

WIRELESS COMMUNICATION APPARATUS

Background and Field of the Invention

5 This invention relates to wireless communication apparatus more particularly but not exclusively for Bluetooth use.

The use of Bluetooth for short range wireless communication with a variety of electronic devices is known. One particular application of Bluetooth is with
10 mobile telephones, with a Bluetooth encoder/transceiver being connected to the mobile telephone with a corresponding encoder/transceiver forming as part of a headset including a microphone and loudspeaker/earpiece and a separate power supply, to be worn on the head of a user. It is a disadvantage of this arrangement that the head piece is of a large size and relatively heavy and
15 inconvenient, particularly if worn for a long period.

It is an object of the invention to provide wireless communication apparatus which alleviates this disadvantage of the prior art.

20 Summary of the Invention

According to the invention in a first aspect, there is provided a wireless communication apparatus comprising a microphone and a loudspeaker connected to but spaced from a wireless transceiver, the transceiver being
25 arranged to communicate with a corresponding transceiver connectable to

apparatus with which a user wishing to communicate, the transceiver being arranged to be carried separately from the microphone and loudspeaker by the user.

- 5 According to the invention in a second aspect, there is provided a Bluetooth wireless communication device comprising a microphone and a loudspeaker connected to but spaced from a Bluetooth wireless transceiver, and the transceiver being arranged to be carried separately from the microphone and loudspeaker by a user.

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In the described embodiment, the transceiver, together with battery, are worn either as a pendant or clipped onto an article of clothing and are connected by a *wire connection to the microphone and loudspeaker which are preferably encapsulated in a single earpiece-style unit.* The connection between the microphone and loudspeaker and the transceiver may furthermore take a variety of configurations. For example, this may be connected as part of a loop to be worn around the neck of the user and one side of the loop may be detachable leaving a single elongate connector to allow the transceiver to be popped into a breast or trouser pocket or clipped or otherwise secured to the user's clothing.

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The embodiment of the invention reduces the weight and size of the components that need to be worn on the user's head thus making the apparatus more comfortable to wear than the prior art.

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Brief Description of the Drawings

An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings in which:

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Figure 1 is a schematic view of circuitry of the embodiment of the invention;

Figure 2 is a front view of an embodiment of the invention;

10 Figure 3 is a front view of the embodiment of Figure 2 in an alternative configuration;

Figures 4a, b and c are front, side and underneath views of the transceiver of the embodiment of Figures 1 to 3; and

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Figure 5 is a three-dimensional view of a cable holder usable with the embodiment of Figures 1 to 3.

Detailed Description of the Preferred Embodiment

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With reference to Fig. 1, a schematic diagram of a Bluetooth wireless communication apparatus for use with a mobile telephone is illustrated. This comprises an aerial 10 connected to a transceiver 12 which is in turn connected to an encoder 14 which is provided with a power supply in the form of a

25 rechargeable battery 16, a user interface 18, a loudspeaker 20 and microphone

22. The apparatus shown in Fig. 1 forms one half of a Bluetooth wireless link, the other half being connected to the mobile telephone (not shown). The circuitry and mode of operation is known in the art and will not be further described.

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In this embodiment, the elements of the Bluetooth wireless communication apparatus are divided into two parts labelled 23 and 24 in Fig. 1.

With reference now to Fig. 2, the element 24 (microphone 22 and loudspeaker 20) are disposed in a unitary earpiece (although these may be separate) connected by a wire lead 26 to the remaining of the circuitry 23 which is in the form of a pendant 28. The pendant 28 is physically connected to a loop 30 of sufficient size to pass over the head of the user and be worn around the neck. The loop is preferably in the form of a sleeve and may be formed from any material for example fabric, leather, metal or rubber/plastics material. In the left hand side 31 of the loop 30, the electrical lead 26 passes, through connector 32, portion 31 and connector 33 before passing into pendant 28.

The right hand side 34 of the loop 30 may be connected to connectors 32, 33 by a male/female press fit connection so as to be removable as shown in Fig. 3 thus leaving only a single flexible elongate member 31 connecting headset 25 to pendant 28.

In an alternative, the lead 26 may form portion 31 directly.

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Pendant 28 is shown in a more detail in Figs. 4a – 4c and includes a power button 30 and volume control 32 which together provide the user interface 18, electrical contacts 34 to engage battery charging power connections in a cradle (not shown) and an optional clip 36, which may be detachable, to enable the
5 pendant 28 to be clipped to an article of clothing should it be desired to use the pendant to the configuration shown in Fig. 3 rather than that shown in Fig. 2.

The loop portion 31 is also preferably provided with a cable holder in the form of a toggle 40 as shown in Fig. 3 and in more detail in Fig. 5. The toggle includes
10 a hole 42 for receiving loop portion 31 and a smaller hole 44 having a narrow entrance 46 for receiving wire portion 26. The toggle 40 is provided to allow the length of loop portion 31 to be adjusted to the user's preference by forming a loop between connector 32 and part of lead 26, the loop size being adjustable depending on the position of hole 44 relative to lead 26, hole 44 being
15 sufficiently small to hold cable 26 in frictionally tight engagement.

Although the embodiment of the present invention has been described with reference to a Bluetooth implementation for a mobile telephone application, this is not to be construed as limitative and the invention is applicable for use with
20 other wireless technologies and other applications.

CLAIMS

1. Wireless communication apparatus comprising a microphone and a
loudspeaker connected to but spaced from a wireless transceiver, the
transceiver being arranged to communicate with a corresponding
transceiver connectable to apparatus with which a user wishing to
communicate, the transceiver being arranged to be carried separately
from the microphone and loudspeaker by the user.
2. Apparatus as claimed in claim 1 wherein the transceiver is arranged to
communicate with the corresponding transceiver using Bluetooth.
3. Apparatus as claimed in claim 1 or claim 2 wherein the transceiver is
arranged to be worn around the neck of the user.
4. Apparatus as claimed in claim 3 wherein the transceiver is in the form of
a pendant.
5. Apparatus as claimed in any one of the preceding claims wherein the
microphone and loudspeaker are connected to the transceiver by means
of a wire lead.
6. Apparatus as claimed in claim 5 wherein the wire lead is disposed within
or forms part of a loop to be worn around the neck of a user.

7. Apparatus as claimed in claim 6 wherein a part of the loop is detachable whereby the microphone and loudspeaker are connectable to the wireless transceiver by means of a single flexible elongate connection.
- 5 8. Apparatus as claimed in any one of the preceding claims wherein the transceiver includes a clothing clip.
9. Apparatus as claimed in any one of the preceding claims further comprising means for shortening the length of the connection between
10 the microphone and loudspeaker and the transceiver.
10. Apparatus as claimed in claim 9 wherein the shortening means comprises a toggle.
- 15 11. Apparatus as claimed in any one of the preceding claims wherein the microphone and loudspeaker are provided as a unitary earpiece.
12. A Bluetooth wireless communication device comprising a microphone and a loudspeaker connected to but spaced from a Bluetooth wireless
20 transceiver, and the transceiver being arranged to be carried separately from the microphone and loudspeaker by a user.