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Remarks:

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(54) **Electronic door trim, elevator system comprising a building door having said electronic door trim integrated therein, and building door comprising said electronic door trim**

(57) The invention relates to an electronic door trim for controlling an unlocking and opening or locking and closing, respectively, of a door or a similar device, particularly a building door (2, 2', 2'') in a building comprising an elevator system, for an authorized or non-authorized access to a protected area; wherein said electronic door trim comprises a control system which sends commands to the door and which receives reports about events at the door; a user sensor which detects a user in front of the door by detection of credential data, wherein the detected credential data influence the decision of an electronic controller; and a wakeup circuit which collects a wakeup signal from different sensors to wake up the electronic controller, and an elevator system comprising a building door having said electronic door trim integrated therein, and building door comprising said electronic door trim.

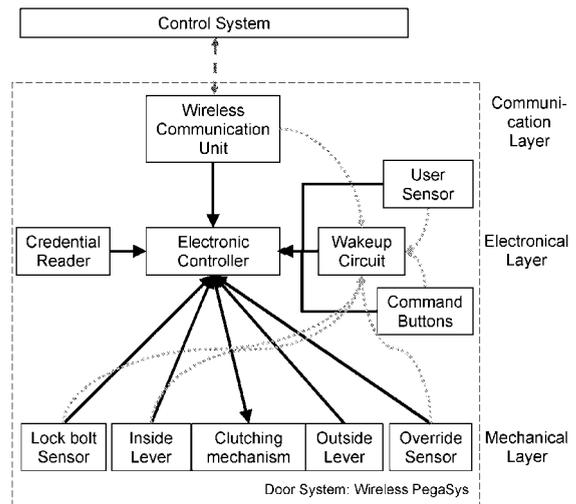


Fig. 11

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Description

[0001] The invention relates to an electronic door trim, particularly an electronic door trim for use in an elevator system. The invention also relates to an elevator system comprising at least one building door with an integrated electronic door trim and building door comprising said electronic door trim, the building door particularly provided for being used in an elevator system.

[0002] Electronic door trims are used, amongst others, in conjunction with access-control systems, and they are regularly combined with components of architectural hardware, door locks, door closers, door frames and doors in general. Electronic door trims are for example used for monitoring and controlling the access of authorized or non-authorized people to security sensitive areas.

[0003] Such electronic door trims are for example known under the trademarks and/or type designations PEGASYS and 6020 System, which are manufactured and sold by the applicant. Details of this known system are described in the User Manual "Pegasys Offline Terminals and the 6020 System, Version 1.56", issued by the applicant dated January 25, 2006.

[0004] These electronic door trim systems control the unlocking and opening or blocking, respectively, of a door or a similar device for an authorized or non-authorized access. Therein, the electronic door trim systems are for example controlled and activated by the use of an electronic chip card, by the entry of a specific code over a keyboard, or similar devices. Further, electronic door trim systems comprise a battery driven electronic control unit that monitors and controls, amongst others, the status of contacts, and that activates and engages or disengages, respectively, levers and bolts by a coupling or clutch within the lock. For the operation of these components, such systems generally require extensive and complex wiring with cables which has to be integrated with the associated contacts into the lock and/or the door and/or the door frame. The wiring is particularly also required for the data transfer and the communication between the individual components of the control system. Thus, these systems are regarded as being offline devices.

[0005] A problem underlying such known electronic door trim systems is the secure and reliable operation of the systems, as said complex wiring may tend to have defects and errors, which may in turn result in a partial or complete failure of the overall system. Therefore, it is an aim of the invention to overcome these problems and to provide an improved electronic door trim system.

[0006] These objects are addressed by the invention as defined in the independent claims, defining an improved electronic door trim system, a building door, particularly a building door for use in an elevator system, comprising such electronic door trim system, and elevator system comprising said integrated electronic door trim system and/or a least one door with an integrated electronic door trim system. With such an electronic door trim, a lock is operating like an online door which supervises

the lock bolt status contact, and is online connected to an access control system.

[0007] In embodiments, an electronic door trim is equipped with a battery driven wireless connection on the base of a radio transmission technology. The respective wireless communication units can be operated with various frequencies, wherein one known system is the wireless LAN technology as used for Internet access in private or public surroundings. Another wireless communication system, which is suitable for an embodiment of the door trim, is a system sold under the trademark "ZigBee". This known system is particularly well suited for a battery driven operation, considering the limited life time of a battery. This system typically has a range of 30 to 100 Meters. However, also other, comparable systems may be used for the purposes of the invention.

[0008] The use of said wireless communication units offers the advantage that the door trims will no longer be offline, but get the capability to react online by the wireless connection to a host computer (as, e.g. in the PEGASYS system, the access control System IF 6020). The wireless communication systems (such as e.g. the "ZigBee" connection) typically put only 5% of additional load to the battery.

[0009] To allow the full door control, a mortise lock is added to the wireless connected electronic door trim. This offers status contacts for the lever handling from inside a room, a status of a mechanical override by a mechanical locking cylinder, and a status of the dead bolt.

[0010] These status contacts are attached to the electronics of the electronic door trim by an adapter board (see Figs. 9a to 9d, as further discussed below).

[0011] In embodiments, a self locking lock with panic function, as for example manufactured and sold by Cisa S.p.A. of Faenza, Italy, is utilised as said mortise lock. One embodiment of such mortise lock is shown in Figs. 7 and 8. Therein, Fig. 8 shows the door trim from the backside, wherein for clarity purposes the version without wireless connection is shown here as an example. Mortise locks known in the prior art generally comprise mechanical sensor means for monitoring and reporting the turning of a key, the position of the door lock bolts (extended or retracted), and the like.

[0012] The building door for use in the elevator system or for being installed while retrofitting an existing elevator system comprises at least one door sensor which is integrated in the building door, such as a sensor comprised in the aforementioned door trim. Further, the building door may comprise at least one recognition device which is integrated in the building door. Still further, the door sensor or the recognition device may be mounted near the building door.

[0013] Said recognition device is provided for identifying a user of the elevator system. For an identified user at least one user recognition signal is communicated to a control system by the recognition device, and may be used for actuating a pre-defined destination call on account of the communicated user recognition signal.

[0014] In one embodiment said door sensor is an electromechanical contact of the building door, and the electromechanical contact communicates a detention of a deadbolt in a lock plate and/or a release of a deadbolt from a lock plate as door signal to the control system, e.g. an elevator control or an electronic controller of the building door. Advantageously the door sensor is a credential reader of the building door, and the credential reader communicates a detection of a credential as door signal to said control system. Advantageously the door sensor is an override sensor, and the override sensor communicates a status of a mechanical key override of the building door as door signal to said control system. Advantageously the door sensor is a lock bolt sensor, and the lock bolt sensor communicates a status of a deadbolt of the building door as door signal to said control system. Advantageously the door sensor is a clutching mechanism for an inside lever and an outside lever of the building door, and the clutching mechanism communicates a movement of the inside and/or outside lever as door signal to said control system. Advantageously the door sensor is an infrared reflective photo sensor, and the infrared reflective photo sensor communicates detection of a user in front of the building door as door signal to said control system. Advantageously the door sensor is a command button on the inner and/or outer side of the building door, and the command button communicates activation of the command button as door signal to said control system. This is of advantage because a plurality of different sensors may be used for detecting the opening and/or closing of a building door.

[0015] Advantageously the door sensor communicates at least one door signal to a wakeup circuit of the building door; the wakeup circuit collects the door signal as wakeup signal and communicates the wakeup signal to an electronic controller of the building door; and the electronic controller wakes up for a received wakeup signal.

[0016] This is of advantage because a door sensor may inform a wakeup circuit about a detected opening and/or closing of a building door. Upon collection of a door signal, the wakeup circuit wakes up the electronic controller of the building door. When no door signal is collected by the wakeup circuit, the electronic controller may change to a sleep mode with low or even zero energy consumption, thus increasing the energy autonomy of a battery powered building door.

[0017] Advantageously at least one antenna is installed. Advantageously the door sensor communicates at least one door signal by way of at least one radio network to the elevator control or the control and/or the recognition device communicates at least one user recognition system by way of at least one radio network to the elevator control or the control. Advantageously the recognition device and/or the door sensor communicates at least one door signal to an electronic controller of the building door; the electronic controller communicates the door signal to a wireless communication unit of the build-

ing door; and the wireless communication unit communicates a door signal to the elevator control or the control by way of at least one radio network. The laying of data cables of a fixed network is thus not necessary for having the aforementioned data transferred.

[0018] Examples of embodiment of the invention are explained in more detail by way of the figures, for which purpose in partly schematic form:

- Fig. 1 shows a partially sectioned view of a part of an elevator system in a building;
- Fig. 2 shows a partially sectioned view of a part of a network of an elevator system according to Fig. 1;
- Fig. 3 shows a view of a part of a first form of embodiment of a building door with door sensor for the elevator system according to Fig. 1;
- Fig. 4 shows a view of part of a second form of embodiment of a building door with door sensor for the elevator system according to Fig. 1;
- Fig. 5 shows a partially sectioned view of a part of a retrofitted elevator system in a building;
- Fig. 6 shows a partially sectioned view of a part of a further retrofitted elevator system in a building according to Fig. 5;
- Figs. 7 and 8 show an embodiment of a mortise lock used in connection with the electronic door trim of the invention;
- Figs. 9a to 9d show the mounting of the wireless device according to the invention with an adapter to the door trim;
- Fig. 10 shows two perspective views of a door model within which the wireless functions according to the invention may be utilized; and
- Fig. 11 is a block diagram showing the components of the electronic door trim according to the invention.

[0019] Figs. 1 to 11 show exemplary embodiments of the invention, wherein Fig. 1 shows an elevator system in a building, Fig. 2 shows a network of the elevator system, and Figs. 3 and 4 show two forms of embodiment of a building door with door sensor for the elevator system.

[0020] According to Fig. 1 the building has several storeys 1, 1', 1" and at least one building door 2', 2" giving access to at least one room. The building door 2, 2', 2" is an access door to a dwelling in the building and/or an access door to the building. An elevator system is arranged in the building. The elevator system has in an elevator shaft, and at least one elevator cage 7 which is connected with at least one counterweight 8 by way of at least one support means 6. For movement of elevator cage 7 and counterweight 8 the support means 6 is

placed in motion by at least one elevator drive 5 in friction couple. At least one user has access to the elevator cage 7 by way of at least one elevator door 3, 3', 3". At least one elevator door 3, 3', 3" is usually arranged in each storey 1, 1', 1". For safety reasons the elevator doors 3, 3', 3" of a storey 1, 1', 1" are opened only when an elevator cage 7 stands at this storey 1, 1', 1". The opening and closing of the elevator doors 3, 3', 3" takes place by way of a door drive 31. At least one elevator control 4 controls the elevator drive 5 and the door drive 31. So that the elevator control 4 knows when an elevator cage 7 has moved into a storey 1, 1', 1", at least one elevator sensor 30, 30', 30" detects movement of the elevator cage 7 into the storey 1, 1', 1". The elevator sensor 30, 30', 30" communicates, for a detected movement of the elevator cage 7 into a storey 1, 1', 1", at least one elevator cage signal to the elevator control 4. The elevator control 4 opens the elevator door 3, 3', 3" of the storey 1, 1', 1" upon receipt of an elevator cage signal.

[0021] Fig. 2 shows a network of the elevator system. The elevator sensors 30, 30', 30" of the elevator shaft as well as recognition devices 90, 90', 90", call input devices 91, 91', 91" and output devices 92, 92', 92" of the terminal 9, 9', 9" as well as the cage sensor 70 of the cage 7 are connected with the elevator control 4 by way of a fixed network.

[0022] The building door 2, 2', 2" comprises an electronic door trim which will be described in more detail in connection with the Figs. 7 to 11. The building door 2, 2', 2" comprises a door leaf, a door frame and a doorstep. Opening and closing of the building door 2, 2', 2" means that the door leaf performs a relative movement with respect to the doorstep. An already minimal relative movement gives recognition to the user's wish to cross the doorstep.

[0023] Door sensors 20, 20', 20", an electronic controller of the building door 2, 2', 2" and recognition devices 90, 90', 90" of the building doors 2, 2', 2" are connected with an antenna 40 of the elevator control 4 by way of a radio network. Known radio networks are Wireless Local Area Network (WLAN) according to the Standard IEEE 802.11 and Worldwide Interoperability for Microwave Access (WIMAX) according to the Standard IEEE 802.16 with a range of several 100 metres up to 10 kilometres. A particular wireless communication system sold under the trademark "ZigBee" will be described more in detail in connection with the Figs. 7 to 11. Not only the fixed network, but also the radio network allows a bidirectional communication according to known and proven network protocols such as the Transmission Control Protocol / Internet Protocol (TCP/IP) or Internet Packet Exchange (IPX). The fixed network comprises, for example, several electrical and/or optical data cables which are laid in the building, for example, under plaster or also suspended in the elevator shaft and thus connect the terminals 9, 9', 9" and the elevator cage 7 with the elevator control 4. Obviously also the elevator sensors 30, 30', 30" of the elevator shaft, the recognition devices 90, 90', 90", call

input devices 91, 91', 91" and output devices 92, 92', 92" of the terminals 9, 9', 9" as well as the cage sensor of the elevator cage 7 can be connected with the elevator control 4 by way of a radio network.

5 **[0024]** The door signal indicates to the elevator control 4 a user's wish to use the elevator system. A door signal is sufficient for this purpose. For example, a door signal is communicated to the elevator control 4 as soon as the building door 2, 2', 2" is opened.

10 **[0025]** Figs. 3 and 4 show two forms of embodiment of a building door 2, 2', 2" with door sensor 20, 20', 20" for the elevator system. The door sensor 20, 20', 20" is integrated in the building door 2, 2', 2" and/or electronic door trim. For example, the door sensor 20, 20', 20" is integrated in the door hardware and thus dissimulated to be imperceptible by users from the outside. The door hardware comprises a door pawl and a deadbolt. When the building door 2, 2', 2" is closed the deadbolt is detented in a lock plate of a door frame. Through movement of the door pawl the deadbolt is released from the lock plate of the door frame and the building door 2, 2', 2" is opened. The door sensor 20, 20', 20" detects the movement of the door pawl, for example by means of an electromechanical contact. In a first contact setting the deadbolt is detented in the lock plate and in a second contact setting the deadbolt is released from the lock plate. Opening of the building door 2, 2', 2" thus corresponds with movement of the door 4 from a first contact setting to a second contact setting. Closing of the building door 2, 2', 2" thus corresponds with movement of the door pawl from a second contact setting to a first contact setting. The door sensor 20, 20', 20" detects this opening or closing of the building door 2, 2', 2" and communicates at least one door signal to the elevator control 4.

35 **[0026]** The electromechanical contact may be a magnet and a hall sensor. The magnet may be placed on the door pawl, the hall sensor may be placed next to the door pawl. It is also possible, to place the magnet on the door frame and to place the hall sensor on the door leaf. Opening and closing of the building door 2, 2', 2" changes the relative distance between the magnet and the hall sensor, resulting in a difference in the magnetic force from the magnet detected by the hall sensor. Detection of this difference in the magnetic force triggers release of a door signal by the hall sensor. The hall sensor is thus one exemplary embodiment of a door sensor. For a person skilled in the art, it is obviously also possible to arrange the door sensor outside a building door 2, 2', 2" or near a building door 2, 2', 2". Thus, the door sensor can be a movement recording device which is arranged in the door frame of the building door or in a building wall near the building door. Other embodiments of door sensors will be described more in detail in the description of the electronic door trim in connection with the Figs. 7 to 11.

50 **[0027]** In the form of embodiment of the building door 2, 2', 2" according to Fig. 4 at least one recognition device 90, 90', 90" is additionally integrated in the building door 2, 2', 2". The recognition device 90, 90', 90" comprises

a transmitting and receiving unit for an electromagnetic field and communicates by way of a radio frequency with at least one mobile call input device 10 provided with the user. The call input device 10 is, for example, a Radio Frequency Identification (RFID) card with at least one coil, at least one data memory and at least one processor. The radio frequency used by the transmitting and receiving unit is, for example, 125 kHz, and 13.56 MHz, 2.45 GHz, etc. The call input device 10 takes up, by way of its coil, inductive energy from the electromagnetic field of the recognition device 90, 90', 90" and is thus activated in terms of energy. The energy activation takes place automatically as soon as the call input device 10 is disposed in the range of the electromagnetic field from a few centimetres up to a metre. As soon as the recognition device 90, 90', 90" is activated in terms of energy the processor reads out an identification code which is filed in the data memory and which is transmitted by way of the coil to the recognition device 90, 90', 90". The energy activation of the coil input device 10 and the transmission of the identification code to the recognition device 90, 90', 90" are carried out contactless. The recognition device 90, 90', 90" receives the transmitted identification code by the receiving unit and electronically prepares it. For that purpose the recognition device 90, 90', 90" comprises at least one further data memory and at least one further processor. The transmitted identification code is recognised by the further processor in accordance with the recognition protocol. The recognised identification code is communicated to the elevator control as a user recognition signal.

[0028] Whereas in the form of embodiment of a building door 2, 2', 2" according to Fig. 3 only one door signal is communicated to the elevator control 4, in the form of embodiment of a building door 2, 2', 2" according to Fig. 4 the communication of a door signal and a user recognition signal to the elevator control 4 is carried out. On communication of only a door signal to the elevator control 4, the elevator control 4 defines the storey of the communicated door signal as start storey and actuates a start call for an elevator cage 7 on the start storey. A destination call, .e.g a destination call pre-defined for the start storey, is actuated by the elevator control 4. On additional communication of a user recognition signal to the elevator control 4 the elevator control 4 identifies the communicated user recognition signal. The elevator control 4 comprises for that purpose at least one user data memory and at least one computing processor. The computing processor identifies the communicated user recognition signal by a pre-defined destination call filed in the user data memory.

[0029] Figs. 5 and 6 show a retrofitted elevator system in a building. An existing elevator comprising like feature of the elevator in Fig. 1 is arranged in the building. For retrofitting the existing elevator, at least one door sensor 20, 20', 20" is installed in or near at least one building door 2, 2', 2" or the entire existing building door 2, 2', 2" is replaced by a building door 2, 2', 2" with an integrat-

ed door sensor 20, 20', 20". Further, for retrofitting the elevator, at least one control 4' is installed. The control 4' communicates with the door sensor 20, 20', 20" and the elevator control 4. The door sensor 20, 20', 20" detects opening of the building door 2, 2', 2" and communicates, for a detected opening of the building door 2, 2', 2", at least one door signal to the control 4'. The control 4' defines the storey 1, 1', 1" of the communicated door signal as start storey and actuates a start call for the elevator cage 7 to the start storey. For example, the control 4' is connected with at least one signal input of the elevator control 4 and actuates the start call by way of this signal input. Alternatively, it is obviously also possible to replace the former elevator control 4 by a new elevator control 4 according to the form of embodiment of Figs. 1 and 2, which new elevator control 4 fulfils the functions of the previous elevator control 4 and those of the control 4'.

[0030] Still further, for retrofitting the elevator, at least one recognition device 90, 90', 90" is installed in or near at least one existing building door 2, 2', 2" or the entire existing building door 2, 2', 2" is replaced by a building door 2, 2', 2" comprising an integrated recognition device 90, 90', 90". The recognition device 90, 90', 90" identifies the user and communicates, for an identified user, at least one user recognition signal to the control 4'. The control 4' actuates a pre-defined destination call, which is filed for the communicated user recognition signal, for the elevator cage 7 to a destination storey.

[0031] For retrofitting the existing elevator installation to an elevator system, at least one antenna 40 is installed. The door sensor 20, 20', 20" communicates at least one door signal by way of at least one radio network to the control 4' and/or the recognition device 90, 90', 90" communicates at least one user recognition signal to the control 4' by way of at least one radio network.

[0032] Also, for retrofitting the existing elevator to an elevator installation, at least one terminal 9, 9', 9" is arranged on each storey 1, 1', 1" in stationary position near an existing elevator door 3, 3', 3" and/or a terminal 9 is arranged in the elevator cage 7.

[0033] The components of the electronic door trim according to the invention and the interaction of these components are now described in more detail with reference to the block diagram shown in Fig. 11. The components that are particularly relevant for the invention and that generally are not present in a known electronic door trim (such as the PEGASYS system) are the Wireless Communication Unit, the Lock Bolt Sensor, the Inside Lever, and the Override Sensor. As an additional, optional feature, the Command Buttons may also be included in an electronic door trim according to the invention.

[0034] The Wireless Communication Unit wirelessly communicates with a Control System which sends commands to the door trim system and which gets reports about events at the door. The Wireless Communication Unit transmits commands and events by an encrypted wireless connection. The connection can be built by one

control system and many door systems. A user sensor detects a user in front of the door system. This may be done by detection of a credential close to a credential reader or by any other technical possibility to detect a user (Infrared reflective photo sensor). The credential reader reads credential data which may influence the decision of an electronic controller. The process of the credential reader's reading a credential corresponds to the recognition device 90, 90', 90" for the recognition of an identification code which has been previously described.

[0035] A Wakeup Circuit collects a wakeup signal from different sensors (arrowed dotted lines in the diagram of Fig. 11) to wake up the electronic controller. The Wakeup Circuit plays an important role to keep an energy consumption of the door system at a minimum.

[0036] The lock bolt sensor detects and represents the status of the deadbolt (locked or unlocked). The lock bolt sensor may be an electromechanical contact in the embodiment of a magnet and corresponding hall sensor, where the magnet on the retracted lockbolt magnetizes the hall sensor which triggers release of a door signal by the hall sensor. The lock bolt sensor may be an electric contact which is closed for a retracted lockbolt and open for an extended lockbolt. An open electric contact triggers release of a door signal.

[0037] The override sensor detects and represents the status of the mechanical key override (by turning a key in a mechanical locking cylinder). The override sensor may be an electric contact which is closed for no key in the mechanical locking cylinder and open for an inserted and turned key in the mechanical locking cylinder. An open electric contact triggers release of a door signal. If a protected door is opened by an override key, the override sensor will immediately forward and report this information to a monitoring and/or control unit for security reasons in order to prevent unauthorized opening of the door.

[0038] A clutching mechanism for the inside lever and the outside lever of the door allows a signal indicative of a movement of the inner and/or outer lever to be sent to the mechanical lock to open the door. The inner lever can trigger the wakeup circuit. A movement of the inner lever is reported to the electronics and/or a monitoring/control unit, particularly for security reasons in order to prevent unauthorized opening of the door and/or the leaving of the protected room by an unauthorized person. The clutching mechanism may be a microswitch which is activated or deactivated by a movement of the inner lever. For example, an activated microswitch triggers release of a door signal.

[0039] As an optional feature, command buttons may be represented by standard push buttons on the inner or outer side of any building door 2, 2', 2". These buttons may initiate commands to the electronic controller, or commands are sent by wireless communication to the control system, for example to initiate actions within a higher or super-ordinate communication system, e.g. initiating an alarm or calling a front door security service.

For example, an activated command button triggers release of a door signal.

[0040] The electronic door trim system operates wireless and therefore does not require extensive and complex cable wiring as required for prior art systems. For these reasons, the electronic door trim system operates more safely, reliable and secure and does not tend to fail. The electronic door trim system allows for the complete monitoring of a protected door, particularly with respect to opening and/or closing the door by authorized or non-authorized persons at authorized or non-authorized times. Besides, the system can determine whether a protected door after its opening is closed again, as required, or whether it stays open, for example by means of not permitted, irregular blocking means (such as a wedge pushed underneath the door).

[0041] Figs. 9a to 9d show the mounting of the wireless device with an adapter to the door trim. Fig. 10 is a perspective view of a door model within which the wireless functions of the electronic door trim system may be utilized.

Claims

1. An electronic door trim for controlling an unlocking and opening or locking and closing, respectively, of a door or a similar device, particularly a building door (2, 2', 2") in a building comprising an elevator system, for an authorized or non-authorized access to a protected area; wherein said electronic door trim comprises
 - a control system which sends commands to the door and which receives reports about events at the door;
 - a user sensor which detects a user in front of the door by detection of credential data, wherein the detected credential data influence the decision of an electronic controller; and
 - a wakeup circuit which collects a wakeup signal from different sensors to wake up the electronic controller.
2. The electronic door trim of claim 1, **characterized by**
 - a wireless communication unit which communicates with the control system and which transmits commands and events by an encrypted wireless connection;
 - a lock bolt sensor which detects and represents the locked or unlocked status of a deadbolt;
 - an override sensor which detects and represents the status of a mechanical override key;
 - an inside lever and an outside lever for the door; and
 - a clutching mechanism for the inside lever and the outside lever which sends the movement of

the inner and/or outer levers to the mechanical lock of the door to open the door.

- 3. The electronic door trim of claim 1 or claim 2, wherein the inner lever triggers the wakeup circuit. 5
- 4. The electronic door trim according to any one of the preceding claims, further comprising command buttons which initiate commands to the electronic controller or commands that are sent by wireless communication to the control system. 10
- 5. An elevator system in a building with at least two storeys (1, 1', 1"); at least one elevator door (3, 3', 3"); and at least one building door (2, 2', 2"); **characterized in that** 15

- the building door (2, 2', 2") comprises at least one door sensor (20, 20', 20") integrated in an electronic door trim according to any one of the preceding claims; 20
- the door sensor (20, 20', 20") detects opening and/or closing of the building door (2, 2', 2") and for a detected opening and/or closing of the building door (2, 2', 2") communicates at least one door signal to at least one elevator control (4); 25
- the elevator control (4) defines the storey (1, 1', 1") of the communicated door signal as start storey, 30
- the elevator control (4) actuates a start call for an elevator cage (7) to the start storey;
- at least one elevator sensor (30, 30', 30") detects the movement of the elevator cage (7) into the start storey; 35
- the elevator sensor (30, 30', 30") communicates, for a detected movement of the elevator cage (7) into the start storey, at least one elevator cage signal to the elevator control (4); and 40
- the elevator control (4), upon receipt of an elevator cage signal, opens the elevator door (3, 3', 3") of the start storey.

- 6. Building door (2, 2', 2") for use in an elevator system according to claim 5, **characterized in** 45 comprising at least one door sensor (20, 20', 20") integrated in an electronic door trim according to any one of claims 1 to 4 an **in that** said door sensor (20, 20', 20") is selected from a group consisting of: 50

an electromechanical contact of the building door (2, 2', 2"), wherein said electromechanical contact communicates a detention of a deadbolt in a lock plate and/or a release of a deadbolt from a lock plate as door signal to an electronic controller of the building door (2, 2', 2") 55

a credential reader of the building door (2, 2', 2"), wherein said credential reader communi-

cates a detection of a credential as door signal to an electronic controller of the building door (2, 2', 2")

an override sensor, wherein said override sensor communicates a status of a mechanical key override of the building door (2, 2', 2") as door signal to an electronic controller of the building door (2, 2', 2")

a lock bolt sensor, wherein said lock bolt sensor communicates a status of a deadbolt of the building door (2, 2', 2") as door signal to an electronic controller of the building door (2, 2', 2")

a clutching mechanism for an inside lever and an outside lever of the building door (2, 2', 2"), wherein said clutching mechanism communicates a movement of the inside and/or outside lever as door signal to an electronic controller of the building door (2, 2', 2")

an infrared reflective photo sensor, wherein said infrared reflective photo sensor communicates detection of a user in front of the building door (2, 2', 2") as door signal to an electronic controller of the building door (2, 2', 2")

a command button on the inner and/or outer side of the building door (2, 2', 2"),

wherein said command button communicates activation of the command button as door signal to an electronic controller of the building door (2, 2', 2").

- 7. Building door according to claim 6 in an elevator system according to claim 5, **characterized in that** the door sensor (20, 20', 20") communicates at least one door signal to the elevator control (4) or the control (4') by way of at least one radio network and/or that the door sensor (20, 20', 20") communicates at least one door signal to the wakeup circuit of the building door (2, 2', 2"); that the wakeup circuit collects the door signal as wakeup signal and communicates the wakeup signal to an electronic controller of the building door (2, 2', 2"); and that the electronic controller wakes up for a received wakeup signal
- and/or that the door sensor (20, 20', 20") communicates at least one door signal to an electronic controller of the building door (2, 2', 2"); that the electronic controller communicates the door signal to a wireless communication unit of the building door (2, 2', 2"); and that the wireless communication unit communicates a door signal to the elevator control (4) or the control (4') by way of at least one radio network.

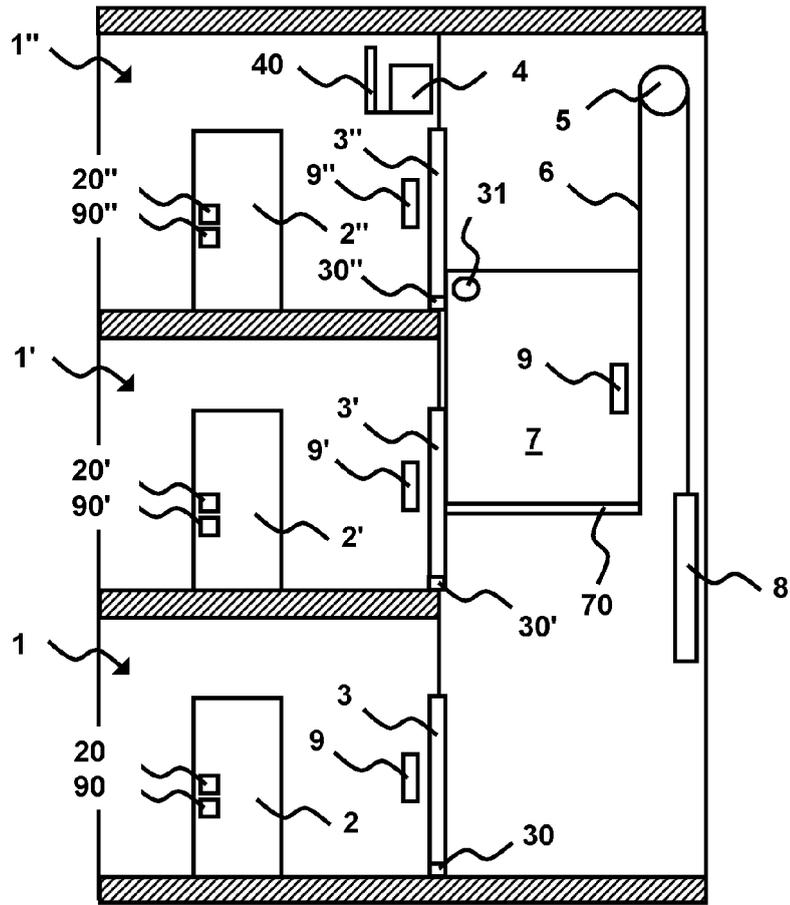


Fig. 1

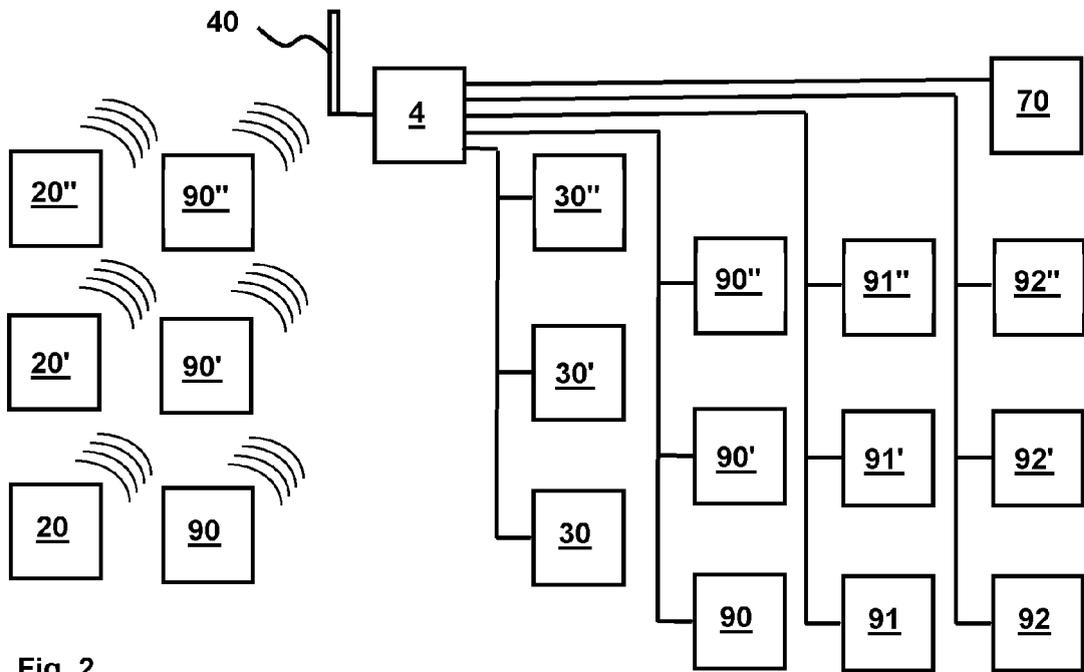


Fig. 2

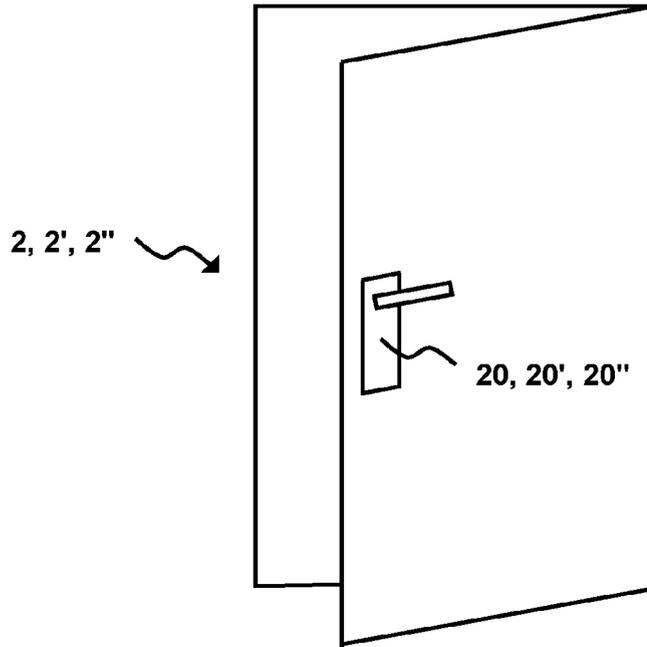


Fig. 3

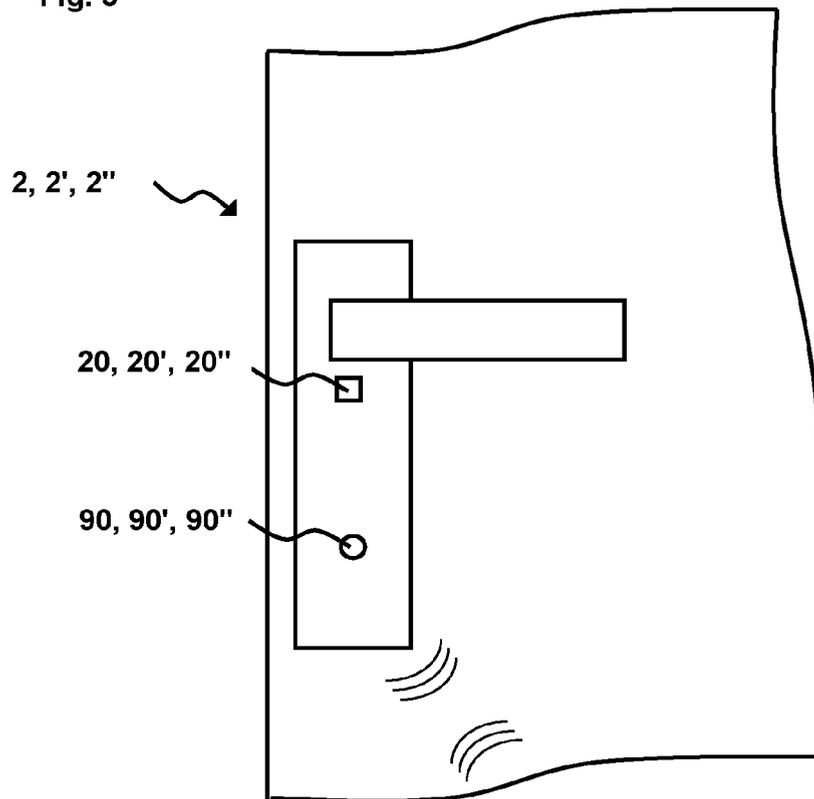
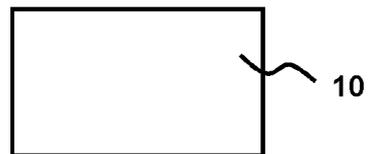


Fig. 4



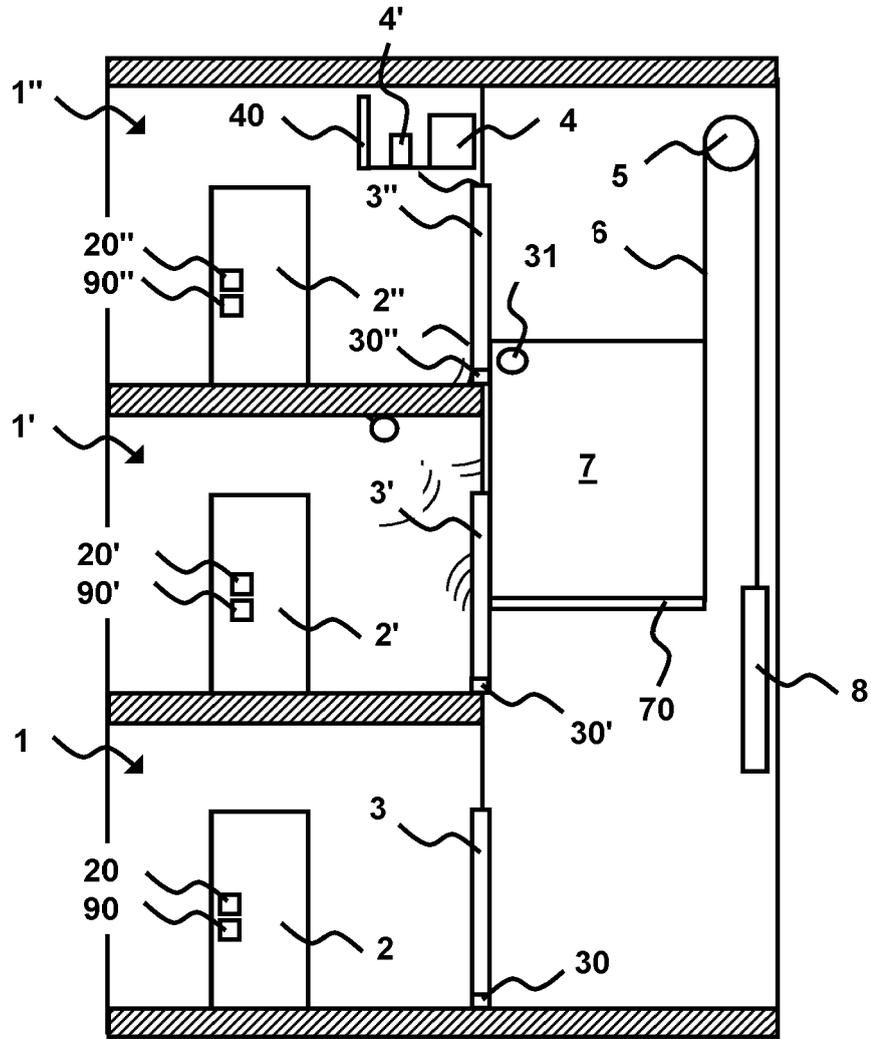


Fig. 5

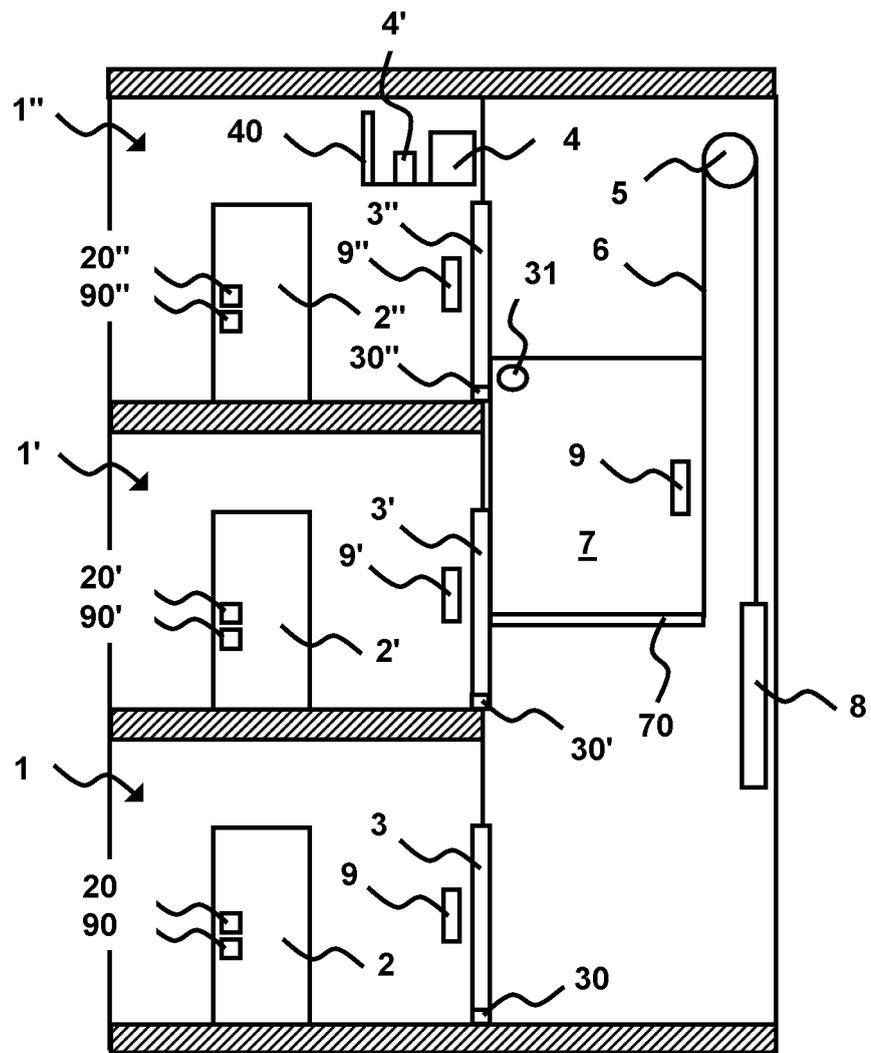


Fig. 6

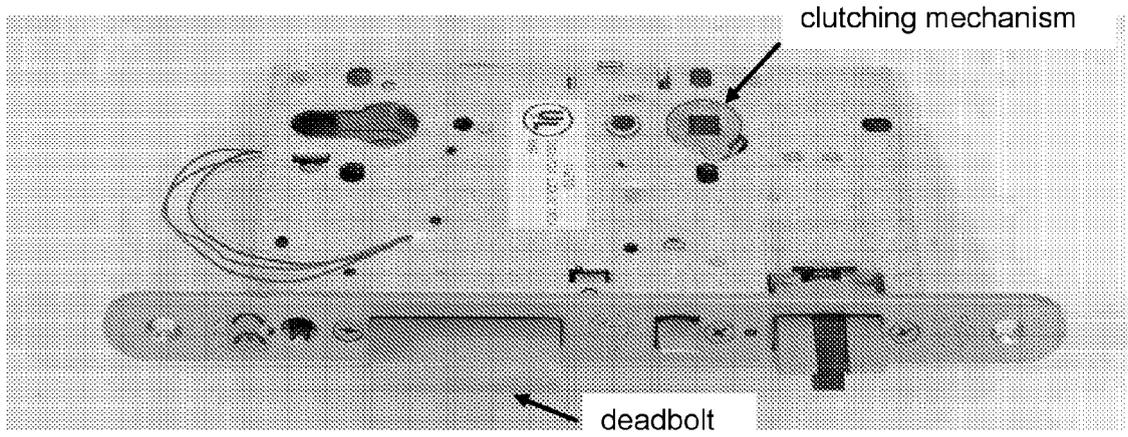


Fig. 7

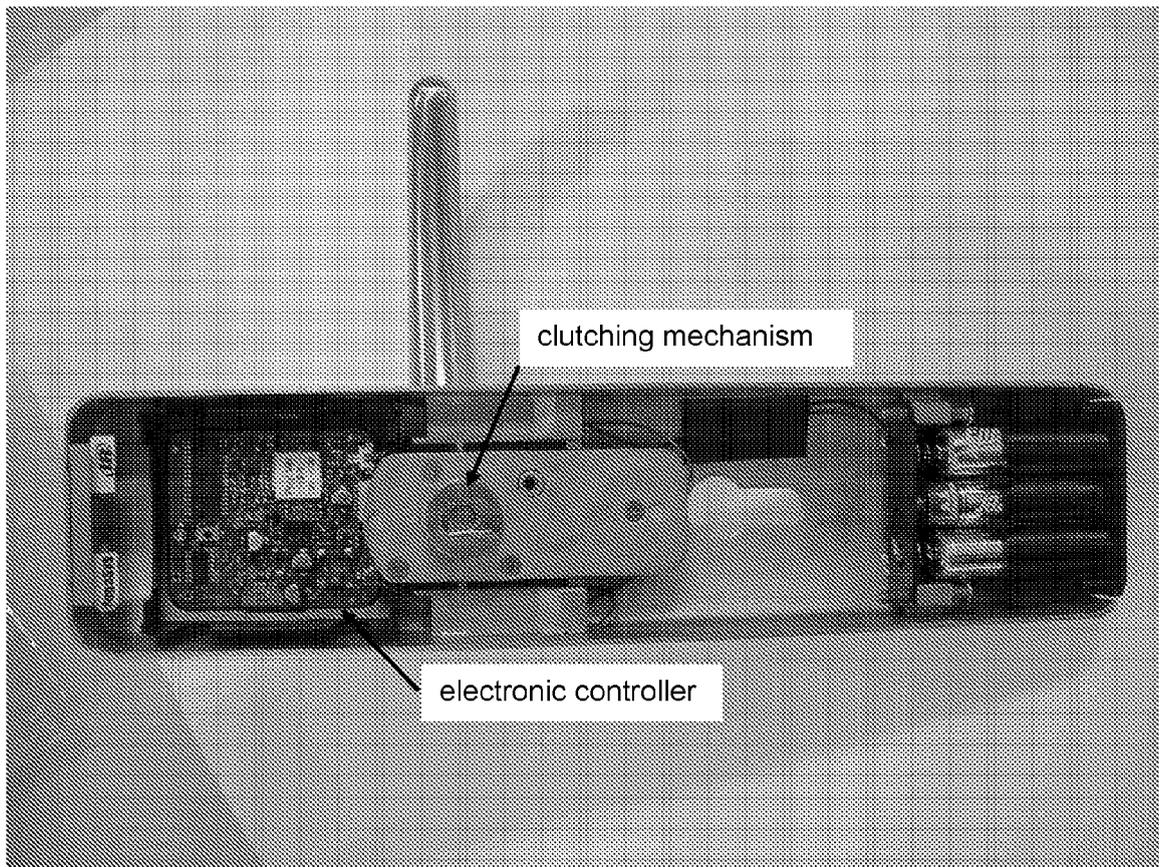


Fig. 8

Pegasys trim keyboard adapter without PZ

(new keyboard adapter (Version 1), X-Bee-module with key, electronic cover and two openings ...

mounting of the adapter

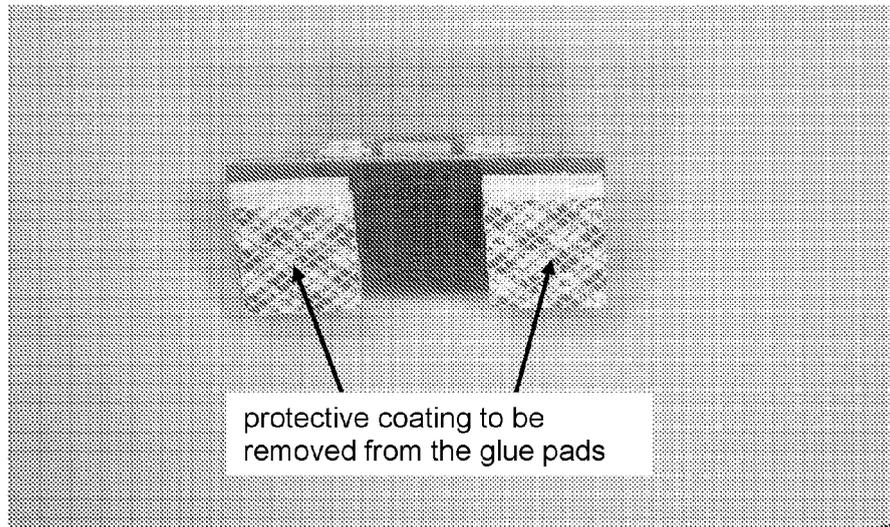


Fig. 9

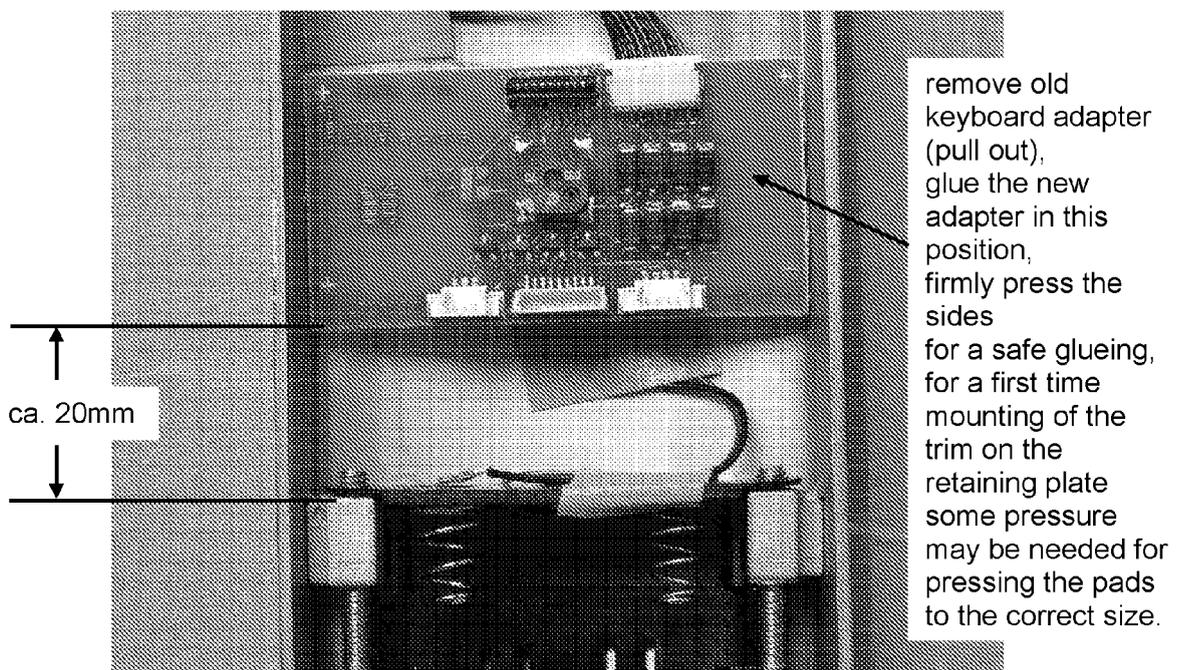


Fig. 9a

adapter connections

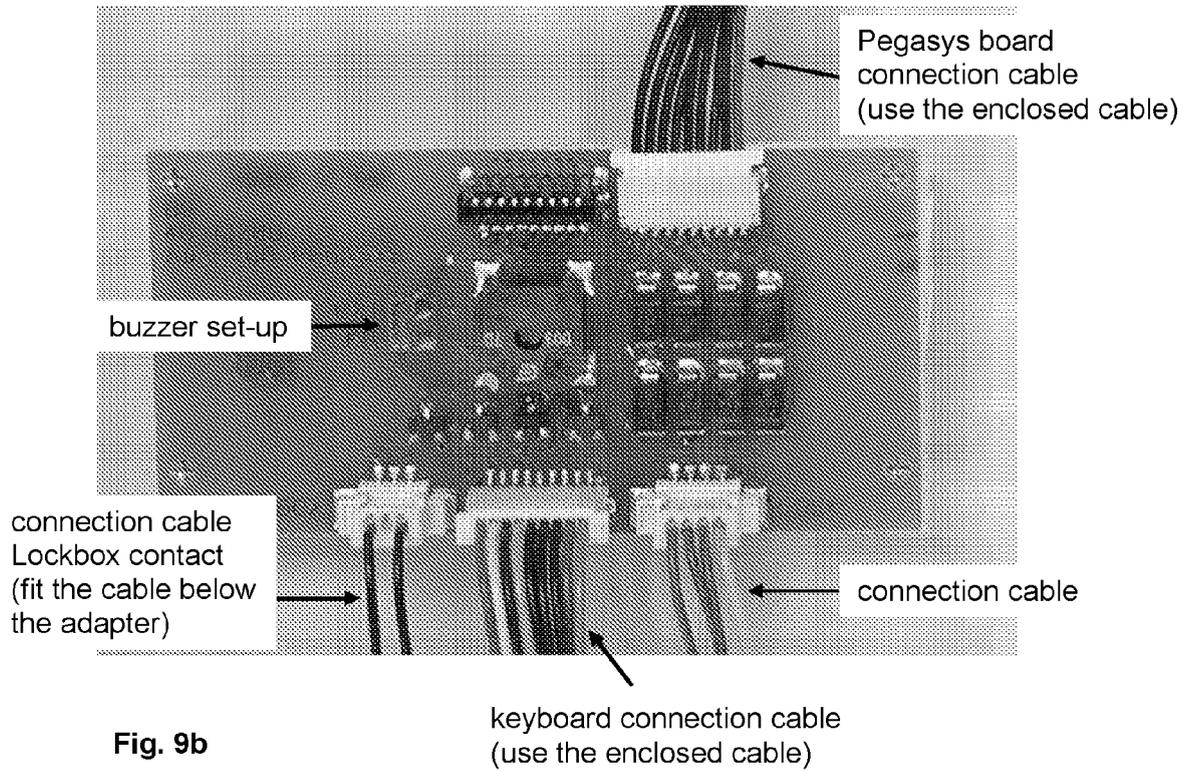


Fig. 9b

attention !

buzzer set-up :

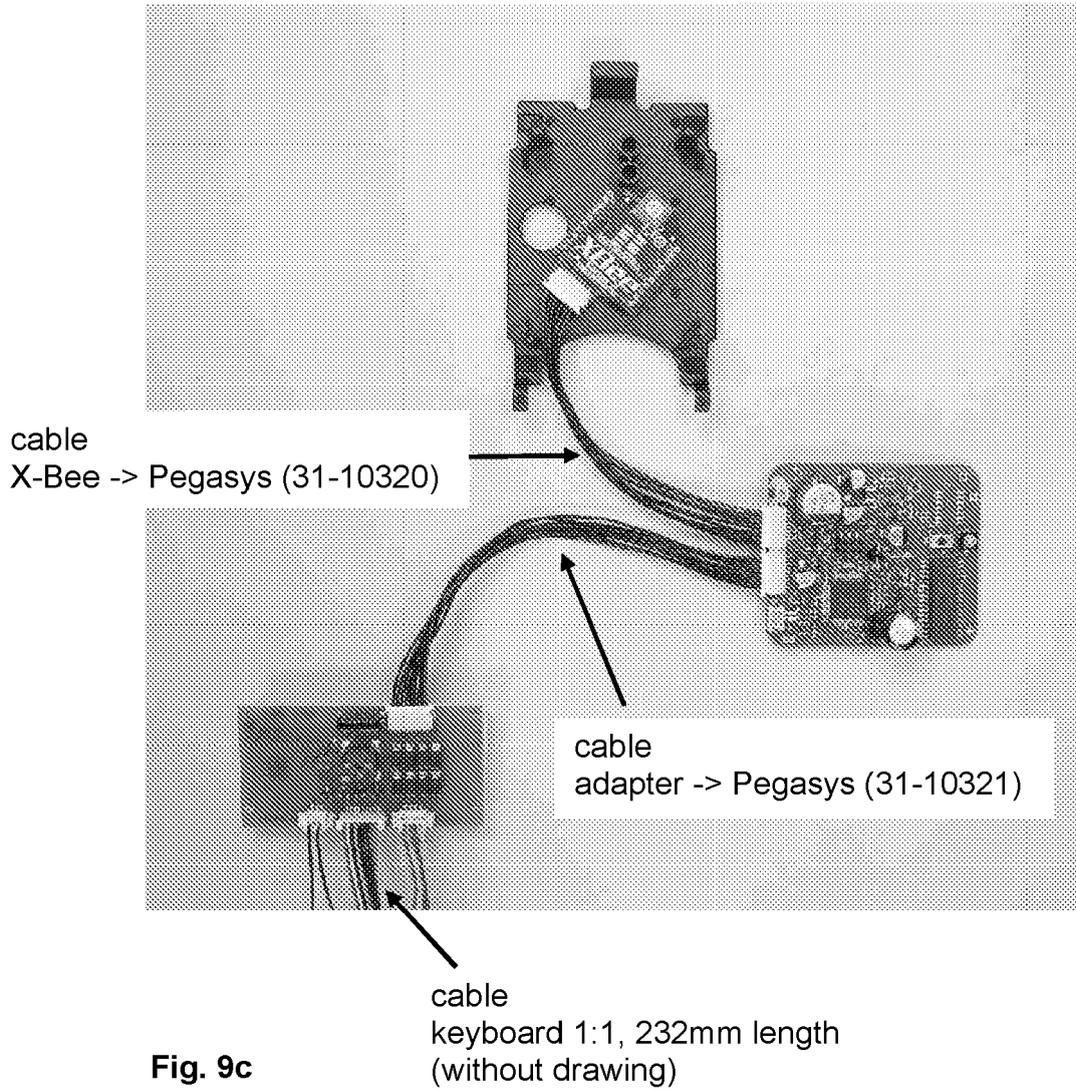
bridge "EXT" closed: Pegasys buzzer activated

bridge "INT" closed: adapter board buzzer activated

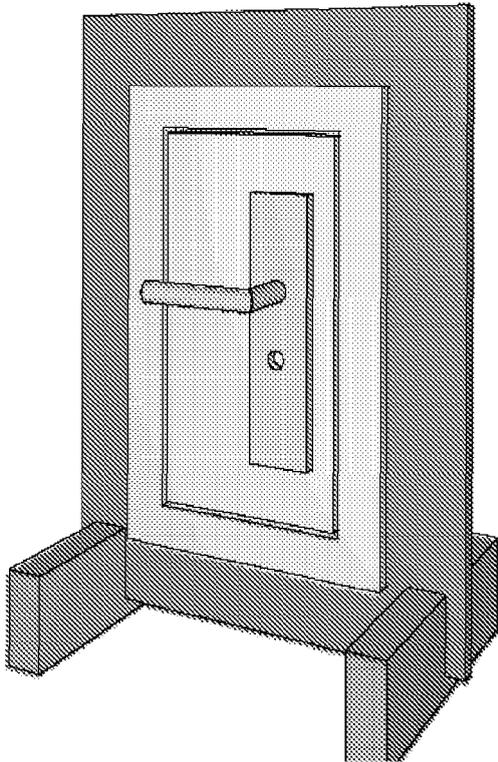
(attention !! the 0 Ohm resistance on the Pegasys board must be removed, otherwise both buzzers are activated)

in any case only one bridge must be closed !!!

overview of the cable-connections



front perspective view



back perspective view

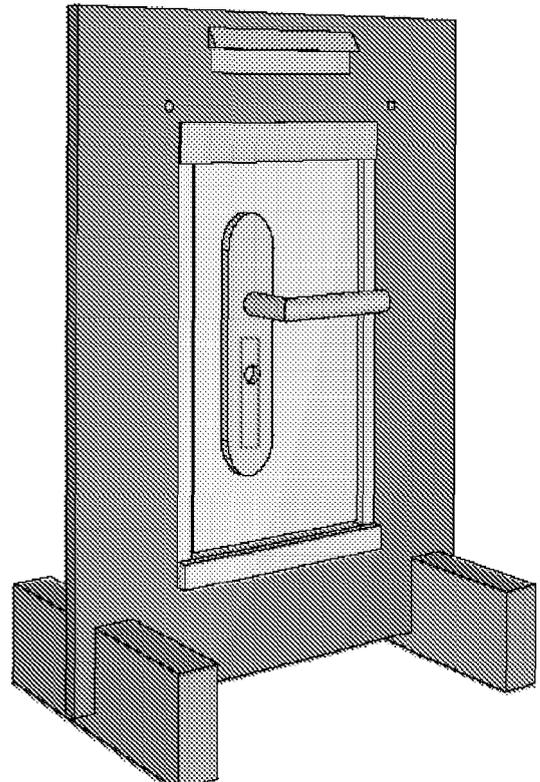


Fig. 10

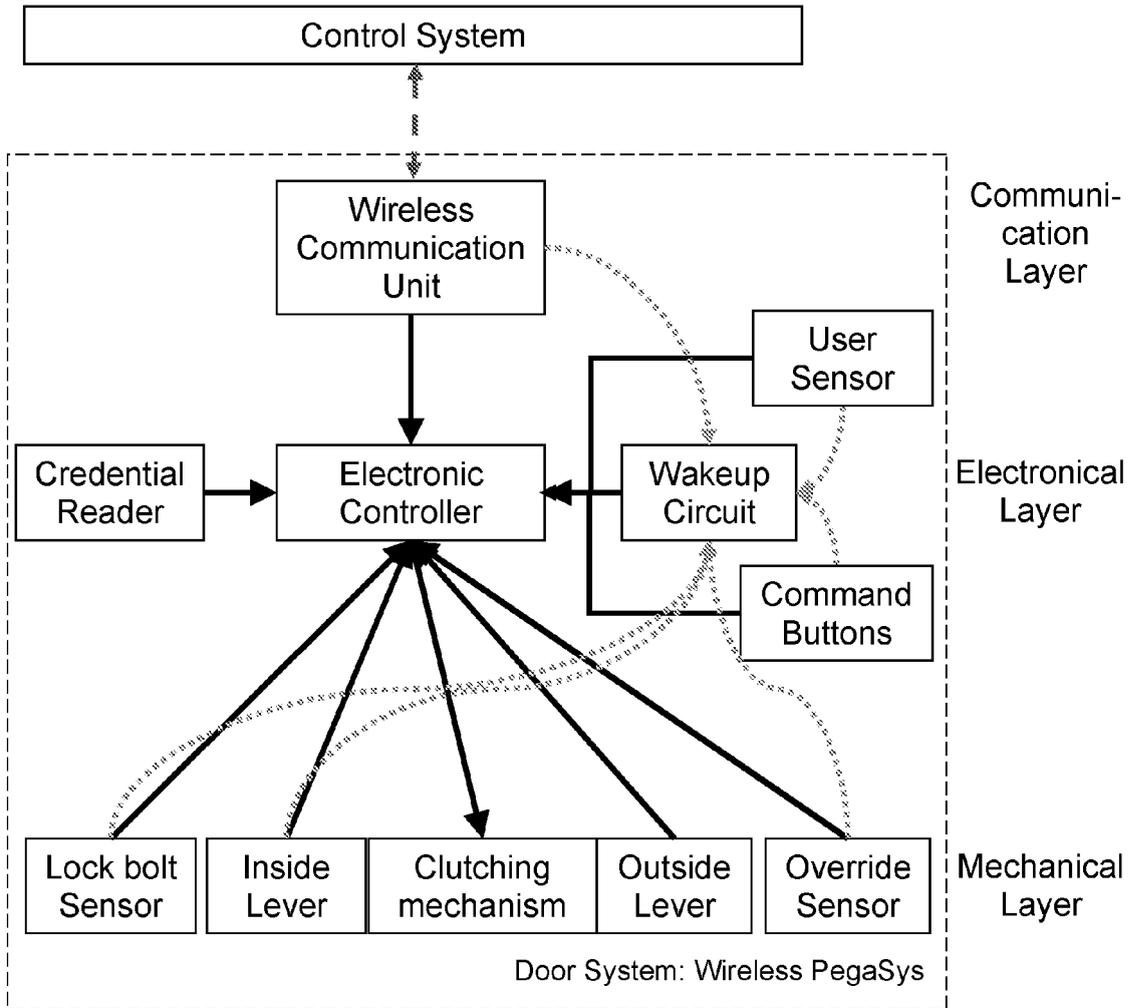


Fig. 11