(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 977 159 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
07.05.2003 Bulletin 2003/19

(51) Int Cl.[7]: **G07F 7/10**, G06K 7/08

(21) Application number: **98305968.4**

(22) Date of filing: **27.07.1998**

(54) **Electronic terminal apparatus**

Elektronisches Endgerät

Terminal électronique

(84) Designated Contracting States:
DE FR GB

(43) Date of publication of application:
02.02.2000 Bulletin 2000/05

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US-A- 5 180 901

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Description

[0001] The present invention relates to electronic terminal apparatus, particularly but not exclusively to a public information terminal on shop or office premises.

[0002] There are a wide variety of self-service electronic terminals in public use, ranging from information kiosks, which dispense public information via computer screens, through to vending machines and the common cash dispenser. While vending machines and information kiosks are usually only available within a building during opening hours, cash dispensers are often mounted so that they can be used outside a building, providing the convenience of a 24 hour a day service. It would be desirable to provide such convenience in relation to information kiosks and other types of terminal. However, as with cash dispensers, the problem is the need to keep the operating parts of the terminal inside the building, primarily for reasons of security, while allowing a user outside the building to access the terminal.

[0003] The traditional solution to this problem is also an expensive one. It generally involves incorporating the terminal directly into the building at the time of construction, or modifying the existing structure of the building so that an input module is available outside while retaining the bulk of the terminal within the building. In the case of offices and shops with a glass frontage, this involves cutting a hole in the glass to accomodate the relevant parts of the terminal, for example, a card reader for receiving a credit or other card. As well as being an expensive procedure, this may limit both the location of the terminal and future changes which the owner might like to make to the shop or office layout.

[0004] US-A-4 954 823 describes a touch keyboard system for use in a shop window.

[0005] According to the present invention, there is provided electronic terminal apparatus comprising an electronic transaction terminal located on a first side of a partition, the terminal having data input means including a touch screen or a television camara with recognition software for recognising user finger movement, said data input means being accessible to a user from a second side of the partition, wherein the partition is disposed between the data input means and the user while the data input means is being used by the user, the data input means further including a non-contact card reader.

[0006] The use of a non-contact card reader to input data into the terminal from a card, without the need to insert the card into the terminal, obviates the need to make structural changes such as holes in the existing frontage of the shop or office.

[0007] Preferably, the partition separates the whole terminal from the user.

[0008] The apparatus may further incorporate a non-contact card writer.

[0009] Where a user needs to receive goods, including information or cash, from the terminal, for example as in a cash dispenser, a mounting hole need only be made for an output part of the terminal, such as a printer or dispenser, rather than the whole terminal as is conventional. As a result, since the card reader and other input units can be kept behind a partition such as a toughened glass screen, the apparatus according to the invention can also enhance the security of cash dispensers and other publicly usable terminals.

[0010] Embodiments of the invention will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a schematic diagram of an electronic terminal mounted in a shop window in accordance with the invention;
Figure 2 is a schematic diagram showing the key components of the terminal; including a control module;
Figure 3 is a schematic diagram of the control module shown in Figure 2; and
Figure 4 is a schematic flow diagram of a possible transaction using the apparatus of Figure 1.

[0011] Referring to Figure 1, a terminal 1 is installed in a shop on or close to a glass window 2 which acts as a partition to separate the inside of the shop from the outside. A user 3 has a card 4, for example sized as a conventional credit card, which can be placed against a card communication area 5 of the terminal 1 to exchange data with the terminal 1.

[0012] Referring to Figure 2, the terminal 1 comprises a control module 6 which interfaces with a non-contact card reader 7 located behind the communication area 5 shown in Figure 1. The non-contact card reader 7 detects the presence of a card 4 and reads information on it such as the identity of the user 3, for example using a known technique such as scanning a bar code on the card 4. The card reader 7 can also use techniques such as the scanning of a magnetic strip on the card 4. Alternatively, the card 4 is implemented using low power thin film technology and includes a microprocessor controlled radio transmitter/receiver circuit which is capable of communicating with a radio/transmitter receiver circuit in the card reader 7. The card reader 7 may be a card reader/writer which is also capable of writing information to the card 4, again by radio communication. For this purpose, the card 4 includes flash memory which is capable of storing data without requiring a continuous power source. The card circuitry may be powered by the energy of the radio transmitter circuit in the card reader/writer 7. For further information about the implementation of non-contact card reader/writer systems, reference is directed to US-A-5 562 550 and EP-A-0 810 540.

[0013] The control module 6 also interfaces with and controls a CRT or LCD display 8, over which a touch screen panel 9 is mounted. The touch screen panel 9 can be operated through the glass window 2 as long as it is mounted in contact with the window 2. The touch screen panel 9 can, for example, be a Microtouch touch

screen which can operate through a single glass layer between 8mm to 20mm thick. Alternatives to a touch screen include the use of a television camera with recognition software to follow finger movement without requiring actual contact. In this case, the terminal 1 can be located further behind the partition 2.

[0014] The control module 6 is further connected to a LAN or other network 10, for example to a store network which links a number of stores together and maintains customer databases 11 including, for example, account information.

[0015] Referring to Figure 3, the control module 6 comprises a microprocessor 12, memory 13 and interface circuitry 14 as would be found in a conventional computer. The functions of controlling the various modules including card reader 7 and display 8 are implemented in a control program stored in the memory 13.

[0016] Referring again to Figures 1 and 2, when the user 3 first approaches the terminal 1, he or she presses on the glass 2 which is in contact with the touch screen panel 9 mounted to the display 8, to select one of a number of options displayed on the display 8. For example, assuming that the terminal 1 is designed to operate with a store card 4 enabling the store's customers to make purchases at that store, the display 8 may give the option of "check account balance". Pressing on the glass 2 above this option contacts the touch screen 9 and displays a message "Place card against card reader". The customer 3 then holds his or her card 4 against the communication area 5 as before. After verifying the customer details, the terminal 1 displays the account balance on the display 8 together with further options depending on the use being made of the terminal 1.

[0017] An example of operation of the terminal apparatus is set out in Figure 4. The terminal 1 may be configured for use with a pre-paid card 4 which can periodically be recharged with cash at suitable terminals, or by direct transfer from the customer's bank account. The card can then be used to buy items from any shop equipped with a suitable terminal 1, for direct delivery to the customer's home, details of which are stored on the card 4. The customer 3 therefore selects "Display catalogue" on the touch screen 9 (s1). The customer 4 then selects an item (s2). The display 8 then instructs the customer 3 to place his or her card 4 against the card reader/writer communication area 5 (s3). The customer 3 places his card on the area 5 (s4) and the control module 6 instructs the card reader/writer 7 to read the customer name and address and available credit details (s5). The control module 6 then deducts the price of the selected item from the available credit and calculates the credit remaining (s6). If the remaining credit is less than zero (s7), indicating insufficient funds to purchase the selected item, the control module 6 instructs the display 8 to display a suitable "insufficient funds" message (s8) and then terminates the transaction (s9) without further action. If the available funds are found to be sufficient (s7), then the control module 6 instructs the card reader/writer 7 to write back the remaining credit to the card 4 (s10), ready for another transaction. The control module 6 also sends the appropriate instructions via the store network 10 to a central warehouse facility (not shown) to dispatch the goods to the customer 3 (s11).

[0018] It will be appreciated that the invention as defined in the appended claims can be applied to a wide variety of terminal and transaction types and is not limited to application in commercial premises.

Claims

1. Electronic terminal apparatus comprising:

   an electronic transaction terminal (1) located on a first side of a partition (2), the terminal (1) having data input means (7, 9) including a touch screen (9) or a television camera with recognition software for recognising user finger movement, said data input means being accessible to a user (3) from a second side of the partition (2), wherein the partition (2) is disposed between the data input means (7, 9) and the user (3) while the data input means (7, 9) is being used by the user (3) **characterised in that** the data input means (7, 9) further includes a non-contact card reader (7).

2. Apparatus according to claim 1, wherein the partition (2) separates the terminal (1) from the user (3).

3. Apparatus according to claim 1 or 2, wherein the terminal (1) includes a non-contact card writer (7).

4. Apparatus according to any preceding claim, including means (6) for controlling the card reader and/or card writer (7).

5. Apparatus according to any preceding claim, wherein the partition (2) separates the inside of a building from the outside.

6. Apparatus according to claim 5, wherein the partition comprises a window (2) in the building.

7. Apparatus according to any preceding claim, wherein the terminal (1) includes a display (8) for displaying information to the user (3).

8. Apparatus according to any preceding claim, comprising an information kiosk.

9. Apparatus according to any one of claims 1 to 7, wherein the terminal (1) includes means for dispensing goods to a user (3).

10. Apparatus according to any one of the preceding

claims, including means for operating the terminal (1) from the second side of the partition (2).

11. Apparatus according to claim 10, wherein the terminal operating means comprises a card (4) for use with a non-contact card reader and/or writer (7).

12. Apparatus according to claim 11, wherein the card (4) communicates with the card reader (7) by radio communication.

13. Apparatus according to claim 11 or 12, wherein the card (4) receives power from the card reader (7).

Patentansprüche

1. Elektronische Terminal-Vorrichtung, die umfaßt:

ein elektronisches Transaktionsterminal (1), das sich auf einer ersten Seite einer Trennwand (2) befindet, wobei das Terminal (1) eine Dateneingabeeinrichtung (7, 9) besitzt, die einen Berührungsschirm (9) oder eine Fernsehkamera mit Erkennungssoftware für die Erkennung der Bewegung des Fingers eines Benutzers enthält, wobei ein Benutzer (3) auf die Dateneingabeeinrichtung von einer zweiten Seite der Trennwand (2) zugreifen kann, wobei die Trennwand (2) zwischen der Dateneingabeeinrichtung (7, 9) und dem Benutzer (3) angeordnet ist, während die Dateneingabeeinrichtung (7, 9) von dem Benutzer (3) benutzt wird, **dadurch gekennzeichnet, daß** die Dateneingabeeinrichtung (7, 9) ferner einen kontaktlosen Kartenleser (7) enthält.

2. Vorrichtung nach Anspruch 1, bei der die Trennwand (2) das Terminal (1) von dem Benutzer (3) trennt.

3. Vorrichtung nach Anspruch 1 oder 2, bei der das Terminal (1) einen kontaktlosen Kartenschreiber (7) enthält.

4. Vorrichtung nach einem vorhergehenden Anspruch, die eine Einrichtung (6) zum Steuern des Kartenlesers und/oder des Kartenschreibers (7) enthält.

5. Vorrichtung nach einem vorhergehenden Anspruch, bei der die Trennwand (2) die Innenseite eines Gebäudes von der Außenseite trennt.

6. Vorrichtung nach Anspruch 5, bei der die Trennwand ein Fenster (2) in dem Gebäude umfaßt.

7. Vorrichtung nach einem vorhergehenden Anspruch, bei der das Terminal (1) eine Anzeige (8) zum Anzeigen von Informationen für den Benutzer (3) enthält.

8. Vorrichtung nach einem vorhergehenden Anspruch, die einen Informationskiosk enthält.

9. Vorrichtung nach einem der Ansprüche 1 bis 7, bei der das Terminal (1) eine Einrichtung für die Ausgabe von Gütern an einen Benutzer (3) enthält.

10. Vorrichtung nach einem der vorhergehenden Ansprüche, die eine Einrichtung zum Betreiben des Terminals (1) von der zweiten Seite der Trennwand (2) enthält.

11. Vorrichtung nach Anspruch 10, bei der die Terminalbetriebseinrichtung eine Karte (4) für die Verwendung mit einem kontaktlosen Kartenleser und/oder -schreiber (7) umfaßt.

12. Vorrichtung nach Anspruch 11, bei der die Karte (4) mit dem Kartenleser (7) durch Funkkommunikation kommuniziert.

13. Vorrichtung nach Anspruch 11 oder 12, bei der die Karte (4) Leistung von dem Kartenleser (7) empfängt.

Revendications

1. Terminal électronique comprenant :

Un terminal de transaction (1) placé d'un premier côté d'une cloison (2), le (1) terminal ayant les périphériques d'entrée de données (7, 9) comprenant une dalle tactile (9) ou une caméra de télévision avec le logiciel d'identification pour identifier les mouvements des doigts de l'utilisateur, les dits périphériques d'entrée de données étant accessibles à un utilisateur (3) depuis le second coté de la cloison (2), ainsi donc la cloison (2) est disposée entre les périphériques d'entrée de données (7, 9) et l'utilisateur (3) sans empêcher que ces périphériques d'entrée de données (7, 9) soient activés par un utilisateur (3), **caractérisé par** la présence d'un lecteur de cartes sans contact (7) inclus lui-aussi dans les périphériques d'entrée de données (7, 9).

2. Appareil selon la revendication 1, lorsque la cloison (2) sépare le (1) terminal de l'utilisateur (3).

3. Appareil selon les revendications 1 ou 2, lorsque le (1) terminal inclut un module de lecture/écriture de carte sans contact (7).

4. Appareil selon l'une quelconque des revendications précédentes, comprenant un contrôleur (6) pour le module de lecture de cartes sans contact ou de lecture /écriture de carte sans contact (7).

5. Appareil selon l'une quelconque des revendications précédentes, lorsque la cloison (2) sépare l'intérieur d'un bâtiment de l'extérieur.

6. Appareil selon la revendication 5, lorsque la cloison comporte une fenêtre (2) dans le bâtiment.

7. Appareil selon l'une quelconque des revendications précédentes, où le terminal (1) incluant un affichage (8) destiné à donner des informations à l'utilisateur (3).

8. Appareil selon l'une quelconque des revendications précédentes, comportant une borne d'information.

9. Appareil selon l'une quelconque des revendications 1 à 7, lorsque le terminal (1) contient des moyens de distribuer des marchandises à un utilisateur (3).

10. Appareil selon l'une quelconque des revendications précédentes, comprenant des moyens d'actionner le terminal (1) à partir du second coté de la cloison (2.

11. Appareil selon la revendication 10, lorsque les moyens fonctionnels du terminal comportent une carte (4) à utiliser avec un module de lecture de cartes sans contact ou de lecture /écriture de carte sans contact (7).

12. Appareil selon la revendication 11, lorsque la carte (4) communique avec le lecteur de cartes (7) par radio communication.

13. Appareil selon la revendication 11 ou 12, lorsque la carte (4) reçoit son alimentation de puissance du lecteur de cartes (7).

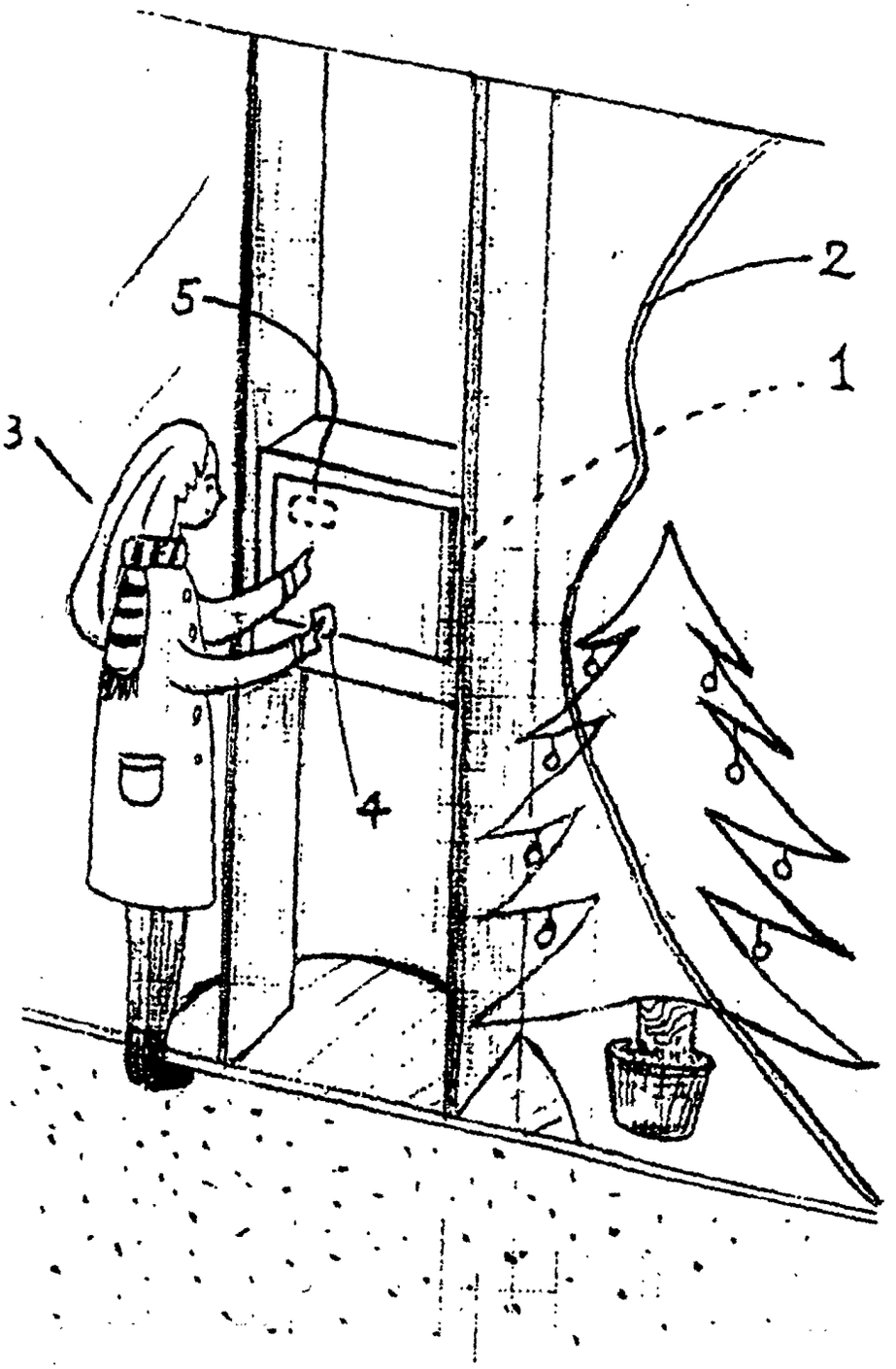


Figure 1

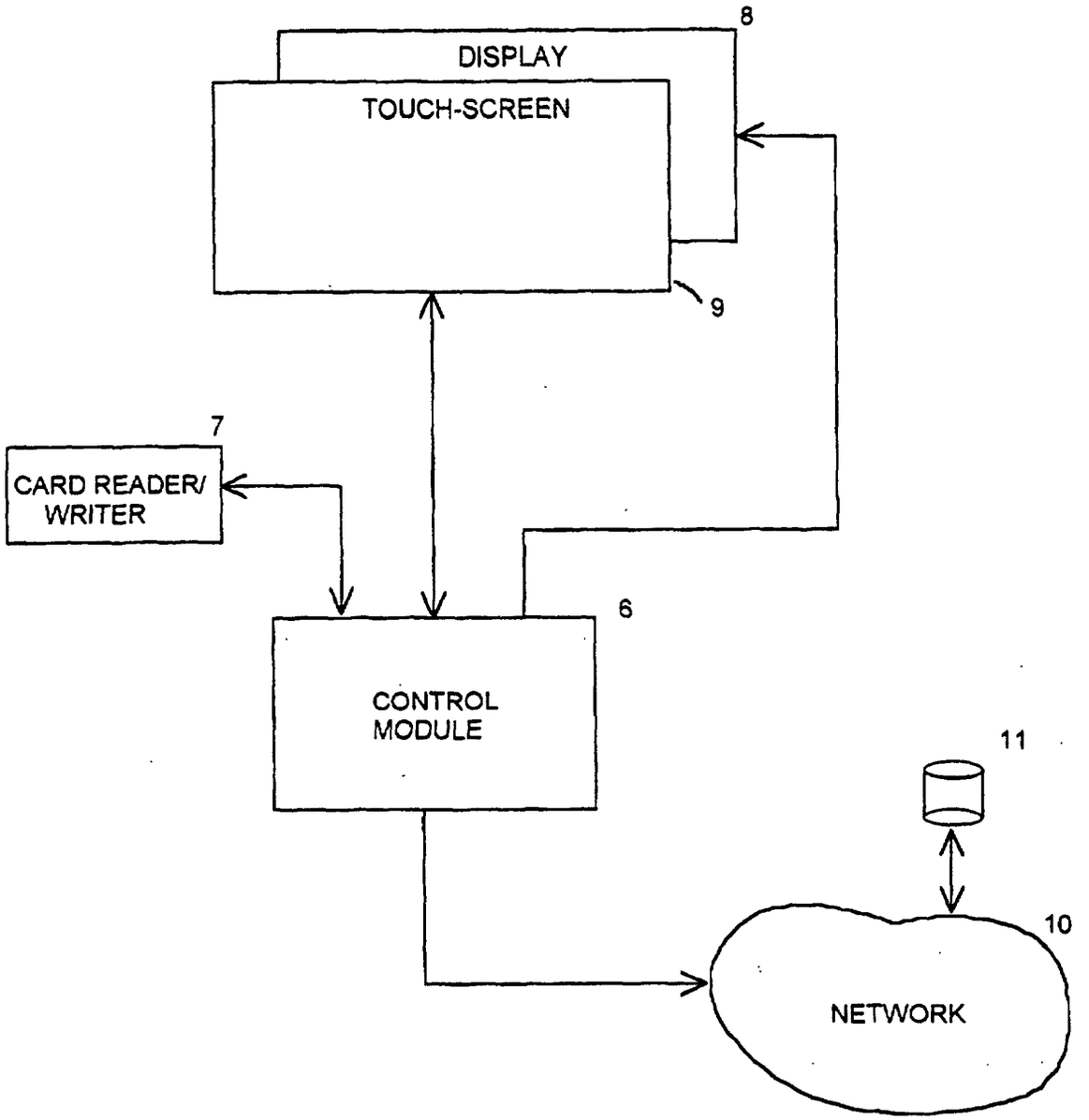

8
DISPLAY
TOUCH-SCREEN
9
7
CARD READER/
WRITER
6
CONTROL
MODULE
11
10
NETWORK

Figure 2

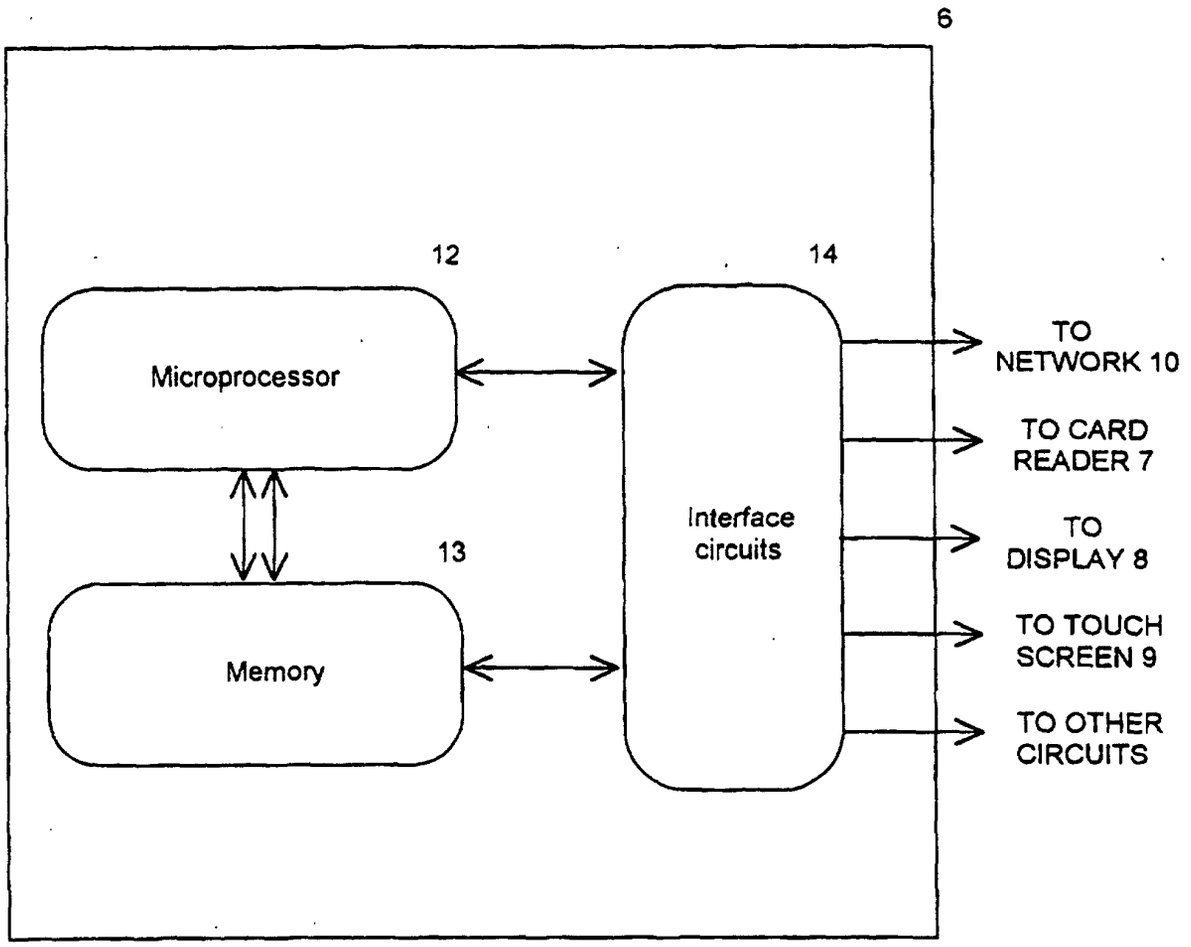

6
12
14
Microprocessor
13
Memory
Interface circuits
TO NETWORK 10
TO CARD READER 7
TO DISPLAY 8
TO TOUCH SCREEN 9
TO OTHER CIRCUITS

Figure 3

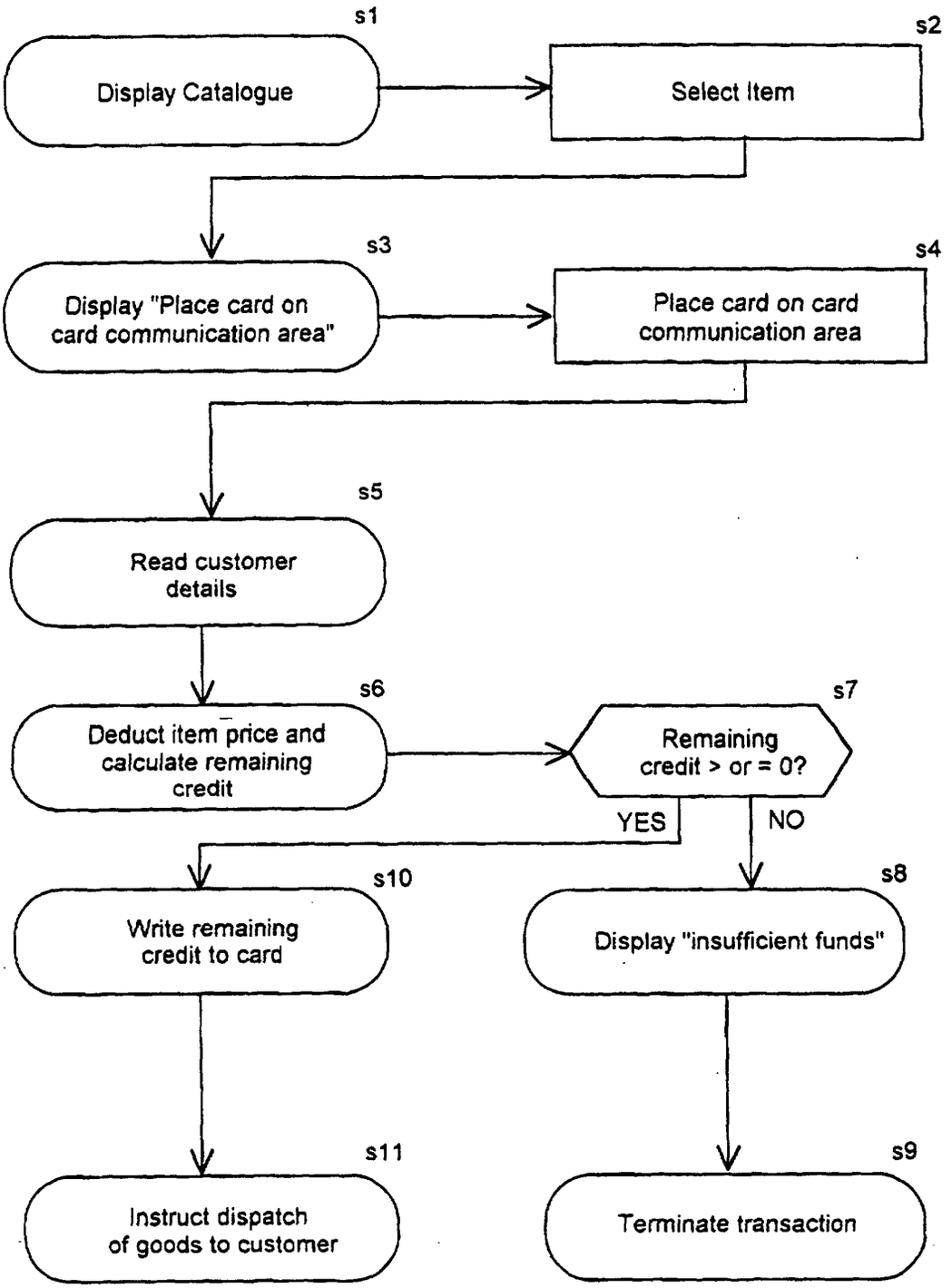

s1
Display Catalogue
s2
Select Item
s3
Display "Place card on card communication area"
s4
Place card on card communication area
s5
Read customer details
s6
Deduct item price and calculate remaining credit
s7
Remaining credit > or = 0?
YES
NO
s10
Write remaining credit to card
s8
Display "insufficient funds"
s11
Instruct dispatch of goods to customer
s9
Terminate transaction

Figure 4