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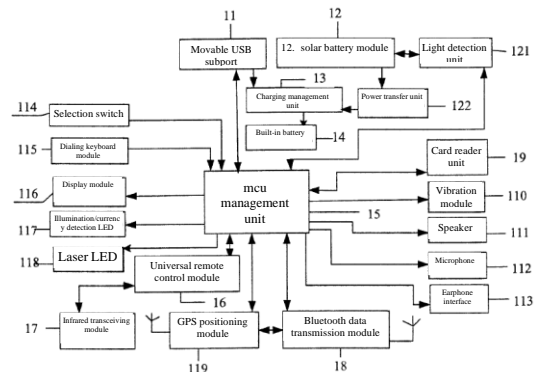
Claims 2 pages; Description 6 pages;
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(54) Title of the Utility Model:

Novel Bluetooth Earphone

(57) Abstract:

The present utility model provides a novel Bluetooth earphone, which integrates functions of a digital dialing keyboard, a solar charging unit with a new structure, a universal home appliance remote controller, an embedded movable USB subport, and a card reader. The earphone mainly comprises units such as an mcu management unit, a digital dialing keyboard module, a universal remote control module, a Bluetooth data transmission module, a GPS positioning module, an infrared transceiving module, a solar battery, a card reader unit, and a movable USB port unit. The structure of the present utility model can realize directly dialing and can receive and send text messages. The solar charging unit with the new structure uses light to charge the earphone and can maintain the life of a built-in battery in the earphone to the utmost extent. The earphone can be used as a universal remote control to control home appliances of various types and brands, and can also be used as a card reader of memory cards of mobile phones. Moreover, the earphone can have functions of a laser pen, illumination, and currency detection. The Bluetooth earphone has a small volume and is convenient to use and carry.



1. A novel Bluetooth earphone, comprising an earphone body and an mcu management unit and a display device installed inside the earphone body, characterized in that the Bluetooth earphone further comprises a digital dialing keyboard installed on the earphone body, a solar charging structure installed on the earphone body, a movable USB subport embedded on the earphone body, which is connected to the earphone body using a telescopic cable, and can be taken off for direct connection with a USB port of a computer for earphone charging and data transmission.

2. The novel Bluetooth earphone according to claim 1, characterized in that the mcu management unit may be connected to all or part of a dialing keyboard module, a display device, a light detection device, a power transfer unit, a Bluetooth data transmission module, a universal remote control unit, a GPS positioning module, a card reader unit, and an infrared transceiving module; and the mcu management unit controls coordination among functional components inside the earphone and manages mutual control and data exchange between the earphone and a mobile phone supported thereby.

3. The novel Bluetooth earphone according to claim 1, characterized in that the earphone body is provided with the digital dialing keyboard and the display device, the keys on the keyboard may be conventional mechanical or capacitive keys and may also be thin-film keys or touchscreen keys.

4. The novel Bluetooth earphone according to claim 1, characterized in that the earphone body further comprises the novel solar charging structure installed on the earphone body; the earphone body is provided with a solar panel, the light detection device, and the power transfer unit, the light detection device detects the light intensity, and only when the light intensity continuously reaches a set value within a set period, does the detection device turn on the connection between the solar panel and the power transfer unit; after having stored a sufficient amount of power, the power transfer unit steadily releases the power into a battery charging unit of the earphone for supplying power to a built-in battery and a circuit in the earphone, and the mcu management unit in the earphone turns on and shuts down the solar charging function.

5. The novel Bluetooth earphone according to claim 1, characterized in that the earphone body is embedded with the movable USB subport, a telescopic cable having a certain length is connected between the subport and the earphone body, and the port, after being taken out, can be directly connected to a USB port of a computer via the telescopic cable.

6. The novel Bluetooth earphone according to claim 2, characterized in that the universal remote control unit is provided inside the earphone body, the universal remote control unit stores remote control identification codes of a plurality of various home appliances, the universal remote control unit is connected to the infrared transceiving module for transmitting and receiving infrared remote control information, and the universal remote control unit has a self-learning function, uses a display screen on the body to display an identification code and remote control function settings, and sends a control signal through the keys on the body.

7. The novel Bluetooth earphone according to claim 2, characterized in that the mcu management unit may be connected with a GPS positioning module, and the GPS positioning module is controlled by the mcu management unit.

8. The novel Bluetooth earphone according to claim 2, characterized in that the mcu management unit may be further connected with a card reader circuit.

9. The novel Bluetooth earphone according to claim 1, characterized in that the earphone body may be further installed with a semiconductor diode and a LED or UV LED, and the earphone may be used as a laser pen, a flashlight, and a currency detection lamp.

Novel Bluetooth Earphone

Field of the Utility Model

The present utility model relates to a wireless communication device, and more specifically, to a Bluetooth earphone.

Description of the Related Art

Along with the rapid development of mobile communication technologies, mobile phones have increasingly become people's information terminals. The size of mobile phones is increasingly bigger along with the continuous increase of functions. When a mobile phone is placed in a bag or when people are busy, it is often inconvenient to answer incoming calls, but the emergence of Bluetooth earphones enables people to conveniently answer incoming calls using the earphones without taking out mobile phones. However, since none of existing Bluetooth earphones has a digital keyboard for dialing, people have to take out mobile phones when making a phone call, which makes the Bluetooth earphones less advantageous to a certain degree. Existing Bluetooth earphones require a special charger for charging, and it is also necessary to carry an additional charge when traveling since it is impossible to supply power at any time, making it inconvenient to carry. If a solar technology is used to charge the earphones, the issue can be accordingly mitigated. However, all the existing portable digital products embedded with a solar cell have the problem that the life of a device's built-in battery is rapidly shortened as the solar cell frequently charges and discharges the built-in battery. When resting at home, one often needs to use different home appliance remote controls to control various home appliances, and the numerous different home remote controls cause troubles in operations for the user. Since there are increasingly more functions on a mobile phone, it is often necessary to store data into a memory card of the mobile phone through a computer, and it is also often necessary to carry a mobile phone memory card reader when going outside, which also makes it inconvenient to carry. As there are more and more outside activities, it is also often necessary to carry a GPS device separately, which is also inconvenient.

Summary of the Utility Model

The technical problem to be solved by the present utility model is to provide a novel Bluetooth earphone that integrates functions of a Bluetooth earphone, a digital dialing keyboard, a universal home appliance remote control, and a card reader, and that can also use solar energy and a computer USB for direct charging thereof. This Bluetooth earphone simultaneously or separately has advantages of the above devices.

To solve the above-described problem, the present utility model adopts the following technical solution.

The present utility model solves the above-described problem by providing a novel Bluetooth earphone design that integrates functions of a Bluetooth earphone, a digital dialing keyboard, a universal home appliance remote control, GPS positioning, and a card reader, and that can also use solar energy and a computer USB for direct charging thereof. This Bluetooth earphone simultaneously or separately has advantages of the above device units.

The technical solution adopted by the present utility model to solve the technical problem thereof is as follows: the earphone mainly consists of a Bluetooth transceiving module, an infrared transceiving module, an mcu management unit (comprising an mcu control circuit, a key scanning circuit, remote control identification code information, etc.), a universal remote control module, a GPS positioning module, a digital dialing keyboard module, a display module, a built-in rechargeable battery, a light detection device, a power transfer unit, a card reader unit, a dialing keyboard module, and an embedded USBd port. The digital keyboard module transmits key signals produced by pressing keys to the key scanning circuit inside the mcu management unit, and the mcu management unit obtains key values according to the signals, transmits the key signals to a home appliance via the infrared transceiving module or the Bluetooth transceiving module for remote control or performs relevant operations, such as dialing control, on a paired mobile phone. The universal remote control module stores remote control identification codes and setting information of various home appliances and has the self-learning function, which, in combination with the mcu management unit and the infrared transceiving module, can perform remote control of home appliances. The GPS positioning module transmits, in a wireless manner and via the Bluetooth data transmission module in the body, positioning information to a terminal device having map software, and the material of the keys of the digital keyboard module may be conventional mechanical and capacitive keys and may also be thin-film keys and touchscreen keys.

The novel Bluetooth earphone may further comprise a speaker and a vibration module connected to the micro-processing unit. When a paired mobile phone has an incoming call or a wireless signal strength detected by the Bluetooth transceiving module of the earphone is lower than a set value, the mcu management unit controls the speaker and the vibration module to provide sound and vibration prompts.

The earphone according to the present utility model may continuously supply power to the earphone and charge the built-in battery through light using the light detection device, the power transfer unit, and a solar battery module installed on the earphone housing, and solves the problems of unstable solar battery voltage caused by unstable light and shortened battery life caused by frequent charging and discharging of the device's built-in battery.

The earphone according to the present utility model may also be directly connected to a USB port of a computer, via the embedded movable USB subport and the telescopic cable on the earphone, for charging the earphone and data transmission.

The earphone according to the present utility model has the universal infrared home appliance remote control function. The universal remote control module inside the earphone stores remote control identification codes and setting information of various home appliances of different types and different brands, such as air conditioners, TVs, refrigerators, etc. The mcu management unit controls the display module and the dialing keyboard on the earphone to select and set identification codes of corresponding devices and brands. Alternatively, the universal remote control module actively detects identification codes of home appliances to be remotely controlled, and the infrared transceiving module inside the earphone sends a control signal after the identification codes are confirmed.

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