

**MINIATURE COMMUNICATION DEVICE**

This invention relates to the field of mobile telephone accessories. More in particular, the invention relates to an accessory in the form of a miniature communication device, intended  
5 for the implementation of short-range mobile telephone features.

Along with the development of mobile phones, many accessories have been developed. For example, these accessories make it possible for a user to make telephone calls without having to hold the telephone in one hand to bring it to his ear. This feature is  
10 particularly advantageous when the user is driving a vehicle, but it is also useful in any situation, since it frees the user's hands, even during a telephone conversation.

In particular, among these devices, mention may be made of accessories called "headsets", which are connected to the mobile  
15 telephone by a wired or wireless connection using Bluetooth technology, for example.

These headsets have a loudspeaker, allowing the user to listen to a caller's words. The system is usually supplemented by a microphone to transmit the user's words. This microphone may be  
20 integrated into the headset or detached. Furthermore, the headsets include various means that make it possible to implement certain features of the telephone, such as picking up and hanging up on an incoming call, or even the initialization of an outgoing call. For example, initialization of a call is carried out by pronouncing  
25 the name of a caller, and in this case the telephone is provided with a means of voice recognition.

In a more advanced version, some of these headsets are

provided with a small screen allowing the user to have information about a caller before choosing whether to answer the call or not.

However, even provided with all of the features described above, these headsets have various drawbacks, in particular in terms of the ergonomics of use.

Indeed, these headsets must be simultaneously used with the telephone, since the user must call on his/her telephone to perform an action, even when he/she has an headset.

Furthermore, due to their size, it is not easy to quickly find this type of headset during an incoming call, for example, within a bag, and it is therefore easier to permanently keep the headset in the ear. However, wearing the headset permanently can put off some people, whether for reasons of comfort or aesthetics.

In addition, it has been found that the number of telephone features used regularly, for example several times a day, is relatively small compared to the total number of features offered. Among the most common features are: receiving or sending telephone calls, sending short text messages, or consulting a directory.

The invention therefore starts from the observation that it would be useful to have a device that makes it possible to implement only the features that are useful on a daily basis. Such a device would allow a user to leave his/her telephone in his/her bag or pocket, protected from impact and thefts, but without impairing the necessary features of this telephone.

Thus, the invention relates to a miniature communication device, intended for the implementation of short-range mobile telephone features for a user. The device first comprises a means

for radio data exchange to exchange data with the mobile telephone, as well as a speaker and at least one microphone that makes it possible for the user to send and receive sound signals.

This miniature communication device is characterized in that  
5 it comprises a primary module, a detachable headset in which the first means of data exchange are installed, the speaker and a microphone, and a second means, electrical, for exchanging data and/or electrical load between the primary module and the detachable headset.

10 The detachable headset being designed to be detached by nature, and then repositioned frequently on the primary module, makes it necessary for the second electrical means to be resistant to numerous connections/disconnections.

To this end, in one embodiment, the second means for  
15 electrical data exchange comprise blade contactors. These contactors are in the form of a first set of metal blades installed on one of the elements, for example the headset, which, when in contact with a second set of metal blades, installed for example on the primary module, make the exchange of the electrical load or  
20 data possible. These contactors are created in such a way that they withstand frequent contact.

However, in order for the contact to take place correctly, it is useful for the headset to be held in position in a sufficiently effective way. To this end, in one embodiment, the detachable  
25 headset comprises a means of attachment that works with a complementary means built into the primary module. These means of attachment are, on the one hand, such that they make attachment

and detachment easy for the communication device user and on the other hand, they are powerful enough to make an effective attachment possible, thus avoiding a detachment that is so easy it could easily be removed by a person with malicious intentions, or  
5 an untimely detachment that would lead to loss of the headset.

In one variant, the means of attachment comprise at least one magnet, and in this case the additional means comprise at least one element made of ferromagnetic material.

The characteristics of the magnet will be chosen in such a  
10 way that they allow a sufficiently powerful attachment so that the headset does not come off on its own during movement of the primary module, while allowing easy separation of the two elements by a user. In one variant, the means of attachment may take the form of two small magnets located at both ends of the headset.

15 In one embodiment, the first means of data exchange implemented the wireless communication technology of the "BlueTooth" type.

BlueTooth technology is a short-range communication protocol. Thus, the miniature device can communicate with a telephone located  
20 in a near environment, typically at a distance on the order of ten meters.

Thus, the miniature device may, for example, be hung on the outside of a bag, and communicate with the telephone which remains, most of the time, inside the bag.

25 Due to the reduced features of the miniature device, size and weight are reduced, and the device can thus be easily hung on a bag, clipped to a shoulder strap, or to any other object.

The detachable headset offers several possibilities for the user of the miniature device. Thus, during a telephone conversation, the user may choose to bring the entire miniature device to his ear, or to detach the headset from the primary 5 module, and put it on his/her ear.

In another embodiment, the miniature device comprises an audio output, for example a jack-type socket, allowing the connection of a conventional wired headset.

The first means of data exchange are, as mentioned above, 10 installed in the detachable headset. Thus, when the headset is not in contact with the primary module, it communicates directly with the mobile telephone without going through the primary module, since the latter no longer contains, in this case, means for exchanging data with the telephone.

15 On the other hand, when the headset is in contact with the primary module, the second electrical data exchange means allow communication between the primary module and the mobile telephone, via the headset.

In order to limit the use of the mobile telephone itself as 20 much as possible, it is useful for the miniature device to be able to allow implementation of a maximum of features, however, without exceeding a certain size.

Thus, in one embodiment, the device comprises a screen allowing the display of data supplied by the mobile telephone, 25 and/or a keyboard allowing data entry by the user. In certain variants, this screen is tactile.

Preferably, the keyboard will be reduced to a small number of

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