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(54) **PRIMARY DEVICE THAT INTERFACES WITH A SECONDARY DEVICE BASED ON GESTURE COMMANDS**

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(52) **U.S. Cl.**

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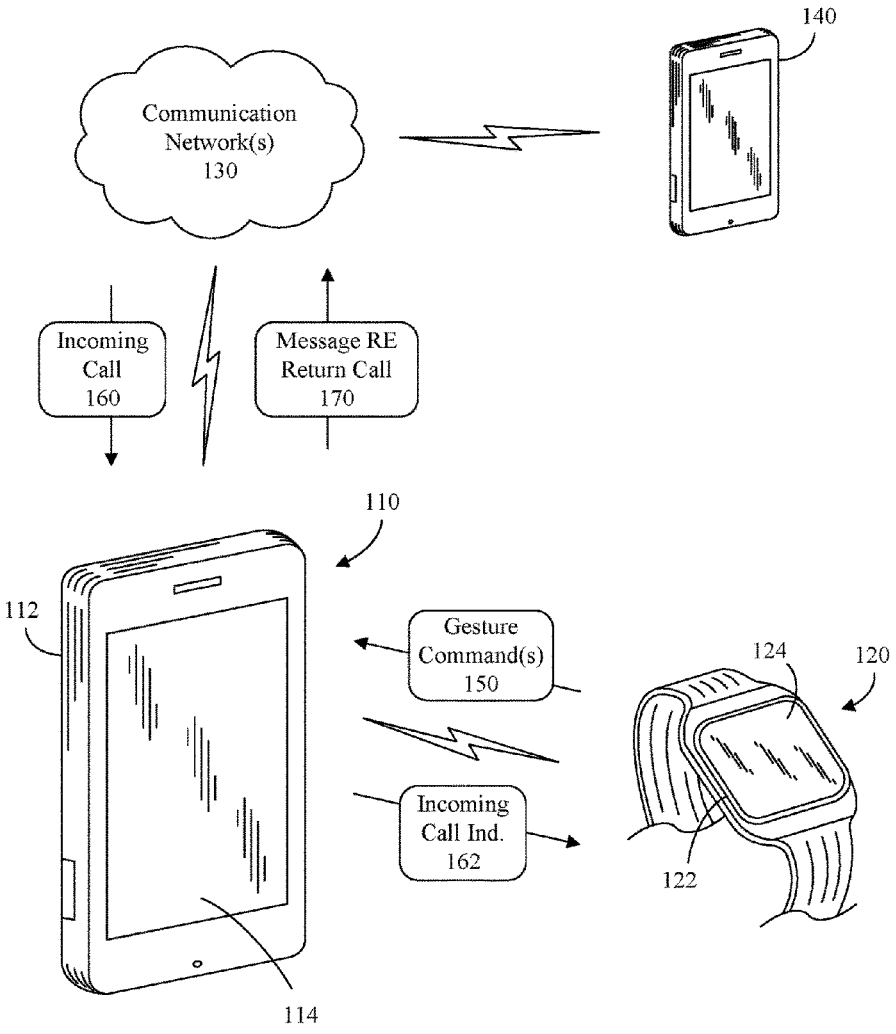
(57) **ABSTRACT**

An incoming call from a remote device can be received by a primary device. The primary device can determine a numerical count of detected user gestures. Responsive to determining the numerical count of detected user gestures, the primary device can automatically generate an electronic message indicating a user will return the incoming call in a time frame based on the numerical count of detected user gestures. The primary device can automatically communicate the electronic message to the remote device.



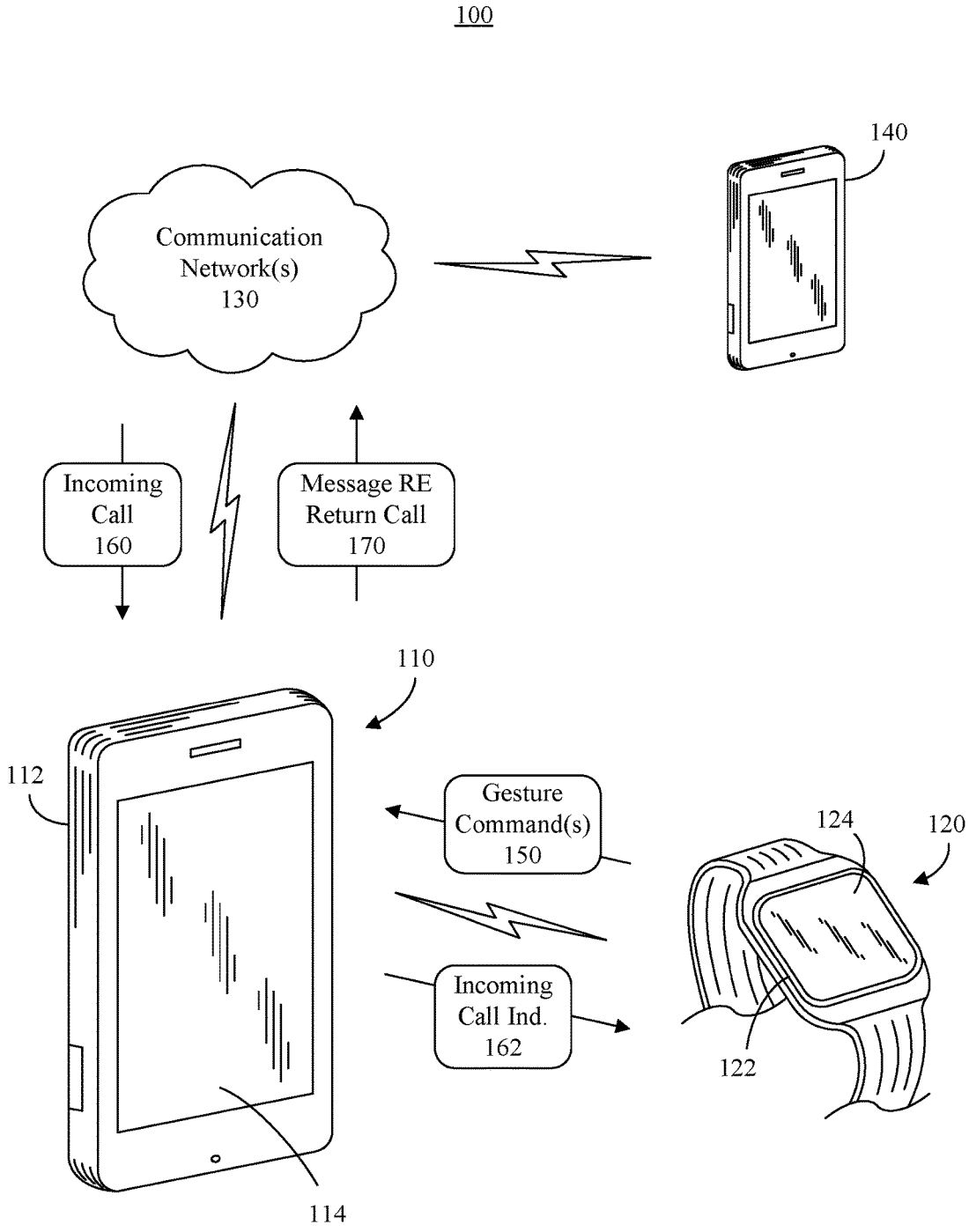

100
140
Communication Network(s) 130
Incoming Call 160
Message RE Return Call 170
110
112
Gesture Command(s) 150
124
120
Incoming Call Ind. 162
122
114

FIG. 1

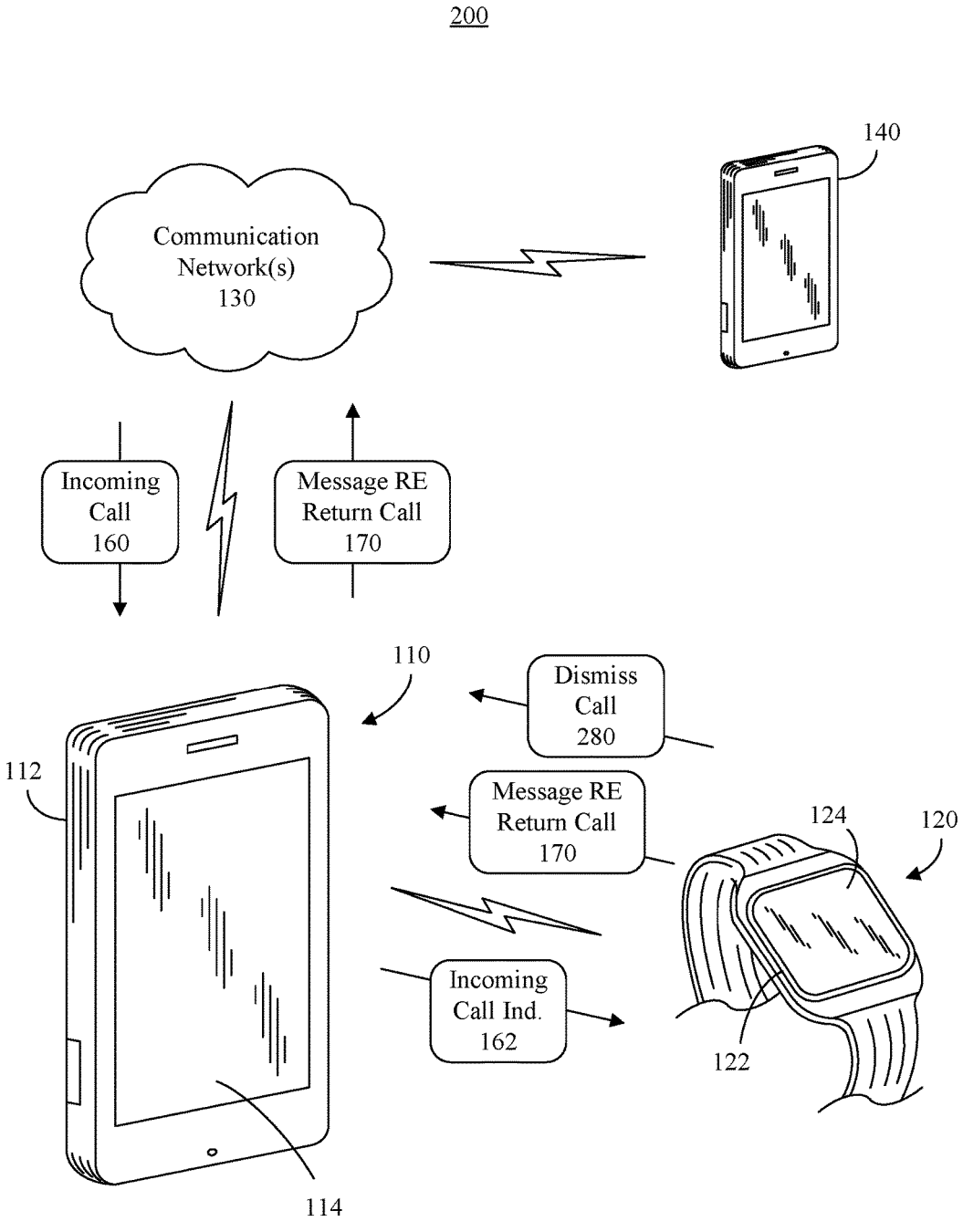

200
140
Communication Network(s) 130
Incoming Call 160
Message RE Return Call 170
110
Dismiss Call 280
112
Message RE Return Call 170
124
120
Incoming Call Ind. 162
122
114

FIG. 2

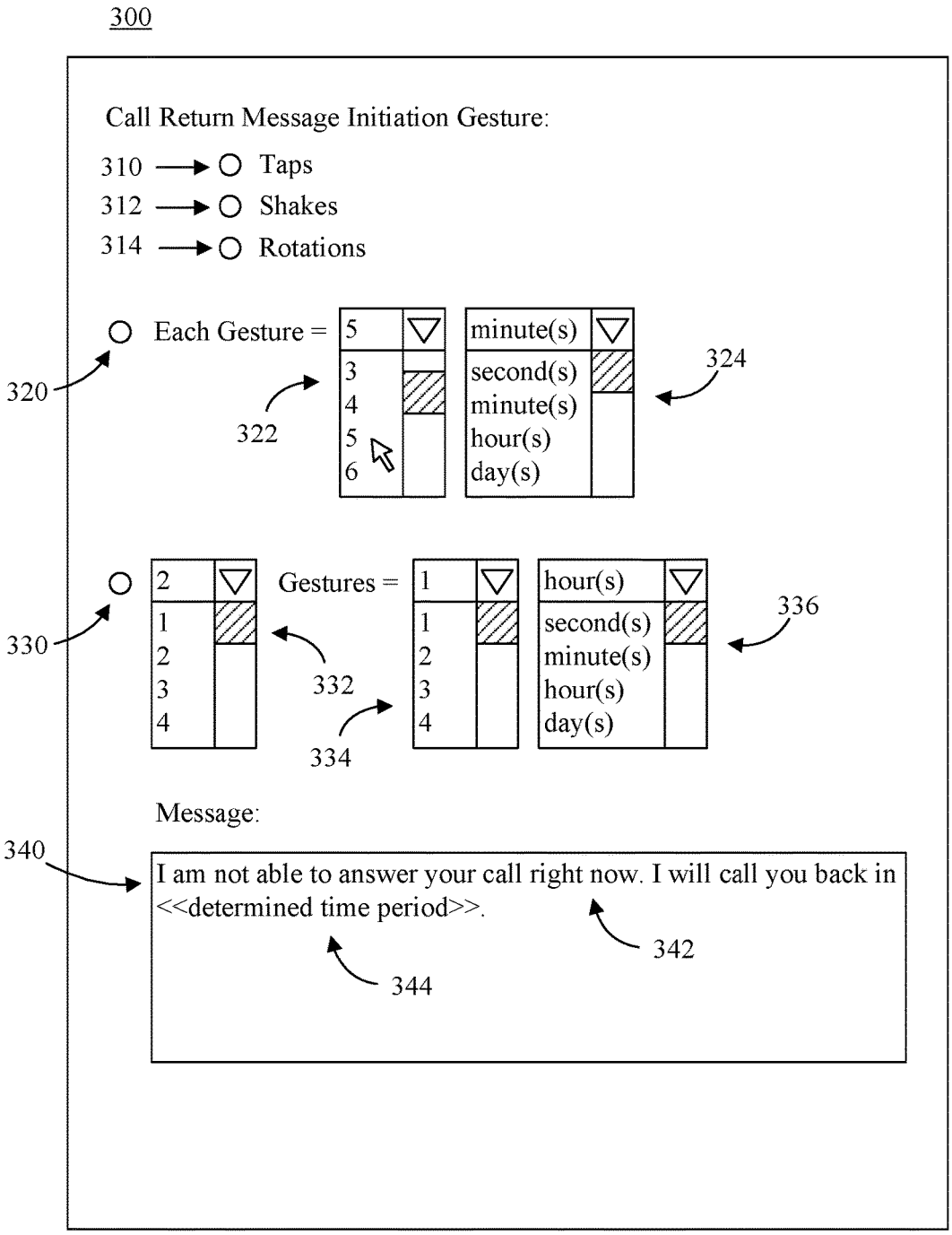

300
Call Return Message Initiation Gesture:
310
Taps
312
Shakes
314
Rotations
320
Each Gesture =
5
minute(s)
3
4
5
6
second(s)
minute(s)
hour(s)
day(s)
322
324
330
2
1
2
3
4
Gestures =
1
1
2
3
4
hour(s)
second(s)
minute(s)
hour(s)
day(s)
332
334
336
Message:
340
I am not able to answer your call right now. I will call you back in <<determined time period>>.
342
344

FIG. 3

400

User Gesture	Primary Device Operating Mode	Functionality
Tap once	Music playing	Pause music
	Video playing	Pause video
	Music paused	Play music
	Video paused	Play video
	Viewfinder active	Capture picture
Tap twice	Music playing	Skip to next song
	Music paused	Skip to next song
	Video playing	Skip to next video
	Video paused	Skip to next video
Tap thrice	Music playing	Skip to previous song
	Music paused	Skip to previous song
	Video playing	Skip to previous video
	Video paused	Skip to previous video
Tap <N> times	Reminders	Snooze for <N> minutes
	Incoming call	Dismiss call & send message indicating call return in <N> min.
Trace a check mark	Incoming call	Answer the call
Trace a X mark	Incoming call	Reject call
	Music playing/paused	Stop music playback
	Video playing/paused	Stop video playback
	Reminder/alarm	Dismiss reminder/alarm
	Camera viewfinder	Close camera
Shake device in one direction	Picture gallery	Move forward to next picture
	Music playing	Skip to next song
	Video playing	Skip to next video
	Web browser active	Move to next tab
	Email/messaging active	Move to next email/message in inbox
	Presentation active	Move to next slide in presentation
Put the secondary device with face down	Any mode	Silence/don't disturb mode of primary device
Put the secondary device with face up	Any mode	Allow primary device to interrupt the user
Cover the secondary device with palm	Any mode	Turn off display of primary device
Shake	Display off	Turn on the display of primary device
Trace a "+" sign	Any mode	Call emergency services/distress signal
Trace a clockwise arc	Any mode	Rotate the display by 90 degrees clockwise
Trace a counterclockwise arc	Any mode	Rotate the display by 90 degrees counterclockwise
Trace "f" on screen	Any mode	Open social networking app/website on primary device
Trace a "?"	Any mode	Present help menu for that mode

FIG. 4

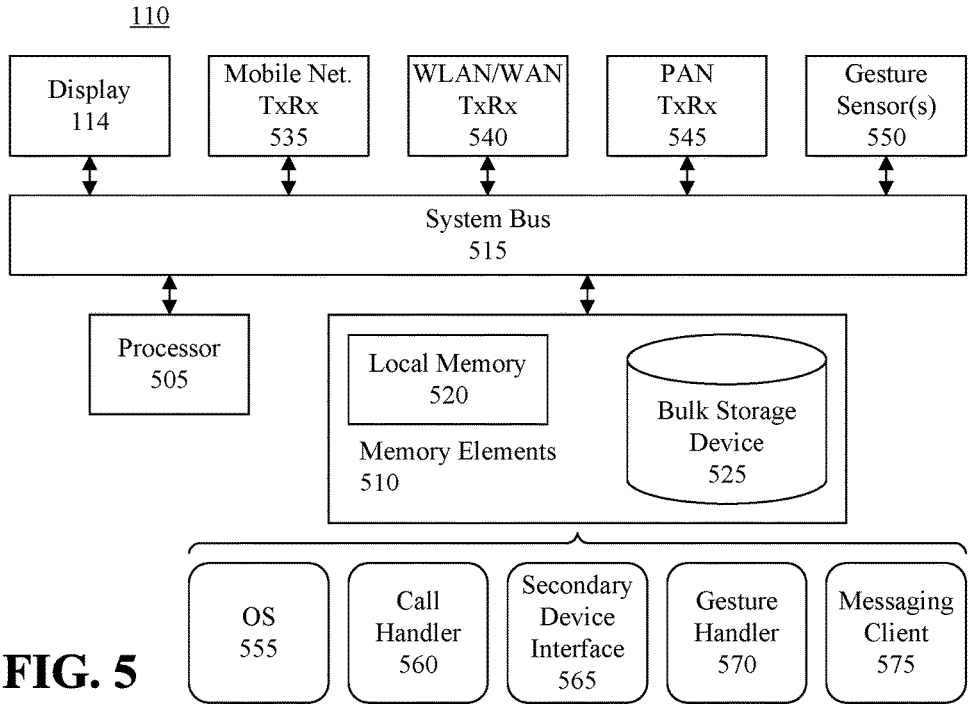

110
Display 114
Mobile Net. TxRx 535
WLAN/WAN TxRx 540
PAN TxRx 545
Gesture Sensor(s) 550
System Bus 515
Processor 505
Local Memory 520
Memory Elements 510
Bulk Storage Device 525
OS 555
Call Handler 560
Secondary Device Interface 565
Gesture Handler 570
Messaging Client 575

FIG. 5

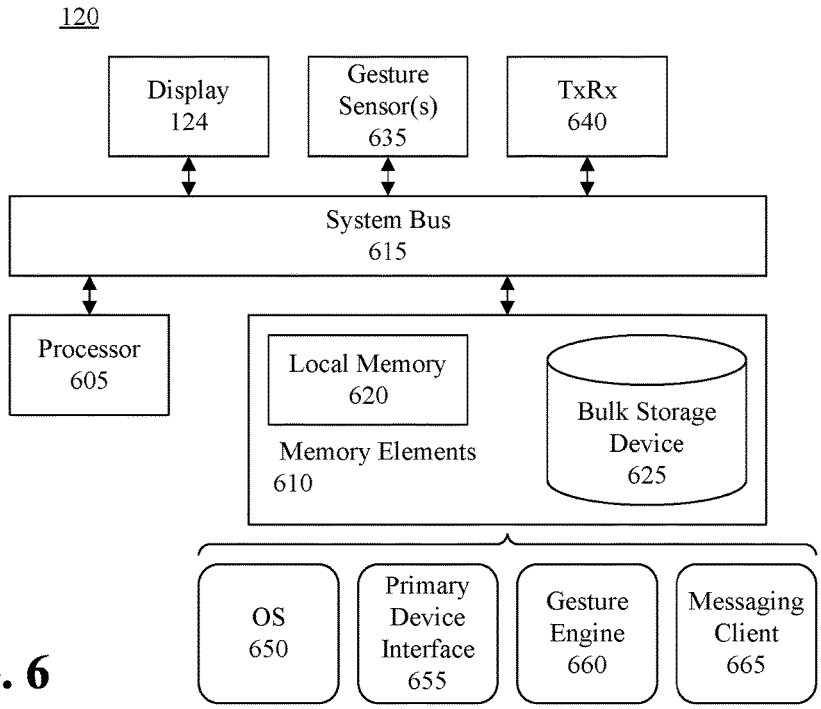

120
Display 124
Gesture Sensor(s) 635
TxRx 640
System Bus 615
Processor 605
Local Memory 620
Memory Elements 610
Bulk Storage Device 625
OS 650
Primary Device Interface 655
Gesture Engine 660
Messaging Client 665

FIG. 6

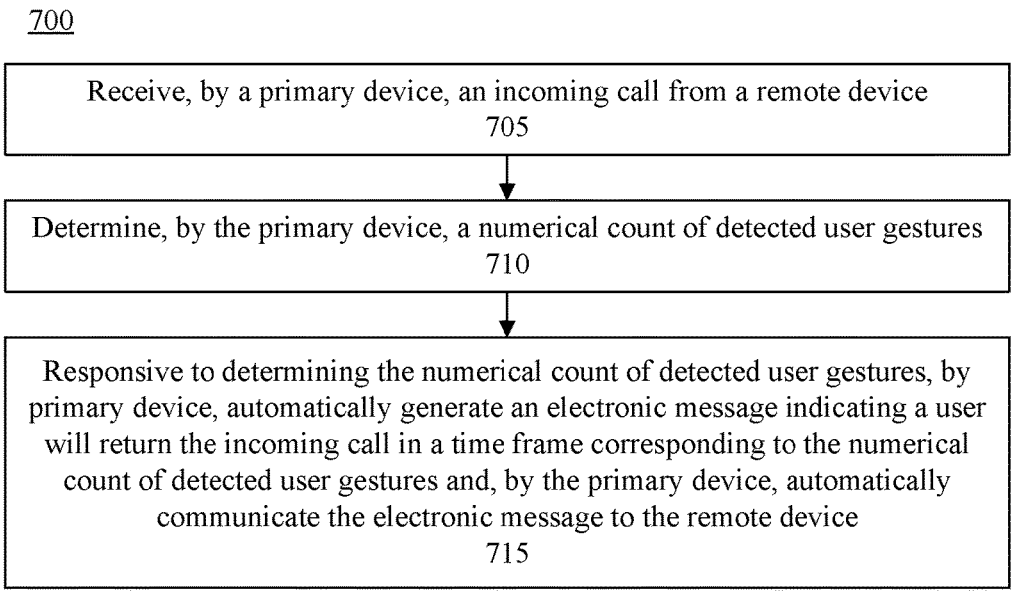

700
Receive, by a primary device, an incoming call from a remote device
705
Determine, by the primary device, a numerical count of detected user gestures
710
Responsive to determining the numerical count of detected user gestures, by primary device, automatically generate an electronic message indicating a user will return the incoming call in a time frame corresponding to the numerical count of detected user gestures and, by the primary device, automatically communicate the electronic message to the remote device
715

FIG. 7

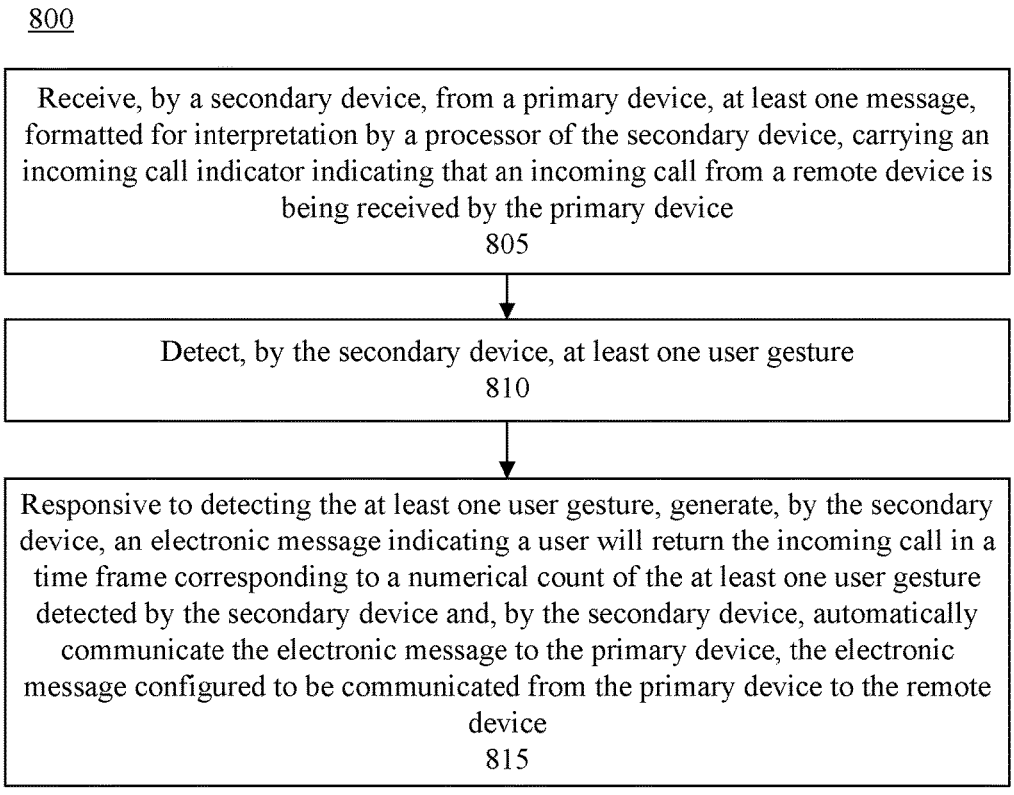

800
Receive, by a secondary device, from a primary device, at least one message, formatted for interpretation by a processor of the secondary device, carrying an incoming call indicator indicating that an incoming call from a remote device is being received by the primary device
805
Detect, by the secondary device, at least one user gesture
810
Responsive to detecting the at least one user gesture, generate, by the secondary device, an electronic message indicating a user will return the incoming call in a time frame corresponding to a numerical count of the at least one user gesture detected by the secondary device and, by the secondary device, automatically communicate the electronic message to the primary device, the electronic message configured to be communicated from the primary device to the remote device
815

FIG. 8

PRIMARY DEVICE THAT INTERFACES WITH A SECONDARY DEVICE BASED ON GESTURE COMMANDS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. application Ser. No. 14/476,197, filed Sep. 3, 2014, which claims the benefit of U.S. Provisional Application No. 61/889,278, filed on Oct. 10, 2013, the entire contents of each of which are incorporated herein by reference.

BACKGROUND

[0002] Field of the Disclosure

[0003] The disclosure relates to communication devices and, more particularly, the use of secondary devices with communication devices.

[0004] Background

[0005] The use of mobile communication devices, such as smart phones and tablet computers, as a means of both voice and text base communication is commonplace throughout much of the world. Mobile communication devices sometimes also are used as a means of video communication (e.g., video calls). As technology has progressed, the functionality built into mobile communication devices has expanded. Wearable devices, such as wristwatches, that may be communicatively linked to mobile communication devices now are commercially available. Such wearable devices may be configured to present notifications generated by mobile communication devices, among other things.

SUMMARY

[0006] In one arrangement, a method includes receiving, by a primary device, an incoming call from a remote device. The method also includes determining, by the primary device, a numerical count of detected user gestures. The method further includes, responsive to determining the numerical count of detected user gestures, the primary device automatically generating an electronic message indicating a user will return the incoming call in a time frame corresponding to the numerical count of detected user gestures, and the primary device automatically communicating the electronic message to the remote device.

[0007] In another arrangement, a method includes receiving by a secondary device, from a primary device, at least one message, formatted for interpretation by a processor of the secondary device, carrying an incoming call indicator indicating that an incoming call from a remote device is being received by the primary device. The method also includes detecting, by the secondary device, at least one detected user gesture. The method further includes, responsive to detecting the at least one detected user gesture, generating, by the secondary device, an electronic message indicating a user will return the incoming call in a time frame corresponding to a numerical count of the at least one detected user gesture detected by the secondary device, and the secondary device automatically communicating the electronic message to the primary device, the electronic message configured to be communicated from the primary device to the remote device.

[0008] A primary device includes a processor programmed to initiate executable operations. The executable operations include receiving, by the primary device, an incoming call from a remote device. The executable operations also include determining, by the primary device, a numerical count of detected user gestures. The executable operations further include, responsive to determining the numerical count of detected user gestures, the primary device automatically generating an electronic message indicating a user will return the incoming call in a time frame corresponding to the numerical count of detected user gestures, and the primary device automatically communicating the electronic message to the remote device.

[0009] A secondary device includes a processor programmed to initiate executable operations. The executable operations include receiving by the secondary device, from a primary device, at least one message, formatted for interpretation by the processor of the secondary device, carrying an incoming call indicator indicating that an incoming call from a remote device is being received by the primary device. The executable operations also include detecting, by the secondary device, at least one detected user gesture. The executable operations further include, responsive to detecting the at least one detected user gesture, generating, by the secondary device, an electronic message indicating a user will return the incoming call in a time frame corresponding to a numerical count of the at least one detected user gesture detected by the secondary device, and the secondary device automatically communicating the electronic message to the primary device, the electronic message configured to be communicated from the primary device to the remote device.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0010] FIG. **1** is a block diagram illustrating an example of a communication system.

[0011] FIG. **2** is a block diagram illustrating another example of communication system.

[0012] FIG. **3** depicts an example of a configuration menu via which a user may configure various gesture commands.

[0013] FIG. **4** is a table presenting various examples of functions that may be implemented on a primary device responsive to user gestures detected by a secondary device.

[0014] FIG. **5** is a block diagram illustrating example architecture for a primary device.

[0015] FIG. **6** is a block diagram illustrating example architecture for a secondary device.

[0016] FIG. **7** is a flowchart illustrating an example of a method of generating a return call notification based on a user gesture.

[0017] FIG. **8** is a flowchart illustrating another example of a method of generating a return call notification based on a user gesture.

DETAILED DESCRIPTION

[0018] While the disclosure concludes with claims defining novel features, it is believed that the various features described herein will be better understood from a consideration of the description in conjunction with the drawings. The process(es), machine(s), manufacture(s) and any variations thereof described within this disclosure are provided for purposes of illustration. Any specific structural and functional details described are not to be interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to

variously employ the features described in virtually any appropriately detailed structure. Further, the terms and phrases used within this disclosure are not intended to be limiting, but rather to provide an understandable description of the features described.

[0019] Arrangements described herein relate to using a secondary device to send gesture commands to a primary device. In accordance with these arrangements, a primary device can receive an incoming call from a remote device. While receiving the incoming call, the primary device can receive from a secondary device at least one gesture command. The gesture command(s) can indicate a numerical count of user gestures detected by the secondary device. Responsive to receiving the gesture command(s), the primary device can dismiss the incoming call. Further, the primary device can automatically generate an electronic message indicating the user will return the incoming call in a time frame (e.g., number of minutes, hours, days, etc.) corresponding to the numerical count of user gestures detected by the secondary device. The primary device can automatically communicate to the electronic message to the remote device, which can present the message to the caller. Accordingly, even though the incoming call is being dismissed, the caller can be made aware of when to expect a return call from the user.

[0020] Several definitions that apply throughout this document now will be presented.

[0021] As defined herein, the term "primary device" means a communication device configured to initiate outgoing calls and receive incoming calls. Examples of a primary device include, but are not limited to, a telephone, a mobile telephone, a smart phone, a personal digital assistant, a tablet computer, a laptop computer, a notebook computer, a netbook computer, a desktop computer, a portable gaming device, a set-top box, and the like. A call may be a telephone call or a video call. In the context of the arrangements described herein, a primary device is not a switch, router, base transceiver station, repeater, or hub per se. A primary device which is a mobile communication device, however, may operate as Wi-Fi hotspot that supports Wi-Fi tethering.

[0022] As defined herein, the term "remote device" means a communication device configured that is remotely located with respect to a primary device. Examples of a remote device include, but are not limited to, a telephone, a mobile telephone, a smart phone, a personal digital assistant, a tablet computer, a laptop computer, a netbook computer, a desktop computer, a portable gaming device, a set-top box a television, and the like.

[0023] As defined herein, the term "secondary device" means a device distinct from, and in communication with, a primary device, the device including a gesture sensor configured to support interaction between a user and the primary device. In the context of the arrangements described herein, a secondary device is not a mouse, a trackpad, a touchpad, a touchscreen or a gesture sensor per se. A secondary device, however, may include a touchpad, a touchscreen or other gesture sensor(s). Examples of a secondary device include, but are not limited to, a wearable device, or the like, which includes at least one gesture sensor. Such gesture sensor can be a touchscreen display, a sensor that detects a user touch or tap by a user appendage or stylus, a sensor that detects movement of a user appendage, a sensor that detects a facial expression, a sensor that detects eye movement, or the like.

[0024] As defined herein, the term "wearable device" means a secondary device wearable by a user. Examples of a wearable device include, but are not limited to, a wristwatch including a transmitter and/or communication port, glasses including a transmitter and/or communication port, jewelry including a transmitter and/or communication port, clothing including a transmitter and/or communication port, a hat including a transmitter and/or communication port, a wallet including a transmitter and/or communication port, a purse including a transmitter and/or communication port, a pen including a transmitter and/or communication port, and the like. In one aspect, a transmitter may be implemented as a transceiver.

[0025] As defined herein, the term "electronic message" means a message communicated via a communication network. Examples of an electronic message include, but are not limited to, a text message, an instant message, an e-mail, an electronically communicated voice message, an electronically communicated video message, and the like.

[0026] As defined herein, the term "gesture" means an action by a user detectable by a device. Examples of a gesture include, but are not limited to, a touch of a device by a user using a user appendage or stylus, a tap of a device by a user using a user appendage or stylus, movement of a user appendage or stylus, movement of a body of a user, a facial expression of a user, eye movement by a user, and the like. A "gesture" may be referred herein as a "user gesture."

[0027] As defined herein, the term "tap" means a gesture in which a user strikes lightly a device using an appendage or stylus.

[0028] As defined herein, the term "gesture command" means computer data corresponding to a detected gesture of a user and carried in a message formatted for interpretation by a processor. In this context, a message carrying a gesture command is not an "electronic message" as the term "electronic message" is defined herein. Specifically, a message carrying a gesture command is not a text message, an instant message, an e-mail, an electronically communicated voice message or an electronically communicated video message.

[0029] As defined herein, the term "user" means a person (i.e., a human being).

[0030] A defined herein, the term "incoming call" means an incoming telephone call or an incoming video call. An incoming call may be answered to establish a call session or may be dismissed. When an incoming call is received by a device, an audible and/or visual notification typically is presented by the device receiving the incoming call, or by another device communicatively linked to the device receiving the incoming call.

[0031] As defined herein, the term "call session" means a communication session including at least to parties. A call session may be a telephonic communication session or a video communication session.

[0032] As defined herein, the term "dismiss" means to not establish a live call session. For example, when an incoming call is dismissed, the incoming call can be left to go unanswered, the incoming call can be terminated, or the incoming call can be transferred to voice mail.

[0033] As defined herein, the term "personal area network" means a network via which peer-to-peer communication links are directly established between devices without use of a router, switch or access point. Communication protocols commonly used for communication between

devices in a personal area network include, but are not limited to, IrDA, Bluetooth®, Zigbee®, wireless USB and Z-Wave.

[0034] As defined herein, the term "computer readable storage medium" means a storage medium that contains or stores program code for use by or in connection with an instruction execution system, apparatus, or device. As defined herein, a "computer readable storage medium" is not a transitory, propagating signal per se. Examples of a computer readable storage medium include, but are not limited to, a portable computer diskette, a hard disk drive (HDD), a solid state drive (SSD), a read-only memory (ROM), Flash memory, an erasable programmable read-only memory (EPROM), a random access memory (RAM), a static random access memory (SRAM), a portable compact disc read-only memory (CD-ROM), a digital versatile disk (DVD), a memory stick and a floppy disk.

[0035] As defined herein, the term "processor" means at least one hardware circuit (e.g., an integrated circuit) configured to carry out instructions contained in program code. Examples of a processor include, but are not limited to, a central processing unit (CPU), an array processor, a vector processor, a digital signal processor (DSP), a field-programmable gate array (FPGA), a programmable logic array (PLA), an application specific integrated circuit (ASIC), programmable logic circuitry, and a controller.

[0036] As defined herein, the term "real time" means a level of processing responsiveness that a user or system senses as sufficiently immediate for a particular process or determination to be made, or that enables the processor to keep up with some external process.

[0037] As defined herein, the term "automatically" means without user intervention.

[0038] FIG. **1** is a block diagram illustrating an example of a communication system (hereinafter "system") **100**. The system **100** can include a primary device **110** and a secondary device **120** in communication with the primary device **110**. In one arrangement, the primary device **110** can be a mobile communication device, for example a smart phone or tablet computer, and the secondary device **120** can be a wearable device, for example a wristwatch worn by a user. The present arrangements, however, are not limited to these examples.

[0039] The primary device **110** and secondary device **120** can be communicatively linked. In one arrangement, the primary device **110** and secondary device **120** can be communicatively linked via a wired connection, for example via a USB cable or the like. In another arrangement, the primary device **110** and secondary device **120** can be communicatively linked via a personal area network (PAN), a Serial Line (e.g., over Bluetooth Serial Port Profile (SPP)), an IEEE 802.11 (e.g., Wi-Fi) network, an IEEE 812.116 (WiMax) network, or the like. Hence, the secondary device **120** can be positioned proximate to the primary device **110**, or positioned distal from the primary device **110**. In illustration, the secondary device **120** can be worn by a user and the primary device **110** may be located anywhere within a suitable range for PAN communication between the primary device **110** and the secondary device **120**. For example, Bluetooth® class 1 supports a range of up to about 1 m, Bluetooth® class 2 supports a range of up to about 10 m and Bluetooth® class 3 supports a range of up to about 100 m. Thus, the primary device may be carried in a user's pocket or purse, or located anywhere within PAN range of the secondary device **120**, depending on the type of PAN being used.

[0040] The system **100** also can include one or more communication networks **130** via which the primary device **110** may communicate with one or more other devices, for example a remote device **140**. The communication network (s) **130** may include connections, such as wire, wireless communication links, or fiber optic cables. The communication network(s) **130** can be implemented as, or include, any of a variety of different communication technologies such as a WAN, a LAN, a wireless network, a mobile network, a Virtual Private Network (VPN), the Internet, the Public Switched Telephone Network (PSTN), or the like. Various communication protocols known in the art may be implemented by the communication network(s) **130** to support communications between the primary device **110** and other devices. Examples of such communication protocols include, but are not limited to, IEEE 802.11, WiMax, TCP/IP, 3G, 4G, LTE, GSM, EDGE, GPRS, CDMA and WCDMA.

[0041] According to one arrangement, the primary device **110** can include a primary device housing **112** holding a display **114** configured to present to a user a primary visual user interface. In one aspect, the display **114** can be a touchscreen display configured detect user gestures in the form of touches, taps, marks, symbols and/or traces a user makes using an appendage or stylus. Further, the secondary device **120** can include a secondary device housing **122** holding a display **124** configured to present to the user a secondary visual user interface. In one aspect, the display **124** can be a touchscreen display configured to detect user gestures in the form of touches, taps marks, symbols and/or traces. The primary device **110** and/or secondary device **120** further can include one or more sensors/transducers configured to detect other user gestures, for example movement of a user's body, movement of a user's appendage or a stylus, user facial expressions, etc., as well as detect spoken utterances of the user.

[0042] In operation, a user can interface with the primary device **110** via the secondary device **120**. Such operation can be supported by the exchange of messages between the primary device **110** and secondary device **120**, for instance via a wired communication link, a PAN, a LAN, a WLAN, a WAN or any other suitable communication medium. In this regard, the primary device **110** can communicate to the secondary device **120** messages indicating menus, fields, controls, electronic messages, etc. to be presented by the secondary device **120**, for example via the display **124**. Responsive to the messages received from the primary device **110**, the secondary device **120** can present such information to the user. Similarly, the secondary device **120** can communicate to the primary device **110** messages indicating user inputs received or detected by the secondary device **120**. User inputs can be, for example, user gestures such as touches, taps, marks, symbols, traces and/or spoken utterances detected by the secondary device **120**, shake vibration patters detected by the secondary device **120**, an orientation of the secondary device **120**, and the like. Based on the messages generated by the secondary device **120**, the primary device **110** can initiate any of a myriad of corresponding processes.

[0043] By way of example, the primary device **110** can receive an incoming call **160** from the remote device **140**. In

one arrangement, responsive to receiving the incoming call **160**, the primary device **110** can generate an alert. For example, the primary device **110** can generate an audible alert via an output audio transducer contained within or otherwise communicatively linked to the primary device **110**, present a message on the display **114** indicating the incoming call **160**, generate a haptic signal detectable by the user and/or communicate a message to the secondary device **120** that carries an incoming call indicator **162** indicating the incoming call **160**. In the case that the primary device **110** communicates to the secondary device **120** the message that carries an incoming call indicator **162**, responsive to receiving the message, the secondary device **120** can generate an audible alert via an output audio transducer contained within or otherwise communicatively linked to the secondary device **120**, present a message on the display **124** indicating the incoming call **160**, and/or generate a haptic signal detectable by the user.

[0044] Regardless of whether the user is alerted of the incoming call **160** via the primary device **110** or the secondary device **120**, the user can generate one or more user gestures, detected by the secondary device **120**, indicating how the primary device **110** is to handle the incoming call **160**. One or more corresponding gesture commands **150** can be communicated from the secondary device **120** to the primary device **110**. For example, one or more messages, formatted for interpretation by a processor of the primary device **110**, can be communicated from the secondary device **120** to the primary device **110**. These message(s) can carry the gesture command(s) **150**, and the gesture commands **150** can be parsed from the messages. Responsive to receiving the gesture command(s) **150**, the primary device **110** can implement corresponding call handling operations.

[0045] In illustration, responsive to being alerted of the incoming call **160**, a user may select a suitable user interface control of the primary device **110** or the secondary device **120** to answer the incoming call **160**. If, however, the user chooses to not answer the incoming call **160**, the user may provide one or more user gestures, detected by the secondary device **120**, indicating a desire to dismiss the incoming call **160**. The user gesture(s) also may indicate a desire by the user to communicate to the caller an electronic message indicating that the user intends to return the call and the time frame in which the caller can expect to receive the return call.

[0046] For example, in one arrangement, the user can tap the secondary device **120** one or more times to indicate when the user intends to return the incoming call **160**. Each tap can indicate a particular period, for example one minute, one hour or one day. The number (i.e., numerical count) of taps may be summed to indicate when the user intends to return the call. For instance, the user can tap the secondary device housing **122** or the display **124** one time to indicate the user intends to return the call in one minute, tap the secondary device housing **122** or the display **124** two times to indicate the user intends to return the call in two minutes, tap the secondary device housing **122** or the display **124** three times to indicate the user intends to return the call in three minutes, and so on. Each tap also can correspond to a plurality of minutes, hours or days. For example, a single tap may correspond to five minutes, ten minutes, fifteen minutes, one hour, two hours, three hours, one day, two days, three days, etc. In another arrangement, a single tap may indicate a first time period (e.g., fifteen minutes), two taps may indicate a second time period (e.g., one hour), and three taps may indicate a third time period (e.g., four hours).

[0047] Whether each tap corresponds to a minute, hour or day, a number of minutes, hours or days, or whether each sequence of taps corresponds to a particular time period, can be determined based on user settings stored in the primary device **110** or the secondary device **120**. For example, the primary device **110** or the secondary device **120** can present to the user a configuration menu. In that menu, the user can assign a particular time period for each tap or a particular time period for each sequence of taps.

[0048] In one aspect, responsive to receiving a first tap from the user, the secondary device **120** can monitor for additional taps. For example, the secondary device **120** can detect additional taps within a particular period, for example within five seconds. In another example, the secondary device **120** can monitor for sequential taps that are temporally spaced by no more than a threshold value, for example with no greater than one second between taps. Responsive to detecting one or more taps within the particular period, or detecting a sequence of taps that are temporally spaced in an appropriate manner, the secondary device **120** can generate the gesture command **150** indicating the number (i.e., numerical count) of taps and communicate the gesture command **150** to the primary device **110**. In another arrangement, rather than merely indicating the number of taps, the gesture command **150** can indicate the call back period indicated by the taps.

[0049] In another aspect, each time the user taps the secondary device **120**, the secondary device **120** can generate, in real time, a corresponding gesture command **150** indicating a tap gesture, and communicate the gesture command **150** to the primary device **110**. In this arrangement, the primary device **110** can receive a first gesture command **150** and detect whether additional gesture commands **150** are received within a particular period, and/or detect whether additional gesture commands **150** are received that are temporally spaced by no more than a threshold value. Responsive to receiving one or more gesture commands **150** within the particular period, or detecting a sequence of gesture commands **150** that are temporally spaced in an appropriate manner, the primary device **110** can determine the call back period indicated by the gesture command(s) **150**.

[0050] Regardless of whether the primary device **110** receives a single gesture command **150** or a plurality of gesture commands **150** indicating the number (i.e., numerical count) of taps, the primary device **110** can interpret the gesture command(s) **150** as indicating that the user chooses to dismiss the incoming call **160** and desires to indicate that the call will be returned in a time frame indicated by the number of taps. In this regard, the primary device **110** can, based on the gesture command(s) **150**, determine a numerical count of user gestures detected by the secondary device **120**. Accordingly, responsive to receiving from the secondary device **120** the gesture command(s) **150**, the primary device **110** can automatically generate an electronic message **170** indicating, for example in a body and/or subject line of the electronic message **170**, when the user intends to return the call. The primary device can automatically communicate the electronic message **170** to the remote device **140** via the communication network(s) **130**. For example, if the user taps the secondary device **120** five times, the electronic message **170** can indicate "I am not able to answer your call

right now. I will call you back in five minutes," "I am not able to answer your call right now. I will call you back in twenty-five minutes," "I am not able to answer your call right now. I will call you back in five hours," etc., depending on the user settings. Notably, the present arrangements enable the user to quickly and easily dismiss the incoming call **160** via a secondary device **120**, while ensuring that the electronic message **170** will be automatically communicated to the remote device **140** not only to notify the caller that the user is aware of the call, but also to notify the caller that the incoming call **160** will be returned within a timely manner.

[0051] In other arrangements, rather than tapping the secondary device **120**, the user can present other user gestures detectable by the secondary device **120** to indicate whether to dismiss the incoming call **160** and indicate when the user intends to return the call. For example, responsive to being alerted of the incoming call **160** via the primary device **110** or the secondary device **120**, the user can shake or rotate the secondary device **120** a number of times, with the number of shakes or rotations corresponding to the particular time frame in which the user intends to return the call.

[0052] In another aspect of the present arrangements, rather than the user providing user gestures that are detected by the secondary device **120**, the user can provide user gestures that are detected by the primary device **110**. In this regard, the primary device **110** can include any number of gesture sensors suitably configured to detect the user gestures, such as any of those previously described.

[0053] In illustration, the primary device **110** can be used with or without the secondary device **120**. Regardless, the user can provide one or more user inputs, such as the gestures previously described, detectable by the primary device **110**, and the primary device **110** can determine a numerical count of the detected user gestures. For example, if the display **114** of the primary device **110** is a touchscreen, the user can tap the display **114** one or more times to indicate when the user intends to return the incoming call **160**. The user also can tap the housing **112** of the primary device **110** one or more times to indicate when the user intends to return the incoming call **160**. In this case, the display **114** need not, though it can be, a touchscreen. As noted, the user inputs also can be, for example, user gestures such as touches, taps, marks, symbols, traces and/or spoken utterances detected by the primary device **110**, shake vibration patters detected by the primary device **110**, an orientation of the primary device **110**, and the like. Based on detection of the user inputs, the primary device **110** can initiate any of a myriad of corresponding processes, such as those previously described, including sending the electronic message **170** to the remote device **140** indicating when the user will return the incoming call **160**.

[0054] In a further arrangement, regardless of whether the primary device **110** or the secondary device **120** detects the user gestures, the primary device **110** can generate a notification alerting the user when it is time to return the incoming call **160**. For example, the primary device **110** can schedule the notification to be presented responsive to expiration of the time frame corresponding to the numerical count of detected user gestures. The notification can be, for example, an audible alert generated by the primary device **110** or the secondary device **120**, a haptic alert (e.g., a vibration) generated by the primary device **110** or the secondary device **120**, a message presented on the display **114** or the display **124**, or any other suitable type of notification. The primary device **110** can schedule the notification using a calendaring application, a timer, or any other suitable application or service, and generate the notification when the time frame corresponding to the numerical count of detected user gestures has expired. In the case that the notification is presented by the secondary device **120**, the primary device **110** can communicate a message to the secondary device **120** when the notification is to be presented. Such message also can indicate to the secondary device **120** the type of notification that is to be presented. Responsive to receiving the message, the secondary device **120** can present the notification to the user.

[0055] FIG. **2** is a block diagram illustrating an example of another communication system (hereinafter "system") **200**. The system **200** can include the primary device **110**, the secondary device **120**, the communication network(s) **130** and the remote device **140**. The system **200** can operate substantially similar to the system **100** of FIG. **1**, although in this example, rather than the primary device generating the electronic message **170** indicating when the user intends to return the call, the secondary device **120** can generate the electronic message **170**.

[0056] In the present example, a communication link can be established between the primary device **110** and the secondary device **120**, for example as previously described. Responsive to receiving an incoming call **160**, the primary device **110** can communicate to the secondary device **120** the incoming call indicator **162**. For example, the primary device **110** can communicate to the secondary device a message, formatted for interpretation by a processor of the secondary device **120**, carrying the incoming call indicator **162**. The secondary device **120** can parse the incoming call indicator **162** from the message and, based on the incoming call indicator **162**, determine that the primary device **110** is receiving an incoming call **160**.

[0057] Responsive to the secondary device **120** detecting one or more user gestures, such as taps, shakes, etc., when the incoming call **160** is being received by the primary device **110**, the secondary device **120** can generate a message, formatted for interpretation by a processor of the primary device **110**, carrying a command **280** indicating to the primary device **110** to dismiss the incoming call **160**. The primary device **110** can receive the message carrying the command **280** and dismiss the call accordingly.

[0058] Further, the secondary device **120** can generate the electronic message **170** and communicate the electronic message **170** to the primary device **110**. The primary device **110**, in turn, can communicate the electronic message **170** to the remote device **140** via the communication network(s) **130**. The electronic message **170** can be configured to be communicated from the primary device **110** to the remote device **140** in response to the primary device **110** receiving the electronic message **170** from the secondary device **120**. For example, a header field of the electronic message **170** can include data (e.g., a parameter or flag) that indicates to the primary device **110** that the electronic message **170** is to be re-communicated to the remote device **140**. As noted, the electronic message **170** can indicate, for example in a body and/or subject line of the electronic message **170**, that the user is unable to answer the call, and indicate when the user expects to return the call. In this regard, the secondary device **120** can identify the number (i.e., numerical count) of detected user gestures and determine a time frame corre-

sponding to the numerical count. The secondary device **120** can indicate this time frame in the electronic message **170**.

[0059] FIG. **3** depicts an example of a configuration menu **300** via which a user may configure various gesture commands. The configuration menu **300** can be presented by the primary device **110**, the secondary device **120**, or a computer to which the primary device **110** and/or secondary device **120** may be communicatively linked to receive configuration settings. The configuration menu **300** can present to a user various user configurable settings for configuring the gesture command(s) **150** and/or the electronic message **170**. Such settings can be stored by the primary device **110** and/or secondary device **120**. For instance, the settings can be stored by the primary device **110** in a computer readable data structure, such as a database, library file, a lookup table, or the like, and accessed by the primary device **110** when gesture commands **150** are received to determine which functions are to implemented and/or corresponding data that is to be generated.

[0060] The configuration menu **300** can include radio buttons, drop down menus and/or any other suitable user interface items configured to receive user inputs to configure the user settings. The configuration menu **300** can, for example, include menu items **310**, **312**, **314** selectable by the user, via one or more user inputs, to indicate a type of gesture the user chooses to be a user gesture that is processed to determine the intended time when the user will return a call. For example the menu item **310** can indicate taps of the secondary device **120**, the menu item **312** can indicate shakes of the secondary device **120** and the menu item **314** can indicate rotations of the secondary device **120**. Still, any other type of user gesture can be included in the configuration menu and the present arrangements are not limited in this regard.

[0061] The configuration menu **300** also can include menu items **320**, **330** selectable by the user. The menu item **320** can be selectable by the user to indicate that each gesture is to correspond to a particular number of second, minutes, hours, days, etc. When the user selects the menu item **320**, a menu item **322** can be presented to the user to select a number of time periods and a menu item **324** can be presented to the user to select a corresponding type of time period, for example second, minutes, hours, days, etc. For example, the user can select the menu items **320-324** to indicate that each user gesture corresponds to five minutes.

[0062] In lieu of selecting the menu item **320**, the user may select the menu item **330**. The menu item **330** can be selectable by the user to indicate that certain numbers of user gestures correspond to a certain numbers of time periods and corresponding types of time periods. In illustration, from a menu item **332**, the user can select a particular number of user gestures, then from a menu item **334** select a number of time periods and from a menu item **336** select a corresponding type of time period. For example, the user can select the menu items **332-336** to indicate that one user gesture corresponds to fifteen minutes. A correspondence between the user selections from the menu items **334**, **336** and the user selection from the menu item **332** can be stored. The user then can select another particular number of gestures from the menu item **332**, then from the menu item **334** select a number of time periods and from the menu item **336** select a corresponding type of time period. For example, the user can select the menu items **332-336** to indicate that two user gestures correspond to one hour. A correspondence between the user selections from the menu items **334**, **336** and the user selection from the menu item **332** again can be stored. The process can continue until the user has selected a time period/type for each desired number of user gestures. Accordingly, the user can define a specific time period/type for each desired number of user gestures. In this regard, the selected time period need not be linear with respect to the selected number of user gestures.

[0063] Data corresponding to the user selections from the menu items **310-336** can be stored by the primary device **110**. When the gesture command(s) **150** is/are received, the data can be processed by the primary device **110** to determine the time frame as to when the user intends to return the incoming call **160**, which is to be indicated in the electronic message **170**.

[0064] In addition to the menu items **310-336**, the configuration menu **300** also can include a menu item **340** in which the user can compose text to be included in the electronic message **170**. For example, the menu item **340** can be a text input field in which the user enters text **342** to be included in the automatically generated electronic message **170**. A field **344** can be reserved in the text to be auto-filled by the primary device **110** responsive to processing the gesture command(s) **150**. Specifically, the field **344** can be reserved to indicate the time frame corresponding to the number of user gestures detected by the secondary device **120**.

[0065] The present arrangements are not limited to the above examples, however. In this regard, FIG. **4** is a table **400** presenting various examples of functions that may be implemented on the primary device **110** responsive to user gestures detected by the primary device or the secondary device **120**. Referring to FIGS. **1**, **2** and **4**, the left column of the table **400** lists example user gestures. The center column of the table **400** lists possible operating modes of the primary device **110** with which those user gestures can be associated. The right column of the table **400** lists functions of the primary device **110** which can be associated with a particular combination of user gesture and primary device operating mode. Data corresponding to the information presented in the table **400** can be stored, by the primary device **110** and/or the secondary device **120**, in a computer readable data structure, such as a database, library file, a lookup table or the like. In one arrangement, responsive to gesture commands **150** being received from the secondary device **120**, or the primary device **110** detecting the user gestures, the primary device **110** can access the information to identify functions corresponding to the gesture commands **150** that are to be implemented. In another arrangement, responsive to the secondary device **120** detecting user gestures, the secondary device **120** can access the information to identify functions corresponding to the user gestures that are to be implemented.

[0066] By way of example, if the user taps the secondary device **120** once, a corresponding gesture command **150** can be communicated from the secondary device **120** to the primary device **110**. If the current operating mode of the primary device **110** is music playback, responsive to receiving the gesture command **150**, the primary device can pause the music playback. If the current operating mode of the primary device **110** is music playback being paused, responsive to receiving the gesture command **150**, the primary device can un-pause the music playback to play the music. Similarly, if the current operating mode of the primary

device **110** is video playback, responsive to receiving the gesture command **150**, the primary device can pause the video playback, and so on. If the user taps the secondary device **120** twice, a corresponding gesture command **150** can be communicated from the secondary device **120** to the primary device **110**. Responsive to such gesture command **150**, the primary device **110** can skip to the next song or video. If the user taps the secondary device **120** thrice, a corresponding gesture command **150** can be communicated from the secondary device **120** to the primary device **110**. Responsive to such gesture command **150**, the primary device **110** can skip to a previous song or video.

[0067] If the user taps the secondary device **120** one or more times when the primary device **110** is in an operating mode in which a reminder is being presented, on the primary device **110** and/or on the secondary device **120**, a corresponding gesture command **150** can be communicated from the secondary device **120** to the primary device **110**. Responsive to such gesture command **150**, the primary device **110** can snooze the reminder for a particular time period corresponding to the number of taps. For example, if the user taps the secondary device **120** three times, the primary device **110** can snooze the reminder for three minutes, fifteen minutes, thirty minutes, three hours, etc. The amount of snooze time associated with each tap can be based on user configuration settings.

[0068] If the user taps the secondary device **120** one or more times when the primary device **110** is in an operating mode in which an incoming call **160** is being received, the primary device **110** can dismiss the call and send the electronic message **170** to the remote device **140** indicating the user will return the call in a time period corresponding to the number of taps, as previously described. If, however, the user provides a gesture tracing a check mark, a corresponding gesture command **150** can be communicated from the secondary device **120** to the primary device **110**. Responsive to receiving such gesture command **150**, the primary device **110** can answer the incoming call **160**. If the user provides a gesture tracing an X mark, a corresponding gesture command **150** can be communicated from the secondary device **120** to the primary device **110**. Responsive to receiving such gesture command **150**, the primary device **110** can dismiss the incoming call **160** without sending an electronic message to the remote device **140**. Depending on the operating mode of the primary device **110**, the primary device **110** can implement other functionality in response to receiving a gesture command **150** corresponding to an X mark. For example, the primary device **110** can stop music or video playback, dismiss a reminder or alarm, close a camera, etc. In one arrangement, the user can trace the check mark or X mark on the display **124** of the secondary device **120**. In another arrangement, the user can move an appendage, such as a finger, proximate to the secondary device, for example above the display **124**. A gesture sensor of the secondary device can detect such user gesture and generate the corresponding gesture command **150**.

[0069] Examples of other symbols that can be traced by a user as a user gesture include, but are not limited to, a plus sign, an arc, a letter, a question mark, etc. Again, responsive to receiving a gesture command **150** corresponding to such a gesture, the primary device **110** can implement a corresponding function. Notably, some functions can be implemented regardless of which mode the primary device currently is operating. For example, if a user gesture is a plus sign traced by a user, the primary device can initiate an emergency call and/or generate a distress signal. If the user traces a clockwise arc, information presented on the display **114** of the primary device **110** can be rotated ninety degrees clockwise, and if the user traces a counterclockwise arc, the information can be rotated ninety degrees counterclockwise. By tracing a letter, an application corresponding to the letter can be launched, or a web browser can be opened and directed to a website corresponding to the letter. Which applications/websites correspond to particular letters can be user configurable. Further, by tracing a question mark, the corresponding function that is initiated can be a help menu. The help menu that is presented can correspond to the particular mode in which the primary device is operating. For example, if the user is using a web browser and traces a question mark, a help menu for the web browser can be opened and presented on the display **114** of the primary device **110**.

[0070] Other user gestures can include, but are not limited to, pinch gestures in which the user moves two fingers toward one another, an anti-pinch gesture in which the user moves two fingers away from one another, a swipe gesture in which the user moves a finger in a particular direction, the user shaking the secondary device **120** (e.g., in a particular direction or a particular type of rotation), orientating the secondary device **120** to be face down (e.g., the display **124** facing downward) or setting the secondary device **120** on a surface face down, sending the secondary device **120** on a surface face up, covering the secondary device with a hand, and the like. Examples of various functions corresponding to such gestures that may be implemented by the primary device **110** are presented in the table **400**. Again, the functions that are implemented in response to certain gestures can be user configurable. For example, a user can choose a setting in which the display **114** of the primary device **110** is turned off when the user covers the secondary device **120** (e.g., the display **124**) with the user's palm. In another example, a user can provide a pinch gesture to decrease the volume of audio playback or provide an anti-pinch gesture to increase the volume of audio playback. In yet another example, the user can provide an anti-pinch gesture to set a camera of the primary device **110** into a still image mode or provide a swipe gesture to set a camera of the primary device **110** into a video mode. Nonetheless, the user may define any number of settings in which particular functions are implemented by the primary device **110** in response to particular user gestures.

[0071] As noted, in one arrangement, rather than the secondary device **120** detecting the user gestures, the primary device **120** can detect the user gestures. Indeed, any of the gestures described herein as being entered to, or detected by, the secondary device **120** can be entered to, or detected by, the primary device **110**.

[0072] FIG. **5** is a block diagram illustrating example architecture for a primary device **110**. The primary device **110** can include at least one processor **505** (e.g., a central processing unit or a controller) coupled to memory elements **510** through a system bus **515** or other suitable circuitry. As such, the primary device **110** can store program code within the memory elements **510**. The processor **505** can execute the program code accessed from the memory elements **510** via the system bus **515**.

[0073] The memory elements **510** can include one or more computer readable storage mediums (e.g., physical memory

devices) such as, for example, local memory **520** and one or more bulk storage devices **525**. Local memory **520** refers to RAM or other non-persistent memory device(s) generally used during actual execution of the program code. The bulk storage device(s) **525** can be implemented as Flash memory, EPROM, a SSD, a HDD, or other persistent data storage device. The primary device **110** also can include one or more cache memories (not shown) that provide temporary storage of at least some program code in order to reduce the number of times program code must be retrieved from the bulk storage device **525** during execution.

[0074] Input/output (I/O) devices can be coupled to the primary device **110**. The I/O devices can be coupled directly to the systems bus **515** or processor **505**, or connected via intervening controllers. The I/O devices can include, for example, the display **114**. The I/O devices also can include one or more transceivers **535**, **540**, **545** also can be coupled to primary device **110** to enable primary device **110** to become coupled to other devices and systems through intervening private or public networks. In one arrangement, the primary device **110** can include a transceiver **535** configured to wirelessly communicate via a mobile network, a transceiver **540** configured to wirelessly communicate via a wireless local area network (WLAN) or wide area network (WAN) and a transceiver **545** configured to communicate via a PAN and/or Serial Line. The transceivers **535-545** can communicate using any suitable communication protocols, such as those previously described.

[0075] The I/O devices also can include one or more gesture sensors **550**. Examples of such gesture sensors **550** include, but are not limited to, a camera that detects movements of a user's body or appendage and/or facial expressions of the user, one or more infrared sensors that detect movements of a user's body or appendage or of a stylus, one or more accelerometers that detect shake/vibration patterns applied to the primary device **110** by a user and/or orientation of the primary device **110**, a gyroscope that detects position/movement of the primary device **110** by a user, a compass that detects orientation of the primary device **110**, a touchpad that detects touches or taps by a user's appendage or a stylus, a microphone that detects spoken utterances or other sounds, and the like. In an arrangement in which the display **114** is a touchscreen display, one or more gesture sensors **550** can be included in the display **114** as touch sensors. Resistive touch sensors and capacitive touch sensors are well known examples of such touch sensors.

[0076] Optionally, other I/O devices (not shown) can be coupled to the primary device **110**. For example, the primary device **110** may include communication ports, for example USB ports, via which the primary device **110** may use to communicate with the secondary device **120**. The primary device **110** also can include one or more cameras configured to capture still images or video, one or more audio transducers, etc.

[0077] As pictured in FIG. **5**, the memory elements **510** can store various software components of the primary device **110**, for example an operating system **555**, a call handler **560**, a secondary device interface **565**, a gesture handler **570**, and a messaging client **575**. Being implemented in the form of executable program code, these components of the primary device **110** can be executed by the primary device **110** and, as such, can be considered part of the primary device **110**. Moreover, the operating system **555**, call handler **560**, secondary device interface **565**, gesture handler **570**, and messaging client **575** are functional data structures that impart functionality when employed as part of the primary device **110**. The call handler **560**, secondary device interface **565**, gesture handler **570**, and messaging client **575** can execute in a computing environment provided by the operating system **555**. Other components, for example, communication modules, user interface modules, etc. also can execute in the computing environment provided by the operating system **555**.

[0078] The call handler **560** can be configured to receive and process incoming calls, such as the incoming call **160** of FIG. **1**, as well as place and process outgoing calls. Such calls can be received or placed via one or more communication networks, for example a mobile network, using the transceiver **535** to establish and maintain communication links with the communication network(s). The secondary device interface **565** can be configured to establish and maintain communication links with the secondary device **120**, for example using the transceiver **545**. In this regard, the secondary device interface **565** can send messages to, and receive messages from, the secondary device **120** via the transceiver **545**. Messages that contain gesture commands can be processed by the secondary device interface **565** to parse the gesture commands from such messages and communicate the gesture commands to the gesture handler **570**. The gesture handler **570** can process the gesture commands to initiate various functionality of the primary device **110**, for example as described herein. For example, if a gesture command indicates a user gesture in which a user taps the secondary device **120**, and such gesture command is received while an incoming call is being received, the gesture handler **570** can communicate a command to the call handler **560** to dismiss the incoming call and communicate a command to the messaging client **575** to send an electronic message to the calling device indicating that the call will be returned in a particular time frame, as described herein. In an arrangement in which the secondary device **120** generates electronic messages, such as the electronic message **170** of FIG. **2** indicating that the call will be returned in a particular time frame, the messaging client **575** can receive the electronic message **170** from the secondary device **120** and, in turn, communicate the message to a remote device.

[0079] Various other software modules/applications may be executed in the computing environment provided by the operating system **555** and utilized to facilitate functionality described herein and the present arrangements are not limited in this regard. Examples of other software modules/applications may include, but are not limited to, communication modules, user interface modules, calendaring applications, task tracking applications, reminder applications, presentation applications, and the like.

[0080] FIG. **6** is a block diagram illustrating example architecture for the secondary device **120**. The secondary device **120** can include at least one processor **605** (e.g., a central processing unit or a controller) coupled to memory elements **610** through a system bus **615** or other suitable circuitry. As such, the secondary device **120** can store program code within the memory elements **610**. The processor **605** can execute the program code accessed from the memory elements **610** via the system bus **615**.

[0081] The memory elements **610** *c* can include one or more computer readable storage mediums (e.g., physical memory devices) such as, for example, local memory **620** (e.g., RAM) and one or more bulk storage devices **625**. The

bulk storage device(s) **625** can be implemented as Flash memory, EPROM, SSD, a HDD, or other persistent data storage device. The secondary device **120** also can include one or more cache memories (not shown) that provide temporary storage of at least some program code in order to reduce the number of times program code must be retrieved from the bulk storage device **625** during execution.

[0082] I/O devices can be coupled to the secondary device **120**. The I/O devices can be coupled directly to the systems bus **615** or processor **605**, or connected via intervening controllers. The I/O devices can include, for example, the display **124**. The I/O devices also can include one or more gesture sensors **635**. Examples of such gesture sensors **635** include, but are not limited to, a camera that detects movements of a user's body or appendage and/or facial expressions of the user, one or more infrared sensors that detect movements of a user's body or appendage or of a stylus, one or more accelerometers that detect shake/vibration patterns applied to the secondary device **120** by a user and/or orientation of the secondary device **120**, a gyroscope that detects position/movement of the secondary device **120** by a user, a compass that detects orientation of the secondary device **120**, a touchpad that detects touches or taps by a user's appendage or a stylus, a microphone that detects spoken utterances or other sounds, and the like. In an arrangement in which the display **124** is a touchscreen display, one or more gesture sensors **635** can be included in the display **124** as touch sensors.

[0083] The I/O devices also can include at least one transceiver **640** that enables the secondary device **120** to become coupled to other devices, such as the primary device **110**. The transceiver **640** can communicate using any communication protocols, such as those previously described, suitable for establishing a communication link between the secondary device **120** and the primary device **110**. In one arrangement, the transceiver **640** can communicate via one or more PAN communication protocols. In another arrangement, the transceiver **640** can communicate via Wi-Fi, WiMax, or any other communication protocols suitable for establishing network connections. In one aspect, the secondary device **120** can communicate with the primary device **110** using a Secure Shell (SSH tunnel), though the present arrangements are not limited in this regard.

[0084] Optionally, other I/O devices (not shown) can be coupled to the secondary device **120**. For example, the secondary device **120** may include communication ports, for example USB ports, via which the secondary device **120** may use to communicate with the primary device **110**. The secondary device **120** also can include one or more cameras configured to capture still images or video, one or more audio transducers, etc.

[0085] As pictured in FIG. **6**, the memory elements **610** can store various software components of the secondary device **120**, for example an operating system **650**, a primary device interface **655**, a gesture engine **660** and, optionally, a messaging client **665**. Being implemented in the form of executable program code, these components of the secondary device **120** can be executed by the secondary device **120** and, as such, can be considered part of the secondary device **120**. Moreover, the operating system **650**, primary device interface **655**, gesture engine **660** and messaging client **665** are functional data structures that impart functionality when employed as part of the secondary device **120**. The primary device interface **655**, gesture engine **660** and messaging client **665** can execute in a computing environment provided by the operating system **650**. Other components, for example, communication modules, user interface modules, calendaring applications, task tracking applications, reminder applications, presentation applications, and the like also can execute in the computing environment provided by the operating system **650**.

[0086] The secondary device **120** can be configured to establish and maintain communication links with the primary device **110**, for example using the transceiver **640**. In this regard, the secondary device interface **565** can send messages to, and receive messages from, the secondary device **120** via the transceiver **640**. The gesture engine **660** can receive signals/messages from the display **124** and/or gesture sensor(s) **635** corresponding to user gestures detected by such components. Further, the gesture engine **660** can generate corresponding gesture commands to the primary device interface **655**, which can include the gesture commands in messages transmitted to the primary device **110**.

[0087] In an arrangement in which the secondary device **120** generates electronic messages, such as the electronic message **170** of FIG. **2** indicating that the call will be returned in a particular time frame, the messaging client **665** can automatically generate the electronic message **170**, for example as described herein, and communicate the electronic message **170** to the messaging client **575** of the primary device **110** via the transceiver **640**. Various other software modules may be utilized to facilitate functionality described herein and the present arrangements are not limited in this regard.

[0088] FIG. **7** is a flowchart illustrating an example of a method **700** of generating a return call notification based on a user gesture. At step **705**, an incoming call from a remote device can be received by a primary device. At step **710**, the primary device can determine a numerical count of detected user gestures. The user gestures can be, for example, taps by the user on the primary device or a secondary device, or shakes of the primary device or the secondary device by the user. At step **715**, responsive to determining the numerical count of detected user gestures, by primary device, the primary device can automatically generate an electronic message indicating a user will return the incoming call in a time frame corresponding to the numerical count of detected user gestures. The primary device can automatically communicate the electronic message to the remote device.

[0089] FIG. **8** is a flowchart illustrating another example of a method **800** of generating a return call notification based on a user gesture. At step **805**, a secondary device can receive, from a primary device, at least one message, formatted for interpretation by a processor of the secondary device, carrying an incoming call indicator indicating that an incoming call from a remote device is being received by the primary device. At step **810**, the secondary device can detect at least one user gesture. The user gesture(s) can be, for example, one or more taps or shakes of the secondary device by the user. At step **815**, responsive to detecting the at least one user gesture, the secondary device can generate an electronic message indicating a user will return the incoming call in a time frame corresponding to a numerical count of the at least one user gesture detected by the secondary device. The secondary device can automatically communicate the electronic message to the primary device. The

electronic message can be configured to be communicated from the primary device to the remote device.

[0090] For purposes of simplicity and clarity of illustration, elements shown in the figures have not necessarily been drawn to scale. For example, the dimensions of some of the elements may be exaggerated relative to other elements for clarity. Further, where considered appropriate, reference numbers are repeated among the figures to indicate corresponding, analogous, or like features.

[0091] The present invention may be a system, a method, and/or a computer program product. The computer program product may include a computer readable storage medium having computer readable program instructions thereon for causing a processor to carry out aspects of the present invention.

[0092] Computer readable program instructions described herein can be downloaded to respective communication devices from a computer readable storage medium or to an external computer or external storage device via a network, for example, the Internet, a LAN, a WAN and/or a wireless network. The network may comprise copper transmission cables, optical transmission fibers, wireless transmission, routers, firewalls, switches, gateway computers and/or edge servers. A network adapter card or network interface in each communication device receives computer readable program instructions from the network and forwards the computer readable program instructions for storage in a computer readable storage medium within the respective communication device.

[0093] Computer readable program instructions for carrying out operations of the present invention may be assembler instructions, instruction-set-architecture (ISA) instructions, machine instructions, machine dependent instructions, microcode, firmware instructions, state-setting data, or either source code or object code written in any combination of one or more programming languages, including an object oriented programming language such as Smalltalk, C++ or the like, and conventional procedural programming languages, such as the "C" programming language or similar programming languages. The computer readable program instructions may execute entirely on the user's computer, partly on the user's computer, as a stand-alone software package, partly on the user's computer and partly on a remote computer or entirely on the remote computer or server. In the latter scenario, the remote computer may be connected to the user's computer through any type of network, including a LAN or a WAN, or the connection may be made to an external computer (for example, through the Internet using an Internet Service Provider). In some embodiments, electronic circuitry including, for example, programmable logic circuitry, field-programmable gate arrays (FPGA), or programmable logic arrays (PLA) may execute the computer readable program instructions by utilizing state information of the computer readable program instructions to personalize the electronic circuitry, in order to perform aspects of the present invention.

[0094] Aspects of the present invention are described herein with reference to flowchart illustrations and/or block diagrams of methods, apparatus (systems), and computer program products according to embodiments of the invention. It will be understood that each block of the flowchart illustrations and/or block diagrams, and combinations of blocks in the flowchart illustrations and/or block diagrams, can be implemented by computer readable program instructions.

[0095] These computer readable program instructions may be provided to a processor of communication device, which execute via the processor of the communication device, create means for implementing the functions/acts specified in the flowchart and/or block diagram block or blocks. These computer readable program instructions may also be stored in a computer readable storage medium that can direct a communication device to function in a particular manner, such that the computer readable storage medium having instructions stored therein comprises an article of manufacture including instructions which implement aspects of the function/act specified in the flowchart and/or block diagram block or blocks.

[0096] The computer readable program instructions may also be loaded onto a communication device to cause a series of operational steps to be performed on the communication device to produce an automated process implemented by a processor, such that the instructions which execute on the communication device implement the functions/acts specified in the flowchart and/or block diagram block or blocks.

[0097] The flowchart and block diagrams in the Figures illustrate the architecture, functionality, and operation of possible implementations of systems, methods, and computer program products according to various embodiments of the present invention. In this regard, each block in the flowchart or block diagrams may represent a module, segment, or portion of instructions, which comprises one or more executable instructions for implementing the specified logical function(s). In some alternative implementations, the functions noted in the block may occur out of the order noted in the figures. For example, two blocks shown in succession may, in fact, be executed substantially concurrently, or the blocks may sometimes be executed in the reverse order, depending upon the functionality involved. It will also be noted that each block of the block diagrams and/or flowchart illustration, and combinations of blocks in the block diagrams and/or flowchart illustration, can be implemented by special purpose hardware-based systems that perform the specified functions or acts or carry out combinations of special purpose hardware and computer instructions.

[0098] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, the singular forms "a," "an," and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms "includes," "including," "comprises," and/or "comprising," when used in this disclosure, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

[0099] Reference throughout this disclosure to "one arrangement," "an arrangement," or similar language means that a particular feature, structure, or characteristic described in connection with the arrangement is included in at least one arrangement described within this disclosure. Thus, appearances of the phrases "in one arrangement," "in an arrangement," and similar language throughout this disclosure may, but do not necessarily, all refer to the same arrangement.

[0100] The term "plurality," as used herein, is defined as two or more than two. The term "another," as used herein, is defined as at least a second or more. The term "coupled," as used herein, is defined as connected, whether directly without any intervening elements or indirectly with one or more intervening elements, unless otherwise indicated. Two elements also can be coupled mechanically, electrically, or communicatively linked through a communication channel, pathway, network, or system. The term "and/or" as used herein refers to and encompasses any and all possible combinations of one or more of the associated listed items. It will also be understood that, although the terms first, second, etc. may be used herein to describe various elements, these elements should not be limited by these terms, as these terms are only used to distinguish one element from another unless stated otherwise or the context indicates otherwise.

[0101] The term "if" may be construed to mean "when" or "upon" or "in response to determining" or "in response to detecting," depending on the context. Similarly, the phrase "if it is determined" or "if [a stated condition or event] is detected" may be construed to mean "upon determining" or "in response to determining" or "upon detecting [the stated condition or event]" or "in response to detecting [the stated condition or event]," depending on the context.

[0102] The descriptions of the various embodiments of the present invention have been presented for purposes of illustration, but are not intended to be exhaustive or limited to the embodiments disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art without departing from the scope and spirit of the described embodiments. The terminology used herein was chosen to best explain the principles of the embodiments, the practical application or technical improvement over technologies found in the marketplace, or to enable others of ordinary skill in the art to understand the embodiments disclosed herein.

What is claimed is:

1. A method, comprising:

presenting, by a primary device, a reminder;

receiving, by the primary device, from a secondary device, at least one message indicating a numerical count of user gestures detected by the secondary device; and

responsive to receiving the message indicating the numerical count of detected user gestures, automatically snoozing, by the primary device, the reminder for a time period based on the numerical count of the user gestures.

2. The method of claim **1**,

wherein receiving by the primary device, from the secondary device, the at least one message indicating the numerical count of the user gestures detected by the secondary device comprises receiving by the primary device the at least one message while the primary device is presenting the reminder.

3. The method of claim **1**, wherein receiving by the primary device, from the secondary device, the at least one message indicating the numerical count of user gestures detected by the secondary device comprises:

receiving by the primary device, from the secondary device, at least one message indicating a numerical count of times a user taps or shakes the secondary device.

4. The method of claim **1**, wherein the secondary device is a wearable device in communication with the primary device.

5. The method of claim **1**, further comprising:

responsive to expiration of the time period based on the numerical count of user gestures, re-presenting the reminder by the primary device or the secondary device.

6. The method of claim **5**, further comprising:

subsequent to re-presenting the reminder, receiving by the primary device, from the secondary device, at least one message indicating a user gesture tracing an "X" mark detected by the secondary device; and

responsive to receiving the message indicating the user gesture tracing the "X" mark detected by the secondary device, the primary device automatically dismissing the reminder.

7. The method of claim **1**, further comprising:

presenting a user configuration menu, the user configuration menu presenting a plurality of user configurable settings;

receiving, via the user configuration menu, at least one user input indicating that the numerical count of user gestures corresponds to the time period; and

storing, in a computer readable data structure, data indicating that the numerical count of user gestures corresponds to the time period,

wherein automatically snoozing the reminder for the time period based on the numerical count of user gestures comprises accessing the data stored in the computer readable data structure to automatically identify the time period based on the numerical count of user gestures.

8. The method of claim **1**, wherein receiving the at least one user input indicating that the numerical count of user gestures corresponds to the time period comprises receiving at least one user input specifying a number of minutes to snooze reminders per user gesture.

9. A method, comprising:

detecting, by a secondary device, at least one user gesture;

responsive to detecting the at least one user gesture, generating, by the secondary device, a message indicating an instruction to snooze a reminder for a time period based on a numerical count of the at least one user gesture detected by the secondary device, the reminder being presented by a primary device; and

automatically communicating, by the secondary device, the message to the primary device.

10. The method of claim **9**, further comprising:

receiving, by the secondary device, at least one message from the primary device indicating that the reminder is being presented by the primary device.

11. The method of claim **9**, further comprising:

responsive to receiving the message from the primary device, presenting, by the secondary device, the reminder.

12. The method of claim **9**, further comprising:

detecting, by the secondary device, a user gesture tracing an "X" mark;

responsive to detecting the user gesture tracing the "X" mark, generating, by the secondary device, a message indicating to the primary device to dismiss the reminder; and

communicating, by the secondary device, the message to the primary device.

13. The method of claim **9**, wherein detecting, by the secondary device, at least one user gesture comprises detecting at least one tap of the secondary device by the user.

14. The method of claim **9**, wherein the secondary device is a wearable device in communication with the primary device.

15. A primary device, comprising:

a processor programmed to initiate executable operations comprising:

presenting a reminder;

receiving, from a secondary device, at least one message indicating a numerical count of user gestures detected by the secondary device; and

responsive to receiving the message indicating the numerical count of user gestures, automatically snoozing the reminder for a time period based on the numerical count of detected user gestures.

16. The primary device of claim **15**, wherein receiving, from the secondary device, the at least one message indicating the numerical count of detected user gestures detected by the secondary device comprises:

receiving, from the secondary device, at least one message indicating a numerical count of times the user taps or shakes the secondary device.

17. The primary device of claim **15**, wherein the secondary device is a wearable device in communication with the primary device.

18. The primary device of claim **15**, the executable operations further comprising:

responsive to expiration of the time period based on the numerical count of detected user gestures, re-presenting the reminder by the primary device or the secondary device.

19. The primary device of claim **18**, the executable operations further comprising:

subsequent to re-presenting the reminder, receiving, from the secondary device, at least one message indicating a user gesture tracing an "X" mark detected by the secondary device; and

responsive to receiving the message indicating the user gesture tracing the "X" mark detected by the secondary device, automatically dismissing the reminder.

20. The primary device of claim **15**, the executable operations further comprising:

presenting a user configuration menu, the user configuration menu presenting a plurality of user configurable settings;

receiving, via the user configuration menu, at least one user input indicating that the numerical count of detected user gestures corresponds to the time period; and

storing, in a computer readable data structure, data indicating that the numerical count of user gestures corresponds to the time period;

wherein automatically snoozing the reminder for the time period based on the numerical count of user gestures comprises accessing the data stored in the computer readable data structure to automatically identify the time period based on the numerical count of user gestures.

21. The primary device of claim **12**, wherein the executable operations for receiving the at least one user input indicating that the numerical count of user gestures corresponds to the time period comprise executable operations for receiving at least one user input specifying a number of minutes to snooze reminders per user gesture.

22. A secondary device, comprising:

a processor programmed to initiate executable operations comprising:

detecting at least one user gesture;

responsive to detecting the at least one user gesture, generating a message indicating an instruction to snooze a reminder for a time period based on a numerical count of the at least one user gesture detected by the secondary device, the reminder being presented by a primary device; and

automatically communicating the message to the primary device.

23. The secondary device of claim **22**, the executable operations further comprising:

detecting, by the secondary device, a user gesture tracing an "X" mark;

responsive to detecting the at least one user gesture tracing the "X" mark, generating, by the secondary device, a message indicating to the primary device to dismiss the reminder; and

communicating the message to the primary device.

24. The secondary device of claim **22**, wherein detecting, by the secondary device, at least one user gesture comprises detecting at least one tap of the secondary device by the user.

25. The secondary device of claim **22**, wherein the secondary device is a wearable device in communication with the primary device.

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