CONFIGURATION OF DATA AND POWER TRANSFER IN NEAR FIELD COMMUNICATIONS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a Continuation-in-Part of U.S. utility patent application Ser. No. 14/290,409 filed May 29, 2014, entitled "Portable Device to Portable Device Wireless Power Transfer Methods and Systems," U.S. utility patent application Ser. No. 14/290,426 filed May 29, 2014, entitled "Scalable Antenna System," and U.S. utility patent application Ser. No. 14/460,224 filed Aug. 14, 2014, entitled "Method and System for Use in Configuring Multiple Near Field Antenna Systems," all of which are incorporated by reference in their entireties for all purposes.

BACKGROUND

[0002] This disclosure generally relates to consumer electronic devices, and more specifically to methods and systems for configuring wireless power and data transmission between one or more consumer electronic devices.

[0003] The number and types of consumer electronic devices continues to increase. Furthermore, many of these consumer electronic devices are portable. As such, battery power is often critical. In many instances, a user may have to limit their use of a device because of limited remaining power. Similarly, a user may be unable to effectively use a device because of a lack of power stored on the device.

SUMMARY

[0004] This section is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description section. This summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used as an aid in determining the scope of the claimed subject matter. One or more embodiments of this disclosure advantageously address the needs above as well as other needs by providing methods, processes, apparatuses and systems of configuring wireless data and power transfer.

[0005] In one aspect of this disclosure, there is provided a method for configuring wireless power and data transfer between consumer electronic (CE) devices. The method comprises identifying a plurality of antenna systems including at least a first antenna system and a second antenna system, wherein at least the first antenna system is cooperated with a first CE device and the second antenna system is cooperated with a separate second CE device, wherein each of the plurality of antenna systems comprises a power transfer antenna and one or more communications antennas, wherein the power transfer antennas is configured to enable wireless electrical power transfer between the power transfer antenna and at least one other power transfer antenna of another one of the plurality of antenna systems, and wherein each of the one or more communications antennas is configured to enable wirelessly transmitting and receiving communications with at least one further communications antenna. The method further comprises providing a graphical user interface, wherein the graphical user interface is configured to illustrate each of the identified antenna systems and communicational relationships between each of the identified antenna systems, and wherein the graphical user interface is further configured to enable a user to interact with the graphical user interface. The method comprises receiving, through the graphical user interface, user instructions corresponding to at least two of the identified antenna systems, wherein the user instructions include wireless coupling configurations dictating how at least one of the identified antenna systems is to wirelessly transfer power to at least one other of the identified antenna systems or how at least one of the identified antenna systems is to wirelessly transfer data to at least one other of the identified antenna systems. The method comprises generating configuration instructions in accordance with the wireless coupling configurations and causing communication of the configuration instructions to selected CE devices to direct each of the identified antenna systems to be configured in accordance with the configuration instructions.

[0006] In other aspects of the disclosure, there is provided a system and an apparatus for implementing the steps of the above-outlined method for configuring wireless power and data transfer between CE devices. Additional aspects, objects, advantages, and novel features of the examples will be set forth in part in the description, which follows, and in part will become apparent to those skilled in the art upon examination of the following description and the accompanying drawings or may be learned by production or operation of the examples. The objects and advantages of the concepts may be realized and attained by means of the methodologies, instrumentalities, and combinations particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The above and other aspects, features and advantages of several embodiments of the present disclosure will be more apparent from the following more particular description thereof, presented in conjunction with the following drawings. Embodiments are illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like references indicate similar elements and in which:

[0008] FIG. **1**A shows a simplified block diagram of two portable CE devices positioned proximate each other, in accordance with some embodiments.

[0009] FIG. **1**B illustrates multiple CE devices positioned proximate each other, in accordance with some embodiments.

[0010] FIG. **2**A shows a representation of two exemplary smart phone portable CE devices positioned proximate each other, in accordance with some embodiments.

[0011] FIG. **2**B shows a representation of multiple exemplary portable CE devices positioned proximate each other, in accordance with some embodiments.

[0012] FIG. **3** depicts a simplified plane view of an exemplary antenna system, in accordance with some embodiments.

[0013] FIG. **4** shows a simplified flow diagram of an exemplary process of configuring a near field wireless network of multiple CE devices, in accordance with some embodiments.

[0014] FIG. **5** shows a representation of multiple CE devices capable of forming a near field wireless network while one or more of the CE devices are coupled with one or more remote CE devices through a distributed network, in accordance with some embodiments.