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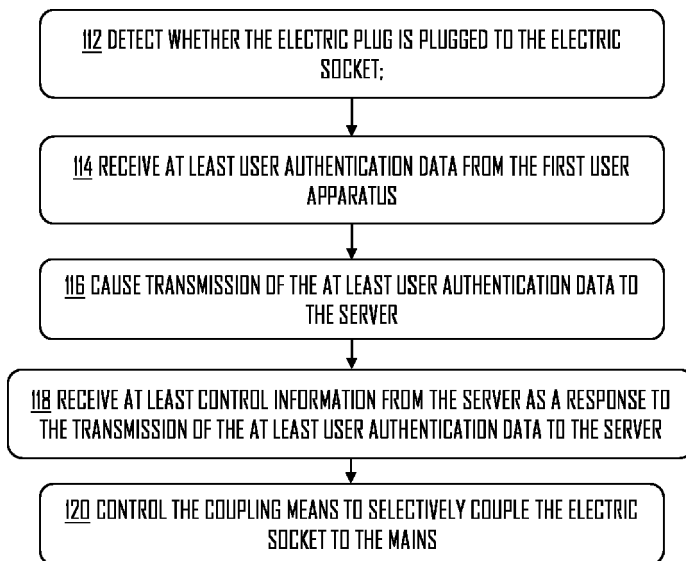
Tillåten elanvändning

AUTHORIZED USE OF ELECTRICITY

(57) Tiivistelmä - Sammandrag - Abstract

Laitteisto, joka käsittää sähköpistorasian sähköpistokkeen vastaanottamiseksi, kytkentävälineet sähköpistorasian selektiiviseksi yhdistämiseksi sähköverkkoon, viestintävälineet ensimmäisen käyttäjälaitteen ja palvelimen kanssa viestimistä varten, ohjausyksikön, joka on konfiguroitu havaitsemaan, onko sähköpistoke kytketty sähköpistorasiaan, ottamaan vastaan ainakin käyttäjän autentikointitiedot ensimmäiseltä käyttäjälaitteelta viestintävälineiden kautta, aiheuttamaan ainakin käyttäjän autentikointitietojen lähetys palvelimelle, ottamaan vastaan ainakin ohjaustietoja palvelimelta vasteena ainakin käyttäjän autentikointitietojen lähettämiseksi palvelimelle, ja ohjaamaan ohjaustietojen perusteella kytkentävälineitä selektiivisesti kytkemään sähköpistorasia sähköverkkoon.

An apparatus comprising an electric socket for receiving an electric plug, coupling means for selectively connecting the electric socket to the mains, communication means for communicating with a first user apparatus and with a server and a control unit that is configured to detect whether the electric plug is plugged to the electric socket, receive at least user authentication data from the first user apparatus through the communication means, cause transmission of the at least user authentication data to the server, receive at least control information from the server as a response to the transmission of the at least user authentication data to the server, and control, based on the control information, the coupling means to selectively couple the electric socket to the mains.



AUTHORIZED USE OF ELECTRICITY

TECHNICAL FIELD

The invention relates to an apparatus, a server device, and a system for authorized use only for electricity from an electric socket.

5 TECHNICAL BACKGROUND

Vehicles using electricity fully or partly as a power source increases bringing the need to grow the network for recharging facilities. The amount of parking places, for example, per square kilometer built for recharging electric vehicles is too small for all the users that could use electric vehicle and would re-charge their vehicle quite regularly. Thus, the availability of the parking places for recharging the electric vehicle is not great enough.

BRIEF DESCRIPTION

An object of the present invention is to provide a novel and improved apparatus for use in recharging electric vehicles. Further object is to provide a novel and improved server device for communicating with the apparatus. Further object is to provide a novel and improved system for recharging electric vehicles.

The objects of the invention are achieved by the apparatus, the server devices and the system which are characterized by what is stated in the independent claims. The preferred embodiments of the invention are disclosed in the dependent claims.

The invention is based on the idea of an apparatus having an electric socket for receiving an electric plug and coupling means for selectively connecting the electric socket to the mains and communication means for communicating with a first user apparatus and with a server. The apparatus further comprises a control unit that is configured to detect whether the electric plug is plugged to the electric socket, receive at least user authentication data from the first user apparatus through the communication means, cause transmission of the at least user authentication data to the server, receive at least control information from the server as a response to the transmission of the at least user authentication data to the server and control, based on the control information, the coupling means to selectively couple the electric socket to the mains.

Thus, if an inhabitant has an electric socket available next to a parking place, he/she could install the apparatus to the electric socket and authorize users to recharge their electric vehicles using the electric socket residing in the appa-

ratus. As one realizes, the authorized usage of the electricity of the electric socket may be used in any other purpose and without the parking place, as well, since people have a vast number of devices that use electricity and/or need electricity or recharging time to time and not always an available electric socket to use as authorized.

An advantage of the apparatus, the server device and the system of the invention is that, if one has an electric socket and, maybe next to it, a parking place vacant for hours per day, per week, per month, per year or any other time regular or irregular he/she may authorize the use of the electric socket when he/she does not need it by himself/herself.

According to an embodiment, the first user apparatus is a credit card, any other identity card or tag adapted to wirelessly authenticate the user.

According to an embodiment, the second user apparatus is any mobile device.

According to an embodiment, the first user apparatus and the second user apparatus are the same.

According to an embodiment, the apparatus further comprises detecting means for detecting whether a vehicle is parked into the parking place and the control unit is further configured to cause transmitting the parking place status information to the server.

According to an embodiment, the detecting means for detecting whether a vehicle is parked into the parking place further comprises means for reading an identity information regarding the vehicle parked and the control unit is configured to upon positive result of the detecting means to detect the identity information of the vehicle parked, regard the receive the detected identity information as the step of "receive at least user authentication data from the first user apparatus through the communication means".

According to an embodiment, a positive verification of the user action is requested regarding control the coupling means to couple the electric socket to the mains.

According to an embodiment, the positive verification is at least one of pressing a button, bringing the first or the second user apparatus close enough to connect another time via NFC connection and giving a positive answer to a verification query message.

BRIEF DESCRIPTION OF THE DRAWINGS

In the following the invention will be described in greater detail by means of preferred embodiments with reference to the attached drawings, in which

5 Figure 1 is a schematic view of an apparatus according to an embodiment;

 Figure 2 is a schematic view of a European type electric socket;

 Figure 3 is a schematic view of a system with two apparatuses and a server according to an embodiment;

10 Figure 4 depicts method steps carried out in the apparatus as a block diagram according to an embodiment;

 Figure 5 depicts method steps carried out in the server as a block diagram according to an embodiment;

15 Figure 6 is a schematic view of functional elements in an apparatus and in server.

DETAILED DESCRIPTION OF THE INVENTION

 Figure 1 shows an apparatus 1 with a lid 2 and connecting cable 3 to the mains. Under the lid resides an electric socket 4 of which a European type electric socket 4 is depicted in Figure 2 as an example. The electric socket 4 may
20 be any other type of electric socket, as well. Figure 3 depicts a system with three apparatuses 1 with communication means, or communication circuitry denoted by 100 and a server 10 with communication means, or communication circuitry denoted by 20. Figure 4 depicts method steps carried out in the apparatus 1 as a block diagram according to an embodiment and Figure 5 depicts method steps
25 carried out in the server as a block diagram according to an embodiment.

 According to an embodiment, the user downloads a mobile application to his/her mobile phone, i.e. first user apparatus 300 or second user apparatus 400. After the user has input relevant information regarding the use of the mobile application, he/she may be able to see from a map view where one or more apparatuses 1 available for the user to acquire or rent are located. In the map view, a status of apparatuses registered to the system may be illustrated. The status may indicate a reservation status or an availability status of a respective apparatus 1.
30 For example, some of the apparatuses 1 may indicate "OFF-time", "reserved" or "full", for example, meaning the user may not rent them at that moment. Further
35 information reveals the opening hours regarding each apparatus 1 or possible

estimated time when vacant or any other information relating the use of each apparatus 1. Some of the apparatuses 1 may indicate "OPEN-time" or "vacant", for example, meaning the user may rent at least one of them at that moment.

After the user has selected a parking place with the apparatus 1, he/she may navigate to the parking place. For renting the parking place equipped with the apparatus 1, he/she may be required to authenticate himself/herself to the system 1. Authentication may be carried out by the user apparatus with the mobile application by, for example, bringing the user apparatus to a proximity of the apparatus 1 with the mobile application open. The mobile application may transmit the relevant information to the apparatus 1, meaning the apparatus 1 receives 114 at least user authentication data from the user apparatus, in this case the first user apparatus 300. Authentication data relating to the user may be received by the first user apparatus 300 that may be any apparatus carrying authentication data wirelessly readable with it via any kind of wireless communication, such as near field communication (NFC), radio frequency identification (RFID), infrared (IR) or the like, bluetooth (BT), wireless local area network (WLAN) or the like and telecommunications network (2G and above).

After the apparatus 1 received the at least user authentication data, the apparatus 1 transmits 116 the received data to a server 10. Thus, the server 10 receives 212 the data, checks 214 the availability time of the apparatus, and possibly checks 216 one or more user-related thresholds regarding the user. The user-related threshold may be of any kind. One example of user-related threshold may be time. For example, the user may have obtained time resources usable for obtaining electricity from one or more apparatuses 1. If the user has time resources still available, the checking may be positive and thus the electric socket 4 may be connected to the mains at least for the time that the time resources indicate. Another example of user-related threshold may be right of use. Hence, in a way the user-related threshold may be understood as a user-related criterion or criterion which needs to be fulfilled to receive a positive checking result. Hence, for example, the checking may be positive if the user has right to use the certain apparatus 1. For example, only elderly people associated with certain right of use level may use apparatuses 1 which are located in certain area, whereas other users may use apparatuses 1 which are located in some other area. So, right to use may be apparatus 1 specific and/or group specific, for example. If the results for the one or more check are positive, the server transmits 218 at least control information to couple the electric socket to the mains, meaning the apparatus 1 re-

ceives 118 the at least control information from the server.

If the control information informs that the apparatus 1 may couple the electric socket 4 to the mains, the apparatus 1 may couple the electric socket 4 to the mains, otherwise the apparatus 1 may not couple the electric socket 4 to the mains. The apparatus 1 may inform the user that the user is authorized to park to the parking place and, as well, authorized to use electricity from the electric socket 4. The apparatus 1 may additionally query from the user whether the user wishes to couple the electric socket 4 to the mains. Additionally, the apparatus 1 may use detection means to detect 112 whether an electric plug is plugged to the electric socket 4. If the user need not use electricity, the apparatus 1 may not couple the electric socket 4 to the mains. If the user wishes to use electricity and still do not plug any plug to the electric socket 4, the apparatus may not couple the electric socket 4 to the mains. If a plug is plugged to the electric socket 4 after a predetermined time limit, the apparatus 1 may query authorization from the user to plug the electric socket 4 to the mains, thus, preventing use of electricity from any unauthorized users in time the authorized user uses the parking place.

If the checking means 214 and/or 216 result a negative result, the server 10 transmits 218 at least the control information to not to couple the electric socket 4 to the mains. In such a case, the apparatus 1 informs the user that the user has no authorization to use the electricity from the electric socket 4. The apparatus 1 may also inform the user whether the user is authorized to use the parking place. The apparatus 1 may also give any other information relevant to the case in question, such as opening hours or parking hours or information relating to the use of the electricity etc.

The server 10 may in any case transmit additional information regarding the coupling or the reason to not to couple the electric socket to the mains. The server 10 may, for example, inform that the parking is authorized but the electric socket 4 remains decoupled. After receiving the control information and optional other information regarding the results of the checking (214, 216), the apparatus 1 selectively couples 120 the electric socket 4 to the mains and additionally the apparatus 1, or the server 10, may transmit information regarding the results of the checkings (214, 216) and optionally other information to the second user apparatus 400.

The information regarding to which user apparatus (first user apparatus 300 or second user apparatus 400 or some other device) the additional information regarding to the renting of the parking place is transmitted, may vary

depending on the situation. Firstly, it depends on the selections made from various alternatives. The selections may be saved in to the server 10, or the apparatus 1 or any other suitable location such as the second user apparatus 400, by the user when, for example, the user inputs the user data in time of registering to the service, via the mobile application for example, or updating the user data registered into the service.

Regarding selecting the user apparatus, which the additional information will be sent, it secondly depends on the user apparatus which the user uses to authenticate himself/herself to the apparatus 1 at a time. If the user authenticates with a mobile device or portable electronic device, the information may be transmitted to the device either via communication means 100 comprised in the apparatus 1 or communication means 20 comprised in the server 10. If the user authenticates with first user apparatus 300 being a credit card or some other user apparatus with any near field communications such as RF ID tag of NFC and without user interface for receiving additional information, the additional information need be transmitted to some other user apparatus, for example, the second user apparatus 400, preselected when registering the user data or associated with the credit card or the like.

According to an embodiment, the apparatus 1 detects that a vehicle arrived at the parking place associated with the apparatus 1 and the control unit 110 of the apparatus causes transmission to the server 10 a status information that the parking place is occupied. Detecting means detecting the vehicle may be of any known type, such as ultrasonic, mmWave radar ie. UWB RF sensing, Lidar, Time-of-Flight, photointerrupter, magnetic etc. Respectively, when a vehicle leaves the parking place, the apparatus 1 may transmit to the server 10 a status information that the parking place is empty.

According to a further embodiment, after detecting the vehicle at the parking place associated with the apparatus 1, the apparatus 1 receives an identity information regarding the vehicle. If the identity information regarding the vehicle is associated with at least one user authentication data in the server and/or in the apparatus 1, the apparatus 1 may use the identity information regarding the vehicle instead of the user authentication data. Accordingly, the apparatus 1 may, in block 114 receive the identity information regarding the vehicle instead of, or in addition to the user authentication data. When the apparatus 1 stores a table mapping the identity information regarding the vehicle with the user authentication data, the apparatus 1 may retrieve the user authentication data cor-

responding the received identity information and proceed to block 116 and “cause transmission of the at least user authentication data to the server”. In another embodiment, the apparatus 1 may request a verification from the user associated with the vehicle identity information. The verification may be requested
 5 in the mobile application or by text message if the user do not have the mobile application running, or both, or any other suitable way for receiving the verification from the user such as pressing a button in the apparatus 1 or taking the second user apparatus 400 associated with the vehicle identity information close to the apparatus 1 for a predetermined time, for example 3 seconds. The apparatus
 10 may inform in separate message or any other suitable way the positive verification such as sound or “no sound” or coloured light information where, for example, green light informs “verification accepted” and, for example, red light informs “verification missing”.

According to further embodiment, the apparatus 1 may indicate using
 15 light of sound information whether the user of the apparatus or the parking place is authorized or not. According to the embodiment, the apparatus 1 may indicate to the server 10 and/or to the owner of the apparatus 1 and/or to the user of the apparatus 1 whether the use of the apparatus or the parking place is authorized.

Figure 6 illustrates some embodiments. Referring to Figure 6, according to an embodiment, there is provided apparatus 1. The apparatus 1 comprises
 20 an electric socket 4 for receiving an electric plug and coupling means for selectively coupling the socket to the mains as described with respect to Figure 1. Further, the apparatus 1 comprises communication circuitry 100 for communicating at least with the first user apparatus 300, with the second user apparatus 400 and
 25 with the server 10. The communication circuitry 100 comprises hardware and/or software for realizing communication connectivity according to one or more communication protocols (e.g. wireless and/or wired). The communication circuitry 100 may comprise standard well-known components such as an amplifier, filter, frequency-converter, (de)modulator, and encoder/decoder circuitries and
 30 one or more antennas. Similarly, the server 10 may comprise same or similar communication circuitry 20 for realizing communication capabilities.

The apparatus 1 further comprises a control unit 110 configured to perform at least steps of Figure 4 or operations thereof. According to an embodiment, the control unit 110 comprises at least one processor, and the apparatus 1
 35 comprises at least one memory 130 including a computer program code (software) 132, wherein the at least one memory and the computer program code

(software) 132, are configured, with the at least one processor, to cause the respective apparatus 1 to carry out any one of the embodiments described above, or operations thereof.

According to an embodiment, the control unit 110 comprises a detection circuitry 192 configured at least to cause performing operations described with respect to block 112; a receiving circuitry 194 configured at least to cause performing operations described with respect to block 114; a transmission circuitry 196 configured at least to cause performing operations described with respect to block 116; a receiving circuitry 198 configured at least to cause performing operations described with respect to block 118; and a controlling circuitry 199 configured at least to cause performing operations described with respect to block 120.

Referring to Figure 6, according to an embodiment, there is provided server 10. The server 10 comprises communication circuitry 20 for communicating with at least one apparatus 1 comprising coupling means to selectively couple an electric socket to the mains (i.e. apparatus 1 or plurality of similar apparatuses). The server 10 may further comprise a control unit 210 control unit configured to perform embodiments described with reference to the Figures above (e.g. blocks 212- 218). According to an embodiment, the control unit 210 comprises at least one processor, and the server 10 comprises at least one memory 230 including a computer program code (software) 232, wherein the at least one memory and the computer program code (software) 232, are configured, with the at least one processor, to cause the server 10 to carry out any one of the embodiments described above, or operations thereof.

According to an embodiment, the control unit 210 comprises a receiving circuitry 292 configured at least to cause performing operations described with respect to block 212; a checking circuitry 294 configured at least to cause performing operations described with respect to block 214; a checking circuitry 296 configured at least to cause performing operations described with respect to block 216; and a transmission circuitry 298 configured at least to cause performing operations described with respect to block 218.

Referring still to Figure 6, the memory 130, 230 may be implemented using any suitable data storage technology, such as semiconductor based memory devices, flash memory, magnetic memory devices and systems, optical memory devices and systems, fixed memory and removable memory. The memory 130, 230 may comprise a database 134, 234 for storing data. For example, the user

authentication data may be stored at least momentarily into said database 134, 234.

The apparatus 1 and/or server 10 may also comprise user interface 140, 240 comprising, for example, at least one keypad, a microphone, a touch display, a display, a speaker, etc. The user interface 140, 240 may be used to control the respective apparatus 1 or server 10 by a user of the apparatus 1 or the server 10.

According to an embodiment, there is provided a system comprising one or more apparatuses 1 in communication with the server 10. More than one server 10 may also be utilized, for example, for load balancing. This may make the systems even more flexible for different situation and use cases.

According to an embodiment, arrow 302 represents user authentication data transfer from a user apparatus 300 (i.e. first user apparatus) to the apparatus 1 as also explained in block 116. This may further be transferred to the server 10 by the apparatus 1. According to yet another embodiment, a verification is requested, by the apparatus 1, before said data is transferred to the server 10 from the apparatus 1. One example of such verification may be illustrated with arrows 402 and 404: i.e. first verification request may be transmitted to a user apparatus (e.g. second user apparatus 400) (arrow 402). Second, the user apparatus 400 may respond with verification or non-verification (arrow 404). In case the verification is positive, the apparatus 1 may continue the process by transmitting the user authentication data to the server 10. In case the verification is negative (i.e. not accepting the verification or not verifying), the apparatus 1 may stop the process or prevent transmission of the user authentication data to the server 10. It is noted that negative verification may comprise explicit control signal from the apparatus 400 or implicit non-verification (e.g. no response or no positive verification received within certain time limit, hence response 404 may not necessarily be transmitted). The user of the user apparatus 400 may choose to accept or decline the verification request 402 (i.e. verify or not verify) by using user interface of the apparatus 400, for example.

In an embodiment, the apparatuses 300 and 400 are different. For example, the apparatus 300 may be or comprise a NFC capable device, such as card or tag. For example, the apparatus 400 may be or comprise a portable electronic device, such as mobile phone. In another embodiment, the apparatuses 300, 400 are the same device (e.g. portable electronic device).

It is noted that the communication circuitry 100 may support short

range wireless technology or technologies, such as Near Field Communication (NFC) for transferring the user authentication data 302 from the apparatus 300 to the apparatus 1.

As used in this application, the term 'circuitry' refers to all of the following: (a) hardware-only circuit implementations, such as implementations in only analog and/or digital circuitry, and (b) combinations of circuits and software (and/or firmware), such as (as applicable): (i) a combination of processor(s) or (ii) portions of processor(s)/software including digital signal processor(s), software, and memory(ies) that work together to cause an apparatus to perform various functions, and (c) circuits, such as a microprocessor(s) or a portion of a microprocessor(s), that require software or firmware for operation, even if the software or firmware is not physically present. This definition of 'circuitry' applies to all uses of this term in this application. As a further example, as used in this application, the term 'circuitry' would also cover an implementation of merely a processor (or multiple processors) or a portion of a processor and its (or their) accompanying software and/or firmware.

In an embodiment, at least some of the processes described in connection with Figures may be carried out by an apparatus comprising corresponding means for carrying out at least some of the described processes. Some example means for carrying out the processes may include at least one of the following: detector, processor (including dual-core and multiple-core processors), digital signal processor, controller, receiver, transmitter, encoder, decoder, memory, RAM, ROM, software, firmware, display, user interface, display circuitry, user interface circuitry, user interface software, display software, circuit, antenna, antenna circuitry, and circuitry. In an embodiment, the at least one processor, the memory, and the computer program code form processing means or comprises one or more computer program code portions for carrying out one or more operations according to any one of the embodiments of the Figures or operations thereof.

According to yet another embodiment, the apparatus carrying out the embodiments comprises a circuitry including at least one processor and at least one memory including computer program code. When activated, the circuitry causes the apparatus to perform at least some of the functionalities according to any one of the embodiments of the Figures, or operations thereof.

The techniques and methods described herein may be implemented by various means. For example, these techniques may be implemented in hardware

(one or more devices), firmware (one or more devices), software (one or more modules), or combinations thereof. For a hardware implementation, the apparatus(es) of embodiments may be implemented within one or more application-specific integrated circuits (ASICs), digital signal processors (DSPs), digital signal processing devices (DSPDs), programmable logic devices (PLDs), field program-
5 mable gate arrays (FPGAs), processors, controllers, micro-controllers, microprocessors, other electronic units designed to perform the functions described herein, or a combination thereof. For firmware or software, the implementation can be carried out through modules of at least one chip set (e.g. procedures, functions,
10 and so on) that perform the functions described herein. The software codes may be stored in a memory unit and executed by processors. The memory unit may be implemented within the processor or externally to the processor. In the latter case, it can be communicatively coupled to the processor via various means, as is known in the art. Additionally, the components of the systems described herein
15 may be rearranged and/or complemented by additional components in order to facilitate the achievements of the various aspects, etc., described with regard thereto, and they are not limited to the precise configurations set forth in the given figures, as will be appreciated by one skilled in the art.

Embodiments as described may also be carried out in the form of a
20 computer process defined by a computer program or portions thereof. Embodiments of the methods described in connection with the Figures may be carried out by executing at least one portion of a computer program comprising corresponding instructions. The computer program may be in source code form, object code form, or in some intermediate form, and it may be stored in some sort of
25 carrier, which may be any entity or device capable of carrying the program. For example, the computer program may be stored on a computer program distribution medium readable by a computer or a processor. The computer program medium may be, for example but not limited to, a record medium, computer memory, read-only memory, electrical carrier signal, telecommunications signal,
30 and software distribution package, for example. The computer program medium may be a non-transitory medium, for example. Coding of software for carrying out the embodiments as shown and described is well within the scope of a person of ordinary skill in the art. In an embodiment, a computer-readable medium comprises said computer program.

35 Even though the invention has been described above with reference to an example according to the accompanying drawings, it is clear that the invention

is not restricted thereto but can be modified in several ways within the scope of the appended claims. Therefore, all words and expressions should be interpreted broadly and they are intended to illustrate, not to restrict, the embodiment. It will be obvious to a person skilled in the art that, as technology advances, the inventive concept can be implemented in various ways. Further, it is clear to a person skilled in the art that the described embodiments may, but are not required to, be combined with other embodiments in various ways.

10

CLAIMS

1. An apparatus (1) comprising:
 an electric socket (4) for receiving an electric plug;
 coupling means for selectively connecting the electric socket (4) to the
 5 mains;
 communication means (100) for communicating with a first user ap-
 paratus and with a server (10); and
 a control unit (110) configured to:
 detect (112) whether the electric plug is plugged to the electric socket
 10 (4);
 receive (114) at least user authentication data from the first user ap-
 paratus through the communication means;
 cause (116) transmission of the at least user authentication data to the
 server (10);
 15 receive (118) at least control information from the server (10) as a re-
 sponse to the transmission of the at least user authentication data to the server
 (10), and
 control (120), based on the control information, the coupling means to
 selectively couple the electric socket (4) to the mains.
- 20 2. The apparatus as claimed in claim 1, wherein the first user appa-
 ratus 300 is a credit card, any other identity card or tag adapted to wirelessly au-
 thenticate the user.
3. The apparatus as claimed in claim 1, wherein the second user ap-
 paratus 400 is any mobile device or portable electronic device.
- 25 4. The apparatus as claimed in claim 1 or 3, wherein the first user
 apparatus (300) and the second user apparatus (400) are the same.
5. The apparatus (1) as claimed in any one of the preceding claims,
 wherein the apparatus (1) further comprises detecting means (122) for detecting
 whether a vehicle is parked into the parking place; and
 30 the control unit (110) is further configured to:
 cause transmitting the parking place status information to the server
 (10).
6. The apparatus as claimed in claim 5, wherein the detecting means
 for detecting whether a vehicle is parked into the parking place further comprises
 35 means for reading an identity information regarding the vehicle parked; and

the control unit (110) is configured to:

upon positive result of the detecting means to detect the identity information of the vehicle parked, regard the receive the detected identity information as the step of "receive at least user authentication data from the first user apparatus through the communication means".

7. The apparatus as claimed in any one of claims 1-6, wherein a positive verification of the user action is requested regarding control the coupling means to couple the electric socket to the mains.

8. The apparatus as claimed in claim 7, wherein the positive verification is at least one of pressing a button, bringing the first user apparatus 300 or the second user apparatus 400 close enough to connect another time via NFC connection and giving a positive answer to a verification query message.

9. A Server (10) comprising:

communication means (20) for communicating with at least one apparatus (1) comprising coupling means to selectively couple an electric socket to the mains;

control unit (210) configured to:

receive (212) identification data of an apparatus of the at least one apparatus and at least user authentication data;

check (214) the availability time of the apparatus (1);

upon receiving positive results for the checking of the availability time of the apparatus (1), cause transmission of control information to couple the electric socket to the mains.

10. The server (10) according to claim 9, wherein the control unit of the server (10) is further configured to:

check (216) one or more user-related thresholds;

upon receiving positive results for the checking of the availability time of the apparatus and the checking of the one or more user-related thresholds, cause transmission of control information to couple the electric socket to the mains.

11. The server (10) according to claim 9 or 10, wherein the control unit (210) is further configured to:

upon exceeding the availability time of the apparatus (1) or exceeding at least one of the one or more user-related thresholds, cause transmission a control information to decouple the electric socket from the mains.

12. A system comprising at least one apparatus (1) according to any

one of claims 1-8 and at least one server (10) according to any one of claims 9, 10 or 11.

13. The system according to claim 12, wherein, the system comprises two or more apparatuses (1) according to any one of claims 1-8 and at least two
5 of the two or more apparatuses (1) according to any one of claims 1-8 comprises common control unit.

14. The system according to claim 13, wherein the common control unit further comprising:

receiving means for receiving current electricity usage limit value to
10 the electric sockets of the apparatuses under control;

measuring means for measuring the current overall electricity usage of the electric sockets of the apparatuses;

limiting means for limiting the overall electricity usage of the electric sockets of the apparatuses; and

15 the common control unit is configured to:

compare the overall electricity usage with the current electricity usage limit value; and

upon receiving a result where the overall current usage of the electric sockets of the apparatuses (1) is above a predetermined percentage of the current
20 electricity usage limit value, limit the usage of the electricity of the one or more electric sockets of the apparatuses.

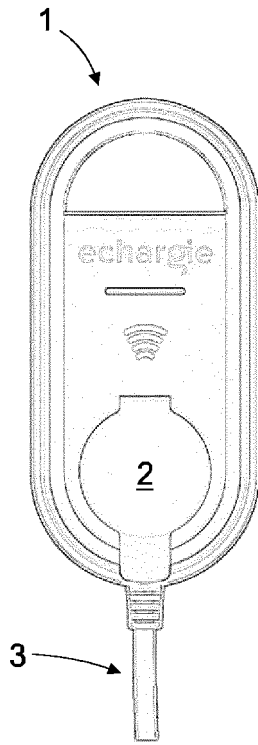


FIG. 1

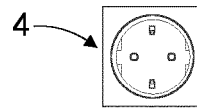


FIG. 2

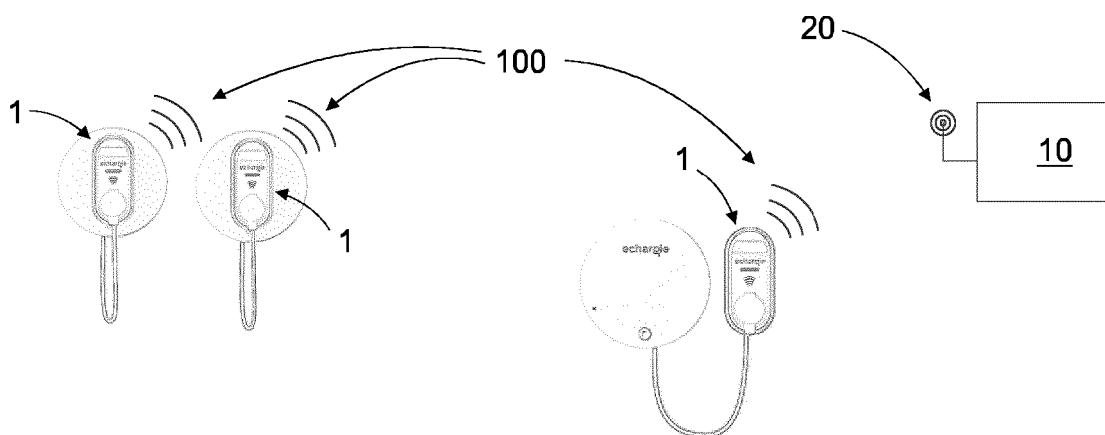


FIG. 3

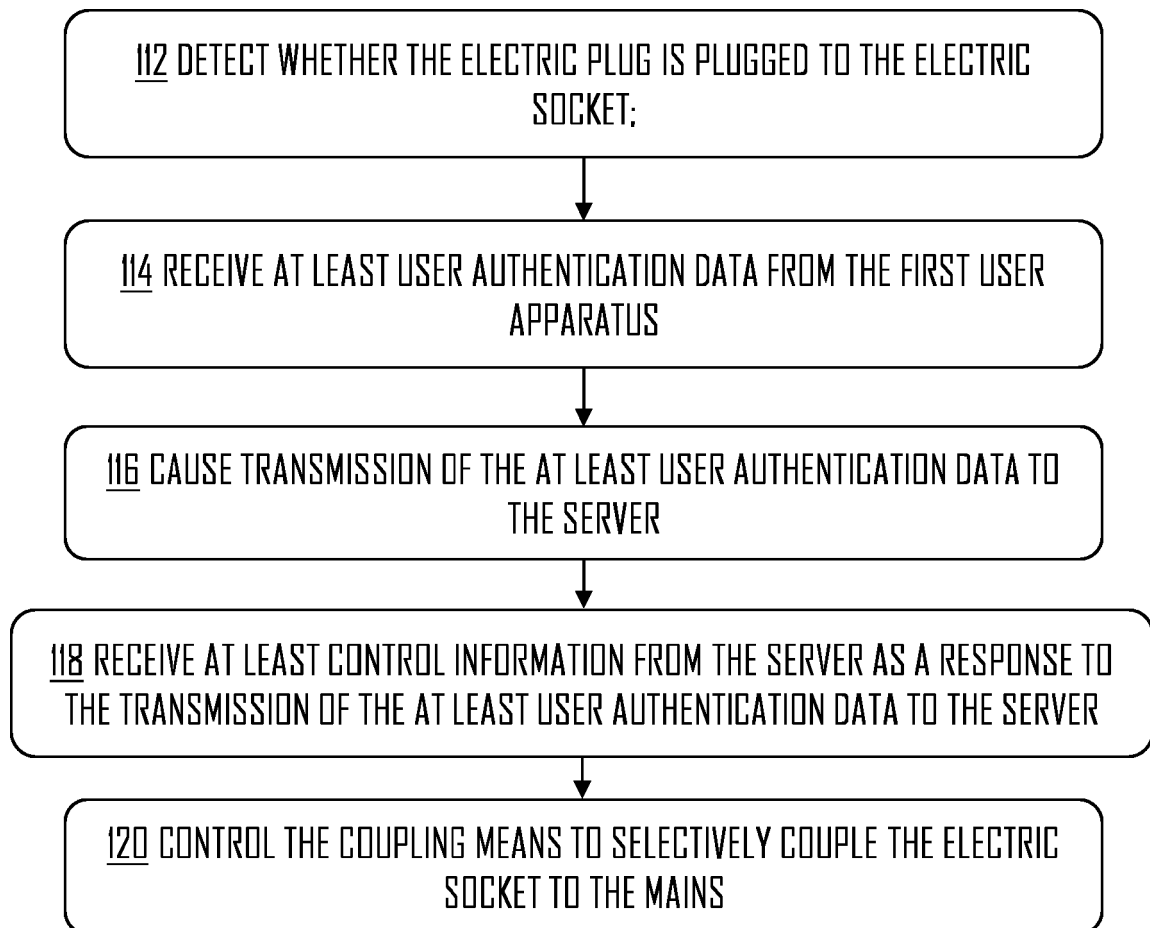


Fig. 4

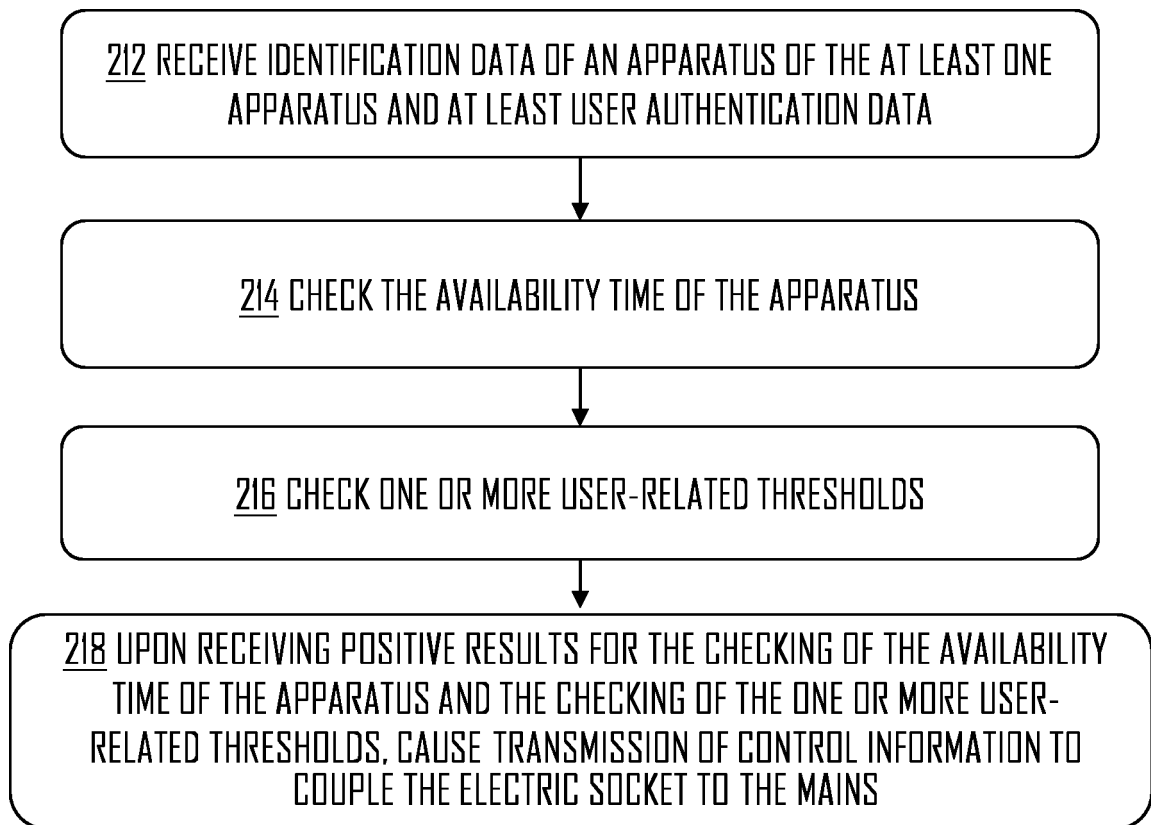


Fig. 5

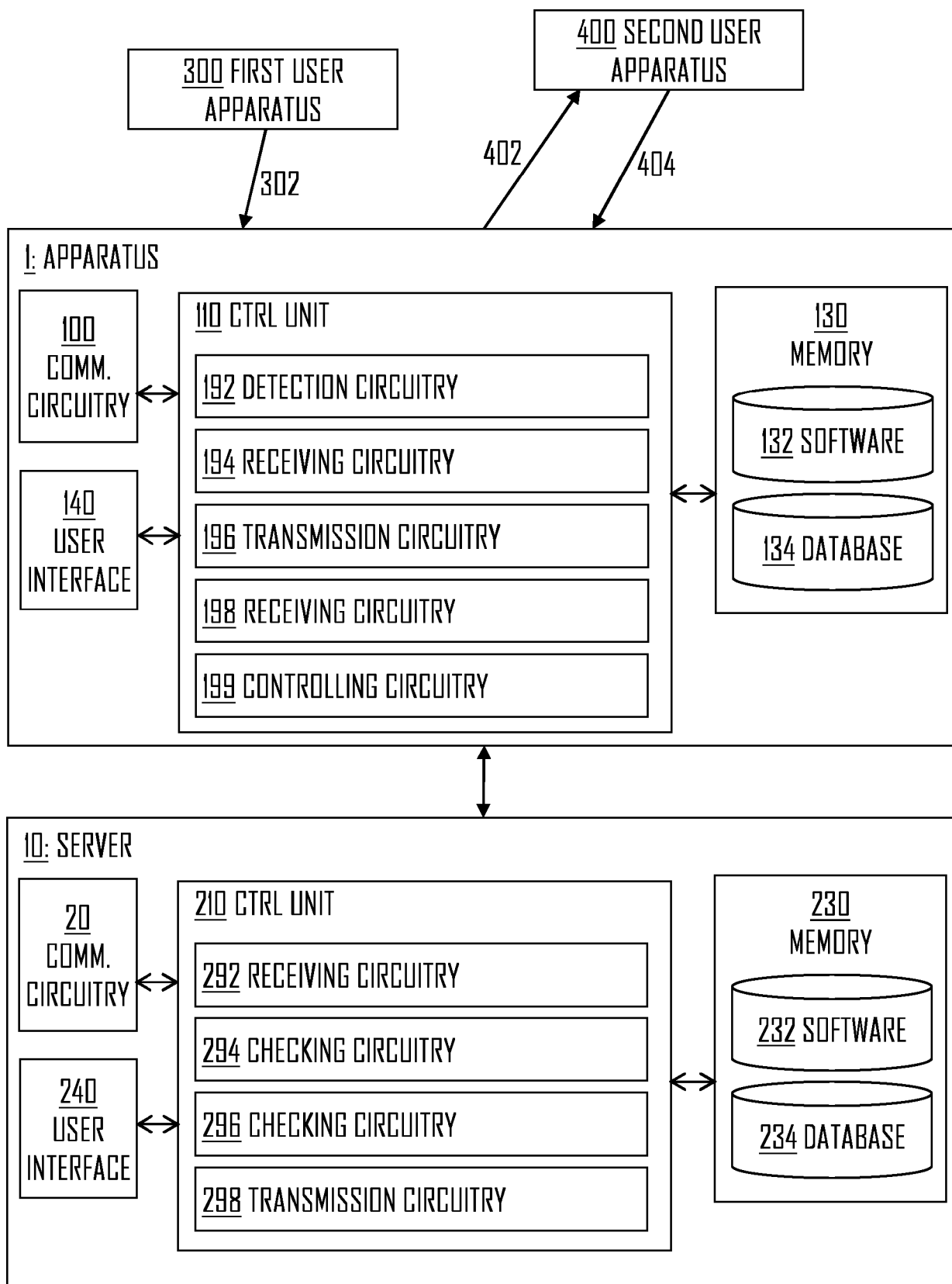


Fig. 6