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Method for controlling electronic parcel compartment systems and an interface for carrying out said method

New description pages:

The invention relates to a method for controlling electronic parcel package compartment systems.

International patent application WO 01/63494 A2 discloses a computer-controlled system for delivering goods in which one or more locker systems are connected to a server that administers and provides the processes and data for the ordering of goods, their delivery and the operation of the locker system.

The invention is based on the objective of improving a method of the generic type in such a way that a flexible and simple adaptation of the electronic parcel compartment system is made possible. In particular, the method is supposed to allow a quick and reliable change of the operating parameters of the parcel compartment system.

According to the invention, this objective is achieved in that a method for controlling electronic parcel compartment systems is carried out in such a way that a checking procedure is carried out in the area of the server to see whether changes have been made to the data stored in the server and in that control commands are transmitted via an interface to the parcel compartment system as soon as a predefinable number of changes have been made to the data stock.

The invention entails a centralization and harmonization of the control commands for the parcel compartment systems.

The interface provided for this centralization allows a virtually real-time transmission of the control commands to

the parcel compartment systems.

Moreover, the invention makes it possible to achieve harmonized operating conditions for a plurality of electronic parcel compartment systems and to change these operating conditions on short notice.

This dynamic change can relate to access rights of individual users or user groups as well as to operating parameters of the electronic parcel compartment system.

In the embodiment in which the control commands change operating parameters of the electronic parcel compartment system, preferably the entire configuration of the parcel compartment systems can be changed.

In this manner, for example, pick-up time periods for individual users and/or user groups can be changed centrally.

Furthermore, it is advantageous for the control commands to act upon an electronic control unit located in the area of the electronic parcel compartment system in such a way that the selection of the available operating functions is changed.

Moreover, it is advantageous for the control commands for controlling the parcel compartment systems to change properties of the graphic user interface.

Advantageously, this embodiment of the invention is carried out in such a way that a selection option of menu items of the graphic user interface is changed by the control commands.

In order to achieve an especially flexible and reliable transmission of the control commands, it is advantageous for the control commands to be transmitted in accordance with an XML protocol.

As a matter of principle, control commands between the parcel compartment system and the server are transmitted in a push-oriented or pull-oriented manner.

An advantageous embodiment of the invention is characterized in that the electronic parcel compartment systems send to the interface a request for the transmission of the control commands.

Here, it is advantageous for the request for the transmission of the control commands to be repeated when an event occurs.

It is likewise advantageous for the request to be repeated after a predefinable time interval.

In an especially preferred embodiment of the method, a checking procedure is carried out in the area of the server to see whether changes have been made to the data stored in the server and, if changes have been made to the data stored in the server, then control commands are transmitted to the parcel compartment systems.

In this manner, a comprehensive transmission of control commands can be achieved. Moreover, the requisite volume of data traffic is reduced.

In order to further reduce the data traffic, it is advantageous for the control commands to be transmitted as soon as a predefinable number of changes have been made to the data stock.

Moreover, it is advantageous for the parcel compartment systems to also send data to the server.

The interface that transmits the control commands for the parcel compartment systems to the parcel compartment systems as well as another interface are suitable for transferring the data from the parcel compartment systems to the server.

Advantageously, the server converts the transferred data into control commands for controlling the parcel compartment systems.

The measures depicted can further increase the reliability of the parcel compartment systems and of the method. This is especially the case because, if instances of misuse occur at one of the parcel compartment systems, the appertaining data is transmitted to the server and subsequently converted into control commands for all of the parcel compartment systems.

The subject matter of the invention is also an interface that is configured in such a way that it comprises a data input to receive data for controlling electronic parcel compartment systems and/or for transmitting control commands to the parcel compartment systems as well as a means for transferring the data and/or the control commands to the parcel compartment systems.

Additional advantages, special features and practical refinements of the invention ensue from the subclaims and from the following presentation of preferred embodiments.

The following presentation relates to an especially preferred embodiment of the invention in which data communication is established between the server and the parcel compartment systems as well as between the parcel compartment systems and the server.

This example is especially preferred because it allows an even greater flexibility of the method.

In the server or in another data processing unit, data events are evaluated and converted into control commands.

In the depicted embodiment of the especially preferred bidirectional data transmission between the parcel compartment systems and the server, it is possible for the parcel compartment systems to request a transmission of control commands from the parcel compartment system.

Preferably, the server employed is a web server that is capable of transmitting the data transfer commands in accordance with the http protocol.

Requests for the transmission of control commands are transmitted to the server, for example, as XML files.

The names and functions of individually employed data are compiled below.

Data	**Function**
UserID	User name
AccountID	Name of the user account
SecurityToken	Password for the access authorization
Language	Language for transmitting error messages, these languages can be freely selected and include, for example, German and English
ProcessingMode (default is MODULE)	Contains the encoded mode of the placement or pick-up of the parcel
RequestID	Identification data regarding the request for the transmission of control commands

Preferably, the data is transferred in a suitable format or with a suitable encryption, for example, in accordance with the ISO 8859-1 standard. XML (W3C) allows the use of the following data types:

ASCII Value 0x0009 (Tab)
ASCII Value 0x000A (Newline)
ASCII Value 0x000C (Carriage Return)

ASCII Values 0x0020-0xD7FF and 0xE000-0xFFFD (Printable Characters)

The advantages of an interface that is limited to predefined or predefinable data types lie in the fact that it is universally deployable, expandable and independent of the manufacturer.

Patent claims:

1. A method for controlling electronic parcel package compartment systems,
characterized in that
a checking procedure is carried out in the area of the server to see whether changes have been made to the data stored in the server and in that control commands are transmitted via an interface to the parcel compartment system as soon as a predefinable number of changes have been made to the data stock.

2. The method according to Claim 1,
characterized in that
the control commands change operating parameters of the electronic parcel compartment system.

3. The method according to one or both of Claims 1 or 2,
characterized in that
the control commands act upon an electronic control unit located in the area of the electronic parcel compartment system in such a way that the selection of the available operating functions is changed.

4. The method according to Claim 3,
characterized in that
the change of the operating functions comprises a change in the possibility to open parcel compartments.

5. The method according to one or more of the preceding claims,
characterized in that
the control commands for controlling the parcel compartment systems change properties of the graphic user interface.

6. The method according to Claim 5,
characterized in that
a selection option of menu items of the graphic user interface is changed by the control commands.

7. The method according to one or more of the preceding claims,
characterized in that
the control commands are transmitted in accordance with an XML protocol.

8. The method according to one or more of the preceding claims,
characterized in that
the electronic parcel compartment systems send to the interface a request for the transmission of the control commands.

9. The method according to Claim 8,
characterized in that
the request to transmit the control commands is repeated when an event occurs.

10. The method according to one or both of Claims 8 or 9,
characterized in that
the request is repeated after a predefinable time interval.

11. The method according to one or more of the preceding claims,
characterized in that
the parcel compartment systems send data to the server.

12. The method according to Claim 13,
characterized in that
the server converts the transmitted data into control commands for controlling the parcel compartment systems.