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(54) **ELECTRONIC SYSTEM WITH FACILITATED ACCESS FOR MANAGING THE MOVEMENT OF AT LEAST ONE MOBILE BARRIER**

ELEKTRONISCHES SYSTEM MIT ERLEICHTERTEM ZUGANG ZUR VERWALTUNG DER
BEWEGUNG MINDESTENS EINER MOBILEN BARRIERE

SYSTÈME ÉLECTRONIQUE À ACCÈS FACILITÉ DE GESTION DU MOUVEMENT D'AU MOINS
UNE BARRIÈRE MOBILE

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(73) Proprietor: **FAAC S.p.A.
40069 Zola Predosa (BO) (IT)**

(72) Inventors:
• **TAMANTI, Maria Lisa
40016 San Giorgio di Piano (BO) (IT)**
• **Minelle, Enrico
35124 Padova (IT)**

(74) Representative: **Di Gennaro, Sergio et al
Barzano & Zanardo Milano S.p.A.
Via Borgonuovo 10
20121 Milano (IT)**

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Description

[0001] The present invention refers to an electronic system with facilitated access for managing the movement of at least one mobile barrier, moved by an electric actuator.

[0002] By mobile barrier, we mean swinging or sliding gates, up-and-over or sectional doors or gates, barriers for the transit of vehicles, swinging or sliding wicket doors, traffic deterrents or any other selectively removable element obstructing the transit through an opening.

[0003] In managing the movement of a mobile barrier it is known to use electronic systems comprising at least one central unit that is suitable for controlling the activation of the actuators that move the mobile elements that make up the barrier.

[0004] Such central units in general require pre-emptive programming in order to set movement parameters of the mobile barrier.

[0005] In such known electronic systems, the movement parameters can be subsequently modified during maintenance or repairing operations through the intervention of trained experts provided with equipment that is suitable for establishing a cabled connection or in any case provided with software means that are specifically programmed so as to interface with the central unit.

[0006] Moreover, also in order to update the software means for driving the central unit itself it is in general required for there to be a specific proprietary cabled connection, or rather special devices that are equipped with software means that are specifically programmed so as to interface with the operating system of the central unit.

[0007] Basically, with the electronic systems for managing the movement of a known barrier, also mere intervention, diagnostic or ordinary maintenance operations of the central unit require the intervention of specialised workers that are equipped with special equipment.

[0008] Document US 2002/0183008 A1 describes a system according to the preamble of claim 1.

[0009] The purpose of the present invention is that of avoiding the aforementioned drawbacks and in particular that of conceiving an electronic system for managing the movement of at least one mobile barrier which can be easily accessed so as to carry out, diagnostic or ordinary maintenance operations without requiring special equipment.

[0010] Another purpose of the present invention is that of providing an electronic system for managing the movement of at least one mobile barrier the access of which does not require a cabled connection or proprietary interface software means.

[0011] A further purpose of the present invention is that of making an electronic system for managing the movement of at least one mobile barrier that makes it superfluous for specialised workers to carry out, diagnostic or ordinary maintenance operations, since such operations can possibly be carried out remotely. These and other purposes according to the present invention are achieved

by making an electronic system for managing the movement of at least one mobile barrier as outlined in claim 1.

[0012] Further characteristics of the electronic system are object of the dependent claims.

[0013] The characteristics and the advantages of an electronic system for managing the movement of at least one mobile barrier according to the present invention shall become clearer from the following description, given as an example and not for limiting purposes, with reference to the attached schematic drawing representing a preferred embodiment of the electronic system for managing the movement of at least one mobile barrier according to the present invention.

[0014] With reference to the figure, an electronic system for managing the movement of at least one mobile barrier is wholly indicated with reference numeral 10.

[0015] The electronic system 10 for managing the movement of at least one mobile barrier comprises a central unit 11 that is suitable for controlling the activation of at least one actuator 12 of the electric type that moves at least one movable element (not illustrated) which makes up the barrier, like for example a wing.

[0016] The movable element can be moved by the actuator 12 according to a swinging or sliding movement according to the type of the mobile barrier.

[0017] The central unit 11 is moreover connected to a plurality of peripheral units 13, 14 for collecting opening/closing commands of the mobile barrier and information relating to the presence of obstacles in the movement area of the barrier.

[0018] The at least one electric actuator 12 and the peripheral units 13, 14 are connected to the central unit directly or, according to one alternative embodiment not illustrated, through a special electric network for the exchange of data and, possibly, the transmission of power supply.

[0019] The central unit 11 moreover comprises software means 16 for setting the parameters and the management of the movement of the mobile barrier.

[0020] According to the present invention, the central unit 11 comprises at least one interface 15 for providing at least one wireless network access to the software means 16 of the central unit 11.

[0021] In particular, the at least one wireless network access interface 15 is of the Wi-Fi type i.e. operating according to IEEE 802.11 transmission protocols for wireless access to a local network.

[0022] As an alternative or in addition, the at least one wireless network access interface 15 is of the GSM, GPRS, UMTS type or another telecommunications system for transferring data based on mobile cell phone standards.

[0023] In order to exchange information through the local network and/or wireless mobile cell phone to which the at least one wireless interface 15 allows access, the software means 16 of the central unit 11 advantageously comprise interfacing means to the network operating according to HTTP protocols (HyperText Transfer Proto-

col), at the application level, and TCP (Transmission Control Protocol), at the transportation level of the data packets.

[0024] Moreover, the software means 16 are such as to form a Web server, providing a hypertext structure of documents (Web pages) that can be accessed by means of any web browser that, being supported by an HTTP network protocol, allows access to the content of such documents as well as interaction with them.

[0025] In such a way it is possible to interface with the software means 16 residing in the central unit 11 through any electronic processing device 20 equipped with wireless access interface 21 of the Wi-Fi type and/or GSM, GPRS, UMTS and so on as well as software means (not illustrated) comprising a specific interfacing program to the Web server residing in the central unit 11, like for example a Web browser. Purely as an example and not for limiting purposes the electronic processing device 20 can be a personal computer, a palmtop computer, a multimedia cell phone (smartphone) or a PC tablet.

[0026] Advantageously, the central unit 11 in addition comprises a connection interface (not illustrated) to an Ethernet network for an alternative access to the software means 16 of the central unit 11, for example in the case of malfunctioning of the wireless access. In such a case, the electronic processing device 20 is also preferably equipped with a connection interface to an Ethernet network.

[0027] The operation of the electronic system 10 for managing the movement of at least one mobile barrier according to the present invention is as follows.

[0028] Through the electronic processing device 20 it is possible to access the local network and/or wireless mobile cell phone network made available by the at least one wireless access interface 15 present on the central unit 11, possibly upon authentication of the device 20 in the case in which the security functions of the wireless network, known at the state of the art, are active.

[0029] Thanks to the software means provided with interfacing program to the Web server residing in the electronic processing device 20, it is possible to access the data made available by the software means 16 residing in the central unit 11.

[0030] In such a way it is possible to access the information of the state and the parameters of the central unit 11 itself, being moreover able to vary the settings of the movement parameters of the mobile barrier.

[0031] Purely as an example and not for limiting purposes, it is moreover possible to introduce commands for moving the mobile barrier; update the software means 16 residing in the central unit 11; as well as to modify the properties of the wireless network provided by the at least one wireless access interface 15 present on the central unit 11.

[0032] In the specific case in which the electronic processing device 20 is a multimedia cell phone or a PC tablet, the interfacing program to the Web server can be a specific proprietary application for such devices, made

in a way such as to allow, purely as an example and non for limiting purposes, commands for moving the barrier to be entered; update the software means 16 residing in the central unit 11; update the configuration, vary the settings of the parameters for moving the mobile barrier; activate special diagnostic programs; access the history of the movement of the mobile barrier; enter commands for turning on/off a possible courtesy light present on the mobile barrier; block the mobile barrier so that it does not accept any type of opening command.

[0033] From the description made the characteristics of the electronic system for managing the movement of at least one mobile barrier object of the present invention are clear, just as the relative advantages are also clear. Indeed, the presence of a wireless access interface makes it easy to access the software means residing in the central unit making it possible to carry out programming or ordinary maintenance operations.

[0034] Moreover, such an access as well as programming, diagnostic or ordinary maintenance operations, can be carried out, possibly also remotely, by means of any electronic device provided with wireless interface and an interfacing program to a Web server, currently very widespread.

[0035] It is thus also possible for the user to access such software means without requiring the mandatory intervention of specialised workers. In such a way, configuration, diagnostic and ordinary maintenance operations can also be carried out by the user himself. It is finally clear that the electronic system for managing the movement of at least one mobile barrier thus conceived can undergo numerous modifications and variants, all covered by the invention; moreover, all the details can be replaced by technically equivalent elements. In practice the materials used, as well as the dimensions, can be any according to the technical requirements.

Claims

1. An electronic system (10) for managing the movement of at least one mobile barrier comprising a central unit (11) suitable for controlling the activation of at least one actuator (12) for moving at least one movable element of said mobile barrier, said central unit (11) being connected to at least a plurality of peripheral units (13, 14) for collecting opening/closing commands of the mobile barrier and information relating to the presence of obstacles in the movement area of said mobile barrier, said central unit (11) comprising software means (16) for managing the movement of said mobile barrier, wherein said central unit (11) comprises at least one interface (15) for providing at least one wireless network access to said software means (16) from the external of the control system,

said at least one interface (15) for providing wire-

less network access is of the type operating according to IEEE 802.11 transmission protocols for wireless access to a local network and said software means (16) are such as to form a Web server,
the system further comprising an electronic processing device (20) having a wireless access interface (21) and software means provided with interfacing program to the Web server, enabling to access the data made available by the software means (16) residing in said central unit (11), said interfacing program comprising a Web browser interfacing said Web server residing in said central unit (11) or said interfacing program to said Web server is a proprietary application for multimedia cell phones or PC tablets **characterized in that** by means of said interfacing program remotely updating said software means (16) or carrying out diagnostic or ordinary maintenance operations is enabled.

2. The electronic system (10) for managing the movement of at least one mobile barrier according to claim 1, **characterized in that** said at least one interface (15) for providing wireless network access is of the type GSM, GPRS, UMTS or another telecommunications system for transferring data based on mobile cell phone standards.
3. The electronic system (10) for managing the movement of at least one mobile barrier according to claim 1, **characterized in that** said software means (16) residing in said central unit (11) comprise interfacing means to a local network operating according to HTTP and TCP protocols.
4. The electronic system (10) for managing the movement of at least one mobile barrier according to any of the previous claims, **characterized in that** said central unit (11) comprises at least one connection interface to an Ethernet network.
5. The electronic system (10) for managing the movement of at least one mobile barrier according to claim 1, **characterized in that** said electronic processing device (20) comprises a connection interface to an Ethernet network.
6. The electronic system (10) for managing the movement of at least one mobile barrier according to preceding claims, **characterized in that** said electronic processing device (20) is selected from the group consisting of:
 - personal computers;
 - palmtop computers;
 - multimedia cell phones; and
 - PC tablets.

Patentansprüche

1. Elektronisches System (10) zur Verwaltung der Bewegung mindestens einer mobilen Barriere, das eine Zentraleinheit (11) umfasst, die geeignet ist, die Aktivierung mindestens eines Aktors (12) zu steuern, um mindestens ein bewegliches Element der mobilen Barriere zu bewegen, wobei die Zentraleinheit (11) mit mindestens einer Vielzahl von peripheren Einheiten (13,14) verbunden ist, um Öffnungs-/Schließbefehle der mobilen Barriere und Informationen bezüglich des Vorhandenseins von Hindernissen im Bewegungsbereich der mobilen Barriere zu sammeln, wobei die Zentraleinheit (11) Softwaremittel (16) zum Verwalten der Bewegung der mobilen Barriere umfasst, wobei die Zentraleinheit (11) mindestens eine Schnittstelle (15) umfasst, um mindestens einen drahtlosen Netzwerkzugang zu den Softwaremitteln (16) von außerhalb des Steuerungssystems bereitzustellen,

die mindestens eine Schnittstelle (15) zur Bereitstellung eines drahtlosen Netzzugangs von dem Typ ist, der gemäß den IEEE 802.11-Übertragungsprotokollen für den drahtlosen Zugang zu einem lokalen Netzwerk arbeitet, und die Softwaremittel (16) so beschaffen sind, dass sie einen Webserver bilden,
das System ferner eine elektronische Verarbeitungsvorrichtung (20) mit einer drahtlosen Zugangsschnittstelle (21) und Softwaremitteln umfasst, die mit einem Schnittstellenprogramm zum Webserver versehen sind, das den Zugriff auf die Daten ermöglicht, die von den in der Zentraleinheit (11) befindlichen Softwaremitteln (16) bereitgestellt werden, wobei das Schnittstellenprogramm einen Web-Browser umfasst, der eine Schnittstelle zu dem in der Zentraleinheit (11) befindlichen Web-Server bildet, oder das Schnittstellenprogramm zu dem Web-Server eine proprietäre Anwendung für Multimedia-Mobiltelefone oder Tablet-PC ist, **dadurch gekennzeichnet, dass** mittels des Schnittstellenprogramms eine Fernaktualisierung der Softwaremittel (16) oder die Durchführung von Diagnose- oder gewöhnlichen Wartungsvorgängen ermöglicht wird.

2. Elektronisches System (10) zur Verwaltung der Bewegung mindestens einer mobilen Barriere nach Anspruch 1, **dadurch gekennzeichnet, dass** die mindestens eine Schnittstelle (15) zur Bereitstellung des drahtlosen Netzwerkzugangs von dem Typ GSM, GPRS, UMTS oder eines anderen Telekommunikationssystems zum Übertragen von Daten basierend auf Mobiltelefonstandards ist.
3. Elektronisches System (10) zur Verwaltung der Be-

wegung mindestens einer mobilen Barriere nach Anspruch 1, **dadurch gekennzeichnet, dass** die Softwaremittel (16), die sich in der Zentraleinheit (11) befinden, Schnittstellenmittel zu einem lokalen Netzwerk umfassen, die gemäß den Protokollen HTTP und TCP arbeiten.

4. Elektronisches System (10) zur Verwaltung der Bewegung mindestens einer mobilen Barriere nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die Zentraleinheit (11) mindestens eine Verbindungsschnittstelle zu einem Ethernet-Netzwerk umfasst.
5. Elektronisches System (10) zur Verwaltung der Bewegung mindestens einer mobilen Barriere nach Anspruch 1, **dadurch gekennzeichnet, dass** die elektronische Verarbeitungsvorrichtung (20) eine Verbindungsschnittstelle zu einem Ethernet-Netzwerk umfasst.
6. Elektronisches System (10) zur Verwaltung der Bewegung mindestens einer mobilen Barriere nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die elektronische Verarbeitungsvorrichtung (20) ausgewählt ist aus der Gruppe bestehend aus:
 - Personal Computer;
 - Palmtop-Computer;
 - Multimedia-Mobiltelefone; und
 - Tablet-PC.

Revendications

1. Système électronique (10) permettant de gérer le mouvement d'au moins une barrière mobile comprenant une unité centrale (11) appropriée pour commander l'activation d'au moins un actionneur (12) pour déplacer au moins un élément mobile de ladite barrière mobile, ladite unité centrale (11) étant connectée à au moins une pluralité d'unités périphériques (13, 14) pour collecter des commandes d'ouverture/fermeture de la barrière mobile et des informations relatives à la présence d'obstacles dans la zone de mouvement de ladite barrière mobile, ladite unité centrale (11) comprenant un moyen logiciel (16) permettant de gérer le mouvement de ladite barrière mobile, dans lequel ladite unité centrale (11) comprend au moins une interface (15) pour fournir au moins un accès réseau sans fil au dit moyen logiciel (16) depuis l'extérieur du système de contrôle,

ladite au moins une interface (15) pour fournir un accès au réseau sans fil est du type fonctionnant selon les protocoles de transmission IEEE

802.11 pour l'accès sans fil à un réseau local et lesdits moyens logiciels (16) sont tels qu'ils forment un serveur Web,

le système comprend en outre un dispositif de traitement électronique (20) ayant une interface d'accès sans fil (21) et un moyen logiciel pourvu d'un programme d'interfaçage avec le serveur Web, permettant d'accéder aux données rendues disponibles par le moyen logiciel (16) hébergé dans ladite unité centrale (11), ledit programme d'interfaçage comprenant un navigateur Web interfaçant ledit serveur Web hébergé dans ladite unité centrale (11) ou ledit programme d'interfaçage au dit serveur Web est une application propriétaire pour des téléphones cellulaires multimédia ou des tablettes PC, **caractérisé en ce que**, au moyen dudit programme d'interfaçage, la mise à jour à distance du dit moyen logiciel (16) ou l'exécution d'opérations de diagnostic ou de maintenance ordinaire est activée.

2. Système électronique (10) permettant de gérer le mouvement d'au moins une barrière mobile selon la revendication 1, **caractérisé en ce que** ladite au moins une interface (15) permettant de fournir un accès à un réseau sans fil est du type GSM, GPRS, UMTS ou un autre système de télécommunications permettant de transférer des données, basé sur des normes de téléphone cellulaire mobile.
3. Système électronique (10) permettant de gérer le mouvement d'au moins une barrière mobile selon la revendication 1, **caractérisé en ce que** ledit moyen logiciel (16) hébergé dans ladite unité centrale (11) comprend un moyen d'interfaçage avec un réseau local fonctionnant selon les protocoles HTTP et TCP.
4. Système électronique (10) permettant de gérer le mouvement d'au moins une barrière mobile selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ladite unité centrale (11) comprend au moins une interface de connexion à un réseau Ethernet.
5. Système électronique (10) permettant de gérer le mouvement d'au moins une barrière mobile selon la revendication 1, **caractérisé en ce que** ledit dispositif de traitement électronique (20) comprend une interface de connexion à un réseau Ethernet.
6. Système électronique (10) permettant de gérer le mouvement d'au moins une barrière mobile selon les revendications précédentes, **caractérisé en ce que** ledit dispositif de traitement électronique (20) est choisi dans le groupe constitué par :

- les ordinateurs personnels ;
- les ordinateurs de poche ;

- les téléphones cellulaires multimédia ; et
- les tablettes PC.

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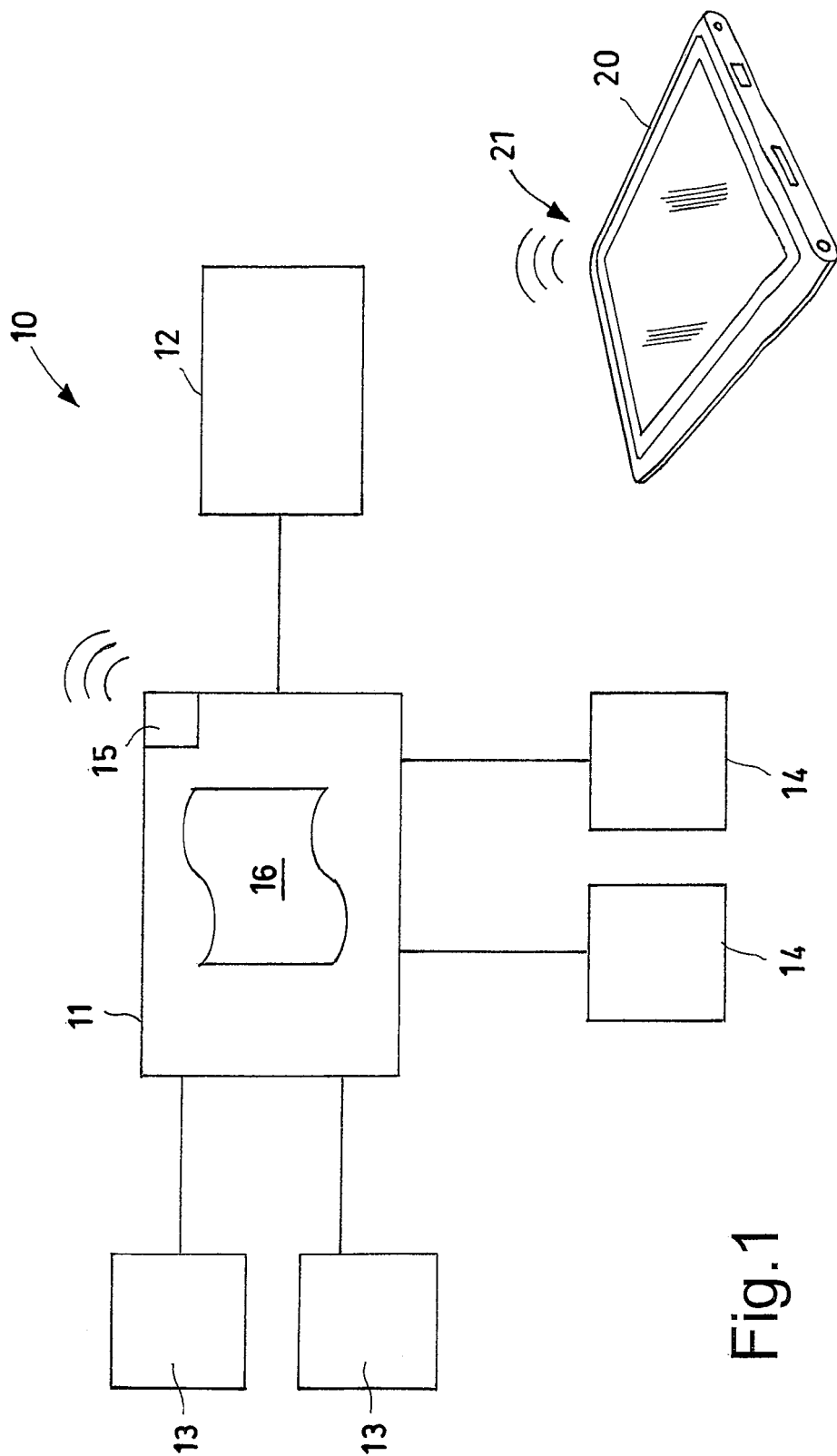


Fig.1

REFERENCES CITED IN THE DESCRIPTION

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