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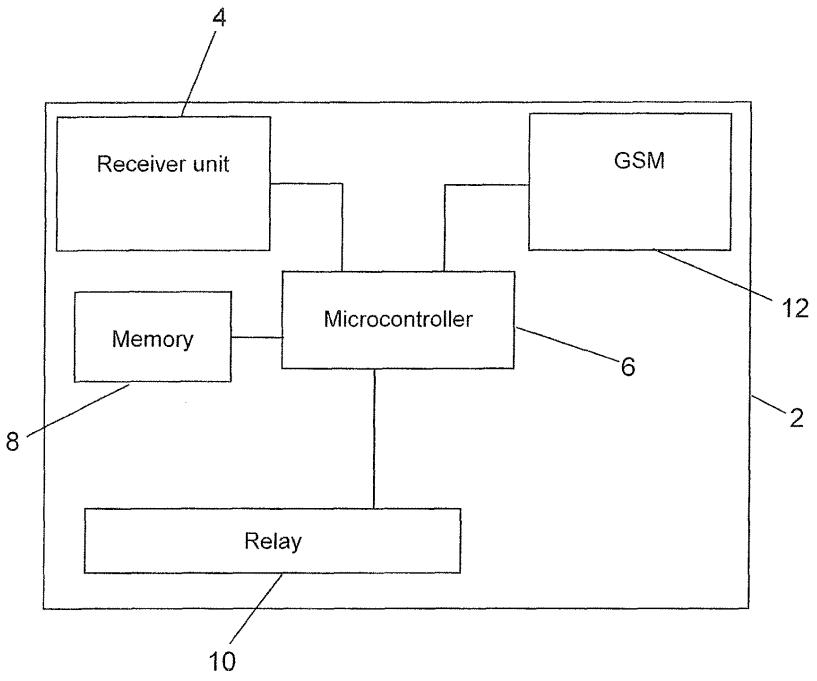
(54) Multiple user device for radio-commanded access control

(57) A multiple user device for radio-commanded access control, comprising:
- a user facility to be controlled,
- a control centre (2) for said user facility,
- a radio receiver unit (4) associated with said control centre,
- a memory (8) associated with said radio receiver unit (4),
- a plurality of remote radio controllers, each consisting of a radio transmitter unit tuned to said radio receiver unit (4) and having the transmission code stored in said memory (8),
- a microcontroller (6) for administering the functions of said control centre (2),

characterised in that said microcontroller is associated with a GSM module operatively connectable to a remote GSM module, by means of which said microcontroller (6) administers remote radio controller codes storable/stored in said memory (8) of said radio receiver unit (4).



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Description

[0001] The present invention relates to a multiple user device for radio-commanded access control.

[0002] Multiple user accesses are defined as all those passages controlled by a plurality of users using remote radio controllers.

[0003] Examples of multiple user accesses are for example the entrance door of a condominium, a garage door, the barrier of a parking area, and in general any member for closing the access to a protected area to which access can be gained by all enabled users provided with a remote radio controller by which they can operate the access control member.

[0004] A user is generally enabled if the identifying code of the user's remote radio controller is contained in the memory of the closure member control centre in which a radio receiver unit installed, to which the remote radio controller is tuned. In this manner, when that remote radio controller is operated, the radio signal transmitted by it is received by the fixed receiver unit, its code being read and compared with those contained in the memory associated with said fixed receiver unit. If the code is recognized by this comparison, the system control centre executes the command transmitted by the portable transmitter and received by the fixed receiver unit.

[0005] Given the particular nature of the multiple user system and the inevitable turnover of persons enabled to use it, it is frequently necessary to enable access to new users and to disable previously enabled users.

[0006] Currently, when a new remote radio controller is to be enabled, the installation or maintenance personnel gains access to the memory of the fixed receiver unit by a suitable procedure then, using the new remote radio controller to be enabled, causes its code to be memorized in the memory.

[0007] Likewise, if a previously enabled remote radio controller is to be disabled, a similar manoeuvre is carried out, i.e. access is firstly gained to the received memory, after which the prescribed procedure for disabling that control unit is carried out, i.e. to cancel its code from the memory.

[0008] If from a feasibility viewpoint this operation can be carried out without difficulty, from a practical viewpoint it presents drawbacks in that it requires the presence of the installer or maintenance personnel, who needs to access the memory of the fixed receiver but who in most cases is located a considerable distance from the multiple user system.

[0009] To avoid this drawback, it has already been proposed to insert into the receiver memory not only the code number of the remote radio controllers held by that particular multiple user system, but also further codes for controllers of future users, so that when the need arises to enable a new remote radio controller, the installer merely has to provide the new user with an already enabled remote radio controller, without having to carry out particular procedures in the vicinity of the fixed receiver.

[0010] This solution has proved advantageous in enabling a new controller, but cannot be used to disable an already enabled remote controller, and hence only partly solves the stated problem. Moreover, even in the enabling case, the installer must always have available a certain number of remote radio controller, the codes of which have already been memorized in the fixed receiver memory.

[0011] According to the invention, the problem of enabling new remote radio controllers and of disabling already enabled remote radio controllers without physically having to gain access to the fixed receiver of the multiple user system is solved by a multiple user device as described in claim 1.

[0012] A preferred embodiment of the present invention is further clarified hereinafter by way of non-limiting example with reference to the accompanying drawing showing a block diagram of the device of the invention.

[0013] As can be seen from the drawing, the multiple user device of the invention is applied for example to an access gate of a condominium parking area and comprises a control centre 2 for controlling the gate, which is provided with one or more actuators for its opening and closure movements. For this purpose, the multiple user device comprises a plurality of radio transmitters available to the different users, who by means of said transmitters can cause radio-controlled opening of said access.

[0014] The control centre 2 also comprises a radio receiver unit 4 tuned to the various remote radio controllers, a microcontroller 6 for administering all functions of the control centre 2, a memory 8 containing the codes of the different enabled remote radio controllers for commanding the multiple user system, which in the control centre 2 is represented by one or more relays, acting on the operating actuators of the condominium parking gate.

[0015] Finally, the control centre 2 comprises a GSM unit 12 able to dialogue with a corresponding remote GSM unit of the installer, who by using this latter is able to activate and deactivate remote radio controllers.

[0016] The GSM unit 12 is connected to the microcontroller 6, which is arranged to receive from the GSM module particular SMS signals or data communications containing the code of the remote radio controllers and the necessary coded instructions for inserting it into the memory 8 or for removing it therefrom.

[0017] Normal operation of the device of the invention takes place in traditional manner:

- when a user operates his or her remote radio controller, this sends via radio a coded signal which is received by the receiver unit 4, which then feeds it to the microcontroller 6. This extracts the code from the coded signal and compares it with the codes stored in the memory 8, for its recognition.

[0018] When the code is recognized, the microcontroller 6 feeds a corresponding command to the relays 10

to open the access gate to the condominium parking area.

[0019] When it becomes necessary to enable a new remote radio controller, for which the installer or system maintenance personnel knows the code, this personnel transmits via GSM an SMS containing the coded instructions to the microcontroller 6, so that by means of a predefined procedure this inserts the new code into the memory 8 to enable that remote radio controller. A similar procedure is followed to remove from the memory the code of a remote radio controller to be disabled.

[0020] Instead of transmitting SMSs, the GSM unit can handle data communications via modem.

[0021] In enabling a new remote radio controller, this does not necessarily have to be in the possession of the installer, who needs merely to know the code of that remote radio controller. If however this new remote radio controller is in the possession of the installer, this latter can forward it to the new user in any known manner after enabling it. If instead this remote radio controller is already in the possession of the user, this latter needs merely to transmit its characteristic data to the installer, who is able to provide for its enabling remotely via GSM.

[0022] It will be apparent that the device of the invention is particularly advantageous, in that it is able to remotely and immediately enable and disable a remote radio controller without requiring the physical presence of the installer on the site of the multiple user system, and hence without requiring site visits, which are often much more costly than the cost of the remote controller itself.

[0023] The installer must evidently form, and keep updated, a database which associates with each remote radio controller the relative code and possibly the data of the user possessing that remote radio controller, however this represents an organizational aspect easily implemented by any installer or maintenance personnel.

Claims

1. A multiple user device for radio-commanded access control, comprising:

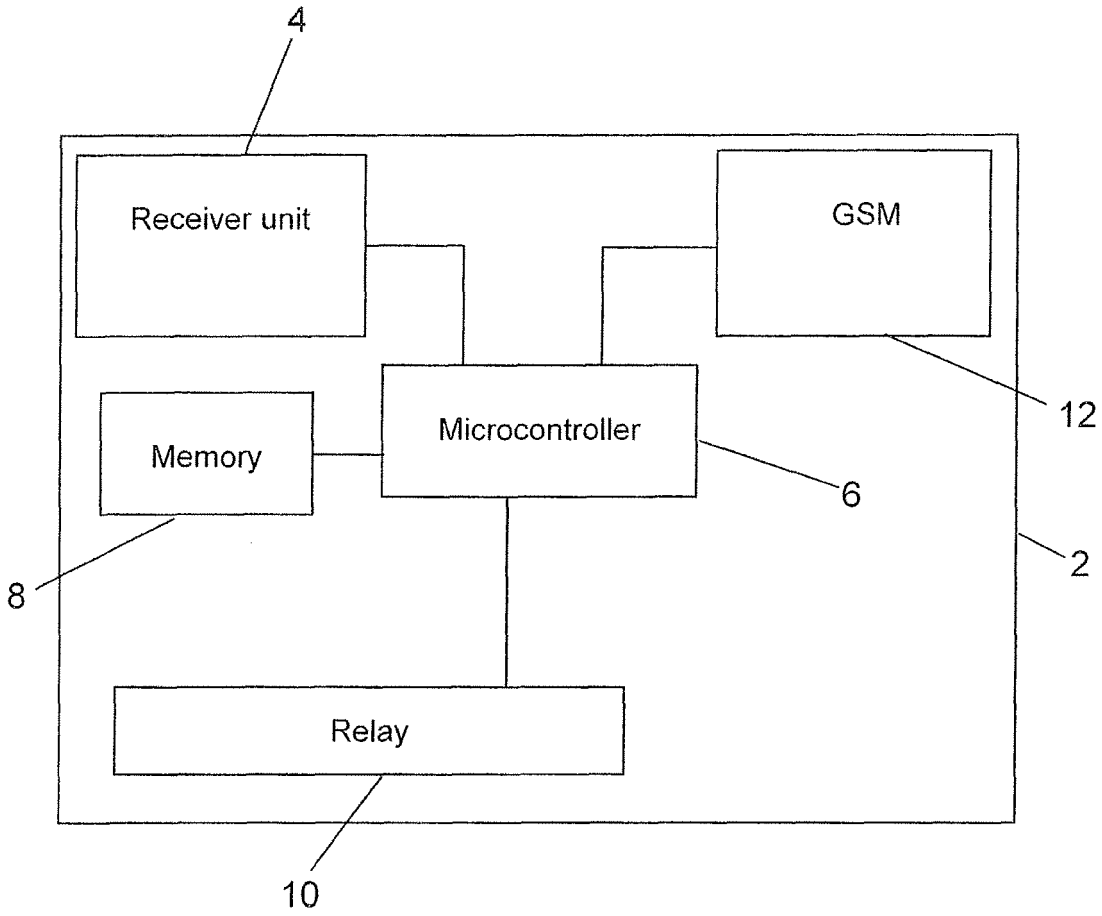
   - a user facility to be controlled,
   - a control centre (2) for said user facility,
   - a radio receiver unit (4) associated with said control centre,
   - a memory (8) associated with said radio receiver unit (4),
   - a plurality of remote radio controllers, each consisting of a radio transmitter unit tuned to said radio receiver unit (4) and having the transmission code stored in said memory (8),
   - a microcontroller (6) for administering the functions of said control centre (2),

   characterised in that said microcontroller is associated with a GSM module operatively connectable to a remote GSM module, by means of which said microcontroller (6) administers remote radio controller codes storable/stored in said memory (8) of said radio receiver unit (4).

2. A device as claimed in claim 1, **characterised by** comprising, within the remote GSM module, a database in which the relative code is associated with each remote radio controller.

3. A device as claimed in claim 1, **characterised in that** coded SMS commands are associated with the microcontroller (6) for inserting new codes into the memory (8) and for cancelling codes already inserted into the memory (8).

4. A device as claimed in claim 1, **characterised in that** a modem is associated with the GSM modem for administering data communications.


4
Receiver unit
GSM
12
Memory
Microcontroller
6
8
2
Relay
10