **634** can execute the second software **642** for the confirmation module **722** to generate the confirmation pattern **312**. The second control unit **634** can execute the second software **642** for the registration module **724** to determine the device registration **314**.

[0199] The second control unit **634** can execute the second software **642** for the entry module **726** to determine the entry gesture **402**. The second control unit **634** can execute the second software **642** for the mode module **728** to determine the mode type **228**. The second control unit **634** can execute the second software **642** for the structure module **730** to generate the instruction code **212**. The second control unit **634** can execute the second software **642** for the request module **732** to generate the activity request pattern **210**. The second control unit **634** can execute the second software **642** for the parser module **734** to generate the activity command **206**.

[0200] The third software **666** of FIG. **6** of the third device **108** of FIG. **6** can include the computing system **100**. For example, the third software **666** can include the channel module **702**, the server pattern module **704**, the client detection module **706**, the status module **708**, the client pattern module **710**, the server detection module **712**, the availability module **714**, the assignment module **716**, the server peak module **718**, the setup module **720**, the confirmation module **722**, the registration module **724**, the entry module **726**, the mode module **728**, the structure module **730**, the request module **732**, and the parser module **734**.

[0201] The third control unit **652** of FIG. **6** can execute the third software **666** for the channel module **702** to generate the channel bin **502**. The third control unit **652** can execute the third software **666** for the server pattern module **704** to generate the server recognition pattern **302**.

[0202] The third control unit **652** can execute the third software **666** for the client detection module **706** to detect the server presence **226**. The third control unit **652** can execute the third software **666** for the status module **708** to change the application status **236**.

[0203] The third control unit **652** can execute the third software **666** for the client pattern module **710** to generate the client recognition pattern **304**. The third control unit **652** can execute the third software **666** for the server detection module **712** to detect the client presence **224**. The third control unit **652** can execute the third software **666** for the availability module **714** to determine the channel availability **516**. The third control unit **652** can execute the third software **666** for the assignment module **716** to assign the channel bin **502**.

[0204] The third control unit **652** can execute the third software **666** for the server peak module **718** to generate the peak pattern **306**. The third control unit **652** can execute the third software **666** for the setup module **720** to determine the setup possibility **308**. The third control unit **652** can execute the third software **666** for the confirmation module **722** to generate the confirmation pattern **312**. The third control unit **652** can execute the third software **666** for the registration module **724** to determine the device registration **314**.

[0205] The third control unit **652** can execute the third software **666** for the entry module **726** to determine the entry gesture **402**. The third control unit **652** can execute the third software **666** for the mode module **728** to determine the mode type **228**. The third control unit **652** can execute the third software **666** for the structure module **730** to generate the instruction code **212**. The third control unit **652** can execute the third software **666** for the request module **732** to generate the activity request pattern **210**. The third control unit **652** can execute the third software **666** for the parser module **734** to generate the activity command **206**.

[0206] The computing system **100** can be partitioned between the first software **626**, the second software **642**, and the third software **666**. For example, the second software **642** can include the channel module **702**, the server pattern module **704**, the server detection module **712**, the availability module **714**, the assignment module **716**, the server peak module **718**, the registration module **724**, the parser module **734**, or a combination thereof. The second control unit **634** can execute modules partitioned on the second software **642** as previously described.

[0207] The first software **626** can include the client detection module **706**, the status module **708**, the client pattern module **710**, the setup module **720**, the confirmation module **722**, the entry module **726**, the mode module **728**, the structure module **730**, the request module **732**, or a combination thereof. Based on the size of the first storage unit **614** of FIG. **6**, the first software **626** can include additional modules of the computing system **100**. The first control unit **612** can execute the modules partitioned on the first software **626** as previously described.

[0208] The third software **666** can include the client detection module **706**, the status module **708**, the client pattern module **710**, the setup module **720**, the confirmation module **722**, the entry module **726**, the mode module **728**, the structure module **730**, the request module **732**, or a combination thereof. Based on the size of the third storage unit **664** of FIG. **6**, the third software **666** can include additional modules of the computing system **100**. The third control unit **652** can execute the modules partitioned on the third software **666** as previously described.

[0209] The first control unit **612** can operate the first communication unit **616** of FIG. **6** to communicate the activity request pattern **210**, the server request pattern **302**, the client recognition pattern **304**, the peak pattern **306**, the confirmation pattern **312**, or a combination thereof to or from the second device **106** through the communication path **104** of FIG. **1**. The first control unit **612** can operate the first software **626** to operate the location unit **620**. The second communication unit **636** of FIG. **6** can communicate the activity request pattern **210**, the server request pattern **302**, the client recognition pattern **304**, the peak pattern **306**, the confirmation pattern **312**, or a combination thereof to or from the second device **106** through the communication path **104**. The third communication unit **656** of FIG. **6** can communicate the activity request pattern **210**, the server request pattern **302**, the client recognition pattern **304**, the peak pattern **306**, the confirmation pattern **312**, or a combination thereof to or from the second device **106** through the communication path **104**. The first user interface **618** of FIG. **6**, the second user interface **638** of FIG. **6**, the third user interface **658** of FIG. **6**, or a combination thereof can represent the detection area **406**.

[0210] The computing system **100** describes the module functions or order as an example. The modules can be partitioned differently. For example, the availability module **714** and the assignment module **716** can be combined. Each of the modules can operate individually and independently of the other modules. Furthermore, data generated in one module can be used by another module without being directly coupled to each other. For example, the availability module **714** can receive the channel bin **502** from the channel module **702**. Further, "communicating" can represent sending, receiving, or a combination thereof the data generated to or from another.

[0211] The modules described in this application can be hardware circuitry, hardware implementation, or hardware accelerators in the first control unit **612**, the third control unit **652**, or in the second control unit **634**. The modules can also be hardware circuitry, hardware implementation, or hardware accelerators within the first device **102**, the second device **106**, or the third device **108** but outside of the first control unit **612**, the second control unit **634**, or the third control unit **652**, respectively as depicted in FIG. **6**. However, it is understood that the first control unit **612**, the second control unit **634**, the third control unit **652**, or a combination thereof can collectively refer to all hardware accelerators for the modules.

[0212] The modules described in this application can be implemented as instructions stored on a non-transitory computer readable medium to be executed by the first control unit **612**, the second control unit **634**, the third control unit **652**, or a combination thereof. The non-transitory computer medium can include the first storage unit **614** of FIG. **6**, the second storage unit **646** of FIG. **6**, the third storage unit **654** of FIG. **6**, or a combination thereof. The non-transitory computer readable medium can include non-volatile memory, such as a hard disk drive, non-volatile random access memory (NVRAM), solid-state storage device (SSD), compact disk (CD), digital video disk (DVD), or universal serial bus (USB) flash memory devices. The non-transitory computer readable medium can be integrated as a part of the computing system **100** or installed as a removable portion of the computing system **100**.

[0213] The control flow **700** of FIG. **7** is an embodiment of the present invention. The control flow **700** or a method **700** includes: determining a detection quantity based on a client recognition pattern received; assigning a channel bin based on comparing the detection quantity to a channel occupancy available; and generating an activity command with a control unit based on an activity request pattern assigned to the channel bin for controlling a device functionality of an electronic device. The method **700** further includes: determining an entry gesture based on a movement direction of a device posture; generating an instruction code having an action type of a device functionality; generating an activity request pattern with a control unit having the instruction code based on the entry gesture for controlling the device functionality of an electronic device.

[0214] It has been discovered the computing system **100** determining the detection quantity **242** based on the client recognition pattern **304** received can improve the efficiency of assigning the channel bin **502**. By limiting the assignment of the channel bin **502** based on the channel occupancy **512**, the computing system **100** can assign the agent device **202** to the channel bin **502** with the channel availability **516**. As a result, the computing system **100** can generate the activity command **206** based on the activity request pattern **210** with the channel bin **502** assigned for optimal allocation of the communication channel **504** to control the device functionality **208** of the electronic device **204**.

[0215] The resulting method, process, apparatus, device, product, and/or system is straightforward, cost-effective, uncomplicated, highly versatile, accurate, sensitive, and effective, and can be implemented by adapting known components for ready, efficient, and economical manufacturing, application, and utilization. Another important aspect of the embodiment of the present invention is that it valuably supports and services the historical trend of reducing costs, simplifying systems, and increasing performance. These and other valuable aspects of the embodiment of the present invention consequently further the state of the technology to at least the next level.

[0216] While the invention has been described in conjunction with a specific best mode, it is to be understood that many alternatives, modifications, and variations will be apparent to those skilled in the art in light of the aforegoing description. Accordingly, it is intended to embrace all such alternatives, modifications, and variations that fall within the scope of the included claims. All matters set forth herein or shown in the accompanying drawings are to be interpreted in an illustrative and non-limiting sense.

What is claimed is:

1. A computing system comprising:

a communication unit configured to communicate a client recognition pattern for detecting an agent device within a detection proximity; and

a control unit, coupled to the communication unit, configured to:

determine a detection quantity based on the client recognition pattern,

assign a channel bin based on comparing the detection quantity to a channel occupancy being available, and

generate an activity command based on an activity request pattern assigned to the channel bin for controlling a device functionality of an electronic device.

2. The system as claimed in claim **1** wherein the control unit is configured to determine a channel availability based on the channel occupancy of the channel bin.

3. The system as claimed in claim **1** wherein the control unit is configured to assign the channel bin based on a device priority for managing a plurality of the agent device.

4. The system as claimed in claim **1** wherein the control unit is configured to override the channel occupancy for creating a channel availability for the agent device having a higher instance of a device priority.

5. The system as claimed in claim **1** wherein the control unit is configured to generate a channel bin based on grouping a plurality of a communication channel within a frequency range.

6. A computing system comprising:
a control unit configured to:
determine an entry gesture based on a movement direction of a device posture,
generate an instruction code having an action type of a device functionality,
generate an activity request pattern having the instruction code based on the entry gesture, and
a communication unit, coupled to the control unit, configured to communicate an activity request pattern for controlling the device functionality of an electronic device.

7. The system as claimed in claim **6** wherein the control unit is configured to determine a mode type based on the entry gesture for activating the agent device.

8. The system as claimed in claim **6** wherein the control unit is configured to generate the instruction code having an action segment, a data segment, a control segment, or a combination thereof for specifying the action type to control the device functionality.

9. The system as claimed in claim **6** wherein the control unit is configured to determine a setup possibility based on receiving a peak pattern within a request window.

10. The system as claimed in claim **6** wherein the control unit is configured to generate the activity request pattern based on the entry gesture for switching the action type of the device functionality.

11. A method of operation of a computing system comprising:
determining a detection quantity based on a client recognition pattern received;
assigning a channel bin based on comparing the detection quantity to a channel occupancy available; and
generating an activity command with a control unit based on an activity request pattern assigned to the channel bin for controlling a device functionality of an electronic device.

12. The method as claimed in claim **11** further comprising determining a channel availability based on the channel occupancy of the channel bin.

13. The method as claimed in claim **11** wherein assigning the channel bin includes assigning the channel bin based on a device priority for managing a plurality of the agent device.

14. The method as claimed in claim **11** further comprising overriding the channel occupancy for creating a channel availability for the agent device having a higher instance of a device priority.

15. The method as claimed in claim **11** further comprising generating a channel bin based on grouping a plurality of a communication channel within a frequency range.

16. A method of operation of a computing system comprising:
determining an entry gesture based on a movement direction of a device posture;
generating an instruction code having an action type of a device functionality;
generating an activity request pattern with a control unit having the instruction code based on the entry gesture for controlling the device functionality of an electronic device.

17. The method as claimed in claim **16** further comprising determining a mode type based on the entry gesture for activating the agent device.

18. The method as claimed in claim **16** wherein generating the instruction code includes generating the instruction code having an action segment, a data segment, a control segment, or a combination thereof for specifying the action type to control the device functionality.

19. The method as claimed in claim **16** further comprising determining a setup possibility based on receiving a peak pattern within a request window.

20. The method as claimed in claim **16** wherein generating the activity request pattern includes generating the activity request pattern based on the entry gesture for switching the action type of the device functionality.

21. A non-transitory computer readable medium including instructions for execution by a control unit comprising:
determining a detection quantity based on a client recognition pattern received;
assigning a channel bin based on comparing the detection quantity to a channel occupancy available; and
generating an activity command based on an activity request pattern assigned to the channel bin for controlling a device functionality of an electronic device.

22. The non-transitory computer readable medium as claimed in claim **21** further comprising determining a channel availability based on the channel occupancy of the channel bin.

23. The non-transitory computer readable medium as claimed in claim **21** wherein assigning the channel bin includes assigning the channel bin based on a device priority for managing a plurality of the agent device.

24. The non-transitory computer readable medium as claimed in claim **21** further comprising overriding the channel occupancy for creating a channel availability for the agent device having a higher instance of a device priority.

25. The non-transitory computer readable medium as claimed in claim **21** further comprising generating a channel bin based on grouping a plurality of a communication channel within a frequency range.

26. A non-transitory computer readable medium including instructions for execution by a control unit comprising:
determining an entry gesture based on a movement direction of a device posture;
generating an instruction code having an action type of a device functionality;
generating an activity request pattern having the instruction code based on the entry gesture for controlling the device functionality of an electronic device.

27. The non-transitory computer readable medium as claimed in claim **26** further comprising determining a mode type based on the entry gesture for activating the agent device.

28. The non-transitory computer readable medium as claimed in claim **26** wherein generating the instruction code includes generating the instruction code having an action segment, a data segment, a control segment, or a combination thereof for specifying the action type to control the device functionality.

29. The non-transitory computer readable medium as claimed in claim **26** further comprising determining a setup possibility based on receiving a peak pattern within a request window.

30. The non-transitory computer readable medium as claimed in claim **26** wherein generating the activity request pattern includes generating the activity request pattern based on the entry gesture for switching the action type of the device functionality.

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