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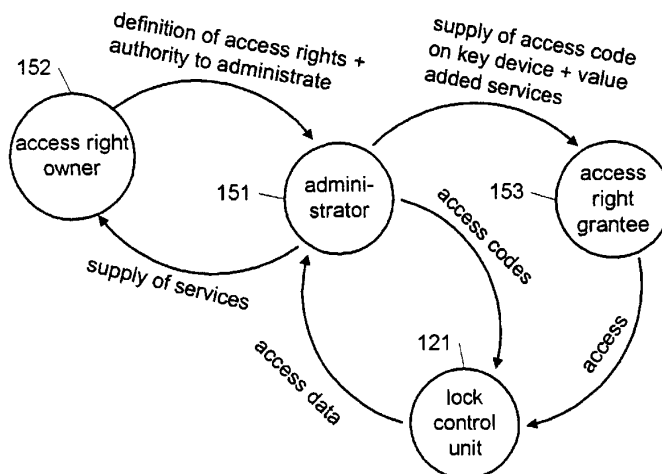
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(54) Title: AN ELECTRONIC KEY DEVICE, A SYSTEM AND A METHOD OF MANAGING ELECTRONIC KEY INFORMATION



(57) Abstract: An efficient method and a system for controlling access to a location secured by a lock mechanism controlled by a lock control unit, which may provide a high degree of flexibility and a high level of security; the method comprises the steps of storing a first access code in the lock control unit, the first access code being indicative of a predetermined access right to the location; storing a second access code in a second storage means; using an electronic key device for requesting access to the location by initiating transmitting the access code from the second storage means to the lock control unit; comparing the transmitted second



01/40605 A1

An electronic key device, a system and a method of managing electronic key information

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5 The invention relates to a method of controlling access to a location, where access to the location is restricted by a lock mechanism. Further the invention relates to an access control system which allows suppliers of goods or services to access a location, which would otherwise prevent delivery of the goods or the services. Further

10 the invention relates to an electronic key device, a lock control unit and a computer system for use in such a system, a storage module for use in such an electronic key device, and a method of managing a predetermined access right to a location.

15 Particularly in blocks of flats or companies it is common that a number of outer or front doors or intermediate doors must be passed before getting to a point of service, such as an apartment door, a mailbox, a service station or a meter for appliances, an area to be cleaned,

20 etc. For example in case of delivery of newspapers, the delivery man often has to gain access to a stairway in order to be able to deliver the newspapers at the locked private doors or put them into the letter boxes. It frequently causes great difficulties to the delivery men

25 to find the correct keys in a large bundle of keys, and the locks are frequently exchanged without the delivery company being informed of this. For reasons of security it is also more and more common to lock doors or gates to backyards, residential areas or company properties, where

30 for example refuse containers may be placed, so that the refuse collection firms have a problem quite similar to the firms which deliver newspapers. It will be appreciated that similar problems are faced by:

- postmen
  - cleaning companies
  - emergency physicians
  - home help and other care workers
- 5           • policemen
- firemen
  - artisans
  - caretakers/superintendents
  - and others.
- 10       Some of the above service providers require access on a daily basis, such as postmen, some may require access at certain time periods, such as on certain weekdays or at certain times of the day, for example a newspaper delivery man may require access between 6 a.m. and 9 a.m.
- 15       Furthermore, different services/deliveries may require different access rights, for example firemen, security companies or police may require access to all facilities, while a mailman only requires access to a mailbox.
- 20       Thus an object of the invention is to provide an efficient method and a system for controlling access to a location secured by a lock mechanism controlled by a lock control unit, which may provide a high degree of flexibility and a high level of security.
- 25       This is achieved when a method of controlling access to a location secured by a lock mechanism controlled by a lock control unit including first storage means comprises the steps of

storing a first access code in the first storage means,  
the first access code being indicative of a predetermined  
access right to the location;

storing a second access code in a second storage means;

5 using an electronic key device for requesting access to  
the location by initiating transmitting the second access  
code from the second storage means to the lock control  
unit;

10 comparing the transmitted second access code with the  
first access code stored in the first storage means; and

if the first access code corresponds to the second access  
code, initiating operating the lock mechanism.

15 Consequently, it is an advantage of the invention that a  
plurality of different access codes to different  
buildings may be stored and related to one or more  
electronic key devices, providing a flexible way of  
customising an access right profile for each electronic  
key device.

20 It is another advantage of the invention that each lock  
control unit may be provided with a specific set of valid  
access codes for that particular lock control unit.  
Therefore, a high degree of advanced functionality may be  
implemented by the method according to the invention,  
such as different security levels for a given building,  
25 self-destructive access codes, conditioned access codes,  
access codes for limited periods of times, etc.

30 It is a further advantage of the invention that the  
access right profile of individual electronic key devices  
and lock control units may be changed on short notice or  
in regular or random time intervals in order to increase  
the security of the access control.

A location according to the invention may be a physical location, such as a building, an area, or some other residential, industrial, commercial or office facility, where access to the location is controlled by a lock mechanism, such as a physical lock at a door, a window, a gate or the like. Access to the location may be controlled at a single point of entry or at a plurality of access points. Furthermore, a location may also be a part of a building, area, etc., and, according to the invention, access to different parts of a location may be controlled individually, such as at an outer gate, a front door, within an elevator granting access at all or selected floors, at doors to individual apartments, offices, sections, rooms, storage facilities, such as drawers, safes, etc. The location may be stationary, such as a building, or mobile such as a vehicle, a container, a ship, or the like.

Furthermore, the location may also be an installation, such as a control unit of industrial facility, an electric meter, a computer system or the like, where access to the location is controlled by a lock mechanism, such as a physical lock at a control box, or an electronic lock, such as a hardware lock of a computer. The term access to a location may also comprise user access to a computer or computer program where access is controlled by a software lock mechanism restricting access to a software application, to stored data, communications facilities, or the like.

An access right according to the invention may be the right to interact with a location. Examples of access rights include the right to enter a building, an area, a facility, etc., the right to operate a machine, a device, a vehicle, a computer, etc., the right to open or close a door, a window, a container, a box, etc., and the right

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