

"A communication device"

THIS INVENTION relates to a communication device and more particularly to a communication device for communication with at least one remote device.

Communication is an essential part of modern daily life. Examples of communication include answering telephone calls, talking to visitors through an intercom/entry phone system and receiving pager communications. All these activities involve using different pieces of equipment which are not always to be found in the same location. Accordingly, a person answering a telephone call would need to go to a different location to answer, for example, an entry phone.

The present invention seeks to provide a communication device which overcomes the above mentioned problems.

Accordingly, the present invention provides a communication device for communicating with at least one designated remote device, which communication device comprises a programmable logic module to configure the communication device and permit communication with the at least one designated remote device in response to a set of configuration commands and a communication module to receive the set of configuration commands.

In order that the present invention may be more readily understood, embodiments thereof will now be described, by way of example, with reference to the accompanying drawings in which:

1-1000

Figure 1 is a block diagram of a communication system including a plurality of communication devices embodying the present invention;

Figure 2 is a block diagram of another communication system including a plurality of communication devices embodying the present invention;

Figure 3 is a block diagram of a communication device embodying the present invention;

Figure 4 is a schematic representation of a communication system including communication devices embodying the present invention; and

Figure 5 is a schematic representation of two communication systems including communication devices embodying the present invention.

Figure 1 shows a block diagram illustrating a communication system 1 including a plurality of communication devices 2 embodying the present invention. The communication system 1 comprises a plurality of communication devices 2 which are in communication with a single base station 3. The base station is, in turn, in communication with a plurality of remote devices 4. Another communication system 1a is shown in Figure 2. The communication system 1a comprises a plurality of communication devices 2 embodying the present invention which are in direct communication with a plurality of base stations 3. Each of the base stations 3 is incorporated in a remote device 4.

Preferably, in both the above described communication systems 1, 1a, the communication devices 2

are in radio communication with the base station 3 (as shown by the broken lines) and the remote devices 4 are in wired communication (as shown by the unbroken lines) with the base station 3.

Referring to Figure 3, a communication device 2 embodying the present invention comprises two main components, a programmable logic module 5 and a communication module 6 such as, for example, a radio frequency (RF) module comprising a modulator/de-modulator, a voltage control oscillator and a phase lock loop. The communication device 2 also includes a keypad 7 having a plurality of keys 8, a speaker 9, a microphone 10 and preferably a visual display 11.

In operation, a designated remote device 4 establishes communication with the base station 3. The particular remote device 4 which comprises the designated remote device 4 is so designated by, for example, turning the remote device 4 on, or sending a signal to the remote device 4 to act as a designated remote device 4. The base station 3 establishes communication with one or more of the communication devices 2 and sends a set of configuration commands to the or each communication device 2. The set of configuration commands are unique to the designated remote device 4. The configuration commands are received by the communication modules 5 of the communication devices 2. The set of configuration commands are transmitted from each communication module 5 to the programmable logic module 6 which configures each of the communication devices 2 to permit communication with the designated remote device 4.

In the communication system 1a shown in Figure 2, where the base station is incorporated in the respective designated remote device 4, the set of configuration

commands is sent directly to the or each communication device 2 to configure the or each communication device 2 as described above.

The programmable logic module 6 may configure the communication device 2 so that selected ones or all of the keypad 7, the speaker 9, the microphone 10 or the visual display 11 are enabled. Further, the set of configuration commands can configure the programmable and logic module 6 to permit communication with the base station 3 by way of a selected communication protocol.

By using the configuration commands, the communication device 2 can mimic the operation of, for example, the mobile mother unit of a baby monitoring system.

By turning on the baby monitoring device comprising the remote device 4, the baby monitoring device flags this information to the base station 3. The base station 3 forwards a set of configuration commands unique to the baby monitoring system to configure the communication device 2 as a mobile mother unit of the baby monitoring system. In this particular example, the communication device 2 would be configured only to provide a speaker output function through the speaker 9 to output received signals comprising the sounds produced by a baby in a remote room in which the remote device 4 in the form of a baby monitoring device is installed. Once the communication device 2 has been configured as a mobile mother unit, communication device 2 receives the signals transmitted by the baby monitoring device. These signals are output from the speaker 9 of the communication device 2. One of the keys 8 on the keypad 7 of the communication device 2 is configured to act as a speaker on/off key.

If a telephone call is placed to a residence in which a communication device 2 is being used as the mobile mother unit of a baby monitoring system, then the base station 3 connected to the telephone, which telephone comprises a second remote device 4, sends a new set of configuration commands unique to the telephone to the communication device 2.

The new set of configuration commands are received by the communication module 5 of the communication device 2 and are subsequently sent to the programmable logic module 6 to re-configure the communication device 2 for communication with the base station 3, the communication device 2 mimicking the operation of a cordless telephone. In this regard, the speaker 9 and the microphone 10 of the communication device 2 would both be enabled rather than just the speaker 9 as in the mobile mother unit example. The visual display 11 is configured to act as an incoming call indicator and one of the keys 8 of the keypad 7 is configured to act as a call accept key.

As shown in Figure 4, the communication device 2 is firstly configured to interface with a remote device 4 comprising an intercom system 20 (when the intercom system 20 has been activated by a visitor). In this regard, the intercom system 20 incorporates a base station 3 and sends the set of configuration commands to configure the communication device 2. Two-way communication is thereby permitted with the visitor using the intercom system 20 and the communication device 2. The communication device 2 may be subsequently configured as the mobile mother unit of a baby monitoring system as previously described. In the example shown in Figure 4, a base station 3 is also incorporated in the remote device 4 of the baby monitoring system. Upon receipt of an incoming telephone call, the

telephone, either incorporating a base station 3 or via a base station 3, will re-configure the communication device 2 as a cordless telephone by sending a new set of configuration commands to the communication device 2.

The communication device 2 can be configured to interface with a number of other remote devices 4 such as a two-way radio, a pager device, a computer/data terminal so that communication with a number of such remote devices is possible using the communication device.

As shown in Figure 5, two self-contained communication systems 1b, 1c are communication systems such as the one shown in Figure 4. The two communication systems 1b, 1c are connected together, in the example of Figure 5, by way of a public switched telephone network (PSTN). When a call is received at either of the remote devices 4, embodied as telephones, then the base station 3 sends the set of configuration commands to the communication devices 2. In the example of Figure 5, the base station 3 can also configure the two communication devices 2 in each communication system 1b, 1c to mimic two-way radios thereby providing direct communication between the communication devices 2 within the respective communication systems 1b, 1c.

Preferably the communication link between the respective base station 3 and the communication device 2 is by radio propagation and, in particular, using the radio frequency band between 46 and 49 MHz.

Preferably the communication device 2 is provided in the form of a bracelet, pendant, or the like which is in a convenient form for being carried or worn on the person of the user.



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CLAIMS:

1. A communication device for communicating with at least one designated remote device, which communication device comprises a programmable logic module to configure the communication device and permit communication with the at least one designated remote device in response to a set of configuration commands and a communication module to receive the set of configuration commands.
2. A communication device according to Claim 1, wherein the at least one designated remote device transmits a particular set of configuration commands to the communication device to configure the communication device to permit communication between the communication device and the at least one designated remote device.
3. A communication device according to Claim 1, wherein the at least one designated remote device is in communication with a base station and the base station sends the particular set of configuration commands to the communication device to configure the communication device to permit communication with the at least one designated remote device through the base station.
4. A communication device according to any preceding claim, wherein the communication device is configured by the set of configuration commands to mimic the operation of one of the following group of devices: a cordless telephone, a mobile telephone, a two-way radio, a mobile mother unit of a baby monitor, an intercom/entry phone system, a pager device or a computer/data terminal.
5. A communication device according to any preceding claim, wherein a repeater is provided to provide

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8

communication between the communication device and the at least one designated remote device.

6. A communication device according to any preceding claim, wherein the system uses the radio frequency band 46-49MHz.

7. A communication device according to any preceding claim, wherein the communication device is provided in the form of a bracelet, headset, or the like suitable for wearing or carrying about the person.

8. A communication system including a communication device according to any preceding claim in combination with a base station for transmitting a set of configuration commands.

9. A communication system according to Claim 8 in combination with a remote device.

10. A communication device substantially as hereinbefore described with reference to and as shown in Figures 1 to 5.

11. A communication system substantially as hereinbefore described with reference to and as shown in Figures 1 to 5.

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