

COMMUNICATION USING ELECTROSHOCKS

BACKGROUND OF THE INVENTION

[0001] The present invention relates generally to mobile communication devices such as mobile telephones, pagers, wireless enabled palmtop computers, or the like, and more particularly, to a mobile communication device employing electrical stimulation for silently alerting its user that information such as a telephone call, a text message, a voice message, a page, or the like has been received by the communication device.

[0002] Mobile communication devices, in particular mobile telephones, pagers, and the like, often include a "silent alert" function which employs a vibrating mechanism to alert the user of the communication device that information such as a telephone call, a voice message, a text message, a page, or the like has been received. Such silent alert mechanisms are used in place of an audible ring at times when an audible ring would be deemed obtrusive or inappropriate (e.g., in a theatre, church, restaurant, or the like). However, vibrating silent alert mechanisms typically require a large amount of electrical power to operate. Consequently, these mechanisms, if used often, greatly reduce the service life of batteries used to power the mobile communication device. Moreover, typical vibrating silent alert mechanisms consist of a small electric motor that drives vibration elements, which in turn causes the housing of the mobile communication device to vibrate. As a result, such vibrating silent alert mechanisms are, by necessity, somewhat bulky, increasing the size of the mobile communication device in which they are employed. Accordingly, in applications where it is desirable that the mobile communication device have an extremely small volume (e.g., wristwatch mobile telephones, a mobile telephone designed to be worn as a necklace, or the like), a silent alert function often cannot be provided.

[0003] Consequently, it is desirable to provide a mobile communication device having a silent alert function for alerting the user that information has been received by the mobile communication device, which does not employ a mechanical vibrating mechanism for providing this function.

SUMMARY OF THE INVENTION

[0004] The present invention is directed to a mobile communication device such as a mobile telephone, a pager, a wireless enabled palmtop computer, or the like, which employs electrical stimulation for silently alerting the user that information such as a telephone call, text message, voice message, page, or the like has been received by the mobile communication device.

[0005] According to a specific embodiment, the present invention provides a mobile communication device that comprises an electrical power source for generating an electrical signal and an electrode assembly coupled to the electrical power source for communicating the electrical signal to the body of a user of the communication device. The electrical signal provides an electrical stimulation to the body of the user when communicated to the body by the electrode assembly for silently alerting the user that information has been received by the mobile communication device. In exemplary embodiments, the mobile communication device may further include a controller for controlling

communication of the electrical signal to the body of the user by controlling at least one of the voltage of the electrical signal, the current of the electrical signal, the amplitude of the electrical signal, frequency of the electrical signal, the point on the body where the electrical signal is applied, and the form of the electrical signal.

[0006] According to a second specific embodiment, the present invention provides a mobile communication device that comprises a housing and a band assembly coupled to the housing for attaching the housing to the user of the mobile communication device, e.g., in a manner similar to a conventional wristwatch. An electrical power source is provided within the housing for generating an electrical signal, which is communicated to the user of the mobile communication device via an electrode assembly coupled to the electrical power source. A controller controls communication of the electrical signal via the electrode assembly to provide an electrical stimulation to the user for silently alerting the user that information has been received by the mobile communication device.

[0007] According to a third specific embodiment, the present invention provides a mobile communication device that comprises a housing and a hanging assembly coupled to the housing for hanging the housing from a user of the mobile communication device. An electrical power source is provided within the housing for generating an electrical signal, which is communicated to the body of the user via an electrode assembly coupled to the electrical power source. A controller controls communication of the electrical signal to provide an electrical stimulation to the user for silently alerting the user that information has been received by the mobile communication device.

[0008] It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only and are not necessarily restrictive of the invention claimed. The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate embodiments of the invention and together with the general description, serve to explain the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIGS. 1A and 1B are block diagrams illustrating a mobile communication device employing electrical stimulation to furnish a silent alert function for silently alerting its user that information has been received by the communication device in accordance with an exemplary embodiment of the present invention;

[0010] FIG. 2 is an isometric view illustrating a mobile communication device, specifically a mobile telephone configured to be worn about the wrist of a user in accordance with an exemplary embodiment of the present invention;

[0011] FIG. 3 is a side elevation view of the communication device shown in FIG. 2, further illustrating contact between the electrodes of the electrode assembly and the wrist of the wearer;

[0012] FIGS. 4 and 5 are bottom plan views of the mobile communication device shown in FIG. 2, further illustrating exemplary positioning of electrodes of the electrode assembly of the mobile communication device;