Description

This invention relates to a method and system for checking a user of the modem communications that are carried out by using a line (wired or wireless).

The conventional procedure when using a database, for example, is carried out as follows. The host computer in the database center is connected to each user's computer through modem and telephone line. Permission for using the database is given after checking user code and password, previously registered in the center. Use of the database is charged based on the procedure above.

In such a system the use of database is checked by user code and password only, illegal use of the system cannot be prevented when a person, aware of the password, etc. by any means, commits illegal access. To protect the system from such unauthorized use, a call-back system is proposed in the U.S.A. According to this system, the center side checks user code and password and then the telephone line is cut off. After that, the center calls the user and checks if receiving is enabled.

However, illegal use may still occur with this system because the user is connected to the host computer if the user receives the call from the center. Therefore, the proposed method is not completely satisfactory for checking the user.

In the article "Custom Modems Fit Specific Applications" by J. Dieudonné et al published in "Data Communications" vol. 14, No. 12, November 1985 pp. 203-214 a method for confirming the user in modem communications is described in which after receipt of a telephone call from a user the host side modem disconnects, determines the telephone number from a list stored in the secure modem's memory and then calls back the user and connects to main computer.

It is an object of the present invention to identify authorized user in such a way as to overcome the above problems with prior art systems.

According to the present invention the object may be solved by a method for checking user in modem communications, in which the user is checked in a host side modem with the modem disconnected from a processing unit and after completion of checking and independent of the user, the host side modem activates the processing unit, **characterized in that,** the user is again checked between the host side modem and the processing unit and communications between the user and host are possible only after checking of the user is satisfactorily completed between the host side modem and the processing unit.

The object is also solved by a user check system for modem communications comprising a processing unit, a host side modem, a first connecting means for connecting the host side modem to the processing unit, a user side modem and a second connecting means for connecting the user side modem to the host side modem and the host side modem having means for checking the user through communications with the user side modem, **characterized by,** the processing unit having means for checking the user through communications with the host side modem.

According to the invention a line is connected between the host side modem and the user side modem, while the host side modem checks a user. After completion of checking, the host side modem connects the line in the processing unit. The host side modem and the processing unit cooperate to check the user again. When this checking is completed, the user is connected to the host establishing communications between them.

A further modification to the method according to the invention is described in the following. When a user(sending or calling side)applies to use a database (call 1), etc. to the host (receiving or response side) through wired or wireless line 3 while completing a connection (first connection), a user number is set in the host side modem 2 (number setting). Host side modem 2 stores the set number in memory unit 6. After completion of setting, the line is disconnected (cut-off 1).

The user is then called (call 2) from the host side and when line 3 is connected (second connection), host side modem 2 checks user side modem 4. After completion of checking, keyword is sent from host side modem 2 to the user side modem 4 (keyword setting). User side modem 4 stores the keyword in memory unit 7. After receiving, the line is disconnected (cut-off 2).

Another call is sent from the user side to the host side (call 3). When the line is connected with line 3 (third connection), host side modem 2 checks the user and, upon completion of checking, the keyword stored in the user side modem is transmitted from the user side to the host side (keyword transmission) by the third connection. This keyword is compared with the keyword set by host side modem 2. Only when both keywords agree, processing unit 1 compares the entered password and the normal password registered in the memory unit 8 in advance. Only when both passwords agree, communications are enabled.

Among said first through third calls and said first through second cutoffs, the second cutoff and the third call can be omitted. At that time, a keyword is set from the host side modem to the user side modem, upon the first call. Then said third call is activated upon said second call. In this

case, however, the accuracy for checking user, by means of the first and third calls, becomes slightly inferior.

The user check system for carrying out the modified method is described as follows. This system is provided with a processing unit, a host side modem connectable to the processing unit and a user side modem connectable to said host side modem, while said host side modem being capable to check user and said processing unit having a function to check again the user who was already checked by the host side modem, in cooperation with the host side modem. In addition, this system is provided with host side modem 2 connected to processing unit 1 and user side modem 4. Both modems 2 and 4 are connectable through wireless line 3. Said user side modem 4 comprises a signal generator 7a, demodulator 7b for receiving keyword sent from the host side modem and a memory unit 7c. Said host side modem 2 comprises a demodulator 6b for receiving number setting sent from user side modem 4, set number memory unit 6c, a signal generator 6a and a user check unit that is activated when the second connection is completed. Thereby, this second method can compare keywords. Modem 2 contains a check unit for confirming the user when the third connection is established. Processing unit 1 is provided with a memory unit 8 for legal password together with password comparing function.

These and other objects and features of the present invention will be described with reference to the drawings, in which:

Fig. 1 shows the procedure for connecting a database illegal use preventive system and associated operations.

Fig. 2 is a flow chart.

Fig. 3 describes a system where a number of modems are connected to a host computer.

Fig. 4 indicates the example of a control signal format with several modems connected.

Fig. 5 denotes an example of the system using the adapter.

Fig. 6 shows the procedure for connecting an exemplary system applied to the automatic answering telephone system together with related operations.

An embodiment of the present invention, namely method for preventing illegal use of database and its application to a preventive system, is described referring to related drawings.

Referring to Fig. 1, host side modem 2 is connected to host computer 1, the processing unit of the database center. This modem is connectable to user side modem 4 through telephone line 3. User computer 5 can perform computer communications through these modems 4, 2.

Each modem 2 or 4 comprises DTMF signal generators, 6a, 7a, modems 6b, 7b and memory circuits 6c, 7c. Modem 2 contains a check unit for examining illegal use of modem 4. In addition, memory unit 8 of host computer 1 previously registers the telephone number of the database. Thereby, password, entered occasionally from external user, can be compared.

Next, application to the present invention and its system operation are described with an example where only 1 host side modem 2 is connected to host computer 1 as shown in Figs. 1 and 2.

A user, for using the database, first calls via telephone (call 1) for applying to the database center through telephone line 3 by means of modem 4. When the lines of both modems 4, 2 are connected (first connection), user's telephone number (for example *1234567*) is transmitted to host side modem 2 by the DTMF signal from signal generator circuit 7a, while being registered in memory circuit 6c of modem 4 via modem circuit 6b (telephone number setting). After completion of setting the number, the line is disconnected (cutoff 1) from the host side.

"*" is attached to notify a number setting to host side modem 2.

Then host side modem 2 sends to previously set telephone number (call 2) and, when the lines of both modems are connected (second connection), user side modem 4 is checked by the check circuit in host side modem 2 at this stage. Check items, operated in the above, include for example whether the modem used by the user is legal (a modem assigned by the center), communicatable or not and, even if communicatable, whether the call is a transfer call or not. Normality of the modem is checked by the type of response signal when connected by DTMF signal, response time and timing. With a normal modem, the keyword based on DTMF signal is sent from host side modem 2 to user side modem 4 by signal generator circuit 6a (keyword setting) provided that the number of calling signal ringings is within specified limit and the user immediately replies after completion of connection. User side modem 4, in the receiving side, demodulates the keyword by DTMF signal demodulator circuit 7b and stores in memory circuit 7c. After receiving, the line is disconnected (cutoff 2).

In continuation, the user side sends telephone call again (call 3), thereby the line between modems 2, 4 is connected (third connection). At this stage of connection, the host side sends a signal to the user side modem by using a check circuit built in host side modem 2, for checking the result of the response signal to confirm the user. After completion of confirming, the keyword stored in user side modem 4 (for example, #102468#) is

sent by the DTMF signal from circuit 7a (keyword transmission).

"#" is attached to notify keyword returning, to host side modem 2.

Host side modem 2 demodulates the keyword sent from the user side by means of circuit 6b and compares this with the keyword sent previously in setting keyword (keyword compare). With both keywords agreed, the host computer is activated (H.S enable) through CI terminal of the interface (RS232C) of host computer 1. In addition, there are other methods available, not based on the CI signal.

Host computer 1 immediately enquires password to host side modem 2, from the TXD terminal of RS232C (password request).

Host side modem 2, on the other hand, sends a password (user's telephone number) previously registered by the first connection, to the host computer regardless of user side. This password is entered in host computer 1 from terminal RXD of RS232C. Then host computer 1 compares this password with the user's telephone number regularly registered in memory unit 8 in advance (password compare) and, only when both agree, activates the status of use for the database. The user can now use the preferred database.

Check functions for the foregoing system are described in the following.

The first check is that, after completion of setting a number, line 3 is cut off while calling the user from host side modem 2. Thus, the line between the modems is not connected to an illegal user.

According to the second check, legality of the user is checked by the check circuit of host side modem 2 when the second connection is completed.

The third check is that a keyword is set from host side modem 2 to user side modem 4 while dealing with the number in the first connection as a tentative one, instead of the final.

In the fourth check, legality of the user is confirmed by issuing a response signal from host side modem 2 to user side modem 4 at the stage of the third connection.

The fifth check is done referring to time delay of sending the keyword from the user side to host side modem 2, etc.

The sixth check is to compare keywords in host side modem 2. Set number in the first connection is only tentative, while the real keyword is sent from the host side modem. By comparing these keywords, check function can be enhanced.

The seventh check is a comparison of password.

Where an illegal user employs a modem assigned by the center in advance, the user cannot be checked in the first through sixth checks According to the seventh check, passwords do not agree unless the telephone number in user side is used, thereby preventing illegal uses in entirely.

In the foregoing example, the description is given assuming a modem in the host side. In fact, a number of modems are used for communications with database, etc.

Now, another case, with a number of modems connected to host computer 1, is described in the following.

At this time, normally one telephone number is used in the host side center, while distributing to several modems through an exchange. In addition, the connection between modems 2, 4 is temporarily cut off. Therefore, it does not always occur that the user is connected to the same modem in the first and third connections, as modem 2. When each modem originally generates a keyword, the same keyword may possibly be used by a couple of modems, disabling keyword comparison.

According to the present invention, an external controller 9 is connected to each modem 2 in the host side (M1, M2, M3, --- Mn), as shown in Fig. 3, for communications and controls between each modem. This controller is connected parallel to each modem.

The functions of controller 9 include instruction for send request timing to each modem, generation of keyword, storing of telephone number accepted by each modem and keyword and their transmission/receiving. Transmission/receiving, between controller 9 and each modem, is enabled using serial data. TXD and RXD, for communications between controller 9 and modems, can be commonly used by selecting lines TXD and RXD of RS232C.

Various types of data transmitting/receiving formats can be used. An example is described as follows assuming a configuration of Fig. 4, for the detailed operations of modem and controller.

First, operations in the modem side are mainly described.

Each modem 2 (M1, M2, M3 --- Mn) stores own modem number to discriminate arriving request. The modem can recognize this modem number by means of builtin DIP switch, etc. When the modem is used singly, the DIP switch is to be set to 0. With N modems simultaneously in use, the switch of each modem is to be set to 1, 2, 3, --- N.

When a telephone number ("1234567") is sent user to host side modem 2 at the first connection shown in Fig. 1, host side modems 1 - N, connected for the first connection, demodulate the set number based on the DTMF signal and store in memory unit 6 in the modems. At that time, if N reserve numbers are already stored in controller 9

as shown in Fig. 4, reserve unable signal is sent from the controller side, while rejecting reserve.

In the reserve receivable state, the modem cuts off telephone line 3 (cutoff 1) and, when modem select data 1 - N, always sent from controller 9, agrees with own modem number, keyword request signal is generated to the controller while receiving a keyword from the controller. Then, the modem calls the set number (telephone number), sent from the user before (call 2). With telephone line 3 connected, the keyword is sent to modem 4 in the user side. After the line is disconnected (cutoff 2), modem 2 sends the keyword and the telephone number to controller 9 when the modem select data agrees with the own modem number. The controller stores these as a pair of data.

When the keyword (#102468#) is returned by third connection, modem 2 receives and stores the telephone number corresponding to the keyword sent from the user based on the DTMF signal, from the controller. At that time, the keyword and the telephone number are always sent from controller 9.

After the above, modem 2 sends the keyword to the controller when modem select data, sent from the controller, agrees with the own value. Thus, the controller erases the keyword and respective telephone number from the memory unit in the controller.

Thereafter, the modem turns ON the CI signal of RS232C and enables host computer 1.

Next, the operation of controller 9 is described. The controller always transmits data in the memory (modem select data, keyword, telephone number) 1 - N to the TXD line. When a keyword, sent from the modem, is found in the RXD line, the keyword and respective telephone number are deleted.

Reserve unable signal is sent to the TXD line when the number of keywords stored in the controller becomes the same as the number of modems, namely N.

The controller creates a keyword according to the request of modem. However, keywords already used in the memory are not used (generated). When reservation (number setting) is carried out with the same telephone number, the number is stored as a pair of the latest keyword.

The functions required for the foregoing modem and controller can be realized by using the technology known in the state of the art such as one chip microcomputer.

In the foregoing embodiment of the present invention, the modem used in the user side is assumed to contain DTMF signal generator 7a, DTMF signal modem circuit 7b and memory circuit 7c in the modem. However, with a pushphone telephone line in use, DTMF signal can be sent from the button of pushphone. Therefore, an existing modem device can apply only by adding a demodulator circuit in the adapter system, that is used as a modem circuit for the dial line. Consequently, no modification is required in the host computer program, thereby easily connectable to an existing modem communication system. Referring to Fig. 5, existing modem 4a and adapter 10 become user side modem 4 at that time. This adapter 10 is provided with a signal generator 7a, demodulator 7b and memory circuit 7c.

It is also possible to carry out number setting, keyword transmission and return directly by modem communications instead of DTMF signal. However, it is more preferable to use DTMF in view of limiting users.

With the foregoing embodiment, host side modem 2 also checks the user in the third connection as well as the second one. In addition, the modem confirms the keyword when it is transmitted from the user side to the host side modem. Therefore, the safety of communication can be further enhanced.

Furthermore, the controller is connected parallel to each modem, which allows to greatly increase the number of registered users than conventional callback system.

The present invention can also apply to the automatic answering telephone system because access to telephone content stored in the telephone set requires the confirmation for the particular user.

Another embodiment of the present invention, to be described in the following referring to Fig. 6, relates to the automatic answering telephone system.

This embodiment contains a processing unit 1 in automatic answering telephone set 2, that can compare passwords. Receiver 111 of telephone set 11 can be connected to receiving coupler unit 41 of automatic answering telephone controller 4 and sending coupler unit 42. Other components and configuration are substantially the same as the foregoing embodiment, while being illustrated with identical symbols for corresponding elements.

The present invention can also apply to other systems including the home automation system where external control can activate bath water heating and key locking, home banking system, Computer stock exchange, as a security system.

Where the present invention applies to the home automation system, host side modem 2 and processing unit 1 are built in the home telephone set. Or an adapter, containing these devices, is connected to the telephone set, while the user carries portable modem 4 which is connected to an external telephone set for use. Thereby, the home telephone set can completely check the user himself. Therefore, error operation for the home auto-

mation system, caused by illegal instruction, can be prevented completely ensuring absolute safety.

According to the present invention as described above, legality of the user can be completely confirmed. Accordingly, where the present invention applies to the illegal use preventive system for database for example, better preventing effect is assured than conventional callback system. Both database center and user can maintain safe communications. In addition, higher safety is ensured with, for example, the home automation system.

Claims

1. A method for checking a user in modem communications, in which the user is checked in a host side modem (2) with the modem disconnected from a processing unit (1) and after completion of checking, and independent of the user, the host side modem (2) activates the processing unit (1),

   characterized in that,

   the user is again checked between the host side modem (2) and the processing unit (1) and communications between the user and host are possible only after checking of the user is satisfactorily completed between the host side modem (2) and the processing unit (1).

2. The method for checking a user in modem communications of claim 1, in which a first connection means in line is connected by a call from the user,

   a user number setting means (6b) is operated by the user side modem (4) after completion of establishing the connection,

   a cutoff means is provided to disconnect the first connection,

   a second connection means in line is activated by a call sent from host side modem (2) to user side modem (4),

   a first user check means for confirming the user is provided in the host side modem (2) and used when the second connection means is activated,

   a keyword setting means (6a) is operated from the host side modem (2) to the user side modem (4) after the user being confirmed,

   a cutoff means is provided to disconnect the second connection means after completion of the keyword setting means (6a),

   a third connection means is activated from the user side to the host side,

   a keyword sending means (7a) is operated from the user side modem (4) to the host side modem (2), a keyword comparing means is operated in the host side modem and a password comparing means is operated by entering a set number that was already entered in the host side modem (2) by the first connection means, when the keyword is correct.

3. The method for checking a user in modem communications of claim 2, comprising a second user check means to be operated by the host side modem (2) when the third connection means is activated and a third user check means to be operated by the host side modem (2) when the keyword is transmitted after the confirmation by the first user check means is satisfactorily completed.

4. A user check system for modem communications comprising a processing unit (1), a host side modem (2), a first connecting means (12) for connecting the host side modem (2) to the processing unit, a user side modem (4) and a second connecting means (3) for connecting the user side modem (4) to the host side modem (2) and the host side modem (2) having means for checking the user through communications with the user side modem (4),

   characterized by,

   the processing unit (1) having means for checking the user through communications with the host side modem (2).

5. The user check system for modem communications of claim 4, in which the host and user side modems (2, 4) are arranged to be connectable to each other through a line, the user side modem (4) comprises a first signal generator (7a), a first demodulating unit (7b) for receiving a keyword sent from the host side modem (2) and a memory (7c) unit, the host side modem (2) comprises a second demodulating unit (6b) for receiving a set number sent from the user side modem (4) and a set-number memory (6c), a second signal generator (6a) and a check unit for confirming the user when the second connecting means is activated thus enabling keyword comparing function, and the processing unit (1) comprises a password memory unit (8) and a password comparing functional means.

Patentansprüche

1. Verfahren zum Überprüfen eines Benutzers bei der Modem-Kommunikation, bei dem der Benutzer in einem Modem 2 auf der Host-Seite überprüft wird, wobei das Modem von einer Verarbeitungseinheit (1) getrennt ist, und nach Abschluß einer Überprüfung und unabhängig

mation system, caused by illegal instruction, can be prevented completely ensuring absolute safety.

According to the present invention as described above, legality of the user can be completely confirmed. Accordingly, where the present invention applies to the illegal use preventive system for database for example, better preventing effect is assured than conventional callback system. Both database center and user can maintain safe communications. In addition, higher safety is ensured with, for example, the home automation system.

Claims

1. A method for checking a user in modem communications, in which the user is checked in a host side modem (2) with the modem disconnected from a processing unit (1) and after completion of checking, and independent of the user, the host side modem (2) activates the processing unit (1),

   characterized in that,

   the user is again checked between the host side modem (2) and the processing unit (1) and communications between the user and host are possible only after checking of the user is satisfactorily completed between the host side modem (2) and the processing unit (1).

2. The method for checking a user in modem communications of claim 1, in which a first connection means in line is connected by a call from the user,

   a user number setting means (6b) is operated by the user side modem (4) after completion of establishing the connection,

   a cutoff means is provided to disconnect the first connection,

   a second connection means in line is activated by a call sent from host side modem (2) to user side modem (4),

   a first user check means for confirming the user is provided in the host side modem (2) and used when the second connection means is activated,

   a keyword setting means (6a) is operated from the host side modem (2) to the user side modem (4) after the user being confirmed,

   a cutoff means is provided to disconnect the second connection means after completion of the keyword setting means (6a),

   a third connection means is activated from the user side to the host side,

   a keyword sending means (7a) is operated from the user side modem (4) to the host side modem (2), a keyword comparing means is operated in the host side modem and a password comparing means is operated by entering a set number that was already entered in the host side modem (2) by the first connection means, when the keyword is correct.

3. The method for checking a user in modem communications of claim 2, comprising a second user check means to be operated by the host side modem (2) when the third connection means is activated and a third user check means to be operated by the host side modem (2) when the keyword is transmitted after the confirmation by the first user check means is satisfactorily completed.

4. A user check system for modem communications comprising a processing unit (1), a host side modem (2), a first connecting means (12) for connecting the host side modem (2) to the processing unit, a user side modem (4) and a second connecting means (3) for connecting the user side modem (4) to the host side modem (2) and the host side modem (2) having means for checking the user through communications with the user side modem (4),

   characterized by,

   the processing unit (1) having means for checking the user through communications with the host side modem (2).

5. The user check system for modem communications of claim 4, in which the host and user side modems (2, 4) are arranged to be connectable to each other through a line, the user side modem (4) comprises a first signal generator (7a), a first demodulating unit (7b) for receiving a keyword sent from the host side modem (2) and a memory (7c) unit, the host side modem (2) comprises a second demodulating unit (6b) for receiving a set number sent from the user side modem (4) and a set-number memory (6c), a second signal generator (6a) and a check unit for confirming the user when the second connecting means is activated thus enabling keyword comparing function, and the processing unit (1) comprises a password memory unit (8) and a password comparing functional means.

Patentansprüche

1. Verfahren zum Überprüfen eines Benutzers bei der Modem-Kommunikation, bei dem der Benutzer in einem Modem 2 auf der Host-Seite überprüft wird, wobei das Modem von einer Verarbeitungseinheit (1) getrennt ist, und nach Abschluß einer Überprüfung und unabhängig

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von dem Benutzer das Modem (2) auf der Host-Seite die Verarbeitungseinheit (1) aktiviert,
dadurch **gekennzeichnet,** daß
der Benutzer zwischen dem Modem (2) auf der Host-Seite und der Verarbeitungseinheit (1) nochmals überprüft wird und eine Kommunikation zwischen dem Benutzer und einem Host nur dann möglich wird, nachdem eine Überprüfung des Benutzers zwischen dem Modem (2) auf der Host-Seite und der Verarbeitungseinheit (1) zufriedenstellend abgeschlossen ist.

2. Verfahren zum Überprüfen eines Benutzers in der Modem-Kommunikation nach Anspruch 1, dadurch gekennzeichnet, daß eine erste Verbindungseinrichtung in einer Leitung durch einen Anruf von dem Benutzer verbunden wird,
eine Benutzernummer-Einstelleinrichtung (6b) durch das Modem (4) auf der Benutzerseite betrieben wird, nachdem die Herstellung der Verbindung abgeschlossen ist,
eine Unterbrechungseinrichtung vorgesehen ist, um die erste Verbindung zu unterbrechen;
eine zweite Verbindungseinrichtung in einer Leitung durch einen von dem Modem (2) auf der Host-Seite an das Modem (4) auf der Benutzerseite gesendeten Anruf aktiviert wird;
eine erste Benutzer-Überprüfungseinrichtung zum Bestätigen des Benutzers in dem Modem (2) auf der Host-Seite vorgesehen ist und verwendet wird, wenn die zweite Verbindungseinrichtung aktiviert wird;
eine Schlüsselwort-Einstelleinrichtung (6a) von dem Modem (2) auf der Host-Seite an dem Modem (4) auf der Benutzerseite betrieben wird, nachdem der Benutzer bestätigt wird;
eine Unterbrechungseinrichtung vorgesehen ist, um die zweite Verbindungseinrichtung abzutrennen, nachdem die Schlüsselwort-Einstelleinrichtung (6a) abgeschlossen ist;
eine dritte Verbindungeinrichtung von der Benutzerseite an die Host-Seite aktiviert wird;
eine Schlüsselwort-Sendeeinrichtung (7a) von dem Modem (4) auf der Benutzerseite an dem Modem (2) auf der Host-Seite betrieben wird,
eine Schlüsselwort-Vergleichseinrichtung in dem Modem auf der Host-Seite betrieben wird und eine Kennwort-Vergleichseinrichtung betrieben wird, indem eine eingestellte Nummer, die in dem Modem (2) auf der Host-Seite bereits durch die
erste Verbindungseinrichtung eingegeben wurde, eingegeben wird, wenn das Schlüsselwort richtig ist.

3. Verfahren zur Überprüfung eines Benutzers in der Modem-Kommunikation nach Anspruch 2, gekennzeichnet durch eine zweite Benutzer-Überprüfungseinrichtung, die durch das Modem (2) auf der Host-Seite betrieben werden soll, wenn die dritte Verbindungseinrichtung aktiviert wird, und durch eine dritte Benutzer-Überprüfungseinrichtung, die von dem Modem (2) auf der Host-Seite betrieben werden soll, wenn das Schlüsselwort übertragen wird, nachdem die Bestätigung durch die erste Benutzer-Überprüfungseinrichtung zufriedenstellend abgeschlossen ist.

4. Benutzer-Überprüfungssystem für die Modem-Kommunikation, umfassend eine Verarbeitungseinheit (1), ein Modem (2) auf der Host-Seite, eine erste Verbindungseinrichtung (12) zum Verbinden des Modems (2) auf der Host-Seite mit der Verarbeitungseinheit, ein Modem (4) auf der Benutzerseite und eine zweite Verbindungseinrichtung (3) zum Verbinden des Modems (4) auf der Benutzerseite mit dem Modem (2) auf der Host-Seite, und wobei das Modem (2) auf der Host-Seite eine Einrichtung besitzt zum Überprüfen des Benutzers über Kommunikationen mit dem Modem (4) auf der Benutzerseite,
dadurch **gekennzeichnet,** daß die Verarbeitungseinheit (1) eine Einrichtung zum Überprüfen des Benutzers durch Kommunikationen mit dem Modem (2) auf der Host-Seite besitzt.

5. Benutzer-Überprüfungssystem für die Modem-Kommunikation nach Anspruch 4, dadurch gekennzeichnet, daß die Modems (2, 4) auf der Host-und Benutzerseite so angeordnet sind, daß sie über eine Leitung miteinander verbindbar sind, das Modem (4) auf der Benutzerseite einen ersten Signalgenerator (7a), eine erste Demodulationseinheit (7b) zum Empfangen eines von dem Modem (2) auf der Host-Seite gesendeten Schlüsselwortes und eine Speichereinheit (7c) umfaßt, das Modem (2) auf der Host-Seite eine zweite Demodulationseinheit (6b) zum Empfangen einer von dem Modem (4) auf der Benutzerseite gesendeten eingestellten Nummer und einen Speicher (6c) für eine eingestellte Nummer einen zweiten Signalgenerator (6a) und eine Überprüfungseinheit zur Bestätigung des Benutzers umfaßt, wenn die zweite Verbindungseinrichtung aktiviert wird, wodurch eine Schlüsselwort-Vergleichsfunktion ermöglicht wird und die Verarbeitungseinheit (1) eine Kennwort-Speichereinheit (8) und eine Kennwort-Vergleichs-Funktionseinrichtung umfaßt.

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Revendications

1. Procédé pour contrôler un utilisateur dans des communications par modem, dans lequel l'utilisateur est contrôlé dans un modem (2) côté hôte, le modem étant déconnecté d'une unité de traitement (1), et après le contrôle et indépendamment de l'utilisateur, le modem (2) côté hôte rend active l'unité de traitement (1), **caractérisé** en ce que,
l'utilisateur est de nouveau contrôlé entre le modem côté hôte (2) et l'unité de traitement (1) et ce n'est qu'après que le contrôle de l'utilisateur a été achevé de façon satisfaisante entre le modem (2) du côté hôte et l'unité de traitement (1) que les communications entre l'utilisateur et l'hôte sont possibles.

2. Procédé pour contrôler un utilisateur dans des communication par modem selon la revendicatien 1, dans lequel :
un premier moyen de connexion se trouvant dans la ligne est connectée par un appel de l'utilisateur,
un moyen (6b) d'établissement du numéro de l'utilisateur est mis en fonction par le modem (4) côté utilisateur après que la connexion a été établie,
un moyen de coupure est présent pour déconnecter la première connexion,
un second moyen de connexion se trouvant dans la ligne est rendu actif par un appel envoyé par le modem (2) côté hôte au modem (4) côté utilisateur,
un premier moyen de contrôle d'utilisateur pour confirmer l'utilisateur est présent dans le modem (2) côté hôte et est utilisé lorsque le second moyen de connexion est rendu actif,
un moyen (6a) d'établissement de mot-clé est mis en fonction depuis le modem (2) côté hôte dans le modem (4) côté utilisateur après que l'utilisateur a été confirmé,
un moyen de coupure est présent pour déconnecter le second moyen de connexion après achèvement de l'opération du moyen (6a) d'établissement de mot-clé,
un troisième moyen de connexion est rendu actif à partir du côté utilisateur dans le côté hôte,
un moyen (7a) d'envoi de mot-clé est mis en fonction depuis le modem (4) côté utilisateur dans le modem (2) côté hôte, un moyen de comparaison de mot-clé est mis en fonction dans le modem côté hôte et un moyen de comparaison de mot-clé est mis en fonction par l'introduction d'un numéro de téléphone établi qui a déjà été introduit dans le modem (2) côté hôte par le premier moyen de connexion lorsque le mot-clé est correct.

3. Procédé pour contrôler un utilisateur dans des communications par modem selon la revendication 2, comprenant un second moyen de contrôle d'utilisateur devant être mis en fonction par le modem (2) côté hôte lorsque le troisième moyen de connexion est rendu actif et un troisième moyen de contrôle d'utilisateur devant être mis en fonction par le modem (2) côté hôte lorsque le mot-clé est transmis après que la confirmation par le premier moyen de contrôle d'utilisateur a été effectuée de façon satisfaisante.

4. Système de contrôle d'utilisateur pour des communications par modem, comprenant une unité de traitement (1), un modem (2) côté hôte, un premier moyen de connexion (12) pour connecter le modem (2) côté hôte à l'unité de traitement, un modem (4) côté utilisateur et un second moyen de connexion (3) pour connecter le modem (4) côté utilisateur au modem (2) côté hôte et le modem (2) côté hôte comportant un moyen pour contrôler l'utilisateur par des communications avec le modem (4) côté utilisateur, **caractérisé** par le fait que,
l'unité de traitement (1) comporte un moyen pour contrôler l'utilisateur par des communications avec le modem (2) côté hôte.

5. Système de contrôle d'utilisateur pour communications par modem selon la revendication 4, dans lequel les modems (2, 4) côté hôte et côté utilisateur sont disposés de manière à pouvoir être connectés l'un à l'autre par l'intermédiaire d'une ligne, le modem (4) côté utilisateur comprend un premier générateur (7a) de signaux, une première unité de démodulation (7b) destinée à recevoir un mot-clé envoyé depuis le modem (2) côté hôte et une unité de mémorisation (7c), le modem (2) côté hôte comprend une seconde unité de démodulation (6b) destinée à recevoir un numéro de téléphone établi envoyé par le modem (4) côté utilisateur et une mémoire (6c) de numéros de téléphone, un second générateur (6a) de signaux et une unité de contrôle pour confirmer l'utilisateur lorsque le second moyen de connexion est rendu actif en permettant ainsi l'exécution d'une fonction de comparaison de mot-clé, et l'unité de traitement (1) comprend une unité (8) de mémorisation de mot de passe et un moyen fonctionnel de comparaison de mot de passe.

* C L M S *