

A WIRELESS CHARGER FOR MOBILE DEVICES

TECHNICAL FIELD

The present invention relates, generally, to a wireless charging sleeve for mobile devices such as mobile phones and other hand held devices such as tablets, phablets, wearables, smart watches and smart glasses.

BACKGROUND OF THE INVENTION

Mobile devices such as mobile phones and tablets are so often used not for making phone calls but performing tasks usually undertaken on laptops or notebooks such as word processing, sending e mails as well as for recreational and entertainment purposes such as watching videos. As a result, users of mobile devices have often complained about the short battery life of their mobile devices.

A considerable amount of development work has been done in efforts to supplement the battery life of a mobile device.

An user of a mobile device can always carry an additional and spare battery for the mobile device. However such spares may also run out of power.

Various solutions have been offered to enable users of mobile devices to re-charge their mobile devices. One current solution is a portable power source (referred to as "Power banks") are used to connect and charge mobile devices, using a wire, from a power source to the mobile devices. The portable power source could charge the mobile device using a wire/cable (called "wired charging") or without a wire/cable (called "wireless charging"). However such portable power source are bulky and inconvenient.

A wireless solution is very attractive to mobile device users as there is no necessity to connect the mobile device to the power source with a wire/cable. Such a wireless solution are those Power Mats which allow transfer of electrical energy from a power source (charging mat) to a mobile device using "magnetic induction". Standards on use of magnetic induction are published by Power Matters Alliance (PMA). The use of Power Mat however would require a connection to an existing electrical outlet. This would mean that the Power Mat is not portable although wireless in connecting the mobile device to the permanent power source through the Power Mat.

What is desirable is a portable power source where users can charge their mobile devices conveniently and wirelessly.

What is further desirable is a portable power source which has the flexibility to charge any mobile device of any shape and size or even more than two mobile devices.

If such an invention for portable wireless power source can have other functions such as charging stand or mat for mobile devices, such invention would be of more advantageous to an user.

SUMMARY OF THE PRESENT INVENTION

An object of the present invention is to provide a portable power source which can charge any type of mobile devices without the use of wires. The present invention is a wireless charging device adapted for charging a mobile device comprising :-

- a rechargeable power source which generates electrical energy;
- a charging station which creates an electromagnetic field;
- a case forming three sleeves, hingely connected;
- said rechargeable power source and charging station located within the three-hinged sleeves of the case,

wherein the mobile device is placed within the case, and electrical energy from the rechargeable power source is transmitted to the mobile device, recharging the mobile device.

Preferably the charging station has a compartment for said power source. .

Preferably, the charging station consists of a circuit board, coils, low strength magnet, said charging station creating an electromagnetic field to transmit electrical energy from the rechargeable battery to the mobile device.

Preferably, the wireless charging device has three sleeves which can be unfolded to form a mat for charging one or more e mobile devices.

Preferably, the wireless charging device has three sleeves which can be folded into a closed position, for charging a mobile device even when the user is on the move.

Preferably, one of the sleeves of the wireless charging device can be rotated to an angle and the mobile device is placed on the said sleeve, enabling the wireless charging device to be used as a stand for the mobile device.

Preferably, the wireless charging device for charging mobile devices, wherein the mobile devices includes mobile phones, tablets, phablets, wearables, smart watches and smart glasses

The objects, features and advantages of this invention will be apparent to those skilled in this art from a consideration of this specification, including the attached claims, the included Abstract and the appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the inventive device in use and in a stand position.

Fig. 2 is a schematic of the parts of the inventive device.

Fig. 3 is a perspective view of the inventive device in a closed position, about to commence charging.

FIG. 4 is a perspective view of the inventive device in a closed position.

Fig. 5 is a perspective view of the inventive device when used as a mat and charging two mobile devices.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 is a perspective view of the inventive device in use and in a stand position. The inventive device is a wireless charging case having three sleeves.

Fig. 2 is a schematic of the parts of the inventive device. The inventive device consists of a power source in the form of a rechargeable battery. A circuit board, coils, low strength

magnet and power button operates as a charging station. The charging station operates like an induction charger, creating an electromagnetic field.

The induction charger together with the rechargeable battery provides the inductive charging to transfer energy from the power source (rechargeable battery) to the mobile device through a receiver (that could be connected to the charging ports of the mobile device or already has the receiver integrated with the mobile device). The power source, circuit board, coils and low strength magnet are enclosed in a case. The case consists of at least three sleeves, which can be folded to a closed position or opened, to form a mat or a reading stand.

The charging station operates as an Induction chargers, which are known. Induction charging typically use an induction coil to create an alternating electromagnetic field from within a charging station.

A second induction coil in the receiver, either integrated in the mobile device or is a standalone device that could be connected to the charging port of the mobile device, takes power from the alternating electromagnetic field and converts it back into electrical energy to charge the battery of the mobile device.

Fig. 3 is a perspective view of the inventive device in a closed position, about to commence charging. To charge the mobile device, the same is placed on a fold of the inventive device. The power button is then set and the charging commences. Mobile device can be facing in either direction- towards the front or back of the sleeve with both sides of the sleeve having integrated charging coils- for charging.

FIG. 4 is a perspective view of the inventive device in a closed position. Even with the mobile device enclosed in the case, the charging continues. This is because the inventive device contains its own portable power source, which is the rechargeable battery located in a battery holder. The battery holder is conveniently formed as the hinge between two of the folds. This would offer true portability for this inventive device, unlike the power mats which has to be connected to a permanent power source and located in a fixed position.

FIG. 5 is a perspective view of the inventive device in an open position, and charging two mobile smartphones. Instead of two mobile smart phones, multiple mobile devices such as smart watches, google glass and other wearables can be palced on the charging mat. Larger

devices such as a phablet could also be charged on the charging mat.

The inventive device can also charge the mobile device when used as a stand, as shown in Fig. 1. In this position, the user can continue to use the mobile device even while charging.

ADVANTAGES OF THE INVENTION

The inventive device offers allows for freeform placement of one or two mobile devices on it, for recharging.

The inventive device offers multi-use features such as wireless charging sleeve, wireless charging mat and a wireless charging stand. The aim of the inventive device is to provide a convenient charging solution for mobile device users and adapting to their habits and needs.

The aim of the inventive device is also to be mobile/portable since it is designed to contain its own power source (rechargeable), design to fit in to pockets and bags, designed to be light and rugged, and is able to charge different types of mobile devices such as tablets, phablets, wearables, smart watches and smart glasses, through induction charging.

While many aspects of the invention have been disclosed and described herein, such disclosure is provided for purposes of illustration only. Where methods and steps described indicate certain events occurring in a certain order, those of ordinary skill in the art having the benefit of this disclosure would have recognize that the ordering of certain steps may be modified and that such modifications are in accordance with variations of the invention.

CLAIMS:

1. A wireless charging device adapted for charging a mobile device comprising :-

a rechargeable power source which generates electrical energy;
a charging station which creates an electromagnetic field;
a case consisting of three sleeves, hingely connected;
said rechargeable power source and charging station located within the three-hinged sleeves of the case,

wherein the mobile device is placed within the case, and electrical energy from the rechargeable power source is transmitted to the mobile device, recharging the mobile device.

2. A wireless charging device as claimed in Claim 1, further comprising a compartment for containing the rechargeable power source.

3. A wireless charging device as claimed in Claim 1, wherein the charging station consists of circuit board, coils, low strength magnet, for the creation of an electromagnetic field to transmit electrical energy from the rechargeable power source to the mobile device.

4. A wireless charging device as claimed in Claim 1 wherein the three-hinged sleeves can be unfolded to form a mat for charging one or more mobile devices.

5. A wireless charging device as claimed in Claim 1 wherein the three sleeves can be folded into a closed position, for charging a mobile device even when the user is on the move.

6. A wireless charging device as claimed in Claim 1 wherein one of the sleeves is rotated to an angle and the mobile device is placed on the said sleeve, enabling the wireless charging device to be used as a stand for the mobile device.

7. A wireless charging device as claimed in Claim 1 for charging mobile devices, said mobile devices including mobile phones, tablets, phablets, wearables, smart watches and smart glasses.