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Schrager

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(54) **VOICE CONTROLLED MULTIMEDIA AND COMMUNICATIONS DEVICE**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,034,164	A	7/1977	Westmoland	369/11
4,654,883	A	3/1987	Iwata	381/380
4,845,751	A	7/1989	Schwab	381/311
5,337,346	A	8/1994	Uchikura	379/58
5,371,901	A	12/1994	Reed et al.	455/69
5,590,417	A	12/1996	Rydbeck	455/575.2
5,627,547	A	5/1997	Ramaswamy et al.	342/357.08
5,771,438	A	6/1998	Palermo et al.	455/41.1
5,794,164	A	8/1998	Beckert et al.	455/306
5,963,872	A	10/1999	Stein	455/557
6,067,278	A	5/2000	Owens et al.	704/270
6,078,825	A	6/2000	Hahn et al.	455/569.2
6,131,042	A	10/2000	Lee et al.	455/556.1
6,223,060	B1	4/2001	Tamir et al.	455/569.2
6,226,532	B1	5/2001	Kim et al.	455/563
6,236,969	B1	5/2001	Ruppert et al.	704/275
6,240,302	B1	5/2001	Harrison	455/556.1
6,246,935	B1	6/2001	Buckley	701/36
6,285,357	B1	9/2001	Kushiro et al.	345/169
6,285,867	B1	9/2001	Boling et al.	455/404.1
6,332,084	B1	12/2001	Shaanan et al.	455/556
6,339,706	B1	1/2002	Tillgren et al.	455/419
6,345,179	B1	2/2002	Wiegers et al.	455/344
6,381,452	B1	4/2002	Tien et al.	455/344
6,381,469	B1	4/2002	Wojick	455/550.1
6,397,186	B1	5/2002	Bush et al.	704/274
6,611,681	B1 *	8/2003	Henderson	455/413
6,728,632	B1 *	4/2004	Medl	701/207
2001/0012998	A1	8/2001	Jouet et al.	704/248
2002/0019732	A1	2/2002	Kikinis et al.	704/201
2002/0071577	A1	6/2002	Lemay et al.	381/110
2002/0072912	A1	6/2002	Yen et al.	704/270
2002/0091511	A1 *	7/2002	Hellwig et al.	704/201
2002/0175665	A1 *	11/2002	O'Grady et al.	323/371

FOREIGN PATENT DOCUMENTS

EP	1100243	A2 *	5/2001

* cited by examiner

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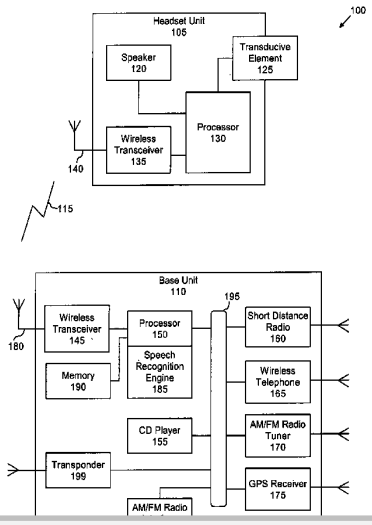
(57) **ABSTRACT**

A portable multimedia and communications device can include a transducive element for receiving sound. The device also can include a base unit having a plurality of multimedia units and a processor executing a speech recognition engine for recognizing user speech. Each of the plurality of multimedia units can be selectively enabled and operated responsive to user voice commands received via the transducive element and communicated to the base unit via a communication link.

51 Claims, 3 Drawing Sheets



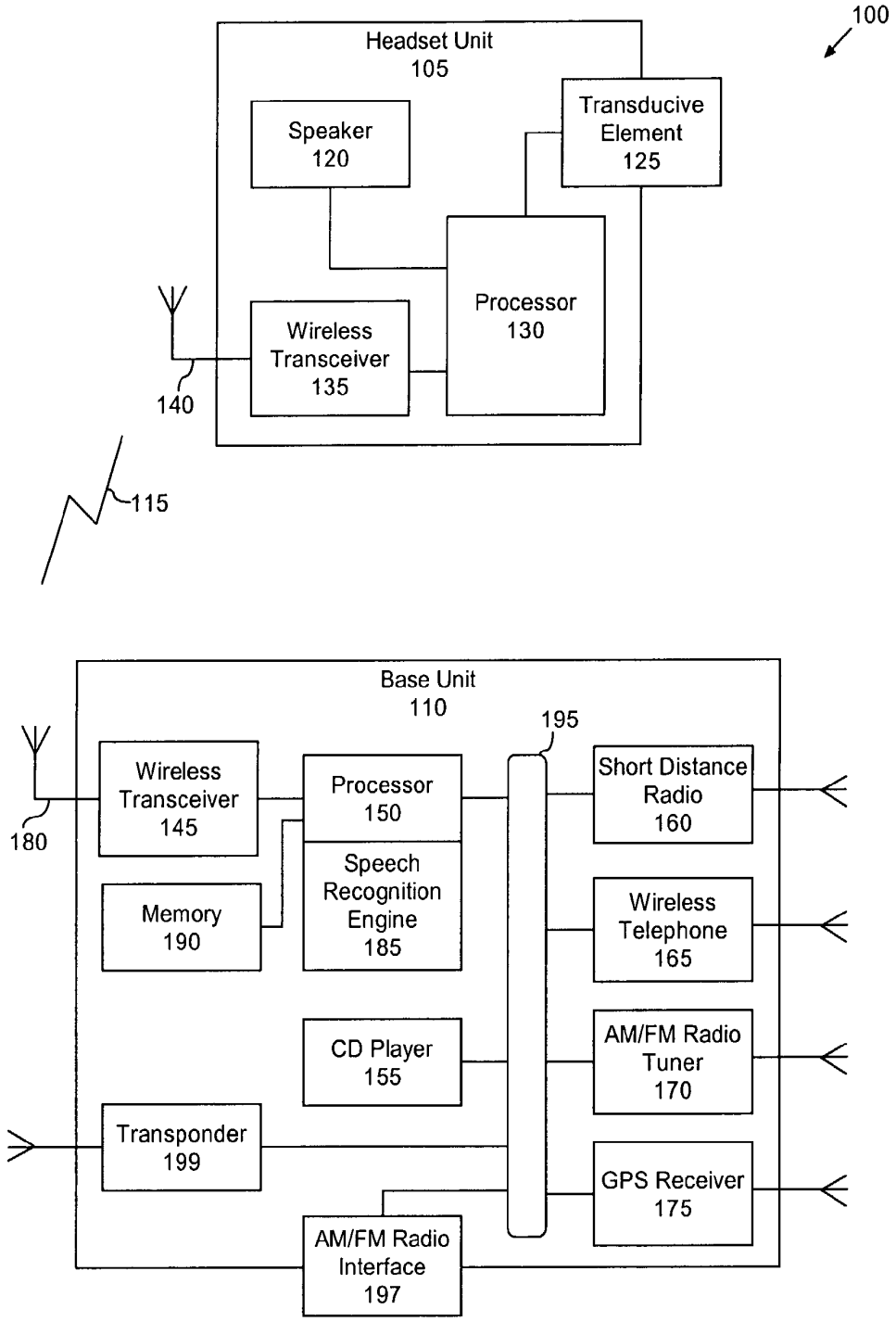


FIG. 1

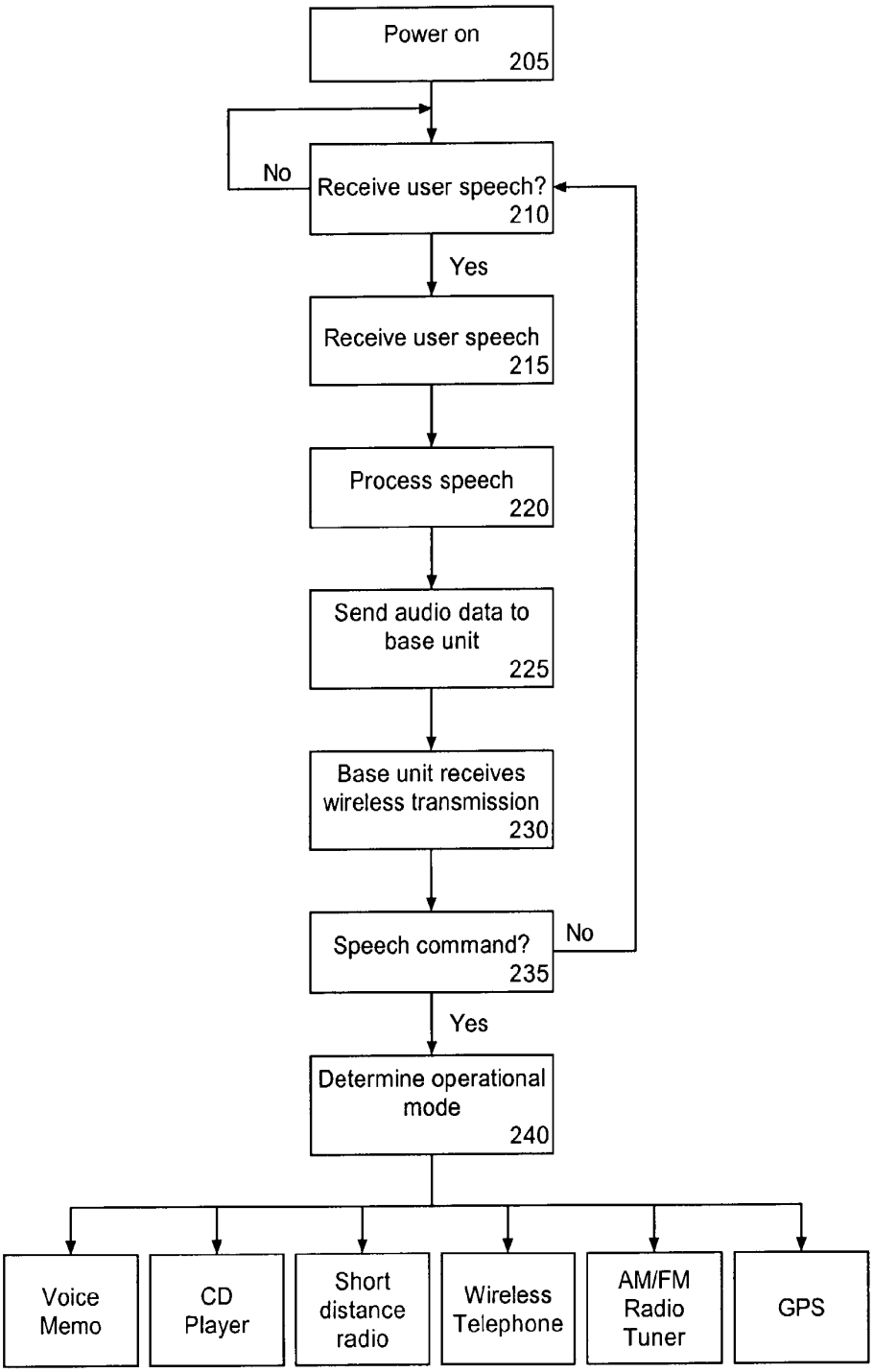


FIG. 2

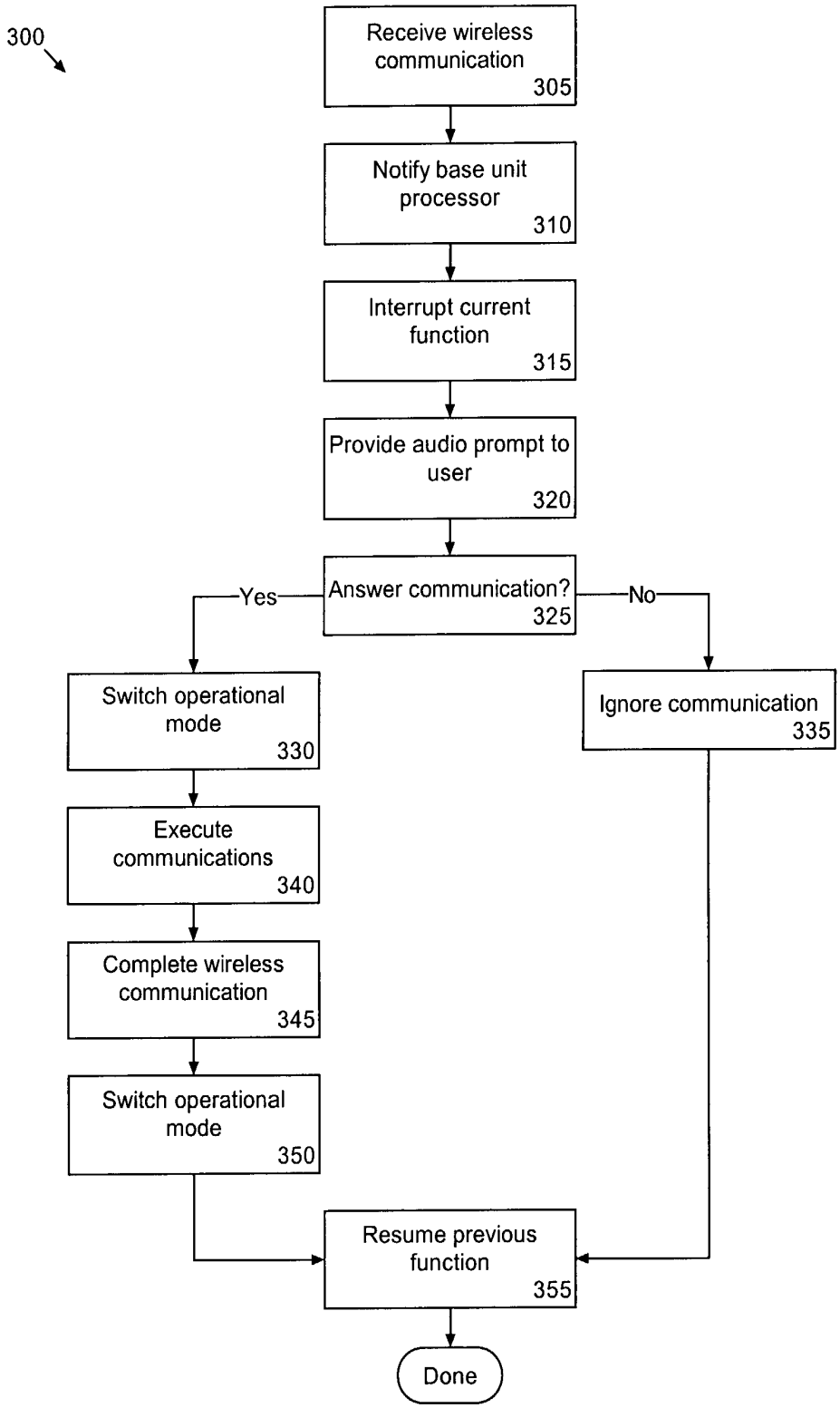


FIG. 3

VOICE CONTROLLED MULTIMEDIA AND COMMUNICATIONS DEVICE

BACKGROUND OF THE INVENTION

1. Technical Field

The present invention relates the field of portable communications devices.

2. Description of the Related Art

As consumers continue to demand mobile access to many computing and communications services, technology continues to evolve to accommodate consumer demand. Ideally, consumers prefer to have access to most, if not all, of the same computing functions presently available at home or the office despite being away from such resources. In response to consumer demand, a wide variety of portable electronic devices have become commercially available. For example, individuals can track and store a variety of personal information using conventional personal digital assistants, communicate with friends, family, and business contacts using cellular telephones, and listen to music through portable radios, compact disc (CD) players, and/or Motion Picture. Experts Group-1 Audio Layer 3 (MP3) players. A variety of other portable devices such as portable short distance radios and global positioning system (GPS) receivers are available to consumers as well.

The majority of commercially available portable devices are sold as single function units. That is, the consumer typically must purchase a music player separately from a cellular telephone, or a citizen band radio separately from a GPS receiver. Typically, consumers must carry a plethora of electronic devices should the consumer wish to travel with calendaring, music, communications, and the like. Even in cases where one or more of these devices are available in various combinations within a single unit, frequently, no single combination device is able to meet the consumer's full range of needs.

Although each device may not be burdensome to operate alone, when used in combination with one or more other devices, the consumer can be overwhelmed with connections, wires, cables, and attachments. To better organize the various electronic devices a consumer may carry, several varieties of carry-alls or electronic device organizers are available. Still, as the benefit of using a portable electronic device is the immediacy and ease with which the different functions of the device can be accessed, storing the device in a carry-all may not prove to be convenient. For example, by the time a consumer is able to locate a ringing cellular telephone within a carry-all, the call may be missed. By the time one finds a personal digital assistant within a carry-all, the opportunity to use the sought after information may have passed.

Assuming that a consumer is able to carry each of the various portable electronic devices that the consumer needs or desires, the consumer still must have one or more hands free in order to operate any given device. With respect to travelers, however, this is not often the case. More than likely, travelers use one or both hands to carry luggage, a carry-on bag, or possibly a personal digital assistant. To operate any of the traveler's portable electronic devices, the traveler may have to stop, put down one or more bags, search for the device, and only then proceed to use the desired device.

Other users, for example individuals who enjoy walking, jogging, hiking, bicycling, motorcycling, boating, or other

pads, and the like when engaged in sports or other outdoor activities. Such individuals, however, not only must have one or more free hands to operate a given device, but also must be able to divert their attention away from an ongoing activity to operate the device. For example, the user typically must watch a dial or display as a radio is tuned, as a volume is adjusted, and the like. The use of ones eyes and hands, however, can cause a break in rhythm and concentration and may even cause an accident.

SUMMARY OF THE INVENTION

The present invention provides a solution for persons requiring access to a variety of multimedia, communications, and computing functions from a single electronic device. In particular, the present invention provides a portable electronic device which can include one or more of an AM/FM radio, a music player, a short distance radio, a voice memo pad, a cellular telephone, a global positioning system (GPS) receiver, an AM/FM radio interface, and a transponder (hereafter collectively referred to as "multimedia units"). Importantly, each of the various multimedia units not only can be included within a single, portable device, but also can be operated in a hands-free manner through the use of voice commands and speech recognition technology. Although the device can be embodied in a variety of forms, according to one inventive arrangement, the device can be modular, wearable, and weather resistant.

One aspect of the present invention can include a portable multimedia and communications device. The device can include a transducive element for receiving sound. According to one arrangement, the transducive element can be disposed in a first headset unit which can include a sound generation source and a short range wireless transceiver. The device also can include a base unit having a plurality of multimedia units and a processor executing a speech recognition engine for recognizing user speech. Notably, the speech recognition engine can be switched between a speaker-independent operational mode and a speaker-dependent operational mode responsive to a control signal, for example a user spoken utterance.

The device can be voice enabled such that each of the multimedia units can be selectively enabled and operated responsive to user voice commands received via the transducive element and communicated to the base unit via a communication link. Notably, the base unit can include a second short range wireless transceiver for communicating with the short range wireless transceiver of the headset unit. Accordingly, the communication link can be a wireless communication link. Still, the transducive element, or the headset unit depending upon the particular embodiment of the present invention, can be connected to the base unit via a wired connection.

According to one aspect of the present invention, responsive to activating one of the plurality of multimedia units, the processor can disable another active one of the plurality of multimedia units by lowering an audio volume of the other active multimedia unit or pausing operation of the other active multimedia unit. Responsive to terminating use of the activated multimedia unit, the processor can re-enable the other active one of the plurality of multimedia units.

For example, one of the multimedia units can be a wireless telephone. Thus, responsive to the wireless telephone receiving a telephone call, the processor can disable an active one of the multimedia units. For instance, the

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