CONTROL METHOD AND ARRANGEMENT

Abstract: The invention relates to a method and arrangement for wireless control of an operation, such as a purchase transaction carried out with an automatic apparatus. The invention is especially suitable for using vending and amusement machines by means of a mobile station. An essential idea of the invention is the fact that the control of the automatic apparatus (200) takes place by means of a digital message (260) sent by the user. This message is preferably a short message, which means a message transmitted in a mobile communication system (250), for which a circuit-switched call connection is not established. In addition, the selection of the product to be purchased preferably takes place on the basis of the content of the short message sent by the buyer. The content of the sent message is recognized and the control unit (201) of the automatic apparatus (201) is directed to move the desired product to the trough (240) of the automatic apparatus. The buyer is also invoiced on the basis of the product recognized from the message (280, 281).
Control method and arrangement

The present invention relates to a method and arrangement for wireless control of the operation of a device, such as a purchase transaction performed using an automatic apparatus. The invention is especially suitable for using vending machines, service apparatus and amusement machines by means of a mobile station. Here a vending machine means an apparatus which comprises a stock of commodities, such as beverages, which can be bought for payment. A service apparatus can be e.g. a parking meter or car washing plant or other automatic apparatus used for payment. An amusement machine means here, in addition to ordinary gambling game machines, children’s amusement equipment, for example.

Conventionally, vending and amusement machines operate by inserting the required amount of cash, i.e. coins or notes, into the machine, after which the product to be purchased (article or game) is selected. If the stock of the machine contains the selected article, it is transferred to the trough, from which it can be taken by the buyer. The possible change is also given to the buyer. In an amusement machine, the playing of the game and the payment of the possible winnings correspond to the dispensing of the goods.

The conventional slot machines described above have the drawback that the use of the machine requires suitable cash. In addition, the cash handling and recognition equipment of the slot machines are complicated and susceptible to failure.

In order to eliminate the need to use cash, there has been developed a solution in which the automatic apparatus can be used by means of a telephone, especially a mobile station. A solution like this is illustrated in Fig. 1. According to prior art, the use of the apparatus takes place as follows. The stock 130 of the apparatus 100 comprises storage spaces 131-136 for each different product 137. The price of the product and the telephone number corresponding to the product is shown on the automatic apparatus 100 for each product to be purchased. Having selected the desired product, the user makes a call from the mobile station 160 to the number corresponding to the selected product. In the mobile communication network 150, the connection is directed via the base station systems 151 and 152 and the mobile switching centre 155 to the product-specific mobile station module 111-116 in the apparatus, which sets up a telephone connection when a call is made to the number corresponding to the product. Each mobile station module is connected to the base
station system by means of its antenna 121-126. At the same time, the mobile station module directs the central unit 101 of the apparatus to dispense the desired product from the stock 130 of the apparatus to the trough 140, from which the product is available to the user.

Payment is effected so that the administrator of the apparatus has agreed with the mobile station operator on a price to be charged on the basis of the call from the buyer of the product in connection with the telephone bill. This price is registered in the home location register 156 of the mobile station of the buyer. This includes the payment for the product received by the administrator of the apparatus and the commission received by the mobile station operator.

If the storage of the automatic apparatus does not contain the desired product, the mobile station module in the apparatus does not answer the call, i.e. set up a telephone connection. Thus the buyer knows that it is not possible to purchase the product, and the call is not charged, either, because the connection was not established.

Fig. 1 also presents the cash reception means 102 and the user interface means 103, such as a keypad and a display.

However, a prior art solution according to Fig. 1 has the drawback that the manufacturing and operating costs of the automatic apparatus are relatively high. This is due to the fact that the automatic apparatus must have a mobile station module 111-116 for each product, and a SIM (Subscriber Identity Module) card 171-176 or user interface is needed for each module. Naturally, this limits the number of alternative products sold through the apparatus. In addition, there is the problem that mobile station systems have a limited telephone number space, and therefore a growing number of the apparatuses described above would consume a substantial part of the number space of the mobile communication system. Furthermore, the prior art entails the drawback that the prices of the products must be agreed on with the operator, which links them with the telephone numbers corresponding to the products, and that makes it difficult to change the prices dynamically.

It is an object of the invention to provide a solution by which the drawbacks of the prior art can be reduced.
An essential idea of the invention is the fact that the control of an automatic apparatus, for example, is effected by means of a digital message sent by the user. This message is preferably a short message, which means a (text) message transmitted in a mobile communication system, for which a circuit-switched connection is not established. In addition, the selection of the product to be purchased preferably takes place on the basis of the content of the text message sent by the buyer. Thus the text message to be sent to the telephone number of the automatic apparatus can be, for example, "chocolate", "liquorice", "chewing gum", "beer" or the name of a product, such as "Pepsi"®, "Sprite"®, or depending on the apparatus, "1" (washing program 1), "5" (parking fee 5 Euros), "10" (parking time 10 min) etc. The content of the sent message is recognized and the control unit of the apparatus is directed to move the desired product to the trough of the apparatus. The buyer is also invoiced on the basis of the product recognized from the message. The invention is suitable for use in mobile communication systems, which include the possibility of sending digital messages, such as the GSM and UMTS systems.

The present invention provides many remarkable advantages as compared to the prior art. Only one mobile station module, one SIM card and one user interface/telephone number are needed for each automatic apparatus. Thus the manufacturing and operating costs of the apparatus can be kept low. Even a high number of apparatuses does not consume the telephone number space of the mobile communication system substantially, either.

The present invention also has the advantage that the prices of the products can be easily changed, when required, because the price of the call does not depend on the called telephone number. The price of each product can thus be changed by contacting the invoicing centre by a short message sent by the mobile station, for example.

The method according to the invention for controlling the operation of an apparatus is characterized in that a digital message is formed, said digital message is transferred by means of the mobile communication system, the content of the digital message is recognized and said operation is performed on the basis of the content of the recognized digital message.

The arrangement according to the invention for controlling the operation of an apparatus by means of a mobile communication system is characterized in that the arrangement comprises means for transferring a digital message in a mobile communication system, means for recognizing the content of a digital message and
means for performing the desired operation on the basis of the content of the recognized digital message.

The automatic apparatus according to the invention is characterized in that the automatic apparatus comprises means for receiving a digital message from a mobile communication system, means for recognizing the content of a digital message and means for performing an operation on the basis of the content of the recognized digital message.

Preferred embodiments of the invention are set forth in the dependent claims.

In the following, the invention will be described in detail with reference to the attached drawings, wherein

Figure 1 presents a block diagram of a prior art arrangement for controlling the operation of an apparatus,

Figure 2 presents a block diagram of an arrangement according to the invention for controlling the operation of an apparatus, and

Figure 3 presents a flow chart of a method according to the invention for controlling the operation of an apparatus.

Figure 1 was dealt with above in connection with the description of the prior art.

Fig. 2 presents a block diagram of an arrangement according to the invention for controlling the operation of a vending machine. The vending machine 200 comprises a prior art product storage 230 with spaces 231-236 for each product type. Fig. 2 also shows products 237 placed in the storage. The central unit 201 controls the transfer of the products to the trough 240 in connection with the purchase transactions. The vending machine shown by Fig. 2 also comprises prior art equipment 202 for receiving cash and user interface means 203, such as a display and press keys.

The arrangement shown by Fig. 2 comprises a mobile station module 211 for purchases carried out with a mobile station 260; there is only of said modules in the vending machine. The mobile station module includes one SIM card 271 for establishing a connection with the mobile communication system 250. When the user wants to buy a product from the vending machine by using a mobile station, he/she sends a short message to the mobile station module of the vending machine
via the base station systems 251, 252 of the mobile communication system. In short, the user sends a message containing the name of the product to the telephone number shown on the vending machine.

When the mobile station module of the vending machine receives the short message, it transmits the message to the short message module 217, which recognizes the name of the desired product from the received short message. After this, the short message module 217 transfers the information to the central unit, which directs the desired product from the storage to the trough.

After this, when the short message module has received the information that the desired product was available in the storage, it forms an invoicing short message and inputs it to the mobile station module. The mobile station module sends the invoicing short message further over the mobile communication system to the mobile switching centre and possibly further to the invoicing centre 280. The invoicing short message may be the same short message containing the name of the product, which the mobile station module received from the user’s mobile station. However, the invoicing short message must indicate the sender of the original short message, the user, to enable the invoicing centre to direct the charges to the right user.

Invoicing may take place, in the same way as in the prior art solutions, by adding the price of the purchase to the user’s telephone bill in the user’s home location register 256. However, the system may include invoicing centres 280 outside the mobile station operator, to which the purchase information is directed. Such an invoicing centre may be connected to the mobile communication system via the mobile station module 281 or by wiring to the mobile switching centre or the short message centre 257. There price information of each product is kept in the invoicing centre, and it is possible to arrange the prices to be changed by means of a short message transferred over the mobile communication system. The invoicing centre may transmit the purchase to be invoiced by a bank, for example, (direct debiting from the user’s account) or by a credit card company (credit card payment). It is also possible that the invoicing centre comprises storage management, which follows the product stock of the vending machines on the basis of information received from the vending machines.

Fig. 3 presents a flow chart of a method according to the invention for performing the transaction 300 of using an automatic apparatus. When the user wants to buy a product, the first task is to select a product from the options shown on the machine,
310, and to write the name of the selected product in a short message (so-called text message), 320. After this, the user sends a short message to the number shown on the machine, 330. Then the mobile communication system transmits the message to the mobile station module in the machine.

When the mobile station module of the vending machine has received the short message, the name of the product written on the short message is recognized from it, 340. After this, it is checked if the product is available in the storage of the machine, 350. If the machine has run out of the product, information about this is given to the user, 352, by means of a short message sent to the user or by text shown on the display of the machine. Then the user has the possibility of selecting another product, 356, 310.

If the storage of the machine contains the desired product, it directs the product to the trough for the user, 360. In addition, an invoicing short message is formed, containing information of the purchased product and buyer, and an invoicing short message is sent to the mobile communication system and home location register or other invoicing centre for invoicing the user, 370, 380. Thus the invoicing short message may be the same short message containing the name of the product, which was received by the mobile station module from the user’s mobile station. However, the invoicing short message must indicate the sender of the original short message, the user, to enable the invoicing centre to direct the charges to the right user.

As was mentioned above, it is possible to define the prices of the products by means of a message sent to the invoicing centre, for example, because the price of the product is not linked with the telephone number of the machine. A message like this can be e.g. a short message with the user identifier and password, the name of the product and the new price. These four fields of the short message can be separated by a certain marker, such as a comma, to enable the invoicing centre to identify the fields. When a comma is used as the separator, it is possible to form short messages easily from price information inputted to a spreadsheet program, for example. A user identifier and password are used to prevent the access of outsiders to change the price information. An alternative or additional possibility is to use identification of the calling subscriber number, which sent the short message. For example, the maximum length of a short message of the GSM system is 160 characters, and thus the above mentioned fields and their separators can be easily fitted in one short message.
Some preferred embodiments of the solution according to the invention have been described above. Naturally, the principle of the invention can be modified within the scope defined by the attached claims e.g. with regard to the details of implementation and the range of use. Although the above described embodiments dealt with the GSM system and the short messages/text messages related to it, it is clear that the invention can also be applied in other digital mobile communication systems in a corresponding manner. In the description of the embodiments above, the invention was applied to vending machines for commodities, such as beverages, but the invention can naturally also be applied to other apparatus where it is required that the control/selection related to the operation of the apparatus and/or the related invoicing is carried out wirelessly without cash. Examples of these are automatic service apparatus, such as parking meters and car washing plants. In addition, it should be noted that although the short messages comprised the name of the selected product in the examples described above, it is naturally also possible to identify the selected product in other ways, such as a number code shown on the machine.

It may further be noted that the invention can also be used for monitoring the state of an apparatus, especially for monitoring the state of vending machines, service apparatus and amusement machines, by means of a mobile station. When the apparatus comprises a mobile station module connected to a mobile communication system, information about the state of the apparatus can be transferred to the control system by means of short messages transmitted by the mobile communication system. Thus the state of the machine can be monitored in real time with a mobile station, for example, and it is not necessary to establish connections to the machines to be monitored. The "state" to be monitored can be e.g. the product storage situation of the machine, the operating condition of the parts, the filling state of the cash storage, etc. Examples of other machines to be monitored are parking meters, heating stations etc. By means of such a monitoring arrangement it is possible to minimize the number of service and maintenance visits to the apparatus and the related travelling. Messages related to monitoring can be sent from the apparatus e.g. on the basis of exceeding/falling below a set control limit at regular intervals, or e.g. on the basis of a short message request sent to the apparatus.
Claims

1. A method for controlling the operation of an apparatus, characterized in that a digital message (320) is formed, said digital message is transferred by means of the mobile communication system (330), the content of the digital message is recognized (340) and said operation is performed (360) on the basis of the content of the recognized digital message.

2. A method according to claim 1, characterized in that said operation is the use of a vending machine, service apparatus or amusement machine (300).

3. A method according to claim 2, characterized in that said digital message identifies the product, service or game purchased through the apparatus.

4. A method according to any one of the preceding claims, characterized in that said digital message is a short message/text message.

5. A method according to any one of the preceding claims, characterized in that the user is invoiced on the basis of the content of the recognized digital message (380).

6. A method according to any one of the preceding claims, characterized in that a digital invoicing message (370) is formed in the apparatus, containing information about the purchased product and/or the price of the purchased product, and the formed message is transferred by means of the mobile communication system to the invoicing centre, whereby the user is invoiced on the basis of the content of the message transferred to the invoicing centre.

7. A method according to any one of the preceding claims, characterized in that it is checked whether the desired product is available in the storage (350) of the apparatus, and the digital invoicing message is sent only when the product is available in the storage for performing the purchase transaction.

8. A method according to any one of the preceding claims, characterized in that the price of the product has been specified by storing it in the invoicing centre, and the price is changed by sending a digital message which identifies the product and price to the invoicing centre.

9. A method according to any one of the preceding claims, characterized in that said digital message is transferred without setting up a telephone connection.
10. An arrangement for controlling the operation of an apparatus by means of a mobile communication system, characterized in that the arrangement comprises means for transferring a digital message (251, 252, 255, 260, 211, 271) in a mobile communication system (250), means for recognizing the content of a digital message (217) and means for performing the desired operation on the basis of the content of the recognized digital message (201, 230, 240).

11. An arrangement according to claim 10, characterized in that said apparatus is a vending machine, service apparatus or amusement machine (200).

12. An arrangement according to claim 10 or 11, characterized in that said digital message identifies the product, service or game purchased through the apparatus.

13. An arrangement according to any one of claims 10 to 12, characterized in that it comprises means for invoicing the user on the basis of the content of the identified digital message (217, 211, 201, 250, 280).

14. An arrangement according to any one of claims 10 to 13, characterized in that the apparatus comprises means for forming a digital invoicing message (217, 201, 211), which includes information about the purchased product (237) and/or the price of the purchased product, an invoicing centre (280) for invoicing the purchased product, means for transferring the message (281) over the mobile communication system (250) to the invoicing centre, and means for invoicing the purchase transaction on the basis of the invoicing message.

15. An arrangement according to any one of claims 10 to 14, characterized in that it comprises means for recognizing (230, 201) the storage situation of a certain product, and means (217, 211) for arranging the transmission of a digital invoicing message to depend on whether the product is available in the storage of the machine or not.

16. An arrangement according to any one of claims 10 to 15, characterized in that said digital message (260) is a short message.

17. An arrangement according to any one of claims 10 to 16, characterized in that it comprises means for transferring said digital message without setting up a telephone connection.

18. An automatic apparatus, characterized in that it comprises means for receiving a digital message (211, 217) from a mobile communication system (250),
means for recognizing the content of the digital message (217) and means for performing an operation on the basis of the content of the recognized digital message (201, 239, 240).

19. An automatic apparatus according to claim 18, characterized in that it is a vending machine, service apparatus or amusement machine (200).

20. An automatic apparatus according to claim 18 or 19, characterized in that said digital message identifies the product, service or game purchased through the apparatus.

21. An automatic apparatus according to claim 18 or 20, characterized in that it is a vending machine (200), and that said operation is the transfer of the desired product (237) from the storage (230) of the vending machine to a place where it is immediately available to the user (240).

22. An automatic apparatus according to any one of claims 18 to 21, characterized in that it comprises means for forming a digital invoicing message (217, 201, 211), whereby the invoicing message includes information about the product (237) to be purchased and/or price information, and means for sending an invoicing message (217, 211, 201, 250, 281) to the invoicing centre (280) for invoicing the purchase transaction.

23. An automatic apparatus according to any one of claims 21 to 22, characterized in that it comprises means for recognizing (201) the storage situation of a certain product in the automatic apparatus (200), and means (201, 217, 211) for arranging the transmission of a digital invoicing message to depend on whether the product is available in the storage of the machine or not.

24. An automatic apparatus according to any one of claims 21 to 23, characterized in that it comprises means for recognizing (201) the storage situation of a desired product in the automatic apparatus (200), and means for sending a return message (211, 271, 217) to the user when the storage of the apparatus has run out of the desired product.

25. An automatic apparatus according to any one of claims 21 to 24, characterized in that it comprises means for recognizing (201) the storage situation of a desired product in the automatic apparatus (200), and user interface means (203) for informing the user when the storage of the apparatus has run out of the desired product.
26. An automatic apparatus according to any one of claims 18 to 25, characterized in that said digital message (260) is a short message.

27. An automatic apparatus according to any one of claims 18 to 26, characterized in that it comprises means for receiving said digital message without setting up a telephone connection.
FIG. 1
PRIOR ART

FIG. 2
APPARATUS USE TRANSACTION

PRODUCT TO BE PURCHASED IS SELECTED

A SHORT MESSAGE INDICATING THE SELECTED PRODUCT IS FORMED

THE SHORT MESSAGE IS SENT BY MEANS OF THE USER'S MOBILE COMMUNICATION SYSTEM TO THE MS MODULE OF THE APPARATUS

THE DESIRED PRODUCT IS RECOGNIZED FROM THE TRANSFERRED SHORT MESSAGE

SELECT ANOTHER PRODUCT?

INFORM THE BUYER THAT THE PRODUCT IS NOT AVAILABLE

PRODUCT IS STORED?

THE PURCHASED PRODUCT IS DIRECTED FROM THE STORAGE OF THE MACHINE TO THE USER

A SHORT MESSAGE CONTAINING THE PRODUCT/PRICE INFORMATION IS FORMED AND TRANSFERRED TO THE INVOICING CENTRE

INVOICING OF THE PURCHASE TRANSACTION IS PERFORMED ON THE BASIS OF THE INFORMATION IN THE SHORT MESSAGE

TRANSACTION COMPLETED

FIG. 3
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G07F 7/10
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

INTERNAL EPDOC, WPI, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>WO 9854678 A1 (METAX-OLIE A/S), 3 December 1998 (03.12.98), page 2, line 9 - page 4, line 27; page 6, line 12 - page 9, line 20</td>
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<td>X</td>
<td>Patent Abstracts of Japan, abstract of JP 8-249530 A (SANYO ELECTRIC CO LTD), 27 Sept 1996 (27.09.96)</td>
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<td>WO 9922346 A1 (SONERA OY), 6 May 1999 (06.05.99), whole document</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

Date of the actual completion of the international search: 12 July 2001

Date of mailing of the international search report: 13-07-2001

Form PCT/ISA/210 (second sheet) (July 1998)
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# INTERNATIONAL SEARCH REPORT

**Box I**  
Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
   because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:  
   because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☑ Claims Nos. 13–17, 22–27  
   because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II**  
Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**  
☐ The additional search fees were accompanied by the applicant’s protest.  
☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet (1)) (July 1998)
### INTERNATIONAL SEARCH REPORT

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