DESCRIPTIVE ABSTRACT

"Smart Card for a Partial Insertion and with Recognition Means"

SCM SCHNEIDER MICROSYSTEME-MICROSYSTEMES SCHNEIDER ENTWICKLUNG UND VERTRIERS GMBH SARL DEVELOPPEMENT ET VENTE (société de droit étranger)

The present invention relates to an electronic smart card (1) adapted to be emplaced in a PCMCIA interface or other reader, provided for this purpose, the interface being adapted to be plugged into a card reader (2) and comprising at least one recess (3), whose dimensions permit only a partial insertion of the smart card (1).

It is characterized by the fact that the portion of the smart card (1), which cannot be inserted into the PCMCIA interface or the like, comprises at least one recognition means (4).

The invention finds application preferably in smart card readers for personal computers.

"Smart Card for a Partial Insertion and with Recognition Means"

The present invention relates to an electronic smart card adapted to be emplaced in a PCMCIA interface, provided for this purpose, the interface being adapted to be plugged into a card reader and comprising at least one recess, whose dimensions permit only partial insertion of the smart card.

The state of the art can be defined by FR-A-2.664.724, which has for its object an electrical connector which is adapted to receive a memory card of flat shape, containing an electronic circuit and carrying, on one of its large surfaces, ohmic contacts which, during use of the card, are electrically connected with supplemental contacts provided on the connector. To permit the detection of false cards, the connector comprises a detector for detection of the electromagnetic field, disposed in a region comprised between an entry slot for the card in the connector and the place

occupied by the electronic circuit of the card in the connector when the card occupies the position in which its ohmic contacts are in contact with the contacts of the connector.

This document defines the conventional usage which is made of a smart card. This card comprises moreover within it, recognition means, which implies that the card must be completely inserted so that these means have an effect and that the reader or the like receiving this card will be provided with means adapted to take account of these recognition means. This is absolutely not the case of the present invention, in which the smart card is inserted only partially in the reader.

FR-A-2.696.032 provides a device to carry out monetary transactions with microprocessor cards such as bank cards which comprise, in a housing, a coupler for the card with a microprocessor, a slot located in line with the coupler for the partial introduction of a microprocessor card, a keyboard for entering at least one confidential code associated with a card introduced into the coupler, a means to process and validate the transaction.

In this case, the card is partially inserted into the housing, nevertheless the use of said card requires the input of a confidential code at the level of said housing, which does not guarantee absolute safety.

EP-A-0 696 010 relates to a portable interface for one or several electronic smart cards, the interface being adapted to be plugged into a card reader, comprised by a

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module, adapted to be disposed in the card reader and comprising at one end means adapted to be plugged into electrical connection with the card reader, a ferrule secured to the other end of the module comprising a slot to introduce the smart card, a recess adapted to receive at least partially the smart card and passing through at least a portion of said ferrule, said recess comprising guide means and positioning means for the smart card, and electrical connection means with areas of electrical contact of the smart card.

The problem with this document is identical to that raised in connection with the preceding document. The input of a confidential code into a keyboard external to the card can be easily penetrated by technology, unless this operation takes place in a secured location, which is rarely the case.

The present invention provides for solving this problem by permitting an identification of the card itself without indication of the confidential code passing through the central unit of the computer.

To this end, the invention relates to an electronic smart card adapted to be emplaced in a PCMCIA interface or other reader, provided for this purpose, the interface being adapted to be plugged into a card reader and comprising at least one recess, whose dimensions permit only a partial insertion of the smart card, characterized by the fact that the portion of the smart card, which cannot be inserted into the PCMCIA interface or the like, comprises at least one recognition means.

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The recognition means is carried by one of the surfaces of the smart card.

The recognition means is constituted by a keyboard.

The recognition means is constituted by a voice recognition.

The portion of the smart card that is not inserted comprises a display to validate the recognition.

According to a modified embodiment, the card operates with one interface with two recesses, the dimensions of the other recess permitting a total or partial insertion of another smart card, characterized by the fact that the partially insertable card is provided with the validation of the operation or operations to which the totally or partially insertable card is subject.

The data from the partially inserted card moving toward the totally or partially inserted card passes via the microprocessor of the PCMCIA interface or the like without transmission to other electronic equipment.

Each button of the keyboard is in connection with two of the regions of electrical contact of the electrical connection means.

Each button in connection with two regions of electrical contact, one disposed on the abscissa and the other on the ordinate, said button corresponding to the intersection of the two regions.

The accompanying drawings are given by way of indicative example and are not limiting. They show two

preferred embodiments according to the invention. They permit easy comprehension of the invention.

Figure 1 shows an overall view of a microcomputer provided with a PCMCIA interface according to a first embodiment before insertion of a smart card according to the invention, the card being represented in a view from below and in side profile.

Figure 2 is a view identical to Figure 1 after insertion of the card.

Figure 3 shows an overall view of a microcomputer provided with a PCMCIA interface according to a second embodiment before insertion of two smart cards, one according to the invention, the other conventional, the two cards being shown in bottom and side profile views.

Figure 4 is a view identical to Figure 3 after insertion of the two cards.

Figure 5 shows a front view and a longitudinal cross-sectional view of a smart card according to a first embodiment of the invention.

Finally, Figure 6 shows a front view and a longitudinal cross-sectional view of a smart card according to a second embodiment of the invention.

The present invention relates to an electronic smart card 1 shown in Figures 5 and 6 according to two embodiments.

This smart card comprises in an entirely conventional way an electronic chip, not shown in the figures, which is associated with electrical contact regions 10.

As is seen in the left-hand views, which is to say the external views, each card one can also comprise a recognition means 4 which is constituted in the drawings by a keyboard with 12 keys 9.

Ten keys 9 are numerical whilst two keys 9 are validation or correction keys.

Each key 9 is in direct connection with two electronic contact regions 10.

Nevertheless, it is possible that the connection be indirect. In this case a chip is placed between the keyboard 4 and the two regions 10.

Because the number of regions 10 is less than the number of keys, eight instead of twelve, each key 9 of the keyboard 4 is associated with two region 10, as is shown in the right-hand figures in longitudinal cross-sectional views.

It will be noted that according to this embodiment, seven regions 10 are devoted to the recognition of keys 9, whilst the last region 10 is devoted to electrical supply.

The seven regions 10 are arranged in the following manner.

Three regions 10 are devoted to the abscissae and four regions 10 are devoted to the ordinates, such that there exists between the regions 10 devoted to the abscissae and those devoted to the ordinates, twelve points of intersection, each point of intersection corresponding to a key 9.

In the drawings, it will also be noted that it is possible to have a display 5 which permits the operator to

visualize the code that he puts in or to visualize whether the code has been validated or is correct or false.

Of course, the presence of the keyboard 4 creates an extra thickness, as is seen in Figures 1 to 4.

The smart card 1 according to the present invention is therefore adapted to be partially plugged in in the direction of the arrow F1 as is shown in Figures 2 and 4.

This emplacement in the direction of arrow F1 takes place at the level of a recess 3 shown in Figures 1 and 3.

The assembly operates by means of a microprocessor 8.

Of course, in these figures, the computer is shown entirely symbolically.

The card reader 2 is in fact located in the central unit and receives the interface PCMCIA devoted to the reception of the smart card 1.

Again according to the PCMCIA format, it is also possible to insert a second smart card 7, as is shown in Figures 3 and 4.

This second smart card 7 is inserted in the direction of arrow F2 at the level of a recess 6, this insertion is total.

It can be for example a bank card.

Because of this, in a preferred use, there could be simultaneously or successively inserted two smart cards 1 and 7 in the direction of the arrows F1 and F2, to permit the transfer of money from the bank card 7 toward the computer 11,

following a validation by the smart card 1 by means of its keyboard 4.

Of course, in the same manner as in Figures 1 and 2, the assembly of the device is controlled by a microprocessor 8.

In this case, the validation of the code takes place at the level of the smart card 1 and will permit controlling the order of debit or if desired of credit from the other smart card 7 via the microprocessor 8.

The code will accordingly not be divulged at the level of the central unit of the microprocessor 11, which permits avoiding pirating the code and thus unauthorized charges on the bank card 7.

REFERENCES

1. Smart card
2. Card reader
3. Recess
4. Recognition means or keyboard
5. Display
6. Other recess
7. Other smart card
8. Microprocessor
9. Keys of keyboard 4
10. Regions of electrical contact
11. Computer

F1. Insertion of the card 1 in the recess 3

F2. Insertion of the card 7 in the recess 6

CLAIMS

1. Electronic smart card (1) adapted to be emplaced in a PCMCIA interface or other reader, provided for this purpose, interface being adapted to be plugged into a card reader (2) and comprising at least one recess (3 or 6), whose dimensions permit only partial insertion of the smart card (1), characterized by the fact

that the portion of the smart card (1) which cannot be inserted into the PCMCIA interface or the like, comprises at least one recognition means (4).

2. Card according to claim 1, characterized by the fact

that the recognition means (4) is carried by one of the surfaces of the smart card (1).

3. Card according to any one of claims 1 or 2, characterized by the fact

that the recognition means is constituted by a keyboard (4).

4. Card according to any one of claims 1 to 3, characterized by the fact

that the recognition means is constituted by a vocal recognition.

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5. Card according to any one of claims 1 to 4, characterized by the fact

that the non-inserted portion of the smart card (1) comprises a display (5) to validate the recognition.

6. Card according to any one of claims 1 to 5, which operates with an interface with two recesses (3 and 6), the dimensions of the other recess (6) permitting total or partial insertion of another smart card (7), characterized by the fact

that the partially insertable card (1) is devoted to the validation of one or more of the operations to which the totally or partially insertable card (7) is subject.

7. Card according to claim 6, characterized by the fact

that the information from the partially insertable card (1) moving toward the totally or partially insertable card (7), passes via the microprocessor (8) of the PCMCIA interface or the like without transmission toward other electronic equipment.

8. Card according to claim 3, characterized by the fact

that each key (9) of the keyboard (4) is in connection with two of the electrical contact regions (10) of the electrical connection means.

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9. Card according to claim 8, characterized by the fact

that each key (9) connected with two electrical contact regions (10), one disposed on the abscissa and the other on the ordinate, said key (9) corresponding to the intersection of the two regions (10).

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